Tracker - Our Health-Savior in the Future

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'Coronavirus - Earth Is Shaking a Lot Less Now That Everyone Is Staying Home!' - Jordan davidson, EcoWatch

Due to coronavirus, everything in all over the world has been almost stopped - power plant, company, traffics, school, human interaction and even earthquake. COVID-19(coronavirus) is defined as respiratory syndrome caused by SARS-CoV-2 infection. It is a pandemic (the highest risk level of the WHO's epidemic warning phase) that has spread throughout China and around the world since it first broke out in Wuhan, China in December 2019. To re-rotate our earth just like the old days, enormous efforts have been executed and should be conducted more. And representative one of them is smartphone tracking of individuals locations and movements. The world try to conquer not only COVID-19 but also many other diseases in the future by using that technology. However, doing so might be very *problematic* and *controversial*.

There would be the pros and cons of the government proposal. The advantages of the proposal would be these;

1) It becomes easier to know the infection route in real time and to prevent the spread of the virus by blocking certain areas. In South-Korea, thanks to close-to-perfect identifying system for confirmed patient's movements, the government was able to slow the spread down without any lockdowns (very exceptional case). So if we are provided with all the citizen's movements and location information, we would be able to handle any diseases in the future. Furthermore, when another pandemic (similar with corona case) occurs we can handle it with immediate initial response through the program.

2) The proposal enables us not to be deceived by the lies of the confirmed patients. Due to the fear of stigmatization (maybe), some patients have told lies about their past movements and deeds. Recently, for example, an instructor in Incheon said that he was 'unemployed' and returned home at 6 p.m. during the epidemiologic investigation, but this turned out to be a lie, which delayed the quarantine response, causing the secondary to sixth infections.

3) There would be vast monetary gain. In South-Korea, a total of 11.7 trillion won scale of supplementary budget was set up to minimize the impact of the COVID-19 effect and to overcome the crisis early in March. Even considering the cost of developing the system, the benefit of applying the tracking system will outweigh the cost.

However, there are also expected disadvantages;

1> Stigmatization. The infected (confirmed) person is treated as a criminal and cannot honorably reveal whether they are infected or not. We know about patient No. 15, for example, because South Korean health authorities legally use cellphone data, credit card histories and surveillance cameras to trace infection routes. While under self-quarantine, he shared a meal with his sister-in-law, who also became infected but speculation erupted on Korean social media - the two were having an extramarital affair (NOT FACT)! Due to this stigmatization, tendency to avoid revealing their past movements was and is still rampant among the COVID-19 patients, which aggravated the situation after Itaewon Club Mass Infection (05/23, 2020).

2> The sentence '*smartphone tracking of individuals locations and movements will be permanently implemented for everyone*' means that we're going to live in permanent *panopticon - a prison where prisoners themselves surveil themselves even without a watchdog*. People will constantly self-discipline their behaviors for fear of what inferences may be drawn from the data which the government has collected of them.

3> Control creep. In this problem, data gathered for one purpose is repurposed and used to regulate in another way. For example, road cameras that were installed in London with the primary purpose of regulating congestion and implementing congestion charges have been repurposed for security tasks (Dodge and kitchin 2007). Who agreed with it? - maybe no one. And all of these disadvantages are caused by privacy intrusion such as personal identity disclosure or some.

It is hard to conclude certain answer or say certain position is 'right' because it is the battle based on vague value judgements and subjectivity - privacy versus publicity. But as a data scientist, I stand up for the consenting position. My refutations against those objections are these;

1'> It is not only stigma but also name tag. After starting to collect and reveal the infected people's information, it became much easier to classify and clarify the confirmed patients. Actually, thanks to collaboration of telecommunications and credit card companies, including government

departments, and Smart City Technology of the Ministry of Land, Infrastructure and Transport, it became able to reduce the time required to identify the movements of confirmed patients with new COVID-19 to just 10 minutes, which used to take an average of 24 hours in South-Korea. And the very core of Smart City Technology is how accurate and how much information is aggregated in real time, which means that the tracking system will be a superhero against diseases including COVID-19. Also, people would become precautious not to be infected for fear of getting stigmatized.

2'> I think living in panopticon isn't problem in itself; whether people get reluctant and afraid of collecting-data-of-them is the main point. If it is guaranteed that the citizen's personal data will be collected but revealed publicly only when he turns out to be infected, people would be willing to allow their information to be utilized. For sure, the word 'permanent' in the given prompt is quite problematic so we should make some subtle changes on our system by letting people freely drop out of the system then giving them penalties or giving the others incentives such as tax deduction or subsidy.

3'> Data is not disposable; it is natural that the collected data would be used differently for being-changed purposes. So control creep could be seen as natural process toward development of technologies in modern society.

In addition, the advantage of 1) is so overwhelming that we cannot help tracking individuals. 1) implies that 'maybe' there will be no such disease in the future anymore. Based on these refutations and advantages above, I strongly recommend that the program be implemented.

Yuval Noah Harari, the writer of 'Sapiens', stressed the importance of trust between citizens each other in his book 'The world after coronavirus'; *'We can choose to protect our health and stop the coronavirus epidemic not by instituting totalitarian surveillance regimes, but rather by empowering citizens. In recent weeks, some of the most successful efforts to contain the coronavirus epidemic were orchestrated by South Korea, Taiwan and Singapore. While these countries have made some use of tracking applications, they have relied far more on extensive testing, on honest reporting, and on the willing co-operation of a well-informed public. '* Well, his argument also makes some sense. But what if there has been no tracking? Would there still be any praises for South-Korea? We

still have to rely on technology, who infuses a bit incomplete social system with perfection. And the implement of the suggested program would be our permanent hero, human-health-savior.