Appendix 1

COVID-19 digital vaccination certificate update and international vaccination requirements

Date:	26 August 2021
To:	COVID-19 Vaccine Ministers
From:	Joanne Gibbs, National Director, COVID Vaccination and Immunisation Programme
For your:	Information

Purpose

1. This paper provides a progress update on work underway to develop a New Zealand issued digital COVID-19 vaccination certificate. As requested at your earlier meeting, it also discusses some of the international developments for vaccination as a border entry requirement.

Recommendations

We recommend you:

a) **Note** that a New Zealand issued digital vaccination certificate will be in a technical pilot at the end of September and made widely available by the end of November 2021.

b) **Note** that the design of the New Zealand issued digital vaccination certificate will be aligned to the international standards to support interoperability.

c) **Note** that the Ministry of Health is working closely with other government agencies involved in the Travel Health Declaration system, and the Reconnecting New Zealand work programme.

d) **Note** that the Ministry of Foreign Affairs and Trade are monitoring international developments regarding COVID-19 vaccination requirements in other countries.

Background

2. Increasingly countries are requiring proof of COVID-19 vaccination (including what type of vaccine, when it was administered and where), and/or test results as part of the bundle of measures that determine if, and under what conditions, a person may cross their borders.

3. A growing number of countries are also requiring proof of vaccination domestically, to access services such as restaurants, bars and hair salons, or venues such as sports matches, cinemas, and museums. The introduction of these requirements varies and appears to be in part to manage the potential for transmission but also to incentivise vaccination.

4. Given the benefits of vaccination and the high risk of COVID-19 transmission there is a need for a high level of confidence about a person's COVID-19 health status. This is driving the push for verifiable credentials that can provide a high level of confidence about the bearer of the certificate's COVID-19 health status.

5. As paper documents are more open to fraud or falsification and can be easily lost or damaged, digital certificates that have features such as a scannable QR code and cryptographic country security signatures can provide greater confidence in the authenticity of the credential.

6. Furthermore, a growing black market in fake COVID-19 vaccination and test certificates is another motivator for the adoption of global standards and minimum requirements for these credentials.

7. The Ministry of Health considers providing a verifiable credential that can prove vaccination status and/or test results using a single standard is required. Such credentials will be necessary for people vaccinated or tested in New Zealand who are wishing to travel overseas where countries with these requirements in place. They will also allow us to operationalise assessment of vaccination requirements for return entry into New Zealand, as part of Reconnecting New Zealanders strategy.

8. Global standards are beginning to emerge with the European Union Digital COVID-19 Certificate (EU DCC) and the International Civil Aviation Organisation (ICAO) Visible Digital Seal (VDS) as the front-runners. Both approaches are aligned to the recently published World Health Organisation guidance for Digital Documentation of COVID-19 Certificates (WHO DDCC).

A New Zealand digital vaccination certificate is in development

9. As you have been previously advised, work is underway to develop a system to produce New Zealand issued digital COVID-19 certificates for people vaccinated or tested in New Zealand.

10. The priority is currently on the vaccination certificate. Work around digital COVID-19 test certificates will follow, but in slower time.

11. The Ministry of Health is designing the New Zealand issued vaccination certificate to be compatible with emerging international standards, so it can be recognised by as many countries as possible. The first version of New Zealand's digital COVID-19 vaccination certificate will use a format that is aligned with the EU DCC.

12. We are continuing to engage with other emerging standards, including the ICAO VDS, to ensure we are able to generate health credentials that meet requirements of different jurisdictions. The goal is for those vaccinated in New Zealand to be able to generate both EU DCC and ICAO VDS COVID-19 health credentials. Supporting multiple different certificate formats will provide New Zealand with greater flexibility for international travel.

13. The proposed solution will build on the capability of the 'My COVID Record' web app that will enable consumers to securely log in to a website and view their personal COVID Immunisation Register (CIR) records.

14. People who have been vaccinated in New Zealand will be able to request or 'generate' a health certificate with the web app, triggering data for the certificate generator for digital signing and rendering. Certificates will be able to be printed out on paper or presented digitally, for example on a smartphone. A specimen example of what a paper version might look like is set out in annex 1. You will note there is a QR code that allows the information to be collected and verified.

15. Access to a vaccination certificate would be available through two primary channels:

    a. Digital Self-Service – through secure login to the My COVID Record web app and triggering certificate generation, viewing, printing or downloading.

    b. Call Centre Assisted Channel – Ministry of Health and/or national call centre agents will be able to identify a caller and trigger the emailing and/or postage of a certificate to them.

16. Other countries including Australia have recognised that people will use different names in the health system to those used in official documents (e.g. passports). Care will need to be taken in the development of the solution and supporting business processes to ensure that the details of the certificate match the details on the travel or identification documents that it will be used with. For the purposes of international travel, it will be important that the name and date of birth on the certificate match the person's passport number.

17. The security seal is provided by the passport service – this confirms that the content on the certificate (in the QR code) has not been altered.

18. The New Zealand issued certificate would only be available to people who have received their COVID-19 vaccinations in New Zealand, as the record will rely on information in the COVID Immunisation Register. We are still working through a solution for people who have received an initial vaccination overseas and one in New Zealand.

19. The initial standard we intend to follow (EU-DCC) does not require a passport number on the vaccination certificate. Name details and date of birth on the certificate are the method for linking this to an individual.

20. We are conscious that applying a passport level security model to the certificate will reduce the ability for New Zealanders to participate. We expect that this may change over time and our solution will be able to accommodate these changes.

21. In order to deliver the self-service solution, which is by far the most efficient and cost-effective method for the health system we require the services associated with this to be robust and scalable. This is currently underway with testing of the My Health Account and My COVID Record. Normally a product such as this would take many years to establish. For example the My Health Record in Australia took five years to develop and deploy.

22. Due to the security and privacy requirements for the vaccination certificate and the current testing of My COVID Record with a limited number of users we expect that there will be a technical trial of these together from the end of September 2021.

23. The digital vaccination certificate is currently targeted to be publicly available by the end of November 2021 through both direct digital channel and an assisted option through calling an 0800 number.

24. We expect due to our approach we will then rapidly be able to add additional certificate formats and similar certificates for proof of testing.

25. We recognise that Ministers are eager for this to be available as soon as possible. A digital certificate will be a key tool to support New Zealanders to be able to travel internationally and enable a traveller risk-based approach under the Reconnecting New Zealanders strategy.

26. The Ministry continues to work alongside Customs, Immigration New Zealand and other agencies on the Travel Health Declaration System to support a process for the assessment and transaction of COVID-19 health credentials under the proposed traveller risk-based approach.

27. As part of the policy work on health requirements for inbound travellers, officials are working through a process to determine:

    a. which vaccines New Zealand would recognise

    b. what fully vaccinated means (number of doses, dose interval, etc)

    c. what form of proof of vaccination New Zealand would accept.

International developments

28. Over 100 countries have introduced COVID-19 vaccination as a condition of entry or to be exempt from or to be granted reduced quarantine requirements. At this stage, however, only a handful of countries, have introduced proof of vaccination as a *mandatory* requirement (including Samoa, Papua New Guinea, Indonesia, Grenada, Azerbaijan and Palau).

29. This is a rapidly evolving environment, with country requirements often changing at short notice. The Ministry of Foreign Affairs and Trade have established an international tracker to monitor these requirements which is circulated to key government agencies on a fortnightly basis.

30. In addition, officials across Government are engaged with both with international standard setting bodies (the WHO and ICAO), through multilateral groups (for example the Five Country Human Biosecurity Working Group (HGB5), and through bilateral engagements. It is likely to continue to remain a complex environment as systems for generating the certificates and processes for country-to-country recognition of COVID-19 certificates evolve.

31. At this stage, what form of proof countries recognise varies considerably. As a general observation, where COVID-19 has become endemic, the standards of proof appear to be less stringent. Where countries are placing a very high priority on using their border as a key defence to keep COVID-19 out, the standards tend to be higher and more defined.

32. As an interim measure until the digital vaccination certificate becomes available, and while international travel remains severely restricted, those vaccinated in New Zealand and who are travelling internationally tend to be using either a confirmation of vaccination letter from the Ministry of Health, a COVID-19 vaccination card, or print-out from their GP.

33. Noting the variety of approaches emerging, the mutual recognition of COVID-19 health credentials is quickly becoming important. New Zealand's position is that any discussion on mutual recognition of COVID-19 health credentials will focus on the technical aspects of verifying authenticity of credentials, as opposed to harmonising border entry requirements. The New Zealand Government will continue to reserve its sovereign right to establish and adapt border measures over time that reflect New Zealand's domestic context and national COVID-19 management strategy.

34. Officials are currently working through the process for engaging with other countries about recognising vaccination certificates. As a first step, we are applying for New Zealand to be granted 'third country' status with the EU digital COVID-19 certificate framework. Being accepted as a 'third country' to the EU DCC trust framework would enable New Zealand border agencies to recognise and have high confidence in the vaccination certificates issued by countries in the EU scheme, and in turn, New Zealand issued certificates would be recognised by all countries who have joined the scheme.

35. We understand a number of countries are in discussions with the EU around joining the framework, including the United Kingdom, the United States, Malaysia, South Korea, Singapore and Canada.

Australia and the Pacific

36. New Zealand officials are in regular discussion with Australian counterparts on COVID-19 health credentials. Australia is also developing a digital vaccination certificate, using the ICAO VDS standard. While it will be the first country to use this standard, it is not too dissimilar to the EU DCC standard New Zealand will be using. We have confidence that our border agencies will be able to work through a solution to electronically transact and verify Australian digital vaccination certificates for inbound travel to New Zealand. We understand Australia expect to have its digital vaccination certificate ready for use around October this year.

37. Pacific countries will also likely need to be able to provide verifiable digital COVID-19 health certificates to ensure those vaccinated in those countries can travel overseas. In addition, some Pacific countries (namely, Samoa) have already introduced vaccination as a mandatory entry requirement, and so will be seeking verified evidence that travellers entering have had appropriate vaccination. It will be important that the Pacific countries have access to a solution that aligns with international standards as far as possible. This will be challenging as both the ICAO and EU standards require a high level of technological capability to be able to generate the certificates.

38. As New Zealand's work in this space evolves, we will share information with Pacific Island governments. There is risk that the framing and regulation of this approach could become fragmented in the Pacific. Systems invented outside the region may not be fit for purpose or operationally practical for a number of smaller island states. The Ministry of Foreign Affairs and Trade is scoping work to explore these issues alongside

Australia and Pacific Island countries including options for a harmonised approach between countries within the region.

Next steps

39. At the request of the Department of Prime Minister and Cabinet, this paper will be shared with the Reconnecting New Zealanders Ministerial Group for their meeting on 31 August 2021.

40. As part of the suite of report-backs from the July *Reconnecting New Zealanders with the World* Cabinet paper, the Ministry of Health is preparing a Cabinet paper for the Minister for COVID-19 Response on progress in developing the New Zealand issued digital vaccination certificate. This is expected to go to Cabinet by the end of September.
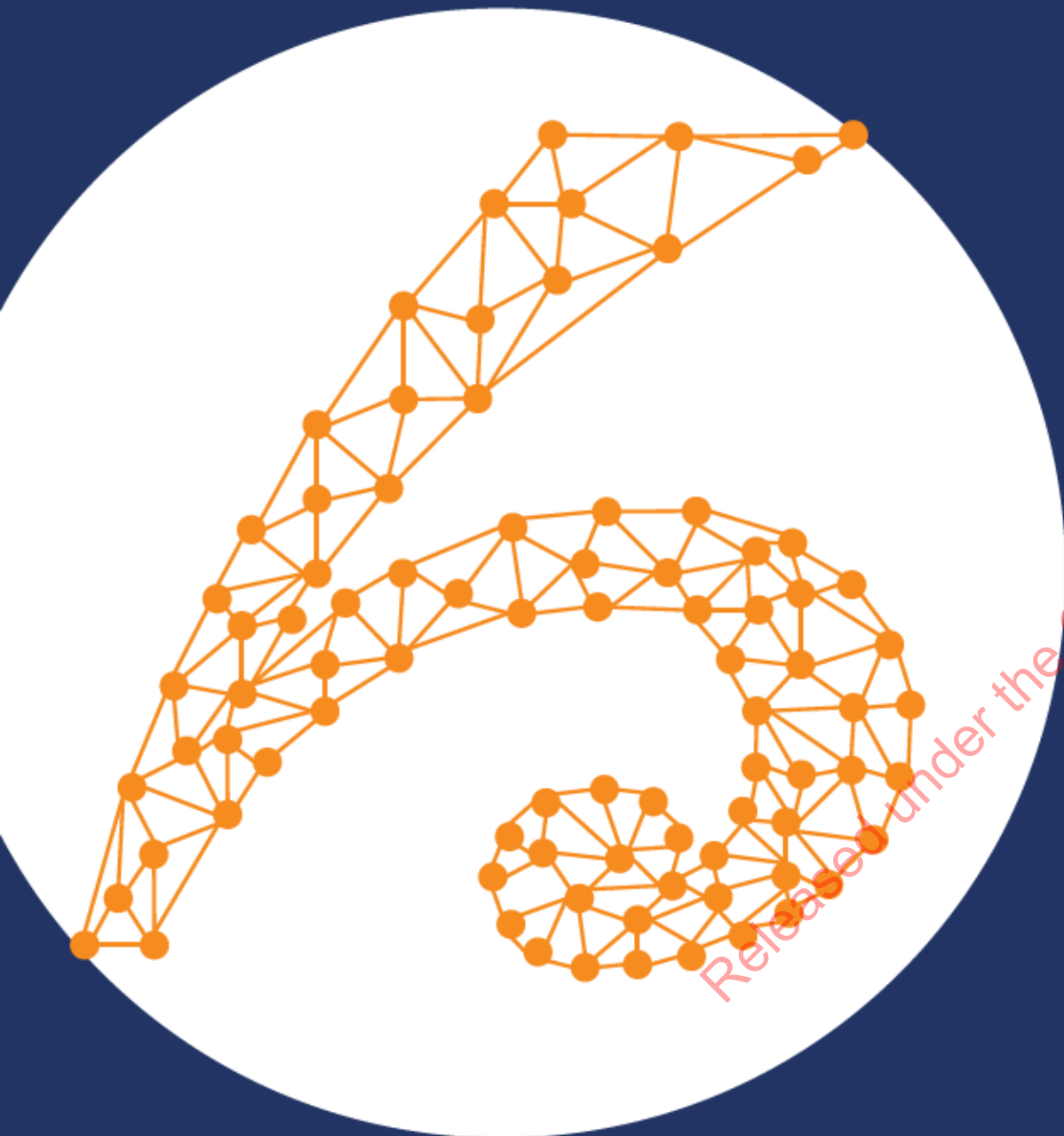
Appendix 1.
Example of what a New Zealand issued vaccination certificate could look like

Government of Kakapo

Getting the right information matters

Be aware of incorrect or second-hand information via social media or other places.

To get accurate and trusted information visit:

– govt.ka/covid19
– health.govt.nz/vaccine
– or talk to your doctor.

Public Health Agency

Your COVID-19 Vaccination Certificate

Your Verifiable COVID-19 Vaccination Certificate

Please keep this vaccination certificate, which includes medical information about the vaccination you have received.

Personal details

Surname:	Doe
Given names:	John
Date of birth:	1990-01-02

Vaccine details

Disease/Agent:	COVID-19
Vaccine/Prophylaxis:	SARS-CoV-2 mRNA vaccine
Medicinal product:	Comirnaty / Pfizer
CMS:	Biontech Manufacturing GmbH

Vaccination details

Dose number:	2
Total series of dose:	2
Date of vaccination:	2021-07-30

This certificate is only valid when presented alongside a photo ID.

For verifiers:

Scan the QR code with a verifier app and check the name and date of birth match the photo ID.

PHA approved verifier apps can be found on: **health.govt.ka/vaccine/verify-app**. Other apps may work, but should be used with caution as they have not been tested.

MINISTRY OF
HEALTH
MANATŪ HAUORA

Appendix 3
Domestic COVID -19 vaccination and test certificates

Solution approach for a "Summer Pass"

Background

- Work began in April to establish My Health Account and My COVID Record. This work is foundational for the wider health reforms and the investment announced in Budget 21 for the Hira Programme

- Similar work in other jurisdictions has been a multi-year effort, with Australia taking five years to establish similar services (ie. My Health Record)

- Now these foundations are in place, they allow us to build more features on top of them such as vaccination and test certificates, but also provide alignment to the Digital Identity Trust Framework that is currently in Select Committee in preparation for a first reading in the house.

Problem Statement

- Vaccination rates for the young and healthy are currently lagging the rest of the population

- Auckland and the rest of New Zealand continue to be at elevated alert levels, with internal boundaries in place

- S9(2)(g)(i)

- The solution needs to be support privacy and equitable access for the public at scale and itself be easy to access and use. This is important for social license

- Solution needs to be available as soon as possible, then rapidly iterated to improve consumer experience and remove requirement to present photo ID with certificate to link it to the consumer

Design and technical goals compared to EUDCC

How does this fit with Reconnecting New Zealand

- NZ is adopting the EUDCC (European standard) for international travel certificates.

- The EUDCC data specification has much more than needed if these were used domestically. The Office of Privacy Commissioner has expressed concerns about this being used domestically.

- EUDCC requires photo ID (e.g. a normal Passport) to be presented when verifying, to prove the holder is the owner.

- In addition, using the EUDCC domestically is likely to be confused by New Zealanders with international certificates and incorrectly presented to foreign border agencies.

- Not using EUDCC domestically might mean we need to offer visitors and those vaccinated overseas an ability to convert their international certificate.

- MoH recommend using a different approach for a domestic pass.

Design and Technical Goals

- Highly privacy preserving, only the minimum data set is disclosed to allow verification

- Non-digital options available first, people should not require a modern smartphone to participate

- Tamper and forgery resistant using electronic verification, it should be very hard for someone to fake one of these

- Quick to deliver, we may need the solution in place before summer

- Standards-based, use existing technology standards to support future intents rather than inventing something new

- Open and transparent, we should publish documentation so others can build on it with creative ways to enable the public - as recently seen with examples Locations of Interest, TimeInline or Vaxx.
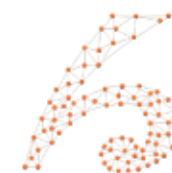
Approach for domestic certificate

Develop an "NZ COVID Pass"

- A QR code containing consumer's name and date of birth, minimum data for proving health status, and a digital signature to prove authenticity and tamper resistance.

- Leverage same technology platform used for international travel certificates, but use different data standards and signature (trust framework)

- Provides freedom to modify domestic certificate for domestic needs, including additional privacy protections and verifier capabilities.

- Can be printed on paper, and also leverages native support for 'passes' in Apple and Android phones, reducing reliance on another MOH-owned app to store it. Also will support other standards-based wallets.

- Based on W3C Verifiable Credentials standards, aligned to future digital identity trust framework legislation under consideration by parliament. Also forwards compatible with emerging SMART Health Cards standards from US/UK.

Verifier (to check the passes) ecosystem:

- We should support verifiers to implement QR verification capabilities into existing workflows (e.g. Ticketek), rather than requiring them to use a new app & hardware.

- Develop documentation and test suites for implementing third party verifier apps. Publish this publicly and engage larger partners (e.g. WhosOnLocation) to adapt existing scanning technology for events or entry control to business or buildings.

- Publish standards & guidelines for verifiers to evaluate certificate claims (e.g. time since vaccination)

- Implement an MOH-branded verifier app, using above documentation & standards, and publish open source on GitHub as a reference implementation. This would be available for those who don't have existing verification hardware.
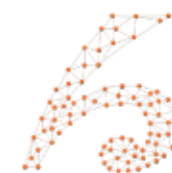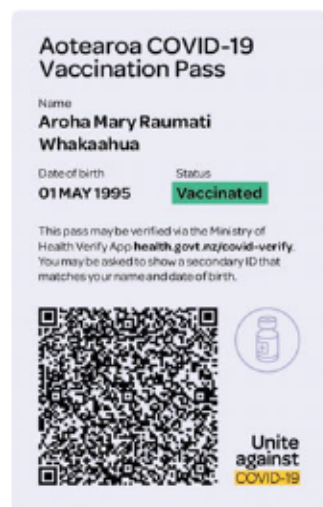
Two stage delivery

To accommodate timelines, we propose a two stage process.

Stage 1: Paper & Lo-fidelity Digital

- Paper based certificate that can be stored within iOS/Android operating system wallets.

- No native app required.

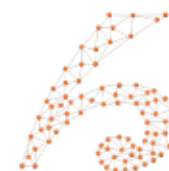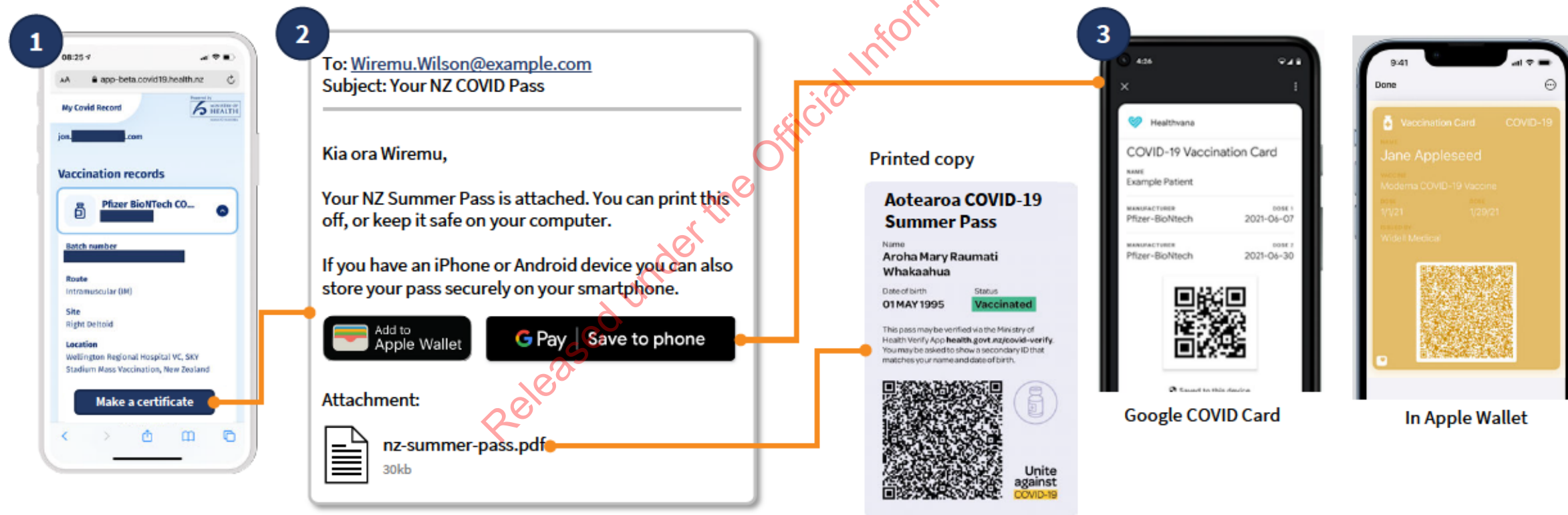- 5-7 weeks

Stage 2: Digital native

- Native app with a digital wallet. Supports additional privacy enhancements

- Supports more of the future Digital Identity Trust Framework and may allow a person to prove their identity as well.
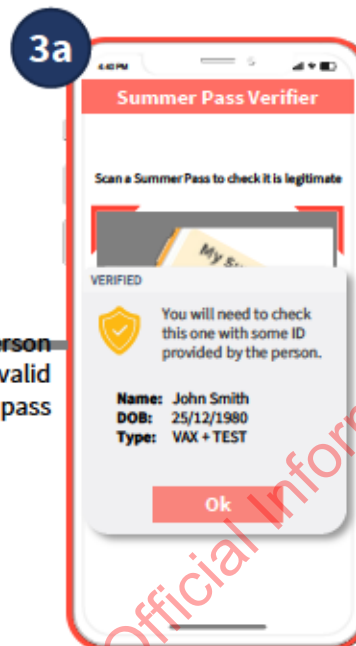
- 3-6 months
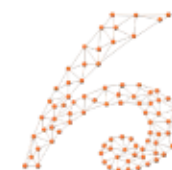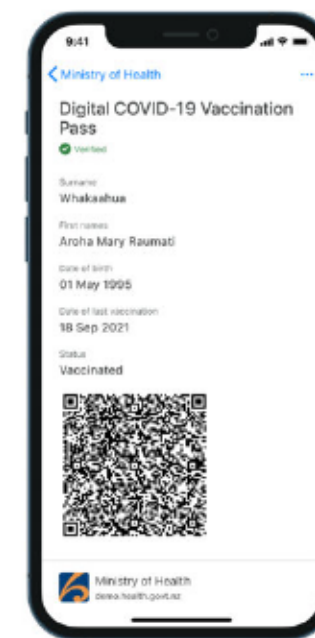
Consumer experience – Stage 1

- Log into My Covid Record to request a domestic certificate (needs My Health Account)

- Domestic branded PDF emailed to consumer

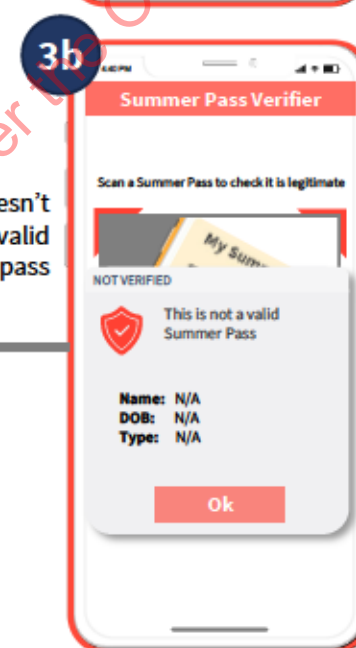- Buttons in the email allow to add the pass to Apple Wallet on iOS or G Pay on Android.

Printed copy

Google COVID Card

In Apple Wallet

Verifier experience

Here is my NZ COVID Pass

Welcome to "The Summer Festival". Can I scan your NZ COVID Pass please

1

Done

Vaccination Card   COVID-19

Jane Appleseed

Moderna COVID-19 Vaccine

1/1/21   1/20/21

Wide1 Medical

2

Summer Pass Verifier

Scan a Summer Pass to check it is legitimate

My Summer Pass

3a

Summer Pass Verifier

Scan a Summer Pass to check it is legitimate

My S...

VERIFIED

You will need to check this one with some ID provided by the person.

Name: John Smith
DOB: 25/12/1980
Type: VAX + TEST

Ok

Person provides a valid summer pass

Person doesn't provide a valid summer pass

3b

Summer Pass Verifier

Scan a Summer Pass to check it is legitimate

My Sum...

NOT VERIFIED

This is not a valid Summer Pass

Name: N/A
DOB: N/A
Type: N/A

Ok

1. Consumer presents their NZ COVID Pass via smartphone or printed copy
2. Verifier scans with Verifier App
3. Verifier app checks the signature is authentic, and the certificate claims pass requirements
   a. If the details are valid the verifier is shown enough detail to verify the holder's identity
   b. If the signature is invalid, or the data doesn't meet requirements (e.g. it has expired) the verifier sees an error message

We could offer different requirements for different venue or event types or internal boundaries (e.g. fully vaccinated more than 14 days ago, vaccinated in the last 6 months, test completed in last 2 weeks, etc) but simple is better.

For Stage 1 it is incumbent on the verifier to confirm the identity of the consumer matches the details on the Pass. Stage 2 adds additional assurance and this step could be removed.

Roadmap
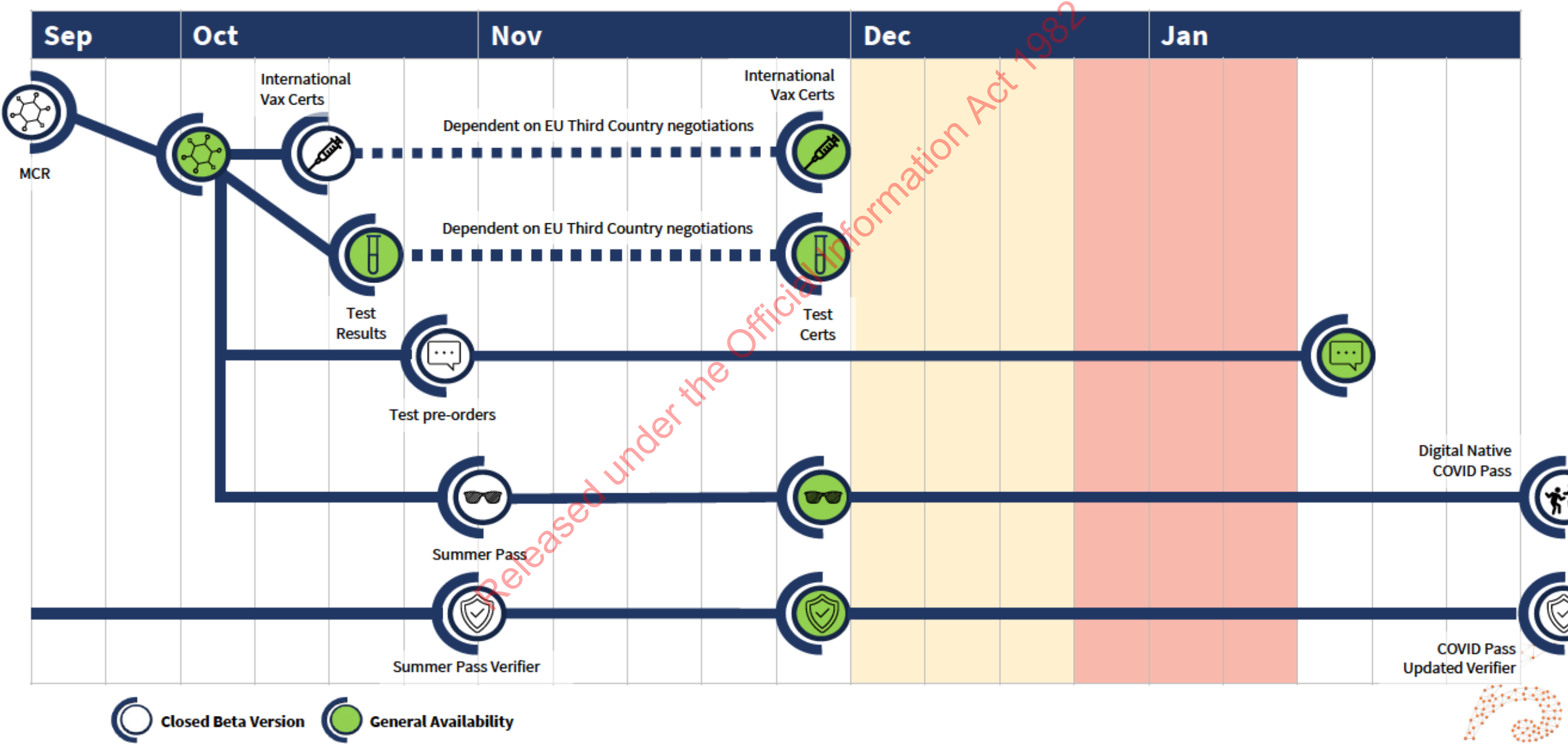
Consumer experience – Stage 2

- The Stage 1 approach serves our immediate needs, but could be improved:
  - We can take advantage of our My Health Account and biometrics in the phone to remove the need for a consumer to have to provide a photo ID at the same time.
  - Further enhance privacy by allowing just-in-time disclosure of specific data to a verifier, while still having the certificate being digitally verifiable (known as Selective Disclosure).

- Both these features currently require that we develop a native smartphone app, and do not work for paper-based representations. This means they will only be available for digitally included cohorts.

- The supporting technology for this is complex, and while it works technically there's additional discovery work required to understand the UX implications and how we make it accessible to the general population.

- As we seek to reconnect New Zealand and eventually to run a containment approach and "flatten the curve" we will require greater automation and self-serve for management of people with Covid and at risk of Covid.

- Demand exists for self-serve capability for Covid services such as self isolation, contact tracing, daily health checks, test ordering and results, exemptions, adverse reactions and self-update of personal information.

- In this context Health would likely use My Health Account and My COVID Record to become the first and anchor implementation of the governments intended Digital Identity Trust Framework.

- There are strategic advantages in a generic Health App which has high uptake across the population. Longer term opportunities exist around population health services such as immunisations and screening.
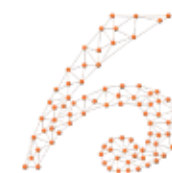
Visit our website to learn more

www.digital.health.nz

Appendix 1: What about NZ COVID Tracer?

- NZ COVID Tracer is positioned as an **anonymous** digital diary for contact tracing. Accounts were removed in late 2020, and there are no strong ties to the identity of the user within the app.

- By their nature, health certificates require strong binding to a digital identity. This somewhat contradicts the privacy and anonymity stance of NZ COVID Tracer.

- We could implement a simple wallet, where you request the certificate outside app and simply use it as storage mechanism (fulfilling a similar function to the native iOS/Android wallets in Stage 1). This is the approach taken by the Republic of Ireland in COVID Tracker.

- However, when we get to Stage 2 we require an integration into My Health Account to be able to properly bind the certificate to a device. Doing this in COVID Tracer poses an interesting social licence question, would the public accept introducing a digital identity that requires an ID document to set up into COVID Tracer?

- There are additional developer rules that are levied by Apple/Google for apps that use Exposure Notifications, including restrictions on including personal details and strong identity binding. Some other countries have opted to implement vaccination certificates in a separate app due to this (e.g. NHS).
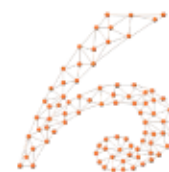
Appendix 2: PKI and Trust   - Technical

- Certificates are digitally signed to prevent tampering and forgery. Verifiers need to obtain an official public key from the issuer (Ministry of Health) to verify the signature is authentic.

- Providing a secure way for verifiers to get this public key is essential to establishing trust in the system

- health.govt.nz is a recognised and trusted domain name within New Zealand, and verifiers can be confident that information published on health.govt.nz domains is authorised by the Ministry.

- Each certificate contains a reference to a health.govt.nz web address that contains the public key corresponding to the private key used to sign the certificate.

- Verifier apps only download this public key if its comes from health.govt.nz, using a valid SSL certificate.

- This model leverages existing web security standards, and is a known and established technology pattern, reducing security and compliance efforts.