This Tech Professor (Currently Recovering From the Virus) is Very Critical of Coronavirus Apps – and Not Just for Privacy Concerns

The coronavirus forced Lokke Moerel to quarantine herself at home for a month, with splitting headaches and shortness of breath. The lawyer and professor—specializing in global technology law—is critical of coronavirus apps. "Even if the app is on a voluntary basis, employers will demand a 'green code' before allowing you to go to work."

A phone call from Brabant for Lokke Moerel's husband. "Remember the workshop you gave? Two participants are now showing coronavirus symptoms."

It happened in early March, the day that the Prime Minister Rutte of the Netherlands called upon Dutch people to stop shaking hands. Lokke Moerel and her husband consult on the call with each other. A workshop, where you are in one space for the whole day, shaking hands, having lunch together: the risk of infection seems to be considerable to them. They decide to quarantine themselves at home in Amsterdam.

Six days later Moerel's husband falls ill. Another six days later Moerel falls ill herself. Headaches so bad "you can barely open your eyes." She also experienced breathing problems: one night a doctor had to be called. The symptoms lasted for four weeks.

Every day, Moerel's husband enters his temperature and symptoms into the *corona check-app* of one of the Amsterdam hospitals, an app with over 100 thousand downloads. Medical personnel review the scores and provide remote assistance. "A useful app," according to Moerel, professor at the University of Tilburg, lawyer, and much sought-after expert in the fields of IT and privacy. "The app provides insight into how symptoms progress and it feels good to know that doctors will contact you if your condition worsens. It also feels good that medical experts can use this data to gain more insight into how the disease progresses and spreads. Also, there are good privacy safeguards in place."

Moerel has more concerns about another type of coronavirus app that monitors whom you have been in contact with and sends a signal when you have been close to someone with a coronavirus infection. This is exactly the type of app that Dutch minister Hugo de Jonge for Public Health is pushing for. This weekend his ministry is organizing a so-called *appathon* to test these kinds of apps. Next week he will decide how these apps can help contain the virus. Moerel: "The app is presented as *the* solution to get out of lockdown, but technology is always only part of the solution."

Do you think this kind of app which tracks your contact with others is too big of a breach of privacy?

"Developers can build in good privacy safeguards in the app's design. Using Bluetooth—the technique which is also used to connect phones with wireless headphones—mobile phones can register anonymously amongst themselves whom you have been in contact with, so you can receive a signal if someone turns out to be infected. The contact information is only saved to your own phone, so no one can access the data."

"What I am much more worried about is the possibility that the app raises false alarms, or that it does not raise an alarm in a situation where it should have. And how such an app will influence the behavior of people, companies, and institutions. If you lift the lockdown with the idea that an app can control the infection, you create a false sense of security."

Can you give us an example of what can go wrong?

"An example would be the experiences in Singapore, which has returned to lockdown despite using one of these tracing apps. Every app has a threshold value. In Singapore, the app examines whether you have been within two meters of someone with coronavirus in the past 30 minutes. If so, you receive a signal that you are possibly infected as well.

"I mean, how trustworthy is that really? If I kiss someone with the coronavirus for one minute I will probably get infected, but the app won't raise an alarm because we were in contact for less than 30 minutes. And Bluetooth works through glass and even some walls. This means the app can give me a signal, even though my neighbor, or my grandma from behind a window, never had the opportunity to infect me. The app can also only be effective if a majority of the population installs it and uses it properly. I doubt whether that is an achievable goal."

An idea: the entirety of the Netherlands will be required to install these coronavirus apps. If you're healthy and you haven't been in contact with an infected person, you can go back to your work or to a bar. Otherwise, you have to stay at home for two weeks until the coast is clear. Okay, there might be some false alarms, but at least we'll be able to get the country up and running again.

"You're painting a very positive picture, but this is exactly where the danger of these apps lies. These apps are problematic from a behavioral perspective. Even if the app is voluntary, employers will demand a 'green code' before you can go to work. Those are very serious consequences on the basis of an extremely fallible system. Right now, everyone has to practice social distancing, but if some of us are allowed to go to bars etc. and some of us aren't, then

people will start trying to trick these apps for their own benefit. Turning off your phone or Bluetooth when you're meeting up with others. Taking your mother's phone when you want to get on a train. The monitoring required to counter this, by checking if people have their phone on them, can get out of hand fast. You can't require people to do this, so you'll have to stipulate that people take responsibility themselves."

You were infected with the coronavirus yourself. Would you have acted differently if you had one of these tracing apps on your phone?

"It would have been counterproductive for me. Imagine if I had received an anonymous notification, without any context, saying: 'You were in the vicinity of an infected person' while we had properly kept our distance from everyone. Would we have gone into quarantine then? Now, we received a call from someone we knew, which immediately made clear to us how intensive the level of contact was. That's when you decide to act.

"That's why I believe an app that functions as a reminder for yourself when you become infected is a better idea. Where have you been in the past weeks, and who did you have extensive contact with? You can then inform these people yourself, which makes it more likely they will act responsibly as well. Technology is often very alienating; you can easily hide behind it."

This weekend the Dutch ministry of Public Health will test a number of these tracing apps. Next week it will be decided if and how such an app can help contain the virus. What do you expect will happen?

"The app is not *the* solution, and can only be used as a supporting measure. You also can't ignore the measures that will have to be created around the app. For example: what can and can't employers ask from their employees with an app like this? Will access to public transportation become dependent on your score on one of these apps? Will there be more access to actual coronavirus tests to prevent people from staying at home for two weeks just because their app raised a false alarm? How people and organizations will respond to the use of these apps in practice is incredibly complex. I fear that you can't understand the ramifications of these apps in one testing weekend where you're only examining the app itself. The app's design is always the end result of a process, not your starting point."