Ethics and Contact Tracing Apps: A Better Way Forward?

David Kreps and Liesbeth Ruoff- van Welzen

Apps-based COVID-19 contact tracing systems have proved very controversial in many countries, with constant new developments, and notable national differences in project approach and deployment. What insights can we gain from these experiences? In this chapter, we look at three app-developments in different countries, and ask: where do we stand with regard to digital quality? By digital quality we mean the security aspects, IT architecture, liability for defective computer programs, privacy protection in practice, governance of IT projects, the ethical side of digitization, the understanding of open-source software, the freedom to choose an application, the financial aspects of data processing, auditing digital systems and, for example, our dependence on Big Tech? Where / how, specifically, does an ICT professional stand on these, and related issues? Can an ethical code provide a helping hand?

Contact tracing apps

In France the centralised eGovernment solution taken by government failed because the 'digital-first' approach - when digital artefacts are created to represent reality before reality is known – often misses vital detail, and frequently alienates most stakeholders. The relevant experts, moreover, were simply not consulted in the rush to create a solution from an incomplete understanding of the phenomenon. Any smartphone solution needed to be "discussed and designed for transparency and trustworthiness," but instead the French Stop-COVID app that was initially – and hurriedly - created included "inadequate specifications and *irrelevant* data collection".[1]

   In the Netherlands the COVID-19 governmental taskforce had the impression that they could adjust an existing App to this new Corona situation. They sent out the question, with answers requested in two weeks' time. 700 offers were received of which there were 660 real proposals. 7 of these were invited for a presentation of their prototype during the weekend of April 18-19, 2020 to a mixed group of experts and users. The result was a NO GO. The government then decided to build the app itself.[2] That process was finalized with the roll-out of October 10, 2020.[3]

World-beating technology

Meanwhile in the UK, in the Spring of 2020, the Ada Lovelace Institute published a searing report, telling a government that was lauding the 'world-beating' technology solution it was

---

[1] Rowe, F., Ngwenyama, O., & Richet, J. (2020) Contact- tracing apps and alienation in the age of COVID-19, *European Journal of Information Systems*, DOI: 0.1080/0960085X.2020.1803155

[2] https://www.rijksoverheid.nl/actueel/nieuws/2020/04/17/zeven-apps-doen-mee-aan-publieke-test-komend-weekend

[3] https://www.rijksoverheid.nl/actueel/nieuws/2020/10/10/landelijke-campagne-van-start-voor-wie-download-jij-coronamelder

planning to roll-out, that "There is an absence of evidence to support the immediate national deployment of the technical solutions under consideration" and that "Until a robust and credible means of immunity testing is developed, focus should be on developing a comprehensive strategy around immunity that considers the deep societal implications of any immunity certification regime, rather than on developing digital immunity certificates."[4]

It added, for technology providers and developers, that "the rushed deployment of technical solutions without credible supporting evidence and independent oversight may undermine public trust and impede the effectiveness of the implementations in supporting the crisis response. In fact, the original app was abandoned as not fit for purpose – and clearly far from 'world-beating'.

Building trust

An appreciation of how best to approach sensitive and large-scale ICT projects such as the COVID-19 apps, both amongst the profession and those in government commissioning such work, could have prevented much wasted time, effort, and money. The IFIP Code of Ethics might have been useful during 2020! In September 2020 on Zoom the IFIP General Assembly enthusiastically adopted a new IFIP Code of Ethics and Professional Conduct.[5] IFIP is The International Federation for Information Processing, a UNESCO affiliated NGO, and the leading multinational, apolitical organization in Information & Communications Technologies and Sciences.[6] This is a very welcome international development, in a field where there is a dizzying array of sometimes rather questionable codes (or none at all), with the result that all too often none is adopted or followed. Without appropriate standards, ICT professionals can find themselves contributing to public harm.

The public harm to which ICT professionals are currently contributing is well documented – one need think only of the scandals around Cambridge Analytica, the facial recognition app Clearview AI, and the epidemic of covert web tracking. Not to mention software in Boeing airplanes or Volkswagen exhaust tests. Most ICT practitioners are well-intentioned individuals, but the normal ethical insights of well-intentioned individuals are stretched by the ways that new technologies impact society, as these examples illustrate. Ethics, importantly, is a matter of professionalism, outside the purview of law and regulation. A Code of Ethics, therefore, does the heavy lifting of providing a well-thought through guide for well-intentioned individuals to follow.[7] Perhaps the most important outcome of the application of an ethical code within a profession is development of *trust*, by the public, in that profession, and what those professionals provide. A Code of Ethics – like the Hippocratic Oath in the

---

[4] Ada Lovelace Institute (2020) *Exit through the App Store?* www.adalovelaceinstitute.org

[5] https://www.ipthree.org/ifip-code-of-ethics/

[6] www.ifip.org. Every year the IFIP General Assembly (GA) gathers for its annual meeting. The Dutch Royal Society of Information Professionals, KNVI, is the Dutch representative. The GA includes representatives of National Computing Societies from over thirty countries around the world, plus 'members at large' including the ACM, and the Chairs of the 13 Technical Committees (TCs) who represent literally thousands of academics and practitioners, from all over the world, focussed on research work around multiple different aspects of ICT.

[7] Gotterbarn, D., Kreps, D. Being a data professional: give voice to value in a data driven society. *AI Ethics* (2020). https://doi.org/10.1007/s43681-020-00027-y

medical profession – enables the public to be reassured that those within the profession have the public good at heart.

Accepted

The new IFIP Code has been adapted from the ACM Code of Ethics[8] published previously, which itself had been developed through many years of consultation and development with members of IFIP, IEEE, other national and international bodies and companies – including KNVI - and was published in 2019. An IFIP Code of Ethics Task & Finish Group set up at the IFIP General Assembly in Kiev, Ukraine in September 2019, then undertook further consultations with Member Societies and with the IFIP Board, to produce the final version adopted at GA2020.

The IFIP Code of Ethics is not intended to replace Codes specific to Member Societies, which may contain unique points relevant to their cultures. The Code contains elements, however, that might not be included in the Member Society Code. Therefore, the IFIP Code of Ethics can be adopted alongside a Member Society's Code, or Member Societies can modify their Code to include those values and guidance not already included in their own Codes or simply reference it in addition to their own codes.

Four domains

The IFIP Code is broken down into four sections: General Ethical Principles; Professional Responsibilities; Professional Leadership Principles; and Compliance with The Code. In the past, some Codes of Ethics contained specific imperatives or benchmarks. Codes with fixed benchmarks, however, in our rapidly changing ICT environment, are rapidly outdated, and do not help ICT practitioners make proactive decisions in complex situations. The IFIP Code provides aspirational guidance that can accommodate a rapidly changing profession. Thus, the first section contains seven common ethical principles consistent with all professional codes. Section 2 provides nine specific ICT professional responsibilities in the light of the general principles of section 1. Section 3 adds seven responsibilities to ICT professionals when they have leadership responsibilities. Last – and least – two of the 25 principles deal with compliance, advocating proactive support for the rest of the principles.

How ethics could have saved us all the trouble

The IFIP Code has achieved something rare and quite precious – international consensus. In the words of Jussi Nissilä, CEO of the Finnish Information Processing Society (TIVIA) the IFIP "code has been gone through, line-by-line, by the TIVIA Working Group on Ethics, and no reason to not adopt it was found – on the contrary, the Working Group on Ethics considered it to be culture independent, and suitable for TIVIA, as well as any computing society".

Maxine Leslie, Secretariat and Committee Manager at the British Computer Society, likewise, reported that "The BCS Academy of Computing has reviewed the proposed IFIP Code of Ethics and will be pleased to endorse it, finding it a very robust document covering a variety of important and interesting topics."[9] Vicki Hanson, CEO of the ACM, said "As an

---

[8] https://www.acm.org/diversity-inclusion/code-of-ethics
[9] Email to David Kreps from Maxine Leslie

international member of IFIP, ACM endorses the proposed IFIP Code of Ethics as a common international standard for computing and the profession."[10]

Leadership, understanding, and the ethical skills to avoid the problems that arose - especially in building up the public trust necessary for the successful roll-out of these coronavirus apps - could all have benefited from the IFIP Code of Ethics. Thankfully, it is at last to be published in 2021, and it is to be hoped that the uptake, the world over, will be enthusiastic, and impactful.

Conclusion

Public Trust is essential to the roll out of major ICT innovations, particularly in the arena of public health. Ministerial ignorance and corporate overpromising squandered the possibilities that could have been realised from ICT engagement in the fight against the pandemic. First and foremost, informed leadership is needed. This is explicitly part of the Code: Professional Leadership Principles. Thereafter, the Code could have helped *police* the process, ensuring that those ICT practitioners who did become involved, were appropriately guided by principles that would engender the public trust that any such sensitive ICT application required (Professional Responsibilities). Finally let us not forget the importance of the General Ethical Principles, which should form a condition of every digital process.

Points of relevance

- **Ethics is a matter of professionalism**
- **Laws and regulations are created based on a society's ethics, to enforce behaviours we are expected to follow, but ethics suggest what we *ought* to follow, and help us explore options to improve our decision-making.**
- **The IFIP Code of Ethics seeks to provide an aspirational set of principles for what ICT practitioners *ought* to do.**
- **The IFIP Code of Ethics is a common international standard for computing and the profession**
- **Ethical Leadership in ICT is as important as Ethical Behaviour among Practitioners.**

---

[10] Email to David Kreps from Vicki Hanson