Information Science and the Responsible Deployment of Technology

Jacob Lange

School of Library and Information Science, University of Alabama

LS 500: Information Science and Technology

Dr. John T. Burgess

05/01/2024

The historian of technology, Melvin Kranzberg, listed as the first of his six eponymous laws that "technology is neither good nor bad, nor is it neutral" (p. 4, 1986). Kranzberg provided this law when arguing against technological determinism, or the belief that technology is what shapes societies. This is not to deny that technology can play a role in affecting social change, but rather that it lacks the agency to decide what these changes should look like and that its effects on their own aren't enough to determine what those changes will be. Because it remains focused on the human aspect of the intersection between information, human beings, and technology, information science helps provide a blueprint for refuting technological determinism, while also acknowledging the effects that technology can have on society. This makes information science an invaluable tool when it comes to considering the issue of responsible technology deployment.

As I explain the positive role that I believe information science can play in promoting the responsible deployment of technology, it is important for me to remember that information science is just a tool in much the same way that technology is a tool. By which I mean that it also follows Kranzberg's first law about non-neutrality. This is the point that Fobazi Ettarh (2018) makes about libraries in her paper on vocational awe. There is nothing inherently good about libraries even if they can often do these amazing things. This is something I need to continuously remind myself of because I have this tendency to view libraries, and the entire field of library and information science even, in this almost sacrosanct way, but in doing so there's a risk of losing track of the human element that is involved. With that in mind, let's look at the issue of responsible technology deployment, who is affected by it, what it looks like, and why information science is uniquely equipped to handle this issue.

Who is affected by responsible technology deployment?

This is an issue that affects all of humanity. However, we are not all impacted equally. When I say this, I am thinking of the work of Cory Doctorow (2022) and his "shitty tech adoption curve" (para. 1). This theory states that oppressive technologies are usually first forced on those who are least able to resist them. In this post, Doctorow is specifically talking about Bossware, or productivity trackers, and he describes how productivity monitoring software moved up the gradient from non-unionized blue-collar workers, to students, to white-collar workers. As a science fiction author, Doctorow is part of a culture whose history of writing about the positive and negative aspects of technology can be traced back to the writing of Mary Shelley's Frankenstein in 1818, and he is also currently an A.D. White Professor-at-Large at Cornell University (Aldiss & Wingrove, 1986; *Cory Doctorow – Andrew D. White Professors-at-Large Program*., n.d.). Teaching this information to students is part of critical information literacy.

Humanity's relationship with technology is complicated and multifaceted and the decisions we make about how technology is used truly do impact everybody. One prominent example that illustrates this is atomic energy. Even if a country were to opt out of creating an atomic weapon, one could still be used against them, and a nuclear holocaust would certainly affect every living human being even the uncontacted peoples living as hunter-gatherers in the Amazon. Whether a society has chosen to develop a technology or not, the decisions made about that technology can still affect them. Information science, more specifically its study of information policy, allows societies to coordinate and share information that has helped prevent an accidental nuclear holocaust (Hanschel, 2012).

Another example of humanity's complex relationship with technology, and how technology can affect all of humanity, is modern medicine. Medicine can do these amazing things that can seem almost miraculous like curing disease or lowering infant mortality. At the same time, it can also be used to do terrible things like creating genetically engineered superviruses or incredibly addictive drugs. A genetically engineered supervirus could potentially wipe out all of humanity as well. So, how do we balance the risk of accidentally unleashing a plague with the benefits of saving lives? One way is to develop a professional code of ethics. This is something provided by both information science and modern medicine.

What does responsible technology deployment look like?

Responsible technology deployment works to minimize harm and promote social justice. To do this it is important to consider the impact of technology and understand how it is being used in practice. This is exactly what information science does! One example of this is the work of Sweeney and Brock (2014) on critical informatics. They describe a technique called Critical Technocultural Discourse Analysis which provides a method for examining the cultural contexts of technology usage. They then use this technique to analyze how hashtags can be used to promote a sense of cultural community. At the same time, you have the work of Zannetou et al. (2019) studying how trolls have used social media to manipulate public opinion. So, on one hand you have technology being used to promote a sense of community but at the same time this technology can be used by bad actors for malicious purposes.

So, by analyzing how technology is being used it becomes easier to understand the effects it might have. However, it is very hard to predict exactly how many technologies might be used, and technology does not develop in a vacuum. Each choice we make when it comes to

technology will ultimately end up having an impact on multiple different levels. This is what Dr. Burgess described in the final lecture on the Responsible Use of Technology. Every time we "make, use, buy and share" something, as he discussed, we are participating in the actions that ultimately decide what society will look like (*Responsible Use of Technology,* 2024). In my previous grounding essay, I used the metaphor of a kite and described information science as the framework within it. To continue with that metaphor, each of the choices we make would be like the wind that causes the kite to fly.

Why information science?

Information science provides an ethical framework that is "ontocentric, patient-oriented, ecological" (p. 5, Floridi, 2006). It also provides an interdisciplinary structure to assess how technology is being used. Because of this it is uniquely prepared to help analyze the impact these technologies will have and promote the best outcome for as many stakeholders as possible. By maintaining the "human-centered, socially responsible, context-driven" approach that was discussed by Shah et al. (2021), information science can help promote an equitable future.

While the meta-disciplinary nature of the field may provide information science with the tools to grapple with issues related to the responsible deployment of technology, this alone does not explain why it should do so. To understand why information science has a duty to help address issues related to the responsible use of technology, it is important to understand how technology is being used in practice, and the history of how technology has been used in society. This history can only provide context with which to view the present, though, and it certainly can't make sole claim to the future. Who then gets to determine what shape the future should take? Ultimately, I think the future is determined by the choices we make as individuals, that collectively become the choices we make as societies. I think this is a large part of why it is so

incredibly important for information science to remain focused on the human side of the intersection between information, human beings, and technology.

References:

Aldiss, B. W., & Wingrove, D. (1986). *Trillion year spree: The History of Science Fiction*. New York : Atheneum.

Burgess, J.T. (2024). *Responsible Use of Technology* [Classroom Discussion]. UA SLIS.

Cory Doctorow – Andrew D. White Professors-at-Large Program. (n.d.). https://adwhiteprofessors.cornell.edu/professors-at-large/cory-doctorow/

Doctorow, A. C. (2022, August 21). *Pluralistic: 21 Aug 2022 The Shitty Technology Adoption Curve Reaches Apogee – Pluralistic: Daily links from Cory Doctorow*. https://pluralistic.net/2022/08/21/great-taylors-ghost/

Floridi, L. (2006). Information ethics, its nature and scope. *Computers and Society/Computers & Society*, *36*(3), 21–36. https://doi.org/10.1145/1195716.1195719

Hanschel, D. (2012). Prevention, preparedness and assistance concerning nuclear accidents-effective international legal framework or patchwork. *German YB Int'l L.*, *55*, 217.

Kranzberg, M. (1986). Technology and History: "Kranzberg's Laws." *Technology and Culture*, *27*(3), 544–560. https://doi.org/10.2307/3105385

Shah, C., Anderson, T., Hagen, L., & Zhang, Y. (2021). An iSchool approach to data science: Human-centered, socially responsible, and context-driven. *Journal of the Association for Information Science and Technology*, *72*(6), 793–796. https://doi.org/10.1002/asi.24444

Sweeney, M. E., & Brock, A. (2014b). Critical informatics: New methods and practices. *Proceedings of the ASIS Annual Meeting*, *51*(1), 1–8. https://doi.org/10.1002/meet.2014.14505101032

Zannettou, S., Caulfield, T., Setzer, W. N., Sirivianos, M., Stringhini, G., & Blackburn, J. (2019). Who Let The Trolls Out? *Proceedings of the 10th ACM Conference on Web Science,*. https://doi.org/10.1145/3292522.3326016