# TECHNO-POLITICAL PROMISES OF PANDEMIC MANAGEMENT: A SITUATION OF APPS AND EXCEL IN PUBLIC HEALTH

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## Introduction and background

This article considers the politics and practicalities of responding to the COVID crisis with 'an app for that'. It shows how seductive solutionism in times of crisis created political impetus to direct the public health response of contact tracing through Contact Tracing Apps (CTA). Rather than focus on user-based concerns (uptake, privacy, etc.), we've investigated how apps interface with complex systems and infrastructures of public health. Our approach leveraged situational mapping to provide a more nuanced understanding of the interfaces of CTA and digital epidemiology than current App narratives allow. This includes data from 21 expert informants interviews across five developed nations offering insight into the machinations of contact tracing from 'the coal face' up to executive technical and policy decisions, including national CTA development and deployment. We learned that beneath the shiny veneer of an app is the messy certitude of Excel and tech-debt, local politics, and mundane organizational technique that work amidst each other to shape public health.

"There's an app for that" is a hallmark of a digital age where problems are presented with technological solutions in near real time. Apps are ubiquitous and provide a specific type of solution that is not a technological niche, but a socio-technical regime (Geels 2014), which signals a set of social expectations around connectivity, utility, and

usability from digital handheld devices (Goggin 2021). We can say that apps are now endemic to mobile socio-technical relations. The efficacy of joining these mobile platforms into socially mobile and compute intensive sensing services had been considered for some time (Mizouni and Brachi 2013), but there was no identifiable need to do so for public health until recently.

In 2020, as the scale of the pandemic crisis was beginning to be appreciated in technology and policy circles, the need for rapid 'solutions' were apparent. Hopes of there being 'an app for that' reflected prevalent and sustained discourses of technological solutionism (Morozov 2013; 2020) where revolutions to efficiencies of digital government that were often promised (Garason 2004) seemed always on the horizon, especially in terms of mobile (Vincent and Harris 2008) and health application (Anthopoulos et al. 2016). Nevertheless, by October 2020 there were almost 500 apps on the iOS App Store related to COVID across 98 countries (Albright 2023).

Likewise, a healthy and critical literature on digital app interventions into COVID-19 has developed due to the seemingly shared policy position across the global north (Taylor 2021; Mann et al., 2022) to implement CTA. Comparative analysis on the ethical and privacy tradeoffs (eg. Goggin 2020, Levy and Stewart 2021, Fahey and Hino 2020; Luicivero et al. 2020; Connor and Doan 2022) showed the diverse ecology of solutionism. Critiques of consumer/citizen adoption from socio-technical and behavioural perspectives (Amann et al 2021, Klenk and Duijf 2021, Jörling et al. 2022; Habich-Sobiegalla & Kostka 2022; Geber and Ho 2022) described how user-citizens (Nguyen 2022) became the intersection of public health and corporate-government surveillance (Chen et al. 2022, Kim 2022; Storeng and de Bengy 2021). Other studies considered the epidemiological efficacy of such adoptions, ranging from congratulatory to abysmal across jurisdictions (see respectively Vogt et al. 2022; Wymant et al. 2021).

We note the majority of CTA research is focussed on user adoption. Only 2/110 relevant CTA papers visible to Google Scholar in our timeframe offer substantive focus on *implementing* elements knit into the situation of app development, deployment, or use in society. This opens for deeper consideration how the expectation and execution of CTA apps were imagined, debated, and resourced as socio-technological and material-political manifestations. Here we consider considering how user-centric narratives of the platformization of public health can gloss over the systemic resistance that situational analysis (Clarke et al., 2016) might better uncover.

## Research design

Situational analysis is a method that foregrounds the situation of inquiry – or context – as the unit of analysis (Clarke et al., 2016). Our task is to use this technique to make CTA situation's analytic complexity more visible by considering discourses that would otherwise be missed, and adding to the COVID-19 situational mapping of previous work (see Nguyen 2022, Kim 2022). In our case, human and non-human actors to map included the technical protocols, public discourses, contact tracers, health region managers, bureaucrats, digital rights advocates, other professionals involved in the design and implementation of CTAs, policy, political rhetoric, and privacy law. Each

attested to different facets of the situation, and together paint a more nuanced picture of the capacity for digital epidemiology than current App narratives provide.

Methodologically the innovation was to define CTA situations beyond the front-end user experience and app environment that might be accessible by walkthrough approaches (Light, Dugay, Burgess 2018) and audience research. We hoped to map so far under-considered human, nonhuman, discursive, and political elements, that were not just defined by citizen-subjects and technology, but also included epidemiological knowledge, organizational structure/s, and lenses of domestic crisis-control politics - where less academic attention has been directed. Together, these might better address the contingent promises and failures related to these digital technologies.

**Findings and Analysis**

One of our main contributions shows how public health *platformization* – which might be easy to identify from the perspective of a user who is dependent *on* CTAs – is much messier when viewed with other units of implementation-analysis. Public health authorities interface differently with CTAs than users, politicians, and digital-rights discourses. We sought to capture, explore, and begin to document how each of these differences shaped the understanding of emergent digital infrastructures of public health. In this way, CTAs might be considered the visible tip of COVID-19 response infrastructures in ways that offered a boundary object (Star 2010) that users, governments, politicians, industry, and other elements interface with/at. CTA are entities that people act towards (or with) in relation to their own communities of practice – together and as discrete jurisdictions of power hierarchies that each have unique perspective (see Figure 1 for a representation of these overlapping relations informed from our empirical work).

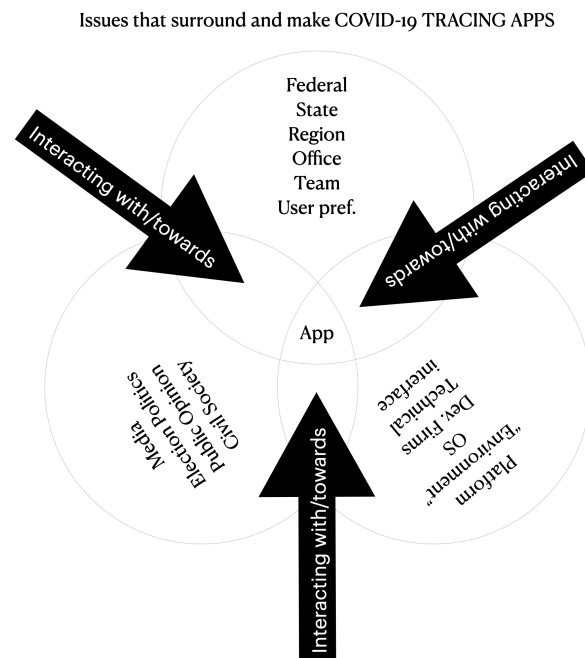Issues that surround and make COVID-19 TRACING APPS



Figure 1: App as boundary object requires acknowledging different perspectives.

For SPIR we focus on claims that cut across our informants, including *political impetus for the 'seductive solution' of CTA*s and the *complexity of CTA's design as an infrastructure of public health*. Specifically, we uncover the unseen work of integrating contact tracing data from apps and other sources of information into back-end systems to manage data and understand outbreaks; the institutional uptake and processes of these workflows in a time of 'crisis'; and the mundane work of using a surprisingly wide array of 'different things' (i.e. Excel and whiteboards) to piece together a system of contact tracing where novel technological solutions interfaced with humans' mundane, organizational, and political interactions to make novel infrastructure.

## Conclusion

While the appification of COVID responses has been considered in user-centric terms (i.e. privacy, efficacy) the complex story of digital interfaces meeting infrastructures of public health is less known nor rigorously explored through a situational analysis that shows there is much more than an app for that. Apps aren't (just) texts to read, privacy concerns to consider, or platforms to configure. Their situation is more complex.

## References

Abbas, R. and Michael, K., 2020. COVID-19 contact trace app deployments: Learnings from Australia and Singapore. *IEEE Consumer Electronics Magazine*, *9*(5), pp.65-70.

Albright 2023). '500+ Covid-Related iOS Apps' Webpage. https://public.tableau.com/app/profile/d1gi/viz/CViOS_493/iOSCovidAppsALL Accessed 24 Feb 2023.

Amann, J., Sleigh, J., & Vayena, E. (2021). Digital contact-tracing during the Covid-19 pandemic: an analysis of newspaper coverage in Germany, Austria, and Switzerland. *Plos one*, *16*(2), e0246524.

Anthopoulos, L., Reddick, C.G., Giannakidou, I. and Mavridis, N., 2016. Why e-government projects fail? An analysis of the Healthcare. gov website. *Government information quarterly*, *33*(1), pp.161-173.

Chen, Wenhong, Gejun Huang & An Hu (2022) Red, yellow, green or golden: the post-pandemic future of China's health code apps, Information, Communication & Society, 25:5, 618-633, DOI: 10.1080/1369118X.2022.2027502

Clarke, A.E., 2003. Situational analyses: Grounded theory mapping after the postmodern turn. *Symbolic interaction*, *26*(4), pp.553-576.

Connor, Brian T. & Long Doan (2021) Government and corporate surveillance: moral discourse on privacy in the civil sphere, Information, Communication & Society, 24:1, 52-68, DOI: 10.1080/1369118X.2019.1629693

Fahey, R.A. and Hino, A., 2020. COVID-19, digital privacy, and the social limits on data-focused public health responses. *International Journal of Information Management*, *55*, p.102181.

Geber, Sarah & Shirley S. Ho (2022): Examining the cultural dimension of contact-tracing app adoption during the COVID-19 pandemic: a cross-country study in Singapore and Switzerland, Information, Communication & Society, DOI: 10.1080/1369118X.2022.2082880

Geels, F. W. (2014). Regime resistance against low-carbon transitions: introducing politics and power into the multi-level perspective. *Theory, Culture & Society*, *31*(5), 21-40.

Goggin, G., 2021. *Apps: From mobile phones to digital lives*. John Wiley & Sons.

Habich-Sobiegalla, Sabrina & Genia Kostka (2022): Sharing is caring: willingness to share personal data through contact tracing apps in China, Germany, and the US, Information, Communication & Society, DOI: 10.1080/1369118X.2022.2113421

Jörling, M., Eitze, S., Schmid, P., Betsch, C., Allen, J. and Böhm, R., 2022. To disclose or not to disclose? Factors related to the willingness to disclose information to a COVID-19 tracing app. *Information, Communication & Society*, pp.1-25.

Kim, Youngrim (2022) Tracking bodies in question: telecom companies, mobile data, and surveillance platforms in South Korea's epidemic governance, Information, Communication & Society, 25:12, 1717-1734, DOI: 10.1080/1369118X.2021.1883704

Klenk, M. and Duijf, H., 2021. Ethics of digital contact tracing and COVID-19: who is (not) free to go?. *Ethics and Information Technology*, *23*(1), pp.69-77.

Leigh Star, S. (2010). This is not a boundary object: Reflections on the origin of a concept. *Science, Technology, & Human Values*, *35*(5), 601-617.

Levy, B., & Stewart, M. (2021). The evolving ecosystem of COVID-19 contact tracing applications. *arXiv preprint arXiv:2103.10585*.

Light, B., Burgess, J., & Duguay, S. (2018). The walkthrough method: An approach to the study of apps. *New Media & Society*, *20*(3), 881-900.

Mann, M., Mitchell, P., Foth, M., & Anastasiu, I. (2020). #BlockSidewalk to Barcelona: Technological sovereignty and the social license to operate smart cities. *Journal of the Association for Information Science and Technology*, *71*(9), 1103–1115. https://doi.org/10.1002/asi.24387

Mizouni, R. and El Barachi, M., 2013, September. Mobile phone sensing as a service: Business model and use cases. In *2013 Seventh International Conference on Next Generation Mobile Apps, Services and Technologies* (pp. 116-121). IEEE.

Morozov, E. (2013). *To save everything, click here: Technology, solutionism and the urge to fix problems that don't exist*. Penguin.

Morozov, E. (2020, April 15). The tech "solutions" for coronavirus take the surveillance state to the next level. *The Guardian*. http://www.theguardian.com/commentisfree/2020/apr/15/tech-coronavirus-surveilance-state-digital-disrupt

Nguyen Dang (2022): Wear your digital mask, fight this virus like it's the enemy: pandemic user-citizenship as platform-infrastructure entanglements, Information, Communication & Society, DOI: 10.1080/1369118X.2022.2131364

Leigh Star, S. (2010). This is not a boundary object: Reflections on the origin of a concept. *Science, Technology, & Human Values*, *35*(5), 601-617.

Storeng, K. T., & de Bengy Puyvallée, A. (2021). The Smartphone Pandemic: How Big Tech and public health authorities partner in the digital response to Covid-19. *Global Public Health*, *16*(8-9), 1482-1498.

Taylor, L., 2021. There Is an App for That: Technological Solutionism as COVID-19 Policy in the Global North. In *The New Common* (pp. 209-215). Springer, Cham.

Vincent, J. and Harris, L., 2008. Effective use of mobile communications in e-government: How do we reach the tipping point?. *Information, Community and Society*, *11*(3), pp.395-413.

Vogt, F., Haire, B., Selvey, L., Katelaris, A.L. and Kaldor, J., 2022. Effectiveness evaluation of digital contact tracing for COVID-19 in New South Wales, Australia. *The Lancet Public Health*, *7*(3), pp.e250-e258.

Wymant, C., Ferretti, L., Tsallis, D., Charalambides, M., Abeler-Dörner, L., Bonsall, D., Hinch, R., Kendall, M., Milsom, L., Ayres, M. and Holmes, C., 2021. The epidemiological impact of the NHS COVID-19 app. *Nature*, *594*(7863), pp.408-412.