Trust Network for Cross-Border Digital Personal Health Records

Member State Briefing

18 November 2022

World Health Organization

The Global Strategy on Digital Health (2020 - 2025), ratified by 194 member-states, advocates for people-centred health systems that are digitally enabled

SO4

Human-centred health systems

People empowered to make healthy and health-enabling choices

- People placed at the centre of digital health transformation
- Population health management improved
- Digital health literacy skills and gender equality and health equity approaches strengthened

Individual and community health

Health and well-being

Systems and services

Capacity building activities

Healthier populations

"place **people at the centre of digital health** through the appropriate health data ownership, adoption and use of digital health technologies"

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The Global Digital Health Strategy: Actions and Requests

Global strategy on digital health 2020-2025
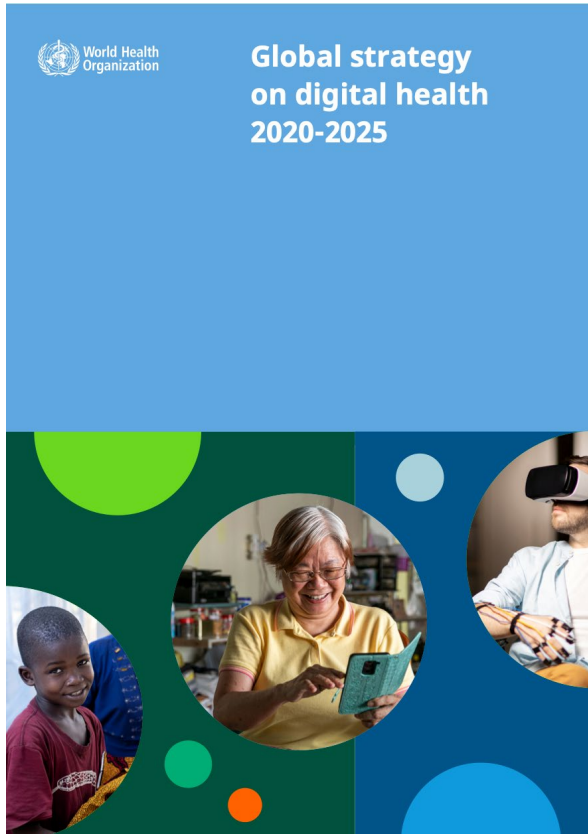
Policy Actions

- "An **interoperable digital health ecosystem** should enable the seamless and secure **exchange of health data** by and between users, health care providers, health systems managers, and health data services."

- "The **access of people to their health data** and the processing thereof should be ensured…"

- "From a legal and organizational perspective, all health care providers, health service providers, patients and any other **involved parties participating in an interoperable digital health ecosystem** undergo a strong and reliable digital identification, authentication and authorization mechanism that **guarantees trust in the exchange of health data and aligns with nationally appropriate means**."

Requests to Secretariat

- To develop a guideline on **global interoperability standards** for digital health

- To develop global minimum **standards for electronic health records**.

- Stresses the need for a **strong legal and regulatory base to protect** privacy, confidentiality, integrity and availability of data and the processing of personal health data, and **to deal with cybersecurity, trust building, accountability and governance**

To achieve person-centred health systems and future pandemic resilience there is a need to strengthen personal health records in a digital format
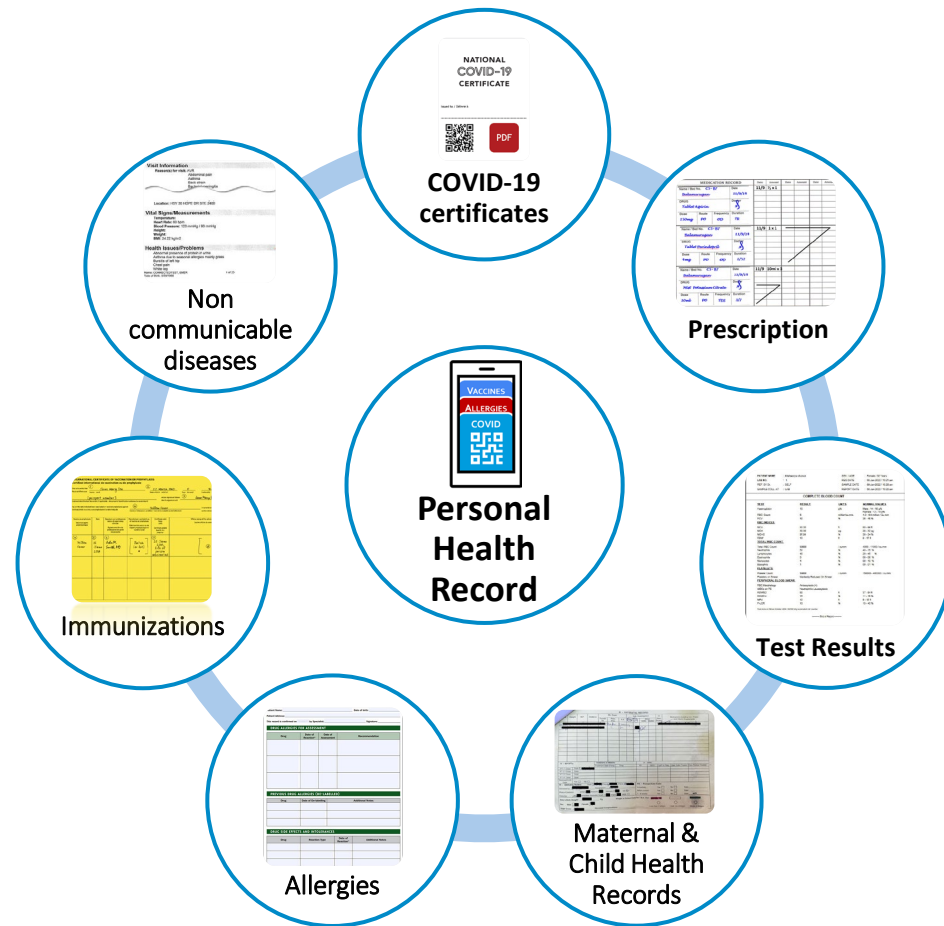
Record of health information in a digital format held by the individual

Personal health records expand upon Electronic Health Records and are provided to and can be managed by individuals

However, the implementation of Personal Health Records (PHR) faces numerous challenges at the individual, national and global levels

Individual level challenges

- Lack of **access to or control over** own health records
- Paper based records can be easily **lost, mishandled or damaged**
- Inability to easily take information from one health service provider in one country to another provider in another country

National level challenges

- Lack of (semantic and syntactic) **interoperability** between existing systems
- Inadequate **government resources** to sustain implementation
- Inconsistencies in **policies, governance and regulations**

Global level challenges

- Inconsistent design, document type and data collected
- Lack of **global coordinating platform** and secure **mechanism for exchange** of records
- **Inconsistent ownership** of Personal Health Records in countries
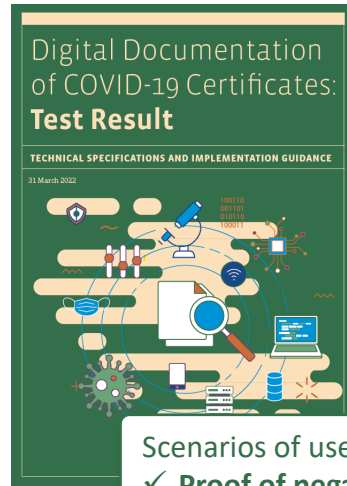- Concerns related to **security and privacy**
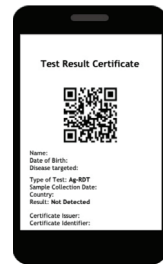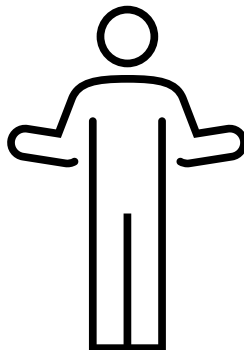
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During the pandemic, WHO was asked to provide technical guidance on the establishment of standards and architecture to facilitate the sharing of COVID-19 vaccination status and test results within & across borders

Digital Documentation of COVID-19 Certificates: Vaccination Status

TECHNICAL SPECIFICATIONS AND IMPLEMENTATION GUIDANCE
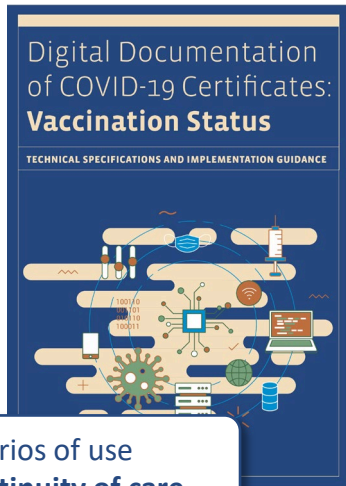
Scenarios of use
- ✓ **Continuity of care**
- ✓ **Proof of vaccination**

Digital Documentation of COVID-19 Certificates: Test Result

TECHNICAL SPECIFICATIONS AND IMPLEMENTATION GUIDANCE

31 March 2022

Scenarios of use
- ✓ **Proof of negative test result**
- ✓ **Proof of previous infection**

NATIONAL COVID-19 CERTIFICATE
COVID-19 | 21 May 2021
COVID-19
18 June 2021

Test Result Certificate
Name:
Date of Birth:
Disease targeted:
Type of Test: Ag-RDT
Sample Collection Date:
Country:
Result: Not Detected
Certificate Issuer:
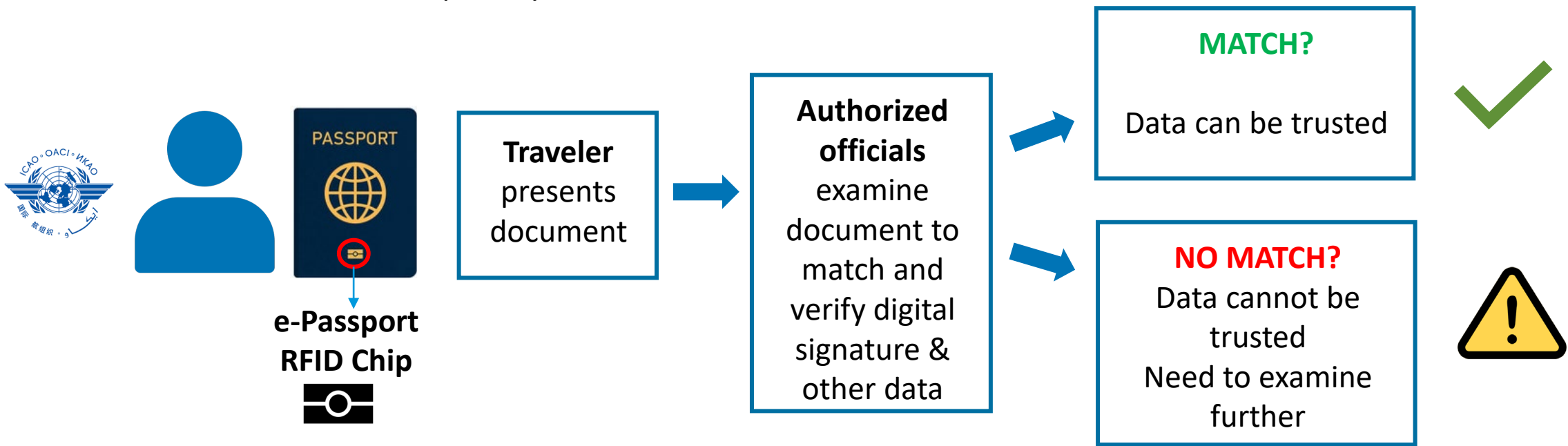Certificate Identifier:

- ✓ **Published Guidance:**
  - Requirements & specifications for technology implementers
  - Implementation considerations (data protection, ethical considerations, governance)
- ✓ **Published reference software:**
  - Gateway
  - Products that meet DDCC specifications
- ✓ **Aligned with ~ 100 Member States**

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Based on the experience from COVID-19 certificates, we recognize that consensus on technical standards and trust environment would be helpful to enable health documents to be recognized and used globally

WHO DDCC Document
Signed HL7 FHIR document

can be used to generate multiple respresentations of a test result certificate

EU Digital COVID Certificate (DCC)

ICAO Visible Digital Seal for Non-Constrained Environments (VDS-NC)

Digital Infrastructure for Vaccination Open Credentialing (DIVOC)

SMART Health Cards (SHC)

another certificate standard(s) linked to other trust network(s)

Each network has its own rules. **Need to federate across them.**

Varying public health policies across countries

Many existing digital standards don't interoperate

Standards implemented in a variety of ways without unified governance

Need to architect for multiple use cases beyond COVID-19

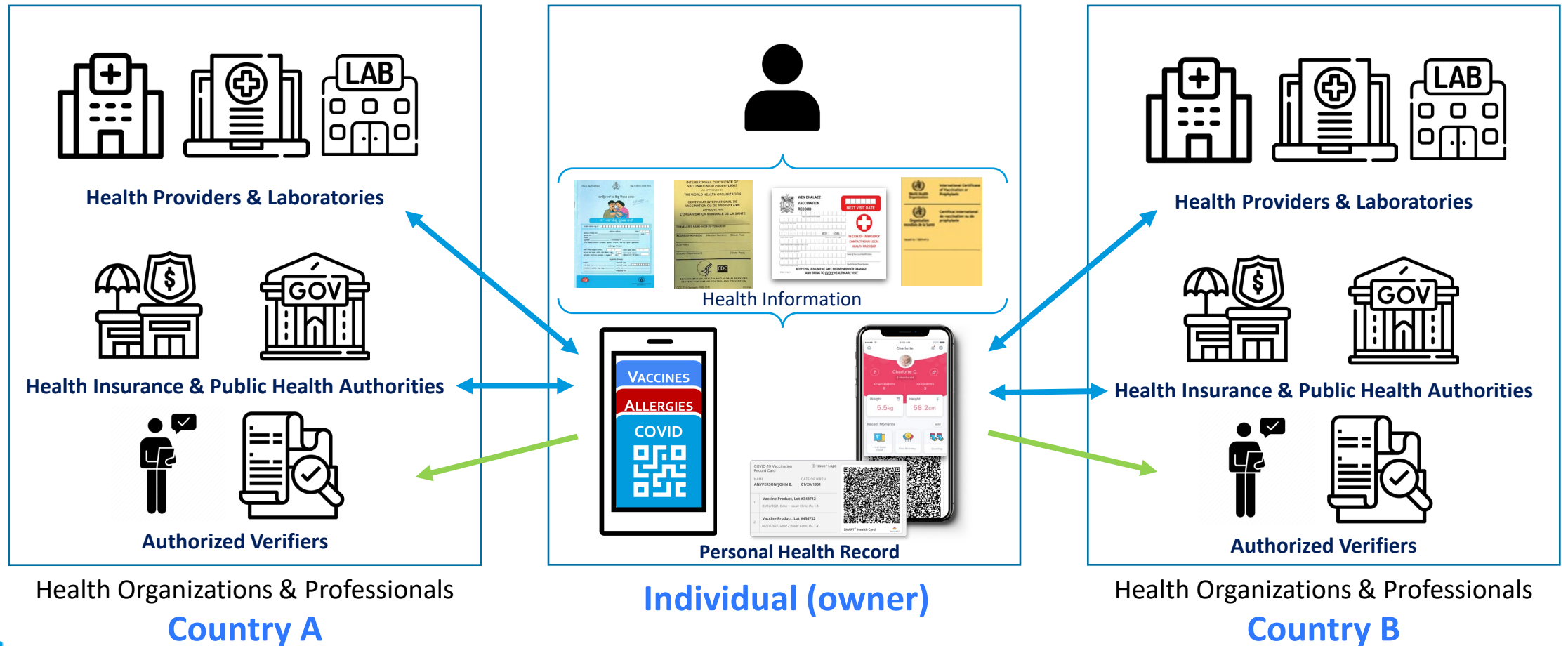Need for a directory to federate across trust networks

A trust architecture - consisting of technical framework, standards, governance and policies - provides an environment that enables data, carried by individuals, to be verified across members of the trust network.

E.g., many passports & ID cards contain technology, as part of a **trust network (ICAO)**, which holds key personal data stored using agreed-to standards & format. This allows members of the network to issue, verify and modify 'certificates' that will be accepted by other members.

e-Passport RFID Chip

Traveler presents document

Authorized officials examine document to match and verify digital signature & other data

MATCH?

Data can be trusted

NO MATCH?
Data cannot be trusted
Need to examine further

In response to member states, we are working to extend the DDCC standard for digital personal health records, built on a trust architecture that enables the secure issuance and verification of health documents across members of the trust network

Health Providers & Laboratories

Health Insurance & Public Health Authorities

Authorized Verifiers

Health Organizations & Professionals

Country A

Health Information

Personal Health Record

Individual (owner)

Health Providers & Laboratories

Health Insurance & Public Health Authorities

Authorized Verifiers

Health Organizations & Professionals

Country B

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The trust network guidance, consisting of technical standards and infrastructure will outline and establish the processes necessary for trusted exchange of health information across various use cases

Level of access
Public key distribution
Business Rules

Technical Environment

Trust Framework
Data Protection
Privacy & Security
Data Exchange

National Environment

Mutual Recognition
Digital Identity
Reissuance

International Environment

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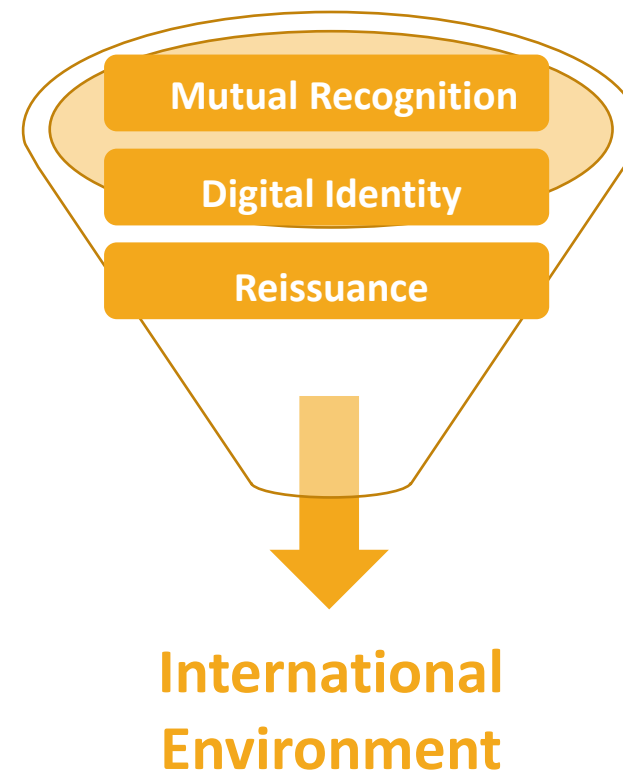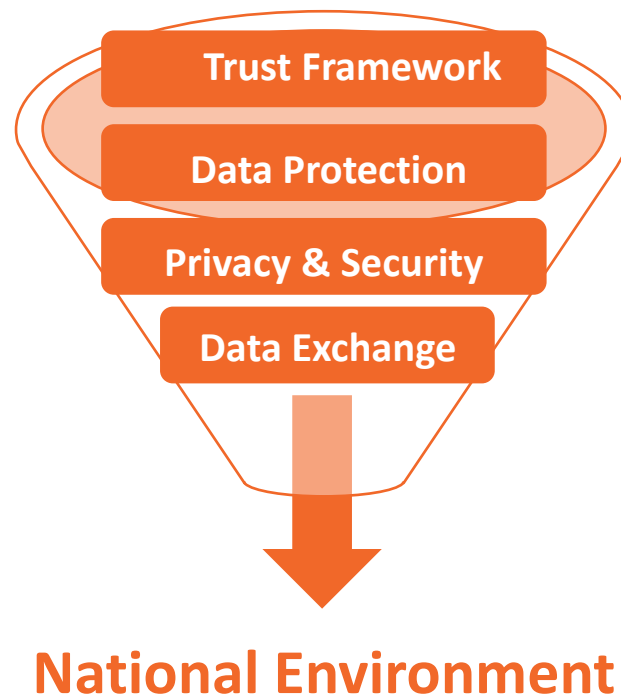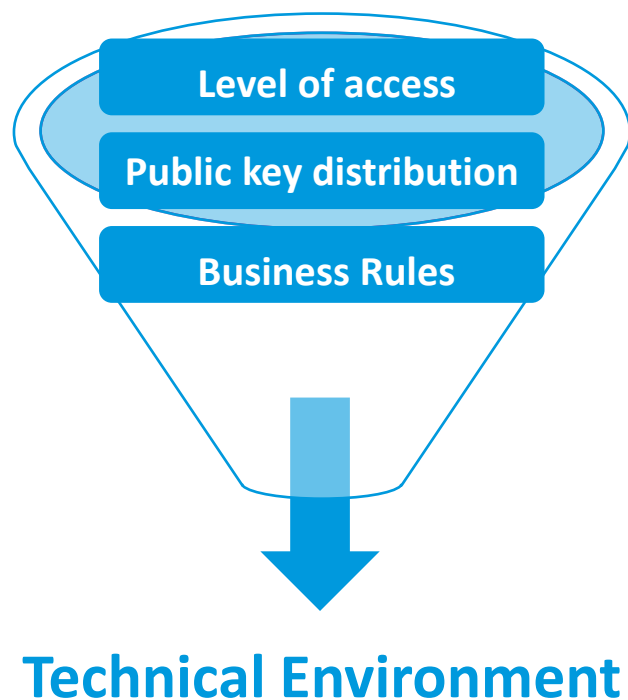
WHO is currently working with its Member States through the Global Strategy on Digital Health and through a G20-led working group to outline the various leadership roles needed to enable a trust network as described.

WHO, through its a trusted relationship with its Member States, has provided guidance documentation, reference software, and technical support:

- ✓ Establishing **technical & governance policies**
- ✓ Establishing **interoperability framework**
- ✓ Developed **common standards** for health credentials

Additional leadership is needed to:

- ✓ Establish & run **Public Key Directory**
- ✓ Monitor **Onboarding** Process
- ✓ Establish a **secure platform** that addresses security & data concerns
- ✓ **Custodian** of the system

Custodian Role

The role of a **custodian** in the global health trust architecture is needed to as the repository of trusted **sources** of health information (not the information itself).

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A global health trust network would help address current challenges at individual, national and global levels
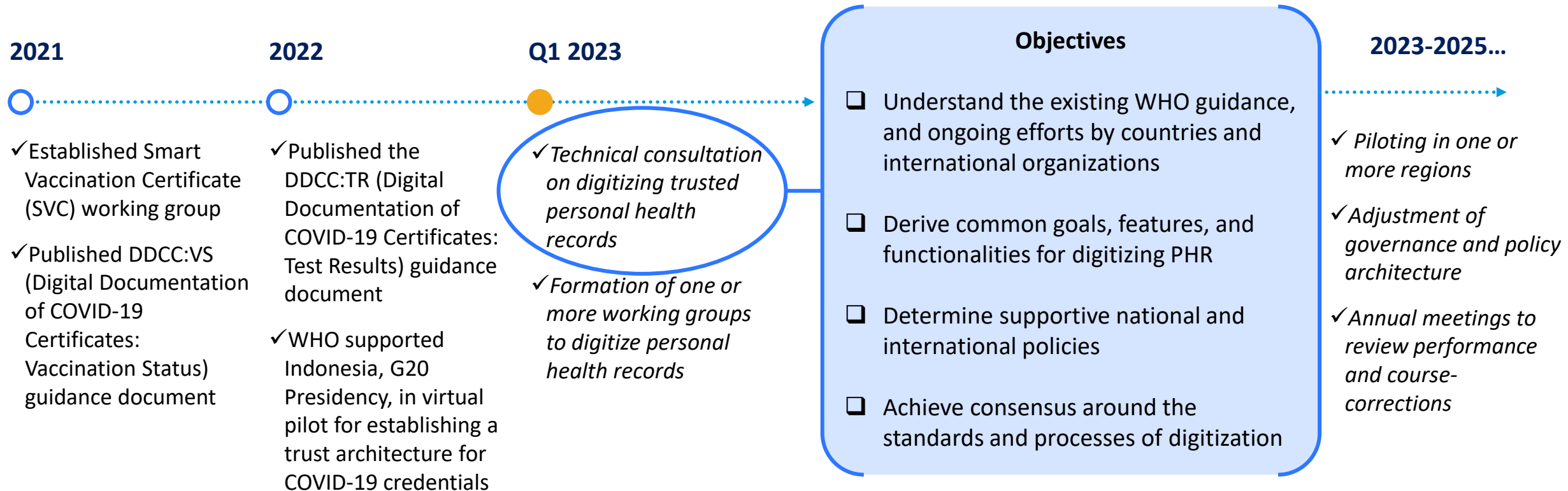
Individual level

National level

Global level

Existing system without global health trust network

Individual level
- Limited control over own health records
- Paper based records
- Limited ability to exchange and/or verify health information globally

National level
- Lack of clear policies, principles and regulations
- Lack of interoperability
- Inadequate government resources

Global level
- Inconsistent design, document type and data collected
- Lack of global coordinating platform
- Few mechanisms for exchange of records

Digitally augmented system with global health trust network

Individual level
- Individuals have access to & control over their health information
- Digital records – always available
- Ability to verify online and/or offline

National level
- Clearly documented policies, principles and regulatory framework based on consensus
- Standards compliant, interoperable infrastructure

Global level
- Standardized format for enabling exchange of health information
- Global platform with WHO as the mediator

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To take this work forward, WHO will be convening a technical consultation with domain experts on digitizing personal health records

2021

○ ....

✓ Established Smart Vaccination Certificate (SVC) working group

✓ Published DDCC:VS (Digital Documentation of COVID-19 Certificates: Vaccination Status) guidance document

2022

○ ....

✓ Published the DDCC:TR (Digital Documentation of COVID-19 Certificates: Test Results) guidance document

✓ WHO supported Indonesia, G20 Presidency, in virtual pilot for establishing a trust architecture for COVID-19 credentials

Q1 2023

● ....

✓ *Technical consultation on digitizing trusted personal health records*

✓ *Formation of one or more working groups to digitize personal health records*

Objectives

❑ Understand the existing WHO guidance, and ongoing efforts by countries and international organizations

❑ Derive common goals, features, and functionalities for digitizing PHR

❑ Determine supportive national and international policies

❑ Achieve consensus around the standards and processes of digitization

2023-2025...

✓ *Piloting in one or more regions*

✓ *Adjustment of governance and policy architecture*

✓ *Annual meetings to review performance and course-corrections*

For next steps, we would like to ask for your support, engagement and feedback in the upcoming WHO working group meetings for Personal Health Records

Support
- **Contribute expertise and insights**
- **Build consensus around trust network leadership**

Engagement
- **Provide necessary governance, resources and guidance**
- **Support workplan and roadmap to accomplish this goal**

Feedback
- **Review existing and upcoming documentation including processes & workflows**

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Thank you

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