Digital Health Surveillance and COVID-19
Special track in the 15th International Conference on Digital Society
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Chaired by: Professor Theo Lynn

Presenter Bio

Professor Theo Lynn

Full Professor of Digital Business

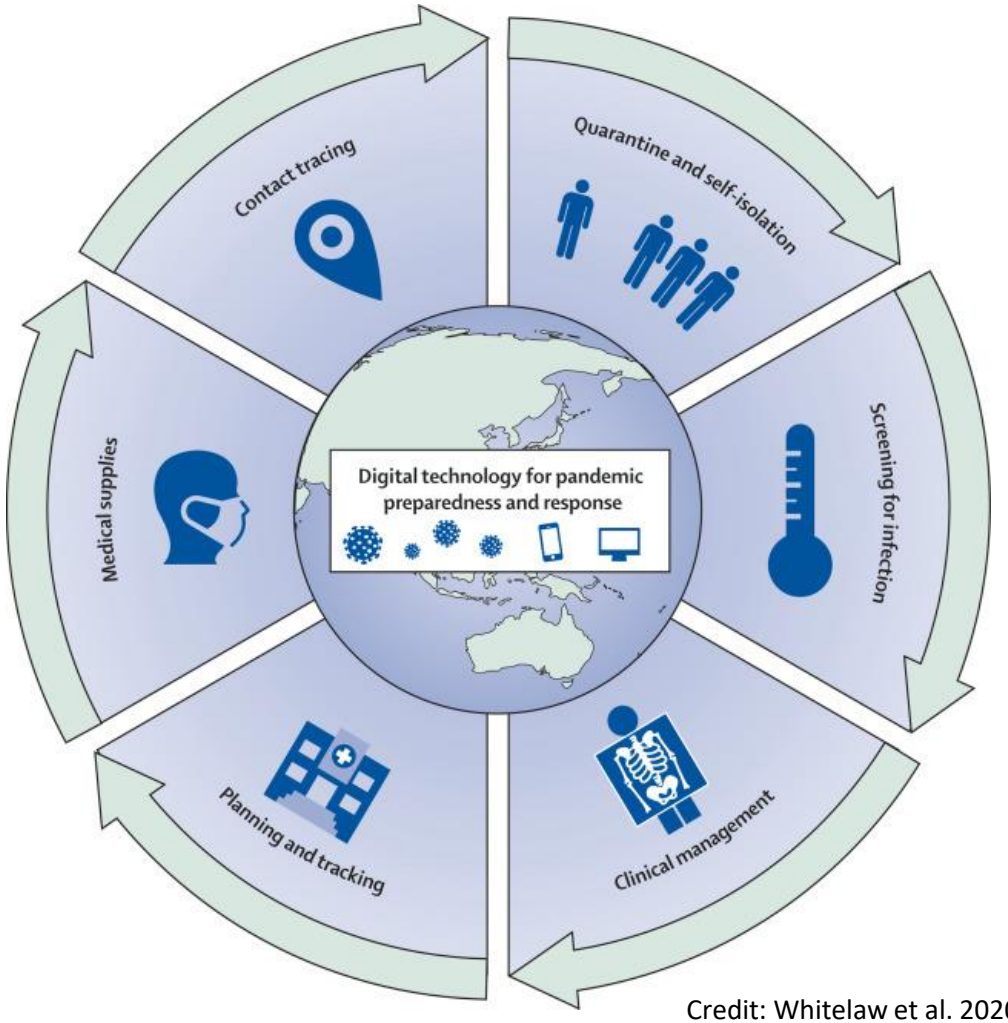
DCU Business School

About Theo Lynn

Professor Theo Lynn is (Full) Professor of Digital Business at DCU Business School. Professor Lynn specializes in the role of digital technologies in transforming business processes. His main teaching areas are strategy and digital marketing.

Prof. Lynn was Centre Director at the Irish Institute of Digital Business (2018-2019), Principal Investigator of the Irish Centre for Cloud Computing and Commerce, an EI/IDA funded Cloud Computing Technology Centre (2011-2018), Associate Dean (Industry Engagement and Innovation) at DCU Business School (2015-2017), Business Innovation Platform Director for DCU (2015-2016) and Director of the Leadership, Innovation and Knowledge Research Centre at DCU (2009-2011). He has won over 200 grants representing over €20m in total project funding. He was a PI on the Horizon 2020 CloudLightning Project (2015-2017) and Horizon 2020 RECAP Project (2017-2019); he is currently a PI on the Horizon 2020 RINNO project (2020-2023).

COVID-19 initially was characterised by unknown pathogenicity, transmission, and treatment thus requiring a variety of non-pharmaceutical interventions.



Credit: Whitelaw et al. 2020

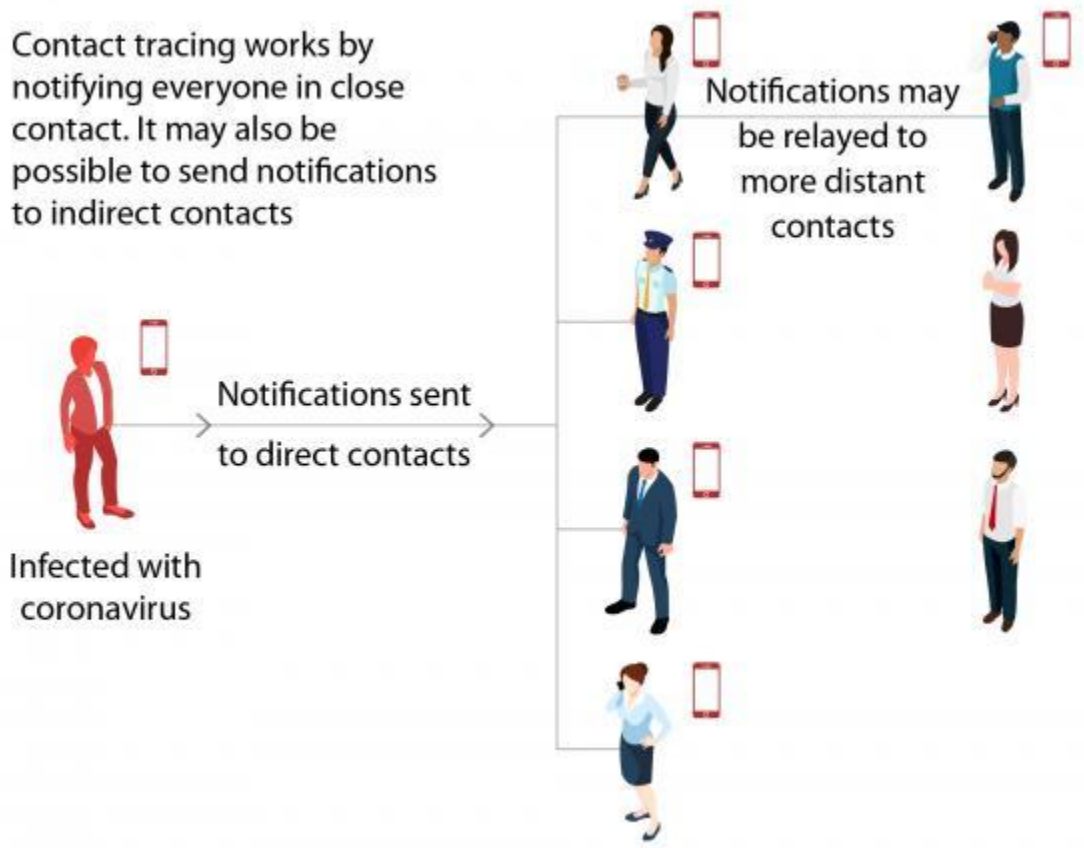
These non-pharmaceutical interventions required adopting a wide range of digital technologies and integrating them into policy and health care (Whitelaw et al. 2020)

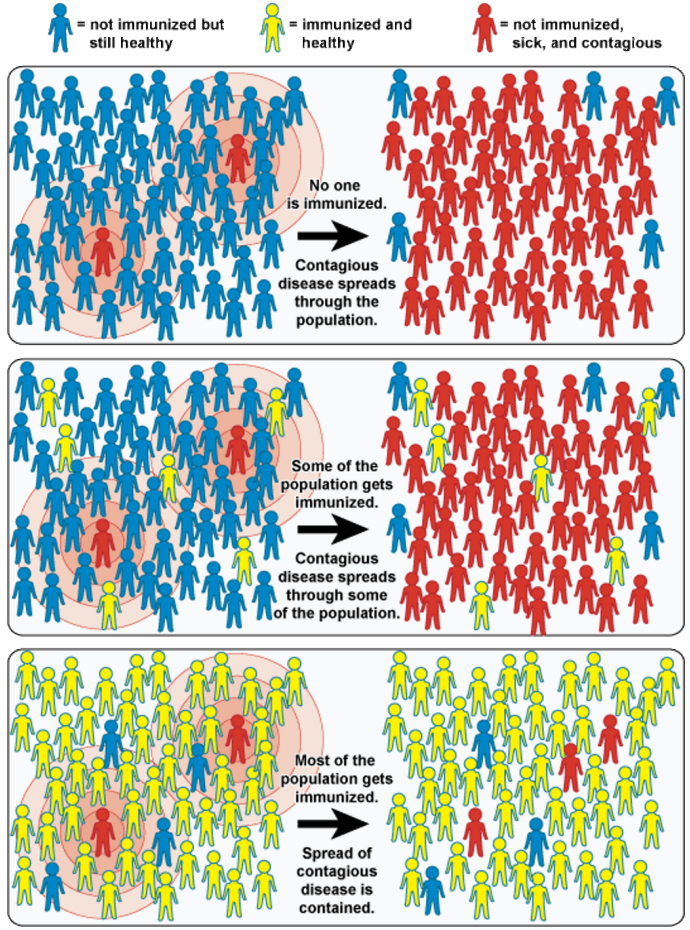
	Functions	Digital technology	Countries	Advantages	Disadvantages
Tracking	Tracks disease activity in real time	Data dashboards; migration maps; machine learning; real-time data from smartphones and wearable technology	China; Singapore; Sweden; Taiwan; USA	Allows visual depiction of spread; directs border restrictions; guides resource allocation; informs forecasts	Could breach privacy; involves high costs; requires management and regulation
Screening for infection	Screens individuals and populations for disease	Artificial intelligence; digital thermometers; mobile phone applications; thermal cameras; web-based toolkits	China; Iceland; Singapore; Taiwan	Provides information on disease prevalence and pathology; identifies individuals for testing, contact tracing, and isolation	Could breach privacy; fails to detect asymptomatic individuals if based on self-reported symptoms or monitoring of vital signs; involves high costs; requires management and regulation; requires validation of screening tools
Contact tracing	Identifies and tracks individuals who might have come into contact with an infected person	Global positioning systems; mobile phone applications; real-time monitoring of mobile devices; wearable technology	Germany; Singapore; South Korea	Identifies exposed individuals for testing and quarantine; tracks viral spread	Could breach privacy; might detect individuals who have not been exposed but have had contact; could fail to detect individuals who are exposed if the application is deactivated, the mobile device is absent, or Wi-Fi or cell connectivity is inadequate
Quarantine and self-isolation	Identifies and tracks infected individuals, and implements quarantine	Artificial intelligence; cameras and digital recorders; global positioning systems; mobile phone applications; quick response codes	Australia; China; Iceland; South Korea; Taiwan	Isolates infections; restricts travel	Violates civil liberties; could restrict access to food and essential services; fails to detect individuals who leave quarantine without devices
Clinical management	Diagnoses infected individuals; monitors clinical status; predicts clinical outcomes; provides capacity for telemedicine services and virtual care	Artificial intelligence for diagnostics; machine learning; virtual care or telemedicine platforms	Australia; Canada; China; Ireland; USA	Assists with clinical decision-making, diagnostics, and risk prediction; enables efficient service delivery; facilitates patient-centred, remote care; facilitates infection control	Could breach privacy; fails to accurately diagnose patients; involves high costs; equipment may malfunction

Table: **Digital technology initiatives used in pandemic preparedness and response**

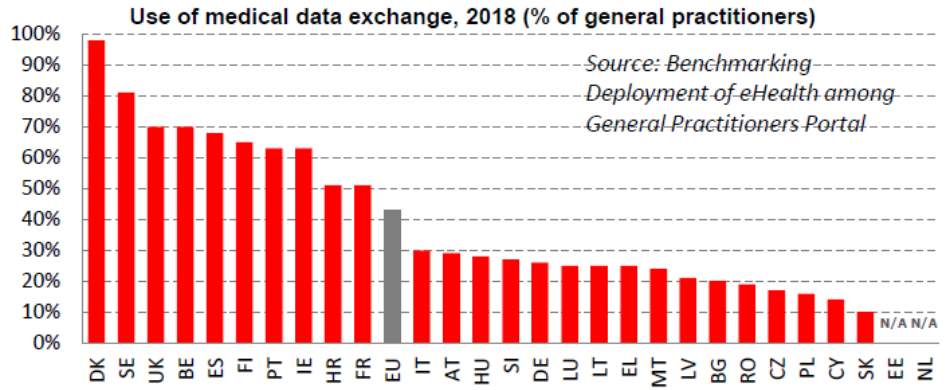
DELIVERING HEALTHCARE AGAINST THE BACKDROP OF SOCIAL DISTANCING INTRODUCES SIGNIFICANT LOGISTICAL CHALLENGES

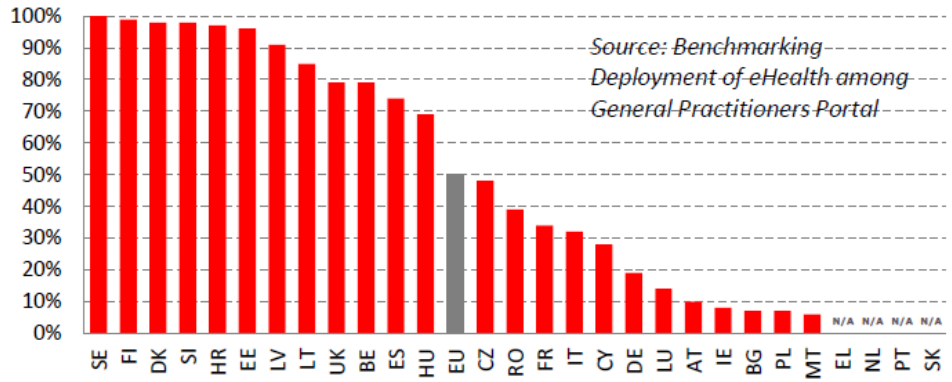
Contact tracing and vaccination only work where there is high uptakes by the population





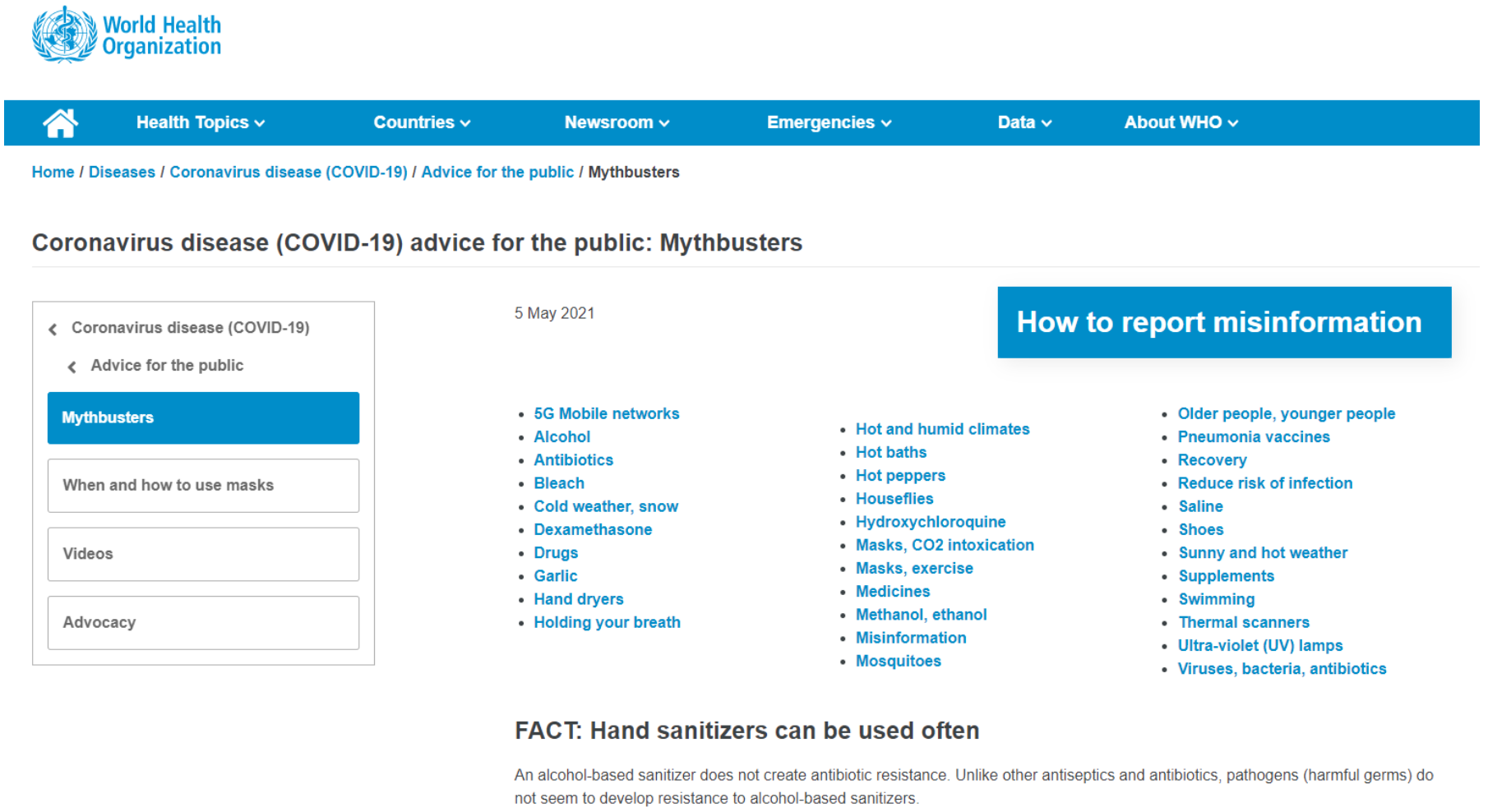
Clinical management in social distancing requires adoption and use of telemedicine by health professionals and end users.

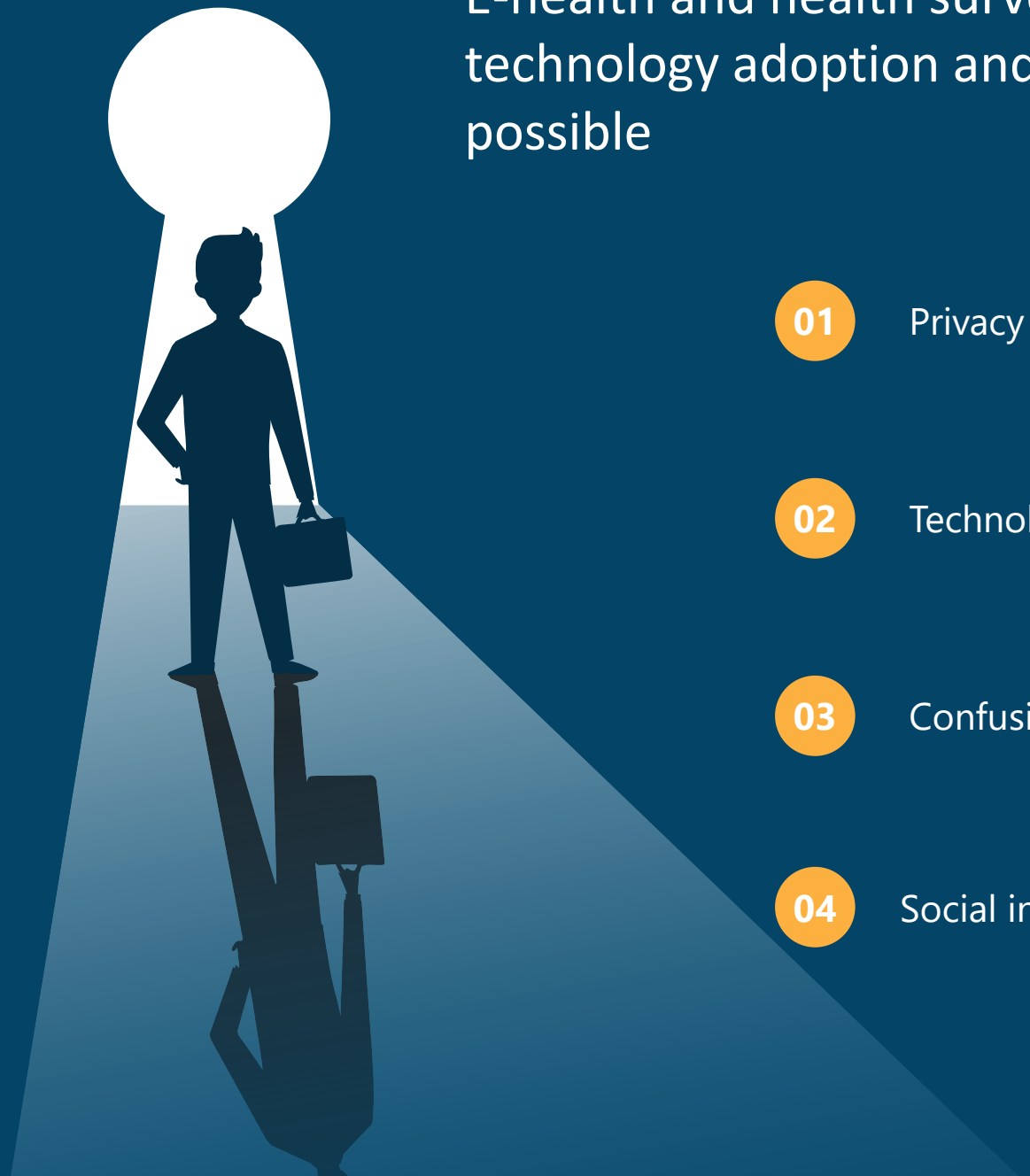




Going in to COVID-19, more than 60% of GPs did not use electronic networks to exchange medical data with other healthcare providers and professionals, and 50% of GPs did not use e-prescriptions to transfer prescriptions to pharmacists.

At a time of uncertainty, the Internet is rife with misinformation and disinformation. Rather than helping, the power of the Internet is being used to fuel vaccine hesitancy.





E-health and health surveillance requires understanding barriers to technology adoption and use and removing these barriers where possible

01 Privacy

02 Technology Anxiety

03 Confusion

04 Social influence

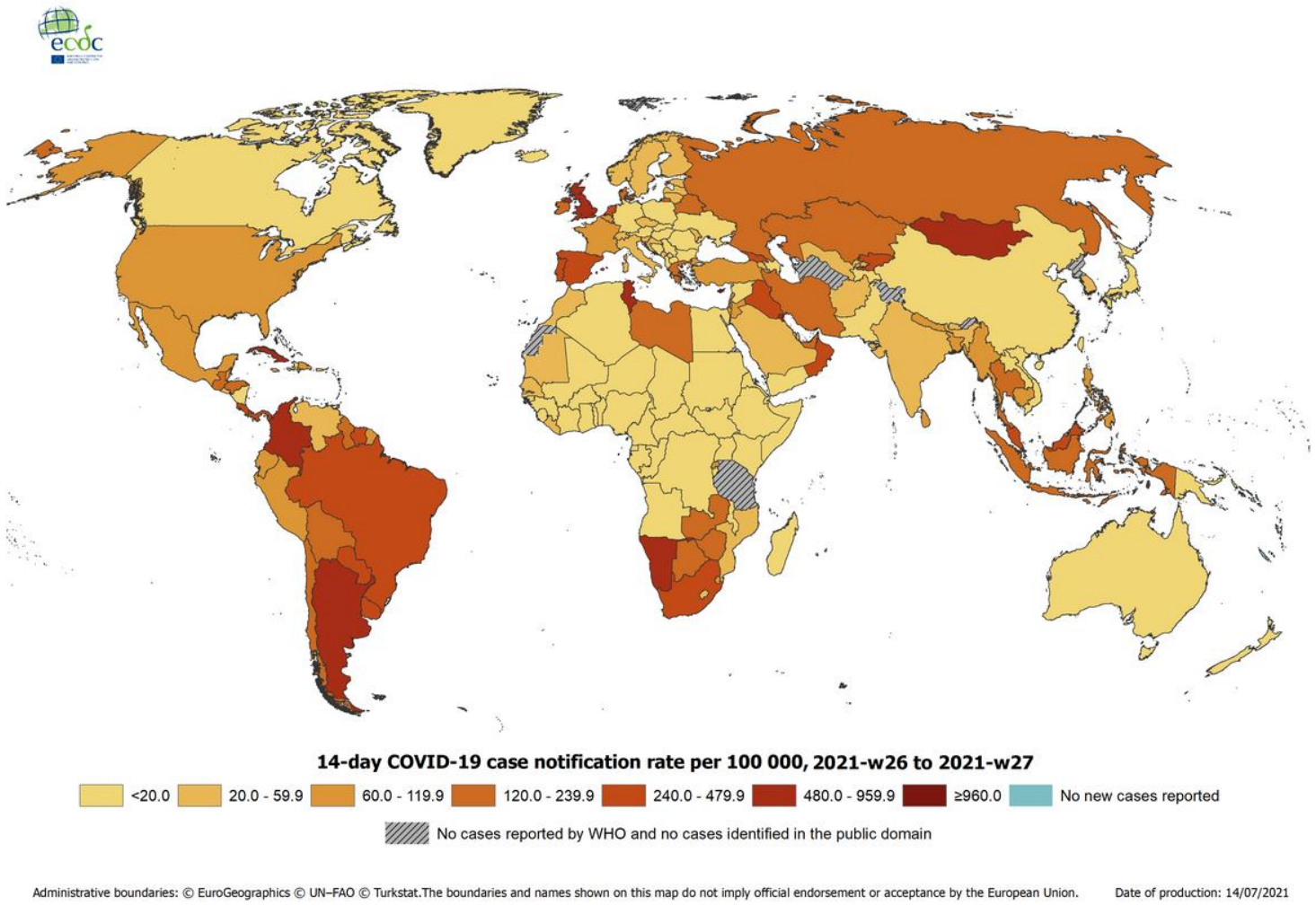
05 Culture

05 Digital Access

06 Digital Competence

06 Denial

Global problems need global perspectives, knowledge sharing, and collaboration

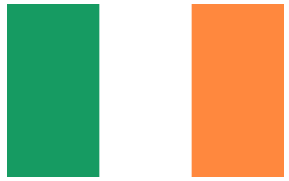


Agenda

01

A Longitudinal Analysis of the Determinants of Citizen Acceptance of Contact Tracing Mobile Apps

Grace Fox, **Pierangelo Rosati**, Lisa van der Werff, and Theo Lynn



02

A Preliminary Analysis of the Determinants of Acceptance of Contact Tracing Apps in Brazil

Patricia Endo, Grace Fox, Pierangelo Rosati, Lisa van der Werff, and Theo Lynn

03

Bad Robot: A preliminary exploration of the prevalence of automated software programmes and social bots in the COVID-19 #antivaxx discourse on Twitter

Antonia Egli, Theo Lynn, Pierangelo Rosati, and Gary Sinclair

04

Use of Medical Teleconsultations During the COVID-19 Pandemic in Poland - Preliminary Results

Urszula Grata-Borkowska, Mateus Sobieski, Jaraoslaw Drobnik, Ewa Fabich, and Maria Magdalena Bujnowska-Fedak

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