

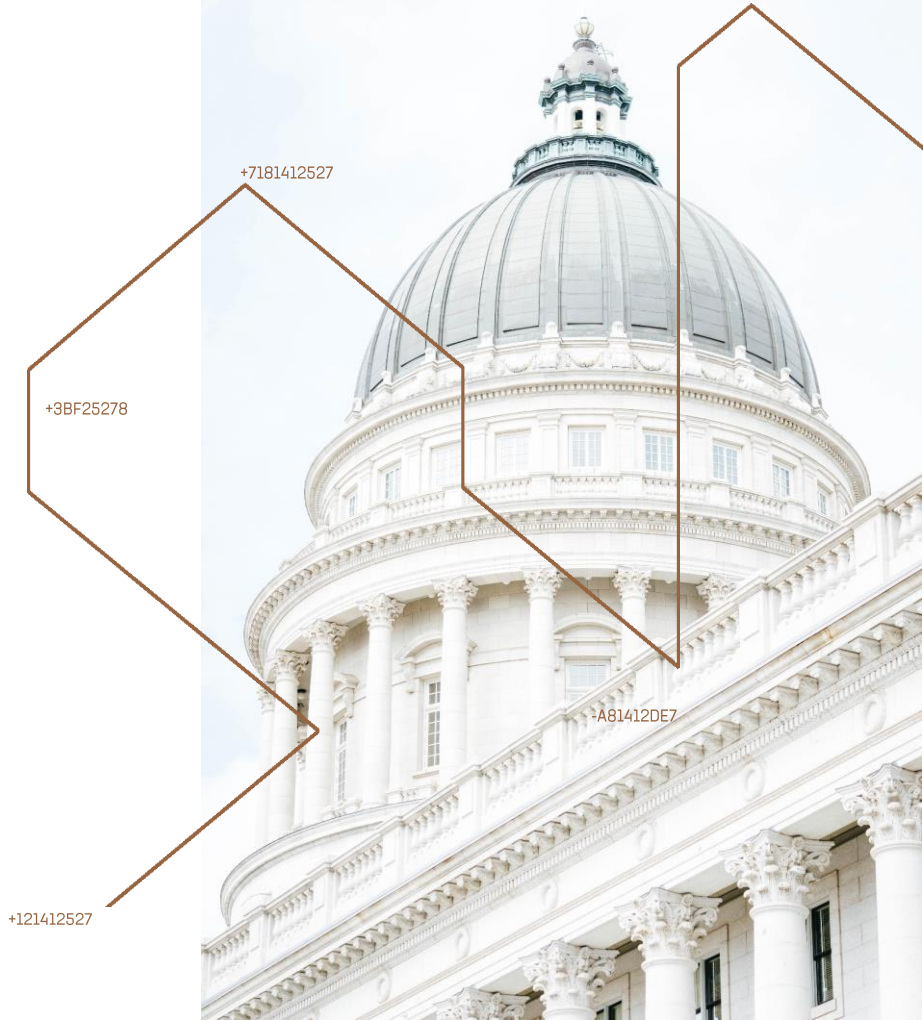


HOW GUARDTIME VACCINEGUARD HELPS GOVERNMENTS

VERIFY COVID-19 STATUS OF INDIVIDUALS.
MAINTAIN ACCURATE OVERVIEW OF
VACCINATION PROGRAM EFFECTIVENESS.

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Ain Aaviksoo, MD MPH | Chief Medical Officer
ain.aaviksoo@guardtime.com



DIGITAL COLLABORATION BETWEEN ESTONIA AND THE WORLD HEALTH ORGANISATION

In October 2020, Estonian Prime Minister Jüri Ratas and WHO Director-General Dr Tedros Adhanom Ghebreyesus signed a **Memorandum of Understanding to share the experience of Estonia** and its companies in healthcare digitization using distributed information architecture and interoperability with WHO and its member states.



<https://guardtime.com/blog/who-digital-covid-19-vaccination-infrastructure>



Estonian Prime Minister Jüri Ratas and World Health Organization Director Dr. Tedros Adhanom Ghebreyesus signing a memorandum of understanding at a video ceremony
Picture: Stenbock House, Tallinn, Estonia

DIGITAL COLLABORATION BETWEEN ESTONIA AND THE WORLD HEALTH ORGANISATION

- + The first pilot will be a **digitally verifiable international vaccination certificate („Smart Vaccination Certificate“)**, which could potentially support the effective implementation of the Covid-19 vaccination program.
- + **The technical leader of the project is Guardtime**, an Estonian-born cybersecurity company leveraging the EU eIDAS-accredited trust service KSI Blockchain in its solution for tamper-proof digital certificates.

THE WORLD HEALTH ORGANIZATION IS LOOKING FOR A SMART VACCINATION CERTIFICATE TO LINK ACROSS MULTIPLE SYSTEMS INTEGRAL TO VACCINATION DELIVERY

+

GETTING VACCINATED. GETTING CERTIFICATE

Harry receives a vaccination from Nurse Hermione and he receives a certification of that vaccination
It can be on paper with a scannable QR code or as an application on Harry's smart phone



PII SHARING Needed ✓

INTERNATIONAL TRAVEL

Fortunately, Harry is better, and he is ready to meet some friends overseas.
Harry presents his vaccination certificate at border patrol to prove that he has received the appropriate vaccination.
Border patrol scans the Smart Vaccination Certificate to validate



PII EXTERNAL SHARING NOT Needed ✗

PII =
Personally Identifiable Information

REPORTING ADVERSE EVENTS

Unfortunately, Harry feels ill after receiving the vaccination. He goes to the nearest hospital and provides Doctor Luna with his vaccine certificate.
She prepopulates the Adverse Event reporting form with data scanned from Harry's vaccination certificate



PII SHARING Needed ✓

PUBLIC HEALTH MONITORING

Once Hermione provides Harry with the vaccine, she logs that onto Harry's vaccination certificate.
That information can also be extracted and de-identified and automatically submitted for monitoring purposes at the Ministry of Health.



PII SHARING NOT Needed ✗

SUPPLY CHAIN INTERGRITY

The vaccination certificate Harry was issued also contains information that overlaps with supply chain data



PII SHARING NOT Needed ✗

VACCINEGUARD:

globally verifiable vaccination certificate platform
enabling effective management of vaccination
campaigns and distribution of vaccines

VACCINEGUARD: GLOBALLY VERIFIABLE CERTIFICATES AUGMENTING VACCINATION CAMPAIGN EFFECTIVENESS



Providing proof of Covid19 vaccination.



Providing independent verification of the certificates to 3rd parties.



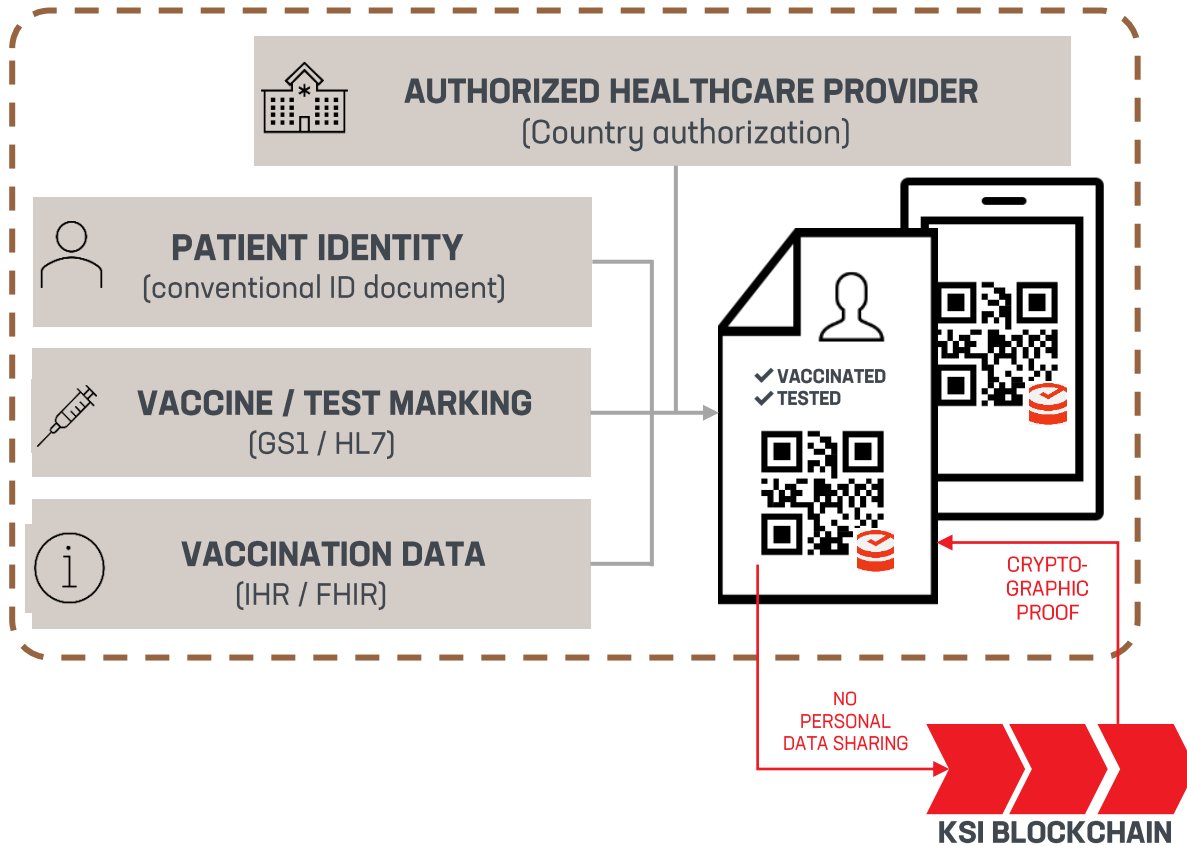
Real time monitoring of vaccination coverage among target groups.



Collect insights about supply chain integrity and pharmacovigilance.

SIMPLE AND SECURE APPROACH TO SMART VACCINATION CERTIFICATE BY VACCINEGUARD

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VACCINATION PROMOTOR (GOVERNMENT / WHO) guarantees:

- + control of issuer authorizations

AUTHORISED ISSUER guarantees:

- + patient authentication
- + data accuracy

VACCINEGUARD guarantees:

- + Proof of content authenticity
- + process integrity
- + privacy protection

VACCINEGUARD CAPTURES AND PROTECTS PROOF OF CRITICAL DATA ACCURACY

+

1 VACCINE IS VERIFIED
AGAINST AUTHENTIC VACCINE DATA REPOSITORY



2 PATIENT IS VERIFIED
WITH PHOTO-ID AND FOR ELIGIBILITY (IF RELEVANT)



3 HEALTHCARE PROVIDER IS VERIFIED
WITH DIGITAL CREDENTIALS FOR AUTHORIZED ACTIONS



VACCINEGUARD FACILITATES PRIVACY-PRESERVING GLOBAL CERTIFICATE VERIFICATION

+

4

CERTIFICATE IS ISSUED BY HEALTHCARE PROVIDER
AS PRINTOUT OR SENT VIA E-MAIL / MOBILE PHONE



5

THE CERTIFICATE IS HELD AND TRANSPORTED
BY PATIENT ONLY (NO CENTRALIZED DATASTORE)



6

CERTIFICATE PROOF IS VERIFIED
ONLY PATIENT HAS HEALTH AND PERSONAL DATA



VACCINEGUARD PROVIDES REAL-TIME INSIGHTS FOR VACCINATION PROGRAM STEERING

+

7 DASHBOARD ON VACCINATION TARGETS IS POPULATED USING
AUTOMATED AGGREGATED REPORTS FROM VACCINATION SITES



8 INVENTORY OVERVIEW AND NEEDS ANALYTICS IS ENABLED VIA
AUTOMATED MONITORING OF STOCK AND VACCINATIONS

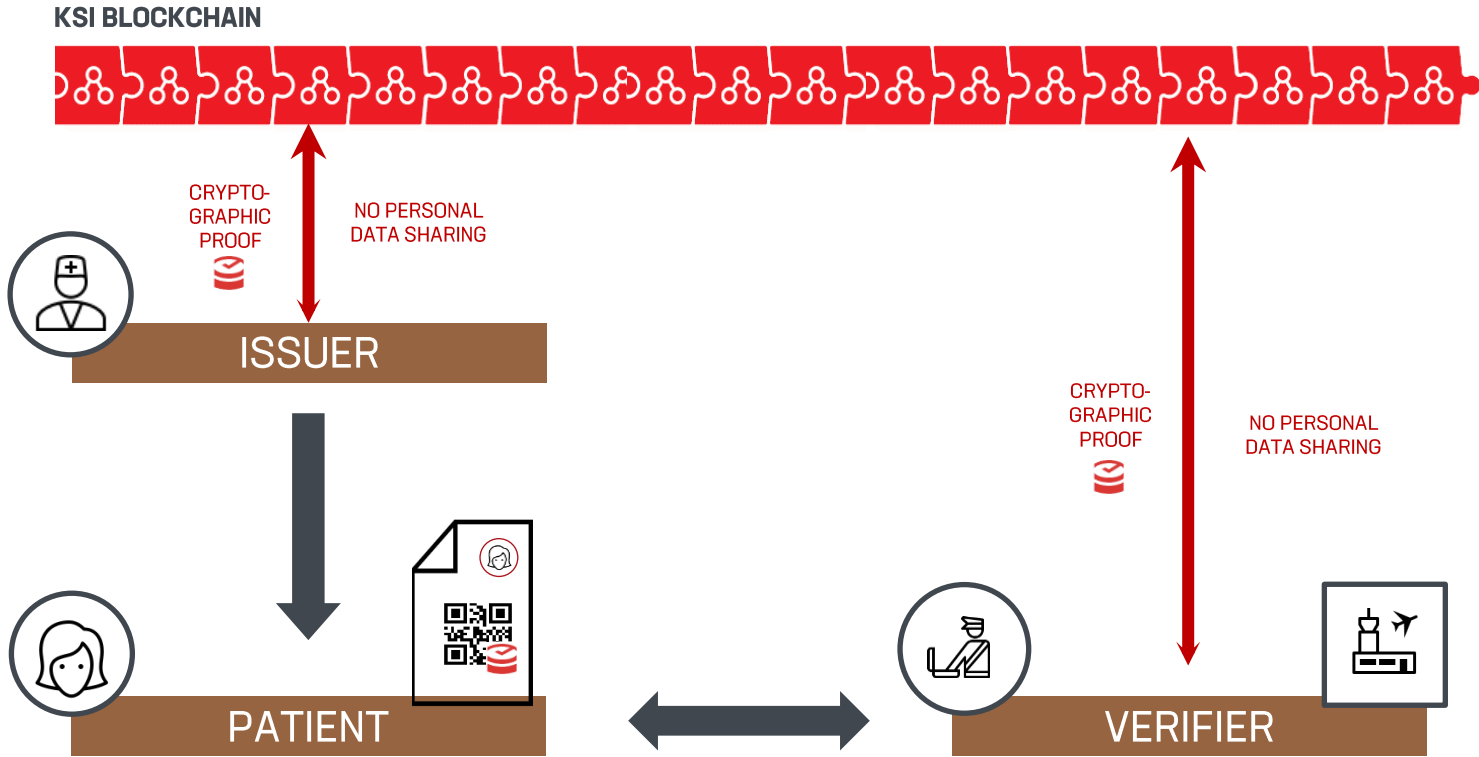


9 ADVERSE EFFECT REPORTING AND INVESTIGATION IS EXPEDITED
BY USING THE CERTIFICATE LINK WITH VACCINATION META-DATA

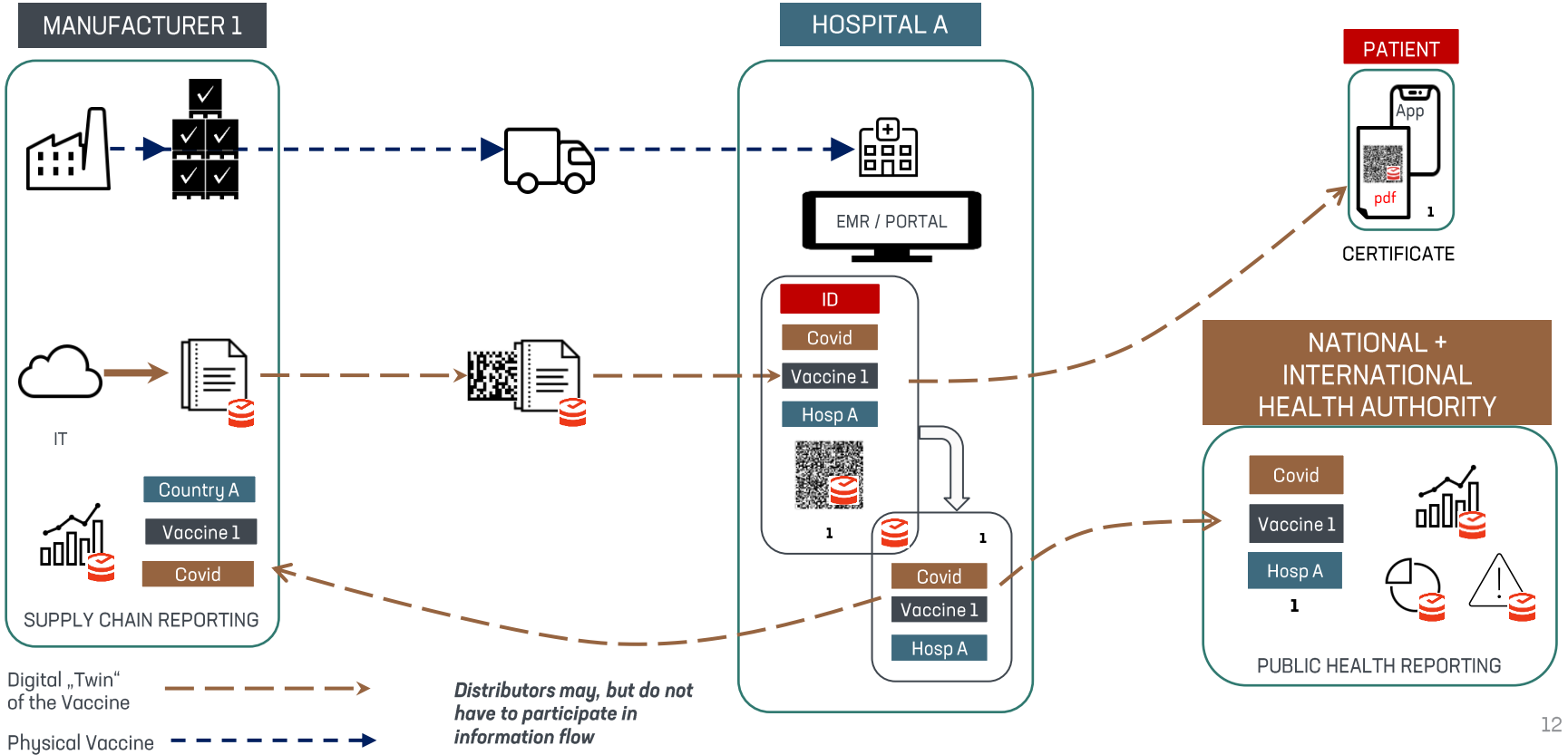


VACCINEGUARD CERTIFICATE FACILITATES PERSONAL CONTROL OF HEALTH DATA

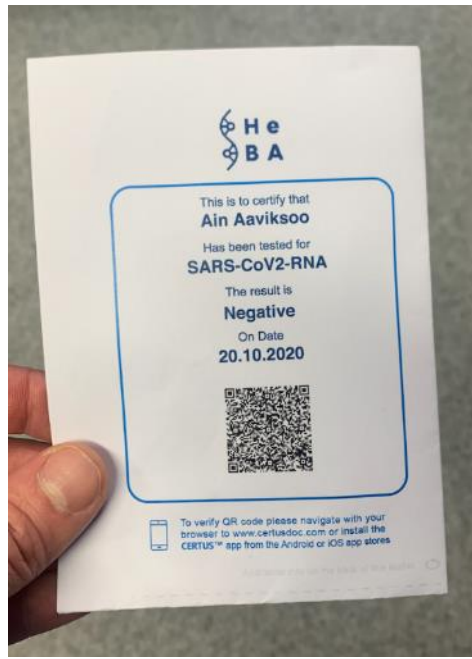
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VACCINEGUARD BY GUARDTIME LINKING VACCINATION RECORD WITH END-TO-END VACCINATION FLOW



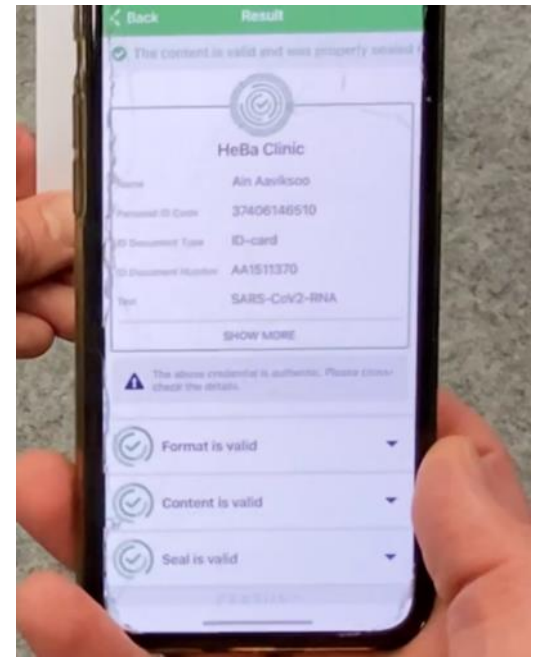
CERTIFICATE VERIFICATION /TAKES 2 SECONDS



Certificate



Verifier scans certificate



Verifier gets results

BENEFITS OF THE VACCINEGUARD SMART VACCINATION CERTIFICATE SOLUTION

FOR INDIVIDUALS:

- + Provides a **SOLUTION TO MANAGE AND VERIFY ADULT VACCINATIONS**
- + Enables **IMMEDIATE ACCESS TO INDIVIDUAL VACCINATION HISTORY** for a variety of purposes that can include return to work, return to school, international travel (within travel bubbles or bilateral travel agreements between countries in lieu of updated IHR (International Health Regulations) to include COVID-19)
- + Reduces need to manage multiple vaccination records
- + Can be used **ONLINE AND OFFLINE, ACROSS MULTIPLE SYSTEMS**

FOR IMMUNIZATION PROGRAM MANAGERS:

- + Allows access to quality and timely individual-level data for public health monitoring. **UNIFORMLY CAPTURES DATA** based on pre-defined terminology, value sets, and data formats - reducing data quality issues
- + **AUTOMATICALLY AGGREGATES DATA** for reporting
- + **EASILY SCALABLE SOLUTION**
- + **DUAL-USE**, able to provide an individual certification while also preparing systems for the case of international travel
- + **EASIER TO UPDATE** vaccination certificate template, if needed
- + Improved quality of care when healthcare providers have easy access to patient's vaccination history

THE COMPANY

THE LEADING TRUST TECHNOLOGY COMPANY

GUARDTIME

GUARDTIME: is a cryptographic engineering company founded in 2007 in Estonia, to solve the data integrity challenges first faced by the world's most advanced digital government. Our purpose is to make the world's information universally reliable and globally verifiable.

TECHNOLOGY: recognized technology leaders with a robust trust computing stack deployed globally at industrial scale since 2012

ACCREDITATION: technology has been accredited by US, EU and China regulators for deployment on to government networks

APPLICATIONS: core technology is 'horizontal' in nature, can be applied to large number of solutions and products at industrial scale across various sectors like government, telecommunications, healthcare and life sciences, logistics, financial.

GUARDTIME HEALTH PRODUCTS:

- + Real World Data Engine for Market Access
- + VaccineGuard
- + Drug Shortage Manager
- + Data Access and Governance Manager

AIN AAVIKSOO, MD MPH, CHIEF MEDICAL OFFICER



20 years of experience in digital technologies and health innovation.

In 2015-2018 Mr Aaviksoo was **Undersecretary for e-Service and Innovation** at the **Ministry of Social Affairs** overseeing the digital transformation and innovation of social security area in Estonia, including health, labour and social services.

Earlier work experience include physician, international level consultant on large system transformation and technology adoption in healthcare, CEO of public policy think-tank and health-tech entrepreneur. Dr Aaviksoo obtained MD from **University of Tartu** and MPH from **Harvard University**.

CONTACTS



Ain Aaviksoo, MD MPH
ain.aaviksoo@guardtime.com



REPUBLIC OF ESTONIA
MINISTRY OF FOREIGN AFFAIRS

Külli Kruusla
kulli.kruusla@mfa.ee