QR code a key part of China's COVID-19 response

Alice Wang, Ed Rowland

Editor's Note: In the fourth and final part of their series, Alice Wang and Ed Rowland examine how China has identified healthy people and allowed some mobility. What could have been an administrative nightmare has been solved with digital simplicity: the QR code backed by large data analysis.

Part one is available <u>here</u>. Part two is available <u>here</u>. Part three is available <u>here</u>.

The right QR code has become the new "Open Sesame" in China. Alibaba could only gain entrance to the cave of mysterious treasures with a mobile phone today.

The ongoing months-long spread of the Coronavirus has necessitated the development of a modern-day magic word in the form of health QR code. People are required to show their magic code for access to airports, railway stations, office buildings and even their own communities.

The QR code health system has streamlined life for everyone providing individual convenience and bureaucratic simplicity. A printed "health license" would have been a nightmare requiring complicated procedures with numerous hospital and police stamps. It would have been impossible to keep up with the real-time situation. The Chinese population has embraced the system: Green allows free travel, yellow requires 7 days home quarantine, and red 14 days.

The system strives to insure the health condition of all people in public areas. It also enables tracking of anyone who contacted infected or suspected infected virus sufferers and makes efficient immediate action possible.

The code algorithm has not been disclosed to the public. There is speculation that the system combines an impressive array of data: LBS positioning technology, Chinese Center for Disease Control and Prevention (CDC) data from and public transportation information (airplane and train tickets require ID information which is bonded with a mobile phone number). Once the QR code is detected, the system will record the real- time location and the color status enabling real-time emergency individualized footprint tracking.

Internet giants Alibaba and Tencent developed the system which has been deployed in

several cities. The Chinese government has integrated the evolving technology into a unified health system of and is expanding it to hundreds of cities across the country. Tencent's version has amazingly acquired over 800 million users and has had more than 4.3 billion visits.

The QR code system has been quickly evolving in response to the coronavirus. The original code had a very limited storage of about 1600bit. Cloud computing and various scanning devices record the footprint of the holder over a certain period of time. Gradually more data is collected and centrally stored (where the person went, who they met etc.). The QR code system already prohibits a red code holder from entering any public space.

In the short term, the health QR code system is definitively making China a safer place at a faster pace. But it is also accelerating the country's overall digitalization. The Chinese government is entering and pioneering the era of E-government and E-card much faster than expected. The gift of science, while creating a safer China, has a dark side. The "gift" is also leading to the elimination of privacy. The potential to abuse the system will undoubtedly be leveraged. Algorithms will power discrimination and worse.

"Computing," as Nicholas Negroponte wrote in his 1996 classic, Being Digital, "is not about computers anymore, it is about living." In northwest Canada lies the Dempster highway, the only way to the Arctic Ocean. At the end of highway, there is a sign: no road forward. QR codes serving public health aside, the Digital highway hasn't hit the end of a potentially dangerous road yet.

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