Faculty of Design

2021

Immunity Passports as Complex Systems: Applying systems approaches to explore needs, risks, and unintended consequences

Landa-Avila, Cecilia, Jun, Gyuchan Thomas, Sassoon, Isabel, Colak, Ozlem, Harvey, Tina and Balatsoukas, Panagiotis
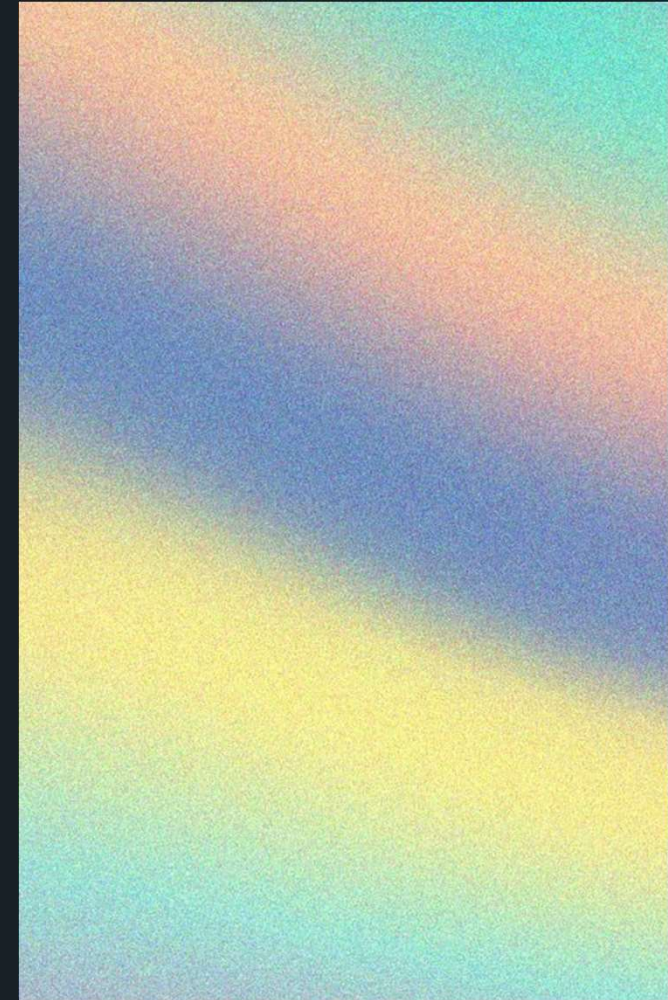
Agenda

What is the IMMUNE project?

Research questions

Methodology

Some outputs of research

Conclusion and future questions

IMMUNE (or **Immunity Passport Service Design**)
is a research project run by

Loughborough University and *Brunel University London*

Loughborough University

Brunel University London

Funded by the Arts and Humanities Research Council (AHRC) under the **UKRI COVID-19 Rapid Response Call**.

UKRI Arts and Humanities Research Council

IMMUNE   Immunity Passport Service Design

The IMMUNE project Team is a multidisciplinary team of academics and researchers combining knowledge and expertise in **Digital Health**, **Design**, **Human Factors**, **Computer Science** and **Social Sciences**.

THE TEAM

- **Panos** Balatsoukas (Loughborough University)
- **Isabel** Sassoon (Brunel University London)
- **Thomas** Jun (Loughborough University)
- **Cecilia** Landa-Avila (Loughborough University)
- **Ozlem** Colak (Loughborough University)
- **Corina** Niculaescu (Brunel University London)
- **Tina** Harvey (Loughborough University)

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What we investigate?

Overview of project

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COVID-19 immunity certificates in the UK

A way to proof your **COVID-19 immunity status.**

- By previous infection
- After being fully vaccinated

Strategy to safely **exit lockdowns** and **go back to normality.**

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Why the IMMUNE project?

Concerns that were not being heard.

Pressure on service providers **without guidance and support.**

Uncertainty about risk of consequences of these certificates.

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DISCLAIMER

The IMMUNE project did not seek to examine whether immunity certificates are good or bad.

Also, the IMMUNE project did not seek to encourage or discourage the use of immunity certificates.

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COVID-19 Immunity certificates roadmap

COVID-19

IMMUNE project

System to obtain **proof of immunity** (UK)

Pilot events used immunity certificates (UK)

First **tentative** mandatory use of certificates (UK)

"Plans ditched"

Pandemic declared

Immunity by infection certificate (Chile)

Rollout of vaccines initiated (UK)

First vaccine certificates (Worldwide)

2020

2021

March   April   Dec   Feb   May   June   September
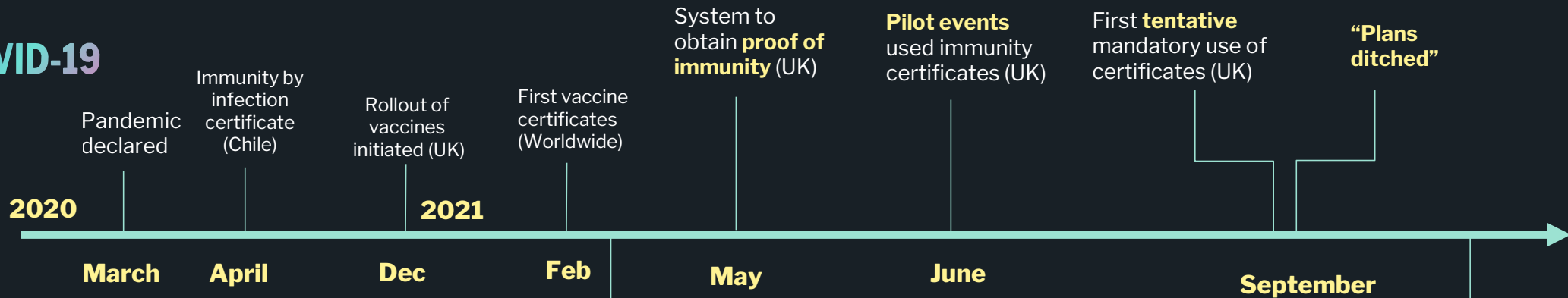
March 2021

November 2021

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Key questions

Specifically, the IMMUNE project addressed **two questions**:

1 What are the key **concerns** about the possible risks and unintended consequences of using immunity passports?

2 How to design immunity certificates in a way that **mitigate** any unintended consequences or risks?

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Methodology.

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Who was involved?

We wanted to engage with
service providers,
the public,
vulnerable groups,
experts,
academic researchers.

Sports sector

Local businesses

Cultural and Creative Industries

Tourism and travel

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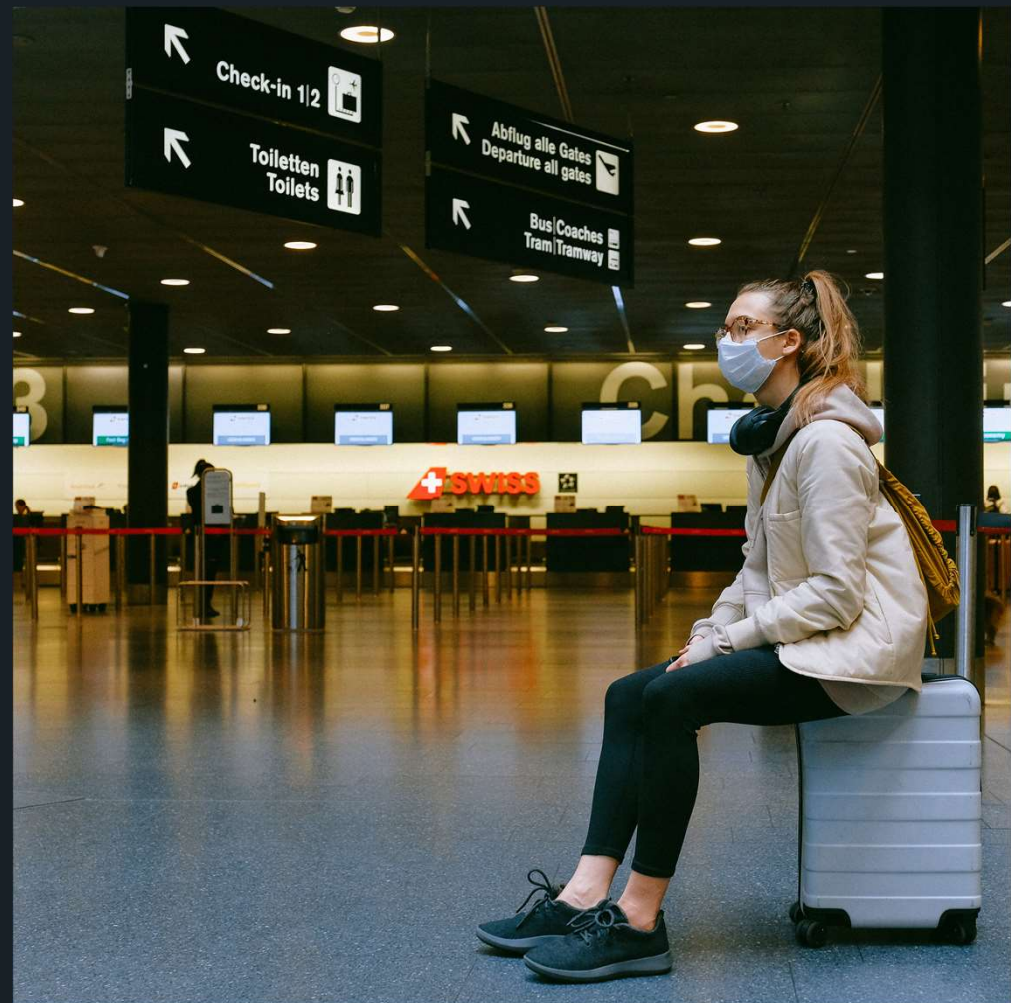
Key challenges throughout the research

1 Facilitate participatory research with **heterogeneous groups**

2 Integrate **changing data and regulations** to the project

3 Trade-offs between **communicating complexity** and **oversimplifying findings.**

4 Conducted only **online research**

Overviews of the methodology

Methodology

	RESEARCH QUESTION ONE	RESEARCH QUESTION TWO			
METHODS	Focus group EXPLORING: Synthesis map	SCENARIO: Sport Storytelling to explore tensions	SCENARIO: ...lubs	Focus group EXPLORING: Safety	
TIMELINE		July 2021	September 2021		
TECHNIQUES	- Visual metaphors. - Bespoken reflective templates: consequences matrix.	- User journey and storytelling		- Guiding questions	
PARTICIPANTS	- Experts in bioethics and public health. - Providers from tourism, events organisers, cultural and sports. - Service users	- Experts in bioethics, public health, virologist. - Providers/organisers. - Attendees.	- Service providers. - Attendees (who are considered clinically vulnerable).	- Service providers. - Attendees (18-24 years old).	- People who are considered clinically vulnerable.

Interviews   - Service providers from different industries.   - Carers of people with learning disabilities.

OTHER METHODS

Survey   - 534 participants, aged 18 and older, residents of the UK.

Communicate "one size doesn't fit all"

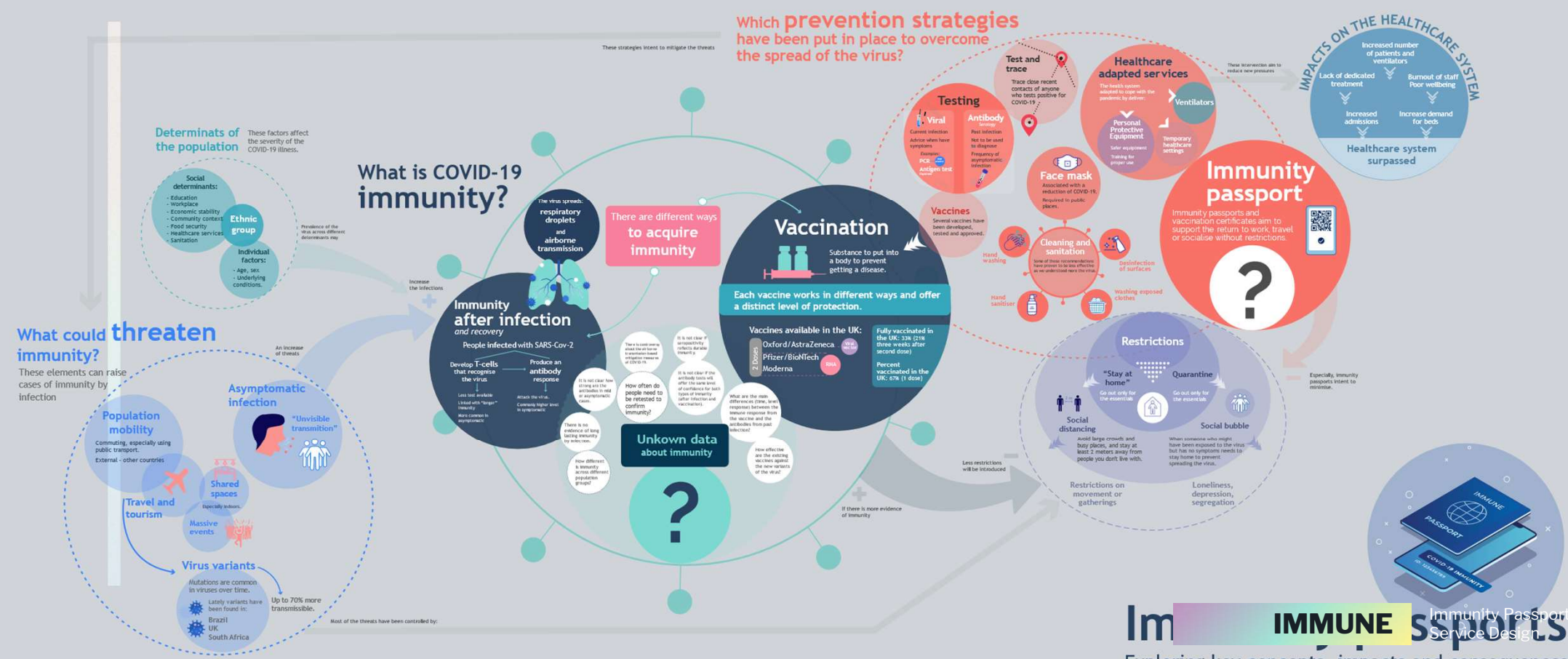- *Integrated* Journey maps.

- Video storytelling (by industry sector).

- Blueprints (by industry sector).

- Per...

- Syn...

Tensions

- co...
- tension and trade-offs
- the concept of safety

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Synthesis map

Mobilising knowledge
Create a common ground

Which prevention strategies have been put in place to overcome the spread of the virus?

These strategies intent to mitigate the threats

IMPACTS ON THE HEALTHCARE SYSTEM

Increased number of patients and ventilators

Lack of dedicated treatment

Burnout of staff
Poor wellbeing

Increased admissions

Increase demand for beds

Healthcare system surpassed

These intervention aim to reduce new pressures

Test and trace
Trace close recent contacts of anyone who tests positive for COVID-19

Healthcare adapted services
The health system adapted to cope with the pandemic by deliver:

Ventilators

Personal Protective Equipment
Safer equipment
Training for proper use

Temporary healthcare settings

Testing
Viral
Current infection
Advice when have symptoms
Examine:
PCR
Antigen test

Antibody
Serology
Past infection
Not to be used to diagnose
Frequency of asymptomatic infection

Vaccines
Several vaccines have been developed, tested and approved.

Face mask
Associated with a reduction of COVID-19.
Required in public places.

Cleaning and sanitation
Some of these recommendations have proven to be less effective as we understand more the virus.

Hand washing

Hand sanitiser

Disinfection of surfaces

Washing exposed clothes

Immunity passport
Immunity passports and vaccination certificates aim to support the return to work, travel or socialise without restrictions.

?

Determinats of the population
These factors affect the severity of the COVID-19 illness.

Social determinants:
- Education
- Workplace
- Economic stability
- Community context
- Food security
- Healthcare services
- Sanitation

Ethnic group

Individual factors:
- Age, sex
- Underlying conditions.

Prevalence of the virus across different determinants may

What is COVID-19 immunity?

The virus spread: **respiratory droplets** and **airborne transmission**

There are different ways **to acquire immunity**

Vaccination
Substance to put into a body to prevent getting a disease.

Each vaccine works in different ways and offer a distinct level of protection.

Vaccines available in the UK:
Oxford/AstraZeneca
Pfizer/BioNTech
Moderna

Fully vaccinated in the UK: 33% (21% three weeks after second dose)

Percent vaccinated in the UK: 67% (1 dose)

Immunity after infection
and recovery

People infected with SARS-Cov-2

Develop T-cells that recognise the virus → Produce an antibody response

Less test available
Linked with "longer" immunity
More common in asymptomatic

Attack the virus.
Commonly higher level in symptomatic

There is no evidence of long lasting immunity by infection.

It is not clear if the antibody tests will offer the same level of confidence for both types of immunity (after infection and vaccination).

How often do people need to be retested to confirm immunity?

What are the main differences (time, level response) between the immune response from the vaccine and the antibodies from past infection?

How different is immunity across different population groups?

How effective are the existing vaccines against the new variants of the virus?

Unkown data about immunity

?

Increase the infections

What could **threaten** immunity?
These elements can raise cases of immunity by infection

An increase of threats

Population mobility
Commuting, especially using public transport.
External - other countries

Travel and tourism

Asymptomatic infection
"Unvisible transmision"

Shared spaces
Especially indoors.

Massive events

Virus variants
Mutations are common in viruses over time.

Lately variants have been found in:
Brazil
UK
South Africa

Up to 70% more transmissible.

Most of the threats have been controlled by:

Restrictions

"Stay at home"
Go out only for the essentials

Quarantine
Go out only for the essentials

Social distancing
Avoid large crowds and busy places, and stay at least 2 meters away from people you don't live with.

Social bubble
When someone who might have been exposed to the virus but has no symptoms needs to stay home to prevent spreading the virus.

Restrictions on movement or gatherings

Loneliness, depression, segregation

Less restrictions will be introduced

If there is more evidence of immunity

Especially, immunity passports intent to minimise.

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Exploring key concepts, impacts and consequences

Online environment
(Initial focus group)

Consequences

(Internal board)
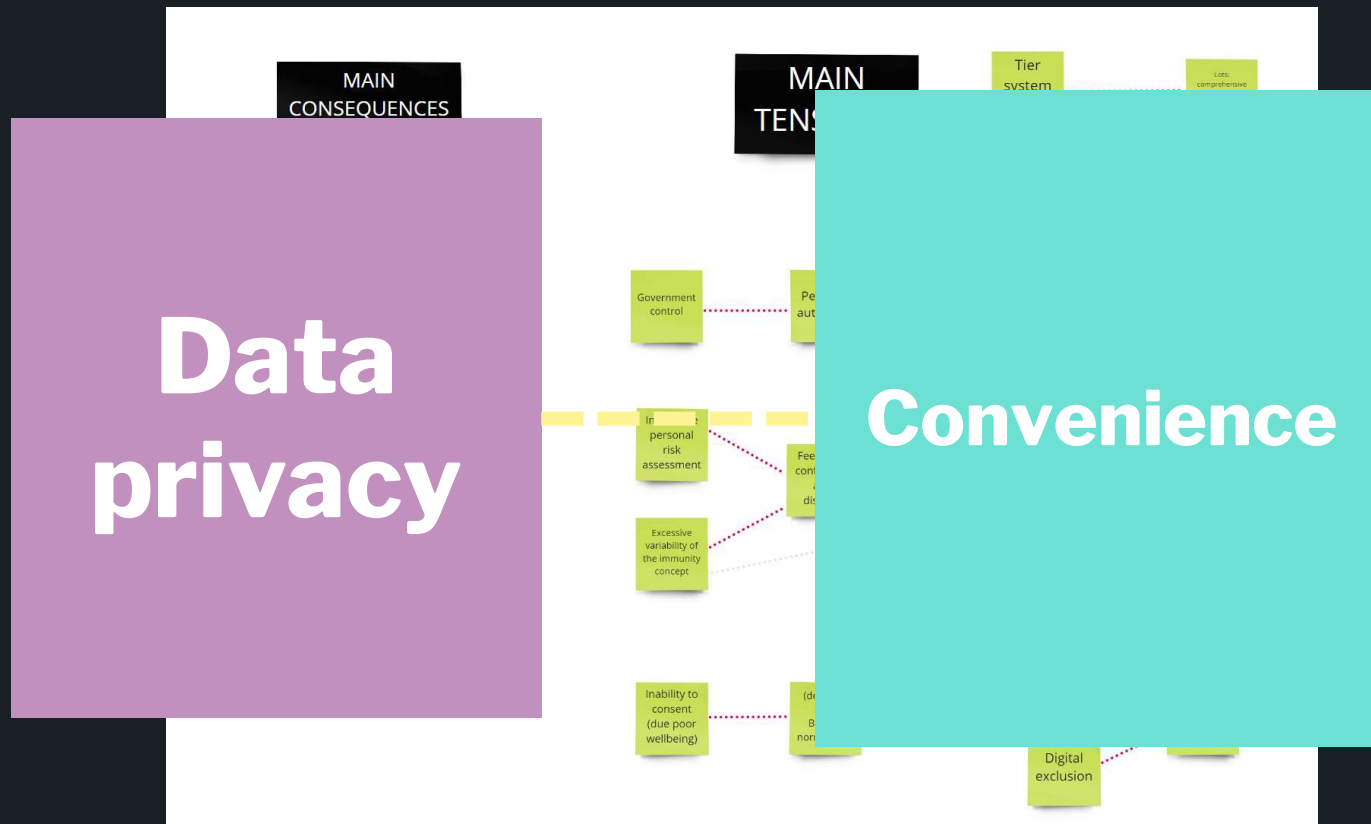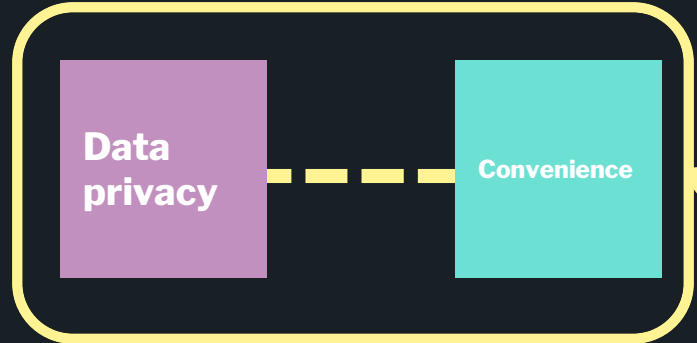
Tensions
(Internal board)

Storytelling

Contextualise the tensions
Focus the participatory workshops on key moments

Immunity Passport
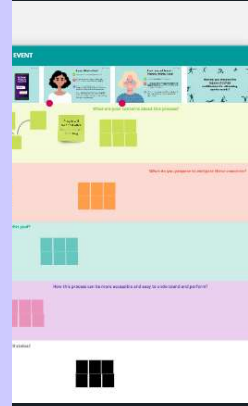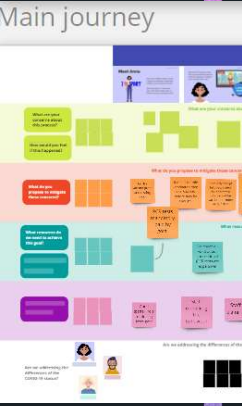Service Design

Storytelling

Contextualise the tensions
Focus the participatory workshops on key moments

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Some outputs

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The outputs of this project will be shared with:

The government's Scientific Advisory Board for Emergencies (SAGE).
Public Health England (PHE)
The NHS X
Local councils across the UK and the public.

! Trade-offs between **communicating complexity** and **oversimplifying findings.**

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Integrated journey map
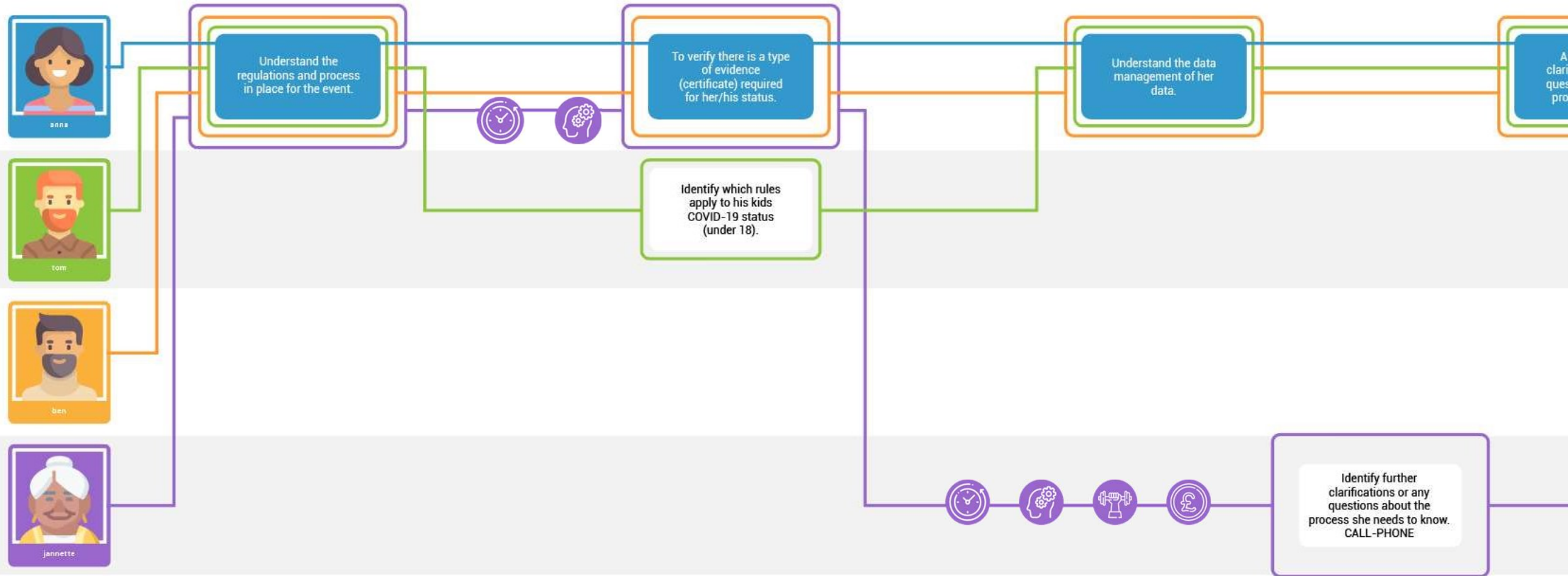
Conclusions and what is next

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Conclusions

A **Storytelling engage and facilitate discusions with these heterogeneous groups**

(Even more than initial synthesis maps)

B **Journey maps have the potential to communicate complexity**

People face tensions and dilemmas differently when interact with services.

C **If the most "evident" idea is not well understood, choose it as your main message.**

Tone down the level of complexity to be communicated.

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Future questions

A   **How improved the integrated journey maps?**

B   **How to "design for crises" applying a systems-oriented approach?**

Tension reactive vs. slow-paced

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THANK YOU

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Dr Panos Balatsoukas (PI)

✉ immunity.passports@lboro.ac.uk

🐦 @immune_project

Cecilia Landa-Avila

✉ i.c.landa-avila@lboro.ac.uk

🐦 @iclanda

Loughborough University

Brunel University London

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