HOW DIGITAL LIFE INNOVATIONS CAN SHAPE THE FUTURE OF LIBRARIES

by John Sculley in collaboration with Arvind Navaratnam
20 June 2006

THE ECCLES CENTRE FOR AMERICAN STUDIES
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The Eleventh Annual Douglas W. Bryant Lecture under the auspices of the Eccles Centre for American Studies
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John Sculley was Pepsi-Cola Co. CEO from 1978 to 1983, during which time the ‘Pepsi Generation’ and ‘Pepsi Challenge’ marketing campaigns propelled Pepsi into the largest selling packaged good product in America. In 1983 Sculley was recruited by Steve Jobs to be Apple CEO, a position he held for ten years. During this time, ‘Macintosh’, ‘Desktop Publishing’ and ‘Powerbook’ launches propelled Apple to the largest selling PC in the world. Since leaving Apple, John Sculley has been a venture capitalist, backing successful start-ups Select Comfort, NFO Research, Intralinks, CreditTrade, and Hotwire. He currently serves on the boards of MetroPCS, InPhonic, Radiospire, Tello, OpenPeak, IdenTrust, Activation Capital, and Verified Person. John Sculley is a graduate of Brown University and a Wharton MBA.

Douglas W. Bryant, who was born in 1913 and died in 1994, was educated at Stanford, Munich and the University of Michigan. Following service as a U.S. naval officer in World War II, he returned to his home state and served as Associate Librarian of the University of California at Berkeley. He was recruited into the U.S. foreign service to manage the American libraries in Britain and arrived in London in 1950. In 1952 he began a long career at Harvard University during which he maintained a continuing association with the British Library. In 1964 he became University Librarian of Harvard and, in 1972, Director of the University Library, a post he held until his retirement in 1979 when he helped found the American Trust for the British Library. This was established to augment American materials in the British Library’s collections. He served as a Trustee and Executive Director of the Trust between 1979 and 1990 and as its President between 1990 and 1994. In recognition of his work and support for the British Library, the Eccles Centre annual lecture was named in his honour in 1995.
HOW DIGITAL LIFE INNOVATIONS CAN SHAPE THE FUTURE OF LIBRARIES

Introduction

Let me begin by thanking you all for coming, particularly in light of the railway strike and England playing Sweden later tonight!

In order for us to maintain our priorities, I will endeavor not to stray from our hour together and infringe on the more important matter of tonight’s match.

I have been asked to speak this evening on how digital life innovations can shape the future of libraries, and that is what I shall attempt to do. But before I begin exploring the future of libraries, I would like to touch upon their past.

Timeline

Throughout human history, the library has been a fortress of our intellect and civilization. It has served as a storehouse, an archive of books, manuscripts, art, and important documents across cultures and time that record our intellectual accomplishment and innovation. And, throughout this history, the library as a collection of human knowledge has always been tied
to brick and mortar. From the earliest known library, a collection of clay tablets dating to Mesopotamia in the 25th century BC, to the first public library in Greece, to the Library of Alexandria, to the one we stand in today, the library has been firmly rooted in geography and local community. Today, the constraints of brick and mortar have faded, and the global community can just as easily view Shakespeare’s Quartos online as we can physically see them here in the British Library. In fact, they can see them easier and clearer online. This disbursement of knowledge, particularly beyond geographical footprints and cultural boundaries, has had huge implications for libraries as we know today and potentially for our global community as a whole.

Over the course of today’s lecture, I shall discuss not only how digital technology is shifting the tide of libraries at present, but also how current and future digital innovations will further shape libraries as we know them tomorrow. Despite all these changes we shall discuss tonight, however, the fundamental tenet of the library as a fortress of man’s intellect and as a storehouse of human knowledge will not change. Only the form of that storage will change – broadening and evolving.

Today

Today, the intersection of the digital world and the library takes place on four crossroads. The first is the literal, physical digitization of existing books into searchable digital text. The second is an enhancing of the library experience via what I shall call the online interactive library. The third form, and what is considered the more challenging piece, is the role of the library as a preserver and storehouse of digital media. The fourth and final form, which is still in its nascent stage, is the searchability of these large amounts of digital data contextually, beyond keywords.

Digitization of the Library Physical Architecture & Copyright Challenges

At present, the digitization of existing published materials has received a lot of publicity. Various large-scale book scanning projects are currently underway, including Google Print, the Open Content Alliance, and Microsoft’s project with the British Library, all of which I shall touch upon.

Since October 2004, Google has been scanning the collections of the libraries of Oxford, Harvard, Michigan, and Stanford, as well as the New York
Public Library and the Library of Congress, into a searchable Internet database known as Google Print. The project is scanning all out-of-copyright texts, produced prior to 1923, as well as small selections of works published after 1923. As you can imagine, Google’s complete archiving of copyrighted text, even though presenting only snippets of the text online and offering an opt-out policy for publishers, has been protested by both publishers and authors.

From the onset of Google’s announcement of its Print project, multiple lawsuits have been filed against the organization. Recently, the Association of American Publishers brought an injunction against Google in an effort, ideally, to negotiate just the kind of business model the music industry had not prepared pre-Napster, a model that could simultaneously benefit authors, publishers, and the public. Similarly, a group including the Authors Guild, which represents several thousand writers, filed a lawsuit against Google. The suit contends that Google Print is engaged in copyright infringement because although only text fragments are displayed, a book must be digitized in its entirety to make it searchable.

Google is battling both the authors and the publishers in court by arguing that its effort to scan all library books is legal and in the public interest. Furthermore, Google has defended its practice, arguing that although a copyrighted work is scanned in its entirety, only ‘snippets’ of text are shown in a search result, falling within the fair use provision of copyright law. Regardless of one’s stance on the issue, the outcome of this legal battle will be interesting to watch, and certainly of relevance to the future of our libraries.

While Google is battling publishers and authors on certain copyrighted materials, other book-scanning projects have taken a different approach, choosing to focus on out-of-copyright publications or to approach copyrighters first before scanning. The Open Content Alliance (OCA), a consortium of corporations, nonprofit organizations, and universities, have teamed with Microsoft and Yahoo to digitize hundreds of thousands of books over the next several years with the full text accessible to all. The Open Content Alliance approach is endeavoring to overcome any copyright issues by seeking permission from copyright holders and making works available through a Creative Commons license, whereby the copyright holder stipulates how a work can be used. Books will be made accessible to any search engine, not just MSN and Yahoo, with OCA members including Columbia University, the Boston Public Library, the University of California, the Internet Archive, and The National Archives (UK).

The OCA’s collaboration between corporations, universities, and non-profit
organizations is reflective of how many pieces must be brought together to transition traditional publications to the digital world. Such collaboration is not a nicety, but a necessity. As many of you know, Microsoft is currently working with the British Library to digitize 100,000 books that are out-of-copyright and held by the Library. In spite of being at the forefront of libraries worldwide, and digitizing its existing collection for the past 10 years, only 0.3% of the British Library’s collection has been committed to code. This seemingly slow pace is reflective of not only the large volume of books that need to be digitized, but also of the high cost of the process. All told, it is calculated that it costs £1 to digitize each page- and the British Library still has more than five billion pages to go! Given the high cost, corporate intervention is an important part in the library digitization process and, as we have seen, many corporations (such as Microsoft, Google, and Yahoo) are heavily involved.

Yet, even with the high number of current corporate player collaborations and dollars pouring into book digitization projects, only a million books a year are being scanned. To put that number in perspective, this amounts to just 5% of all books currently in print. Fortunately, much of the new information created by humans is now in digital format, so it can more easily be included in a digital library without the extensive physical effort of scanning books. Such large amounts of new information in digital form, however, present both an evolutionary opportunity for libraries and even more problems.

Digital Library Tours

Thanks to digital evolution, visiting the library no longer necessarily involves putting on your coat, leaving your home, and going down the street to your local library. The wonders of a library can be brought to you with a computer, an internet connection, and a few clicks on the web. In a half hour on the British Library website, I went from surfing the Diamond Sutra (the earliest dated printed book), to leafing through the Magna Carta, to shuffling...
through Shakespeare’s Quartos, to perusing the prints of the Ramayana. Not only did I not leave my home, but I was able to read Leonardo Da Vinci’s notebook probably much closer and more clearly than I could have at the British Library. It is certainly possible to view the Golf Book (a manuscript showing one of the earliest illustrations of a golf player) much better on the web than through the glass of an exhibition case in the British Library. Libraries now offer complimentary features and experiences to its readers via the web, far beyond their pure-play brick and mortar days, and library pioneers such as the British Library are driving this frontier forward.

Across the pond, in the United States, the Library of Congress is launching a campaign to create the World Digital Library, an online collection of rare books, manuscripts, maps, posters, stamps and other materials from its holdings and those of other national libraries that would be freely accessible for viewing by anyone, anywhere, with Internet access. The Library of Congress at present provides 10 million primary documents of American history online, such as the manuscripts of Presidents Washington, Jefferson, Madison, and Lincoln, and the earliest movies made by Thomas Edison. The Library of Congress is endeavoring to amalgamate such materials from the United States as well as Europe with precious items from Islamic nations stretching from Indonesia through Central and West Africa, as well as important materials from collections in East and South Asia. World treasures and world-class libraries will be brought directly to your home. By putting these precious items of artistic, historical, and literary significance on the Internet, the Library of Congress hopes that people of different cultures can learn about each other without traveling further than their nearest computer. Libraries will enable the building of a cooperative in which each culture can articulate its own cultural identity within a shared global framework, and perhaps provide the backbone for a better understanding of our fellow man.
Preserving Digital Materials

In our digital age, the role of the library as a storehouse of information has manifested itself in its role as a preserver of digital materials. Recently, in fact, the Library of Congress made almost $15 million in grants to eight institutions to identify, collect, and preserve significant digital material that were ‘born digital.’

However arduous the task of digitization, it pales in comparison to the challenges of preserving digital publication output. Various studies have put the ‘half-life’ of an average web page at just under two years, with the half-life of a typical web site being just over two years. The most complete publicly accessible archive of the web, the Internet Archive, contains just a fraction of all content that has been posted to the web—some 55 billion pages in all.

And that is only web pages. The software industry makes most digital material obsolete within a few years via the ever-changing nature of software publishing formats. Thus while the Diamond Sutra is still readable, the laser disc version of Star Wars is already technologically out of fashion. Likewise, the paper archives of elections in the last century are still intact, but the web content that powered last year’s contest has already disappeared.

The lack of a standard publishing format due to electronic publishers using a variety of file formats, including Word, Excel, Adobe PDF, HTML, JPEG, GIF and others, presents a significant challenge for the preservation of digital materials. One hundred years from now, present-day file formats will be out of date, but libraries must contain and be able to open all of them. Keeping the data is not enough: libraries need to be able to recreate from them something that readers in decades and centuries to come will be able to use.

Searching Digital Materials

Furthermore, not only must users have complete access to libraries’ digital information across file formats and technological evolution, but all data must be intuitively searchable. Intuitive searching does not just mean searching by key words, but searching to aggregate relevant information. For businesses today, the hardest part of search is relevancy. Google’s search approach is a key word ranking with priority based on frequency of user interest. Business users need the ability to aggregate relevant information that is created
digitally, refreshed daily, and sourced globally, and the library can play a big role in this need. What is the best search approach for business? That is yet to be determined. What we do know is that innovations in search must be contextual and require an understanding of content, not just keyword look-up. Recently, Yahoo launched a behavioral approach to search that lets users see content ranked according to the interests of people, combined with voting of what viewers think of content. Perhaps these types of searches will allow libraries to provide better digital search for media, particularly for businesses, but we are still in the early days.

Regardless of how better search needs are developing and libraries’ involvement, the digital age is making the role of the library broader and more important than ever before. The modern library is not only a storehouse of books, music, and art, but a transformer of physical media into digital media, a creator of virtual user experiences online, and a preserver of digital materials. And that’s just today.

**Tomorrow**

Like the disruptive transition of libraries from physical media to the digital world, another transition is taking place within libraries, seemingly far more revolutionary. This shift is the transition from author-generated content to reader-generated content and it represents one of the most disruptive innovations in information transfer since the printing press.

Throughout its history, the library as a collection of human knowledge has always been bound in some shape or form. It has been contained physically between structures of brick and mortar, but far more importantly, it has been bound intellectually with communication flowing one way, from author to reader. Books have been the physical means of information delivery from writer to reader, not dissimilar to me delivering this lecture to you right now. There is no dialogue, but a download of perspective from me, John, to you. Online digital innovations have wildly changed author-lecturer dialogue into a mutual discussion.

Digital dialogue, and this transformation from author-generated soliloquies to reader-generated caucuses, has been enabled by three primary technologies which I shall discuss: Blogs, wikis, and online social networking communities.
New Media, New Communities

One of my favorite books is the autobiography of Mahatma Gandhi. In his autobiography, Gandhi painstakingly denotes his experiences of getting married at age 13, fighting apartheid in South Africa, and fasting against the salt tax in India. More recently, I read an equally powerful autobiography: the online blog of my tech-savvy granddaughter and her accounts of her love of Teletubbies, riding her bicycle, and Blue’s Clues latest adventure. Perhaps not as inspirational, but certainly closer to my heart. With the profusion of digital media, anyone can write their autobiography in journals that log one’s thoughts published on a web page, known as blogs, online. And it is not just my granddaughter: today, blogs are everywhere. According to Pew Internet research, in 2005, 7% of the 120 million US adults who use the Internet have created a blog (8 million people) while 27% of Internet users say they read blogs, up 58% from 2004. What are people blogging about? Everything and anything: the hottest restaurants, the best books, the worst World Cup teams, celebrity-gossip, government policy… the list goes on and on. Readers and viewers of media online are commenting about it, linking to content and relevant articles on their blogs, rating news sources, and creating an online information community. Bloggers are blurring the line between readers and authors.

Not only are readers becoming authors via blogging, but collaborative readers are building novels, textbooks, cookbooks, dictionaries, news articles, and software applications together, piece by piece, refining and adjusting from different areas of the globe by way of wiki. Wikis are websites that allow users to add, remove, or edit content openly, quickly, and easily – sometimes without the need for registration – giving them an ease of interaction and operation that make them an effective tool for collaborative writing. For those of you wondering where the word ‘wiki’ came from, it is a Hawaiian word for “quick” and the technology grew out of a programmer’s desire to openly discuss software design online. But wiki collaboration has come a long way from its software roots and has shown the potential to truly take off in corporate and organizational settings. Recently, the Association of Internet Researchers used a wiki to craft guidelines on research ethics, while a Bowdoin College professor had his students annotate and discuss poems on a wiki. On an internal wiki at Net Integration Technologies, a software development firm, workers keep their calendars and managers can rearrange employee priorities by wiki.

Perhaps the most famous wiki is Wikipedia, the international web-based,
cooperative, free-content encyclopedia. With 4 million user-edited online entries, tracked and edited by 13,000 volunteer contributors (many of whom are experts in a particular field), Wikipedia is the most popular online encyclopedia on the Internet and visited more often than the New York Times web page. One oft-criticism of such an open-sourced approach to encyclopedias (a vessel that is traditionally assumed to hold accurate information) is the questionable validity of content. Recently, John Seigenthaler Sr., former assistant to Attorney General Robert Kennedy during the early 1960s, filed a ‘John Doe’ lawsuit against an anonymous Wikipedia user. The user had edited a site entry to indicate Seigenthaler was initially suspected of being involved in the Kennedy assassinations – a false accusation. Despite this example of the inherent flaws of open-access to information editing, however, wikis (when done right) allow for constant enhancement and fact-checking. In a fascinating study, Nature magazine recently conducted a peer review of scientific entries in Wikipedia and the Encyclopedia Britannica. Reviewers were asked to check for errors, but were not told about the source of the information. The exercise revealed numerous errors in both encyclopedias; eight serious errors (such as the misinterpretations of important concepts) were detected in the pairs of articles reviewed, four from each encyclopedia. In terms of accuracy, surprisingly among the 42 entries tested, the difference was not particularly great: the average science entry in Wikipedia contained around four inaccuracies with Britannica containing about three.

What does this mean for libraries? Imagine a centralized Wikipedia-like directory where fans of particular types of information can write reviews, blog, or create pointers to obscure works for other library-goers. In essence, library-users all become librarians in a Universal Library, helping each other navigate a vast sea of information that’s at present difficult for us to cope with. Moreover, just as we do with our digital music and photos today, we’ll be able to mix and match content to create ‘playlists’ or ‘bookshelves’ to share with others. This will create an online universal communal library for all to enjoy, built on a network of passionate, well-informed readers, authors, librarians, and interested biblio and media-philes.

The first-steps to an online communal library are being taken today, not universally (yet) but on a local library level through social networking websites. Social networking websites, the most famous of which are MySpace and Facebook.com, are sites that are a network of pages that mix self-generated text and pictures, link to other content elsewhere, and stream music and video to create networks of friends and contacts for users. More
than 76 million people are registered on MySpace, the sixth most popular English language web site in the world, and more than 7 million college students are on Facebook, the seventh most heavily-trafficked site on the Internet. Adolescents, teens, and young adults use MySpace and Facebook to keep in touch with friends and meet new people. Almost a year ago, Rupert Murdoch bought MySpace for $580 million, under the thesis that “young people don’t want to rely on a God-like figure from above to tell them what's important. Instead, they want their news on demand, when it works for them. They want control over their media, instead of being controlled by it. They want to question, to probe, to offer a different angle.” Constant probing at information from different angles, guided by interest-focused communities, is where information is going – and what libraries are beginning to enable and move towards.

Many university libraries have started building a presence on MySpace and Facebook by creating profiles and using online social networks to get feedback from users and to create a library portal within them. The Crossett Library at Bennington College asks patrons on Facebook what books and videos they’d like the library to order for them. Patrons are requesting items, and the library is letting them know when materials are ordered. Other libraries have made their Facebook or MySpace site an extension of the library web site with links to the catalog, chat reference pages, research guides, calendar of events, etc. The Brooklyn College Library profile in New York has links to all sorts of areas on their library web site including research tools, instructions for off-campus library access, and their Ask-a Librarian page. They also use MySpace's calendar feature to display the library's calendar of events. The Morrisville College Library goes one step further and actually has a search box in their MySpace profile in which students can search the catalog. And these trends are beginning to move out of college libraries and into public ones. Minnesota’s Hennepin County Public Library’s MySpace profile, for example, links to lists of new CDs, books, and movies for teens and adults that provide a valuable readers’ advisory service. Online social networking has become so popular with libraries and in libraries, in fact, that it has raised serious concerns in the U.S. Congress. Recently, a federal law was proposed by a U.S. Congressional delegation that would effectively require most schools and libraries to render social-networking websites inaccessible to minors due to their potential exposure to predators. The American Libraries Association is fighting these Congressional efforts to limit access to MySpace and other social networking tools on the Internet, as they recognize the important role online social networking could potentially
play in libraries’ ability to reach out to younger generations. And this is just the beginning.

These increasingly communal aspects of libraries are not just restricted to the digital world, but are reflective of a larger platonic-shift of libraries towards becoming community centers. Historically, churches, bowling alleys, and hair salons, have played the community center role in society, but increasingly a shift is being made to coffee shops, book stores, and libraries. This is perhaps best reflected in the abundance of cafes we see in libraries today that weren’t prevalent ten years ago. Recently, the University of Texas Libraries planned to re-architect its libraries in the United States. When thinking about redefining their physical library space, they envisioned their libraries increasingly as a destination place, both a community centre where one can hang out as well as a quiet place to study, think, and work. The University of Texas is presently working on dividing its libraries into quiet areas for study and work, and social areas for group collaboration. Who knows how ideologies of social networking and traditional research will continue to intersect with libraries in the future?

Libraries in the Developing World

The shift of libraries towards becoming community centres and places for intellectual as well as social collaboration are not just limited to the Western world. In fact, without a doubt, they are certainly more heavily needed in the developing world. There is a quote I encountered years ago as a young man by an unknown but undoubtedly sage author, which I truly love: “A library is an arsenal of liberty.”

Whenever I enter a library, I often reflect upon this quote. Library liberty, the chance to achieve social and economic equality and freedom through the knowledge a library safeguards, is increasingly needed today. In our information/digital-library age, economic and social freedoms that should be increasing for all, due to the digital disbursement of knowledge and democracy, is more often narrowing due to a phenomenon known as the Digital Divide. The Digital Divide, a term made famous by former Assistant Secretary of Commerce and Technology Larry Irving, refers to the chasm between those with regular, effective access to digital technologies and those without, defined along political, economic, and racial lines. Rapid advances in communication and information technologies in developed nations have created a breakpoint, or ‘divide,’ that is held by some to be more divisive
than previous cultural and economic breakpoints. The digital information revolution is creating a new class of people with highly specialized training, a corporate controlled technology infrastructure, and a global knowledge base that is conceptually and physically impenetrable to the untrained and disenfranchised.

It is digital innovations in the library that has the power to change all that. The digital library has the capacity to empower individuals and communities, alleviate poverty, and transform developing countries into increasingly valuable contributors in global commerce. Already, enterprising corporations, governments, non-profit organizations, and libraries have made significant strides towards achieving these goals. In Iraq last month, the Iraqi Virtual Science Library was launched by 6 US governmental agencies, 13 journal publishers, Sun Microsystems, 7 Iraqi universities and their libraries, Iraq's International Center for Science and Industry, and the US National Academy of Sciences. The virtual library will provide electronic access to 17,000 cutting-edge scientific journal titles for Iraq's scientists, engineers, and scholars, enabling an estimated 80 percent of Iraq's scientists and university students to access online training, educational materials, and information on funding opportunities. Similarly, in Vietnam, the first digital library management system was recently launched. Such providing of easy access to high-caliber information is the best way to empower people. It enables a knowledge-base that is a pivotal first step to fostering an intellectual and scientific community and in turn building a foundation for ‘developing’ nations.

Concluding Remarks

Throughout the course of my speech this evening, we have seen the journey of libraries beyond brick and mortar, from a physical architecture to a digital one, complete with online tours, and warehousing of digital materials. We have seen a revolutionary transition from author-generated content to reader-generated content, and how libraries are advancing with new media such as blogs, wikis, and online social networking into online communities, transforming into research and community centres. Finally, we have seen how digital innovations of libraries are giving people access to information they never had access to before, empowering them and broadening their community.

Throughout this journey, the library has remained a storehouse of human intellect. Rooted in a history of archiving books, manuscripts, and art, it now
documents blogs, wikis, webpages, and hundreds of file formats in a digital world, inscribing man's intellectual accomplishments and innovations for future generations. Libraries are no longer grounded in geography and local community, or simply a researcher's abode, but have started to become a hub of social activity and intellectual engagement accessible to all from a computer terminal. Despite such inevitable evolutions over time – and future ones for that matter – the fundamental tenet of the library remains the same: the library is a fortress of man's intellectual accomplishment and innovation, where human achievement is made possible. As Isaac Newton said in 1676, “If I have seen farther than most men, it is because I stood on the shoulders of giants.”

Those giants can be found at your local library. Thank you.
QUESTIONS AND ANSWERS

Q: You referred to the rapid obsolescence of the successive generations of digitization. We all remember punch cards, punch tapes and magnetic tapes. Before we tell the Library’s Chief Executive to leave the books out back for the dustmen and digitize the collection, how do we respond to this problem of obsolescence so that we are able to read these digitized materials five hundred years from now?

A: I wish I could tell you that we have the answer, but we really don’t. The challenge is that digitization is a series of 1s and 0s – it just fits. It only has order when you can put it into a file format. Unfortunately, we keep improving these file formats. As computers become more powerful and less expensive we are able to do more things with them. So the technologists and business people keep saying: ‘Let’s make this better and better’. But in the process of making it better and better we keep changing the formats in which data is stored. As I mentioned earlier, there is literally no way of playing a Star Wars laser disc these day: you can’t buy a laser disc player anywhere. And we are going to see this problem over and over again.

In fact, we are just about to begin the obsolescence of the DVD. Now, the DVD has only been around about ten years, yet we’ll soon be moving either to the Blu-ray DVD, or to the HD-DVD, both of which are high definition versions of the DVD. They are very superior technology. But ten years from now we will all be wondering: ‘How do we play that DVD?’ Fortunately, in the case of the current DVD, the new players will be able to play the old format DVDs too. But there is no guarantee that everyone is going to protect prior formats. So, it is one of those perplexing problems: the unintended consequence of innovation is that we often create new problems even as we are solving old ones.

Q: You covered a vast period in the history of libraries from the Great Library of Alexandria to the present day. I’d like to pick up on the particular points you made regarding the empowerment of the individual in global commerce and accessibility to all.

Access to the knowledge of the Great Library of Alexandria was by security clearance only. People would travel for up to twenty years to use this Library, but they would not all be granted access to entire building: the level of access would depend upon security clearance.

In those days, of course, the great issue of high priority was that of military
knowledge: for example, the construction of ships and of weaponry. And today, do you not think that the same principles apply? That, indeed, the whole concept of free accessibility to all can never be the case because we face no different a problem than the Egyptian empire did: that is, that security access has got to be granted to specific people at specific levels. That has always been the case in history, and that will always be the case. So, yes, indeed, there will be empowerment of individuals in global commerce to a degree, and there will be accessibility to all to a degree.

A: Well, that is a fascinating bit of history. I must say that I learned some things I did not know listening to you. I'm not sure I can add much to it. There is obviously a large amount of information in my own country which is not available to the general public. This information is classified on the grounds of security, and government leaders make decisions about what is classified and what isn’t. In the United States the Freedom of Information Act has actually opened up information that people had not expected. And because we are a pretty litigious society, it usually becomes feed for the litigators. I guess in almost everything there are unintended consequences, and I suspect there are unintended consequences in the issues you raise about where we draw the line on security. When is it in the public interest? When is it in a special interest? And I don’t think I have enough additional information to what you have already added.

Q: I have what I guess is a related question. Events around the globe seem to be teaching us that every time a wall comes down another one goes up. A government or a nation will impose censorship or restrictions of one sort or another on access to information that is otherwise available, and increasingly, I think, you will find special interest groups taking offence at information which is otherwise freely available in libraries. Now the question made just now was that in the past you had to physically go to a library to get information. Indeed, one has a vision of these cosy institutions which were busy squirreling away books. But now of course these walls have come down, and libraries will face increasing challenges from other nation states, from special interest groups, and from political and religious groups. What sort of challenges do you see in these areas to this ‘grand project’ of digitization.

A: Well, I am more comfortable commenting on things that I know a little about than things I don’t know about. The things that I observe in my own
country are that we have had a very successful higher education system and a failing K-12 education system. Part of the success of our higher education system has been the immigration policies that we have had (and which have recently changed), which have made it very easy for people to come into our university system from other countries. This helped raise the whole intellectual quality of our universities. But this has all changed since 9/11. So in terms of the way information is accessed, and the people who are using that information in my own country, it is very different now than it was just a few years ago.

On the other hand, I think the hope of our education system in the United States is not in the schools. My own sense is that they are so broken – the public schools – that they are almost irreparable, because there is so much policy and there are so many special interests that you have to get by. On the other hand, the libraries, in my opinion, are going to take on an increasingly important role in the education of young people in the States. By this I mean that the Schools of Library Science are highly regarded in the United States, while the Schools of Education are not so highly regarded. This is not just my opinion; you can find that opinion shared by a large number of people.

It is not that we don’t have very dedicated educators and some wonderful teachers; this is not a criticism of great teachers, it is just an observation of the facts. I believe that the libraries are simply not caught up in all of the special interests that the schools are. And as libraries become not only communal centres where people can physically gather and access information in ways beyond the traditional book, but also places where people can access information over networks and also – we are learning with social networking and blogging – are able to collaborate online, I believe that libraries are going to be more and more the key to improving, and maybe even revolutionizing, education in my own country. I don’t know about the specifics in your country, but I am very encouraged by the role that libraries can play at all levels of the education system.

Q: I was interested in your comment about the half-life of web-content in a parallel with books. With books, publishers are the gatekeepers of content: they act as a filter, and hopefully they improve the content of books. But with the web there is no such gatekeeper in place because everybody can publish straight onto the web. Is it realistic to expect libraries to be the gatekeepers of what is to be preserved of web-content? It probably is not realistic; therefore, who can perform that role? Or will it end up being some sort of organic process in which, say, Wikipedia plays a role and it all filters itself out somehow?
A: That is a wonderful question, and I think you have already answered it, in saying that it is not practical for libraries to perform this role because of the immense size of the task.

What I would observe is that I was having breakfast with Jonas Sork just about two weeks before he died, and he was saying that the last years of his life were by far the most interesting. Because he had suddenly realised that he was working on something that was much more important than the polio vaccine or any of the other discoveries he had been associated with at the Sork Institute.

He had realised that we were going through an evolutionary process that was going to accelerate our change more than anything in the Darwinian adaptive process that we are all familiar with. And by that he meant that he felt that we were going to be making the transition from an information-centric society to a wisdom-centric society. And this wisdom was not going to come from any one of us being in control of, or even archiving, all the information. Rather the wisdom was going to come from the collective wisdom of humanity – the internet, or other networks for that matter, connected with one another.

You may be familiar with the swarm theory or the beehive principle, which explains that the hive is much more intelligent than any of the individual bees. No-one is quite sure why this is so, but it is. And Jonas Sork believed that now that we are starting to have such widespread communication, collaboration, and sharing of information, it was less important that we knew who authored every piece of information, or that we archived every piece of information and documented its source and date-stamped it. Instead, it was more important that we had this ability to transparently interchange ideas and information. And Sork believed that, collaboratively, on a scale never known before, humanity was going to start to evolve. And this is what he called ‘wisdom’. Whether it really is wisdom, we can have our own opinions. But it is definitely something which is going on.

So, in answer to your question I would say: ‘Impossible task!’ But I would not worry entirely that we are going to lose a lot, because I think that what we gain is this ability to accelerate the way that we learn and to accelerate collaboration on a scale that has never been possible before.

Thankyou very much.
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