

Collaborate with experts in other disciplines. Recognize the limitations of your own expertise. For many of us who work in the technology industry, it is easy to assume that technological responses, such as tracking people's locations, collecting information about their contacts, and issuing "immunity" passports, are clearly worth pursuing. Yet the usefulness of such approaches is contested by both public health and privacy experts.⁷ In many cases, you can have the greatest impact by finding experts who know more than you do about a problem, asking them what they need to make progress, and then helping them accomplish their goals.

Be clear about expected benefits and beneficiaries. Think carefully about what your project specifically offers, how it will be beneficial, and whether those benefits will be widely accessible to those who need them. In many cases, the intended beneficiaries may not be on a level playing field. For example, the enormous racial differences in health outcomes observed during the pandemic illustrate how existing societal inequalities affect who suffers and in what ways.⁶ Does your project take these dynamics into account and work to mitigate them?

If your project relies on data, ask where that data came from and how it was collected.

Work with and for communities. Ask the intended beneficiaries of your project—whether they are healthcare workers, public health experts, or senior citizens—if your project addresses their needs. If you believe that you have additional insights, have you presented them with evidence that supports your beliefs and asked them for their input? You should provide opportunities for communities to collaboratively shape the project, give ongoing feedback and voice their concerns, and make informed decisions for themselves.

Mitigate risks. Try to anticipate the risks posed by your project and how such risks might impact different communities. For example, new technologies to facilitate working from home will also provide new opportunities for companies to track and monitor workers. In many cases, the communities that are most vulnerable to the pandemic are also those that are most at risk of being harmed by technological responses.⁴

Understand and protect your data. Many technological responses to the pandemic either rely on or collect data, including data about people's health and locations. If your project relies on data, ask where that data came from and how it was collected. Did you consider the unusual circumstances under which the data might have been generated?² What are the resulting limitations, if any? Does the data capture what you need or what you think it captures? Does it reflect a representative sample of the relevant population (for example, the intended beneficiaries)? Does the data involve restrictive, problematic, or harmful classifications, such as only binary genders? If your project collects data, ask whether this will pose risks, perhaps resulting from unanticipated uses or abuse. For example, when correlated with other data, the data collected by a contact-tracing project could be used to identify and persecute undocumented immigrants. Failure to guard against these risks will limit people's willingness to rely on your project and may undermine the solidarity needed to maintain public health. Consequently, privacy and security must be paramount.¹

Have a plan for when and how your project will end. A crucial—yet commonly overlooked—feature of any project is a plan for when and how it will end. If you decide to proceed with your project, ask how long it should last. When you have an answer, you can then plan for a "graceful dismantling."⁹ If you are not able to devise such a plan, you should reconsider your decision to proceed. For example, systems built to support contact tracing during the pandemic can be repurposed for other goals or kept in place even after the pandemic is over. Your plan should therefore include controls—technological, legal, or otherwise—that enable you to limit the functionality of your project to its intended purpose for the desired duration. Your plan should also address what will be done with the data when your project is over. Equally, people may come to depend on your project: Will ending it harm the intended beneficiaries? If so, how will you guard against this?

Following these guidelines can make it more likely that projects achieve their goals, while minimizing harm—helping their intended beneficiaries and other communities, without putting them at risk.

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References

1. Brill, J. and Lee, P. Preserving privacy while addressing COVID-19. *Microsoft On The Issues*. (2020); <https://bit.ly/33QKspB>

2. Crawford, K. and Finn, M. The limits of crisis data: Analytical and ethical challenges of using social and mobile data to understand disasters. *GeoJournal* 80, 4 (2015), 491–502; <https://bit.ly/3tWv3jo>
3. Langford, J. Critical issues in digital contract tracing. *Machine Learning Theory*. (2020); <https://bit.ly/3eS5nPo>
4. National Research Council U.S. Panel on Monitoring the Social Impact of the AIDS Epidemic. The practice of public health. In A.R. Jonsen and J. Stryker, Eds. *The Social Impact Of AIDS In The United States*, Washington, D.C., 1993; <https://bit.ly/3wirxjV>
5. O'Neil, C. The Covid-19 tracking app won't work. *Bloomberg*. (2020); <https://bloom.bg/3yegtGI>
6. Owen, W.F. Jr, Carmona, R., and Pomeroy, C. Failing another national stress test on health disparities. *JAMA* 323, 19 (2020), 1905–1902; <https://bit.ly/3eQWoOt>
7. Soltani, A., Calo, R., and Bergstrom, C. Contact-tracing apps are not a solution to the COVID-19 crisis. *Brookings TechStream*. (2020); <https://brook.gs/3bwhmjO>
8. The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. *The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research*. Department of Health, Education, and Welfare (Apr. 18, 1979); <https://bit.ly/3opJKsR>
9. Veale, M. This system was designed so it could not be co-opted. (2020); <https://bit.ly/3tPKade>
10. Winner, L. Do artifacts have politics? In *The Whale and the Reactor*. University of Chicago Press, Chicago, 1988, 19–39.

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