e-Estonia:
Experience with interoperability

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www.e-estonia.com
a modest country that extends beyond its borders

+ population: 1.3 million
+ area: 45,339 km²
+ currency: Euro
+ member of: EU, NATO, WTO, OECD, DIGITAL 9
empowering

Easiest life: only marriage, divorce and selling your house are not digital.

Yet.
ease of doing business

Simplest and fastest business environment.

+ a few hours to start a company
+ hassle-free e-taxation
+ full automatization in tax reporting by 2020
+ e-Residency — Estonian e-services to every world citizen / SME

© EAS
engaging

The safest way is to vote online.

+ 2005 — first in the world
+ 45%+ vote online
+ votes cast from 120+ countries
+ saving over 10,000 working days
efficient

The biggest savings

+ digital signature saves 2% of GDP per year
+ 50 times more efficient connected police
+ 1/3 less queues at the hospitals
+ best tax collector in the world

300 meters

A stack of paper saved each month
1. Constant experimentation
pathfinders

Bravest transformation: it’s not (all) about tech!

+ Leadership ready to take risks
+ Experimentation as a strategy
+ Estonia as testbed
2. Risks can be managed
cyberspace

The strongest competence.

+ transparent risk management
+ trust-by-design
+ cyber defence league
+ home for NATO CCDCOE and EU IT agency
+ data Embassy
3. Platforms give boost
electronic ID

The strongest identity.

+ every Estonian has an electronic ID
+ eIDAS assurance level „high”
+ 16% of mobile-ID
+ 34% of smart-ID
+ e-Residency
exchange


- saving 1400+ years annually
- over 1000 institutions and enterprises
- 150 public sector institutions
- 2700+ different services
- over 900 million transactions per year
- technology exported to Finland, Iceland, Faroe Islands, Ukraine and others
What is X-Road

WWW.NIIS.ORG
WWW.X-ROAD.GLOBAL
Point-to-Point – X-Road
X-Road Architecture
What Is X-Road

- A centrally managed distributed data exchange layer for information systems – an open source platform enabling a secure Internet-based data exchange between information systems.

- All kind of organizations - public and private sector enterprises and institutions - can connect their information systems to X-Road.

- X-Road employs a versatile security solution: authentication, multilevel authorization, a high-level log processing system, digitally signed and time-stamped data traffic.

- Distributed architecture and unified messaging model make data exchange between all the members of the X-Road ecosystem significantly more efficient.
X-Road Federation: for cross-border
X-ROAD 7 “UNICORN”

2018
NIIS strategic theme
2019–2021:
The Next Generation X-Road

2019
Research initiated

2020
Visual style guide
Backlog of new features

2020
Beta version

2021
Release version

Fully backward-compatible with X-Road version 6
Interoperability lessons
Enabling factors

+ Initially "carrot" incentives
+ Regulatory push afterwards: compulsory
  + once only principle introduced
+ From experiments to strategy & scaling
  (+ network effects kick in)
+ X-Road is really "lean" as tech stack,
  works also with legacy
Challenges

+ Interoperability does not itself give seamless/smooth service delivery — design matters!
+ Semantic interoperability is not given
+ Private sector involvement
+ Platform needs to evolve
+ Data discovery
let’s build the future together!