

Anticipating governance, unintended consequences, and disruptive technologies: What recent developments mean for libraries

Fiona Bradley

Research Services and Corporate, University Library, UNSW Sydney, Australia
E-mail address: f.bradley@unsw.edu.au



Copyright © 2019 by Fiona Bradley. This work is made available under the terms of the Creative Commons Attribution 4.0 International License:

<http://creativecommons.org/licenses/by/4.0>

Abstract:

Disruptive technologies including AI and increased technical capabilities to collect data for analysis and other purposes require companies, policymakers, and libraries alike to consider legal implications. Often, however, appropriate laws and regulations may not yet exist, or may be drafted quickly following an event or crisis. Both situations can lead to unintended consequences when policymakers either do not know how to prepare, nor how to react - a challenge known as 'anticipatory regulation' (Guston, 2014). This paper discusses some of the recent unintended consequences of data leaks, algorithmic decision-making, and privacy challenges, including examples from Australia and the European Union, and what they mean for libraries and the services they provide to users.

Keywords: privacy, data protection, legislation, AI

Disruptive technologies hold enormous potential for libraries. They can support inclusive and accessible services, facilitate new research discoveries, enable people to communicate more easily than ever before, and help librarians in their own work to analyse and visualise collections, uncovering their hidden value.

But whereas in the recent past libraries might have quite easily (in hindsight) implemented technologies such as social media, makerspaces, and 3D printers, newer disruptive technologies are colliding with ethical and legal debates that challenge our values around privacy, surveillance, and the role of the state and public in society. These are complex regulatory issues that industry, advocates, and policy makers alike are all struggling to deal with. Librarians should not shy away from engaging with these debates, but nor should we let them deter us from experimenting and innovating as libraries always have done when it comes to new technologies.

What differentiates newer disruptive technologies like AI and Text and Data Mining (TDM) from the past? Primarily, scale. The increase in computing power and networks means

that it is possible to access more than ever before. This also means that governments and companies can collect more data about us than ever before.

Unintended consequences of deidentifying big data

There are many positives to data collection and analysis. TDM can uncover new insights, and recent research found that TDM can make discoveries that humans missed, by analysing massive corpuses of previous research (Gregory et. al., 2019; Tshitoyan, 2019). On the other hand, data collection by Strava, an exercise tracking app, highlights the consequences when data collection goes wrong. Unless you opt out, Strava collects data about cycling, running, and other exercise activity. Last year, Strava decided to release a huge anonymised dataset and heatmaps showing how many people were running and cycling all over the world (Figure 1).

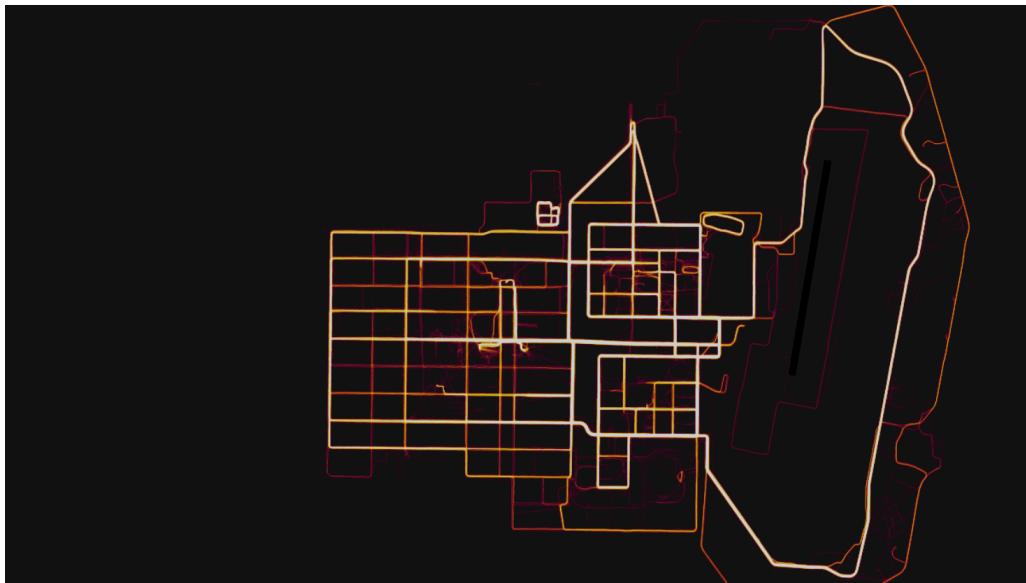


Figure 1 Strava heatmap

But there was one problem. In some remote areas, there were just a couple of data points, only a few people running or cycling on the same path. An Australian student determined that these locations were probably undisclosed security or military bases. This potentially put those locations and people at risk (Gomes, 2018). What this example highlighted is that any data, no matter how deidentified it may seem to be, is no longer anonymous if enough data points can be pieced together. This example has important implications for how libraries think about data collection, and how librarians communicate with users about how their data and how it may be used by vendors or other companies. For instance, some libraries allow their data to be warehoused alongside student data to show the outcomes of library summer reading programs, or to suggest correlations between library use and student success (City of Chicago n.d., Malenfant, 2012). Care must be taken at all steps of the data process in how library users can opt in and out of data collection, how it is made available to other institutions and systems, and what conclusions are made.

The drive towards ethical AI

Another technology that relies on collecting massive amounts of data is artificial intelligence. Several start-up companies working in the research space are focused on insights from AI in literature searching. Writing literature reviews and searching can be a very time-consuming process, and in the digital era it is impossible to read all the relevant literature. New

tools such as Meta and Iris.AI claim that they can use AI to find more relevant literature, more quickly. These uses of AI are useful and benign.

However, many libraries are starting to implement AI-based tools like chat bots and virtual assistants such as Amazon's Alexa. It is not yet clear what the legal implications of these tools might be in terms of privacy and data collection. But libraries should consider carefully the privacy implications for their users, given that Alexa recordings are retained indefinitely, and that some Google employees are listening to Google Assistant recordings (Cox, 2019, van Hee et al. 2019).

Ellen Broad highlighted issues associated with training data in AI algorithms that can lead to bias, and some devastating outcomes. She gives the example of letters sent out to people receiving welfare in Australia, that claimed that they had incurred thousands of dollars in debts. Unfortunately, the algorithm had got it wrong and the resulting scandal became known as "robodebt" (Broad, 2018). The unintended consequences of algorithmic matching has been used subsequently by the Australian government to drive forward a focus on ethical AI and to consider appropriate laws and regulation (Department of Industry, Innovation, and Science, 2019). With values and a trusted track record, libraries could play an important role in helping society and their institutions work towards ethical AI, but it begins with careful consideration of what technologies libraries choose to adopt and a watching brief on broader policy and legislative changes that may impact them.

The gap between technology and regulation

When thinking about disruptive technologies, it is important to consider that there may not yet exist appropriate regulation around a technology, or a future law may completely change a library's ability to use it. Governments have often struggled to know how to regulate technology effectively. There are many reasons for this including vested interests, a lack of knowledge about the technologies involved, and concerns about freedom of speech and human rights. In the case of social media platforms, governments have largely relied on self-regulation (Flew, 2015). More recently, revelations about election interference, data breaches, and censorship makes that position seem somewhat naïve (Segal, 2018). A major challenge for policymakers is in striking a balance between anticipatory governance that may stifle innovation, versus the potential need to build up a large bureaucracy after the fact to deal with insufficient regulation (Guston, 2014).

In defining the concept of surveillance capitalism, which "unilaterally claims human experience as free raw material for translation into behavioural data", Shoshana Zuboff (2019) notes that existing categories of regulation that have typically been used to regulate companies such as monopoly and privacy laws are not sufficient to regulate new tech companies and social media platforms. And therefore, it is difficult to predict both the consequences of these new technologies and what laws should be designed to regulate them.

After the scandal in which the personal data of 87 million Facebook users was made available to Cambridge Analytica (Isaak and Hanna, 2018) and several horrific attacks between 2016-2017, the UK released a recent white paper on online harms (Department for Digital, Culture, Media & Sport, 2019). The leaders of France and New Zealand have pledged to outlaw extreme content that amplifies hate and terror (Willsher, 2019). The G20 released a statement also calling to ban such content. But legally, little has changed except in Australia, where a new law was quickly passed in 2019 creating a new offence for service providers that fail to take down video that includes "abhorrent violent conduct" (Taylor, 2019). The time between

announcing the bill and it being passed by parliament was so short, just one day, that there was not enough time for a letter to arrive from the UN Special Rapporteurs expressing their concerns¹. The letter expressed serious concerns about the law going beyond measures that are necessary, proportionate, and legal as defined in international human rights law. The letter also highlighted the need for public consultation on matters of this nature. There are some defences available under the Act, for instance S474.37 1(d)(i)(ii) provides for access to such material for research purposes.

These debates are broad in their reach, but important for libraries to pay attention to because there has been longstanding concern in several countries about whether libraries are considered service providers. Even where libraries have assurances that they are not considered service providers, content regulation can affect services that we provide access to, subscribe to, or make available when we allow users to upload their own user-generated content. The new law in Australia was touted as being a ‘world first’. Whether similar laws will be passed in other countries is not yet known.

Limitations and advances in privacy laws

Maciej Cegłowski, a tech founder from Silicon Valley, coined the term “ambient privacy”, referring to, “the understanding that there is value in having our everyday interactions with one another remain outside the reach of monitoring, and that the small details of our daily lives should pass by unremembered”(Cegłowski, 2019). Many have noted the shortcomings of current privacy laws that focus on the privacy of individuals and protection from the state, but not protections from companies (Cegłowski, 2019; Zuboff, 2019). Recalling the earlier example of virtual assistants like Alexa in libraries, Cegłowski observed,

“Ambient privacy is particularly hard to protect where it extends into social and public spaces outside the reach of privacy law. If I’m subjected to facial recognition at the airport, or tagged on social media at a little league game, or my public library installs an always-on Alexa microphone, no one is violating my legal rights. But a portion of my life has been brought under the magnifying glass of software. Even if the data harvested from me is anonymized in strict conformity with the most fashionable data protection laws, I’ve lost something by the fact of being monitored.”

From a legal perspective, the most influential recent law is the General Data Protection Regulation 2016/679 in the European Union. It is influential because although first and foremost it provides significant rights to everyone in the EU concerning how personal data about them is collected and used, it also applies extraterritorially. What this means is that organisations including libraries outside the EU need to ensure their policies and practices are in line not only with local laws (for instance, libraries in New South Wales, Australia, must comply with *Privacy and Personal Information Protection Act 1998 (NSW)*), but also to a certain extent, GDPR if those libraries provide services to EU residents. This is not just a legal obligation, but an opportunity to rethink how libraries protect their users data and privacy, and how to redesign systems and services with privacy principles in mind from the outset.

¹ (2019, April 4). Mandates of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression; and the Special Rapporteur on the promotion and protection of human rights and fundamental freedoms while countering terrorism OL AUS 5/2019 <https://freedex.org/wp-content/blogs.dir/2015/files/2019/04/OL-AUS-04.04.19-5.2019-2.pdf>

Conclusion

Despite the numerous regulatory challenges associated with disruptive technologies there are reasons to be optimistic. For instance, Zuboff views the Spanish Right to be Forgotten decision as a key point when democracy began to claw back rights, "In asserting the right to be forgotten, the court declared that decisive authority over the digital future rests with the people, their laws, and their democratic institutions" (Zuboff, 2019, p. 60). This is potentially a turning point for future laws that do more to protect the rights of individuals. For libraries, while paying attention to legal developments that span privacy, surveillance, antitrust, copyright and beyond is challenging, it is necessary given the impact of such laws to both protect and restrict user rights.

References

- (2019, April 4). Mandates of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression; and the Special Rapporteur on the promotion and protection of human rights and fundamental freedoms while countering terrorism OL AUS 5/2019 <https://freedex.org/wp-content/blogs.dir/2015/files/2019/04/OL-AUS-04.04.19-5.2019-2.pdf>
- Broad, E. (2018). *Made by humans: The AI condition*. Melbourne: Melbourne University Press.
- Cegłowski, M. (2019, June 10). The new wilderness. Retrieved from https://idlewords.com/2019/06/the_new_wilderness.htm
- City of Chicago (n.d.). Libraries—Children’s summer reading program. Retrieved from: <https://data.cityofchicago.org/Education/Libraries-Children-s-Summer-Reading-Program/gy9e-qh3y/data>
- Cox, K. (2019, July 3). Amazon confirms it keeps your Alexa recordings basically forever. Retrieved from Ars Technica website: <https://arstechnica.com/tech-policy/2019/07/amazon-confirms-it-keeps-your-alexa-recordings-basically-forever/>
- Department for Digital, Culture, Media & Sport. (2019). Online harms white paper. Retrieved from GOV.UK website: <https://www.gov.uk/government/consultations/online-harms-white-paper>
- Department of Industry, Innovation, and Science. (2019). Artificial intelligence: Australia’s ethics framework. Retrieved from <https://consult.industry.gov.au/strategic-policy/artificial-intelligence-ethics-framework/>
- Flew, T. (2015). Social Media Governance. *Social Media + Society*, 1(1), doi:10.1177/2056305115578136
- Frosio, G. (2018). To filter, or not to filter that is the question in EU copyright reform. *Cardozo Arts Entertainment Law Journal*, 36(2), 331-368
- Gomes, L. H. (2018, January 29) Strava, FitBits, can be used track down top-secret military bases. Retrieved from The New Daily website: <https://thenewdaily.com.au/news/national/2018/01/29/strava-fitbit-military-bases/>
- Gregory, M., Grzincic, N., Mead, D., & Koebler, J. (2019, July 9). AI trained on old scientific papers makes discoveries humans missed. Retrieved from Vice website: https://www.vice.com/en_us/article/neagpb/ai-trained-on-old-scientific-papers-makes-discoveries-humans-missed
- Guston, D. H. (2014). Understanding ‘anticipatory governance’. *Social Studies of Science*, 44(2), 218-242. doi:10.1177/0306312713508669
- Malenfant, K. (2012, October 9). Assessment in action: Academic libraries and student success. Retrieved from Association of College & Research Libraries (ACRL) website: <http://www.ala.org/acrl/AiA>
- Isaak, J., & Hanna, M. J. (2018). User data privacy: Facebook, Cambridge Analytica, and privacy protection. *Computer*, 51(8), 56–59. <https://doi.org/10.1109/MC.2018.3191268>
- Taylor, J. (2019, July 1). Facebook terror crackdown: Will Scott Morrison’s plan for extremist content work? *The Guardian*. Retrieved from <https://www.theguardian.com/australia-news/2019/jul/01/g20-leaders-urge-social-media-firms-to-stop-terror-content-but-what-happens-now>

Tshitoyan, V., Dagdelen, J., Weston, L., Dunn, A., Rong, Z., Kononova, O., Persson, K. A., Ceder, G., Jain, A. (2019). Unsupervised word embeddings capture latent knowledge from materials science literature. *Nature*, 571(7763), 95–98. <https://doi.org/10.1038/s41586-019-1335-8>

van Hee, L., van den Heuvel, R., Verheyden, T., Baert, D. (2019, July 10). Google employees are eavesdropping, even in your living room, VRT NWS has discovered. Retrieved from Vrtnews.be website: <https://www.vrt.be/vrtnws/en/2019/07/10/google-employees-are-eavesdropping-even-in-flemish-living-rooms/>

Willsher, K. (2019, May 15). Leaders and tech firms pledge to tackle extremist violence online. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2019/may/15/jacinda-ardern-emmanuel-macron-christchurch-call-summit-extremist-violence-online>

Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. New York: PublicAffairs.