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

Grace Fox, Theo Lynn, **Pierangelo Rosati**, Lisa Van der Werff

15th International Conference on Digital Society – 18-22 July 2021

IARIA

DCU BUSINESS SCHOOL

DCU Dublin City University

dotLAB The Irish Institute of Digital Business

Dr Pierangelo Rosati

Dr. Pierangelo Rosati is an Assistant Professor in Business Analytics at DCU Business School and a Co-Deputy Directory of the Irish Institute of Digital Business (IIDB). He is he is currently a Co-PI on the Horizon 2020 RINNO project (2020-2024), PI on the Horizon 2020 ERASMUS+ MENA-Preneurs Project (2021-2023), and a Series Editor on the Palgrave Studies in Digital Business & Enabling Technologies. He previously worked as Post-Doctoral Researcher of the Irish Centre for Cloud Computing and Commerce (IC4).

Dr. Rosati holds a PhD in Accounting and Finance from the University of Chieti-Pescara (Italy) and an MSc in Management and Business Administration from the Alma Mater Studiorum University of Bologna (Italy).

He was appointed Visiting Professor at Universidad de las Américas Puebla (Mexico), University of Edinburgh Business School (United Kingdom), University of Bologna (Italy) and Católica Porto Business School (Portugal), and visiting Ph.D Student at the Capital Markets Cooperative Research Center (CMCRC) in Sydney (Australia).

Dr. Rosati has been working on a number of research projects on data analytics, business value of IT, FinTech, Blockchain, cloud computing, and cyber security, many of them in direct collaboration with industry. His research has been published in leading academic journals European Accounting Review, Computers in Human Behavior, European Journal of Finance and New Media and Society.

2020, an exceptional year in history

Coronavirus
COVID-19

- Covid-19 has forced radical changes in our lives
- More than 180m people worldwide have been infected by the virus, causing more than 4m deaths.
- Covid-19 has had a huge impact on the health sector, on the economy and on the society as a whole
- Differently from previous pandemics, health authorities and regulators have had access to an unprecedented volume of data that has allowed them to take informed decisions in a timely manner.

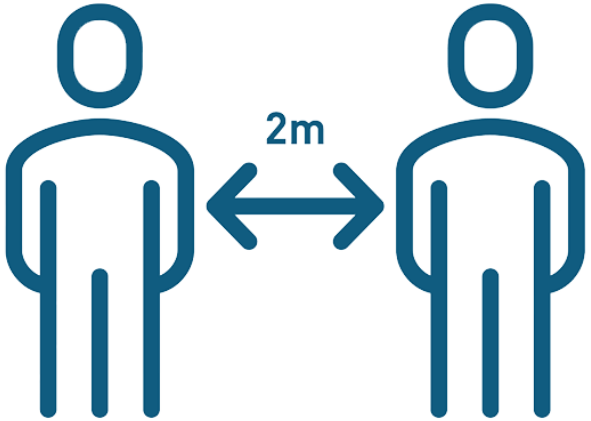
IARIA

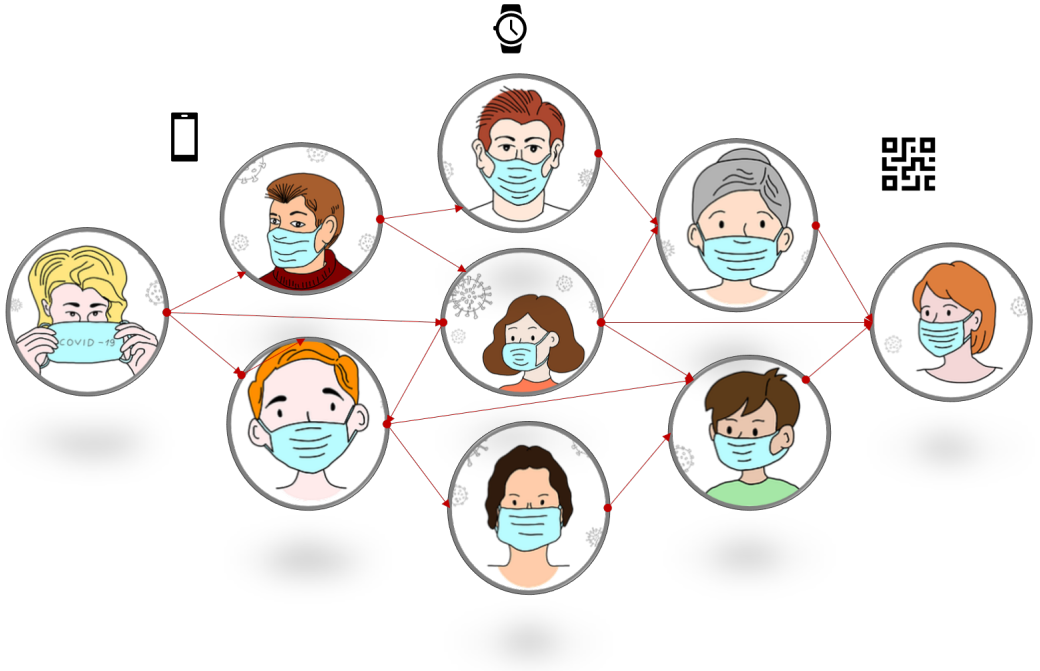
DCU BUSINESS SCHOOL

DCU Dublin City University

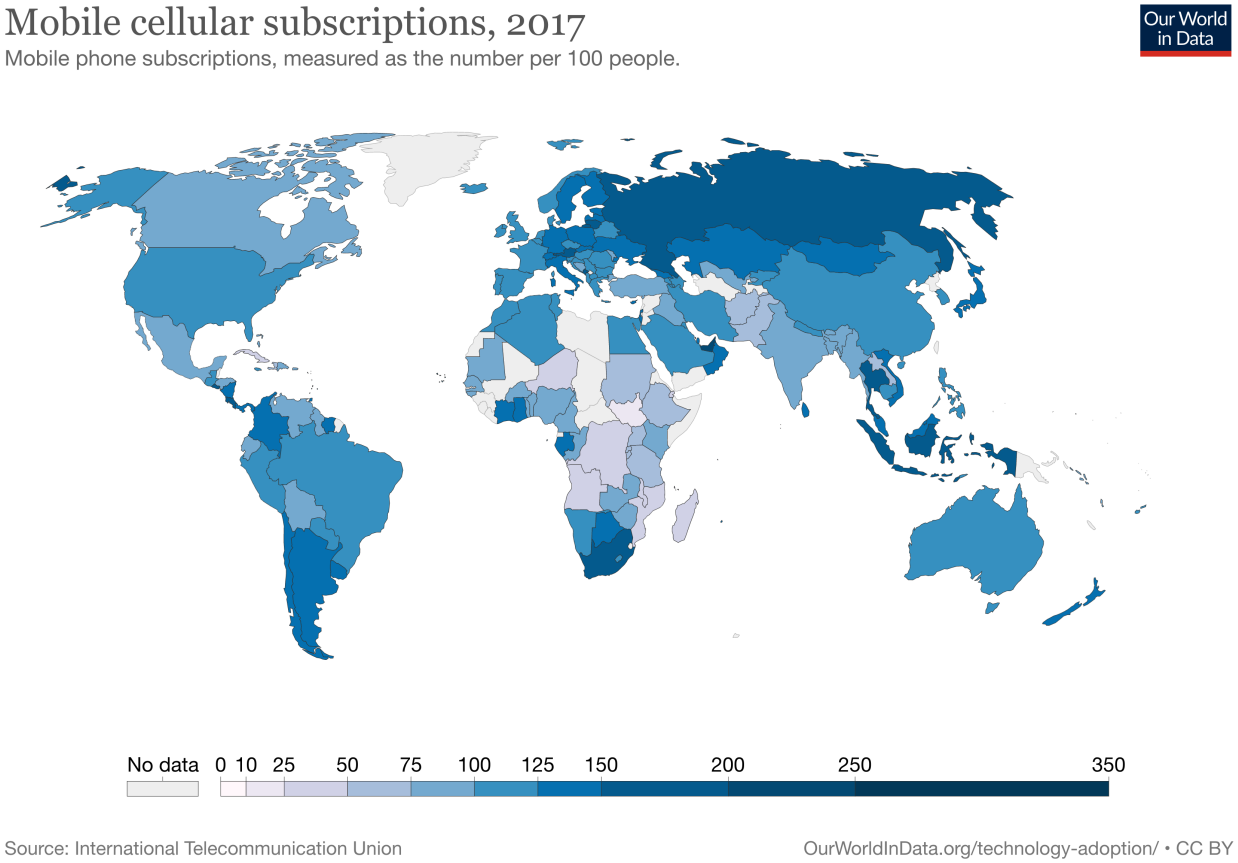
dotLAB The Irish Institute of Digital Business

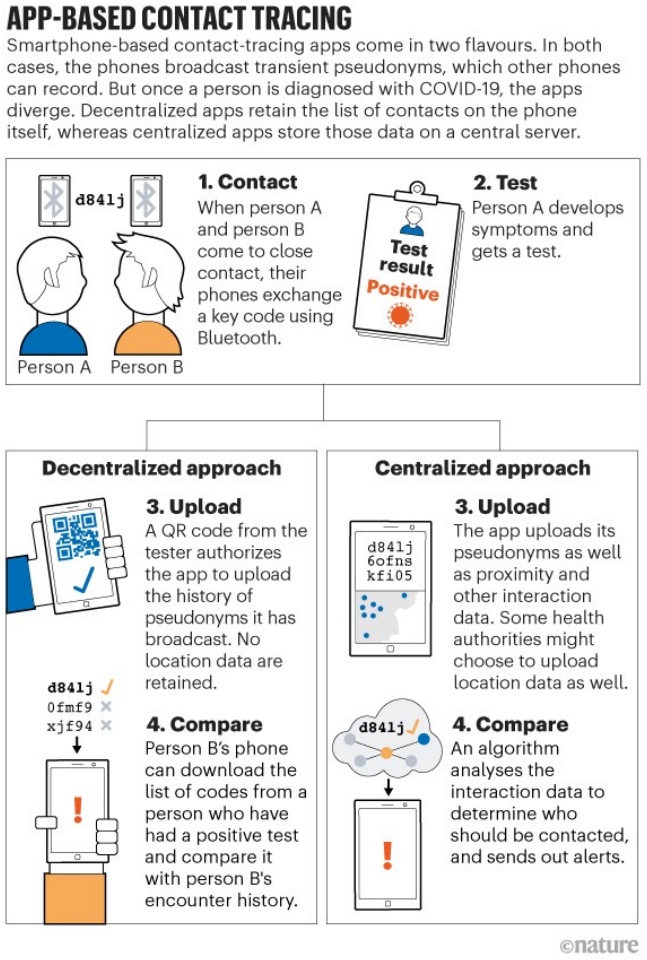
Given the initial uncertainty about transmission and the lack of a pharmaceutical remedy against the virus, health authorities and regulators have implemented two main non-pharmaceutical counter-measures:





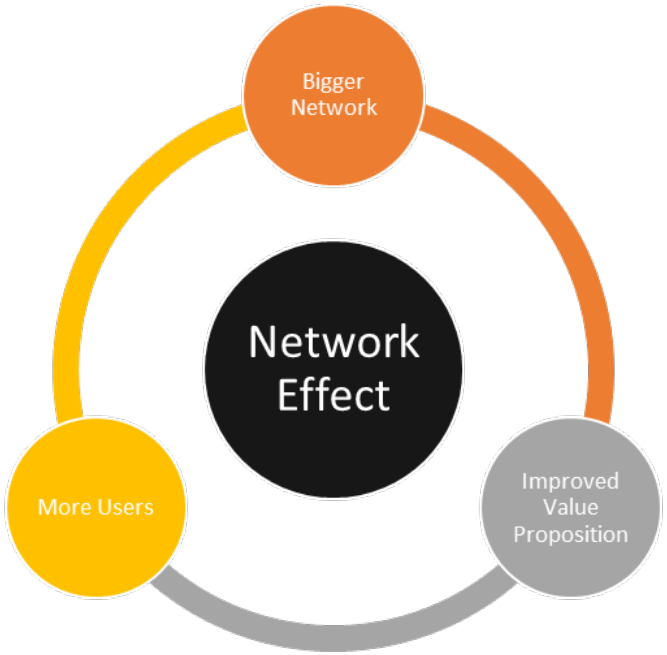
Contact tracing was traditionally a time-consuming task and time during an emergency situation such as a pandemic is precious. The widespread adoption of mobile devices has made it possible to automate contact tracing using mobile applications that can track a user's location and their potential interaction with others (Zastrow, 2020)





While contact tracing apps generate clear benefits for users and the society more generally, they also track personal data such as users' locations and interactions and can be seen as a form of government surveillance. As such they may raise significant privacy concerns (Yasaka et al. 2020)

- The more users download and use a contact tracing app, the more effective it will be in fighting the spread of the virus.
- Privacy concerns may lead to low acceptance and adoption (Krishen et al., 2017) and therefore limit the value of these apps for the society.

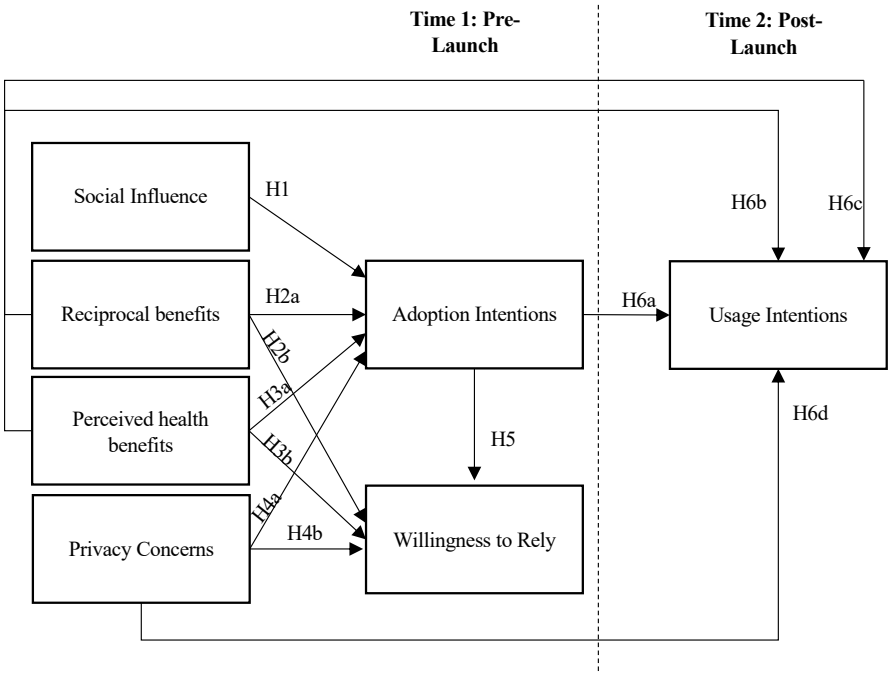


Our research comprises of two discrete longitudinal studies exploring the determinants of citizen acceptance of a contact tracing app launched in Ireland on the 6th of July 2020

The first study combines privacy calculus theory and social exchange theory to examine the role of positive beliefs and privacy concerns on citizens' acceptance of the mobile app.

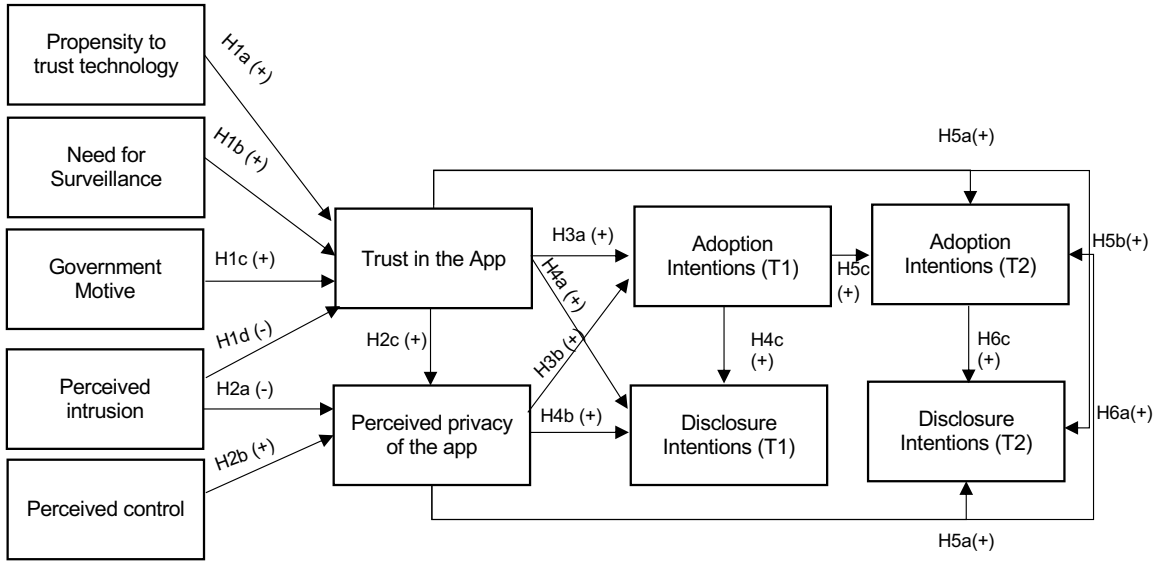
- PCT posits that individuals compare costs and benefits associated with adopting a new technology or disclosing personal information before they engage in such a behaviour (Li, 2012)

- SET seeks to explain human behaviour with an emphasis on social structures and norms, and posits that individuals expect reciprocal benefits when being required to adhere to social norms (Church, 2017)



The second study focuses on the role of trust as an antecedent of intention to adopt and use the app. This study combines PCT with Procedural Fairness Theory

- PFT posits that an individual's perception that a particular activity is conducted fairly is an important driver of risk appraisal (Li, 2012)



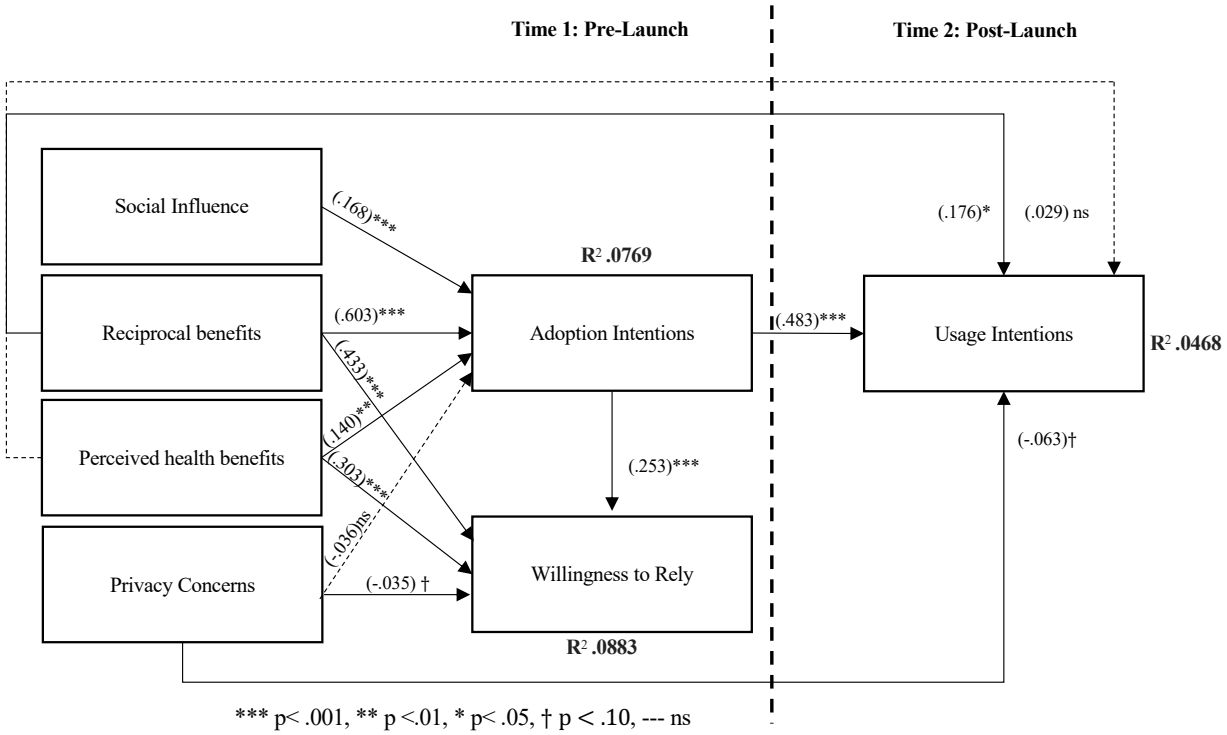
Sample

- Online panel of Irish residents provided by Qualtrics
- Stratified sampling based on:
  - Gender
  - Age
  - Region
- 1,109 complete responses in T1 – 405 complete responses in T2

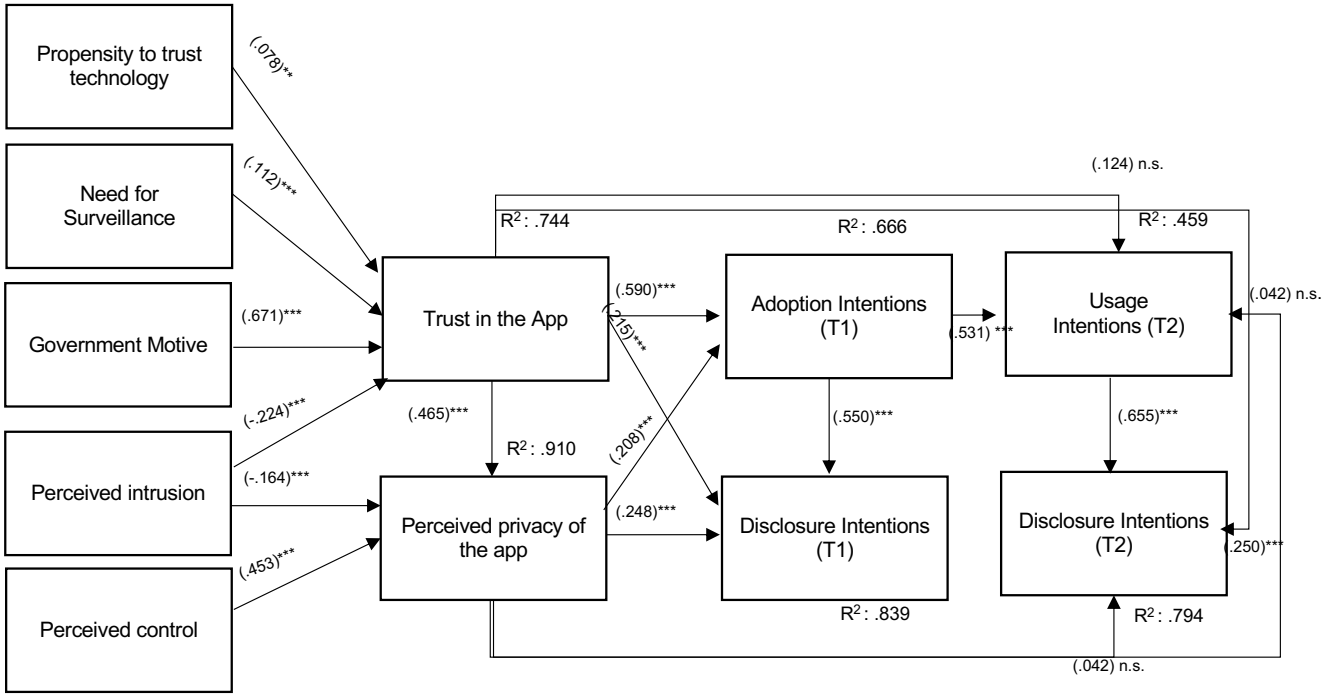
Analysis

- Factor analysis and Partial least squares structural equation modelling (PLS-SEM)
- AMOS

Results – Study 1



Results – Study 2



Practical implications

- Policymakers should consider whether there are long-term benefits in normalising the use of contact tracing apps beyond Covid-19. This requires careful consideration and a discussion with all relevant stakeholders.

- Our findings confirm that social influence, perceived health benefits and reciprocity are important considerations. Governments must communicate these benefits effectively prior and after the launch.

- Governments should focus on transparency of their public health surveillance efforts including the involvement of data protection authorities throughout the project lifecycle.

- Ethical and technical considerations also play an important role. Designers/developers should inform the government of any potential privacy concerns.

Thank you

iidb.ie

IIDB_ie | @pierosati

pierangelo.rosati@dcu.ie