



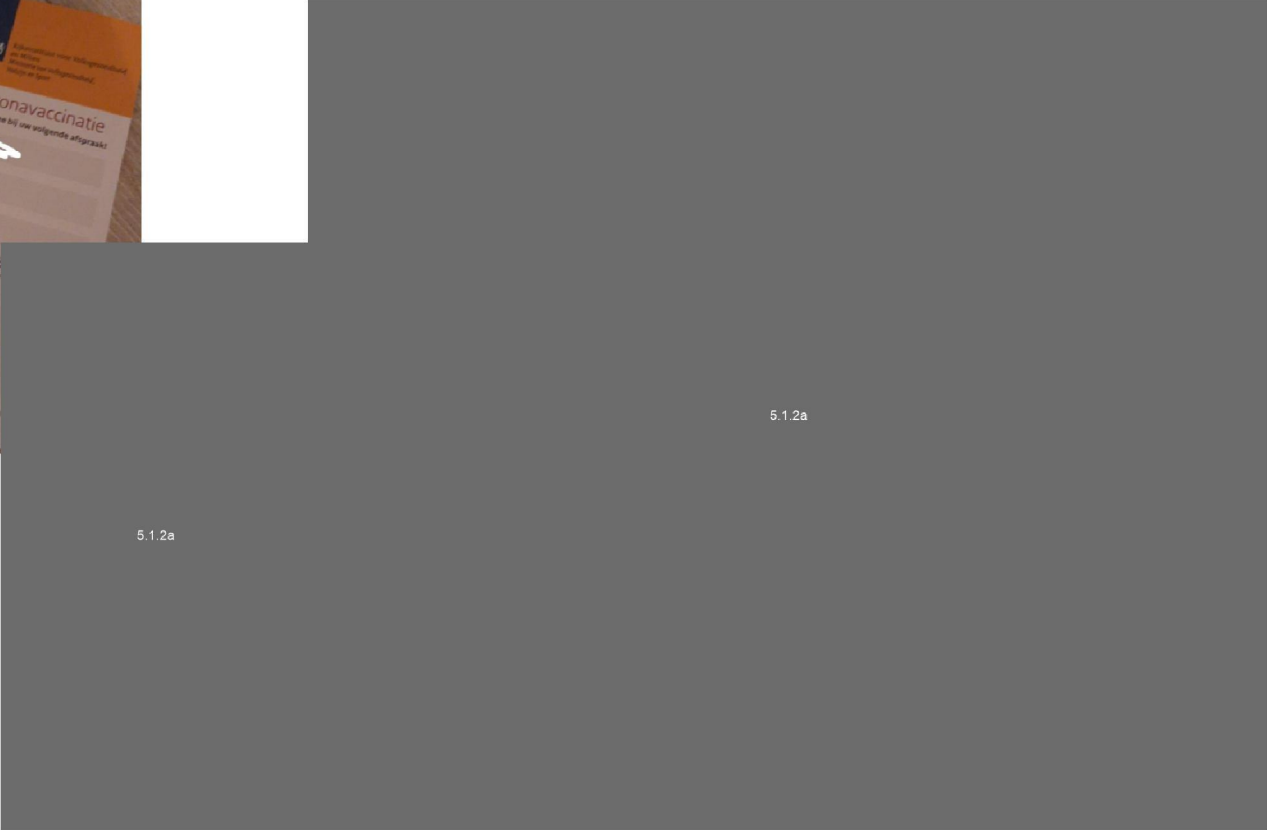
WAY FORWARD FOR CROSS-BORDER VERIFIABLE COVID-19 VACCINATION CERTIFICATES



2021-02-18

Background

- On 10-11 December, the European Council called for a coordinated approach to vaccination certificates. On 21 January, the European Council agreed to work on a standardised and interoperable form of proof of vaccination for medical purposes.
- There is an overall consensus on the use of such certificates for medical purposes (continuity of care, e.g. to ensure proper follow up between 1st and 2nd dose). On 21 January, the European Council indicated that leaders would determine at a later stage in what circumstances vaccination certificates could be used.
- On 27 January 2021, the eHealth Network adopted first interoperability elements: a minimum data set and a unique identifier.
 - Guidelines available at https://ec.europa.eu/health/ehealth/covid-19_en
- Further work is being conducted on a trust framework. Collaboration with WHO is instrumental.



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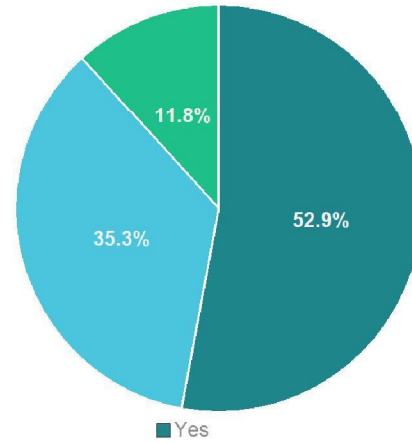
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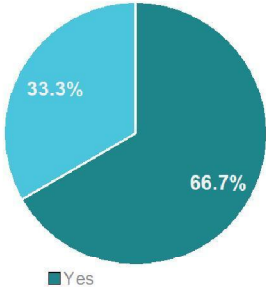
MS are working on and some are issuing vaccination certificates already.

- Both paper and digital solutions are supported

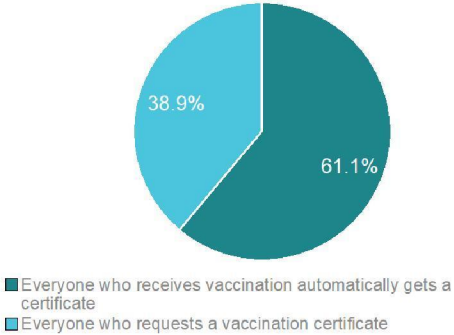
Member States with legislation to cover the issuance of the vaccination certificates



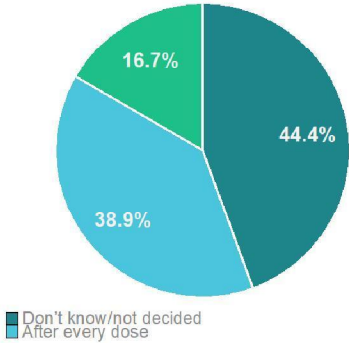
Do Member States issue vaccination certificates/proofs for COVID-19 vaccinated persons?



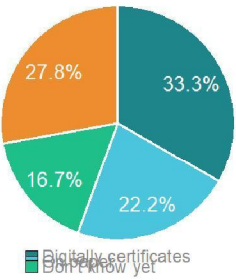
Who receives a vaccination certificate/Proof?



When will the Vaccination Certificate be issued?



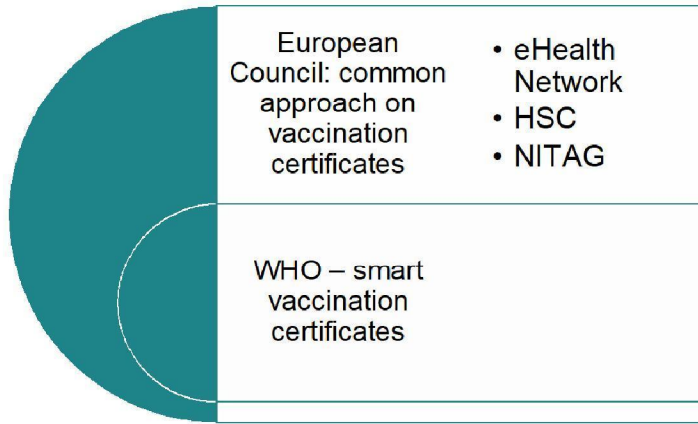
How will the Vaccination Certificates be issued?



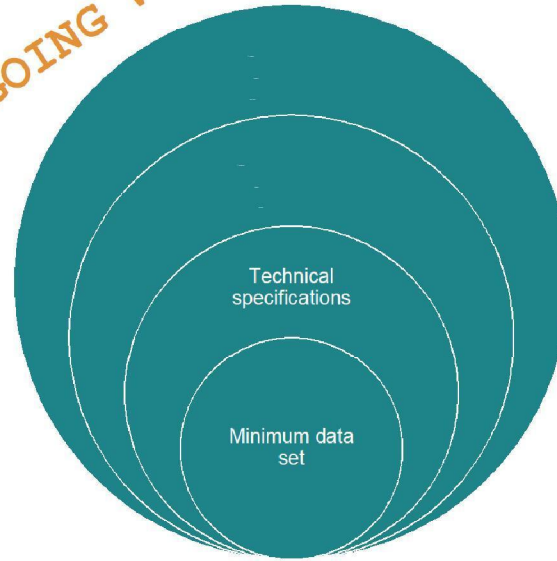
Purposes of use

- **Medical purposes (continuity of care) – undisputable**
 - A vaccinated person who has received the first dose in Country A would like to receive the next dose in Country B. The only information available is that on the certificate.
 - A vaccinated person needs to receive information about the date of the next dose.
- **Proof of vaccination – debatable**
 - A vaccinated person presents the vaccination certificate in order to avoid or shorten a quarantine period during or after travel.
 - The organizer of a leisure event provides specific rules to vaccinated persons.
 - Support for proof for people who cannot get vaccinated (due to medical reasons) or cannot receive the next dose should be enabled.
- **Possible extensions – to be aware of**
 - Proofs of negative **test results** – *currently used for preserving free movement*
 - Proofs of a previously contracted **Covid-19 disease** – *used by some MS*

Cooperation with the WHO



ONGOING WORK



Minimum dataset

Section	Data element	Description	Preferred Code System
Person identification	Person name	The legal name of the vaccinated person	
	*Person identifier (optional, repeatable)	An identifier of the vaccinated person, according to the policies applicable in each country. It should be captured what type of identifier is used. Examples: citizen ID card or identifier within the health system/II S/e-registry.	
	Sex (optional)	Administrative gender	
	Person date of birth (conditional)	Vaccinated person's date of birth. Mandatory if no Person Identifier is provided.	Complete date, without time, following the ISO 8601.
	Disease or agent targeted (optional)	Disease or agent that the vaccination provides protection against	ICD-10 or SNOMED CT (GPS). In the future ICD-11.
	Vaccine / prophylaxis	Generic description of the vaccine/prophylaxis or its component(s) Example: J07BX03 covid-19 vaccines (temporary code, to be implemented in ATC 2022) 1119349007 COVID-19 mRNA vaccine 1119305005 COVID-19 antigen vaccine	SNOMED CT and ATC Classification (J07 therapeutic subgroup); In the future substances from the ISO IDMP Implementation-EU-SRS system
*Vaccination / prophylaxis information * means that the whole section may be repeated	Vaccine medicinal product	Medicinal product name Example: COMIRNATY concentrate for dispersion for injection	For the time being, this should be the name of the medicinal product as registered in the country. In the future the information on the medicinal product can incorporate the identifiers from the implementation of the ISO IDMP Standards and the medicinal package's unique identifier
	Marketing Authorization Holder	Marketing Authorisation Holder Example: Pfizer BioNTech	EMA's Organisations System data (SPOR)
	Number in a series of vaccinations / doses	Order in the vaccination course Example: 1/2	
	Batch/lot number (optional)	A distinctive combination of numbers and/or letters which specifically identifies a batch	
	Date of vaccination		Complete date, without time, following ISO 8601
	Administering centre	Name/code of administering centre or a health authority responsible for the vaccination event	
	Health Professional identification (optional)	Name or health professional code responsible for administering the vaccine or prophylaxis	
	Country of vaccination	The country in which the individual has been vaccinated	ISO 3166 Country Codes
	Next vaccination date (optional)	Date on which the next vaccination should be administered	Complete date, without time, following ISO 8601
	Certificate metadata (minimum dataset)	Certificate issuer	Entity that has issued the certificate (allowing to check the certificate)
Certificate Identifier		Unique identifier of the certificate (UVCI), to be printed (human readable) into the certificate; the unique identifier can be included in the IIS	See next slide
Certificate valid from (optional)		Certificate valid from (required if known)	Complete date, without time, following ISO 8601
Certificate valid until (optional)		Certificate valid until (validity can differ from the expected immunisation period)	Complete date, without time, following ISO 8601
Certificate schema version		Version of this minimum dataset definition - currently set at 1.0.0	Semantic versioning (ISO, https://semver.org/ version 2.0.0 or newer).

**ADOPTED AND
PUBLISHED**

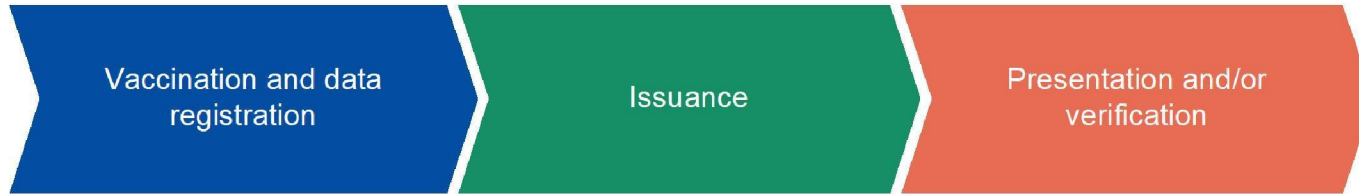
Unique Vaccination Certificate/assertion identifier (UVCI)

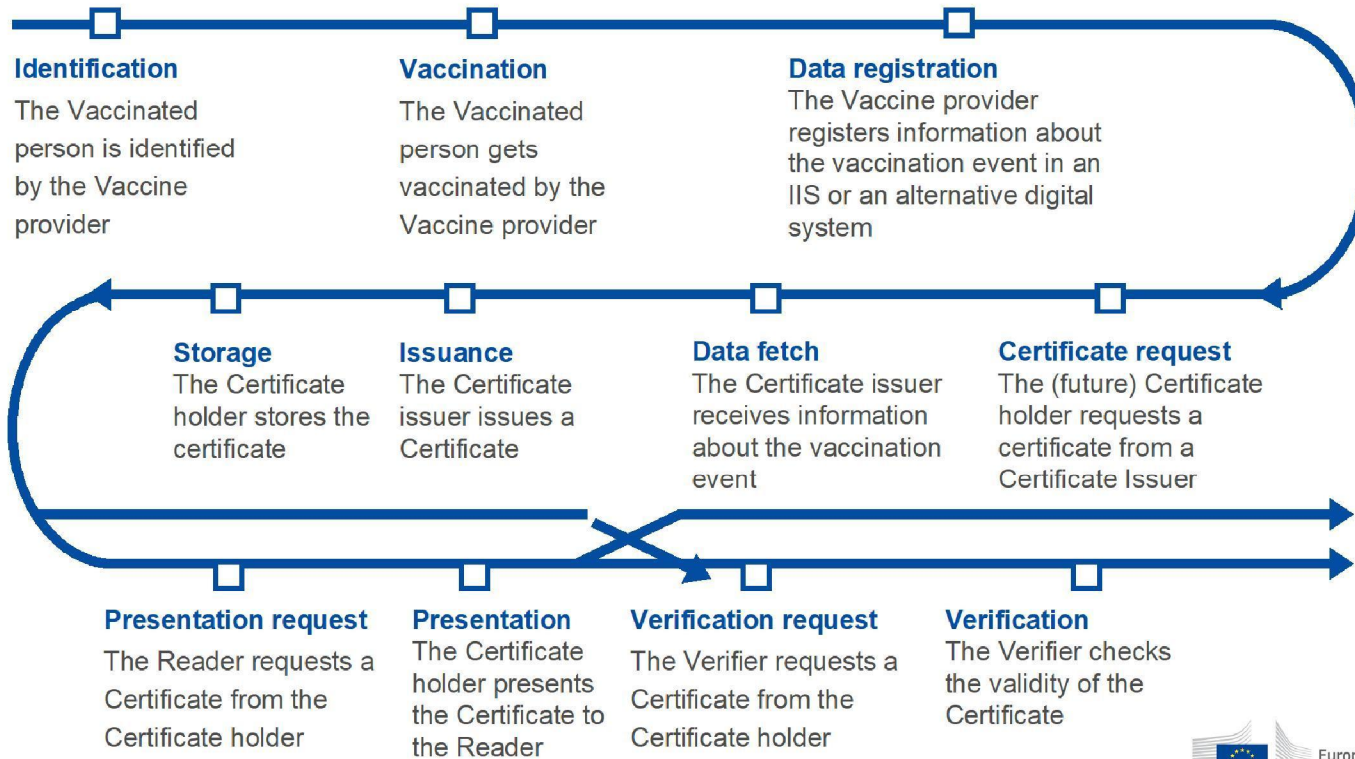
ADOPTED AND PUBLISHED

Version	Country	Opaque Unique String			Check sum
		Issuing Entity	Opaque Unique String		
		Issuing Entity	Vaccine/Lot	Opaque Unique String	



User story, steps





Trust Framework

ONGOING WORK

The Trust Framework should provide answers to at least the following questions:

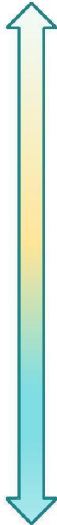
- What entities can issue vaccination certificates?
- How can a certificate reader or verifier establish whether a certificate has been issued by a trustworthy entity?
- How can a verifier ascertain whether the data in the certificate is authentic, valid, and sufficient for a given use case, respecting the data minimization principle?
- What kind of infrastructure is needed for supporting the interoperability of vaccination certificates?
- What would be the legal basis for data processing?

Trust framework: high-level requirements

- Interoperability (cross-border, preferably global, not only EU-wide)
- Data protection (data minimization, purpose limitation etc.)
- Security and privacy by design/default, robustness
- Simplicity & user-friendliness
- Inclusiveness (medium-agnostic)
- Flexibility on implementations
- Modularity and expandability (to accommodate for instance additional use cases)
- Use of open standards (e.g. FHIR, W3C VC etc.)



Data minimization

Might be performed in this order, depending on the law

Verification + sensitivity level	Contents and requirements	
None	Visual check only, no verification.	 <p>Little details Little effort Offline</p> <p>Full details Much effort Online/phone/etc</p>
Basic	Only very limited data. Should however enable a basic identity check. Fast. Should work offline.	
Standard	Limited data sufficient for most cases. Should enable identity check. Should be reasonably fast. May require online connection.	
Full	All data. Used rarely. May be slow. May require additional actions such as contacting the issuer.	

A "keep it simple" model

Proof of vaccination for medical purposes





V1-ME-12345678
ASBCD-56789-44

Name: DOE Joe
Date of Birth: 1987-06-05
Adm. gender: Male
Passport number: PF12345678
National health ID: 050687-987F
Certificate issued: 2021-06-02

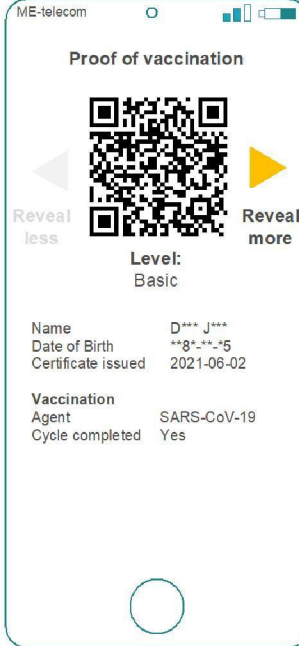
Dose 1/2		Dose 2/2	
Type: C19-mRNA		Type: C19-mRNA	
Date: 2021-02-03		Date: 2021-02-24	
Brand: Cominaty		Brand: Cominaty	
MAH: Pfizer Oy		MAH: Pfizer Oy	
Batch: AB123CD		Batch: EF456GH	
Adm. centre: Hospital 1		Adm. centre: Health centre 2	

Country: Middle Earth
Issued by: National health service
Signature: Digitally signed

Online verification: <https://www.npsme.health/c19verify>
Scan to open verification page:  Enter cert ID and verification code: HFGT-HETS-POZ3-BS12-ABSC

QR code is the same as in "Basic" or "Standard"

1



Proof of vaccination

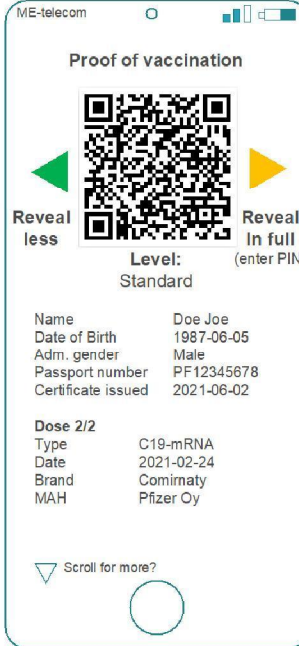
Level: Basic

Name: D*** J***
Date of Birth: **8*-*+*5
Certificate issued: 2021-06-02

Vaccination
Agent: SARS-CoV-19
Cycle completed: Yes

"Quick simple check"

2



Proof of vaccination

Level: Standard

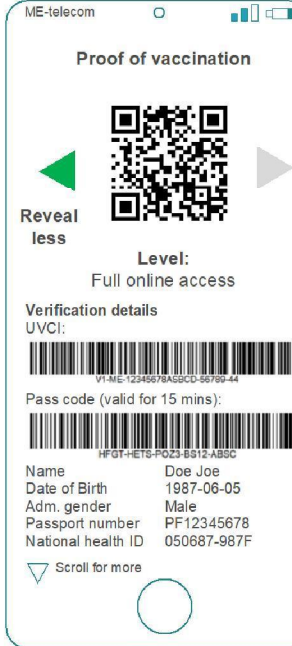
Name: Doe Joe
Date of Birth: 1987-06-05
Adm. gender: Male
Passport number: PF12345678
Certificate issued: 2021-06-02

Dose 2/2
Type: C19-mRNA
Date: 2021-02-24
Brand: Cominaty
MAH: Pfizer Oy

▽ Scroll for more?



"Standard check"

3
("real time 2")



Proof of vaccination

Level: Full online access

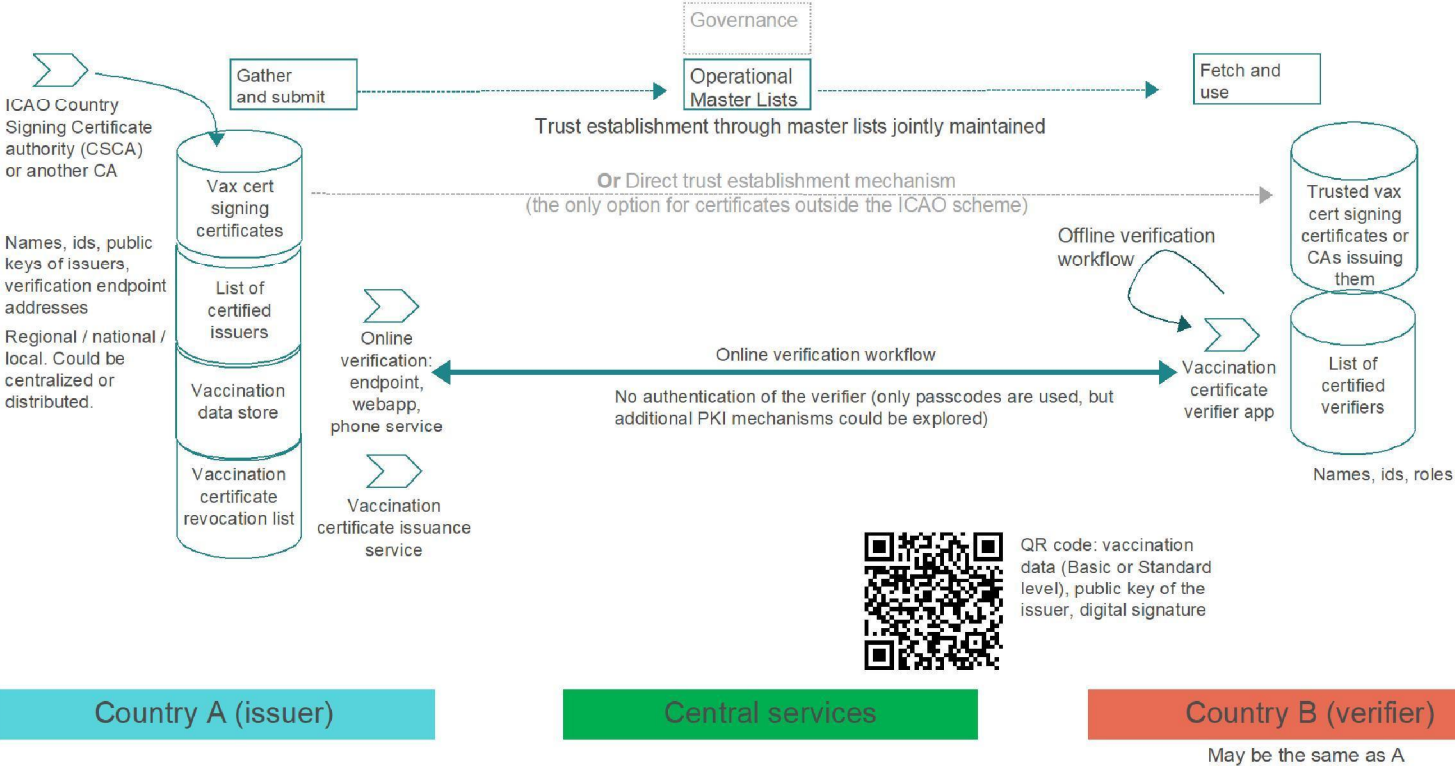
Verification details
UVCI:

Pass code (valid for 15 mins):


Name: Doe Joe
Date of Birth: 1987-06-05
Adm. gender: Male
Passport number: PF12345678
National health ID: 050687-987F

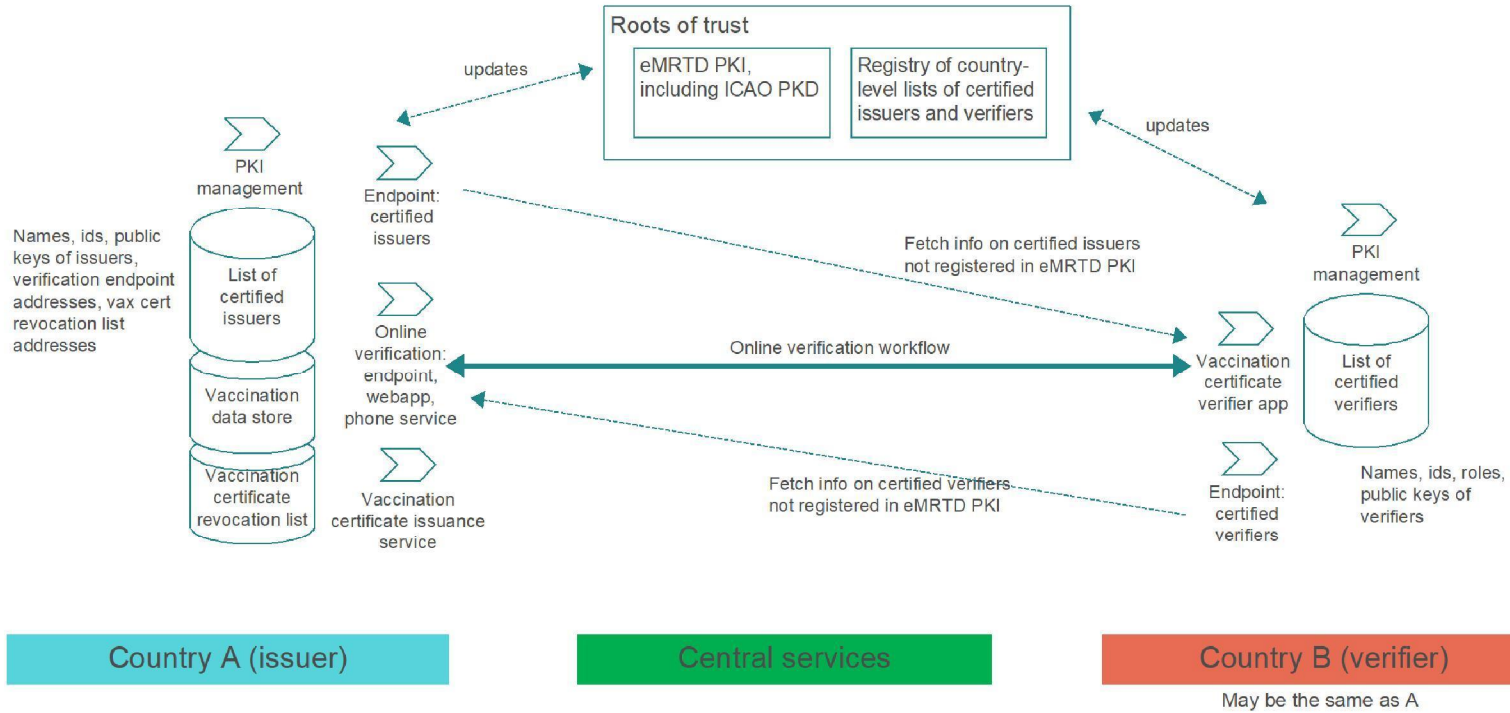
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"Online"

Overall architecture (option “fully distributed”)



Overall architecture (option “hybrid PKI”)



Next steps

- Discussions in the eHealth Network about the draft Trust Framework
 - Adoption of the document in the form of the eHN guidelines?
- Understanding the legal basis for establishing and operating the system
 - Multiple options under consideration
- Decisions on establishing and operating the infrastructure
- Providing support to national projects

Thank you



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