



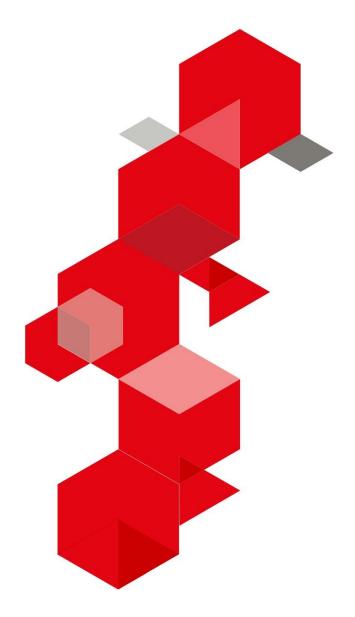
# Using Data to Fight COVID-19

**And Build Back Better** 

Webinar
December 10, 2020



### **Agenda**



**Welcome and Introduction** 

**Summary of the Paper: Emmanuel Letouzé & Nuria Oliver** 

Critical Review by Kenneth Cukier

Discussion + Q&A

**Conclusion and Future Prospects** 

### Housekeeping

You will have the chance to ask questions and discuss with our speakers after the summary and critical review of the paper.



Asking questions option 1 (audio)

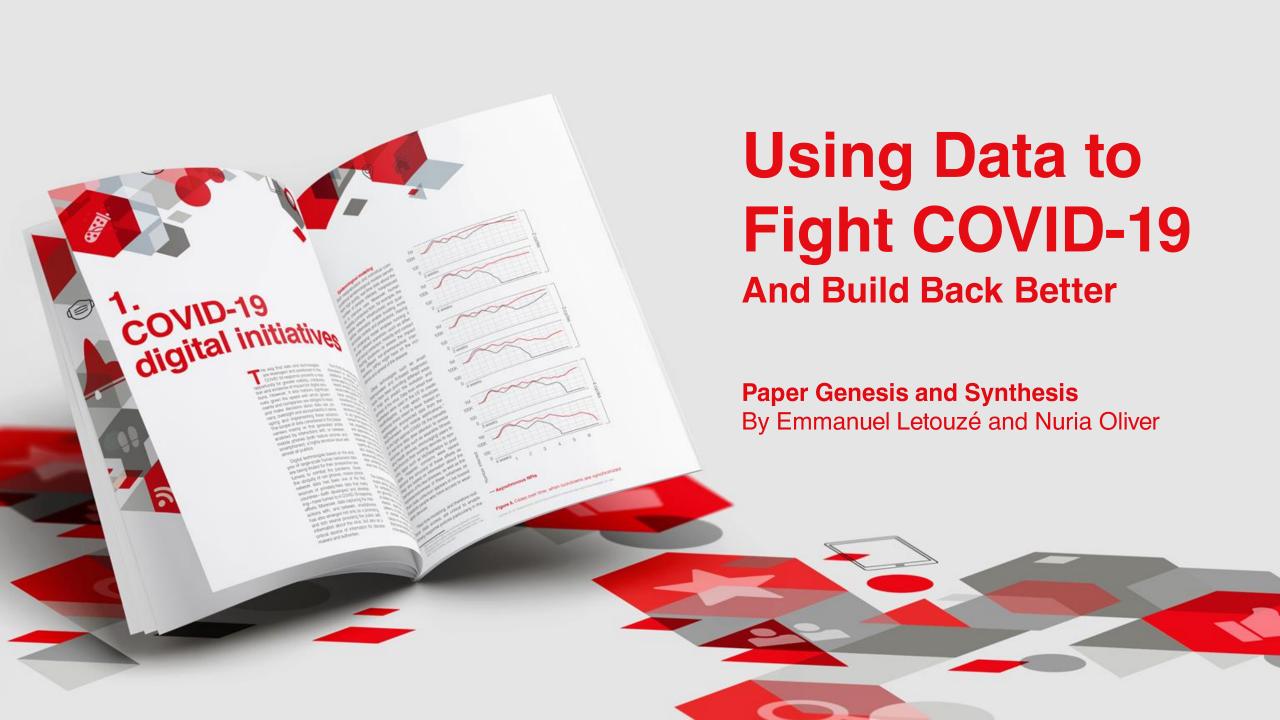
Please raise your hand You will be unmuted Please share your name & org

Asking questions option 2 (text)
Via the Q&A/F&A function

Recording the webinar
(for internal documentation purposes only)
Please indicate via the chat
function if you don't agree to
a recording



How it all started:
Data Sharing research



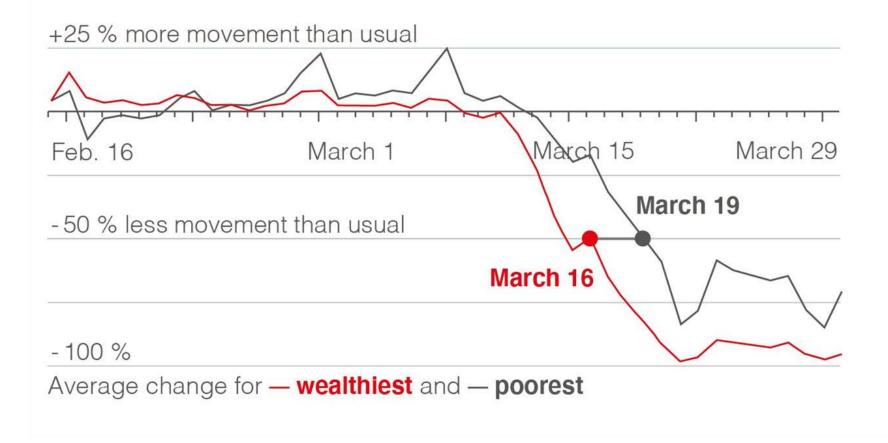
COVID-19 has exposed and exacerbated global systemic fault lines.





In the 2nd decade of the "Data Revolution" leading to 2030, will data help or hurt?

# Location data says it all: Staying at home during Coronavirus is a luxury



Source: NY Times, 3 April 2020: www.nytimes.com/interactive/2020/04/03/us/coronavirus-stay-home-rich-poor.html Covered in report "Using Data to Fight COVID-19" 11/2020

"The pandemic represents a rare but narrow window of opportunity to reflect, reimagine, and reset our world."

Professor Klaus Schwab
Founder and Executive Chairman,
World Economic Forum





"COVID19 may be our once in a lifetime opportunity to push for systemic reset against excesses and injustices it has exposed and exacerbated, by leveraging some of the most powerful tools available to us: Digital data and technology. The time is now."

Emmanuel Letouzé, PhD

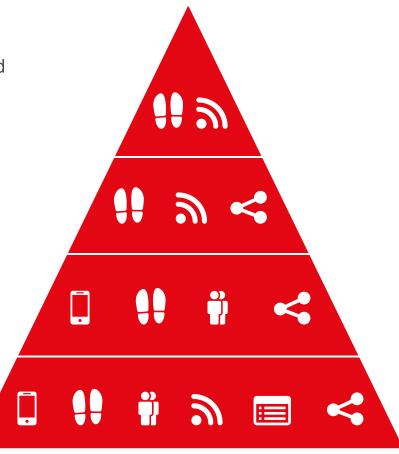
Director and Co-Founder Data-Pop Alliance



# 1. COVID-19 digital initiatives

# Purpose of digital technologies to fight COVID-19

- Centralized / Decentralized Contact Tracing
- Flows Modelling /
  Mobility Mapping
- Surveillance and Enforcement
- Social Media Analysis /
  Citizen Surveys
- Self Assessment /
  Symptom Tracking
- Epidemiological



Impact Assessment Determine the impact and barriers related to COVID-19 NPIs

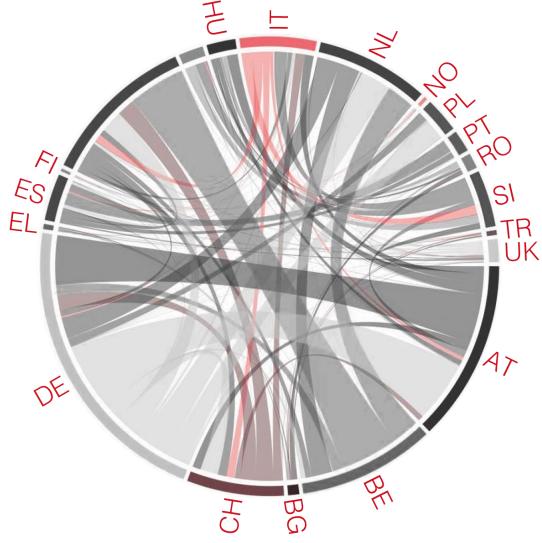
**Prediction** Data-driven predictive models to assess future risks, needs and opportunities

Cause and Effect Key drivers and consequences of implementing measures to contain the spread of COVID-19

**Situational Awareness** Trends and geographic distribution of COVID-19 impact

# Impact Assessment: Mobility data to measure impact of confinement measures

Complementing epidemiological forecasting with mobility data
In epidemiological studies, mobility is a key factor to understand how diseases spread and what actions should be taken to minimize their impact on society.



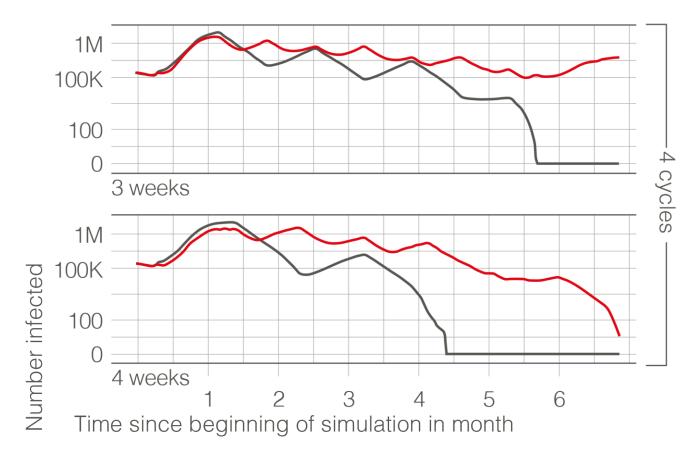
How did mobility patterns in Europe change during the pandemic?

Source:

https://science.sciencemag.org/content/sci/369/6510/1465.full.pdf

## Prediction: Epidemiological Modelling

Availability of reliable data for modelling the spread of the virus and public (lack of) transparency



Cases over time, when lockdowns are synchronized or unsynchronized across all European countries.

- Asynchronous NPIs (non-pharmaceutical interventions)
- Synchronized NPIs

Source: (N. W. Ruktanonchai, 2020) https://science.sciencemag.org/content/369/6510/1465

## Cause and effect: Contact tracing

#### Debate over contact tracing apps: moving from centralized to decentralized approaches

#### **Decentralized**

John and Jane's phones generate a series of user-specific, anonymous IDs.

1 John and Jane don't know each other but chat for 10 minutes in a park.

2 Their smartphones exchange their anonymous ephemeral identities over Bluetooth LE. **3** A few days later John tests positive for COVID-19 and, via the app, consents to sharing his status as well as his test results. 4 John's phone sends his own anonymous identifiers (or a key that can derive them) to a central database. **5** Jane's phone downloads the entire central database and checks for matching identifiers.

**6** Jane's phone alerts her that someone she met has tested positive.

















A central system generates a series of user-specific anonymous IDs and sends them to John and Jane's phones.

- **4** John's phone sends the anonymous identifiers of people he has met to a central database.
- **5** The central database matches the reported identifiers to John's contacts and sends them an alert.

## Situational Awareness: Citizen Surveys such as COVID19impactsurvey





First, the survey obtains explicit consert from the users. Only when consent a granted and respondents confirm they are adults, respondents can respond to

The first section (G1-O4) gathers basis demographics age range, gender country and postal code. Next, theman is a question (G4-O2) related to the care as a question (G4-O2) related to the care and their ages. The second of postal is the home and their ages, the stooking? Questions (G8-O2) dust dises the social contact behavior of the esconderists during the last two weeks. This is an importate exciton of the survey is an example and extraction of the survey is an example of the contact and their contact an

Personal economic impact is assest sed with questions (015 and (016, folic wed by three questions (017-Q19) related to their workplace situation.

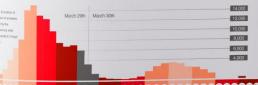
Finally, the last 5 questions (C 024) address their health state to ass how many people might be infected the virus. None of the questions except for the consent question are compulsory and a the health-related questions include the prefer not to appear 2 on a choice.

#### Deployment of the Survey

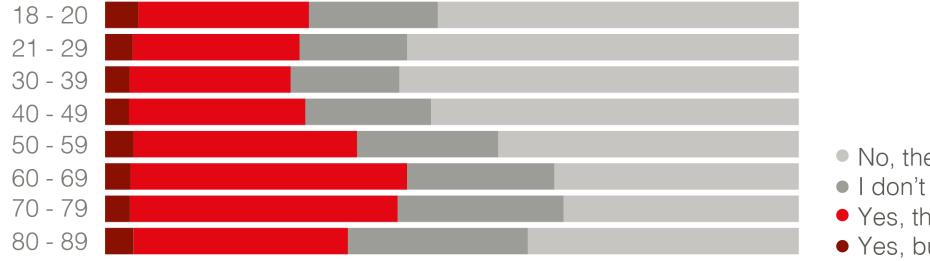
The goal was to collect as representative of a sample as possible in a short amour of time, as the COVID-19 stuation is rapidly evolving and new government measure might be implemented. The objective is to gather a snapshot of people's experience reparading the 6 sections described shows.

Antiopating the start of new mobility restriction and social distancing measures on Monday, March 30th, we displayed the survey on Saturday, March 20th at 8 PM. We used social media ("Water and What-App) to distribuce to a wide set of hardypol connected users who, in turn, distributed in the braic craites." The survey was add distributed to their contacts. The survey was add distributed to the survey of the subject of the survey was add distributed to the survey was add to the survey was a survey with a 1 may be a survey. But a survey is a survey is a survey in the survey time, as a shown in Figure 1, the peak was reached in the stem forms between 4 dr. — 5 PM or 5 solutions, March 20th, with

The initial deployment was carried out vis an online survey platform in a completely anonymous way. Girven the high volu-



## **Situational Awareness:** Citizen Surveys such as **COVID19impactsurvey**



- No, they should do more
- I don't know
- Yes, they are sufficient
- Yes, but they are excessive

Do you believe that the measures the government has taken are enough to contain the spread of coronavirus?

Source: COVID19 Impact Survey, Oliver N, Barber X, Roomp K, Assessing the Impact of the COVID-19 Pandemic in Spain: Large-Scale, Online, Self-Reported Population Survey J Med Internet Res 2020;22(9):e21319

# Trade-offs in quick containment and digital rights



Only democratic nation in the world to require a majority of its citizens to download and use its tracking app with threats of fines, losing jobs, or jail if noncompliant.



Use of sensitive personal data to create a publicly available map to allow citizens to verify their potential contacts and the patterns of those infected as well.



Use of sensitive personal data; tracking infected individuals and their contacts to enforce individual quarantine measures.



# 2. Four sets of considerations and concerns

# Technological and scientific

- If used in isolation, contract tracing apps need adoption rates of 60%, which is almost impossible to reach in most if not all countries
- A key factor of success is the safety and interoperability of devices, operating systems, applications and relevant institutions (e.g. hospitals)

# Commercial and economic

- Big tech companies—along possibly with the pharmaceutical industry may be some of the few to benefit from the crisis
- It may be the right time to look seriously at the workings of the data economy and enabling "business models" for safe data sharing



#### **Ethical and legal**

- Criticized for potentially hindering life saving innovations—which would raise deep ethical questions—the
   GDPR has passed the COVID test
- An ethical risk is that the current sense of urgency silence concerns over long term harms and demands for the inclusion of data subjects

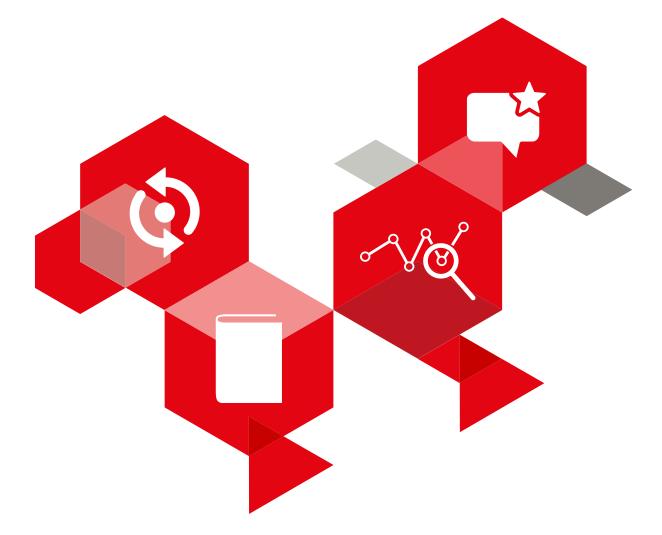
#### Social and political

- The crisis shows the strength of data as a political tool and offers governments, companies, and citizens a chance to put them to good uses
- To be successful, all data and tech solutions need to generate trust among societies through regular, reliable and respectful interactions

# How to use data to fight COVID-19 and build back better

#### The 4 key elements:

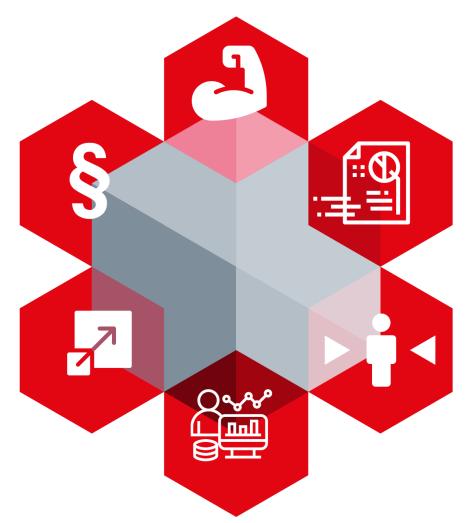
- 1. Context
- 2. Education
- 3. High-quality data
- 4. Communication and trust





How to use data to fight COVID-19 and build back better

- 1. Think and act boldly and decisively
- 2. Deploy data and technology that are fit for purpose
- 3. Place people at the center at all times
- 4. Develop "data literate" humans and data systems
- 5. Test and scale sustainable business models
- 6. Consider and use regulation as an enabler





"Let's work together – the public and private sectors together with citizens and civil organizations – on building back a fairer and healthier world through a human and planet-centric approach to technology development and data usage."

Nuria Oliver, PhD
Chief Scientific Adviser Vodafone Institute





# Thank You!



@ Vodafone Institute@ Data-Pop Alliance