X-Road Governance Model: Legal and institutional framework.

Margus Püüa
E-Governance Academy, Senior Expert
Former Head of Department of State Information Systems
• 246 databases
• 975 organisations
• 1789 services available
• Over 50 million queries made every month

First ID card issued (Jan 28, 2002)

Digital Signature Act (March, 2000)

2000  
2001  
2002  
2004  
1 000 000th card issued (Oct., 2006)

MobileID (May, 2007)

2004  
2006

First binding cross border service (2009)

Million queries per month reached (2005)

Million queries per year reached (2003)

2009

2010

Digi-ID launched (Oct., 2010)

2014

e-residency Digi-ID launched (Nov., 2014)

2017

Finland and Estonia set up a joint institute to develop X-Road technology (March, 2017)

1 280 387 ID-card users today

67% use it frequently electronically

ega.ee

X-Road statistic in live
<table>
<thead>
<tr>
<th>Count</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>information system descriptions</td>
</tr>
<tr>
<td>2500</td>
<td>service descriptions</td>
</tr>
<tr>
<td>40000</td>
<td>data objects</td>
</tr>
<tr>
<td>650</td>
<td>code lists</td>
</tr>
<tr>
<td>900+</td>
<td>organisational entities</td>
</tr>
<tr>
<td>1400</td>
<td>contact persons</td>
</tr>
</tbody>
</table>
Method of coordination

- **Legislation** - to regulate as little as possible and as much as necessary
- **Awareness of and willingness** - Interoperability Framework
- **Money**
ICT legislation

- **Personal Data Protection Act (1996)**
  - protects individuals’ fundamental rights and freedoms
  - states that all citizens have a right to see the data that the public sector maintains about them

- **Databases Act (1997)**
  - Sets out rules for the creation and maintenance of public sector databases
  - Does not deal with the front office (use and services of databases)
  - Merged to Public Information act (2008)

- **Public Information Act (2001)**
  - ensures the opportunity for all to access information intended for public use
  - imposes an obligation for public authorities to maintain a website and a document register
  - states that everybody must have free access to the internet at public libraries

  - establishes the national ID card as the primary personal identification document

  - states that digital signature is equal to the handwritten one
  - imposes an obligation on public sector institutions to accept digitally signed documents
  - regulates the activities of Certification and Time-Stamping Service providers
  - defines and regulates Digital-Stamping as institutions digital signature (2010)
ICT legislation. Government acts

- Registry of registries RIHA (1998)
- Classification system (2003)
- Data exchange layer (X-road) (2003)
- The system of address details (2003)
- The geodetic reference system (2002)
Interoperability framework

**Interoperability** = the ability of ICT systems and the business processes they support to exchange data and enable the sharing of information and knowledge.

An **interoperability framework** = a set of standards and guidelines that describes the way in which organizations have agreed, or should agree to interact with each other.
Public Services Conceptual Model (EU example)

- Users
- Aggregates Public Services
- Orchestration
- Interoperability
- Facilitators
- Base registries
- External Services
- Secure Date Exchange/Management
- Secure Communications Management
- Basic Public Functions

### e-Government Organization (Estonian example)

**RISO (Department of State Information Systems)**

<table>
<thead>
<tr>
<th>Analysis and Planning</th>
<th>Information Society</th>
<th>IT Infrastructure</th>
</tr>
</thead>
</table>

**Estonian Information System's Authority**

<table>
<thead>
<tr>
<th>Data Exchange Layer X-Road</th>
<th>Public Key Infrastructure PKI</th>
<th>State Portal eesti.ee</th>
<th>Document Exchange Centre DEC</th>
<th>Administration system for the state information system RIHA</th>
<th>Data Communication in Public Administration ASO &amp; IT infrastructure (State Cloud)</th>
<th>Cyber Security CIIP; ISKE; CERT &amp; Supervision</th>
<th>Raising Public Awareness about the Information Society</th>
</tr>
</thead>
</table>

ega.ee
Joining the X-Road test and production environment

Becoming a member of X-Road

• Joining of an organization with X-Road;
• Accepting the joining conditions in RIHA.

Preparation for installing the security server:

• Selecting trust services;
• Selecting the encryption device

Installing the security server

• Installing the security server;
• Configuring trust services in the security server;
• Registering a security server / submitting a certificate application.

Registering and describing the X-Road subsystem:

• In RIHA;
• In X-Road.

Developing and registering data services.

Providing and using services.
Establishing Governing Authority

- Decide organizational and financing model
- Management and coordination of the team set up
- Technical team set up (hiring and training)
- Development of infrastructure
- Development of working procedures
- Joining the International X-Road community

Coordination of the State Information System

- Description of the Information Systems and relevant data
- Creation of the catalogue for management of information systems
- Establisihng semantic interoperability assets
- Establishing working procedures for coordination of information systems’ development

Creation of the regulatory framework

- Development of interoperability framework
- Development of reference architecture
- Drafting of legislation
- Introducing developed regulatory requirements

Creation of the X-road capability for service providers and users

- Technical team training
- Development of infrastructure
- Development of services
- Joining the X-Road community

Development of portals

- Development mini information system portal (MISP)
- Development of Citizen portal

Assuring of the third party services

- Assuring certification service
- Assuring time-stamping service
- Assure certification validation services online
Federation EE-FI