eGovernment and Interoperability Framework

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- e-Governance Academy (eGA) is a non-profit non-governmental organisation for the creation and transfer of e-governance knowledge
- Founded by Open Society Institute, UNDP and Estonian Government in 2002
- Activities with more than 50 countries
- Over 2000 participants in training

- 22 staff members
- Wide network of the international experts – all practitioners with hands-on experience

eGovernance Academy international cooperation
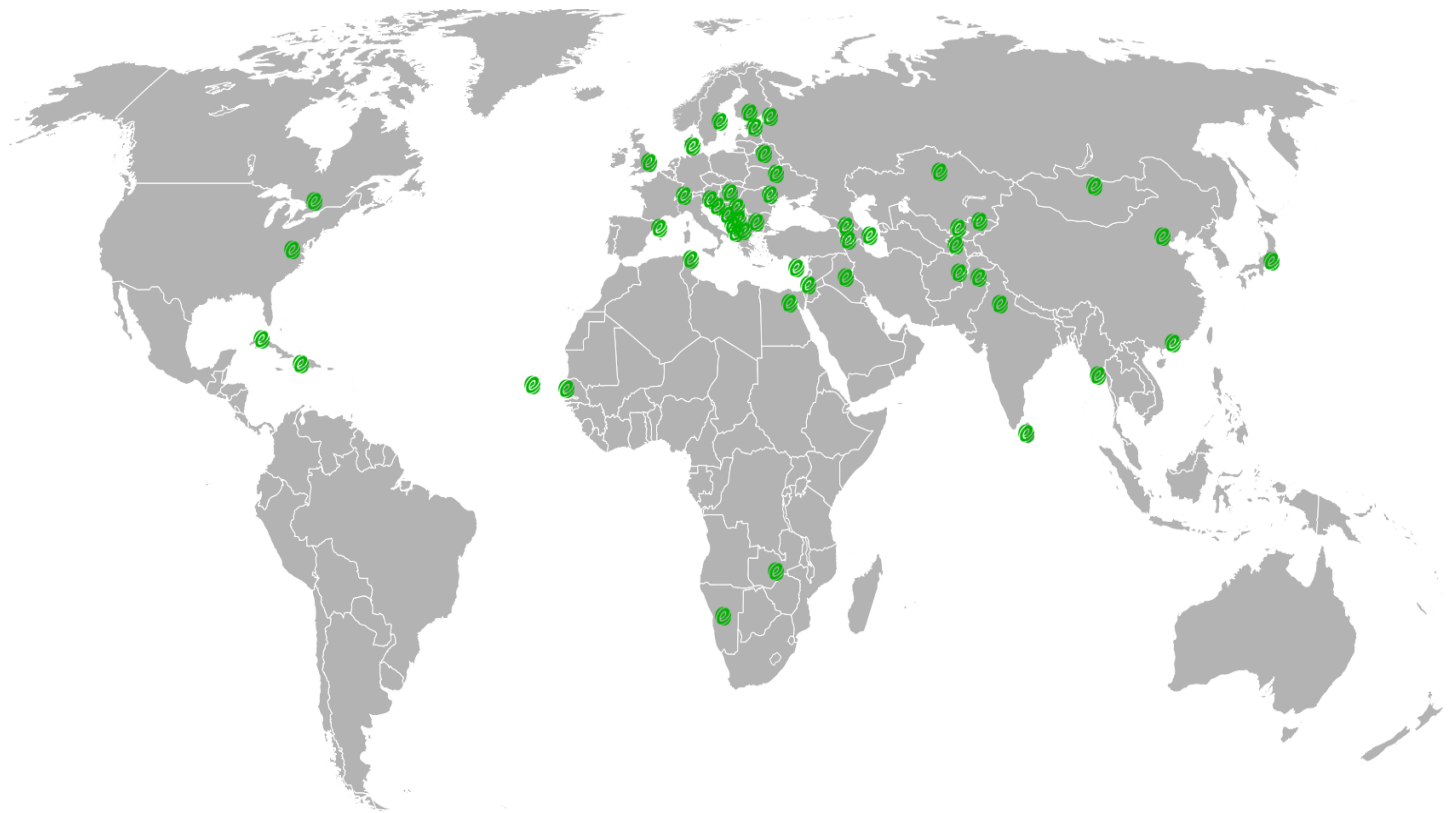
Balanced e-Governance

Combination of electronic services and participatory services

e- GOVERNMENT
Transaction of user-oriented services offered by government that are based on information and communication technologies.
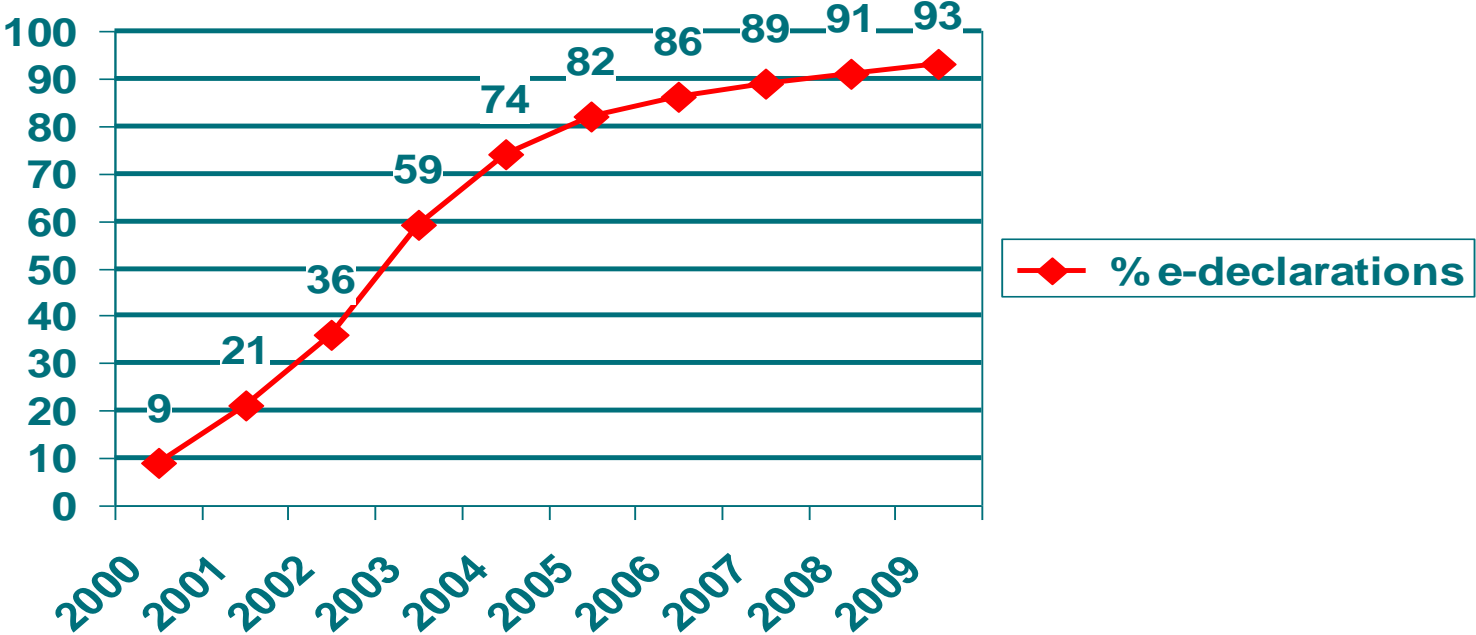
e-DEMOCRACY
Digitally conveyed information (transparency) and the political influence (participation) exerted by citizens and business on the opinion-forming processes of public – state and non-state –institutions

eGovernment example:

Parental benefit – best eGov service in 2004 (interoperability of 5 information systems from 5 goverment institutions)
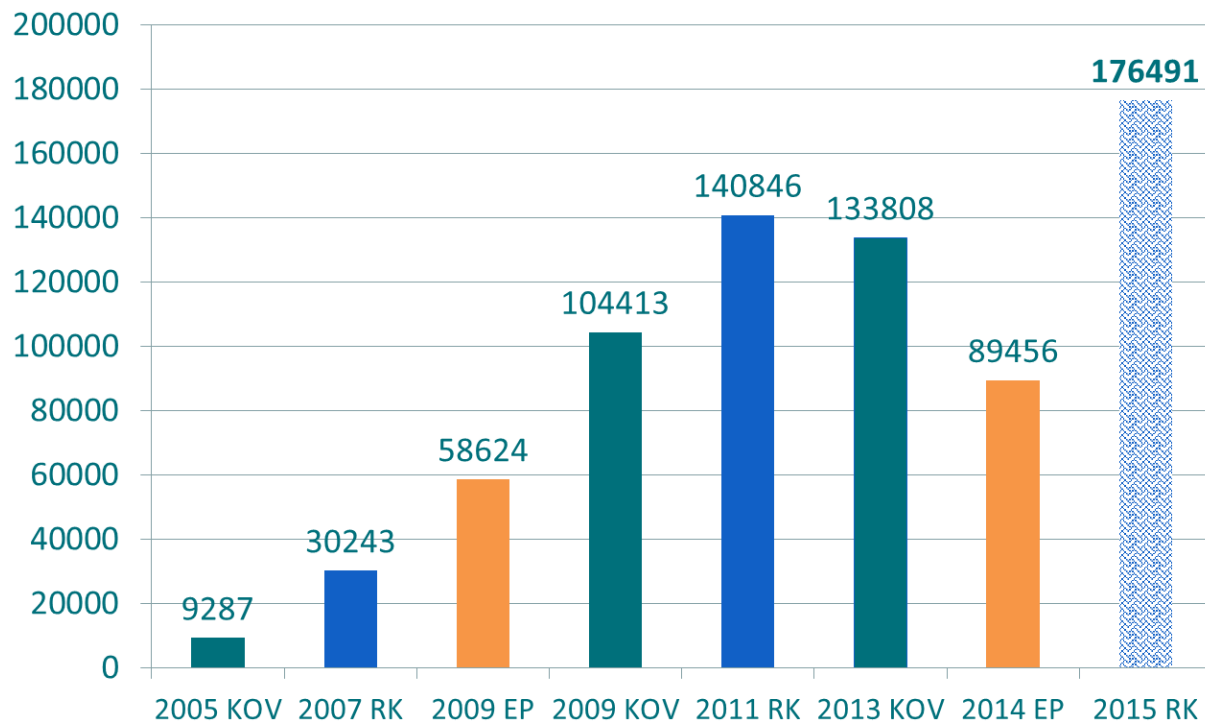
Tax declarations on-line

eParticipation example:
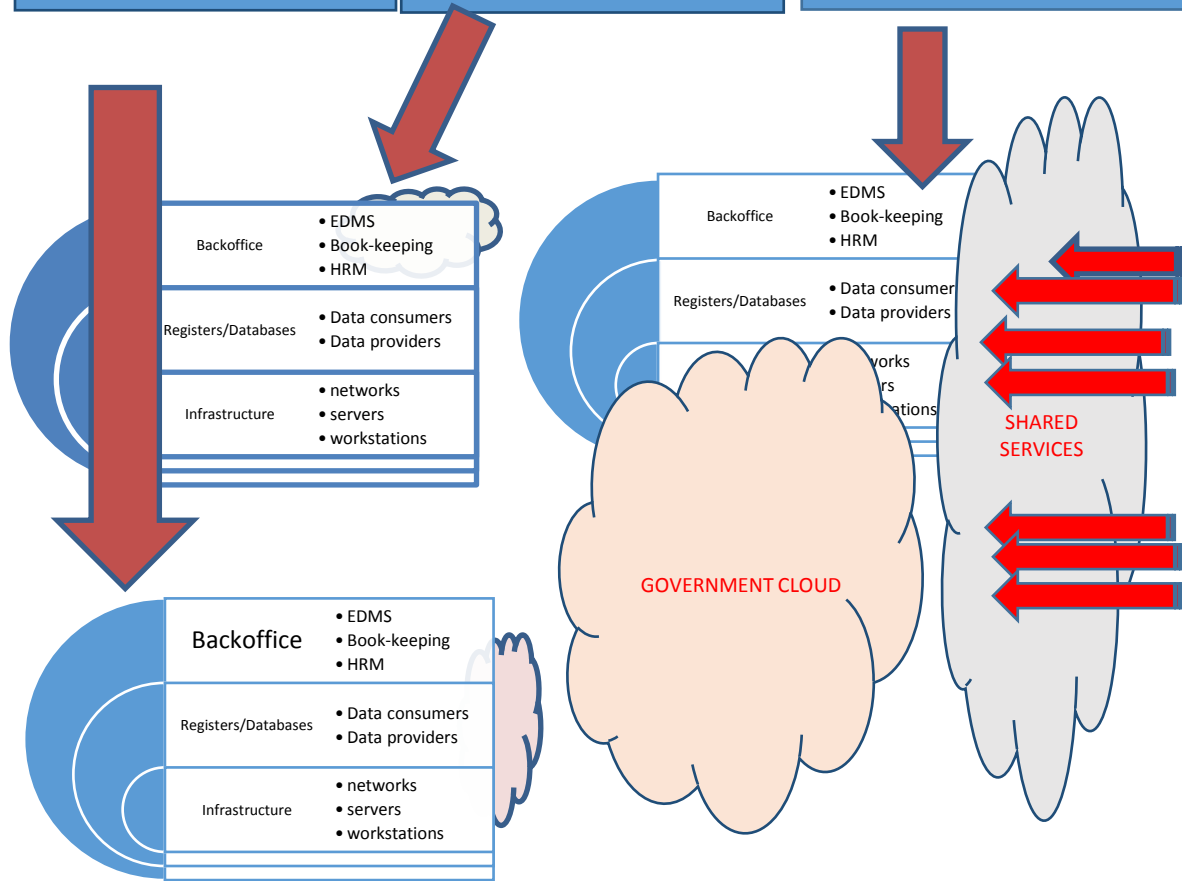**E-Voting in Estonia**

e-Voting statistics in Estonia

Ministry of ICT

Ministry of Finance

Etc....

Backoffice
- EDMS
- Book-keeping
- HRM

Registers/Databases
- Data consumers
- Data providers

Infrastructure
- networks
- servers
- workstations

Backoffice
- EDMS
- Book-keeping
- HRM

Registers/Databases
- Data consumers
- Data providers

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SHARED SERVICES

Backoffice
- EDMS
- Book-keeping
- HRM

Registers/Databases
- Data consumers
- Data providers

Infrastructure
- networks
- servers
- workstations

GOVERNMENT CLOUD

Horizontal enablers
- ADDRESS SYSTEM
- DATA PROTECTION MEASURES
- ELECTRONIC ID
- METADATA and MANAGEMENT SYSTEM
- ONTOLOGIES and SEMANTICS
- GEOGRAPHIC COORDINATES
- CLASSIFIERS
- DOCUMENT REPOSITORY
- SERVICE PORTAL for EGOV
- DATA EXCHANGE INFRASTRUCTURE
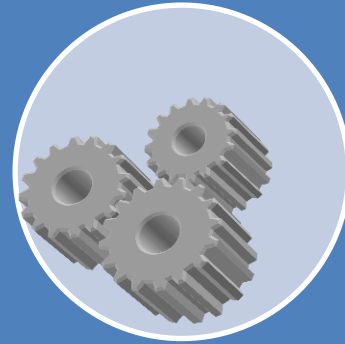- MOBILE GATEWAY
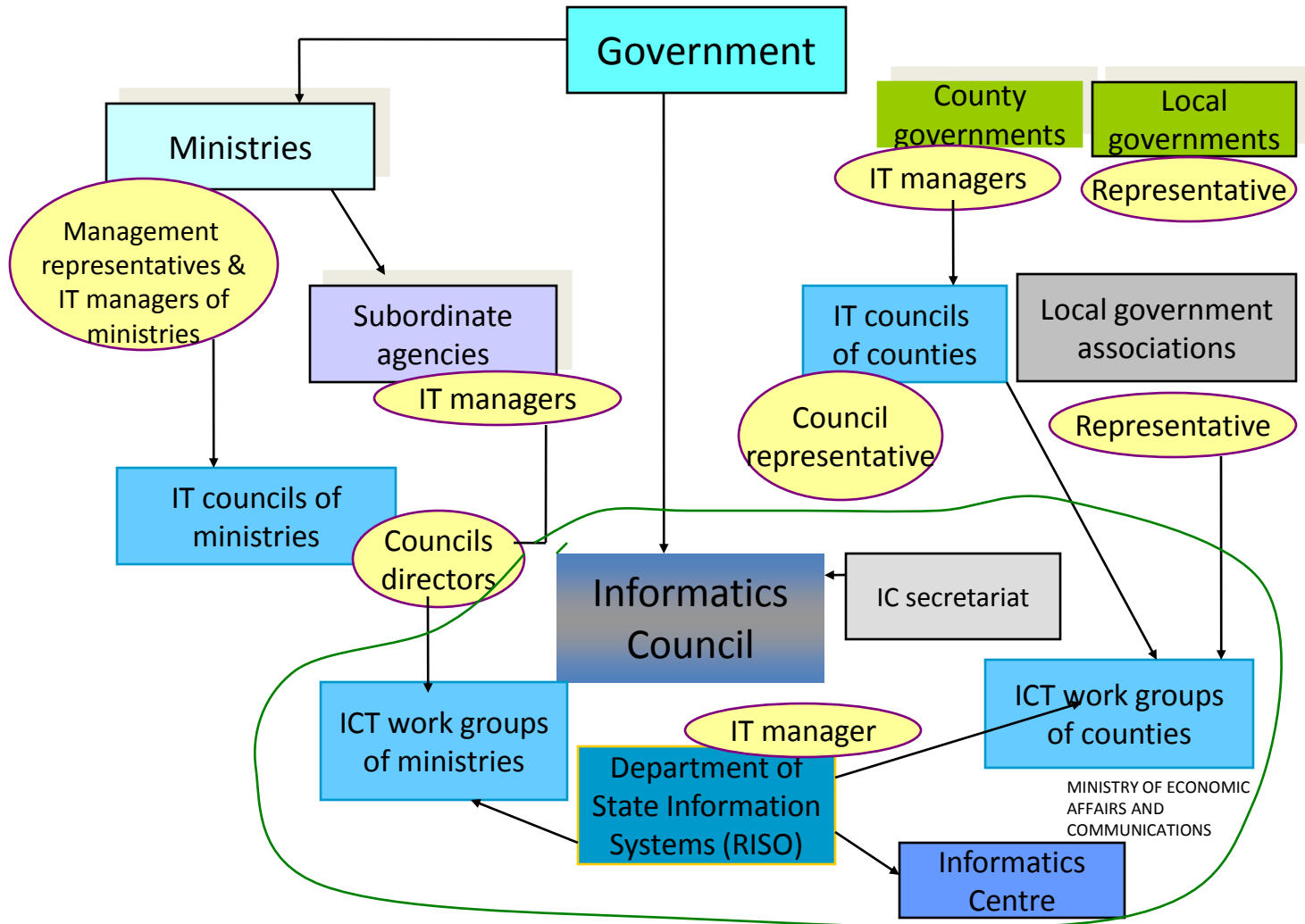- PAYMENT GATEWAY

Organization

Legal framework

Fiscal framework

Technical architecture

eGovernment Policy / Strategy

Nature of document	Name of Document	Nature of regulation
Policy and strategy documents	eGov Strategy, Interoperability Framework	Infopolitical agreement, strong recommendation
Laws and sub-acts	Databases acts, Personal Data Protection Act, Digital Signature Act etc.	Compulsory
Framework descriptions	Architecture descriptions	Strong recommendation
Interoperability Related Standards	Documents, digital signature, security, message transfer etc.	Advise and recommendation

Legislation

- Databases Act (1997/ 2006)
- Public Information Act (2001)
- Digital Signatures Act (2000)
- Act on Intellectual Property (applicable also for state databases)
- Principles of Estonian Information Policy (1998, 2004)
- Action Plan of Estonian Information Policy – (eEstonia) (1998, 1999, 2000, 2001,2002, 2003, 2004, 2005, 2006...)
- Personal Data Protection Act (1996)
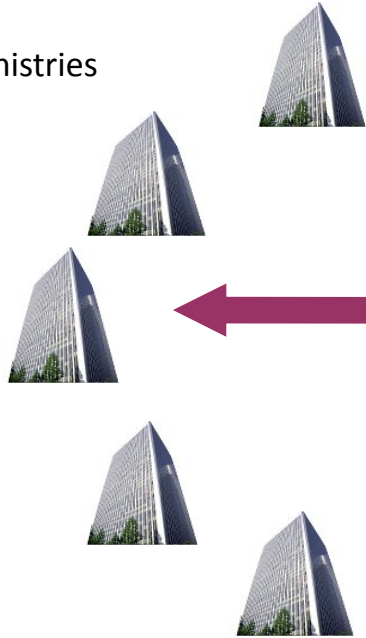
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- Citizen (customer) orientation
- Leading role for the private sector
- Efficient and transparent public sector. eDemocracy and participation.
- Functioning model for protection of personal data
- Measures against digital divide (ID-cards example…)
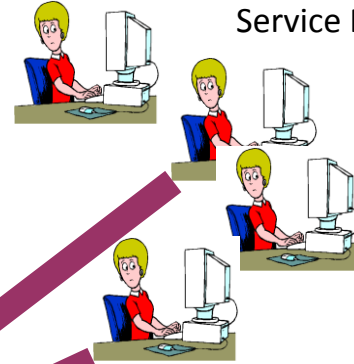- Neutrality concerning technological platforms
- etc.
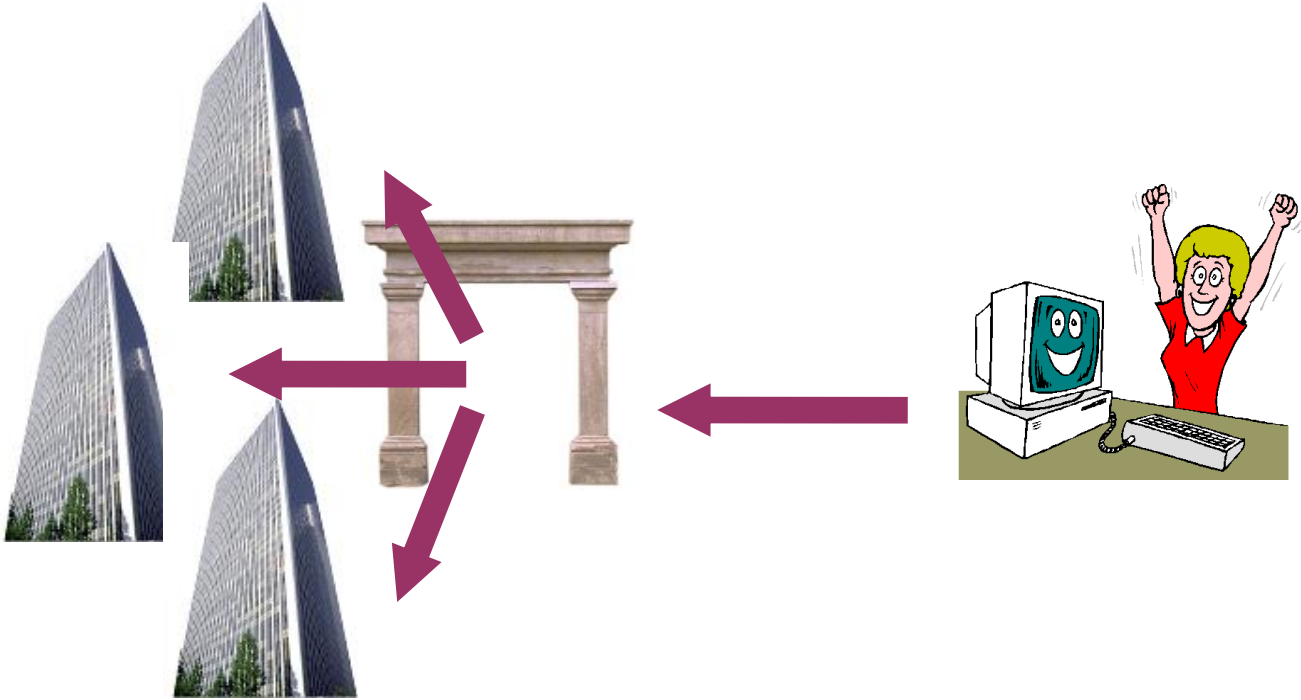
VISION

Ministries

Service Points

E- Gov Coordination:
-strategy
-budget
-regulation
-training

Management and implementation of shared, services infrastructure, portal, data exchange infrastructure, eID, payment gateway etc.

More and better services, More locations, 24/7,smaller Government, lower costs

Central coordination and IOF management – different roles

eGovernment Central Coordination Unit:

- eGov and Information Society strategy planning and monitoring.
- Collecting and analyzing ICT systems in government (forms available)
- eGov budget planning with Ministry of Finances and donors (structure available)
- Developing and giving approvals for legal acts related to eGov
- Preparing eGov strategies and action plans
- Monitoring Action Plan development
- Cooperating with CIOs. Trainings for CIOs.
- Planning and coordinating international cooperation on eGov.

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# Central coordination and IOF management – different roles

eGovernment Central Implementing Body:

Implementation of eGov interoperability platform.
- Data Exchange Infrastructure
- Portal
- Data Exchange Infrastructure management system - metadata
- Infrastructure
  - Network
  - eID
  - CA
  - Mobile and payment gateway
  - Cloud

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eGovernment Central
Implementing Body
(X-ROAD CENTRE)

System Architecture
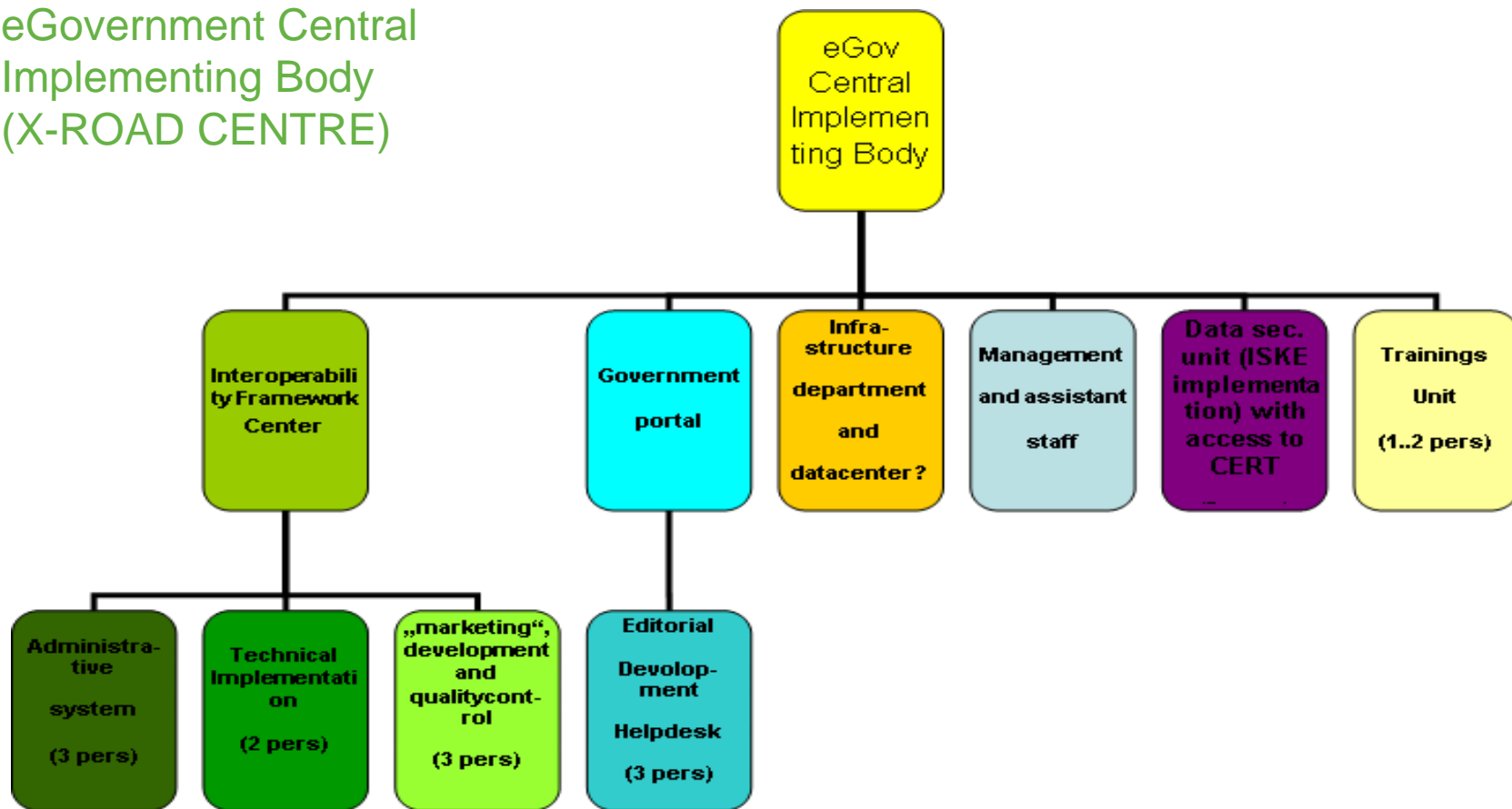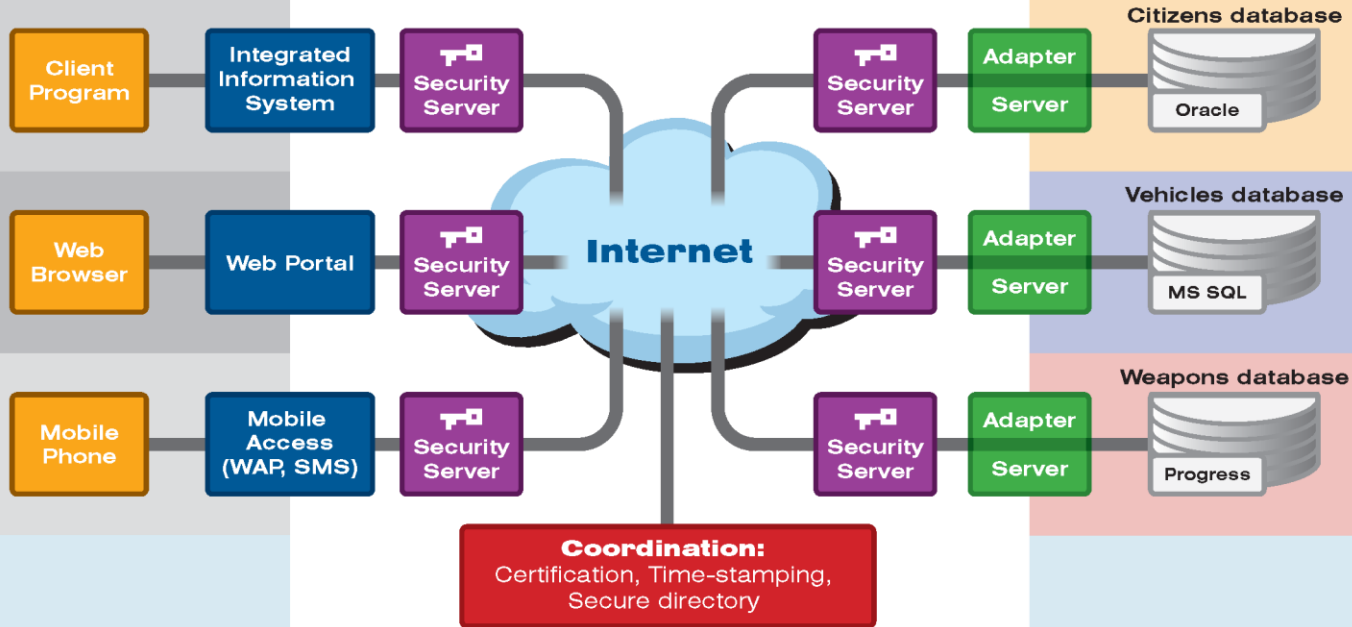

Heterogeneous environment:
different operating systems, authentication and access methods

Unified security environment:
- Confidentiality, integrity, availability and non-repudiation in a unified way
- Single protocol and single interface (XML-RPC)

Heterogeneous environment:
different database systems, technologies, protocols and interfaces

Client Program — Integrated Information System — Security Server

Web Browser — Web Portal — Security Server

Mobile Phone — Mobile Access (WAP, SMS) — Security Server

Internet

Security Server — Adapter Server — **Citizens database** — Oracle

Security Server — Adapter Server — **Vehicles database** — MS SQL

Security Server — Adapter Server — **Weapons database** — Progress

Coordination:
Certification, Time-stamping, Secure directory

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Example:
X-Road Estonia

Public sector   Private sector

160 DB

5

Population Register · Health Insurance Register · Vehicle Register · Document record management systems · Documents repository · Energy · Telecom · Banks

Adapter server

Security server

Internet X-ROAD

Security server

E-institution - institutionview
E-county - countyview
Governmental Portal - Your Estonia
State portal www.eesti.ee

KIT Citizen view · EIT Enterpriser view · AIT Public servant view

Adapter server

X-GIS

Central server I

Central server II

HelpDesk

Central monitoring

X-road certification center

Administrative system of the state information system
https://riha.eesti.ee

ID-card & Mobile ID

Certification Center

X-Road Center

~ 400 000 · ~ 45 000

3000 services

550 org.

500 DB

1,100,000

Example: Mauritius/Singapore

MISH Architecture Overview

3-Tier Application

GINS

Intranet Web Server
Apache Web Server

Internet Cloud

Internet Web Server

Application Server
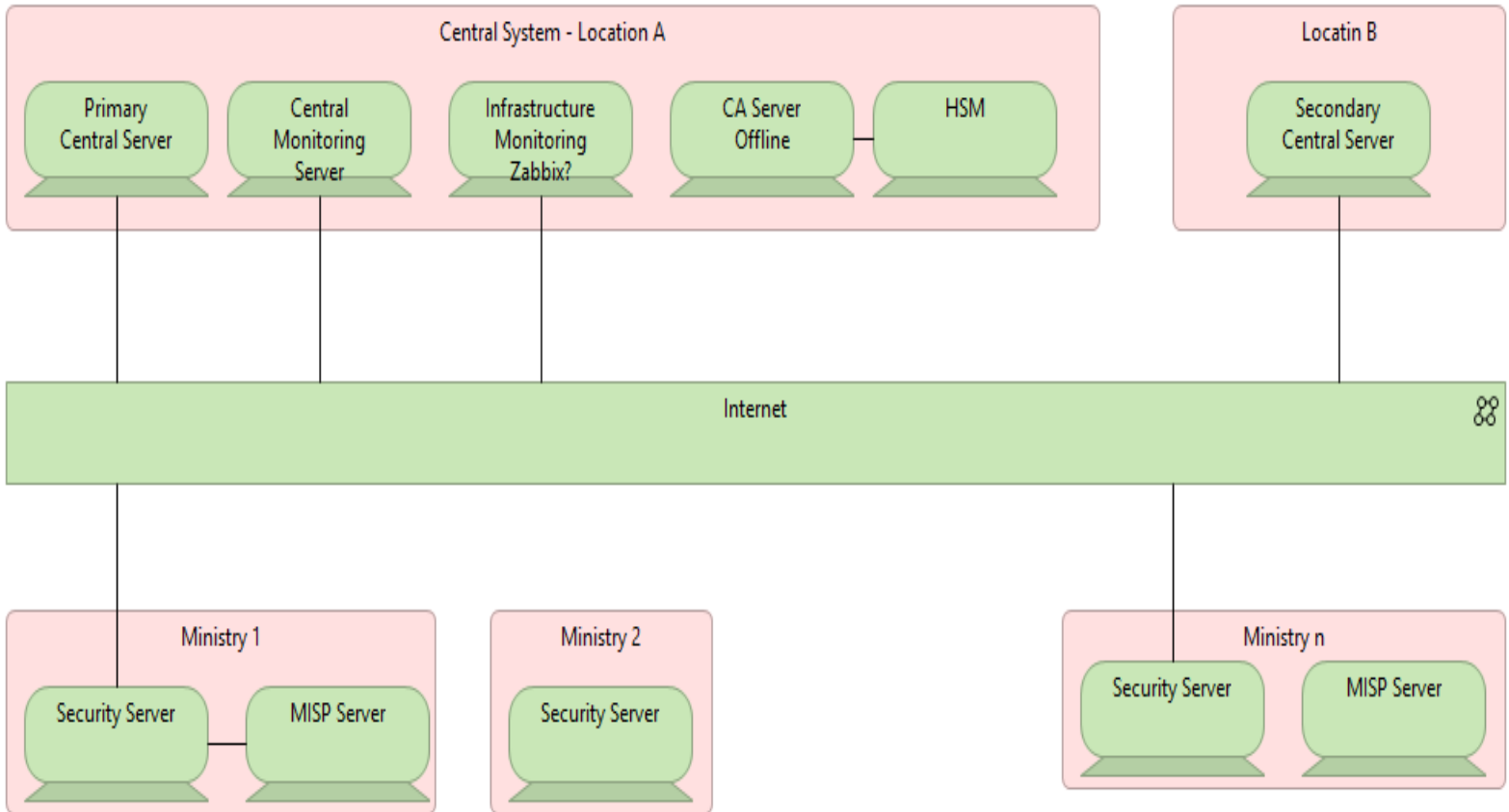JBOSS SOA-P

Database Server
MySQL

Web

App

Data
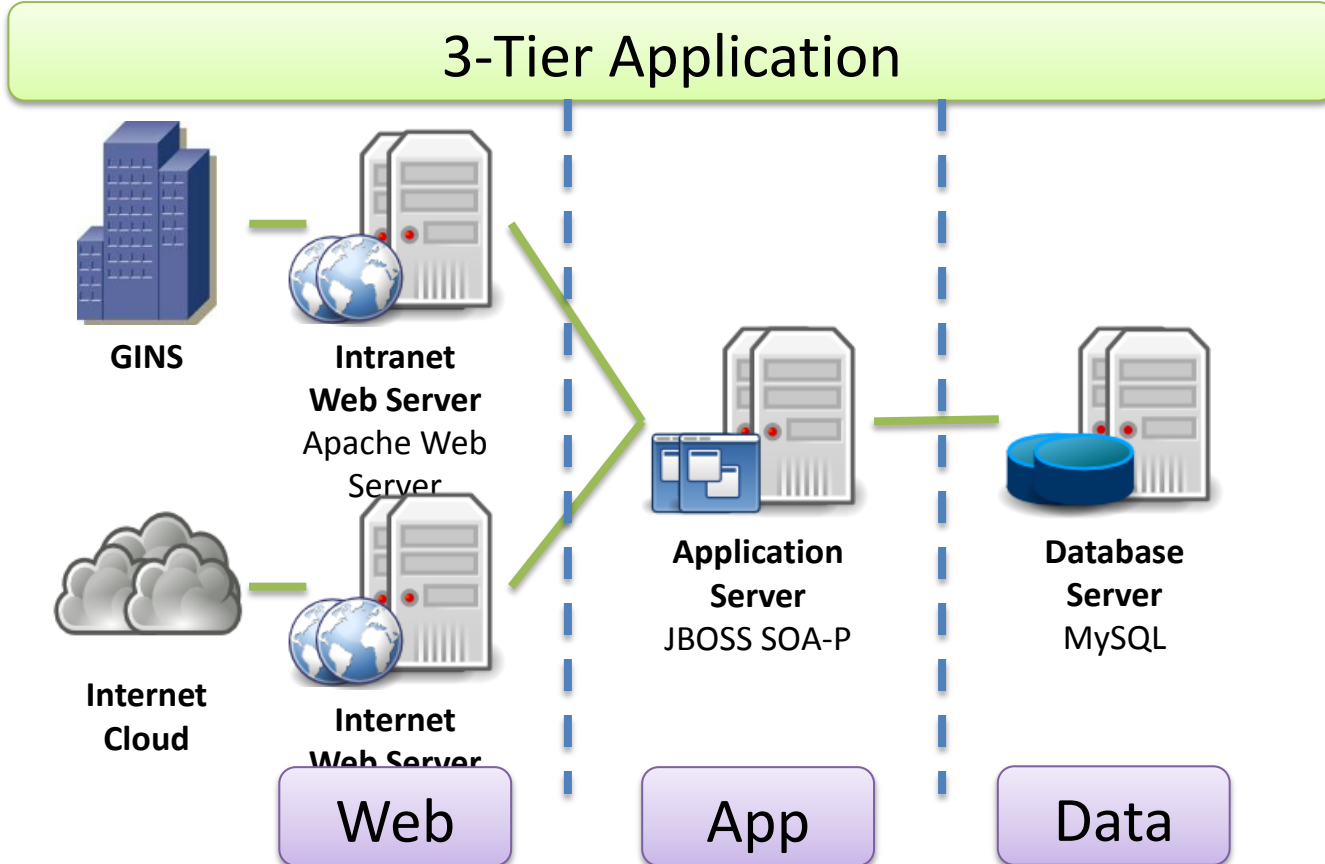
National chip-based Identity Card

Issuing authority:

        Estonian Citizenship and

        Migration Board

Service contractor:

        TRÜB Switzerland

        Start of issue: January 1, 2002

Conformance with:

ICAO Doc. 9303 part 3

Inside 16 Kb RSA crypto chip are :
2 private keys; authentication certificate;
digital signature certificate;
personal data file

The central components in the architecture:

- Government network GovNet

- Data Exchange Infrastructure (x-road);

- The layer of personalized portals (citizen portal(s), entrepreneur portal(s), civil servant(s) portals);

- The register of registers, catalogue of services and the management system for the state information system;

- The layer of geoinformation systems;

- The layer of document management systems and document exchange centre;

- The system of classifications;

- The system of address details;

- The security system

REMOTE ADMINISTRATION & SUPPORT

Certification Authority (offline)

Central monitoring station

Service Provider Administrators

Support & administration services
Initial Installation and localization
Training
Operating of CA

INTEGRATION LAYER

LOCAL PARTNER

Primary management server

Secondary mgmt. server 1

Central monitoring station

Security gateway — Officials' portal

Security gateway — Entrepreneurs' portal

Security gateway — Citizens' portal

Local Administrator

Operates local organization:
- Local policies
- Training
- Validation
- User support
- User administration of Portals

OPERATION: SUPPORT, MONITORING, TRAINING, ADMINISTRATION

Registry

Adapter server

Security gateway

Local monitoring station

Local Administrator

REGISTRY 1

Registry

Adapter server

Security gateway

Local Administrator

REGISTRY 2

Monitoring information
End-user queries
Database-dependent protocol
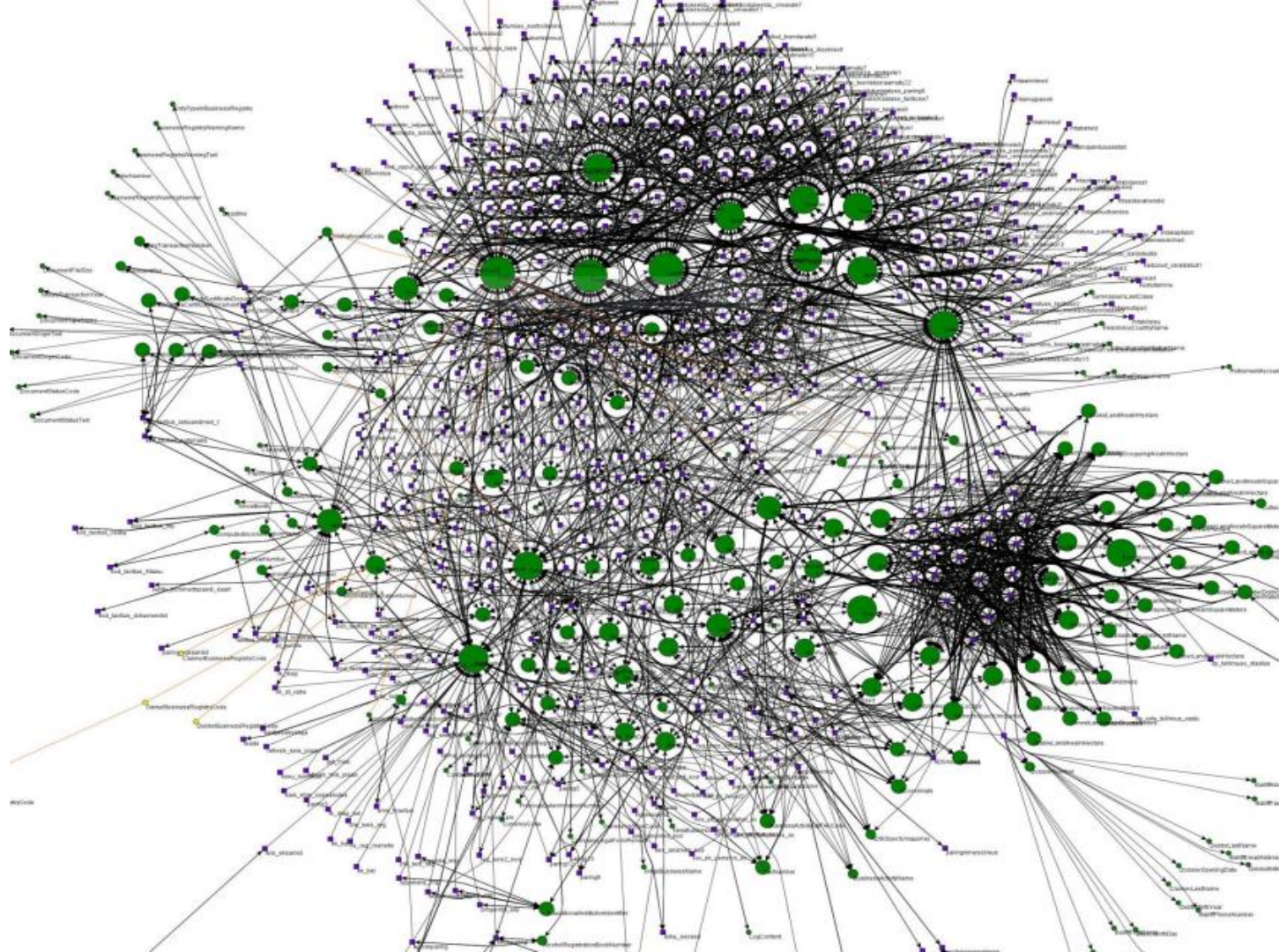
Thank You!

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