

REPORT ON POLICIES AND INITIATIVES ON SHARING AND RE-USE

European Member States' and European Commissions' policies and initiatives
for sharing and re-use of assets

February 2013

JOINING UP GOVERNMENTS

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1. INTRODUCTION

1.1 AIM OF THE DOCUMENT

This deliverable “D1.1 Report on Policies and Initiatives on Sharing and Re-use” presents current policies and initiatives in Europe on sharing and re-use of assets among public administrations. It is produced in the scope of ISA Action 4.2.5. “Sharing and re-use Strategy” [1].

The sharing of assets can either refer to making assets available to others, or developing them as a common solution. Examples can include:

- releasing an application under an open source license,
- providing common IT frameworks and architectures,
- providing common list of standards and metadata,
- providing guidelines for project management,
- the shared development of solutions based on common requirements, with or without pooling of procurement,
- making shared services available for several public administrations, for example as cloud, or web services.

Sharing of assets may require internationalisation, proper documentation, common requirements, contractual agreements, governance and business models, or even legislation.

The re-use of assets refers to using an existing asset. Examples would be the re-use of:

- an existing software solution available under an open source license
- existing metadata, core vocabularies, or architecture guidelines
- best practices

Note: This study focuses on the re-use of existing solutions developed by or for public administrations. There are a lot of initiatives regarding re-use by public administrations of existing “generic” software such as desktop productivity suites or content management systems. These initiatives are very numerous, are reported regularly in the news. In some cases, there are governance models aiming at organise the use of these solutions by associations of public administrations, and these are reported in the study.

Re-using an asset may be linked to a specific legislation or policy, for example when public administrations are required to make a systematic review of open source alternatives when doing development of applications. The re-use of an asset can be organised according to procedures, linked to for instance quality or security aspects.

1.2 CONTEXT

Public services can be implemented faster and more efficiently by using already available solutions and common services, and by learning from the experiences of other Member States. Using the same solutions and adapting others' best practices indirectly results in services that are more interoperable and more open.

Public administrations can share and re-use many different types of assets. They are technical, semantic, legal or even organisational. Examples of such assets are IT applications, taxonomies, schemas, or even frameworks, guidelines, contract terms of services, procurement requirements for re-use of existing applications, legislations and licences.

Several ISA initiatives exist in the area of sharing and re-use, for example the Joinup¹ platform for exchanging open source software and semantic assets, the European Union Public License², or the core vocabularies³. Some countries have national legislations requiring sharing and re-use already in place, such as Italy (Codice dell'amministrazione digitale). Other countries have a share and re-use action as part of the global government ICT strategy, for instance in the UK⁴.

The aim of this ISA action - Sharing and Re-use Strategy - is to develop a holistic approach to sharing and re-use across border and sectors with a view to helping public administrations all over Europe to share and re-use solutions related to public services delivery in an efficient and effective way. A common strategy is to be defined together with the governance, the processes and the instruments to optimise the potential of sharing and re-use activities and increase the savings they can bring to public administrations.

Task 1 of the ISA action aims at providing an overview of the situation and an analysis of existing initiatives of sharing and re-use in Europe, as well as a further identification of barriers and enablers regarding sharing and re-use. The barriers and enablers to sharing and re-use are presented in the Deliverable D1.2 of Task 1.

1.3 APPROACH

The study is based on collection of data through desk search, a questionnaire and related interviews following the questionnaire replies.

The desk search provides an overview on initiatives in Member States for which there is no reply to the questionnaire. It also gathers some feedback from experience from the field. This methodology includes:

¹ <http://joinup.ec.europa.eu/>

² <http://joinup.ec.europa.eu/software/page/eupl>

³ http://joinup.ec.europa.eu/community/core_vocabularies/home

⁴ <http://www.cabinetoffice.gov.uk/content/government-ict-strategy/>

- identification of sharing and re-use initiatives on various websites, such as the NIFO platform on Joinup⁵, the ePractice website, eGovernment strategy websites of Member States, news websites⁶,
- publications on the effect of existing policies, and recommendations,
- exchange of experience at conferences in Member States and at the European Commission.

The questionnaires and related interviews provide in-depth analysis of sharing and re-use initiatives. The questionnaires are sent to stakeholders of this ISA action:

- At Member State level: ISA Expert group
- At European Commission level: the Technical IT Committee, which includes the Information Resource Managers of the different Directorate Generals.

In the questionnaires sharing and re-use are addressed separately. The following information is requested:

- Description of existing and/or planned initiative/policy
 - Level (governance, organisational level, operational level (services),
 - Where these policies or initiatives are active; at national or regional level.
- Types of assets shared and re-used (scope of the initiatives or policies).
 - Assets can be technical (code, standards), semantic (XML Schemas), organisational (frameworks...) or legal (licenses, procurement terms), other...
- How long have these initiatives been in place and are they considered as successful?
- What are perceived barriers to sharing and re-use and which one is considered the most difficult to overcome?
- Which are the enablers and quick wins. Which one is considered the most efficient, which one is considered the most difficult to implement?
 - The term Quick wins can refer to common contract clauses for procuring shared solutions, governing models, incentives, guidelines for implementing re-usable assets,

In order to develop insight in some policies and initiatives, further information is collected through questionnaire-based interviews, based on a volunteer collaboration by Member State experts. During the interviews emphasis is put on:

- the description of the sharing and re-use initiative, including governance and cost models and measurements of buy-in, if they exist;
- the analysis of the results of the policies and initiatives implemented in Member States, including the efficiency of the strategy, the future changes to be made based on lessons

⁵ <https://joinup.ec.europa.eu/elibrary/factsheet/national-interoperability-framework-observatory-nifo-factsheets-2012>

⁶ From the news and case studies on Joinup

learned, identification of the main barriers and feedback on the efficiency of the enablers put in place by the Strategy.

Note:

The study is not intended as an assessment and cannot be used to create a ranking.

As this deliverable D1.1 presents the feedback on existing initiatives, it includes barriers and enablers when these are key in the description of the result of the initiative.

Some Member States replied about sharing open data. This information is included in the report. Other Member States didn't consider explanations on the re-use of public sector information (implementation of the PSI Directive) relevant to this study. This doesn't mean that there are no such activities in these Member States. Collection of information through desk search applied the same approach, as there is a dedicated platform to related information (<http://epsplatform.eu/>) and an Open Data Strategy⁷.

1.4 CONTENT OF THE DOCUMENT

This document presents:

- in section 2: the policies and initiatives in Member States, as well as the feedback on their results (replies from 10 Countries: BE, CH, DE, DK, ES, IC, NL, RO, SE, SK),
- in section 3: policies and initiatives in the European Commission (six contacts have replied to the questionnaire or provided an interview),
- in section 4: an overview of the policies and initiatives, their assessment and the type of assets shared or re-used,
- in section 5: a conclusion section presenting the findings.

⁷ http://europa.eu/rapid/press-release_IP-11-1524_en.htm?locale=en

2. NATIONAL AND REGIONAL POLICIES AND INITIATIVES OF SHARING AND RE-USE

2.1 AT – AUSTRIA

AT	Sharing, re-use, policy, initiatives	Desk search
<p>Governance level</p> <p>The eGovernment strategy (http://www.digitales.oesterreich.gv.at/site/5622/default.aspx) is based on basic concepts, base components and open specifications, which serve as guidelines for the implementation of electronic services and the creation of the underlying infrastructure. The E-government strategy addresses procedures and methods in the administration. It mentions that processes need to be standardized. It also states that common standards must be used at technical and organizational levels. There is a coordinated approach to the development of the new processes. The federal process model for the modelling of IT-based process management is proposed, as a quality-assuring tool.</p> <p>The site mentions: “interoperable systems architectures, secure automated business processes, technology-neutral developments, structured and standardized process models, cost awareness, integration of existing methods and procedures, network and information security and change management characterize the modern and efficient administration. Service-based, externally and internally, and shared development of new techniques and methods are among the most important characteristics of a future-oriented public administration”.</p> <p>The eGovernment Strategy has a strong legal base (https://www.bka.gv.at/site/6514/default.aspx#a15), but there is no law about sharing or re-use per se.</p> <p>Operational level</p> <p>The Federal Platform Digital Austria http://www.digitales.oesterreich.gv.at is a platform created to help coordinate a uniform eGovernment strategy for the Federal Government, the provinces, municipalities and local authorities and businesses. There is a specific section for administrations, addressing various key topics such as official signatures, citizen participation, Services Directive, E-Law, GovCERT, Open Government Data and procedures.</p> <p>The website of the Federal Chancellery provides a public portal of software projects and services enabling the development of the Information Society : (iktprojekte.at).</p> <p>Initiative</p> <p>The former software hosted on the government software repository (http://egovlabs.gv.at/) is now on Joinup.</p>		

Types of assets shared and re-used

Common technical standards

Common organisational standards – federal process model

Shared development of techniques and methods

Software

Assessment

No information is available on the assessment of the eGovernment Strategy, but the strategy and associated projects have won multiple awards.

It seems there is low re-use of the software, according to the number of downloads – but the migration to Joinup is very recent.

2.2 BE – BELGIUM

BE	Sharing, policy, initiatives	Questionnaire - Desk search
<p>Governance level: Sharing of custom-made software - decision of the council of Ministers at the federal level (http://www.presscenter.org/nl/pressrelease/20040625/standaarden-en-software-0?lang=fr) (2004) .For new ICT systems, the Federal Ministries will now use exclusively open specifications and / or open specifications for data formats and communication protocols when archiving, exchanging and communicating electronic data. For existing applications that, when archiving, exchanging or communicating electronic data with external parties, are not yet using open specifications and / or open specifications for data formats and communication protocols, the federal ministries will launch and complete a migration in accordance with an agreed schedule when setting each standard open and / or open specification. Federal administrations have the rights of ownership to any "custom software". This software is provided with source code and without a license fee. The federal ministries will make this software available to other public services as open source software. ICT plays an increasingly important role in guaranteeing the continuity of all functional processes and processes of administrative services. That is why, certainly in ICT procurement, criteria such as "Total Cost of Ownership" must be used as basis. When purchasing ICT products and services, the federal ministries endeavour to avoid dependence on proprietary platforms. The Council of Ministers instructed the ICT Steering Group to define, before the end of December 2004, an initial list of open specifications and / or open specifications and terms of migration.</p> <p>Governance and operational level: http://www.ejustice.just.fgov.be/cgi/api2.pl?lg=fr&pd=2012-06-04&numac=2012002029 Royal Decree 11 May 2001 : creation of FEDICT⁸ (ICT Federal Public Service) – aims to develop projects and services that encompass potentially all federal public services and support the common strategy. The Royal Decree modified on 9 May 2012 adds as part of FEDICT mission project management and common services. In addition to developing projects and services, FEDICT indeed also takes care of the management of these services. The authentication service FAS and services offered through the Federal Service Bus are good examples. The new Decree also allows FEDICT to position itself as central platform for ICT procurement, and to open procurement in the field of ICT to other public services: “for ICT goods and services, to support the implementation of procurement, to allow the possibility of making group contracts group, and accept the possibility of opening or executing one or more of these contracts for other services or other administrative authorities”.</p> <p>Operational level: Several shared services and components are provided by FEDICT: national/regional level. See the service catalogue on http://www.fedict.belgium.be/en/service_catalogue/ , including but not limited to</p> <ul style="list-style-type: none"> - FAS: federal authentication service, can and is used at several levels (national, regional, local governments) - FSB: federal service bus, bus to share messages and data between several federal departments 		

⁸ <http://www.fedict.belgium.be/en/>

e-ID building blocks released as open source: can be and are used at several levels (national, regional, local governments) and by private companies, see flyer <http://eid-applet.googlecode.com/files/eid-projects.pdf>

National and regional level – National Interoperability Framework

Initiative

[Belgif.be](http://belgif.be) website, currently being revamped (preview at <http://5031.fedimbo.belgium.be>), provides a list of specifications <http://5031.fedimbo.belgium.be/specifications>. The technical layer defines a list of standards. The list of standards can be categorised in the following four categories: Data presentation and exchange, data integration and middleware, interconnection services, security services. The open-standard, criteria applies to all new proposed standards.

In Flanders, there is the “OSLO” initiative on shared standards and assets for local governments <http://www.v-ict-or.be/kenniscentrum/projectfiches/oslo>

Several XML schema’s and code lists are available throughout the websites of various departments at different levels.

National and regional levels: open data.

Data.gov.be: open data initiative. FEDICT hosts a website with open data that are made available by the federal and Flemish public services, and the federal and Flemish government institutions.

The Flemish regional government has a directive on open data <http://www.bestuurszaken.be/vlaamse-overheid-kiest-voor-open-data> (such a directive does not exist at federal level).

Local level

IMIO (formerly known as Communes Plone), focuses on shared solutions among public administrations based on open source software <http://www.imio.be>.

Inter-municipal public company for software pooling in south Belgium. It was created in November 2011 by the Walloon Government. It includes 150 local authorities, and has implemented 400 open source systems online (as SaaS software as a service or locally hosted).

The reason to create this organisation⁹ is because there are very few providers coping with complex eGovernment requirements. Solutions are often “monolithic proprietary ones, and there are interoperability issues. IMIO changed the situation by creating a community, collaborating with SMEs providing open source solutions, using open source frameworks, standards and licences. IMIO uses open source communities’ methodology (such as a review of code quality and sprints) and focuses on reusability.

The main difficulties are in the re-use of local authorities’ business applications, which need often to be rewritten. When sharing, the public administrations show sometimes a fear of “losing control” of their solution with the use of a license such as the GPL (copyleft). There is no long term approach in the choice of common standards, and some solutions are chosen for performance (not for the standards they implement). Currently the Belgian Interoperability Framework is too limited.

Types of assets shared: Mostly services and code are shared. Social security and financial sector also share semantic schemas.

⁹ http://ec.europa.eu/enterprise/sectors/ict/files/ict-policies/4_joel_lambillotte_imio_en.pdf

BE	Re-use, policy, initiatives	Questionnaire - Desk search
<p>There is no real policy for it, re-use is often on a case-by-case basis / common sense. For some components/services (like FSB or FAS) or assets (authentic sources) it is quite clear. Implicitly, a “does-it-already-exist” check is of course performed, but it is not an explicit procedure.</p>		
<p>Types of assets re-used</p>		
<p>Mostly code and services, sometimes procurement terms. Code re-use includes open source CMS like Drupal , which is used at several government levels. It also covers the re-use of open source libraries. Some public servants are also actively involved in the communities: they submit patches or provide answers on forums.</p>		
<p style="text-align: center;">Assessment</p>		
<p>The initiatives are considered overall successful, but perhaps in the future they can become even more successful, when collaboration is increased.</p>		
<p>Lessons learned: It would be helpful to produce business cases on the re-use of assets.</p>		
<p style="text-align: center;">Initiative - re-use</p>		
<p><i>Interview on re-use¹⁰ with ASA¹¹ (agency of simplification of administration) and FEDICT¹²</i></p> <p>ASA waits for the results of the SPOCS¹³ project to implement the SPOC in Belgium.</p> <p>ASA will re-use ePrior¹⁴ module for eInvoicing. The project will be implemented by FEDICT and included in their web services.</p> <p>The first stage was a feasibility study, focusing on the technical interface, the functionality, reusability of existing modules and additional developments and cost of customisation.</p> <p>The ePrior functionalities needed to be validated in the context of the Belgian invoicing legal requirements. In order to re-use ePrior, FEDICT has to address five aspects:</p> <ol style="list-style-type: none"> 1. Adapt the web interface in order to make it compliant to the Federal Authentication Service 2. Develop additional language versions of the interface (currently only EN, FR, ES). 3. The transposition of the UBL version to the PDF version is done only in English. 4. FEDICT does not intend to keep the PDF files. Therefore, in the interaction with FEDCM (the accounting solution), the “pull” mode needs to be modified into a “push” mode. 5. There is a need for service management. They want a contract with a supplier guaranteeing an SLA, release management, integration of the new release from the EC with their forked version, incident management, pro-active interventions and management of the roadmap. 		

¹⁰ 17/10/2012

¹¹ <http://www.simplification.fgov.be/showpage.php?iPageID=3&sLangCode=FR>

¹² 29/11/2012

¹³ <http://www.eu-spocs.eu/>

¹⁴ <https://joinup.ec.europa.eu/software/openeprior/description>

2.3 BG – BULGARIA

BG	Sharing, re-use, policy	Desk search
<p>Governance level ¹⁵</p> <p>The eGovernance Act (EGA), (2008) governs the activity of the administrative bodies when working with electronic documents, the provision of electronic administrative services and electronic documents exchange between administrative bodies. To ensure interoperability EGA provides creating and keeping a series of registers. The register of standards contains technical standards to be applied by administrative bodies for provision of electronic administrative services and for provision of interoperability, information security and automated exchange of information and documents between administrative bodies. According to EGA every administrative body shall submit to the Electronic Services Register a standardized description of all electronic administrative services and inner electronic administrative service, which the relevant administrative body provides.</p> <p>Operational level - National Interoperability Framework</p> <p>Interoperability guidelines are defined in the National Interoperability Framework for Governmental information Systems (6/2006) and the Ordinance on the General Requirements for Interoperability and Information Security (11/2008). The technology model is built on open specifications. Principle 1 requires the usage of open internationally adopted standards. Principle 2 recognises Service Oriented Architecture (SOA) as a basis for building governmental information systems. [...] Principle 7 requires conformity testing of the standards for interoperability through assessment procedures.</p> <p>Types of assets shared and re-used</p> <p>Open specifications SOA</p>		
Assessment		
<p>The Operational Programme “Administrative Capacity” 2007-2013 identifies the lack of interoperability, of unified standards and rules for handling e-documents as a major problem in the implementation of e-government.¹⁶</p>		

¹⁵ Dimitrov, G. (2008). “Bulgaria Adopts Revolutionary E-Governance Act”. I-Ways Journal of E-Government Policy and Regulation, 31(2008) 147–152, IOS Press. Retrieved from <http://www.dpc.bg/uploads/pub/123.pdf>

¹⁶ Ministry of State Administration and Administrative Reform (2007). “Operational Programme Administrative Capacity 2007-2013”. September 2007. Retrieved from <http://eufunds.bg/bg/page/10>

2.4 CH – SWITZERLAND

CH	Sharing, re-use, policy, initiatives	Desk search - interview
<p>Governance level</p>		
<p>eGovernment strategy Switzerland (http://www.egovernment.ch/en/grundlagen/strategie.php) was developed in close cooperation with the cantons and the municipalities, under the direction of the Federal IT Steering Unit (FITSU). One of the principles of the Strategy is to benefit from synergies by using harmonised processes. Many applications, even costly ones, were repeatedly developed several times by different agencies, each one of them re-inventing the wheel. In addition, the awareness of the potential of eGovernment grew only slowly among political decision makers as well as in the administrations. Due to the fact that in most administrations the same or similar processes for the provision of services are used, the principle “develop once, use many times” makes a lot of sense and should be practiced. Costs can be considerably reduced through standardisation and common solutions.</p>		
<p>The strategy constitutes the basis for the Confederation, the cantons, and the municipalities to orient their efforts toward common goals. The implementation of the strategy is decentralised but coordinated, under the supervision of a Steering Committee and a Programme Office. An Advisory Board assists these two bodies as well as the lead organisations for the implementation projects. The organisational structure of these coordination bodies is set out in the «Framework Agreement on eGovernment Cooperation of the Confederation and the cantons».(http://www.egovernment.ch/en/grundlagen/rahmenvereinbarung.php)</p>		
<p>As the administrative unit of the Steering Committee, the Programme Office contained within the Federal IT Steering Unit (FITSU) coordinates implementation of the strategy.</p>		
<p>The following instruments are used to implement the eGovernment Strategy:</p>		
<ul style="list-style-type: none"> • Catalogue of Priority Measures • Strategic planning (Roadmap) • Process for controlling 		
<p>Achieving the objectives is based on several principles, including “Savings thanks to multiple usage and open specifications”.</p>		
<p>Due to the diversity of the priority projects in the catalogue, sponsorship and financing are defined in accordance with the applicable demands and, where necessary, set out in a special agreement. For this purpose, the Steering Committee designates lead organisations for each priority project.</p>		
<p>The choice for financing the projects takes into account if they implement <i>re-usable solutions as shared services and uses open specifications</i>. The budget is 2 Million CHF per year.</p>		
<p>It is an incentive to create shared and re-usable solutions in a decentralised organisation.</p>		
<p>eCH - Association for eGovernment standardization promotes and adopts eGovernment standards in Switzerland. eCH facilitates electronic cooperation among authorities and between authorities and private individuals, companies, organisations, and research and teaching institutions by adopting and coordinating relevant standards. eCH standards have the status of recommendations. Standards for the eGovernment Architecture are developed and issued by the eCH association. http://www.ech.ch/ .</p>		

SIK – Swiss IT Conference is an institution of the federation and the states for the promotion of collaboration between the public administrations in the area of computer science and telecommunications (ICT). Delegated are the Chief Information Officer and/or the Chief IT Strategy Officer of these institutions. <http://www.sik.ch>
In some cantons, an “**E-Government Law**” has been implemented.

Operational level

Initiatives

The Federal IT Steering Unit (FITSU) makes **methods and instruments** available to support ICT processes. These methods and instruments are primarily designed for use in the Federal Administration. To the extent permitted by copyright, they are also made accessible to a broader circle of users outside the Federal Administration. These methods are the HERMES project management method, Strategic IT Planning (SIP), IT Controlling (ICO) method, Balanced Scorecard ICT, Architecture method TOGAF.

www.opengovernment.ch was created by the Unit of IT Strategy of the confederation USIC, <http://www.isb.admin.ch> , hosted by OFIT <http://www.bit.admin.ch> and has the support of the Open Source Community of the federal administration and of the Swiss conference on IT.

Some cantons, like e.g. St.Gallen have contracts with their communes to share assets and implement the same systems.

Types of assets shared and re-used

Prioritised Prerequisites and Services: For the services listed in the Catalogue of prioritised Services to be transacted electronically, the coordinated fulfilment of prerequisites is key. These prerequisites usually concern organisational, legal, standardisation and technical aspects at the same time. The catalogue lists the prerequisites to be developed as a priority, since they are needed for a greater volume of services and their provision requires nationwide coordination.

List of Assets here: http://www.egovernment.ch/en/umsetzung/katalog_vorhaben.php

Project management methods

Evaluation methods

Enterprise Architecture methods

Software

Standards

Services

Infrastructure

Processes

Assessment

The sharing and re-use approach is effective in the decentralised but coordinated implementation of the eGovernment strategy. The initiatives work, but due to the strong federalism in Switzerland, the effects are seen rather slowly.

Barriers include:

- Different priority of E-Government in the different cantons and communities
- Lifecycles and investments are not harmonized, there is no overall "Plan"
- Political awareness to collaborate is missing sometimes in the cantons and communities
- Different legal bases and processes in the cantons
- Different basic infrastructures and lack on interoperability
- Different procurement policies in the cantons and communities
- Different basic infrastructures because often systems build up one upon another. Interoperability is not always fully given
- Protection of done investments

Enablers include:

- A common understanding or a common strategy and plan
- Common standards and processes
- Standardization of Data and Interoperability of systems

The repository eGovernment.ch hosts about 100 projects, but there has been no activity since 2009.

2.5 CY – CYPRUS

CY	Sharing, re-use, policy, initiatives	Desk search
<p>Governance level</p>		
<p>A new, updated and revised Information Systems Strategy (ISS) to cover the period until 2015 is currently under preparation. Objectives of the new strategy include:</p>		
<ul style="list-style-type: none"> • the revision and enhancement of procedures and standards used for the implementation of information systems; • the development of a new government security policy, which will take into account current and emerging technologies; • the preparation of a national eGovernment interoperability framework, based on guidance provided by the European Interoperability Framework. 		
<p>Operational level</p>		
<p>An architectural framework provides national institutions support for interconnectivity and interoperability.</p>		
<p>A Government Gateway provides workflow automation for the interconnectivity of back-end systems. This Gateway establishes the “middleware” of the Security eGovernment Architectural Framework, the tier that enables interoperability, security and authentication for all users accessing Cyprus eGovernment Services.</p>		
<p><i>Initiatives</i></p>		
<p>Various standards, procedures and guidelines are made available through the General government portal.</p>		
<p>Types of assets shared and re-used</p>		
<p>Standards</p>		
<p>Procedures and guidelines</p>		
<p>Architectural framework</p>		

2.6 CZ - CZECH REPUBLIC

CZ	Sharing, re-use, policy, initiatives	Desk search
<p>Governance and operational levels</p> <p>The Strategy for the eGovernment Implementation in (Local/Regional) Territories introduces “ eGON centres” that consist, beside technological centres, of administration and training services and tools for the promotion of eGovernment on local and regional level of public administration. The website on modernisation of public administration has a section on eGovernment (http://www.mvcr.cz/mvcren/scope-of-activities-egovernment.aspx) and shares various documents such as the list of signature certification authorities.</p> <p><i>Initiatives</i></p> <p>“Spisovka”¹⁷ is a joint project organized by OSS Alliance and the Ministry of the Interior to offer municipalities and towns in the Czech Republic opened the system to meet legal obligations relating to records management services. The aim of the project is to provide government and other entities in the Czech Republic quality open solutions to facilitate legal obligations. It is also the first such project in the Czech Republic. The application is freely available and disseminated not only to the government, under the terms of the European Union Public License v.1.1 (EUPL).</p> <p>The Ministry of the Interior leads an initiative of sharing of guidelines, DTD and XML schemas in the area of archiving. It defines a draft national standard for electronic records management. http://www.mvcr.cz/mvcren/docDetail.aspx?docid=10816&docType=&chnum=3</p> <p>The Ministry of the interior also shares the specifications of an API (Application Programming Interface) to access the central system components of Czechpoint@Office. http://www.mvcr.cz/mvcren/docDetail.aspx?docid=21344798&docType=&chnum=3). CzechPoint is a Suse Linux-based central information system, allowing the country's public administrations to share their data.</p> <p>Types of assets shared and re-used</p> <ul style="list-style-type: none"> Software API Semantic assets 		

¹⁷ <https://joinup.ec.europa.eu/elibrary/case/proven-flexibility-spisovka-open-source-document-system-attracts-czech-public-administ>

2.7 DE – GERMANY

DE	Sharing, re-use, policy	Questionnaire
<p>Governance and operational levels - National Interoperability Framework</p> <p>In 2011 the Federal Government Commissioner for Information Technology published a mandatory technology catalogue for all software systems of the German federal administration (SAGA). Technologies must be chosen according to the classifications in SAGA in all software projects.</p> <p>SAGA is a compilation of references to specifications and methods for software systems of public administration. The goals of SAGA are the reduction of risks and investment-safe developments as well as agility, security, interoperability, reusability and scalability for software systems. Priority fields of SAGA 5 are communication interfaces, data exchange formats and standards of IT security. www.cio.bund.de/saga.</p> <p>There is a common list of standards mandatory to be re-used in the software developed for the federal level and is used in public procurement.</p> <p>To achieve semantic interoperability in the electronic data exchange within and with the public administrations, common rules for developing and maintaining standards for electronic data interchange (XÖV standards) are developed and coordinated. The XÖV standards for the different administrative domains are stored in the Xrepository. www.xoev.de.</p> <p>Architectural artefacts are available to the general public. These artefacts include method, guidelines and techniques for architecture development including our architecture development method and visualisations.</p> <p>Processes are shared within the Ministry of the Interior and its subordinate agencies. In addition, a process library is been built, which allows sharing process models across all administrative levels. Sharing of business processes is indeed key, since processes contain lots of requirements. Therefore, harmonized processes are the basis for IT consolidation. Typical examples include cross-cutting business processes such as human resource management and procurement. More specifically, we exchanged HR processes (topics included among others: holidays, working hour and overtime management and parental leave) between different ministries to:</p> <ol style="list-style-type: none"> learn from each other, to enhance existing processes and to understand process implementation in different software products of those ministries. <p>A National Process Library is under construction, which is financed collaboratively by the Federal Ministry of the Interior and the tool vendors, which may provide a light-version of their tools (marketing!) to view and (partially) edit processes made with these tools.</p> <p>Catalogue of software products offered by the shared service centres: A shared service centre provides IT software products and services to the federal government. These</p>		

products are listed in the product catalogue.

Types of assets shared and re-used

list of standards

XML specifications

processes

architectural artefacts

software

services

Assessment

SAGA: SAGA is mandatory for the federal government and is used in public procurement.

XÖV standards: XÖV standards are widely used and some of the standards are referenced or required by law.

Architectural artefacts: Some of the architectural artefacts are used especially by the shared service centres. In addition, some of the methods have been used to achieve a better business-IT-alignment. The main hurdle here is granularity and peculiarities of the IT service centres, e.g. a one-size-fits-all approach to architecture is not possible in the federal government.

IT products and services: The catalogue of products and services is discussed by all relevant stakeholders and updated every year. Some of the products and services listed in this catalogue are widely used in the federal government, especially the cross-cutting software solutions such as travel management. The main problem here is the payment method, which is not yet fully established and clarified for all products. In addition, some of the products seem not to fit the needs of all governmental agencies, e.g. there seems to be a lack of standardising especially cross-cutting processes and its respective organisational structures.

Processes: Especially human resource management processes developed by the Ministry of Finance were re-used and enhanced by the Ministry of the interior. However, currently mainly process modelling methods are shared and re-used. Some processes represent business critical knowledge, which cannot be shared. In addition, there is the fear of the process modellers that their processes might contain business-critical information and as a consequence these processes are not shared.

There was not concrete re-use target for the above-mentioned initiatives.

In a report recently published¹⁸, the parliamentary group on 'Interoperability, Standards and Free Software' proposes six measures to boost the uptake of free and open source software by the federal and state authorities. The group advises changes to the national budget laws, to allow publishing as open source the software written for or by public administrations.

¹⁸ http://www.bundestag.de/internetenquete/dokumentation/Sitzungen/20130114/19_Sitzung_2013-01-14_PGISF_Zwischenbericht.pdf

2.8 DK – DENMARK

DK	Sharing, policy, initiatives	Questionnaire - Desk search
<p>Governance level</p> <p>The current Danish eGovernment strategy, published in August 2011, is entitled 'The Digital Path to Future Welfare – eGovernment Strategy 2011-2015' http://www.digst.dk/Digitaliseringsstrategi/Download-strategien. The strategy is divided into three main tracks, each of which covers different areas and target groups. Track 1 addresses 'No more paper forms and postal mail', track 2 addresses 'New digital welfare' and track 3 addresses "Closer digital public cooperation": The eGovernment solutions developed up to now by the central government, regions and municipalities form a natural platform for the public sector's next phase of digitalization. Individual authorities or institutions must not develop their own systems in areas where good solutions already exist. This is only possible if the public digitisation effort is coordinated effectively – across state, regional and municipal authorities and institutions.</p> <p>The parliamentary resolution B103 from 2006 urges the Danish government to adhere to open specifications for IT. The compliance regime is based on the "comply or explain" principle. Although mandatory, there is no enforcement and no legislation.</p> <p>Responsibilities for public service delivery within the Danish public sector are divided between the central government, municipalities and regions – each with its own elected political leadership and administrations. The Steering Committee for Cross Government Co-operation – STS (<i>Styregruppen for Tværoffentlige Samarbejder</i>) is a cross government co-ordination body aiming at creating a common ground, common framework decisions, in the work on e-government. The overall framework for the co-ordination is confirmed in the annual negotiations on the next year's budgets between the Government and the representatives for the regions as well as for the municipalities.</p>		

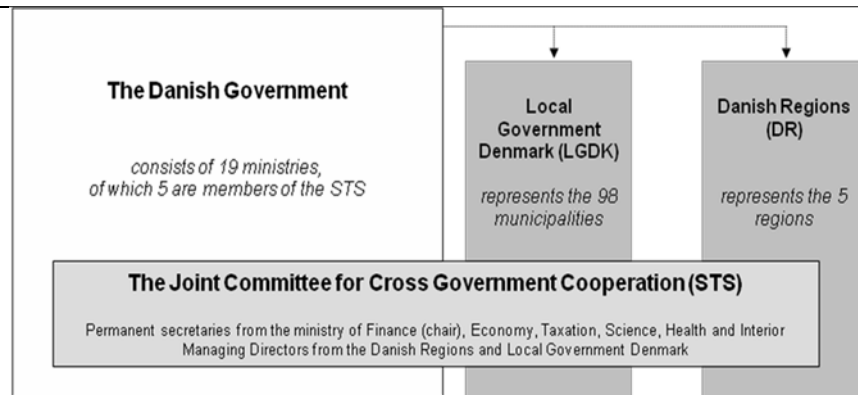


Figure 1: the joint e-government co-ordination structure

Operational level

Denmark has several initiatives on the sharing of assets. In order to make communication and information exchange between the public sector, businesses, and citizens as easy as possible, the Agency for Digitisation supports a wide variety of digital tools and solutions, ranging from the implementation of an electronic signature and common login, electronic invoicing, citizen portal which integrates local services and distributes centrally edited articles.

The Agency for Digitisation is in charge of the digitisation of Denmark and is responsible for the implementation of the government's digital ambitions and for ensuring national dissemination of welfare care technology in the public sector.

For an overview see <http://arkitekturguiden.digitaliser.dk/overblik> (This URL is expected to be effective from January 1st 2013). A less detailed overview can be found at <http://www.digst.dk/da/ServiceMenu/English/Digitisation> and <http://overblik.digitaliser.dk/faellesoffentligeloesninger.htm>.

Moreover Denmark has these shared assets:

1. The website for public sector digitisation "digitaliser.dk" which is an open cross-government platform for sharing assets. It hosts:
 - guidelines on public sector Enterprise architecture, Common guidelines for IT architects: <http://ea.oio.dk/arkitekter> , common architecture requirements <http://ea.oio.dk/arkitekturkrav> , best practice for reference architecture (based on GIS works) <http://ea.oio.dk/referencearkitektur/best-practice-anbefalinger/>
 - cross-governmental XML-schemas,
 - sources of public data,
 - open source software released by the public sector (The Software Exchange)
 - mandatory standards (comply or explain). From the first January 2008 it is mandatory for all public authorities to use a series of open specifications in all new public IT solutions. Public authorities must ensure that future IT solutions based on, or supported the mandatory open specifications. <http://www.digst.dk/Arkitektur-og-standarder/Standardisering> .

All public authorities are encouraged to make use of the platform and the assets available on digitaliser.dk, but it is optional.

2. The vocabulary on public task called FORM (Common Public Reference Model) <http://www.form-online.dk/soegning> . The FORM diagram has been the structural basis adopted by the Government for the identification of the domains in the public sector. Based upon this model the domains were identified using the following criteria:
 - A large, well-defined mission area targeting citizens and businesses,
 - A need for co-ordination across existing public authorities and levels of government.
 - Opportunities for increasing digitisation in the public sector.
3. The cross-governmental IT project framework <http://www.digst.dk/Styring/Statens-projektmodel/IT-projektmodellen> . All public IT projects are encouraged to make use of the framework. The framework is mandatory for all governmental it projects that are estimated to cost more than 10 million Danish kroner along with a risk evaluations carried out by the Danish Council for IT Projects
4. The e-Invoicing infrastructure “NemHandel” is an example of a shared service, consisting of open specifications and open source component. It is available free of charge for all public administrations and their suppliers. All invoices to either state, regional or municipality must be sent electronically in machine readable form.

Types of assets shared

Public sector software projects

Public common components: NemID, NemSMS, NemHandel, NemKonto, NemLog-in, Digital Mail etc

IT project framework – documents such as business case, risk assessment, quality plan, ...

XML schemas, enterprise frameworks and standards on <http://digitaliser.dk>

Webportals:

the citizens portal <http://borger.dk> (digital self-service and information),

the business portal <http://virk.dk> (information)

and the digitisation platform <http://digitaliser.dk>

Assessment

The initiatives on shared assets have been introduced gradually over the last 10 years. Targets have been met on most components:

- NemKonto (designated bank account for receiving public benefits), NemID (eSignature), NemLog-in (common log-on solution which gives access to the public authority self-service solutions) and NemHandel.
- Less successful metrics is found with regards to re-use of the shared open source software on the Software Exchange, where key components of infrastructure like the invoicing infrastructure “NemHandel” or the SAML components used in the governmental SSO (NemLog-in) are the ones being re-used the most. Other open source projects are not being re-used at all, although they have an apparent potential. Lessons learnt are that re-use does not happen, just because the asset can be downloaded. Assets must be promoted and easy to use off the shelf.

Governing model: According to an OECD¹⁹, in a report dated 2010, Denmark could consider revisiting and strengthening the organisational structure and coordination mechanisms to enhance the effective coordination between the ministries sitting in the STS. This implies several actions, including:

- Strengthen the role and responsibilities of the STS as a political driver for e-government development to enable it to support visionary cross-governmental projects such as those pushing for integration (e.g. ensuring the adoption of standards and establishment of a common ICT architecture) and taking responsibility particularly for big ICT projects as drivers for innovation. A sharper link between the political and strategic discussions in high-level co-ordinating meetings supported by more technically-oriented ones with representation of various ministries could provide more efficient and effective discussions and decision-making.
- Improve the cross-governmental collaboration through concrete activities and projects (e.g. the law on geospatial data). The speed of development of joint solutions in all areas could be increased. The adoption of a new vision sufficiently robust for the next five years to enable the sharing of data and integration of services could be promoted and the collaboration idea/partnership approach could be more strongly sustained across levels of government.

The STS's mandate is neither sufficiently clear nor authoritative. Conceived to ensure co-ordination across areas with support of the political leadership to push through the broad e-government agenda (e.g. public sector reforms and improved service delivery), its focus on technical related-matters has outbalanced the space devoted to the discussion and decision making on the national vision and future strategic priorities.

According to the same report, among the most significant barriers for e-government service delivery are the lack of financing mechanisms for shared services and incompatible technical standards.

A suggestion in the report addresses revising the business case model. It mentions that the Government could develop, adopt and apply a business case model that better takes into account a broader set of criteria that sustain the selection of projects supporting a whole-of-government perspective. [...] A revised business case model could also help in putting more emphasis on the ICT standards and on the working procedures (definition and description of processes and tasks). This could help to achieve a real cross government approach and get shared services across governments. Such a business case model could lead to the selection of smaller projects, where it could be possible to use for instance standard software components. The requirement specifications could be more process oriented, increasing the emphasis on having to show how things are done as opposed to solely proving narrow administrative savings potentials.

Re-use, initiatives

Operational level

The re-use of procured or developed IT solutions is one of the five principles for government IT-projects. Moreover. Concrete initiatives are:

1. The Basic Data initiative was launched in October 2012 and aims at improving and linking public registers of basic data. Individuals, public authorities and private businesses have free access to retrieve and use basic data from a number of registers . This includes map data, cadastral maps, Central Business Register data and

¹⁹ OECD (2010) Denmark - EFFICIENT E-GOVERNMENT FOR SMARTER PUBLIC SERVICE DELIVERY - OECD e-Government Studies <http://www.oecd.org/internet/public-innovation/45382552.pdf>

company data .

2. “The software exchange” that hosts source code for a number of open source projects in use in the public sector <http://softwareborsen.dk/>. All public authorities are encouraged to share source code, but it is not mandatory
3. The Comply or Explain list of mandatory IT standards
4. The Public Enterprise Architecture framework OIOEA Common guidelines for IT architects: <http://ea.oio.dk/arkitekter> . Common architecture requirements <http://ea.oio.dk/arkitekturkrav> . Best practice for reference architecture (based on GIS works) <http://ea.oio.dk/referencearkitektur/best-practice-anbefalinger/>
5. The cross-governmental IT project framework
6. The mandatory Governmental Business Case Model

Types of assets re-used

Public sector software projects, data, standards

XML schemas, enterprise frameworks and standards on <http://digitaliser.dk>

Business case model,

IT project framework

Re-use of licenses for basic data

Assessment

The initiatives have been implemented progressively since the early 00es. Examples of concrete implementations are: The first version of the digital signature was released in 2003, the agreement on mandatory open specifications entered into force in 2006, the regulation on eProcurement entered into force in May 2011, release of public data started in October 2012. They are considered overall successful, but some are not overwhelmingly successful (the software exchange and open specifications).

However, Municipalities in Denmark are ‘increasingly using open source content management systems’, notes the Danish resource centre for electronic government services, Digitaliser.dk in its January newsletter. The municipalities are for example re-using a module developed for municipality of Rødovre, a town bordering Copenhagen. The Typo3-module is already ported to Drupal and will maybe be ported to Umbraco.²⁰

²⁰ Hillenius (2012) news item “Danish municipalities sharing development of website module across three content management systems” <http://joinup.ec.europa.eu/news/danish-municipalities-sharing-development-website-module-across-three-content-management-system>

2.9 EE – ESTONIA

EE	Sharing, re-use, policy, initiatives	Desk search
<p>Governance level</p>		
<p>The development of the information society is based on the Principles of Estonian Information Policy, adopted by the Estonian Parliament in 1998. A follow-up to the document, the Principles of Estonian Information Policy 2004-2006, was elaborated and approved by the Government of the Republic in 2004. The Estonian Information Society Strategy 2013 – entered into force in January 2007 ²¹ and mentions, in its measures:</p>		
<ul style="list-style-type: none"> • ensuring that the data used in different parts of the state information system would have a single meaning. To achieve this, the following actions will be undertaken: development of mechanisms for the re-use of semantic assets; elaboration of XML based descriptions for main types of public sector documents; development of an XML competence centre; development of a common thesaurus for the indexing of services and websites; standardisation of the structure of public sector websites and development of mechanisms for their re-use; • development of the administration system for state information systems (RIHA), which contains service descriptions and ensures the re-use of services and their fragments; • establishment of a competence centre and a repository for open source software for the re-use of developed solutions and knowledge; • development of systems necessary for increasing the efficiency of state and local government agencies. The objective is to improve the provision of e-services at local level and avoid multiple developments of similar solutions by different local governments. 		
<p>Operational - National Interoperability Framework (http://www.riso.ee/en/information-policy/interoperability)</p>		
<p>Pursuant to the Government of the Republic Act § 63 and the Government of the Republic's resolution on 23.10,2002, the Ministry of Economic Affairs and Communications (MKM) organizes designing and implementing development plans relating to IT and telecommunications, as well as coordinates the development of the state information system. The interoperability framework is a strategic document, which MKM is guided by when it makes political decisions with regard to information, assesses projects financed from structural funds, prepares legal acts with regard to the state information system, coordinates IT and communications related legal acts of ministries and coordinates information systems in the management System of State Information System (RIHA). Interoperability documents are enforced with a directive of the minister coordinating the state information system and <i>compliance</i> with them is obligatory for those who organize communication of the information systems of the state and local governments. In addition, the framework is obligatory as an agreement between different parties.</p>		
<p><i>The first level, the framework itself, includes a list of documents, a glossary, concepts, principles, policies, guidelines, recommendations and practices. The first level mentions among its guiding principles:</i></p>		

²¹ <http://www.riso.ee/en/system/files/Estonian%20Information%20Society%20Strategy%202013.pdf>

- Openness:

Public sector institutions SHOULD follow the principles of openness when developing the architecture of their information systems and procuring software.

The decision to use closed standards and specifications MUST be justified.

- Reusability:

Public sector institutions collect, issue, reproduce and distribute information. Using such information for any other purposes is reusing information, re-use of public sector information should not be restricted. Public sector information is meant to be re-used by all the market operators and providers of added value. Apart from information, public sector can re-use the experience of creating other institutions' information systems. When creating their own information systems, public sector institutions, if possible, use solutions made by other institutions and their experience. When creating free software, public sector institutions use the European Union Public Licence (EUPL) and as a development environment OSOR.eu (Open Source Observatory and Repository, OSOR – now Joinup).

- Technology neutrality and adaptability:

When procuring software, free software alternatives must be taken into account.

In order to guarantee equal treatment of solutions, public sector is recommended when it orders functionality, also to order necessary infrastructure changes, needed to realize it.

Information systems interfaces must be created in a technology neutral way, using open specifications, prescribed in the interoperability framework (XML, WSDL, SOAP etc.).

The second level consists out of eight sub-frameworks.

The IT architecture framework describes the Estonian IT architecture and support strategies for selected public IT systems.

The semantic interoperability framework is a set of multilateral agreements and rules, which would facilitate the linkage between systems at the semantic level.

The open specifications framework specifies the Estonian public policy on open specifications.

The security interoperability framework specifies the key aspects of information security, which must be considered by deploying and maintaining information system at all public administration levels.

The software framework describes mechanisms and methods for evaluating and selecting software to be procured in public sector. The document management framework describes the key aspects for the governance of document management systems.

The internet interoperability framework deals with state and local government agencies web interoperability.

Types of assets shared and re-used

software

standards

semantic assets

software evaluation guidelines for procurement

IT architecture framework

Assessment

No information: the Estonian Information Society Yearbook 2011/2012 will be published in January, 2013

2.10 ES – SPAIN

ES	Sharing, re-use, policy, initiatives	Questionnaire
<p>Governance and operational levels</p> <p>The policy is configured by the eGovernment Law (Law 11/2007) which includes a chapter on “Reutilisation of applications and technology transfer” with two articles which develop issues about the re-use of applications between Public Administrations, the declaration of applications as Open Source Software, the creation of software repositories for re-use and the linking of repositories:</p> <ul style="list-style-type: none"> • Article 45. Reutilisation of systems and applications belonging to the Public Administration. <ol style="list-style-type: none"> 1. Public Administration bodies which own intellectual property rights over applications developed for their services, or which were developed under contract may make available such applications to any Public Administration body, without any requirement for compensation of any type and without the need for an agreement. 2. The applications referred to in the preceding section may be declared to be open source when this results in greater transparency in the operations of the Public Administration or when it encourages members of the public to join the Information Society. <ul style="list-style-type: none"> • Article 46. Technology Transfer within the Public Administration. <ol style="list-style-type: none"> 1. Public Administration bodies shall keep up-to-date directories of applications for free re-use, particularly in those fields which are of special interest for the development of the electronic administration and in accordance with the stipulations established in the National Interoperability Plan. 2. The State Public Administration, through a <u>technology transfer centre</u> (http://administracionelectronica.gob.es/pae_Home/pae_SolucionesCTT.html#UqbhIHdyF8E), shall keep a general directory of applications for reutilisation, and shall provide technical assistance for the free reutilisation of applications. It also shall promote the development of common applications, formats and standards which are of particular interest for the development of electronic administration in the framework of the national interoperability and security plans.” <p>The National Interoperability Framework, Royal Decree 4/2010, in development of those articles of the eGovernment Law, includes also a chapter on “Re-use and technology transfer” with two articles about licensing conditions and repositories for re-use:</p> <ul style="list-style-type: none"> • Article 16. Applicable licensing conditions. <ol style="list-style-type: none"> 1. In the licensing conditions of the applications and related documentation and of other information objects of which Public Administration are holders of intellectual property rights and that can be made available for other Public Administrations and for the citizens, without return or necessity of agreement will take into account that the aim to pursue is the use and the re-use. They also will take into account the protection against its exclusive appropriation by a third party, in conditions when the transferor is relieved from the responsibility because of the possible misuse by the transferee and also from the obligation of the technical assistance or the maintenance by the transferor, or compensation in case of errors in the application. 2. For the applications declared as open source, administrations will use licences which assure that shared programmes, data or information: 		

- a) Can be executed for any purpose.
 - b) Let its source code be known.
 - c) Can be modified or improved.
 - d) Can be redistributed to other users with or without changes if the derived work keeps these four guarantees.
3. For this aim the application of the European Union Public Licence will be procured, without prejudice of other licences that can guarantee the same rights stated in the paragraphs 1 and 2.

- Article 17. Directories of reusable applications.

1. The General State Administration will maintain the Applications Directory for its free re-use which can be accessed through the technology transfer centre.
2. Public Administrations will link their application directories referred in article 46 of Law 11/2007, of June 22 for its free re-use; and with those within the scope of the European Union.
3. Public Administrations will have to take into account the available solutions for its free re-use that can satisfy totally or partially the necessities of the new systems and services or the improvements and updates of the ones already implemented.
4. Public Administrations will procure the publication of the application source code, in development or finished, in the applications directories for its free re-use with the aim of favouring the actions to share, re-use and collaborate, benefiting a better efficiency. “

The Technology Transfer Center (CTT) is a tool for collaboration. Provided in Article 46 of Law 11/2007 and deployed by the Ministry of Finance and Public Administration, is designed to promote the re-use of solutions by public administrations. The CTT is linked to JOINUP and it is linked too to forges of other public administrations of Spain (Extremadura, Andalusia, Catalonia), and collaborates with CENATIC. Is a portal which offers a general directory of applications and whose aim is to favour the re-use of solutions by all the Public Administrations. In this portal you can find information about projects, services, regulatory aspects and solutions related to e-government. Therefore, it will be a large database of technical knowledge in that matter. Its principal aims are:

- Create a common repository of software for its re-use in the Public Administrations.
- Create a large database of common knowledge with various technical solutions (regulatory aspects , services, infrastructure, developments, etc) in the area of e-government.
- Offer dedicated and independent spaces where any Administration can publish its ITC project and even can manage the life-cycle of that project.
- Create a space where experiences can be shared and where users can cooperate in the area of e-government.

In relation to Semantic Assets the National Interoperability Framework (NIF) includes an article about sharing and re-use:

Article 10. Semantic assets.

1. It will be established and maintained the list of data models considered as of common interest. They will be used preferably during information exchanges in Public Administrations, in accordance with the established procedure in the first additional provision.
2. Public Administration bodies or Public Law Entities linked or depending on them, holders of competences with regard to information exchange with citizens and with other Public Administrations, as well as in terms of common infrastructures, services and tools, will establish and publish the corresponding interchange data models that will be of mandatory

application for information interchanges in Public Administrations.

3. Data models referred in paragraphs 1 and 2, will be adjusted to the provisions on standards of article 11 and will be published together with the related definitions and codifications through the Semantic Interoperability Centre of the Administration, following the licensing conditions stated in article 16.

4. The definitions and codifications used in the data models, referred in the earlier paragraphs, will take into account the provisions of Law 12/1989, of May 9, on the Public Statistical Function and the rest of laws that regulate the statistical function.”

There is an Interoperability Agreement on the sharing and re-use of semantic assets. The **Resolution of the Secretary of State** for Public Administration of 28 June 2012, giving approval to the Technical Interoperability Standard for Data Models can be found at the following link which contains all the technical specifications developed under the National Interoperability Framework:

http://administracionelectronica.gob.es/pae_Home/pae_Estrategias/pae_Interoperabilidad_Inicio/pae_Normas_tecnicas_de_interoperabilidad.html#.UqblGndyF8E

Law 11/ 2007 and **RD 4/ 2010** can be found in the following page containing relevant legislation as to eGovernment:

http://administracionelectronica.gob.es/pae_Home/pae_Documentacion/pae_LegNacional/pae_BIBLIOTECA_NORMATIVA_Adms_Elect_basica.html#.UgbkqXdyF8E

Types of assets shared and re-used

Technical (Code, standards)

Semantic (XML Schemas)

Regulatory aspects

Services

Assessment

The eGovernment Law 11/2007 was issued in June 2007. The National Interoperability Framework was issued in January 2010. National regulation exist (eGovernment Law, NIF) which provides legal certainty about share and re-use of assets.

There is a growing culture about share and re-use. The budget constraints contribute to the awareness about the opportunities offered by share and re-use. Instruments to enable share and re-use are growing up: technical solutions, functionalities and services offered, base of knowledge and assets available in the repositories.

The next step is to create common guidelines which would provide Public Administrations with rules about the ‘Re-use of applications (software) as products’ and another one about the ‘Re-use of applications as services’. They have to be developed. These ‘interoperability agreements’ or common guidelines/rules would follow the approach of the 11 previous one already published in the Official Gazette and available also in English in <http://administracionelectronica.gob.es>.

They are going to modify the NIF (Royal Decree 4/2010) to promote the practice of share and re-use and will include explicit reference to those two Interoperability Agreements about the re-use of applications.

2.10.1 ES – Spain – Basque region

ES (Basque)	Re-use, policy	Desk search - interview
<p>Governance and operational levels</p> <p>The re-use strategy of the Basque Government in Spain is based on several references:</p> <p>DECREE 159/2012 (http://www.kiaranet.com/decree.pdf) explains how to open and re-use source code applications of Basque Government Public Sector. The purpose of this Decree is to establish the openness or public availability conditions, for their re-use, of all the computer applications belonging to any of the entities included in its sphere of application.</p> <p>The Order of September 25th (http://www.kiaranet.com/order.doc) that develops and approves the Policy on Openness and Re-use (http://www.kiaranet.com/policy.pdf) regulated in mentioned Decree, by means of an extra Memorandum with the semantic model description of the information to be manage for this purpose.</p> <p>Approving Policy for opening applications and re-use the Basque Autonomous Community (http://www.kiaranet.com/policy.pdf).</p> <p>This Decree likewise seeks to establish the prior conditions to the acquisition, development or maintenance throughout the life cycle of the computer applications by the aforementioned entities, which enable the re-use of the aforementioned computer application, irrespective of whether these activities are carried out using own resources or relevant subcontracting. In particular, common guidelines (article 5) are established regarding the terms and conditions of use applicable to the acquisition, development, maintenance, configuration and evolution of any source code of computer applications and to its openness.</p> <p>In order to facilitate the re-use of the computer applications, the Open Source Computer Application Directory (http://openapps.euskadi.net) of the public administration of the Basque Autonomous Community is hereby established and shall be accessed freely, publicly and at no charge through the Internet.</p> <p><u>Article 5.– Conditions that enable the Re-use of the Computer Applications.</u></p> <p>1.- The entities included in the sphere of application of this Decree shall consult the Open Source Computer Application Directory of the public administration of the Basque Autonomous Community prior to the acquisition, development or maintenance throughout the life cycle of a computer application, whether it is by their own means or by contracting the relevant services. The purpose of the consultation is to provide available solutions for their re-use, which can totally or partially meet the needs, improvements or updates to be covered and provided that the security and interoperability technological requirements so allow.</p> <p>2.- Should no solution be available for its total or partial re-use, a report explaining this circumstance shall be published in the Open Source Computer Applications Directory. The report shall set out the grounds for needing to proceed to develop or maintain the open source of a computer application, whether that is using own resources or contracting the relevant services. This report shall also include the relevant annexes with the following information:</p> <p>a) A functional description of the new computer application.</p> <p>b) A description of the composition or modular architecture of the resulting source code. Should the new computer application form part of another, the modular architecture of the</p>		

latter shall likewise be included.

c) A description of the measures taken to facilitate its re-use, which shall include the detailed timeline of the scheduled dates for releasing each of the partial results of milestones of the modules or components affected by that development or maintenance, which has to be within six months. It shall likewise include the technological, architectural and functional characteristics of each of the planned milestones, along with the economic assessment associated to each of them.

d) Where applicable, the reasons why that procurement involves any dependency on products belonging to third-party products. In this case, details shall be given of the reference of all of them, their version and source, along with the licences applicable to each of its components and to its associated documentation. The report shall likewise include the impact on the total cost of its procurement, and note whether such dependencies are temporary or permanent and whether if their elimination is envisaged. In the latter case, the envisaged date of the elimination shall be indicated and the total cost associated to this task for each of the aforementioned dependencies.

Should the aforementioned development or maintenance of the source code of a computer application be carried out by means of contracting the relevant services and, if as the result of the procurement process, the scope, contents, planning or the aforementioned dependencies on third-party products have to be modified, the information described in this Point shall be duly updated prior to the implementation of the aforementioned procurement. A short report shall also be included that justifies those changes.

3.- When the entities included in the sphere of application of this Degree believe that there are sufficiently good grounds and related to security or to the fact that some of the components of a computer application have become or may become part of a collaboration between the public and private sector, only a brief report needs to be published in the Open Source Computer Application Directory. This report shall contain, apart from the reasons to apply this restriction, the annexes with a brief description of the sought functionality with the computer application in question and with all the information included in Point 2.d) herein. With regard to the information contained in Points 2.b) and 2.c) herein, only the information that is not in dispute with the cause resulting in the restriction shall be published. This restriction is temporary and may be reviewed at any time. Thus, if one of the entities listed in Article 2 decide to lift the aforementioned restrictions, it shall proceed to update the information pursuant to what is contained herein.

Regarding the standards used, article 7 § 3 mentions: “The standards and formats of the open source computer applications published in the aforementioned Directory, along with those of the data that these process, shall comply exclusively with what is envisaged regarding standards in Article 11 of the Royal Decree 4/2010, of 8 January, regulating the Spanish Interoperability Scheme in the sphere of Electronic Administration, or any legislation that replaces it, so that they comply in nature of the computer applications and data to be processed, prioritizing the purpose for which each format was defined and always avoiding the use of close or private formats, or which have not been published as open specifications and which, therefore, do not guarantee technological neutrality..”.

Types of assets re-used

Software

Standards

Assessment

The strategy inspired the future developments in the National Spanish strategy.

The Decree is very recent, there are no results yet available. Article 9 of the decree mentions the need to develop metrics for measuring the implementation of the decree. These metrics are to be developed in the coming months, and will be published on the Open Source Computer Application Directory.

The draft of the Decree was submitted to over 100 administrations which would be affected. 70% of the negative feedback was about not accepting a “watchdog”. There is no formal auditing of the publication of the applications’ source code. The approach is based on the transparency of the tendering process and the publication before procurement of what will be re-used in the new system, and what will be tendered, as well as the cost of each deliverable. What is mandatory is to report on what is being re-used and what is not.

A challenge is in how to implement article 5. , dealing with the new processes, and who will support these changes. Change management has to be carried out, presentations of the decree and portal made to public administration managers.

There are some conditions which do not allow the sharing of the software. These are addressed in Article 8 – Restrictions on the openness of the Computer Applications.

1.- Should any of the entities [...] deem that are sufficient grounds and related to the security or related to the fact that some of the components of a computer application have become or may become part of a collaboration between the private and public sectors, it may restrict the publication of any of the source codes of the computer application, envisaged in the previous article. In this case, a report justifying the applied restrictions shall be published in the Open Source Application Directory.

The decree does not cover conditions that enable the sharing of existing applications.

2.11 FI – FINLAND

FI	Sharing, re-use, policy, initiatives	Desk search
<p>Governance level</p> <p>The Act on Information Management Governance in Public Administration(634/2011) 10.6.2011/634 (http://www.vm.fi/vm/en/04_publications_and_documents/03_documents/20110902Actonl/Tietohallintolaki_englanniksi.pdf) obliges all public administration organisations to develop their enterprise architecture (EA) and to make use of the common Public Administration EA and its elements.</p> <p>Section 11 — Joint services mentions: authorities [...] must use the pertinent joint information technology solutions they require for implementing electronic transactions and that interact with transaction services. “Enterprise architecture for information management in public administration” means: <i>specification of the structure of the information management entity comprising public administration organisations, services, operating processes, processed information and the information systems used, and the technologies, and of the relationship between the entity’s component parts.</i></p> <p>The Government aims to develop public sector ICT by means of the following actions (reference to the Government Programme of 22 June 2011)²²</p> <ul style="list-style-type: none"> • The development of public on-line services will be placed under the management of a full-bodied actor. • Clear goals will be set for productivity improvements. • The interoperability of public information systems will be ensured through the use of open interfaces and standards. • The implementation and effectiveness of the project entities of the Electronic Services and Democracy Development Programme will be evaluated. • Productivity in the public sector will be boosted through better utilisation of business intelligence, more compatible information systems, and by bringing together information management data and procurement resources data in public administration. • Shared use of public administration information will be facilitated. • All common functions of the State ICT service centres will be brought together. • To promote interoperability of information systems, open source standards are used in public administration, which determine the compatibility of information content and IT interfaces. • Enterprise architecture will be employed, utilising shared information platforms and shared eGovernment platforms and eServices. <p>The Public Sector ICT Strategy project (http://www.vm.fi/vm/en/03_press_releases_and_speeches/01_press_releases/20121019Firstc/julkictstrategy_EN_20121031.pdf) aims to create the first ICT strategy for both central government and local government administrations. The vision of the public sector ICT strategy reaches to 2020, and policy approaches and measure to the end of 2015. The Government will endorse the public sector ICT strategy in early 2013.</p>		

²² From the website of Ministry of Finance - http://www.vm.fi/vm/en/05_projects/01_ICT/index.jsp

It proposes a series of measures, including:

- Measure 5: Interoperability for joint service points. A review will be launched to determine the interoperability of the operational, information and technology architectures of public sector joint customer service points, which are to be established, and of authorities that offer services.
- Measure 8: Interoperability in Information Management Act. Under the leadership of the Ministry of Finance, together with local and central government actors, a plan will be prepared by March 2013 on regulatory aspects of the Act on Information Management. The plan will contain concrete objectives and measures to improve the interoperability of information systems. The starting points for the plan are quality joint services and jointly prepared specifications.
- Measure 9: Boosting central government efficiency through ICT centralisation. In line with Government policy, the TORI project will centralise all central government sector-independent ICT tasks in the central government ICT Service Centre.

The Ministry of Finance²³ is responsible for developing and maintaining the Public Administration's enterprise architecture, which contains the following elements:

(1) common EA developing method (including the framework) to be used in all public administration (refers to Public Administration Recommendation: JHS 179

Kokonaisarkkitehtuurin kehittäminen),

(2) common EA governance model,

(3) definition & ownership of domains, which are large functionally coherent areas such as 'Health and welfare',

(4) common architecture definitions, such as architecture principles, common information architectures, common meta data and data services, common ICT-services, and common reference architectures.

Operational level

Initiatives

Yhteentoimivuus.fi is a portal and databank promoting the interoperability of the public administration, and provided by the Ministry of Finance – JulkICT function. It collects descriptions and definitions of operations, information and information systems, which promote the interoperability of the public administration, in one location. In practice, these include architecture and process descriptions, glossaries, conceptual models, ontologies, code sets, information specifications, instructions and standards. The objective of the portal is to promote the enactment and implementation of the Act on Information Management Governance in Public Administration (634/2011).

The Government IT Shared Service Centre is a part of the State Treasury. ([http://www.statetreasury.fi/en-](http://www.statetreasury.fi/en-US/State_Treasury/Operating_environment_and_organisation/Our_organisation/Government_IT_Shared_Service_Centre)

[US/State Treasury/Operating environment and organisation/Our organisation/Government IT Shared Service Centre](http://www.statetreasury.fi/en-US/State_Treasury/Operating_environment_and_organisation/Our_organisation/Government_IT_Shared_Service_Centre)). The Government IT Shared Service Centre procures service implementation and production primarily from IT service companies. They make use of government-level framework arrangements and carry out their own procurements.

The Department of the Public sector ICT directs their activities. They act as a developer of government shared IT services and the Council of State's IT services on behalf of the central government. Many central government organisations have internal IT units of their own and some administrative sectors have IT service centres that serve the entire

²³ From NIFO Factsheet – Joinup - <https://joinup.ec.europa.eu/sites/default/files/NIFO%20%E2%80%93%20Factsheet%20Finland%202001-2013.pdf>

administrative sector concerned. These are stakeholder groups taken into account. The Ministry of Finance directs the IT operations of the central government at the group level and manages the performance of the State Treasury. The ministry is responsible for the IT strategy and policy definition of the government's shared IT operations as well as the orientation and financing of the development of the government's shared supply of IT services. A client advisory committee ensures that clients have adequate influence on operational planning and development as well as on service activities. In practice, cooperation is client-specific.

Types of assets shared and re-used

Semantic assets : glossaries, conceptual models, ontologies, code sets,

Technical standards: information specifications, and standards

Organisational assets: Architecture and process descriptions,

Instructions

2.12 FR – FRANCE

FR	Sharing, re-use, policy, initiatives	Desk search
<p>Governance level</p>		
<p>Circulaire Ayrault (http://circulaire.legifrance.gouv.fr/pdf/2012/09/cir_35837.pdf) – Minister Jean-Marc Ayrault signed a policy guideline favouring the use of open source software by public administrations at all levels in France. It requires organisations to make “a systematic review of free alternatives when doing development and major revisions of applications.” The guideline was developed by a working group of Disic (Direction Interministérielle des Systèmes d’Information et de Communication de l’Etat²⁴).</p>		
<p>DISIC was created by a Decree (21 february 2011), and aims to:</p>		
<ul style="list-style-type: none"> • Define a strategic framework for the evolution of public IT systems ; • Create a performance framework, implement it and follow it up; • Steer operations of sharing and re-use of infrastructures; • Manage high risk projects by auditing. 		
<p>An order dated June 4, 2011, makes it mandatory to consult DISIC for all major IT projects in public administrations.</p>		
<p>Operational level – Interoperability Framework</p>		
<p>RGI – The French interoperability Framework (RGI http://references.modernisation.gouv.fr/rqi-interoperabilite) requires the public administrations to use the norms, standards and best practices in the specifications, some of these are even mandatory to use. The norms, standards and best practices are selected through the same method proposed in CAMSS.</p>		
<p><i>Initiatives</i></p>		
<p>Adullact http://adullact.org/ – open source software repository for Public Administrations, encouraging sharing of development based on common requirements.</p>		
<p>e-Bourgogne²⁵ provides shared procurement of IT services and platforms. eBourgogne shares best practices with Germany, Italy, Belgium.</p>		
<p>The role of MIMO (MIMO (Mutualisation Interministérielle pour une Bureautique Ouverte, or Inter-ministry Mutualisation for an Open Productivity Suite) is to validate successive versions of LibreOffice and make them compatible with the IT infrastructure and processes of every member ministry. A single, standard LibreOffice version is validated and approved every six months. The use of the software is recommended, not mandatory. MIMO defines a software kit that CIOs of ministries are free to use, recommend or impose.</p>		

²⁴ <http://www.gouvernement.fr/gouvernement/le-systeme-d-information-de-l-etat-se-transforme>

²⁵ http://www.e-bourgogne.fr/jsp/site/Portal.jsp?page_id=1

Types of assets shared and re-used

Standards
Software
IT procurement

Assessment

Ayrault Guidelines

Jacques Marzin²⁶, the French state CIO, confirmed that government is working hard at implementing the Open Source Guidelines. The methods for dealing with free software are now in place in every ministry. The publication of the Ayrault Guidelines inspired several ministries to organise events to increase awareness about free software and implicate users in ministries. All ministries now have support for using free software through a dedicated framework contract.

A next step (in early 2013) is the creation of a software catalogue gathering all the applications supported.

Adullact is one of the first public administration open source repository. According to the founder, **sharing**, pooling of resources and needs are efficient. Adullact is offering now also shared services²⁷. Re-use of existing software is very difficult. Developing common solutions is efficient if the need is identified very early in the process – ex: for the archives of France (Az@lae project), many administrations had the same need. For pooling to be efficient:

- * the need has to be anticipated early,
- * the software needs to be adaptable to different needs (interoperability). Ex: iParapheur²⁸ is implemented using a bus and web services. Developing for sharing and re-use requires a different approach in architecture to be modular.

A strong enabler for sharing development initiatives would be if the public administrations published in advance their intentions to tenders.

Re-use is not very efficient or easy to do, because the cost of adapting requirements to the business is high (even higher than developing from scratch). Developing in a modular way would be the solution for higher chances of re-use, but describing needs in a modular way is not an easy task.

A policy and strategy for sharing and re-use at the EC level would make sense in sectors and areas where there are open specifications. Sharing of common development can be made where the needs are emerging (no legacy): GIS, Open Data.

The efficiency of the **eBourgogne** project is based on the use of GIE (Groupement d'Interet Public)²⁹, where public administrations grouped together do not need to use of public procurement - when they face a common and very specific need. However, to initiate such an initiative, there needs to be political and financial support. The State supported i-Bourgogne. A similar initiative in Île-de-France was not successful because there lacked the resources and inertia for starting.

²⁶ <http://joinup.ec.europa.eu/news/frances-cio-implementation-open-source-guidelines-its-way>

²⁷ <http://www.adullact.org/services-en-lignes>

²⁸ <http://adullact.net/projects/paraphelec/>

²⁹ http://www.weka.fr/actualite/marches-publics-thematique_7848/des-collectivites-publiques-peuvent-elles-creer-un-groupe-d-interet-public-afin-de-repondre-a-leurs-besoins-article_9920/

Each³⁰ ministry is responsible for deploying the **MIMO** software, or not, to suit its internal processes. At the Interior Ministry, for instance, MIMO's open source tools are installed on 98% of the desktops, but some cabinet and local entities still use other solutions. The primary goal of MIMO was to give the ministries' CIOs and their IT technicians a way to share experience on productivity suites, operating systems and openness in order to speed up desktop modernisation, but MIMO also offered a way to lower IT costs. At the beginning the working group was composed of CIOs but some technicians and people responsible for desktop management in each ministry joined.

³⁰ <http://joinup.ec.europa.eu/elibrary/case/mimo-working-group-french-ministries-certify-libreoffice-release-0>

2.13 GR – GREECE

GR	Re-use, policy	Desk search
<p>Operational level</p> <p>eGovernment RoadMap (2011) is an Action Plan, supported by the Ministry of Administrative Reform and eGovernment, whose aim is to effectively implement the Greek eGovernment Act. One of the axes of the RoadMap is to capture best practices from Greece and abroad that can be effectively used in the proposed design.</p> <p>The National Interoperability Framework is regulated by law, which applies to both the framework itself as well as the maintenance processes that surround it (including appointing the responsible department in the Ministry of Interior). It is however not mandated or enforced by law.</p> <p>In practice, this is a matter within the Operational Programme “Digital Convergence” (http://www.espa.gr/eLibrary/Summary_OP_Digital_Convergence_EN.pdf) . This programme specifies strategy and actions aimed at the efficient utilisation of ICT in the period 2007-2013. IT projects under the programme are obliged to comply to the NIF.</p> <p>The Interoperability Framework specifies the technical specifications and the standards that should be used during the development of eGovernment systems:</p> <ul style="list-style-type: none"> • The Digital Authentication Framework, which sets the standards, the procedures and the technologies required for the registration, identification and authentication of the users (Citizens / Enterprises); • The Documentation Model which has to do with the development of metadata standards and XML schemas; • The Interoperability Registry: this registry is a web-based repository of service and document metadata, services process models in BPMN, standardized XML Schemas, as well as code lists for the most common information elements within governmental service provision in Greece; • The XML schema repository. <p>Types of assets shared and re-used</p> <p>Semantic assets</p> <p>Services process models (in BPMN)</p>		

2.14 HU – HUNGARY

HU	Sharing, re-use, policy, initiatives	Desk search
<p>Operational level</p>		
<p>The overall strategic objective of the Electronic Administration Operational Programme is to improve efficiency in the public administration. One of the specific objectives is to increase the efficiency of operation through developing central IT services.</p>		
<p>The principle of neutrality of the technology should be enforced in the field of the communication technology, or in the scope of the software environment. It should be avoided that the citizens and enterprises may be forced to choose a related product from the market due to the deficiencies of governmental services.</p>		
<p>Operational and governance levels – National Interoperability Framework</p>		
<p>The objective of this framework is to define standards, requirements and regulations which guarantee the solid technical-semantic, monitoring, project management, IT security and application development methodology platform for the expansion and operation of electronic public administration.</p>		
<p>The NIF was published as a recommendation and the government passed a decree about its compulsory use for electronic public service providers.</p>		
<p>In order to introduce free software into Hungarian public institutions, the Hungarian Ministry of public administration is considering the creation of a Hungarian national FLOSS competence center.</p>		
<p>Types of assets shared and re-used</p>		
<p>Standards</p>		
<p>Requirements</p>		
<p>Semantic assets</p>		
<p>Project management methodology</p>		
<p>Application development methodology and framework</p>		

2.15 IC – ICELAND

IC	Sharing, re-use, policy, initiatives	Questionnaire
<p>Governance level</p> <p>Iceland the eNation 2008-2012 (http://eng.forsaetisraduneyti.is/media/utgefidefni/Iceland_the_eNation.pdf): Policy of the Government of Iceland on the Information Society 2008-2012. The title refers to the online accessibility of all appropriate public services. Furthermore, the emphasis is on all governmental authorities working together as one whole, or as a single coordinated network, since such coordination is the key to improving public services, increasing efficiency and encouraging significant progress. This policy is currently under review and a new policy will be confirmed in the next months. The policy contains several objectives related to sharing of data, registries, services and infrastructure.</p> <p>Policy on Free and Open-source Software: Policy of the Government of Iceland regarding free and open-source software stating, among other things, that when purchasing new software, free and open-source software and proprietary software are to be considered on an equal footing, with the object of always selecting the most favourable purchase. This policy has been followed by an action plan for implementation of free and open-source software at public institutions.</p> <p>See http://eng.forsaetisraduneyti.is/media/English/Free_and_Open_Source_Software_-_Government_Policy_of_Iceland.pdf (the policy) and http://www.ut.is/media/utvefur/adgerdaaetlun_fyrir_innleidingu_frjals_og_opins_hugbunadar_lokaskil.pdf (the action plan).</p> <p>Operational level - National Interoperability Framework: National Interoperability Framework http://samvirkni.ut.is has been initiated and the first issue of the NIF has been released as a final draft for review. The first issue of the NIF covers only technical interoperability but has content in four main sections:</p> <ul style="list-style-type: none"> • Data presentation and exchange (character encoding schemes and multimedia formats), • Data integration and middleware (XML-based standards and Web Services), • Interconnection services (directory and domain name services) and • Security services (security framework, PKI, Web Services security, Cryptography, XML security and authentication/authorization). <p>The NIF was established in co-operation between the private and public sectors in Iceland.</p> <p><i>Initiatives</i></p> <p>PKI Iceland: The Iceland Root (Íslandsrót) is a self-signed root certificate in the Iceland Public Key Infrastructure (PKI Iceland – “PKI-IS”). The PKI-IS is operated and managed by the Iceland State government at the Ministry of Finance and Economic Affairs. Iceland Root is issued by the Ministry of Finance on the May 20th 2008 and has signed an intermediate certificate Fullgilt aukenni that issues certificates on smart cards (including debit cards from all banks in Iceland) for both electronic signatures and for authentication in electronic services. This is an open PKI developed in co-operation with all the financial institutions in Iceland, governed by the State and shared by both the private and the public sector. It is used on all levels of government (State and regional governments) and in the private sector e-services. A part of the PKI-IS implementation was the provisioning of a licensed middleware software for smartcards (chips) for all users in the country.</p>		

See www.islandsrot.is (PKI-IS website) and www.skilriki.is (general website for electronic certificates and the PKI-IS).

Skilriki.is: Skilriki.is is a centre for interested parties implementing and/or using electronic certificates issued under the Iceland Root Public Key Infrastructure (PKI-IS). It contains general information on electronic certificates and PKI, specific information on the PKI-IS including standards, specifications and legal environment, a list of supported devices and a repository of software and drivers for readers and smartcard chips.

See www.skilriki.is.

Island.is: Island.is was launched in 2007. It is a SPOC-service for the public eGovernment services on all government levels (State and regional) and is a guide to public services and a way of making it easier for the public to access such services. It contains comprehensive information on the services of state and local authorities in Iceland and is a single-point-of-contact for various eGovernment services. The goal is that every interactive service offered by government bodies at any one time will be available at island.is – and the number of these services is expected to grow rapidly. This website will serve as an addition to other publicly-run sites, since its purpose is to offer the public and businesses an easy guide throughout the entire government complex. A joint project of state ministries and organisations with local governments, Island.is is one of the most important initiatives in the Policy of the Government of Iceland on the Information Society, Iceland the eNation 2008-2012. It is managed by a consultation committee operated by the Prime Minister's Office, consisting of members from ministries and municipalities which makes policy formulating decisions in accordance with the Icelandic Government's policies on the information society. Registers Iceland, the department of e-administration, is responsible for the development and operation of Island.is.

Island.is Authentication Service: Island.is provides a central authentication service for all eGovernment services in Iceland that includes attributes from national registries. This central authentication service is used by more than 40 websites, from central government institutions, municipalities, secondary schools and associations and unions.

Island.is Electronic Document Forms: Shared collection of electronic document forms for submission in eGovernment services.

Island.is My Pages for Citizens: Individualised access to key files owned by the authorities and access to public services. It includes a mailbox for the citizen to receive official documents. My pages were launched in May 2011.

UT.is: UT.is is a website run by the Ministry of Interior that contains policies and information on eGovernment and eBusiness and provides support, guidelines, key success factors, best practices and references to standards and specifications for decision makers, project managers, developers and implementers. Among non-government contributors are ICEPRO – the Icelandic Committee on Trade Procedures and e-Commerce and FUT – the information technology sector of Icelandic Standards.

See www.ut.is.

The **Web Handbook** (Vefhandbókin): Vefhandbókin is a quality handbook for public e-services. It was first published in 2008 and was recently updated in 2012. It covers selection of solutions, design and development, access and usability, practicability and content and democratic potency. See <http://www.ut.is/vefhandbok/>.

Common framework for government websites: All government offices use the same common framework for government websites. This framework, called Eplica, is instructional for the public e-services in complying with requirements for web accessibility and usability.

For an example, see <http://www.government.is/>.

e-Procurement with XML (Rafræn innkaup með XML): Handbook on e-procurement processes using the North European Subset (NES), issued by ICEPRO – the Icelandic Committee on Trade Procedures and e-Commerce. The government was active in the work of the NES group, which was instrumental in the current standardisation work at CEN/BII. See http://www.icepro.is/Data/FileGallery/Handbók_rafraenna_vidskipta_-_101.pdf.

Regulation and standardisation for **cloud computing**: Iceland is participating in the Nordic Cloud Computing Forum. One of the goals of the cooperation is to address and break down barriers which unnecessarily hinders the use of cloud computing, thus helping the public sector in the Nordic countries to take advantage of the potential of cloud computing. The focus of the group is on knowledge sharing, regulation, standardisation and procurement. See www.norden.org/en/news-and-events/news/cloud-computing.

Types of assets shared and re-used

NIF for technical interoperability in four areas: Data presentation and exchange (character encoding schemes and multimedia formats), Data integration and middleware (XML-based standards and Web Services), Interconnection services (directory and domain name services) and Security services (security framework, PKI, Web Services security, Cryptography, XML security and authentication/authorization).

Standards and specifications for PKI as part of the governance of PKI-IS and the Iceland Root.

Electronic Document Forms at Island.is.

The open Public Key Infrastructure PKI-IS and processes for the registration, issuance, validation, revocation and use of electronic certificates for both authentication and qualified electronic signatures.

Central authentication service for all e-government services at Island.is.

Common framework for government websites.

Regulation and standardisation for cloud computing.

Middleware software for smartcards (chips) as a free and general solution for all users of the PKI-IS (for the whole community).

Repositories for information, software & drivers and other support at Skilriki.is.

Repositories for information, guidelines and best practices at UT.is

Assessment

- Iceland the eNation 2008-2012 was issued 2008 and has been somewhat successful, but since 2009 the funding has been lacking. Realistic action plans and provision of funding and assignment of responsibilities was a key success factor in earlier government policies on the Information Society and ICT. These policies have been to large extent successful and initiated some of the key elements of eGovernment services and infrastructure available for re-use and sharing today. Lack of funding since the economic recession has made it difficult to realise the goals of the latest policy; "Iceland the eNation 2008-2012".
- National Interoperability Framework is in first release for review.
- PKI-IS has been since May 2008. The licensing for middleware software for smartcards to support the electronic certificates on smartcards was contracted in 2007. PKI Iceland and the uptake of electronic certificates for authentication and qualified signatures has been very slow and the target has not been reached. The infrastructure, organisation and procedures are a success but the uptake is way under expectations. For the construction of Public Key Infrastructure for Iceland with state-owned Iceland Root (PKI Iceland), the infrastructure is extremely valuable for secure authentication and qualified signatures in not only public services but in electronic services in general. Sharing of this infrastructure for the whole community is instrumental in introducing new eGovernment services, especially in the health and social security sectors and as a foundation for new levels of democracy. Lack of motivation and clear (and generally accepted) common direction, as well as competing initiatives for

authentication, are the reasons why there have been delays in realising general use of the electronic certificates under Iceland Root. Still, the electronic certificates are today the single most used authentication eID in Iceland and is supported by more services in both private and public sectors than any other eID. If we look at examples of success it is evident that the PKI Iceland is quite successful as an infrastructure and supports “quick wins” in “single-eID”-authentication for service providers. It has been quite successful although competition from other initiatives and solutions has hindered the uptake and caused delays in reaching the necessary critical mass. Also, the success of the Island.is Authentication Service is due to common infrastructure for authentication assertions allowing the government services to simplify the access management. In both cases there would be no motivation if not for the underlying common infrastructure.

- In Iceland there have been attempts to establish common set of requirements for procurement of solutions and services for e-government/IT. The co-operation between the government and all the banks for PKI Iceland resulted in “Policy Requirements for Cas” that sets the requirements for Cas providing certification services in general. A document defining “PKI Requirements” (level above the Policy Requirements for Cas) is in preparation at a technical committee at the Icelandic Standards, defining all general requirements for electronic signatures and authentication services.
- Skilriki.is was established in 2007 to support the implementation of PKI-IS. has been quite successful and is still the centre for users, implementers and service providers. The central authentication service at Island.is has been available since 2007.
- Island.is was launched in 2007. It is a SPOC-service for e-government in Iceland, and has been successful, although progress has been slower than anticipated at the beginning. The most successful aspect is the central authentication service allowing both electronic certificates under Iceland Root and a Web Key issued by the Directorate of Internal Revenue. Also, My Pages and citizen mail-box has been very successful in providing individualised access to e-government services and for dissemination of official documents to the citizens from several institutes.
- The Electronic Document Forms have been available since 2009. My Pages at Island.is providing individual access was established in 2010.
- UT.is as an websites for policies, information and support for eGovernment has been in operation for at least 10 years. It has been somewhat successful. It contains valuable information for developers and builders of electronic public services.
- The Policy on Free and Open-source Software was issued in 2008. The action plan for implementation of free and open-source software at public institutions was issued in 2011. The Policy on Free and Open-source Software has had some impact, especially at the schools. The complementary action plan has yet to produce results.
- The Web Handbook was first published in 2008 and the latest version is from 2012. It has proven to be a valuable guide for web-based e-government services.
- The common framework for e-government websites has been available since 2007. It is used by the government offices (the ministries) and several institutions. It is a valuable alternative for all institutions.
- The NES e-Procurement with XML handbook was published in 2007. It was instrumental in the uptake of electronic invoice based on domestic technical specification founded on NES.
- The work in the Nordic Cloud Computing Forum is on-going.

Lessons learned

There is a lack of consensus or active support for official policy regarding sharing and re-use of assets. Although policy is established at the government level it can be difficult to co-ordinate the joined effort at different institutions and different levels of government. The view on issues to resolve and road to success can vary and results in different directions in

the sharing and re-use of assets.

Another common barrier relates to the competition between alternative paths to success. Although common assets are available for sharing or re-use, individual institutions or government bodies tend to value their alternatives based on their own objectives without regarding the benefit of sharing or re-using assets and align their efforts with others, hence benefiting from the initiative of others.

It is also a barrier that directions for sharing and re-using of assets, or initiatives, have a limited scope, when more wide-spectrum policy and scope is needed to facilitate success for all public services. An example of this is sharing and re-use of open-source software developed at one institution, solving their particular issues, that has only marginal or limited relevance to the needs of other public services. A global initiative for the most applicable software with central repository would benefit more institutions and create global success. To benefit from sharing and re-using requires a common infrastructure at some levels, at least from architectural point of view.

Related to this issue is the motivation for institutions to follow the established policy and align their efforts to the direction of others.

To benefit from sharing and re-using requires a common infrastructure at some levels, at least from architectural point of view. The assets must be applicable for all or most of the public service providers for them to benefit from common assets.

Related to this issue is the motivation for institutions to follow the established policy and align their efforts to the direction of others. Realistic action plans and provision of resources for co-ordination and support of initiatives, especially for the leading institutions and pilots, must be an essential part of policy and initiatives on sharing. The following enablers are therefore important for success in sharing assets in public services:

- Underlying framework for interoperability at all levels – technical, semantics, organisational and legal – is the most important enabler. Without such a framework the assets will be limited in use and application. Common ground for technical standards, semantics in information exchange and alignment of processes and procedures is essential for wide-spread sharing and re-use of assets. Agreement on objectives and goals, in legal framework and policy, must support such interoperability.
- Compliance with policy is an issue. To reach that level of alignment, all public services must see the benefit of sharing or re-using assets and embrace it as important and valuable aspect of success towards their own goals. Hence, global policy based on the understanding of the needs and requirements of the electronic public services is an important enabler for success.

For the “quick wins” it is most important to realise that they don’t replace the ultimate long-term goals. It is therefore of most importance to establish goals based on policy that provides the framework for the “quick wins”. Otherwise, the “quick wins” might not bring you closer to your ultimate goal and might even create lock-in or bring you into a corner from where it might be difficult to emerge.

Still, central repositories with open source software, schemas and best practices are always important enablers for “quick wins” towards success. Long-term goals and wide perspective on e-government services are essential for such repositories to be successful.

For public institutions, common set of requirements for procurement of solutions and services for e-government (and IT in general) is very important tool for alignment. Regarding “quick wins”, it is an important enabler to take potential sharing and re-use into account in all tenders for public services and IT. The procured solution (or assets) will be available for sharing or re-using, and provide a “quick wins” solution for other institutions.

2.16 IE – IRELAND

IE	Sharing, re-use, policy, initiatives	Desk search
<p>Governance level</p>		
<p>The eGovernment Strategy of Ireland is set out in the eGovernment Strategy 2010 (http://per.gov.ie/wp-content/uploads/eGovernmentStrategy2010.pdf), sets the following goals for the next phase of its eGovernment Programme:</p> <p>Goal 1 – Enhanced Information Provision</p> <p>Goal 2 – Enhanced Electronic Delivery of Services</p> <p>Goal 3 – Enhanced Use of Shared Approaches: The public service will seek to make as much use as is feasible of shared approaches in the achievement of Goals 1 and 2. In this regard, public bodies will make greater use of centralised process support systems such as identity registration and authentication, means assessment, payments, and forms services, as they become available. Public bodies will seek to aggregate and centralise the delivery of services of the same type which are now distributed across bodies and authorities.</p> <p>eGovernment is also addressed within the Public Service Reform Plan where the intent to launch a new eGovernment Strategy within 2012, in order to maximise electronic service delivery through innovative solutions, is announced. The Public Service Reform Plan (http://per.gov.ie/wp-content/uploads/Public-Service-Reform-181120111.pdf) addresses a wide range of issues including the implementation of shared services models for HR, payroll, pensions etc.</p>		
<p>Operational</p>		
<p>In the past there was an initiative on the area of interoperability called Reach Effectiveness Interoperability Guidelines (RIG). Some of these guidelines are in use and define standards. However, most of them have not been institutionalised.</p> <p><i>Initiative – local</i></p> <p>The Local Government Management Agency (LGMA) is a state agency of the Department of Environment, Community and Local Government established in 2012 to provide a range of services to the Local Government Sector. One of its goals is to build expertise in various open source technologies and is working with interested parties in the local government sector to build a community on knowledge (http://www.lgma.ie/en/what-we-do/ict-business-services/open-source-practice-centre). It will gain thorough understanding of Open Source and its application to LGMA and the wider Local Government Sector.</p>		
<p>Types of assets shared and re-used</p>		
<p>Services</p> <p>Semantic assets</p> <p>Technical standards and standards set for the central coordination on the area of procurement (organisational)</p>		

2.17 IT – ITALY

IE	Sharing, policy	Desk search
<p>Governance level</p> <p>There are many laws³¹ covering the sharing of software:</p> <p>Law n. 34 (2000) allows administrations to make available for free, to other administrations which want to use and/or modify it, any software specifically developed by or for them.</p> <p>Law n. 289 (2002) acknowledges software re-use as a cost reduction tool and the need to make applications available inside every administration known to others.</p> <p>A directive of the Minister for Innovation (2003):</p> <ul style="list-style-type: none"> • mandates that an administration needing software must compare all available solutions, including re-use of custom software already used in other administrations; • states that such software must be designed to be portable and reusable; • confirms that it belongs to the administration which first commissioned it. <p>Law n. 311 (2004) rules that administrations must use uniform procedures if they want to use software and services acquired by the state through framework contracts.</p> <p>Directive (2005) of the Minister for Innovation asks administrations to cooperate to find cases in which it is possible and convenient to re-use software.</p> <p>Decree of the President of the Council of Ministers (2005) defines how to implement software rationalisation procedures in state-controlled functions, mentioning application service providers as one way to proceed.</p> <p>The Code of Digital Administration (CAD) (http://www.digitpa.gov.it/amministrazione-digitale/CAD-testo-vigente), born as Legislative Decree n. 82 2005/03/07, also mentions software re-use. Article n. 69 (http://www.digitpa.gov.it/cad/riuso-dei-programmi-informatici) of the current CAD states that,</p> <ul style="list-style-type: none"> • by default, administrations which own software developed on their specific indications are obliged to provide sources and documentation for free to other administrations <i>which ask for that software and plan to customise it for their own needs</i>; • where possible, tenders must ask that such software is easily portable to other platforms, and demand that its re-use as previously specified must be possible; • the corresponding contracts <i>can include clauses jointly written with the software provider</i> that bind the provider to support re-use in other administrations. <p>Operational and governance levels - Article 77 of CAD – interoperability framework</p> <p>The Sistema Pubblico di Connettività e Cooperazione (SPC) http://www.digitpa.gov.it/spc - Public Connectivity System – is a set of technological infrastructure and technical regulations intended to “federate” ICT infrastructure of public administrations in order to achieve integrated services with rules and shared services. SPC also defines the enterprise architecture of the Italian public administrations (ie, the reference system for binding intergovernmental processes with information systems that support them), and ancillary actions, coordination and governance.</p>		

³¹ <http://www.digitpa.gov.it/riuso-del-software>

Types of assets shared and re-used

software

Standards

Change management processes

Enterprise architecture

Assessment³²

The laws complicate the re-use of open source software and code developed by public administrations. For instance, the requirement that administrations must own all custom software developed for them can complicate the development of complete custom solutions with generic open source software components, whose copyright necessarily belongs to other independent authors, often many. The same constraint makes life harder for developers who would like to re-use code they have already written for an administration. According to the law, that code belongs to that first administration. Besides, there is no obligation for administrations which re-use software to make their *own* customisations available for re-use.

Obsolete software hinders the re-use. If an administration originally developed some easily reusable software, but later on has no funds to upgrade both that application and the underlying operating system, other administrations who did receive funds and were able to upgrade their operating systems would not be able to re-use that application.

Digital workflows are not mandatory. The CAD and most other relevant laws continue either to declare that paperless procedures are *preferred*, i.e. not mandatory, or to avoid any real sanction for managers who fail to implement such procedures in their administrations. One direct consequence of this fact has been fewer occasions, incentives and economies of scale to re-use software.

Complex bureaucratic procedures can block re-use. The more steps and independent stakeholders and controllers a procedure has, the harder it is to re-use existing software for it, and to make new custom software easily reusable. This is especially true when intermediate steps remain based on paper documents.

Strategy: a wrong vision for re-use? Current laws oblige administrations to give away their software when requested, but **nothing forces the same administrations to search around for reusable software** before starting another development. A directive is not legally binding.

An even larger problem may be the very concept of explicitly promoting software re-use on the basis that, as DigitPA says, it may produce effects like:

- diffusion of innovative solutions for administrative processes and e-government services; and
- significant economies of scale.

If software re-use is “just” a means to achieve these goals, the problems described suggest that promoting re-use is not really effective when it is done before organisations have been properly motivated and helped to **reach those larger goals**. If, for example, an administration is not obliged to offer some e-gov services completely online, where is the incentive for it to re-use software already developed for the same purpose by other administrations?

³² From: <http://joinup.ec.europa.eu/elibrary/case/software-re-use-italian-public-administrations>

Recommendations

As far as software adoption is concerned, an effective way is to enforce art 68/2-bis of the CAD (largely ignored), which says: *“Public administrations promptly notify to DigitPA the computer applications and technology and organisational practices that they adopt, providing every useful information... also to favour re-use and the widest possible diffusion of best practices”*.

A complete census of all the software used in Italian administrations could make it much easier to discover what can be re-used, at all levels. It is also suggested that a government decree could set out sanctions for the managers of those administrations that do not submit the information promptly and completely.

(note: DigitPA operates under the directives of the Prime Minister or the Deputy Minister, and in accordance with the Plan ICT in the central public administration).

2.18 LT – LITHUANIA

LT	Sharing, re-use, policy, initiatives	Desk search
Operational level		
Lithuanian Information system for interoperability between public administration information systems (VAIISIS) https://www.epaslaugos.lt/portal/ is a central portal which facilitates the offering of services to citizens and legal bodies from different public administrations. It provides VAIISIS technical architecture details (including an eService design process), a list of web services that are currently available via the system of data exchange platform		
Types of assets shared and re-used		
Technical architecture		
Web services		

2.19 LU – LUXEMBURG

LU	Sharing, policy	Interview - Desk search
<p>Operational level</p>		
<p>The current eGovernment Strategy of Luxembourg mainly lies on the effort to ensure effective implementation of new ICT through the “Master Plan for the Implementation of Information Technology within the State” http://www.fonction-publique.public.lu/fr/publications/documents-strategiques/plan-technologies-information.pdf .</p>		
<p>The implementation of Information Technology is a transversal procedure, involving all Ministries, Departments and State services. The launch of new services is accompanied by the introduction of new quality standards that aim to standardise the delivery of public services. CTIE (Centre des Technologies de l’Information de l’Etat) is in charge of the IT for all public administrations (except Commune level). The CTIE centrally coordinates all IT initiatives and interoperability is achieved due to this central approach. Usage of open specifications is part of the policies.</p>		
<p>The project management office (PMO) of CTIE will ensure that the Master Plan for the Implementation of Information Technology within the State reflects at all times the policy priorities and that the various programmes and projects conform to this Plan. CTIE also supports business process management (BPM) optimisation activities, through a competence center: the Business Process Management Office (BPMO). Its mission is to define and implement BPM standards and governance, and to accompany public bodies in the simplification of public procedures and organisation of process management. On the basis of these conceptual models representing organisational structures and key processes, various impact assessments can be carried out (new legislation, cost optimisation, ...).</p>		
<p>CTIE bases the drafting of all the system specification and part of its development on a business process modelling approach (ARIS):</p>		
<ul style="list-style-type: none"> - Modelling of the requirements, constraints... - Use of a workflow to specify the type of procedure and automatically produce the relevant legal/administrative documentation. 		
<p>Training is provided to other public administrations to use the system, to create specifications for procurement based on the common standards, on re-usable modules (eID...), make “generic” IT modules which are re-usable.</p>		
<p><i>Initiatives</i></p>		
<p>CTIE is interested in using the ISA core vocabularies to further define their metadata and follows closely the results of SPOCS project, mostly those related to the description of the service (metadata).</p>		
<p>Types of assets shared and re-used</p>		
<p>Business process modelling service</p>		
<p>Business process models and standards</p>		
<p>Building blocks of requirements for procurement</p>		

2.20 LV – LATVIA

LV	Sharing, re-use, policy, initiatives	Desk search
<p>Governance level</p> <p>The state information systems law provides guidance on interoperability, and will have the mandatory requirement for national interoperability (it will be adapted in 2013). More detailed technical information (rules for technical items, platform, SLA's, standards ...) has already been taken up in separate documents with legal power. Different legal acts were published related to state information systems: security requirements, technical requirements, requirements for state information system management integrators, procedures for the establishment, maintenance and activities of the state information systems management integrators, and procedures for ensuring the functioning of state information systems within the framework of integrated state information systems.</p>		
<p>Operational level</p> <p>Interoperability is achieved by sharing components and tools for e-service development, and by creating standardized interoperability platforms based on open specifications. Integrated State Information System (ISIS) web site provides all technical information relating to eGovernment system integration, including a public service directory, an e-services directory, an XML Schema directory and IS services directory (a public and private agencies' information systems service list containing the IS service descriptions and conditions of use).</p>		
<p>Types of assets shared and re-used</p> <ul style="list-style-type: none"> Open specifications Architecture (SOA) Services XML schema Functionality 		
<p>Assessment</p>		
<p>Public service directory: 3000 service descriptions are provided by 129 national authorities and 94 municipal authorities. The eService catalogue shows 1000 services published. XML directory presents 1856 registered assets and there are 294 IS services described. Desk search³³ shows that there is low use of the ISIS (no date provided, 5% of the state information systems uses the ISIS).</p>		

³³ <http://epractice.eu/files/Latvia.pdf>

2.21 MT – MALTA

MT	Sharing, re-use, policy, initiatives	Desk search
<p>Governance level</p> <p>Malta Information Technology Agency (MITA) is the agency responsible for information technology in the public administrations. The government of Malta ICT (GMICT) policy presents a series of specific policies: (http://ictpolicies.gov.mt). Instances where it may not be technically possible or cost-effective to comply with a particular GMICT Policy requirement shall be reported to Government's ICT Compliance function.</p> <p>The Open Source policy (https://www.mita.gov.mt/MediaCenter/PDFs/1_GMICT_P_0097_Open_Source_Software_v2.0.pdf) – part of the ICT policy – seeks to maximise re-use of procured software by enabling the distribution of Government solutions as OSS. This document is part of the GMICT Policy Framework.</p> <p>The Open Source Software Directive (https://www.mita.gov.mt/MediaCenter/PDFs/1_GMICT_D_0097_Open_Source_Software_v3.0.pdf) aims to guide the implementation of cost-effective and non-disruptive Open Source Software (OSS) throughout Government. It also seeks to maximise re-use of procured software by enabling the distribution of Government solutions as OSS. The Directive covers the procurement of Open Source Software, including the adoption of the related Open Source Business Models throughout the Public Sector to facilitate re-use of such Government procured software.</p> <p>The Directive mentions, for procurement of software:</p> <ul style="list-style-type: none"> -Government shall evaluate solutions that are in part, or in full, built on OSS technologies on the same merits as other solutions. <p>Government shall capitalise on OSS related investments carried out by the European Commission and EU Member states by seeking re-use opportunities on OSS and services available through the European Commission's Joinup collaborative platform.</p> <p>The Directive mentions, for the re-use of Government software:</p> <ul style="list-style-type: none"> -Government shall seek to facilitate distribution of OSS Government solutions under the European Union Public License. -Whenever Government needs to procure software, it shall first take into account OSS solutions that are already well established within the Government and that provide same or similar functions. The respective Public Sector organisation shall provide adequate reasons to justify the lack of such re-use whenever requested and where applicable. <p>The Enterprise architecture policy (https://www.mita.gov.mt/MediaCenter/PDFs/1_GMICT_P_0067_EnterpriseArchitecture_v2.0.pdf) aims to establish an Enterprise Architecture baseline so as to maximize Information and Communications Technology (ICT) return of investments as well as to minimise effort redundancy across Government.</p> <p>https://www.mita.gov.mt/MediaCenter/PDFs/1_GMICT_P_0067_EnterpriseArchitecture_v2.0.pdf</p> <p>MITA creates common, formal, recognised taxonomies and vocabularies across Government</p>		

Types of assets shared and re-used

Software

Enterprise architecture model

Open specifications

AssessmentThere is an uptake of open source in public administrations³⁴.

³⁴ <http://www.theinformationdaily.com/2011/10/05/number-of-open-source-applications-on-government-desktops-doubles-in-malta>

2.22 NL – THE NETHERLANDS

NL	Sharing, re-use, policy, initiatives	Questionnaire - Desk search
<p>Governance and operational levels</p>		
<p>The Dutch governments has delivered assets in terms of building blocks. The building blocks consist of a variety of services, policies and systems that enable governments to deliver digital services. They are created taking into account:</p>		
<ul style="list-style-type: none"> • Legislation. Compulsory, this is especially relevant and applicable to the key registers. • Open specifications. The Standardization Council's list of 'comply or explain' standards, drawn up at the request of the government. (Lijst van standaarden. College Standaardisatie – http://www.forumstandaardisatie.nl/open-standaarden/lijsten-met-open-standaarden/ • The basic e-Government infrastructure. Drawn up by the national government, provincial and municipal authorities and the water boards and presented in the National Services and e-Government Implementation Programme (NUP) (http://www.e-overheid.nl/sites/nup) . • Building blocks managed by the Dutch digital government service Logius (www.logius.nl/producten). 		
<p>Dutch government executes a large scale five year implementation plan for these building blocks: iNUP (http://e-overheid.nl/onderwerpen/e-overheid/over-i-nup) .</p>		
<p>There are assets described in the interoperability framework: the Dutch NIF – (NORA: Nederlandse Overheid Referentie Architectuur)</p>		
<p>Examples include Service Oriented Architecture, a guideline on how geographical information has to be treated by public administrations.</p>		
<p>NORA also presents an overview of all the policy instruments (e.g. rules, regulations) on which NORA is based and which the public organizations should follow (http://www.e-overheid.nl/images/NORA/nora%20dossier%20beleidskaders.pdf). These include the European Interoperability Framework and the NoiV Action plan.</p>		
<p>The NoiV Action plan:</p>		
<p>'The Netherlands in Open Connection' (2007), is an action plan for the use of Open specifications and Open Source Software in the public and semi-public sector in The Netherlands. The objectives of this strategic plan are the following:</p>		
<ol style="list-style-type: none"> 1. increase interoperability by accelerating the use of open specifications; 2. reduction of supplier dependence through a faster introduction of open source software, open specifications and the use of ODF; 3. promotion of a level playing field in the software market (...) by boosting the use of open source software, and by giving preference to open source software during the process of IT procurement. 		
<p>To reach these goals the action plan describes a number of different policies for open specifications and open source software. A vast number of these policies directly affects the process of IT procurement within government organisations. The action plan consists of 17 lines of action including a policy on open specifications, policies for open source software</p>		

and accompanying policies. This action plan states that municipalities, from 1 January 2009, have to apply the so-called 'comply or explain principle' for the use of open specifications. This is an affirmative action. Municipalities are also required to read, edit and save the Open Document Format (ODF). Other main lines of action are:

- to publish a list open specifications
- to establish an interoperability framework
- to create an open source software implementation strategy.

Initiatives

Types of assets shared and re-used

software

standards

services

common contract clauses for procuring based on open specifications

guidelines for implementing re-usable assets

Assessment

Sharing and re-use of building blocks: Efficiency is still questionable. There has been a great leap in sharing assets, but the implementation programme is very ambitious. The main barrier is the limited awareness on the availability of assets. Another barrier is the limited capacity in capacity of the managing organisation. A third barrier is the relative scarcity of strategic technological awareness.

As enabler, there is a "lively" interoperability framework. The forum of standardisation maintains a list of open specifications.

There is also a governing model for the implementation programme where there is joint decision making in common assets.

Policy effectiveness is never established officially.

NoiV – assessment and recommendations³⁵:

Three assessments and recommendations address the NoiV action plan:

- Thesis by M. Paapst – "Barriers and impact : Results of an investigation into the action plan Netherlands Open in Verbinding (NoiV) Netherlands open in Connection"
- Presentation by Dr Henk Boeschoten³⁶ "Creating support for the open ICT policy within public administrations, a communication issue?"

³⁵ From M. Paapst (2013) "Barriers and impact : Results of an investigation into the action plan Netherlands Open in Verbinding (NOiV) Netherlands open in Connection".

³⁶ At the symposium "open iOverheid" – Gouda (NL) – December 2012.

- Monitoring by the government

The thesis by M. Paapst – **“Barriers and impact : Results of an investigation into the action plan Netherlands Open in Verbinding (NoiV) Netherlands open in Connection”** aims at evaluating the efficiency of the NoiV action plan by measuring its impact on public procurement practices in 2010.

To understand why some objectives are supported and some are resisted by government buyers, the following research question was selected: How and under what circumstances does a strategic IT plan influence behaviour regarding the practice of public tenders? If these circumstances can be identified it would become possible for policymakers to take them into account while designing future strategic IT policies.

To answer the research question a conformance and performance research methodology is used. This methodology focuses bottom-up on the influence a strategic policy has on the behaviour of a targeted organisation during the policy implementation phase. A strategic policy is fulfilling its purpose if it plays a tangible role in the choices of the addressed policy takers. Through monitoring information is produced about the observed policy outcomes (conformance) and through evaluation the research produces information about the value of the observed policy outcomes (performance).

To see how the Dutch strategic IT policy is enacted in practice, empirical quantitative research was carried out which asked for the data of all the Dutch calls for tender, published in Tenders Electronic Daily (TED) between January and June 2010, that followed the open procedure and that consisted of the delivery of software of some kind. Out of the total sample of 94 calls, data relating to 80 tenders was received, a response rate of 85 %. All these tender documents were examined on different aspects and policies, such as the needs or want for open specifications, vendor-independent award criteria, the possibility to use ODF for the bid, and the possible preference for open or closed source products. (The quantitative research provides insight into the expected effect of policy decisions in IT procurement).

It is not possible to evaluate policy outcomes without establishing that it is an outcome in the first place. To identify these factors further qualitative research was needed within organisations in order to look into the so-called black box of decision-making. That qualitative research was done during the period between January and April 2011 through in-depth semi-open interviews with 15 respondents in different organisations selected from the quantitative research. These respondents were all public sector buyers with an expertise in IT procurement.

Based on the research results a **theoretical and interpretative framework** is constructed that can help policy makers to evaluate (ex post) and possibly forecast (ex ante) IT related policy outcomes.

Awareness knowledge: The necessary first step for all strategic policies is that a policy taker needs to be exposed to the policy’s existence. In order to be able to support or resist it the policy taker needs to become aware of the policy and the problem the policy is trying to solve. This is called ‘awareness knowledge’. The research results clearly show that the awareness knowledge threshold is the most important barrier a policymaker has to address. In at least two cases the observed policy outcomes are not the direct result of the policy performance. This means that the policy maker should think beforehand about possible ways of communicating about the policy to the intended policy taker. Does the policy taker even know that there is a problem and that he or she has to play a certain role in order to solve the problem?

The persuasion stage: In the persuasion stage the proposed framework describes four dimensions: technical, legal, financial/economical and knowledge/experience. Within each dimensions there can be negative and positive influences that should be taken into account by the policy maker. When there is a strong negative influence within a dimension the policy maker should counterbalance that influence by using a positive instrument within that same dimension. These **instruments that the policymaker can use are legal rules,**

financial compensation/incentives, communication and marketing, and physical solutions.

- Technical dimension: In the case of IT one must take into account that in most cases there is no greenfield situation. Often an organisation has some sort of legacy where an existing architecture and system are the departure points for future actions. Certain policy choices can be obstructed by technical architecture or technical possibilities. For example new application software must be capable of being installed on the existing platform and must be compatible with the existing applications. These applications usually do not support multi platforms. A strategic IT policy should contain a solution to this barrier. One could think of prescribing certain behaviour by means of technology, or offering an alternative and free product. Both are examples of physical solutions.
- Legal dimension: As soon as a software product (or a standard) has acquired a certain monopoly the supplier of the product is able to exercise additional power on the basis of intellectual property law. The supplier can legally oblige the software user to participate in or to abstain from certain actions. Running contracts could make it impossible to choose a new product or to get the co-operation of the current vendor in creating compatibility with open source software. When the compatibility of products is prevented by exercising the rights of intellectual property or contract law this could also result in an obstruction of competition. This negative legal influence can be counterbalanced by a positive legal influence such as National law, European directives or other forms of legal regulation that can proscribe a certain action. The results from the research do show however that the expected positive influence from this legal driver can be outweighed by the negative influence caused in other dimensions.
- Financial/economical dimension: Not all policy takers will be very supportive of a policy that will cost the organisation money. This specifically applies to government buyers who see it as their primary goal to get good value for money. Because of the technical dependence on the current software, the costs of a migration to a new innovation from a different vendor will in most cases be higher than a migration to a product of the current supplier. Moreover, there are possible migration costs resulting from the fact that users need to learn to use a new product. These migration costs can be the reason to resist a policy. This is the financial/economical dependence. This negative influence needs to be counterbalanced by the policy maker using financial incentives, such as government grants.
- Knowledge/experience dimension: The perceived 'subjective compatibility' and the communication about the use of the policy can have both a negative and positive influence on the decision to resist or support the policy. The perceived subjective compatibility is the compatibility of the policy or the policy outcomes with the personal experience the policy taker has with a certain technology. The policy taker is also being influenced by the opinions and experiences of his social network. Just like the people in his social network the policy taker wants to work with technology he is already familiar with or with technology that has benefits due to network effects. Any policy that wants to change or challenge that subjective compatibility should address this issue and take the relevant constraints into account. Policy makers often use communication as a policy instrument. Within this particular dimension, the use of communication can establish the so-called 'how-to knowledge', where a policy taker needs to understand how to use a policy and the 'principles-knowledge', where a policy taker gets an understanding of the principles behind the policy. This policy instrument usually focuses on the use of a policy and results in the production and communication of guidelines or good practices. This particular form of communication will however not establish awareness knowledge (see above).

The four described dimensions [...] influence the degree of willingness to adopt and use a new strategic IT policy. Together with the awareness knowledge threshold, they can function as an interpretative framework helping policy makers understand better why an IT-related policy is supported or resisted. Based on the proposed framework a reasonable hypothesis for further research would be that the desired performance of a strategic IT policy is only possible if the policy maker addresses the awareness knowledge threshold and takes all relevant constraints within the four dimensions into account. The research results show that in the case of the Dutch action plan, this has been partially disregarded by the policy maker.

The policy maker should think beforehand about possible ways of communicating about the strategic policy to the intended policy taker, and the policy itself should at least contain, announce, or support the use of one or more policy instruments within the four dimensions. The research results clearly indicate that for instance the mere use of the legal instrument (e.g. the European Public Procurement Directive) is not enough to change behaviour and to counterbalance negative influences coming from within the technical dimension and the experience/knowledge dimension.

Interview with M. Paapst:

The main issue about the lack of impact of the NoiV was the lack of communication on the action – most people are not aware, people didn't understand their role.

There is very little done regarding the sharing of assets in general. There are little shared services and a lack of will to share what has been paid by an organisation, because it culturally implies sharing budget, in a way.

In order to make such an action plan more efficient, one should identify those who decide on sharing and re-use, and these are not in the IT departments. *“You must address the government, the politicians, and those procuring solutions, not the IT people.”*

The presentation by Dr Henk Boeschoten “Creating support for the open ICT policy within public administrations, a communication issue?”

Dr Henk Boeschoten focuses his presentation on the lack of communication of the NoiV Action plan. He mentions the “do as we do, not as we say” saying, where the government organisation in charge of the action plan should show best practices, and be an example. “Actions speak louder than words”. Dissemination to and among public administrations is bad. A target must a) be aware b) consider and c) take over – that's the reflection stage.

ICT and strategic plans are indicative, not normative or binding. They are aimed to be used in other plans, where the actions are normative. In the case of the NoiV, the responsibility was set to several organisations: 3 ministries, and 2 organisations (the NoiV and the Forum of Standardisation). The Action Plan had foreseen the inclusion of “initiative ministries” but these have not taken actions. NoiV communicated, but as there was no clear responsibility overall to ensure that the communication is heard, there is a lack of efficiency. Many ICT guidelines are orphans, owned by nobody, nobody takes care that they are implemented.

Inspiring examples invite replication by others. If no one uses open specifications, not even the government, then there is a strong message without using a single word. What the NoiV wrote in a letter to various public administrations: “you'll find the survey in the attached MS Word document”, although the Action Plan aimed at enhancing the use of ODF. In other words: the recipient thinks “why would I care, they do not take it serious themselves.”

The **NoiV Action Plan is monitored by the government**, reports are available at :<http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2011/12/13/de-derde-voortgangsrapportage-nederland-open-in-verbinding.html>/ The report on 2011 activities states that :

- Adoption of open specifications and open source software has become an irreversible process
- Adoption of open specifications and open source software remains a long term process
- The principle of “open specifications is the norm” continues to apply
- There is more freedom through a more mature market for open source software
- EU policy on open IT solutions supports government policy on NoiV

2.23 NO – NORWAY

NO	Sharing, re-use, policy, initiatives	Desk search
<p>Governance level</p> <p>The Agency for Public Management and eGovernment, Difi (http://www.difi.no/), is responsible for operational and governance actions related to the eGovernment strategy. Both high-level and operational committees are in place. Three documents address interoperability:</p> <ul style="list-style-type: none"> • The common architectural principles (http://www.difi.no/filearchive/2009-10-08-arkitekturprinsipper-2.0.pdf), which highlights the common architectural principles with a link to the applicable laws. The principles are interoperability, scalability, service orientation, availability, security, openness and flexibility. The obligatory use of the architectural principles is stated in a governmental decision. It is enforced through instructions to all ministries and their underlying agencies. The principles must be taken into consideration for all ICT related initiatives and deviations must be explained. • Mandatory and recommended standards: Difi maintains a standards portal (http://www.standard.difi.no/forvaltningsstandarder/referanse katalogen-html-versjon) with all information regarding standards in the Norwegian public sector. The standards are mandatory by law. • The common ICT components which the public institutions should use are listed in a document (http://www.difi.no/filearchive/difi-rapport-2010-17-nasjonale-felleskomponenter-i-offentlig-sektor-pdf-.pdf). <p>Operational level</p> <p><i>Initiatives</i></p> <p>Difi shares government standard contracts. The contracts cover the purchase of IT and consulting services. http://www.difi.no/statens-standardavtaler-ssa</p> <p>GeoNorge (http://www.geonorge.no/geonetwork/srv/no/main.home) is a metadata portal for geographical information and is also an initiative under Norway Digital.</p> <p>Semicolon II (http://www.semicolon.no) is a project with the objectives to test and establish methods, tools and performance indicators which can be used as the basis for recommendations and standards for enhancing collaboration across the public sector in Norway.</p> <p>Friprogforeningen is an association created to promote the development of an open source course management tool Frikomport. (https://projects.knowit.no/display/FRIKOMPORT/Fri+KompetansePortal). This software project was started by seven municipalities in Norway's Kongsberg region, who together wrote the first version in 2006. Frikomport is now used by over seventy municipalities, universities and other organisations³⁷. Most of its users now prefer the online version, distributed by cloud service.</p>		

³⁷ https://joinup.ec.europa.eu/sites/default/files/FriKomPort_Granada_120112_Britt-Inger_Kolset.pdf

Types of assets shared and re-used

Architecture principles

Standards

Semantic assets

Templates for government contracts for procuring services

Services

Software

Assessment

No information about the governance level.

The Frikomport initiative is a success, thanks to the large community. The more municipalities join in the using and development of such tools, the lower the costs. "Sharing development costs is a very important motive for our community of municipalities. A programmer will cost us about 115 euro per hour. Sharing these between sixty municipalities it comes down to a mere 2 euro per hour. This would not be possible if we didn't have a sustainable community."

2.24 PL – POLAND

PL	Sharing, re-use, policy, initiatives	Desk search
Governance level		
<p>The Interoperability Framework is created in the form of a regulation. It provides an overview of the regulation for the minimum requirements for public records and information in electronic form, as well as for communication systems (http://mac.bip.gov.pl/krajowe-ramy-interoperacyjnosci/krajowe-ramy-interoperacyjnosci.html). Annexes to the regulation describe identifiers of objects present in the architecture of public registers, and data formats and standards to ensure access to information resources through ICT systems to perform public services.</p>		
<p>The National Computerisation Plan for the Period 2007-2010 (http://www.mswia.gov.pl/download.php?s=1&id=2674.) covers the realisation of public eServices, and recommends the use of open, publicly available IT standards while calling for technological neutrality in all Government-led IT projects.</p>		
<p>The ePUAP Interoperability Portal aims at sharing of experience with regard to the use of the standards and the sharing of reusable assets. It has a public, wiki-like forum for discussion. Also, for some domains, semantic assets are available.</p>		
Types of assets shared and re-used		
Standards		
Semantic assets		

2.25 PT – PORTUGAL

PT	Sharing, re-use, policy, initiatives	Desk search
<p>Governance level</p> <p>The Resolution of the Council of Ministers no. ° 46/2011 – initiated the Project Group for Information and Communication Technologies (ICT), abbreviated as GPTIC. The GPTIC developed a strategic plan of global rationalization and cost cutting of ICT in Public Administration, which was presented to the Minister responsible for the administrative modernization. The plan proposes rationalization measures, according to the following axes: (i) improved mechanisms of governance, (ii) reducing costs, (iii) use of ICT to enhance administrative change and modernization (iv) implementation of common ICT solutions, and (v) stimulating economic growth. It is estimated that, after its full implementation, the rationalization of ICT can provide a reduction of up to EUR 500 million in annual operating expenses of the Central Administration.</p> <p>The Public Software platform (http://www.softwarepublico.gov.pt/en/inicio), an initiative of the Common Knowledge Network (RCC), is implemented in the scope of rationalisation and a strong demand for reuse. This platform is an initiative from the Agency for Administrative Modernisation (AMA) and aims at sharing best practices related to Public Software, news, events, software and documentation, available on the repository.</p> <p>The Adoption of Open Source Software (Open Source) in public administration is part of the measures to stimulate economic growth. This measure aims at promoting the use of open source software in public administration information systems where the maturity and cost are favorable. To allow comparing open source and proprietary solutions, it will be made compulsory to calculate the TCO over 4 years, including for maintenance, licences, migration and productivity.</p> <p>A network of people (Information Technology Network) defines guidelines and standards and reports if these standards are followed by the public administrations. Enforcement is done mainly for new projects and incompliance can have financial consequences for the funding of projects.</p> <p>Open specifications are supported by a specific interoperability law, adopted in 2011. This law provides for the adoption of open specifications for digital information in the public service, promoting technological freedom of citizens and organizations and interoperability of computer systems in the state.</p> <p>In 2010, the ‘Simplex ’10 Programme’, (http://www.simplex.pt/downloads/programasimplex2010.pdf) a yearly comprehensive administrative and legislative simplification programme which addresses the need for simplifying the public sector and its service provision. One objective is “Do more with less: efficient services with enhanced cooperation between departments within the Central Government and Local Administration, with a better use of existing capacities, sharing and re-use of resources for the effectiveness of public services.</p> <p>Operational level – Interoperability Framework</p> <p>The main focus of the National Interoperability Framework lays currently on the technical interoperability through the availability of a service-oriented integration layer between all public Information Systems. There is a reference informational architecture for public administration to address semantic interoperability and assure that the associated public Information Systems data models remain unchanged. Technical interoperability was addressed mainly by creating a central Interoperability Platform that connects all public</p>		

information systems. The Platform was built based on SOA principles using web based services using the most common standards.

Initiatives

svn.gov.pt is an open source software development platform for public administrations, an initiative of the Agency for Administrative Modernisation (AMA).

Types of assets shared and re-used

Semantic asset (reference informational architecture)

Standards

Software

Assessment

The open source repository, started in 2011, hosts 9 projects.

2.26 RO – ROMANIA

RO	Sharing, policy, initiatives	Questionnaire – Desk search
<p>Governance</p>		
<p>Sharing is included in the eGovernment strategies of Romania. Re-use is not part of a formal strategy. No additional detail regarding these strategies has been provided.</p>		
<p>Desk search identifies the new eRomania strategy (Strategia nationala eRomania) 2010-2013 (http://www.monitoruljuridic.ro/act/strategia-nationala-din-9-martie-2010-e-romania-2010-2013-emitent-guvernul-publicat-n-monitorul-oficial-nr-276-din-28-aprilie-118294.html), released in January 2010. It builds on existing eGovernment initiatives, such as SEN (National Electronic System), which is a common platform for providing several eServices to businesses and citizens via a portal. It mentions making an inventory of existing electronic public services at central and local level, to promote the use of the National Electronic System; and to evaluate the existing electronic public services to determine their level of development. The CNMSI (National Centre for Management of Information Society http://www.cnmsi.ro/) aims to formalize and extend existing interoperability assets.</p>		
<p>Types of assets shared: IT applications, guidelines, legislation, implementation methods</p>		
<p>Initiatives</p>		
<p>National Software Library collecting and administering information regarding IT solutions used by public administration bodies (since 2010). http://bnp.ici.ro/index.html .</p>		
<p>SEAP – online procurement system (http://www.e-licitatie.ro/Public/Common/Content.aspx?f=PublicHomePage) – by the CNMSI</p>		
<p>ghiseul.ro – e-Tax system – national system of electronic payment of taxes online using credit card - by the CNMSI</p>		

Assessment

All three initiatives are mentioned to be a success.

The National software library hosts currently 53 projects. A login and password are needed to access the catalogue.

The Electronic System for Public Acquisitions e-Procurement (ESPP – e-procurement)³⁸ it is the most successful Romanian e-Government project from the point of view of financial impact and number of users. Imposed by the law, the use of e-procurements by some public institutions in specific conditions/for certain category of products, forced the companies interested to win/obtain public contracts to have (if not have it before) computers, Internet connection, IT skills (trained staff), e-signature etc.

Tax payment by electronic means (local) e-tax: Conceived in order to facilitate for the citizens the payment of local taxes, it is theoretically fully functional in all the municipalities since 2003. Desk search³⁹ mentions it is not very used by the citizens.

2.27 SE – SWEDEN

SE	Sharing, policy, initiatives	Questionnaire – Desk search
<p>Governance</p> <p>The E-Government Delegation, which consists of director generals from twelve large state agencies plus the president of the Swedish Association of Local Authorities and Regions, is to lead the development of eGovernment. The aim of the E-Delegation is to further prioritize eGovernment matters and to better coordinate the individual efforts of the Government departments and public agencies in the field, for the benefit of the entire Public Administration.</p> <p>The Delegation has no power per se⁴⁰, and has to make proposals on decisions which are required to be taken by the Government. The Action Plan talks about agency federation(s), and to this effect the Delegation has proposed that clusters be formed around four lead agencies.</p> <p>The Action Plan has a low (if any) profile with regard to architecture. State agencies will largely be able to determine their own processes and architecture. Lead cluster agencies are supposed to produce architecture within their respective clusters. Cross-cluster problems will be dealt with „as they occur“.</p> <p>When agencies report their activity plans and undertake work in the e-Gov sphere, measures and initiatives are to be classified in four groups under the following services headings: (i) Infrastructural Services, (ii) Basic Services for Information Maintenance, (iii) Services Produced in-House, and (iv) Jointly Produced Services. The aim here is to facilitate</p>		

³⁸ Ovidiu Stoica E-GOVERNMENT IMPLEMENTATION IN ROMANIA. FROM NATIONALSUCCESS TO INTERNATIONAL EXAMPLE
http://www.academia.edu/1007558/E-government_implementation_in_Romania._From_national_success_to_international_example

³⁹ id above

⁴⁰OLOV OSTBERG(2010) "SWEDISH E-GOV 2010 WHERE IS IT COMING FROM AND WHERE IS IT GOING"
http://www.ijpis.net/index.html?http%3A//www.ijpis.net/issues/no2_2010/no2_2010_p2.htm

collaboration and communication between state agencies and the local government sector.

The guidance will stipulate that disparities in respect of data, concepts and semantics be dealt with as they arise. It will also provide for the re-use of existing solutions and recommend that open specifications be the preferred option, and that open applications should always be considered when choosing technological solutions.

The Delegation also proposes that the Government requires agencies to draw up a strategy for IT service provision – a so-called sourcing strategy. The Legal, Financial and Administrative Services Agency (Kammarkollegiet) manages and coordinates public procurement aspects in the area of ICT. It would be required to ensure that planning and implementation of public procurement under framework agreements served to stimulate the agencies' strategies.

A common strategy process⁴¹. A fundamental prerequisite for achieving the objective of eGovernment is to work according to a common strategy. Under the Delegation's previous proposal, the agencies responsible for development coordinate work on the strategy in their respective sectors. The Delegation then coordinates at the inter-agency level.

To provide support and assistance in this work on the strategy, the eDelegation plans to produce guidelines for operational planning in eGovernment, targeting all agencies.

The delegation will produce more guidelines and templates to support public administration in describing and finding common methods. These are:

- templates for channel strategies – ways in which agencies can describe their channels of contact with businesses, private individuals and other target groups,
- templates for sourcing strategies – ways in which agencies are to support their core operations with services,
- guidelines for automated cooperation,
- guidelines for website development,
- guidelines for impact assessments of Internet Protocol version 6 (Ipv6).

The Delegation is to follow up all agency work on eGovernment. The Delegation is also to ensure that models for cost-benefit analyses are produced.

The Delegation is working to establish a new **soft infrastructure** for eGovernment that will apply nationwide. Soft infrastructure (or gCloud) refers to resources in the form of information made available, basic services and functions such as eID.⁴²

During the period 2010–2012⁴³, the eGovernment Delegation has carried out a number of preliminary studies **on multi-agency services**, i.e. services used by multiple public sector actors. One important lesson has been that deeper coordination is needed to develop joint services so as to realise benefits and reach strategic targets.

The Delegation has identified nine important areas for coordination that the programme will address. These are information architecture, legal requirements, information security, needs-driven development, realisation of benefits, administration, re-use and transfer of experience, communication, and financing/resources. The basic principle is that coordination will occur only where necessary.

⁴¹ eGovernment Delegation (2010) "As simple as possible for as many as possible - from strategy to action for eGovernment" Summary of report

http://www.edelegationen.se/Documents/Remisser.%20bet%C3%A4nkanden%20mm/Summary_of_SOU_2010_20_0.pdf

⁴² eDelegation (2012) "As simple as possible for as many as possible – en route to a soft infrastructure"

http://www.edelegationen.se/Documents/Remisser.%20bet%C3%A4nkanden%20mm/Summary_of_SOU_2012_18.pdf

⁴³ eDelegation (2012) "As simple as possible for as many as possible – enhanced coordination of multi-agency services"

http://www.edelegationen.se/Documents/Remisser.%20bet%C3%A4nkanden%20mm/Summary%20of%20SOU%202012_68.pdf

Initiatives

There are two specific initiatives for sharing highlighted by the ISA expert. These initiatives have been in place for 3-5 years.

The **service catalogue** Tjänstekatalogen / <http://tjanster.interoperabilitet.se/tjanste/public/home.seam> . The service catalogue is a national service directory for all government agencies and public entities in Sweden. The catalogue describes basic services and infrastructure services. The aim is to facilitate the development of existing or develop new services for individuals, businesses and the public sector. The main target group of the directory are IT architects, system developers and business developers with the authorities and other public actors. By getting an overview of the services available in the public sector can avoid duplication, but also share experiences. Another target group is companies developing services. The directory service is intended to be a central service directory for all government agencies and public entities in Sweden. In the service catalogue you will find machine to machine related services for information management across organizational boundaries. Communication protocols vary between pure file sharing to standardized web services.

- Facilitates e-governance in the public sector
- Supports the implementation of the PSI Directive and increases access to government documents
- Improves collaboration and streamline information dissemination
- Facilitates the development of new services and streamlines information management

Services that are under development or in production phase and published in the service catalogue.

There is another initiative going on at the moment regarding Swedish authorities' **open data**. This is a service where authorities' data are provided online so that they can be re-used by the private sector. This would encourage innovation in the private sector.

Local initiative

Municipalities for Joint Development of e-Services — Sambruk.se

Sambruk was instigated on the idea that all Swedish municipalities have identical missions, responsibilities and challenges to undertake in order to serve their citizens.

The overall purpose of Sambruk is to create a foundation for an effective development programme, comprising both the technical and functional aspects of e-services, as well as the need for re-engineering of the municipalities' internal business processes. Similarities and differences between service offerings of different municipalities are analysed and accounted for in the collaborative development environment. This approach results in both enhanced services locally and overall benefits on a national scale.

Sambruk is also a strong bargaining and purchasing power towards IT vendors, compared to a singular municipality. A collaborative approach throughout the analysis, specification and procurement phases will ensure a better result from both economical and functional aspects. Sambruk was founded in 2005 and includes 100 of Sweden's 290 municipalities.

Any of the Sambruk members can suggest a project. When adopted, financing and procurement of the development is organised by Sambruk. Each project gets a supervisory board to evaluate the work, oversee the financing, sign agreements with suppliers and participants and to establish the terms of use and distribution.

The types of assets shared:

Technical: Service catalogue (Tjänstekatalog) is based on Open Source

Semantic: National archives (Riksarkivet) have made XML schemes available to the public in order to manage e-archive

Semantic: EU's e-procurement policy includes the PEPPOL project where semantics is needed for e-procurement, e-ordering etc.

Legal: The e-government delegation provides guidelines on how to re-use data from a legal perspective, one example is the guidelines on how information can be shared between authorities within a legal framework , another example is our guidelines regarding the re-usage of data. Each authority has their respective regulations and semantics within their respective sectors (health, justice, business etc.), what is done at the e-government delegation is to gather experience and knowledge of such authorities so that they can be shared and re-used.

Organisational: Shared services

Assessment

According to the ISA expert, the two initiatives (service catalogue and open data) are considered a success. There has been a huge demand for an organisation to coordinate all the initiatives in various authorities. It is the objective of the eDelegation to make it easier for authorities to find, share and re-use e-government assets.

There are no formal measures of the efficiency of the action plan. However, the eDelegation follows up the work of government agencies relating to eGovernment. In spring 2011 the first of the recurring annual surveys was carried out. The results were as follows:

- Government agencies provide 610 eServices targeting various users.
- Almost 60 per cent of the agencies state that eGovernment has enabled them to raise their levels of service to private individuals and companies. Approximately the same percentage considers that they have been able to improve the effectiveness of their work processes.
- Funding is the greatest perceived obstacle, and the next greatest is existing laws and regulations.
- For more than half of the agencies eGovernment has high or very high priority.
- Cost/benefit analyses ahead of investment decisions are used often by half of the agencies.
- More than every third government agency has cooperated with another agency in developing eServices.

Re-use, initiative

Initiative

Open Source Software Framework Agreement

The Swedish Central Procurement Agency (<http://www.kammarkollegiet.se/statens-inkopscentral/statens-inkopscentral>) has developed a Framework Agreement 'Öppna programvaror 2010' (Open Source Software 2010) that constitutes an agreement between the national public sector and five IT suppliers for the procurement of open source software and associated services. The framework can be used by all parts of the central government, the public education sector, all twenty county councils, and 225 out of the 290 Swedish municipalities.

"By law, the government cannot decide what a municipality or county council should do," Daniel Melin explains. He is Procurement Officer ICT at the Swedish Legal, Financial and

Administrative Services Agency (Kammarkollegiet). “So for each framework agreement we procure we ask each of those to give up their decision-making power to us. In this case all county councils and 225 municipalities joined.” That does not imply that it’s mandatory to use the agreement: “Usually the customers use the framework if they can. They don’t have to.”

The contract terms provided by National Procurement Services contains only a few clauses that are radically different from those in standard IT contracts but those are the ones that creates the comfort for the customer, something that has been lacking earlier. The agreement secures the availability of support and moves risks related to intellectual property (for example, issues of licensing, copyright, and patents) to the suppliers.

Assessment

Last year the contracts were worth about six million euros in turnover. Annual growth is 10–15 percent: To put these numbers into perspective: “There exists a parallel framework agreement called ‘Licensförsörjning 2010’ that customers can use to buy any kind of software (including open source). That agreement has got a yearly turnover close to 100 million euros.” “The drawback of this dual solution is that the customers cannot compare open to proprietary software via a single mini competition. They have to choose upfront which way to go. However, if we hadn’t organized it this way and instead had created one large agreement called ‘Software’, smaller companies wouldn’t have been able to participate, and then the framework would have been populated by the largest companies selling only the software customers ask for, or the software that would give the supplier the highest margin. That would have resulted in close to zero open source sales.” Quotes from an interview⁴⁴ with Daniel Melin Daniel (Procurement Officer ICT at the Swedish Legal, Financial and Administrative Services Agency).

⁴⁴ Offerman (2012) “Public Open Source Software Procurement Models: The Next Generation” <http://joinup.ec.europa.eu/elibrary/case/public-open-source-software-procurement-models-next-generation>

2.28 SK – SLOVAKIA

SK	Sharing, policy	Questionnaire
Governance and operational levels		
<p>Action Plan for Open Governance Initiative (http://www.otvorenavlada.gov.sk/data/files/1853_ogp-action-plan-slovakia.pdf) is co-ordinated by the Governmental Plenipotentiary for Development of Civil Society. The Action Plan was adopted by the resolution of the Government (http://www.otvorenavlada.gov.sk/data/files/1975_resolution-of-the-government-of-the-slovak-republic.pdf).</p>		
<p>The Action Plan has three commitments:</p>		
<p>a. Open information http://www.data.gov.sk/about</p>		
<p>b. Government open dialogue</p>		
<p>c. Transparent government</p>		
<p>Open government portal was established http://www.otvorenavlada.gov.sk/finalna-verzia-akcneho-planu/.</p>		
<p>Project on Datacentre for self-government is implemented as assets of services, which are designate for the use of municipalities. It incorporates services according to legislative competences of municipalities. The aim of this project is creating the central solution of eGovernment services for small municipalities up to 20 thousand citizens.</p>		
<p>Outcome of this project will allow to lease services and infrastructure to municipalities for a reasonable price.</p>		
<p>The services will include almost all municipalities public services and also the back office. The central solution will allow to meet a demand for services which the municipalities are not able to create and execute alone from their budgets.</p>		
<p>The architecture - presentation, integration, application and data layer, will use of the Central Public Administration Portal shared services.</p>		
<p>The administrator of the project is the association “DEUS” with two members namely the Ministry of Finance with the Association of Towns and Municipalities of Slovakia which guarantees the sustainability and development of the project.</p>		
Types of assets shared		
<p>Services</p>		
<p>Standards</p>		
<p>Data</p>		

Assessment
<p>Data.gov.sk portal since March 2012. The Act No. 341/2012 since October 2012.</p> <p>Many sources contain many diverse formats, and there is "displeasure" to open up assets.</p> <p>Enablers are political effort and government initiatives.</p>
Re-use, policy
<p>1/ Action Plan for Open Governance Initiative in the Slovak Republic (see above).</p> <p>2/ Act No. 341/2012 Coll amending the Freedom of Information Act provides the entire process of re-use of Public Sector Information. All assets created by the public administration have to be described or published.</p> <p>3/ Concept of software products exploitation in public administration adopted by the Government resolution No. 523/2009. Before procurement of software, public administrations have to consider the existence of appropriate open source software and evaluate the total cost of ownership.</p> <p>4/ There is a new methodology from December 2012 : The Methodology (guideline) for the standard description of the tender subject requirements, the standard conditions for participation in public procurement and optimal terms and contract conditions relating to ICT projects.</p> <p>5/ Standardisation policy: Two main framework laws are in force (Act No. 275/2006 on information systems of public administration –ISPA - so called "front-end act" and Edict No. MF/0213261/2008-132 on standards of information systems of public administration, basically enforcing standards, which defines mandatory principles for IS PA. However, not all standards are seen fit for legislation (regulation). The Standards for Public Administration Information Systems are available on the website of the Ministry of Finance (http://www.informatizacia.sk/standardy-is-vs/596s). They are continuously updated and by a decree enforced on the public administrations.</p> <p>Types of assets re-used</p> <ul style="list-style-type: none"> software services standards data
Assessment
<p>Action 2 mentioned above dates from 2000, Action 3 from 2009 and Action 5 from 2006. They are all considered a success.</p> <p>In order to enable re-use, there is a need for better coordination, best practices and political initiatives.</p>

2.29 SI – SLOVENIA

SI	Sharing, re-use, policy, initiatives	Desk search
<p>Governance and operational levels – National Interoperability Framework</p> <p>The interoperability Portal (http://nio.gov.si), launched in 2010, allows different stakeholders to publish standards and guidelines on interoperability, interoperability information, and interoperability assets important at the national level.</p> <p>The portal supports the work flow for interoperability assets certification process (implementation of the notification procedures, public consultation and commenting on the decision-making on interoperability of products).</p> <p>The Ministry of Public Administration is the owner of the initiative. The strategy is to have an interoperability governance and methodology to guide product developments and propagate the use of horizontal services. Within horizontal projects, data is stored in registers and the exact specifications will be defined by the owners of the registers, which publish their own 'standard'. Sectorial projects are consumers of those horizontal services. The application of this strategic objective is essential to ensure interoperability between all the institutions of public administration.</p> <p>Types of assets shared and re-used</p> <ul style="list-style-type: none"> Standards EU legislation Project management methodology Strategy documents Services 		

2.30 UK – UNITED KINGDOM

UK	Sharing, re-use, policy, initiatives	Desk search
<p>Governance level</p>		
<p>The website of the ICT strategy (http://www.cabinetoffice.gov.uk/sites/default/files/resources/uk-government-government-ict-strategy_0.pdf) mentions: “The Government’s ICT Strategy and Strategic Implementation Plan will deliver better public services for less cost. Through reuse and sharing of our ICT assets, we will improve productivity and efficiency; reduce waste and the likelihood of project failure.”</p>		
<p>The strategy aims</p>		
<ul style="list-style-type: none"> • To improve the sharing and re-use of ICT services and solutions, departments will populate the first stage of a comprehensive cross government ICT asset register • To create a level playing field for the use of innovative ICT solutions, the Government will publish a toolkit for procurers on best practice for evaluating the use of open source solutions • To assist with the deployment of agile solutions using open source technology, the Government will establish an Open Source Implementation Group, a System Integrator Forum and an Open Source Advisory Panel. These will aim to educate, promote and facilitate the technical and cultural change needed to increase the use of open source across government. • To allow for greater interoperability, openness and re-use of ICT solutions, the Government will establish a suite of agreed and mandatory open technical standards . • The Government will work with countries across the world to learn from, share and re-use the best solutions and standards. • To examine the benefits of delivering standardised desktop services using a cloud-based model, the Government will develop a desktop prototype for the cloud • To detail how services will shift to cloud-based technologies, the Government will publish a Cloud Computing Strategy with implementation plans • To enable delivery of interoperable and open ICT solutions so that they can be shared and re-used, the Government will publish a reference architecture. 		
<p>The use of open specifications mandatory through the public procurement policy. http://www.cabinetoffice.gov.uk/openstandards</p>		

Operational level

The strategy implementation plan (<http://www.cabinetoffice.gov.uk/content/government-ict-strategy-strategic-implementation-plan>) mentions:

For all relevant software procurements across government, open source solutions will be considered fairly against proprietary solutions based on value for money (VFM) and total cost of ownership (<https://update.cabinetoffice.gov.uk/sites/default/files/resources/Total-Cost-of-Ownership-things-to-consider-v1.pdf>) .

that solutions fulfil minimum and essential capability, security, scalability, transferability, support and manageability requirements.

Success will be measured initially by a survey of each department's compliance with the existing open source policy. Longer term, open source usage will be measured annually by the use of a departmental maturity model. The ICT Asset and Services Knowledgebase will be used to record the reuse of existing open source solutions, and the deployment of new open source solutions.

In the section about assets and services knowledge base, it is mentioned:

The Challenge:

Departments are often unaware of ICT assets and services that could be re-used beyond their original boundaries. Access to up-to-date, accurate and comparable information is essential for departments and Cabinet Office to make strategic decisions and meet their objectives to reform the ICT estate and reduce cost. There is currently no central focal point for departments to share and access this information.

Objectives

To increase sharing and re-use of ICT services and solutions by government organisations regularly populating and making use of a comprehensive ICT Asset and Services Knowledgebase.

To reduce the price government pays for assets by leveraging its size and buying power, paying the same low price for the same ICT assets and services.

Key Metrics

Total number of reusable assets contributed by organisations

Total number of assets contributed by organisations

Total number of instances of re-use

Total number of shared services and solutions

Number of licences defined as 'held' in the Asset and Services Knowledgebase

Number of licences defined as 'used' in the Asset and Services Knowledgebase

Types of assets shared and re-used

Software

Standards

Reference architecture

2.30.1 UK – United Kingdom – Scotland

UK - Scotland	Sharing, re-use, policy	Desk search
<p>Governance level</p> <p>The ICT procurement Portfolio Plan of the National Digital Public Services (http://www.scotland.gov.uk/Resource/0041/00410370.pdf) mentions a new approach to procurement, including:</p> <ul style="list-style-type: none"> • Supporting the principle of re-using existing public sector assets (where there is a sound economic case), before buying new ones, thereby maximising Return On Investment from current resources; • Service Offering Refresh/Alignment – investing resource to review current contracts and developing strategies (e.g. G-Cloud and Agile) which offer future direction aligned. <p>This roadmap is published in the scope of Scotland’s Digital Future – Delivery of Public Services (DPS strategy) published in September 2012.</p> <p>Types of assets shared and re-used</p> <p>Software Services Procurement</p>		

3. EUROPEAN COMMISSION POLICIES AND INITIATIVES OF SHARING AND RE-USE

3.1 ISA (INTEROPERABLE SOLUTIONS FOR PUBLIC ADMINISTRATIONS)

ISA	Sharing, re-use	Desk search
<p>ISA⁴⁵ is a European Union programme, aiming at fostering interoperability between public administrations by helping to establish common approaches that will make collaboration easier. Sharing and reusing tools such as common platforms and common components, along with the sharing of services like common infrastructures, also plays a part by keeping costs down and reducing time to market.</p> <p>Policy level</p> <p>The ISA decision recognises the benefits of common, re-usable and interoperable solutions and back-office processes⁴⁶. The programme funds the development and operation of common frameworks, services and re-usable generic tools. In order for a project to receive funds from the ISA programme, it needs to demonstrate its re-usability across borders and sectors.</p> <p>Operational level</p> <p>Planning, funding and implementation of activities is governed by means of a rolling work programme. New proposals along with updated plans for already funded activities are transmitted to the Commission annually. Requests are prioritized according to their contribution to implementing interoperable, and re-usable solutions. New proposals need to demonstrate that the solutions resulting from funding will be re-used across different sectors or that they are sector agnostic.</p> <p>The annual budget of the Programme varies between 25-27 mEUR. The annual work programmes are endorsed by Member States and adopted by the Commission. The unit DIGIT.B2 of the Commission is in charge for implementing the activities funded by the Programme. In addition to the administration of the rolling work programme, an important part of the unit's activities is to find synergies between the actions funded by the Programme, as well as synergies with external activities of the Commission and Member States initiatives.</p>		

⁴⁵ http://ec.europa.eu/isa/index_en.htm

⁴⁶ 922/2009/EC preface, section (7)

Types of assets shared

Re-usable generic tools (e.g. CIRCABC, EUSurvey, Joinup, open ePrior, eTrustex)

Common frameworks (e.g. Common (semantic) Vocabularies, guidelines, frameworks- European Union Location Framework, Common Assessment of Standards and Specifications, Interoperability Maturity Model)

Common services (e.g.:Joinup, Circabc, ePrior, PEPOL, European Federated Interoperability solution, ARE3NA)

3.2 DIRECTORATE-GENERAL FOR INFORMATICS (DIGIT)⁴⁷**3.2.1 Open ePrior**

DIGIT Open ePrior	Sharing, initiatives	Desk search - interview
<p>Open e-PRIOR (https://joinup.ec.europa.eu/software/openeprior/home) is the information system that allows electronic procurement (e-Procurement) between suppliers and customers targeted to the European Institutions (Commission, Agencies, Committees ...). E-Procurement consists in exchanging procurement documents such as Offers, Orders, Catalogues, Invoices in an electronic format following standards. The standards that are used by Open e-PRIOR are promoted by the CEN ("Centre Européen de Normalisation"). Using standards allows the interoperability between the IT systems of the suppliers on one hand and those of the customers on the other hand. In complement to the direct communication between systems, e-PRIOR allows the communication of electronic documents (for example with suppliers) via a "Supplier Portal". This allows SMEs or Individuals to create and manage their electronic documents via a dedicated user interface running in an Internet Browser.</p> <p>Operational level</p> <p>The reason for sharing ePrior with other public administrations was in the context of the IDABC and ISA programmes. There had been no specific request by Member States.. It was being re-used at the European Commission, so DIGIT decided to release it under an open source license after discussing it with Member States. Recently, the Strategy for eProcurement⁴⁸ mentions in section 14 that the European Commission to make its e-procurement solutions available to Member States that are building their infrastructure, to reduce investment costs</p>		

⁴⁷ http://ec.europa.eu/dgs/informatics/index_en.htm

⁴⁸ http://ec.europa.eu/internal_market/publicprocurement/docs/eprocurement/strategy/COM_2012_en.pdf

The use of ePrior by the EC Directorate Generals and agencies is through a shared service using the Commission's datacentre infrastructure. All European agencies can have access to the DIGIT ePrior shared service. DIGIT foresees great interest soon by all the agencies because of the needed transition to full eprocurement by mid-2016. DIGIT signs a Memorandum of Understanding with the agencies.

Types of assets shared⁴⁹

Source code

XML Schema

Development guide

Test framework

FAQ for filling the XML fields

Procurement terms (shared with other Directorate Generals – DGs): contract clause requiring to use Open ePrior for public tendering. These clauses are re-used by 40 DGs.

Assessment

The activities linked to Open ePrior on the Joinup platform where it is hosted, show over 500 downloads since November 2011, but the actual (known) re-use of the software is in pilots in several Member States. However, the Belgian federal government recently announced it will re-use Open ePrior.⁵⁰ For implementing eInvoicing. According to the project officer, the main enabler for the re-use of ePrior is that it was started early enough to be ready when needed, using the momentum of the directive. Another strong enabler of ePrior is that it is mostly based on an open specification (CEN UBL XML Schema). It does not focus too much on functionality, but its architecture is SOA using an **standard**. The scope management is very strict, and it focuses on exchange patterns implementing accepted standards.

In order to enable the re-use of ePrior, resources are needed to:

- build an open source community (metrics, content management, contribution management...)
- build a communication website
- develop further documentation, especially business oriented – description of the business process mapped, description of the functionality
- communicate actively with the user community.

⁴⁹ <https://joinup.ec.europa.eu/software/openeprior/description>

⁵⁰ Press release (in French and Dutch) <http://presscenter.org/fr/pressrelease/20121213/bientot-la-fin-des-factures-papier?setlang=1>

3.2.2 OCS – NOAH

DIGIT OCS	Re-use, sharing, policy	Desk search - interview
<p>Governance level</p> <p>OCS (online collection system)⁵¹ is the software developed in the scope of the Regulation on the European Citizen's Initiative – REGULATION (EU) No 211/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 February 2011 on the citizens' initiative (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:065:0001:0022:EN:PDF)</p> <p>Article 6 section 2 mentions: “By 1 January 2012, the Commission shall set up and thereafter shall maintain open-source software incorporating the relevant technical and security features necessary for compliance with the provisions of this Regulation regarding the online collection systems. The software shall be made available free of charge”.</p> <p>The decision for developing the OCS software by the European Commission was made at a late stage of the process of elaboration of the Regulation, on a suggestion of the Council and Parliament during consultation. The requirements of the software were not clearly defined in advance to comply fully with the regulation, but elaborated and fine-tuned during the development, while being validated by the Commission in the scope of the Regulation. This is the reason why the OCS was not developed from the start in an open source community approach, but rather released under an open source license (the EUPL) at the end of the requirements analysis and development phase.</p> <p>Initiatives</p> <p>Types of assets shared and re-used</p> <p>Software</p> <p>Documentation</p>		
Assessment		
<p>Re-use is turned into sharing.</p> <p>There is a high level of re-use of the OCS software. So far, 14 initiatives have been registered, all using the OCS software. The end users of the software are the citizens. The role of Member States is to certify where the software is hosted.</p> <p>It is not straightforward for a non IT savvy citizen to install the software. The infrastructure needs to be secure, and personal data issues are involved. The European Commission decided to provide also the hosting services – and have currently 11 hosting agreements signed. DIGIT now offers the complete services, freeing the citizens from a technical knowledge barrier to re-use, and benefiting from an economy of scale thanks to this shared service. The hosting services provided by DIGIT are audited by the Member State</p>		

⁵¹ <http://joinup.ec.europa.eu/software/ocs/home>

Luxemburg.

The trend in re-use is actually the development of centrally installed shared services, generating economy of scale, in line with the cloud paradigm. The regulation for the Citizen's initiative requires that the software is installed in each Member State and the services provided by DIGIT comply by being audited by Luxembourg. In order for the European Commission to provide a OCS shared service in the future, the regulation would need to be adapted with this specification in the future.

An ECI software community enabled by workshops

A workshop is organised in December by DIGIT to open a developer's and user's community around the OCS, available on the JoinUp platform. So far, one future contributor (from a University) has shown interest.

An initiative – independent from the European Commission but including it – is the sharing of software developed by public administrations in Germany for validation. A workshop is organised in Germany focussing on sharing the validation tool with other Member States. DIGIT has proposed to post the software on JoinUp under the EUPL license, translate documentation and adapt the software to cover other Member States' needs.

The organisation of and participation to workshops are considered enablers to re-use of software; simply putting the software and documentation online is not enough to support understanding of the functionality and technical aspects, and stimulate interest in adapting or simply re-using the solution.

One Regulation, common requirements

The enabler for sharing and re-use of this software is the need for Member States to prepare for the Regulation. Member States must apply what is mentioned in the Regulation, there is very little interpretation possible, contrary to a Directive, Recommendation or guideline.

One can say that enablers for sharing and re-use are Regulations, providing common requirements to a large base of users of the ICT systems needed to implement these Regulations.

One software solution meeting different purposes

The OCS software is also being successfully re-used with some adaptations by the European Commission Directorate Justice for supporting the European Parliament elections. It is used to define the metadata for exchanging in between Member States the information of electors voting from their country of residence for candidates of their country of citizenship.

Recommendations

When creating a regulation, the option of a centrally shared service should be considered as an IT Solution to the implementation, rather than imposing that a solution be installed in each Member State.

The impact assessment of legislation should also address the ICT impact, at the same time; this would allow changing the legislation if there are issues with its ICT implementation. Defining a common process for implementing EU legislation in Member States would provide a good basis for collaborative development of common solutions.

DIGIT - NOAH	Re-use, initiative	Interview
<p>Operational level</p> <p><i>Initiative</i></p> <p>Isa action 2.10 Multisectorial Crisis Workprogramme aimed at developing a generic system based on Noah components, which will increase the cooperation and the information sharing in the business continuity domain. Noah is based on the European Commission's business continuity software (ARGUS). Noah is generic by design, which means that it is easy to be used in other contexts than the European Commission. It included the main functionalities needed for the business continuity management, principally for preparedness and response phases but also some aspects for prevention and recovery, such us:</p> <ul style="list-style-type: none"> • Forum & document repository • Instructions/checklists templates, implementation and follow-up • Potential impact description • Different communication means (WebPages, portals, emails, sms, pda, ...) • Communication tracking • Logbook <p>Types of assets shared and re-used</p> <p>software</p>		
Assessment		
<p>There was political support to this project because the need was identified as a priority following a series of security threatening events such as the fire at the EC building of the Berlaymont. However, organising the re-use of the solution by Member States was not a success. Although identifying the needed adaptations for re-use by Member States was done, the actual collaboration with Member States didn't happen, due to a lack of resources and/or wrong timeframes for organising contributions.</p> <p>The barrier to re-use was not the adaptation of the software for re-use: this adaptation was mostly identifying the type of information to provide for the impact assessment calculations, and some field names. DIGIT was ready to implement these changes. However, Member States didn't provide the needed information for this adaptation.</p> <p>Organisational barriers to re-use</p> <p>Although there is a common need and an interest from the Member States, the main barrier to re-use is the lack of resources and common agendas and timeframes in the different public administrations. Agreeing on a common process beforehand would enable collaboration, in addition to a coordination effort supported centrally. For software developed for implementing legislation, there is a common base for this process – namely the process of implementation of the legislation in each Member State.</p>		

3.2.3 DIGIT 01 unit

DIGIT – Unit 01	Sharing, re-use, policy, initiative	Interview
<p>Governance level</p>		
<p>IT governance in the European Commission (EC) is one of the subjects DIGIT 01 works on. An overview is available at http://ec.europa.eu/dgs/informatics/itgov/index_en.htm</p> <p>At DIGIT 01, the CPO – corporate project office – is part of the IT governance of the European Commission. Its mandate cover, among others, the following:</p> <ul style="list-style-type: none"> • Management of the IT Projects approval process (IT Governance processes covering the introduction of new information systems) • Coordination of the Methodology, Architecture, Portfolio (MAP) group • Support the functioning of Information System Project Management Board (ISPMB), which is one of the IT Governance body of EC . 		
<p>[Note] In the DIGIT Management Plan of 2012⁵², one of the focus points was to improve the work methods of the Information Systems Project Management Board (ISPMB) and make progress on reusability. Another focus point was to further improve the ordering, provisioning and delivery of hosting services including a strategy to use the cloud (internal or public) as part of the sourcing mechanism .</p>		
<p>Operational – initiatives - sharing</p>		
<p>An example of a tool shared by DIGIT 01 is VAST⁵³ (Value Assessment Tool) which supports the evaluation of the value of a project, along various perspectives including interoperability aspects. VAST encompass main areas of IT governance (IT Strategic alignment, IT value delivery, Risk Management, Performance Measurement). Moreover, it adapts existing IT governance frameworks for the public sector (WiBe [Germany], Mareva [France], Value assessment [Australia], Value Measuring Methodology [US]) and is well adapted to the EC environment. The tool is shared on the DIGIT website under the EUPL license, in the state it was developed (to be used internally by the Commission – there are some internal references accessible only from within the EC network).</p>		
<p>There is no formal or general strategy to share assets at the European Commission. The European Commission has to implement information systems as mentioned specifically in the EU Directives, Regulations or Decisions. There is always a legal base to the decision of implementing an information system, which may imply sharing with Member States.</p>		
<p>The sharing of an asset needs to be evaluated based on a business case, because preparing an asset to be shared can have a cost. The IPR owner of an Information System at the EC is the European Union. IPR is managed by the Intellectual Property Assets organisation of the JRC (Joint Research Center). The system owner of an asset, most of the time</p>		

⁵² http://ec.europa.eu/atwork/synthesis/amp/doc/digit_mp_en.pdf

⁵³ http://ec.europa.eu/dgs/informatics/vast/index_en.htm

the Director General, together with the JRC can decide to “give away” an asset via the appropriate licensing scheme.

DIGIT develops many solutions which are shared by other European institutions. The scalability of these systems is usually foreseen at the requirements stage by the system providers. The sharing of these services is done on a case by case basis, with no formal strategy, and is based on Memorandums of Understandings signed with the different institutions. Some institution request adaptations to the services for their specific needs, but this is rarely done and not recommended, since the system owner keeps the right to change the solution, and the new adaptation may not be possible. The sharing of solutions and services inside the European Commission and with other European institutions is enabled by formal IT governance processes as well as inter-institutional committees dealing with specific business aspects.

Re-use

The European Commission re-uses established frameworks and methodologies, although the IT governance processes in the Commission are created internally. Examples include RUP⁵⁴ (Rational Unified Process), adapted to the European Commission needs and named RUP@EC. The percentage of services implementing the RUP@EC methodology was around 80% in 2010. Another example is the Commission Enterprise Architecture Framework⁵⁵, based on the Zachman framework for enterprise architecture. The percentage of EC services using the CEAF was also around 80% in 2010.

Re-use of existing solutions and modules is mostly internal to the EC. During the development of new systems, modules from previously developed solutions are often re-used by the European Commission. For example, the MIPs (Missions Integrated Processing System) for business travelling was developed re-using the framework of the Sysper2⁵⁶ human resource system, but other examples can be found.

The possibility to re-use components/modules for the implementation of new information systems is done in one of the IT governance processes. The assessments of the new proposals are done based on a “business case” and via the “vision document” (developed according to the RUP@EC guidelines).

The business case template requires a description of alternative existing solutions as well as the identification of existing components in the European Commission which will be used by the project and/or are offered by the project. There is currently a list of mandatory re-usable solutions / modules, which includes the single-sign-on solution ECAS (based on CAS⁵⁷). This list will soon be extended to other types of solutions. The mandate of the ISPMB is to verify if the new information systems solutions proposals, in a budget over €500.000, include the re-use of the assets on the list.

Types of assets shared and re-used

Enterprise architecture framework

Business case templates

Software

⁵⁴ http://en.wikipedia.org/wiki/IBM_Rational_Unified_Process

⁵⁵ http://ec.europa.eu/dgs/informatics/ecommm/doc/ceaf_guide_v1_1.pdf

⁵⁶ <http://www.epractice.eu/cases/sysper2>

⁵⁷ http://en.wikipedia.org/wiki/Central_Authentication_Service

Assessment
<p>Suggestions for enabling sharing and re-use:</p> <p>The impact assessments of an EU legislative proposal are made by the service which prepared the new regulation.</p> <p>The Commission started to initiate the assessment of ICT implications of a new regulation at an earlier stage of the process, during the preparation of the new regulation. This exercise provides a basis for requiring the creation of a shared service or a re-usable solution in the legislation itself.</p> <p>Identifying and integrating the re-usability need in the business case and vision for the introduction of new information systems is also an enabler for sharing solutions with Member States.</p>

3.3 EUROSTAT (ESTAT)

ESTAT	Sharing, policy, initiatives	Questionnaire
<p>Governance level</p> <p>Sharing policy for software of interest to the ESS (European Statistical System): Eurostat is currently developing a sharing policy that should allow going a step further in the sharing of software used in statistical production at the level of the ESS. This policy should improve cooperation at the level of the usage of software (for open and proprietary software) and at the level of development of software (packaging, documentation, development, design, etc.).</p> <p>Operational level</p> <p><i>Initiatives</i></p> <p>Provision of technical and statistical standards as well shared services and IT applications for official statistics (mainly for the European Statistical System). Reason: resource savings and further integration; mostly organised at the level of the ESS. The respective documentation for the standards, shared services and It applications is available within the ESS.</p> <p>Enterprise Architecture (EA):</p> <ul style="list-style-type: none"> • Develop a new model for an ESS business architecture based on a more integrated production process built on shared data warehouses and interoperable IT infrastructure in the ESS (Commission communication on the production method of EU statistics: “A vision for the next decade”) • Industrialise the production of official statistics in the ESS • Organise the different initiatives (Eurostat, ESS) around a common objective • Better coordinate investments in new systems or methodological work to fit an overall strategic model <p>Statistical Data and Metadata eXchange (SDMX): SDMX is an initiative to foster standards for the exchange of statistical information. The SDMX sponsoring institutions are the Bank for International Settlements, the European Central Bank, Eurostat (the statistical office of the European Union), the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), the United Nations Statistics Division and the World Bank. The standard cover several levels: Common information model for data and metadata, XML data formats, content oriented guidelines (common vocabulary, standard code-lists, ...) . Eurostat develops shared Data Structure Definitions (DSD) and Metadata Structure Definitions (MSD) that consist of standard structures for data and metadata exchanged at the level of the ESS. Eurostat offers a series of open source software related to SDMX. (https://webgate.ec.europa.eu/fpfis/mwikis/sdmx/index.php)</p>		

SDMX-DDI Integration: Develop guidelines on the use of DDI (Data Documentation Initiative – an international project to create a standard for information describing statistical and social science data).and SDMX standards in the whole statistical production process (“end-to-end”).

Types of assets shared

Statistical standards

Technical standards

Shared services

IT applications

Business architecture models

Standards for data validation

Guidelines on the combined use of SDMX and DDI standards

Guidelines for the sharing of software at the level of the ESS

Assessment

The Enterprise Architecture has been shared for 2 years, SDMX over 10 years, DDI-SDMX Integration is starting in 2013 and the sharing policy for software is launched a year ago. All the initiatives are considered successful.

The main barriers are:

- Services rendered to users sometimes difficult to maintain
- Costs and constraints associated to shared assets
- Lack of information on potential users
- Interoperability of shared assets
- Acceptance barriers with Member states (because of subsidiarity reasons), complexity of integration due to heterogeneity of technical, organizational, cultural contexts.

Recommendations

- Publicity of needs for shared assets: Making assets available to others or developing assets as a common solution requires a meeting point for expression of needs.
- Central point of access to shared assets: The accessibility of assets is a key element. Eurostat have centralized access points such as RAMON of the Euro-SDMX registry.
- Success stories: A good example is the SDMX Reference Infrastructure (SDMX-RI) developed by Eurostat and distributed under EUPL. The tool is deployed in more than 20 countries and allows national statistical systems to inter-operate.
- Offering software in the form of services according to SOA principles facilitates integration in heterogeneous IT systems.

Re-use, initiatives

Governance and operational levels

ESSNet: The ESSNet programme aims at putting together expertise distributed throughout the European Statistical System (ESS) organisations in order to develop specific actions which would benefit the whole system. An ESSNet project is: “A network of several ESS organisations aimed at providing results that will be beneficial to the whole ESS”. (<http://www.essnet-portal.eu/essnet-generalities>)

RAMON: The objective of the RAMON server is to make available various types of information which help understand correctly statistical data. These various categories of information are called metadata and cover classifications, correspondence tables between classifications, concepts and definitions, legal acts, methodological manuals, standard code lists, etc. When available, the information is presented in all languages in which it exists. This is especially true for some classifications which sometimes exist in more than 20 languages. All information presented in RAMON can be consulted and downloaded free of charge (for non-commercial purposes) (http://ec.europa.eu/eurostat/ramon/foreword/index.cfm?targetUri=DSP_FOREWORD)

SDMX Registry: The SDMX Registry stores metadata for querying, and can be accessed by other applications, provided they have the appropriate access privileges. It can be seen as the index of a distributed database or metadata repository which is made up of all the data provider's data sets and reference metadata sets within a statistical community.

Eurostat Edit: A generic data editing, deterministic imputation, file manipulation and computation system.

Types of assets re-used by Member States

Code of practice, guidelines.

European statistics code of practice for the national and community statistical authorities, http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-32-11-955/EN/KS-32-11-955-EN.PDF

ESS Handbook for Quality Reports, http://epp.eurostat.ec.europa.eu/portal/page/portal/ver-1/quality/documents/EHQR_FINAL.pdf

ESS Guidelines on Seasonal Adjustment, http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-09-006/EN/KS-RA-09-006-EN.PDF

Eurostat's Concepts and Definitions Database,

http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUri=LST_NOM_DTL_GLOSSARY&StrNom=CODED2&StrLanguageCode=EN

Classifications on RAMON : http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUri=LST_NOM&StrGroupCode=CLASSIFIC&StrLanguageCode=EN

Standard code-lists on RAMON : http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUri=LST_NOM&StrGroupCode=SCL&StrLanguageCode=EN

Code-lists on Eurostat's SDMX Registry (publicly accessible but requires a CIRCA account): <https://webgate.ec.europa.eu/sdmxregistry/index.do>

Methodological manuals relating to statistics on RAMON,

http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUri=LST_NOM_DTL&StrNom=STATMANUAL&StrLanguageCode=EN&IntPcKey=&StrLayoutCode=HIERARCHIC

Data and metadata structure definitions available on the SDMX Registry: <https://webgate.ec.europa.eu/sdmxregistry/index.do>

Good examples of metadata structures shared at the level of the ESS are the Euro-SDMX Metadata Structure (ESMS) and the European Standard for Quality Reports Structure (ESQRS).

Standards for data editing: The Eurostat Edit product enables editing near the source, and allow for standardisation and sharing of practices and rules in the area of data editing and validation.

Software tools

EDAMIS: The purpose of EDAMIS is to provide a simple generic solution for a transparent and reliable exchange of data files using an advanced control system with acknowledgements, notifications, content validation, monitoring and dispatching of data files towards the relevant recipients (application or users). EDAMIS could be considered as an advanced post service which uses the latest internet technologies to guarantee the easy, reliable and smooth transmission of all statistical data files that have to be sent to Eurostat. It also offers tracking and monitoring reports that can be used as input to check the respect of the legal obligations to transmit data.

National Reference Metadata Editor (NRME): The NRME is a web application intended for the production and transmission of National Reference Metadata. It allows National Statistical Authorities within the ESS to produce national reference metadata, based on the Euro SDMX Metadata Structure (ESMS) or other reference metadata structures, and transmit them to Eurostat via EDAMIS. This web application will shortly be available to national users, as well as Eurostat users, provided they have appropriate access privileges.

A series of SDMX-related tools are available on the SDMX info space (SDMX Registry, SDMX Reference Infrastructure, ...) in the "Open Source Software for SDMX" section: <https://webgate.ec.europa.eu/fpfis/mwikis/sdmx/index.php>

Assist: A decentralized user support system part of the dissemination infrastructure that allows Eurostat customers to be supported by decentralized national teams.

Assessment

Initiatives linked to content harmonization (common definitions for concepts, common classifications) are as old as Eurostat.

Initiatives around common transmission formats and tools like EDAMIS are more than 20 years old.

The SDMX initiative has started in 2001

Re-use of software sharing is a concern since the end of the years 2000.

These initiatives are overall a success, but legal barriers exist.

Suggestions

Cost sharing would help raise awareness and sharing.

The level of integration of the ESS determines the willingness to share, so better sharing will come with better integration.

3.4 DG MARKT

DG MARKT	Sharing, initiatives	Questionnaire
<p>Operational level</p> <p>Initiatives</p> <p>YEST – Your Europe Syndication Tool – YEST: project for the syndication of content from public portals providing information to the citizens (Your Europe at EU level and national portals). YEST is based on a shared semantic asset which will be used to publish the data from Your Europe as open data on EU Open Data portal.</p> <p>REGPROF – REGulated PROFessions: DG MARKT started to develop a semantic asset describing regulated professions in the EU, in order to increase the interoperability between public administrations. This semantic asset will be used to publish the data from the regulated professions database as open data on EU Open Data portal.</p> <p>SPOCS – Simple Procedures Online for Cross- Border Services: this large-scale pilot project has been developed by a consortium of Member States in the context of the service directive. Information on (http://www.eu-spocs.eu/ and http://ec.europa.eu/internal_market/eu-go/index_en.htm)</p> <p>CBV – Core Business Vocabulary (finished): In the context of ISA ation 1.1 semantic interoperability, ISA launched an initiative to develop a set of core vocabularies to enhance interoperability between public administrations. ISA contacted EC services in charge of different domains, identifying areas where high level vocabularies could be useful. In the context of company law legislation, DG MARKT participated actively to the development of the core business vocabulary, which is a semantic asset used to define a business and promote interoperability between national administrations. Information available on (https://joinup.ec.europa.eu/asset/core_business/release/100)</p> <p>CEGAT Core EU GAAP Taxonomy (in consultation with MS). DG MARKT considers developing an XBRL core taxonomy (a semantic asset) representing all items required by the modernized Accounting Directive (AD) – draft negotiated at 90riologies. This semantic asset would be used to promote the interoperability and would provide the foundation to automatic processing of accounting information.</p> <p>BRIS – Business Registers Interconnection System (in progress, in the early stages): system to interconnect national business registers. BRIS is investigating the need of developing some Semantic Assets describing the basic information for the definition of a business for cross-border information exchange (by re-using the Core Business Vocabulary). At the same time re-using existing assets developed at MS or EU level will also be investigated.</p> <p>IMI – Internal Market Information system (done): system used to allow administrative cooperation between MS, based on a platform developed and hosted centrally by the Commission. It covers also case solving (SOLVIT). IMI is a service shared by MS and the Commission, which can extend to policy areas outside DG MARKT.</p> <p>Types of assets shared and re-used</p> <p>Semantic Assets for YEST, REGPROF, SPOCS, CBV, Software assets for SPOCS and possibly, in the future, BRIS Service for IMI and SOLVIT.</p>		
Assessment		

All initiatives started in 2011 or 2012 excepted SPOCS which started in 2009. A first evaluation can be done for CBV: The adoption by Member States⁵⁸, acceptance by W3C for the global standardisation process and several swift implementations in EU MS pledge integrity and trustworthiness of the CBV specification and related products. The nearest future and possible take-up at EU level for the interconnection of business registers initiative will determine the fate of CBV in Europe.

Recommendations for better sharing and re-use:

Intensive and well conducted dissemination: regular, simple and compelling communication, training, support, events, and other means for facilitating awareness, understanding and application.

Controlled content quality, documentation translation.

A targeted promotional activities oriented on selected individuals from MS potentially interested in interoperable assets and solutions.

Re-use, initiatives

TSAR⁵⁹: software asset re-used by other DGs in the Commission.

BRIS project might consider the re-use of some semantic assets (XSD Schemas, XML sample instances, Code Lists, Validation artefacts, XSL-T templates, others)

⁵⁸ May 2012 Coordination Group meeting of the ISA Programme.

⁵⁹ <http://tsar.jrc.ec.europa.eu/>

3.5 JRC – RE-USABLE INSPIRE REFERENCE PLATFORM

JRC	Sharing, re-use, initiatives	Questionnaire
<p>Governance and operational levels</p> <p>JRC.H.06 Unit is participating to ISA Action 1.17 (ref. http://ec.europa.eu/isa/actions/01-trusted-information-exchange/1-17action_en.htm).</p> <p>EU Member States are currently implementing the INSPIRE (Infrastructure for Spatial Information in the European Community) Directive and related regulations. The Directive addresses 34 spatial data themes needed for environmental applications. To ensure that the spatial data infrastructures of the Member States are compatible and usable on national level and across-borders, the Directive requires that common implementing rules are adopted in a number of specific areas (metadata, data specifications, network services, data and service sharing and monitoring and reporting).</p> <p>Technical guidelines for the INSPIRE implementation have been developed or are currently under development. The technical guidelines are based on existing international standards. Member States often use different ways of implementation or apply different versions of the relevant standards. Standards themselves evolve on a regular basis, but they are rarely coordinated with changes in other standards. These issues limit interoperability between systems and inhibit the ability to create a European spatial data infrastructure across borders. This action aims to establish a reference platform and develop common components for the successful implementation of a European spatial data infrastructure. To ensure that the Digital agenda for Europe and open data related initiatives such as the open data portal of the European Commission will be taken into consideration.</p> <p>Types of assets shared and re-used</p> <p>INSPIRE Components published on Joinup, Software and Semantic assets mainly related to the research activities performed by Unit JRC.H.06 in its work to support the INSPIRE Directive.</p>		
Assessment		
<p>Joinup components have been re-used by Member States with positive outcomes.</p> <p>Recommendations</p> <p>Push re-users to contribute to the effort, by supporting development (contributing either resources or modifications), including multilingual documentation in order to support a community of effort.</p> <p>Streamline administrative process to approve publishing as EUPL.</p> <p>Clear linkage between assets and their policy/administrative activity, on the one hand and their general business, on the other, could aid adoption both across organisations and themes/domains/sectors, aiding re-use.</p>		

4. OVERVIEW OF POLICIES AND INITIATIVES

4.1 MEMBER STATES

Member State	Sharing or re-use addressed in			Assessment of sharing and re-use Recommendations	Types of assets shared or re-used				
	Legislation (enforced)	eGovernment or ICT strategies	NIF		Technical	Semantic	Organisational	Legal	other
AT		X			Open specifications Base components	Semantic assets	Federal process model Services		
BE	x	X	x	Considered overall successful. Collaboration should be increased. It would be helpful to produce business cases on the re-use of assets.	Components	Semantic assets	Services		
BG	x		x		Open specifications		Service Oriented Architecture		
CH		X		The sharing and re-use approach is effective in the decentralised but coordinated implementation of the eGovernment strategy, but it took 4 years for the coordination to work, for the creation of working groups. Raising awareness took very long. Barriers include: different priorities, lack of political awareness, different legal bases and processes in the cantons, different basic infrastructures and lack on interoperability, different procurement. Enablers include a common strategy and plan, common standards and processes.	Standards Components Software	Semantic assets	Services Project management methods Evaluation methods Enterprise Architecture methods		

Member State	Sharing or re-use addressed in			Assessment of sharing and re-use	Types of assets shared or re-used					
	Legislation (enforced)	eGovernment or ICT strategies	NIF		Recommendations	Technical	Semantic	Organisational	Legal	other
				CY			X			Standards
CZ		X			Software API	Semantic assets				
DE	x		x	<p>There are no concrete re-use targets. Mandatory standards are widely used in public procurement. Semantic standards are widely used and some of the standards are referenced or required by law. Architectural artefacts are used by the shared service centres. Methods are used to achieve better business-IT-alignment. Some products and services listed in the catalogue are widely used in the federal government, but there is a lack of common needs and organisational interoperability. Mainly process modelling methods are shared and re-used. Some re-use of human resource management processes. Issue of business critical knowledge.</p> <p>-----</p> <p>The parliamentary group on 'Interoperability, Standards and Free Software' advises changes to the national budget laws, to allow publishing as open source the software written for or by public administrations.</p>	Standards Software	XML specifications	Processes Architectural artefacts Services			

Member State	Sharing or re-use addressed in			Assessment of sharing and re-use Recommendations	Types of assets shared or re-used				
	Legislation (enforced)	eGovernment or ICT strategies	NIF		Technical	Semantic	Organisational	Legal	other
DK		X		<p>Targets have been met on most components. Less successful results are found with regards to re-use of the shared open source software, and open specifications.</p> <hr/> <p>Strengthen responsibilities of the STS as a political driver: enable it to support visionary cross-governmental projects such as those pushing for integration (e.g. ensuring the adoption of standards and establishment of a common ICT architecture). Focus less on technical matters.</p> <p>Better financing mechanisms for shared services.</p> <p>Review the business case model: include criteria with more emphasis on the ICT standards and on the working procedures (definition and description of processes and tasks), to enable cross government approach and get shared services. This could lead to the selection of smaller projects, where it could be possible to use standard software components.</p>	Public sector software projects Public common components	XML schemas	Enterprise architecture frameworks and standards IT project framework documents (business case, quality plan, ...)		
EE	x		x		Software Standards Software evaluation guidelines for procurement	semantic assets	IT architecture framework		

Member State	Sharing or re-use addressed in			Assessment of sharing and re-use Recommendations	Types of assets shared or re-used				
	Legislation (enforced)	eGovernment or ICT strategies	NIF		Technical	Semantic	Organisational	Legal	other
ES	x		x	<p>There is legal certainty about share and re-use of assets. There is a growing culture about share and re-use. The budget constraints contribute to the awareness about the opportunities offered by share and re-use. Instruments to enable share and re-use are growing.</p> <hr/> <p>Need to develop rules about the 'Re-use of applications (software) as products' and 'Re-use of applications as services'.</p> <p>Modification of the NIF (Royal Decree 4/2010) to promote the practice of share and re-use.</p>	Software Standards	XML Schemas	Services	Regulatory aspects	
ES (Basque)	x			<p>The consulted stakeholders agreed overall with the Decree on re-use of computer applications, but rejected the idea of being monitored, other than by publishing their related actions on a public website.</p> <p>The decree states conditions that enable the re-use (but nothing mentions the sharing).</p>	Software Standards				
FI	x	X			Information specifications and standards Open specifications	Glossaries, conceptual models, ontologies, code sets,	Common Public Administration Enterprise Architecture, Architecture and process descriptions Services		Instructions

Member State	Sharing or re-use addressed in			Assessment of sharing and re-use Recommendations	Types of assets shared or re-used				
	Legislation (enforced)	eGovernment or ICT strategies	NIF		Technical	Semantic	Organisational	Legal	other
FR		X	x	<p>Re-use of existing open source desktop solutions is being organised in the government. Sharing is more efficient than re-use of custom made software.</p> <p>-----</p> <p>Shared services are the future. Pooling of needs at an early stage of procurement processes is recommended.</p>	Standards Software	XML schema	Common procurement of shared services Services	Common procurement & best practices of shared services. Open Source license (CECILL)	
GR	x		x			Semantic assets	Services process models (in BPMN)		
HU	x		x		Standards Software	Semantic assets	Project management methodology Application development methodology and framework Services		Requirements

Member State	Sharing or re-use addressed in			Assessment of sharing and re-use	Types of assets shared or re-used				
	Legislation (enforced)	eGovernment or ICT strategies	NIF		Recommendations	Technical	Semantic	Organisational	Legal
				IC					
IE		X	x	Shared services are high on strategy agendas	Technical standards Software	Semantic assets	Standards for the central coordination on the area of procurement Services		

Member State	Sharing or re-use addressed in			Assessment of sharing and re-use	Types of assets shared or re-used				
	Legislation (enforced)	eGovernment or ICT strategies	NIF		Recommendations	Technical	Semantic	Organisational	Legal
				IT		x		x	<p>Many laws on software sharing, but not much re-use. Current laws oblige administrations to give away their software when requested.</p> <p>Lack of identification of existing solutions.</p> <p>Laws complicate the re-use of open source (IPR owned by public administration).</p> <p>Difficulty of common requirements linked to complex bureaucratic processes.</p> <p>Digital workflows are not mandatory.</p> <p>Wrong vision for re-use: there is no law on re-using software for new developments, reason for re-use is not clear. Re-use is only a tool for achieving larger goals, and administrations need to adhere to them.</p> <p>-----</p> <p>Need to identify all existing systems</p>
LT			x		Technical architecture		Web services		
LU		X		<p>Re-use of business process models successful</p> <p>Goal to be reached in several years:: to map all system requirements to re-usable blocks of processes</p>			Business process modelling service Business process models and standards		Building blocks of requirements (used when procuring)

Member State	Sharing or re-use addressed in			Assessment of sharing and re-use	Types of assets shared or re-used				
	Legislation (enforced)	eGovernment or ICT strategies	NIF		Recommendations	Technical	Semantic	Organisational	Legal
LV	x	X		Low re-use	Open specifications	XML schema	Architecture (SOA) Services		Functionality
MT	x	X		There is uptake of awareness and use of open source in public administrations.	Software Open specifications		Enterprise architecture model		
<u>NL</u>	x		x	<p>Sharing and re-use of building blocks: Efficiency is still questionable. There has been a great leap in sharing assets, but the implementation programme is very ambitious. Policy effectiveness is never established officially.</p> <p>Sharing and re-use of open specifications and open source: Only once the awareness of the policy is achieved (enough communication), can the action plan be effective. The overall goal and vision of the policy needs to be known and understood before the means (open specifications and open source) to achieve them are understood and used.</p> <p>-----</p> <p>Instruments that the policymaker can use are legal rules (not sufficient), financial compensation /incentives, communication and marketing, and technical solutions.</p>	Software Standards		Building blocks (services)	Common contract clauses for procuring based on open	Guidelines for implementing re-usable assets

Member State	Sharing or re-use addressed in			Assessment of sharing and re-use Recommendations	Types of assets shared or re-used				
	Legislation (enforced)	eGovernment or ICT strategies	NIF		Technical	Semantic	Organisational	Legal	other
NO	x	X		Re-use of an open source solution is successful because of a large community sharing costs. The solution is now provided as a cloud service, and has a lot of success.	Standards Software	Semantic assets	Architecture principles Services	Templates for government contracts for procuring services	
PL	x		x		Standards	Semantic assets			
PT		x	x	Reuse is considered in the scope of rationalisation.	Standards Software	Semantic assets			
<u>RO</u>		X		The initiatives are considered a success.	IT applications		Implementation methods	Legislation	Guidelines
<u>SE</u>		X		Initiatives are considered successful. Deeper coordination is needed to develop joint services. The 9 areas identified for coordination are: information architecture, legal requirements, information security, needs-driven development, realisation of benefits, administration, re-use and transfer of experience, communication, and financing/resources.	Software	XML schemes (e-archive, e-procurement)	Shared services	Guidelines on how to re-use data from a legal perspective	
<u>SK</u>	x			All initiatives are considered a success. In order to enable re-use, there is a need for better coordination, best practices and political initiatives.	Software Standards		Services		Data

Member State	Sharing or re-use addressed in			Assessment of sharing and re-use Recommendations	Types of assets shared or re-used				
	Legislation (enforced)	eGovernment or ICT strategies	NIF		Technical	Semantic	Organisational	Legal	other
SI			x		Standards	Semantic assets	Project management methodology Strategy documents Services	EU legislation	
UK Sco		Procurement strategy			Software		Services		
UK		X			Software Standards		Reference architecture		

4.2 EUROPEAN COMMISSION

Directorate General	Sharing or re-use addressed in			Assessment of sharing and re-use -----Recommendations	Types of assets shared or re-used				
	Legislation	Strategy or Policy	Other		Technical (Software...)	Semantic	Organisational	Legal	other
DIGIT – Open ePrior		EC - eProcurement Strategy ⁶⁰ mentions EC will share a solution	ISA work programme	Good momentum because of the eProcurement Directive, but currently only one re-use (other than pilots)	Source code, Open specifications Development guide, Test framework	XML Schema FAQ for filling the XML fields	Service SOA	Procurement terms	
DIGIT – OCS / ECI	REGULATION (EU) No 211/2011		ISA work programme	Good re-use of open source solution, but high technical barrier implied the need for OCS as a service ----- Evaluate ICT implications of EU legislation early in the legislative process	Source code, Open specifications Guidelines	Metadata, XML schema	Service		
DIGIT - NOAH			ISA work programme Political drive	Failed ----- Need for common agendas to collaborate	Source code				
DIGIT 01				There is usually a legal base to the decision of implementing an information system and sharing it with Member States. The sharing of an asset needs to be evaluated based on a business case, because preparing an asset to be shared can have a cost			Project management method		

⁶⁰ http://ec.europa.eu/internal_market/publicprocurement/docs/eprocurement/strategy/COM_2012_en.pdf

Directorate General	Sharing or re-use addressed in			Assessment of sharing and re-use -----Recommendations	Types of assets shared or re-used				
	Legislation	Strategy or Policy	Other		Technical (Software...)	Semantic	Organisational	Legal	other
ESTAT		Sharing policy for software of interest to the ESS (European Statistical System) (- draft)		All the initiatives are considered successful. ----- Publicity of needs for shared assets Central point of access to shared assets, and success stories. Offering software in the form of services according to SOA principles facilitates integration in heterogeneous IT systems. For re-use: Legal barriers exist. Cost sharing would help.	Software, Statistical & technical standards. Guidelines for the sharing of software, Guidelines on the use of standards	SDMX Standards for data validation Data and metadata structures Classifications, code-lists	Business architecture models Methodology SOA Services		Code of practice, guidelines
DG MARKT	EU Regulations and Directives		ISA work programme	Good quality of assets ----- Need for better dissemination Need for quality evaluation	Software assets for SPOCS and possibly, in the future, BRIS Software for TSAR	Semantic Assets for YEST, REGPROF, SPOCS, CBV	Service for IMI and SOLVIT		
JRC - Re-usable Inspire reference platform	INSPIRE Directive			Good re-use of components ----- Push re-users to contribute to the effort, (contributing to development, translation...) Streamline administrative process to approve publishing as EUPL. Provide clear linkage between assets and -their policy/administrative activity, -their general business.	Software	Semantic assets	Service		

5. FINDINGS AND CONCLUSIONS

The study shows that “sharing and re-use” policies and initiatives exist in Europe and are overall considered successful. The study identifies lessons learned from implementing them and detects trends in sharing and re-use, such as different organisational models and sharing of organisational assets.

5.1 POLICIES ON SHARING AND RE-USE

- The policies on sharing and re-use are most often included in the eGovernment or government ICT strategies and/or in the National Interoperability Frameworks.
- All Member States have addressed sharing and/or re-use of assets in their policies. However, there are no “sharing and re-use strategies” per se which cover various types of assets.
- Half of the Member States have a legislation covering a sharing or re-use policy: implementing the strategies and applying the interoperability frameworks (or parts of them) is sometimes mandatory.
- Usually, the mandatory aspect concerns the use of a common list of standards or a policy on sharing and re-use of software. Some national interoperability frameworks are enforced by law.
- Many countries in general seem to rely solely on guidance and loyal implementation for sharing and re-use.
- Sharing and re-use are not goals in themselves. They are seen as tools enabling interoperability and/or efficiency of ICT or eGovernment Strategies and are sometimes included in the procurement aspects of these strategies.

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- Member States report neither cross border re-use policy, nor sharing policy nor governance model.⁶¹
 - The sharing or re-use policy management is usually linked to the strategic management of eGovernment, for which all Member States have a central management and coordination function or institution. Its character and capacity vary across the countries.

5.2 TYPES OF ASSETS SHARED OR RE-USED

- Technical assets are those that are more usually shared or re-used. Examples include:
 - Standards
 - Software
 - API
 - Common components
 - Technical architectures
 - Software evaluation guidelines for procurement. These can be considered either a technical asset or an organisational asset, as a way to organise procurement in a common approach.
- **Semantic assets** are also often shared or re-used. Examples are: XML schemas, glossaries, ontologies, or code sets.
- **Some Organisational assets** are shared or re-used. These cover:
 - Shared services, Interconnection services and web services
 - Regulation and standardisation for cloud computing
 - Service Oriented Architecture
 - Enterprise Architecture methods and models, procedures, architectural frameworks reference architectures
 - Process descriptions, services process models (in BPMN), business process modelling service, business process models and standards
 - Common procurement of shared services
 - Project management methods, IT project framework documents such as business cases and quality plans, project management methodologies, application development methodologies and frameworks
 - Evaluation methods
 - Standards for the central coordination on the area of procurement

⁶¹ A few cross border initiatives are identified on Joinup: examples include: <http://joinup.ec.europa.eu/news/swedish-municipalities-re-use-uks-fix-my-street-web-application>

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- At a lesser level, **legal assets** are shared or re-used. Examples are:
 - Regulatory aspects, legislation
 - Open Source licenses
 - Common procurement and best practices of shared services
 - Common contract clauses for procuring based on open source
 - Templates for government contracts for procuring services
 - Guidelines on how to re-use data from a legal perspective

 - **Other types of assets are mentioned:**
 - Guidelines and instructions
 - Guidelines for implementing re-usable assets
 - Code of practice
 - Functionality
 - Requirements
 - Building blocks of requirements (used when procuring)
 - Data

 - So far, thanks to the visibility provided by the Joinup platform and other similar platforms, it is known that technical and semantic assets are widely shared.

 - eGovernment regulations⁶² focus on interoperability, standardisation and on functionality. However, very little assets related to functionality are shared.

 - *Note: Legal assets mentioned by respondents do not cover legal texts, such as implementations by Member States of Directives. This is in line with the results of a study⁶³ identifying needs for common standards in legislative text editing. “There has not been so far any use case or business case [...] proving the necessity of being [interoperable to exchange content] across different legal systems in the EU. If a law from another Member State needs to be accessed, it is more with an approach of a global framework of reference: including the experts of this law, the doctrine, and the complete final text of law [...]. Accessing the contents of the law in XML from outside a country is not needed.” “A common structure could be considered in the context of EU Directives; but even then, this may not be useful. The laws of a member state may*

⁶² EUPAN survey (2009) - http://www.dgaep.gov.pt/upload/RI_estudos%20Presid%C3%A2ncias/Strategic_egovernment_SW2009.pdf

⁶³ Valayer (2012) LEOS – Legislative Editing Open Software – Phase 1 - Final Results <https://joinup.ec.europa.eu/elibrary/document/isa-leos-final-results>

already comply with the outcome of the implementation of the directive, and the state would be required only to keep its laws in place. More commonly, member states are required to make changes to their existing laws (transposition) in order for the directive to be implemented correctly". Experts across Europe are currently working at a EU level on a reference framework / a common system for the identification (URI) and metadata of law – the European Legislation Identifier (ELI). This initiative is in line with trends following the implementation of the PSI Directive (Public Sector Information). This requires the publishing of data including legal texts generated by Public Sector. Exchange of metadata on legal texts is needed, but the content of the legal texts is part of a Member State's context.

5.3 TRENDS IN SHARING AND RE-USE

- There are policies focusing on open source software or on the re-use of software in several Member States and regions (ES, ES Basque Region, EE, FR, MT, NL). A sharing policy for software is being drafted at the European Commission Eurostat. Italy's policy focuses on sharing of software. Some policies have just started, others have been in place for a long time, and some are ending.
- Several initiatives on sharing open source software are changing their model. These prefer the use of cloud or shared services. One explanation is the complexity of some technical aspects to install the solutions. Another explanation is that shared services provide an easier model to share on a wide level. It is there that more economies of scale can be achieved.
- Many organisational assets are shared, including architectures and services. Some Member States now focus on identifying common processes, sharing processes, process modelling techniques and process modelling services.
- Many initiatives aim at organising procurement. One example is the use of framework contracts for open source solutions and services. Another would be public administrations collaborating at local levels on the pooling of solutions, based on common needs.

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- Many government strategies set a basis for efficient eGovernment by implementing common infrastructures and sharing components. Only very few assets address requirements and functionality.
 - Respondents raise the need for better communication on existing assets. A suggestion is to provide clear linkage between assets and the related policy/administrative activity on the one hand and the related general business on the other hand.

5.4 LESSONS LEARNED

- Assessment of sharing and re-use policies is usually not linked to formal measurements. Only the UK has metrics in the policy for measuring sharing and re-use of assets and services and use of open source. However, the policy is new. Studies like the eGovernment Benchmarking⁶⁴ provide insight in the progress of eGovernment in general for each country, but sharing and re-use policies are not measured. One respondent replied “policy effectiveness is never established officially”.
- Feedback from Member States indicates that policies and initiatives are often “overall successful” or “successful”. In some cases, re-use of software is considered unsuccessful. No respondent provided concrete re-use targets.
- Enforcement of policies is not mentioned by respondents. The approach for implementing a policy is usually on a “comply or explain” basis.
- Legislation sometimes covers only the sharing of software.
- The study highlights various aspects related to re-use of open source software. One is the need for service management and maintenance of the software. Some comprehensive feasibility studies evaluate the re-usability of the solution in the organisational, legal and technical environment of the administration. Quality assurance

⁶⁴ Digitizing Public Services in Europe: Putting ambition into action 9th Benchmark Measurement | December 2010
European Commission, Directorate General for Information Society and Media

and assessment of adequacy of software can be set up in an organised manner. This is shown in France with “generic” desktop software.

- Respondents identify the need for political drive, with less focus on technical matters. The Dutch endeavours show that sharing and re-use should not be kept at a technical level only; otherwise there will be loss of momentum from political support. Communication should address the policy stakeholders in public administrations, not just the IT staff.
- Coordination is often lacking. Although policy is established at the government level it can be difficult to co-ordinate the joined effort at different levels of government.
- The impact assessment of legislation should also address the impact on the ICT systems. Currently, this is done at a later stage in the process. Done earlier, it would provide more opportunities to develop shared systems. Defining a common process for implementing EU legislation in Member States would provide a good basis for collaborative development of common solutions. Finally, when creating a regulation, the option of a centrally shared service or an IT solution used to implement the regulation should be considered.
- The study highlights that publishing prior information on procurement of IT systems benefits both sharing and re-use. It provides time for analysing existing systems which could be re-use. Additionally, making available requirements at an early stage of the procurement process allows public administrations to identify common needs and to pool the procurement.
- Business cases do not reflect sharing or re-use. They should include the benefits of sharing and re-use, as well as the costs for sharing. Business cases models can be adapted to support projects with a “whole of government” approach, focusing on re-using existing ICT solutions and on existing working procedures. This should get shared services across all of government.
- Information gathered in the study suggests that mandatory policies are not more efficient, but rather that a complete set of factors influences better sharing and re-use.

- A holistic approach leads to higher levels of success. The following points are identified in the study:
 - A high level goal to achieve. This goal can be for instance interoperability, sustainability, saving costs or rationalisation. Sharing and re-use are not goals per se.
 - Awareness raising about the goal.
 - A legal certainty to sharing and re-use, in the goal or in the methods. This legal certainty helps raise awareness.
 - Understanding of the means and methods to reach the goal. This is done using extensive communication, creating a “culture” for sharing and re-use. For example, this requires that the communicator applies what is preached. Another example is to include in the business cases aspects linked to interoperability and re-use.
 - Developing “rules” for sharing and re-use. For example, including processes in procurement, or defining licensing rules.
 - Promoting the practice of sharing and re-use, by making available instruments enabling sharing and re-use. This includes for example procurement terms, platforms for sharing, rules and guidelines for sharing or re-using.