The Case for Digital Health Passports

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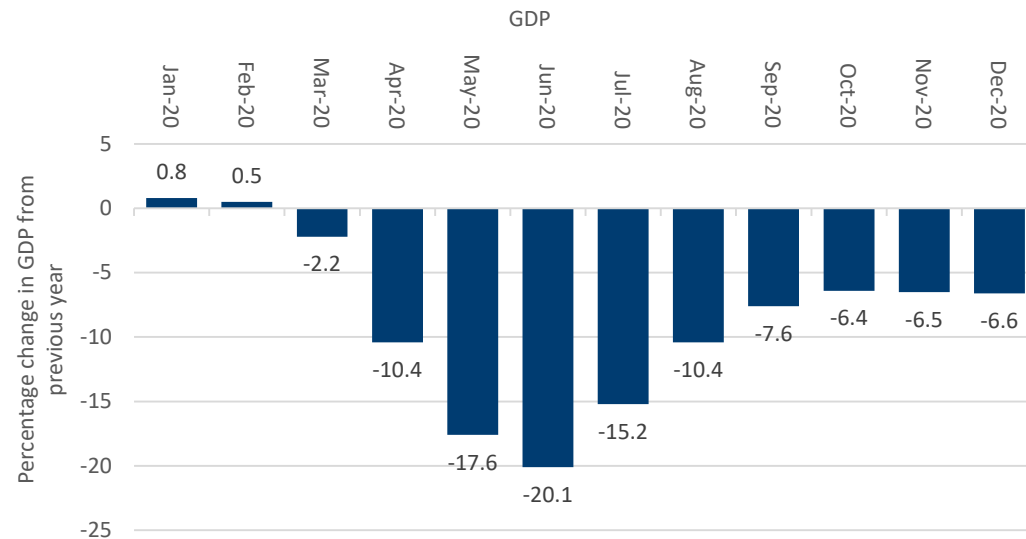FEBRUARY 2021

Overview

- There is an opportunity for the government to take a lead in the development and rollout of a digital health passport that could contribute to the reopening of borders and the economy.

- Designed properly and integrating testing status, a health passport would also help us manage the virus and prepare for new strains and future pandemics.

- If health passports are rolled out ad hoc in private settings without any government involvement, there are real risks of unfairness and discrimination. The landscape will be confusing: Already we have seen siloed solutions from multiple private and non-governmental providers.

- In taking the lead, government will have to confront policy questions and trade-offs around privacy, social cohesion and equity. These are not insurmountable, and the risks are significantly reduced if regulated properly by government.

Blanket lockdowns carry intolerably heavy economic and social costs

ECONOMIC COST

% change in GDP in 3 months on same 3 months in previous year

GDP

Percentage change in GDP from previous year

Jan-20: 0.8
Feb-20: 0.5
Mar-20: -2.2
Apr-20: -10.4
May-20: -17.6
Jun-20: -20.1
Jul-20: -15.2
Aug-20: -10.4
Sep-20: -7.6
Oct-20: -6.4
Nov-20: -6.5
Dec-20: -6.6

Source: House of Commons Library

SOCIAL COST

At the moment, are you finding lockdown easier, harder or about the same compared with before the coronavirus outbreak?
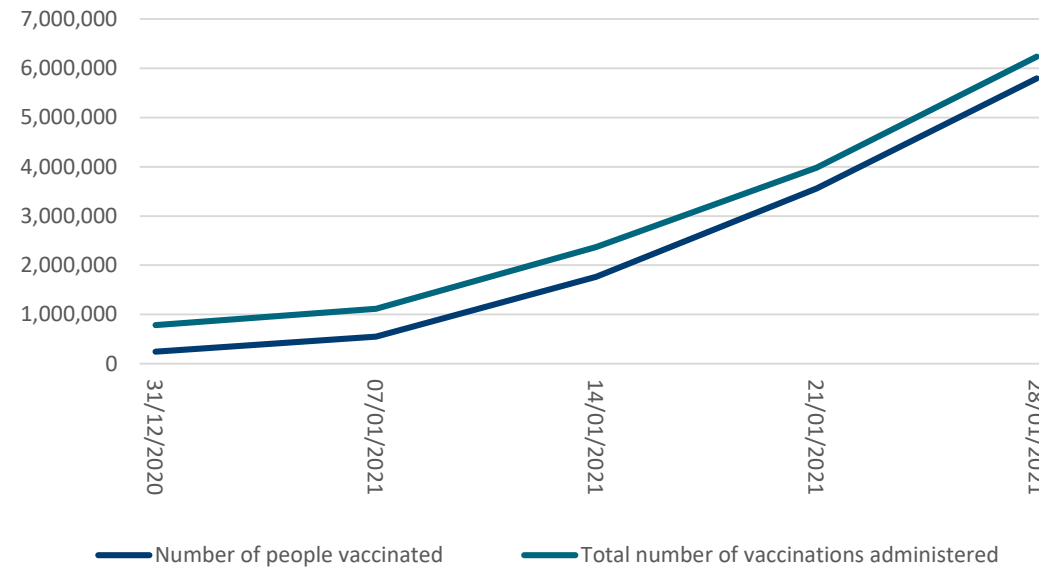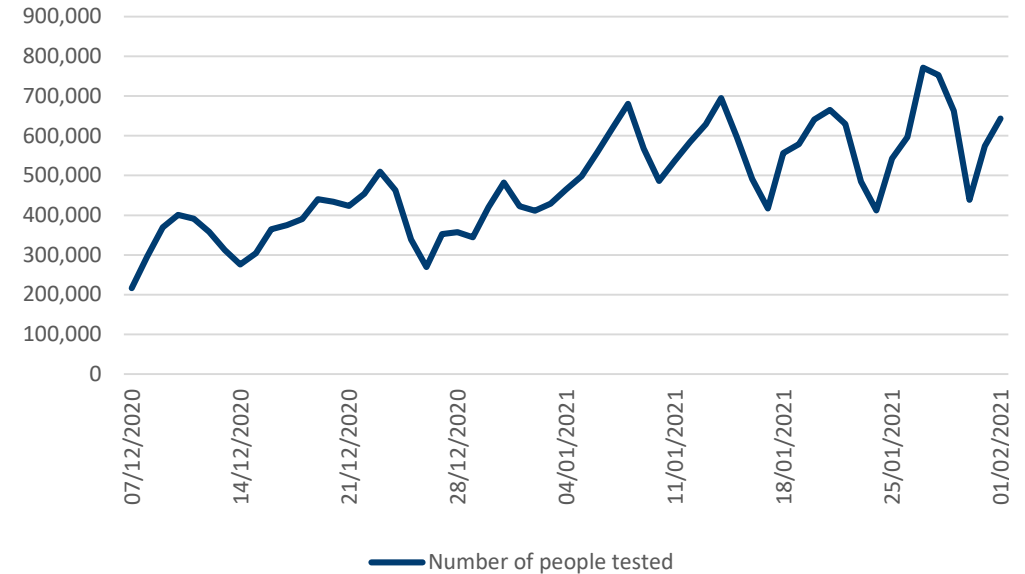

March 2020 – January 2021

60% Harder
33% About the same
6% Easier
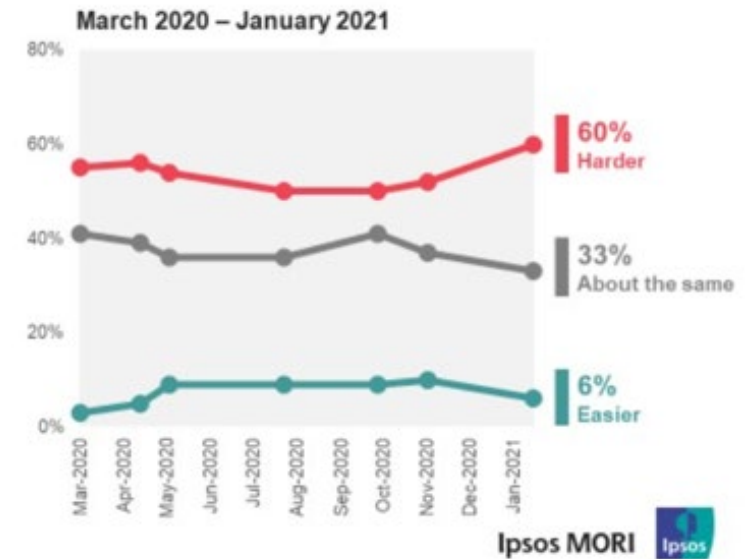
Ipsos MORI

Source: Ipsos Mori

Vaccinations and testing capacity are increasing…

TOTAL NUMBER OF VACCINATIONS IN THE UK

Number of people vaccinated — Total number of vaccinations administered

PCR TESTING CAPACITY PER DAY IN THE UK

Number of people tested

Source: NHS Statistics
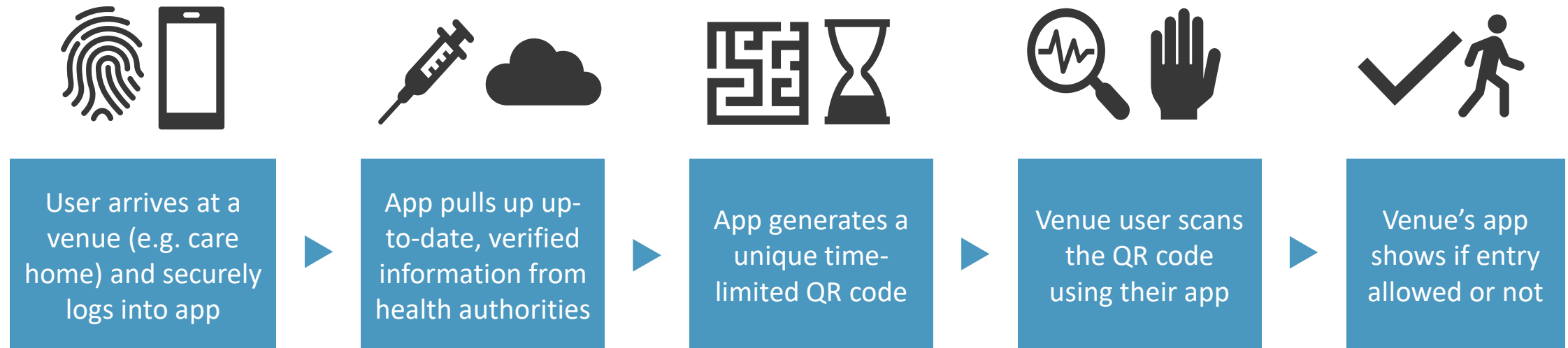
... but there's no safe end in sight yet

- The UK's vaccine rollout is progressing well.

- But it will still be many months before enough of the population is vaccinated to allow society to fully reopen.

- Even then, new variants or even new viruses may force governments to extend or renew lockdown measures.

- The measures in place now aren't sustainable, and we can't go through the same process next time.

So, governments need to provide citizens with both the means to safely re-engage in society – vaccines, mass instant testing – and the means to show that they are safe to re-engage in society.

The technology already exists to allow citizens to prove their health status while protecting their privacy

Note: This is an indicative illustration of one possible user journey. There are numerous different options for ensuring security, and storing and accessing data

User arrives at a venue (e.g. care home) and securely logs into app	App pulls up up-to-date, verified information from health authorities	App generates a unique time-limited QR code	Venue user scans the QR code using their app	Venue's app shows if entry allowed or not

Citizens already need to prove their health status to travel internationally; businesses will increasingly require customers and employees to do the same

CURRENTLY REQUIRE PROOF OF HEALTH STATUS:

- International travel

- Some places of work
  (e.g. health-care and childcare settings)

- Elite sport

INTERNATIONALLY:

- Over 25 countries are already considering introducing some form of health credential

- Estonia is already piloting health passports for domestic settings

MAY SOON REQUIRE PROOF OF HEALTH STATUS:

- Local travel

- Education settings

- Other service-sector employers

- Offices

- Holiday and leisure services

- Gyms

- Music venues, cinemas …

Without government involvement, the growing need to demonstrate health status brings serious social and health risks

DISCRIMINATION: A fragmented immunity landscape poses a risk to social cohesion	• Reopening to only those who've been vaccinated would be unfair and could disproportionately affect BAME people. • Different venues could require different standards of immunity and proof, causing unfairness and complexity (e.g. some places accept a lateral flow test result, others demand PCR, or some places demand proof of both doses of the vaccine).	**PRIVACY:** Sensitive health data could be vulnerable to leaks or mismanagement	• Citizens need to be clear about exactly **what** information they are being asked to share**, who** will have access to it, and **how** it is protected. • If no action is taken to ensure the quality of digital health passports, people could be forced to choose between protecting their privacy and accessing work or services. • Digital health passports should be designed so that only essential information is shared.
INEFFECTIVENESS: Varying definitions of "immunity" has significant health implications	• To have public confidence, digital health passports need to offer a reliable level of assurance that the holder is not at risk of spreading Covid-19. • We're still learning what level of immunity and protection from transmission is conferred by each vaccine. • Digital health passports need to be based on accurate, up-to-date information.	**FRAUD:** Without standardisation of proof, passports will be prone to fakery and replicas	• Covid-19 test results are frequently presented on printed paper, or as a photo of printed paper, from unknown labs, often written in languages foreign to those inspecting them in an international context. • Vaccination records are still generally shared on easily forged paper cards; forged test results are already readily available in some places. • Digital health passports need to be secure and accessible only to the holder.

But the policy challenges are surmountable (1 of 2)

USING A SET OF POLICY PRINCIPLES COULD HELP GUIDE THE DEVELOPMENT OF DIGITAL HEALTH PASSPORTS:

1. Equitable
Health passes should be available to all citizens, not just those who have been vaccinated, and including non smartphone-users. The overall impact should be to increase freedom for as many people as possible.

2. Adaptable by design
It should not be a static certificate, but one that can change as our understanding of the virus develops, and be usable in different contexts.

3. Seamless by design
If it's going to be used by as much of the public as possible, it needs to be quick and simple to use. It should also reduce friction and administrative burdens for health authorities and businesses that use it.

But the policy challenges are surmountable (2 of 2)

USING A SET OF POLICY PRINCIPLES COULD HELP GUIDE THE DEVELOPMENT OF DIGITAL HEALTH PASSPORTS:

4. Transparent

There are significant data collection and storage implications for this kind of tool. It needs to be completely clear to the user what the app does and does not store, how it can be accessed and how it is protected.

5. Reliable

Digital health passports should meet basic standards of effectiveness as well as security and privacy.

Digital health passports offer the best possibilities for reopening society while protecting privacy (1 of 2)

DIGITAL HEALTH PASSPORT

STRENGTHS	• Secure – only the user can access the credential • Privacy: only essential info is shared • Adaptable to needs of different settings • Reduced burden on verifying authorities once system is in place • Durable – can be used as much as necessary • Can be easily updated as we learn more about immunity • Can incorporate low-tech options (e.g. a paper QR code) if necessary
WEAKNESSES	• Possible risk to individuals' privacy if device is lost or stolen or if platforms are affected by data breaches • Not yet well understood – need to build user trust • Mainly benefit those with smart devices • Requires some integration with verifying authorities (GPs, vaccination and testing centres) and venues

Digital health passports offer the best possibilities for reopening society while protecting privacy (2 of 2)

PAPER CREDENTIAL (VACCINATION CARD, TEST RESULT)

STRENGTHS	
	• Cheap and easy to produce
	• Already in use – familiar to users
	• Simple to use

WEAKNESSES	
	• Easy to forge, lose or steal
	• Not durable
	• High burden on verifying authorities to issue, re-issue and confirm validity
	• Fixed – can't be updated or adapted
	• Limited privacy protection: venues see all the information at a glance (e.g. name, date of birth, type of vaccine) and information is available to all if the pass is lost or stolen.

So, governments should take the lead and make sure this happens in the fairest way possible

FOR THE UK GOVERNMENT, THAT MEANS:

LEADERSHIP
Using the UK's G7 presidency to agree on i) common vaccine and testing standards to open up travel again and ii) security and technical standards to permit interoperability.

RAPID RESEARCH
Piloting the use of digital health passports for entry into certain settings within the UK. These should enable people to demonstrate either their vaccination or their test status.

PROTECTING CITIZENS
Putting in place regulation where necessary to protect privacy and fairness, and give providers and users legal certainty.

EQUIPPING CITIZENS
Rolling out vaccinations as well as providing free access to mass lateral flow tests (and new instant tests as they become available) so that citizens can check and credibly assert they are not infectious as often and as quickly as they need to.

Further information

There are a number of ongoing trials and developments in the UK

The Innovate UK Fast Start Competition last March was the most-applied-for grant in the history of Innovate UK. Eight hundred grants were allocated, and eight of these grants produced vaccine passport platforms. At least two of these providers got further grants and have been offered further trials by Directors of Public Health in certain localities in the UK.

The Department for Transport also piloted the CommonPass system, backed by the World Economic Forum, in October 2020. DCMS has approved a pilot of the You Check passport for music venues. There was also discussion of 'vaccine stamps' in passports in November.

The Department of Health and Social Care (DHSC) says it does not yet have a plan to introduce a vaccine passport nationwide and says that, at this stage of the vaccination programme, it is not clear whether vaccines will prevent transmission.

But DHSC has contracted out its own investigation of a similar proposal for testing passports which would allow individuals to prove they had a negative test. They have reportedly issued two contracts to develop a 'negative Covid-19 test certification system'. One for £42,000 to Netcompany UK in November to develop a minimum viable product, and a further contract worth £34,000 awarded to The Hub Company to develop an app to assign people a personal QR code.

Following an Innovate UK commission, a variety of private providers have already developed passports (1 of 2)

VACCINE PASSPORT SOLUTION	PROVIDER	WHERE DATA IS STORED	DOMESTIC OR INTERNATIONAL	TAKE UP
Mvine and iProov	Mvine and iProov	Self-sovereign data – stored on user's phone	Domestic	Live enquiries with a number of cities and towns in the UK, recipient of Innovate UK grant
Health Passport Europe	Health Passport Europe	Data cloud	International and domestic	N/A
myGP	myGP (GP booking system app)	Secure data centre based in UK	Domestic	Gyms in London
Dapp	RChain	Self-sovereign data but stored using blockchain technology	International	N/A
VaccineGuard	Guardtime	Decentralised using blockchain technology	Domestic and international	Government of Estonia, Iceland, Hungary

Following an Innovate UK commission, a variety of private providers have already developed passports (2 of 2)

VACCINE PASSPORT SOLUTION	PROVIDER	WHERE DATA IS STORED	DOMESTIC OR INTERNATIONAL	TAKE UP
ImmucheX	Tricerion	Government sanctioned health repository	Domestic and international	None yet, but recipient of two Innovate UK grants
En-Covid	EnduringNet	Self-sovereign data – stored on the user's phone	Domestic	None yet but recipient of Innovate UK grant
Smart Testing Solution	The Hub Company	Under development	Under development	None yet but recipient of Innovate UK grant
Under development	Eyn Limited	Under development	Under development	None yet but recipient of Innovate UK grant
Under development	Logifect Limited	Under development	Under development	None yet but recipient of Innovate UK grant

Some form of vaccine or immunity credential is now being either considered or tested by 25+ governments

Note: These credentials do not necessarily confer mobility

PILOTING	UNDER DEVELOPMENT		UNDER CONSIDERATION	PAPER-BASED
Estonia	Australia	Saudi Arabia	Russia	Chile
Brunei	Sweden	Singapore	Slovenia	El Salvador
China	Denmark	UAE	Spain	UK
Iceland	Greece		European Union	
Hungary	Israel		France	
	Poland		Ireland	
	Philippines		South Korea	