e-Government Architecture and Digital Identity

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Agenda

• What for e-Government
• E-Government development strategy
• What for e-Government Architecture
• Key elements of the e-Government architecture
In information society

• information is stored, changed and transferred in universal digital form
• access to digital information is ensured for all members of society through data network
• routine intellectual work is left for machines

= the way of life is rational
Service model in information society

- **User**: Administration, Citizens, Community (NGO’s and NPO’s), Businesses

- **Service Provider**: User, Administration, Citizens, Community (NGO’s and NPO’s), Businesses

- **Shared service**: Social Media

- **Public Services**: Co-production, citizen driven services

- **Business Services**: Crowd-sourcing, cluster

Source: Priit Parmakson, Margus Püüa
Rapid technological development

How long did it take to reach 300M users

- Instagram – 4 years
- Skype – 10 years
- Mobile phone – 25 years
- Telephone – 105 years

Alek Kozlov, United Skills
The framework should cover at least four in process
e-Government Development Framework (Strategy)

strategic planning (Estonian example)
e-Government Development Framework (Organization)

Strategy
- e-Gov. goals
- Principles
- Priorities'
- Resources'

Organization
- Responsibility
- Roles
- Personnel
- Coordination
e-Government Organization
(Estonian example - coordination)
e-Government Development Framework
(Public service)
Public services and ICT service development

- Public service analysis and concept development
- The legislative (regulatory development)
- Organization development (process upgrades / changes)
- Provide public service (Business Process administrative)
- ICT Service Development
- ICT service management
- e-service development from local point of view

Public service development scope from holistic point of view
e-Government Development Framework (Technology)

Strategy
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Organization
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Public service
- Public service Concept
- Business process/workflow
- Application
- Legal acts

Technology
- Architecture
- Technological options
- System components
- Development roadmap
Illustration levels of enterprise architecture

**Business architecture**
- Business Object
- Business Process
- Business Service
- Business Interface
- Business Role
- Business Actor

**Application architecture**
- Data Object
- Application Service
- Application Function
- Application Component
- Application Interface

**IT infrastructure architecture**
- Infrastructure Service
- Infrastructure Function
- Infrastructure Interface
- Node
- Artifact

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**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.
The following principles should be in place:

**Main architectural principles**

- XML and concept of basic data
- Protection of data not channels
- Separation of back-end and front-end systems. Service only through front-end
- SOA (Service-Oriented Architecture) and room of services/ internet of services
- Services described by WSDL
The following principles should be in place:

Main data processing principles

• „Once only“
• Unique data, avoiding duplication
• Evidentiary value of data
• High availability of data
• Confidentiality of data
Standardization requirements

- Unified legal framework
- Unified security measures
- Unified interface – all applications must be able to access all state registries in a similar way
- Unified installation and management – all installations should look alike
Public Services Conceptual Model (EU example)

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

Main interoperability solutions

- Secure data exchange solution: (X-Road – Estonian example)
- Register of registers, catalogue of services
- PKI (Public Key Infrastructure): eID, digital signature trust services
- Citizen portal(s), entrepreneur portal(s), civil servant portal(s)
- Open Data portal
- Geoinformation systems
- System of address details
- Security measures system
Secure Data Exchange Layer

Register of registres, catalog of services
eID, digitaal trust services

Estonian experience
Secure Data Exchange Layer  X-Road
(Estonian Example)

What is X-Road?

• X-Road is a distributed, secure and standardized data exchange solution.

• Public and private sector organizations are welcome to use this environment.

• X-Road can be used for offering, combining and using e-services in many different fields.
RIHA

• RIHA is the catalogue of Estonian public sector information system.
• RIHA serves as the national registry of systems, components, services, data models, semantic assets, etc.
• RIHA facilitates information system planning and operations activities.

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PKI (Public Key Infrastructure) ecosystem:

- Means for e-identification
- Electronic signature services
- Electronic seals services
- Time stamping services
- Website authentication
How it’s works
ID-Card

Personal data

- Authentication Certificate
  - Public Key
  - Private Key
- Signing Certificate
  - Public Key
  - Private Key

Application

1234

56789
ID Card is Regularly Used:

- As national ID card for legal travel within the EU and Schengen Area
- As proof of identification when logging into bank accounts from home computer
- For digital signature
- For i-Voting
- As a national health insurance card
- For accessing government databases to check one’s medical records, to file taxes, etc.
- For picking up e-Prescriptions
- Mobile-ID is a service that allows to use your mobile phone as from of secure electronic ID
ID-Card usage (2017 II – 855 344)

Unique usage of ID card
• 246 databases
• 975 organisations
• 1789 services are available
• Over 50 million services use every month,

First binding cross border service: 2009

2000
Digital Signature Act: 03, 2000
2002
First ID card issued: Jan 28, 2002
2004
2006
1 000 000th card issued: 10 2006
MobileID: May 2007
2009
2010
Digi-ID launched: 10,2010

2014
e-residency Digi-ID launched: 11,2014

Finland and Estonia set up a joint institute to develop X-Road technology: 03,2017

2017
1 280 387 ID-card users today 67% use it frequently electronically
Thank You!

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