**Data Everywhere**

Data collection and management is not a new trend, but new technologies have greatly improved the opportunities to collect, store, and analyze customer data and personal information. The explosion of mobile devices, internet-connected devices, and applications has drastically increased opportunities for data collection. As data is collected, companies and organizations can use the information to develop products and services, improve marketing and communications, or monetize information.

**How It’s Developing**

IFLA’s Trend Report, "Riding the Waves or Caught in the Tide?" illustrates the trend plainly, using the example of an e-book: “Simply reading an e-book can reveal a great deal about you. How long it takes you to finish a chapter, your favorite parts, the speed and consistency of your reading and what you’re likely to borrow or buy next. In an economy increasingly built on ‘information mining’, this kind of data is of great value for publishers, distributors and authors.”[[1](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)]   E-books represent just one opportunity in a sea of new technologies that enable data collection. Established resources like Google, Facebook, and other web applications have already leveraged opportunities for data collection. New and emerging technologies including wearables, massive open online courses (MOOCs), the [internet of things](http://www.ala.org/transforminglibraries/future/trends/IoT), and more will provide additional opportunities.

Many people knowingly use products and services that gather data or even require the sharing of large amounts of personal information (Facebook, activity tracking devices, etc.) having determined that the benefits of their use of these technologies are worth the sharing. Data can be used by computer algorithms to determine what information will be shown to specific users (search results, recommendations, suggested content), creating different experiences based on what the technology determines users want or need to see.[[2](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)]  As individuals become more concerned about how information is being monitored or monetized, concerns are rising. [[3](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)]

As data flourishes, opportunities for the use of “big data” emerge. In their book, *Big Data*, authors Viktor Mayer-Schonberger and Kenneth Cukier state, “Big data refers to things one can do at a large scale that cannot be done at a smaller one, to extract new insights or create new forms of value, in ways that change markets, organizations, the relationship between citizens and governments, and more.” [[4](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)] Big data is seen by many – businesses, governments, and non-profits – as an opportunity for more evidence-based decisions and policy-making.[[5](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)]  Big data’s use in social innovation – addressing issues like poverty, health, and education – may be challenged by lacking standards for data collection, dispersed data collection, challenges in cooperation across agencies and organizations, and inadequate IT resources. [[6](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)]

As data is seen as more valuable, new business models may emerge. Across the board, data may be used to guide or suggest additional products and services. At one end of the spectrum, data may produce variable pricing models for goods or services based on knowledge of buying or use habits; at the other end of the spectrum, profits could be shared with personal data providers that helped develop products or services. [[7](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)]

**Why It Matters**

As data is used to control or shape search results and information access, users may need to be reminded of the full diversity of information available to them. Libraries, as organizations that collect data and that are interested in improving products and services, may find opportunities to use data for their own purposes or may be asked to share their data with businesses, governments, or other organizations. [[8](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)] Both propositions could pose ethical challenges related to user privacy and intellectual freedom. [[9](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)]

As data sets become valuable information resources, libraries may be called upon to serve as repositories for data sets; to connect research data from across studies, initiatives and reports; to classify and archive data sets; or to make data accessible digitally. [[10](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)] As data’s value increases, libraries may need to help navigate access, including copyright and intellectual property rights. [[11](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)]

Data will be used to develop, create, and promote content. Companies will be able to combine user habits with geographic and cultural data to determine emerging preferences or to tailor specific content to specific audiences. [[12](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)] The key to leveraging data for content creation, however, may lie in the sharing of information from multiple sources - creators, distributors, retailers, users, licensees, etc. – and libraries may play a role in either the sharing of information or in helping users compile information from multiple sources. [[13](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)] As interactions, objects, and contact points are increasingly converted into data that can be stored, sorted, and decoded, there may be a push to manipulate data to achieve desired outcomes. [[14](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)] Libraries and librarians may be involved in this process in any one of a number of ways. Computational thinking and skills, the "ability to translate vast amounts of data into abstract concepts and to understand data-based reasoning," will be a required skill for organizations interested in making the most of available data. [[15](http://www.ala.org/transforminglibraries/future/trends/data#Notes and Resources)]

**Notes and Resources**

[1] “IFLA Trend Report: Riding the Waves or Caught in the Tide.” International Federation of Library Associations. 2013. Available from <http://trends.ifla.org/>.

[2] “Trends Report: Snapshots of a Turbulent World” [Discussion Draft of August 19, 2014]. American Library Association. Policy Revolution! Initiative. 2014. Available from <http://www.districtdispatch.org/2014/08/understanding-turbulent-world-develop-library-policy-agenda/>.

[3] “IFLA Trend Report: Riding the Waves or Caught in the Tide.” International Federation of Library Associations. 2013. Available from <http://trends.ifla.org/>.

[4] *Big Data*. Viktor Mayer-Schonberger and Kenneth Cukier. New York: Houghton Mifflin Harcourt, 2013. p.10.

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[6] “Big Data for Social Innovation.” Kevin C. Desouza and Kendra L. Smith. *Stanford Social Innovation Review*. Summer 2014. Available from <http://www.ssireview.org/articles/entry/big_data_for_social_innovation>.

[7] “IFLA Trend Report: Riding the Waves or Caught in the Tide.” International Federation of Library Associations. 2013. Available from <http://trends.ifla.org/>.

[8] “Wait. Stop. What is a Photocopy? Three Insights From Our Library Student Advisory Board.” Brian Matthews. *The Chronicle of Higher Education*. September 10, 2014. Available from <http://chronicle.com/blognetwork/theubiquitouslibrarian/2014/09/10/wait-stop-what-is-a-photocopy-three-insights-from-our-library-student-advisory-board/>

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[10] “Horizon Report – 2014 Library Edition.” New Media Consortium. 2014. Available from <http://www.nmc.org/publications/2014-horizon-report-library>

[11] “Horizon Report – 2014 Library Edition.” New Media Consortium. 2014. Available from <http://www.nmc.org/publications/2014-horizon-report-library>

[12] "The Real Magic of Streaming Music is the Data it Generates." John Paul Titlow. *Fast Company.*September 11, 2014. Available from <http://www.fastcolabs.com/3035552/elasticity/the-real-magic-of-streaming-music-is-the-data-it-generates>

[13] "Data Will Save Music." Brad Haugen. *TechCrunch*. February 17, 2015. Available from<http://techcrunch.com/2015/02/17/data-will-save-music/>

[14] "Future Work Skills 2020." Anna Davies, Devin Fidler, and Marina Gorbis for Institute for the Future and University of Phoenix Research Institute. 2011. Available from <http://www.iftf.org/futureworkskills/>

[15] "Future Work Skills 2020." Anna Davies, Devin Fidler, and Marina Gorbis for Institute for the Future and University of Phoenix Research Institute. 2011. Available from <http://www.iftf.org/futureworkskills/>