



REPUBLIC OF ESTONIA
INFORMATION SYSTEM AUTHORITY

Estonian e-government

RIHA & data architecture

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In this session

- Data architecture of Estonia
- Information System Registry in the country context
- Key challenges of system governance

Goal: explain (data) governance of Estonian information system

Data architecture of Estonia

Key principles

- Once only: you should not have to give the government data it already has
 - Basically “thou shalt not create a master data problem”
 - Also cost and bureaucracy reduction
- You collect it, you protect it
 - The organisation collecting a data item has full responsibility
 - For example, data access cannot be granted by a third party
- All data is public by default
 - Explicit protection exists for key areas
 - Meant to foster open data
- The citizen owns the data
 - And can see, who has accessed it and why
 - This creates strange issues with medical information

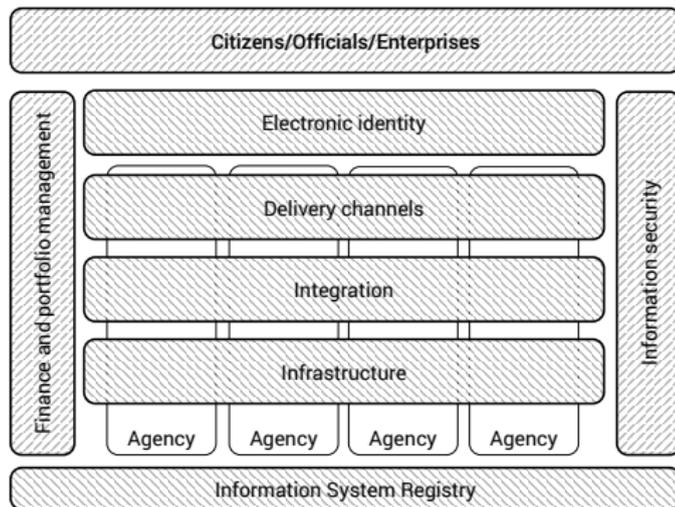
Key challenges

- Marrying x-road and open data
 - Most data collected is sensitive
 - How can we form a coherent data model out of this?
 - Why would I access diluted public data when I can access the rich private dataset?
- Relationships between data and information
 - A SQL dump is a really poor source of documentation
 - Information is emergent property of data
 - Master vs. secondary data
 - Semantics questions

Information System Registry in the country context

Why do we need another registry?

- Service discovery
- Data discovery
- Competence discovery
- Organisation discovery
- Regulatory enforcement



You can't govern what you don't measure

Challenges of system governance

Service discovery

- Using services assumes you know about them
 - 1000+ services is a lot to go through manually
 - Both x-road and channels layers depend on the services
- Using services assumes you know how to use them
 - Documentation
 - WSDL files
- Using services assumes you can get access
 - Who'm specifically do I contact to get access?
 - Where do I ask questions?

Key question: what services do exist and whom do I talk to about access?

Data discovery

- What data could I **potentially** use?
 - What organisations collect what data?
 - What is the semantics of the data collected?
 - Whom do I talk to about building a service to access it?
- Service descriptions are not necessarily useful
 - Movement towards service oriented APIs
 - Primary and secondary data elements (Marriages and ages)

Key question: what data is there?

Competence discovery

- Not all data is alike
 - Geoinformation
 - Marriage (the Y2Gay problem)
 - Foreigners with their funny names and documents
 - Weather, health etc.
- Who has the problem I have but on a larger scale?
 - They must have figured out a solution
 - Or at least have some ideas

Key question: who knows how to deal with an issue?

Organisation discovery

- It's all about people, folks
 - Even in Estonia, not everybody knows everybody
 - Who can give me access?
 - Who has data?
 - Who can help me?
- **Beware:** conflict discovery
 - You can only fight someone if you know about them!
 - Who else is seeking to be the source of truth in this field?

Key question: whom do I talk to?

Regulatory enforcement

- Enforcement of policies assumes information about the proceedings
 - What data is stored and how?
 - Have the systems been audited?
 - Are you storing duplicates of data?
 - Is your registry even legal?
- General sense of maturity levels
 - When was the documentation last updated?
 - Does it look like the person wrote it knows what they are doing?

Key question: is it legal?

How to collect the data?

- Having people feed another registry does not work very well
 - High benefit disparity: providing information is costly and yields little value, consuming it is cheap and adds a lot of value
 - Documentation standards are a challenge
 - Documenting the documentation of code: what could possibly go wrong?
- What about making the data available?
 - Providing access instead of providing data
 - “Don’t call us we’ll call you” approach
 - Machine readability gives open data for free and enables a lot of interesting things



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Thank you!

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