European Commission

ACCESS TO BASE REGISTRIES

Good Practices on building sucessful interconnections of Base Registries

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Definitions

'**Base registry**' refers to a trusted and authentic source of information under the control of a public administration or organisation appointed by government. According to the European Interoperability Framework 2.0, base registries are 'reliable sources of basic information on items such as persons, companies, vehicles, licences, buildings, locations and roads' and are 'authentic and authoritative, and form, separately or in combination, the cornerstone of public services'. *Source*: European Interoperability Framework 2.0.

'**Base registry owner**' refers to the organisation that is the appointed controller of the data in the base registry.

Basic data: Base registries' data is sometimes referred to as 'basic data'.

Electronic record is structured information in electronic form produced by a software application or as a result of digitisation, e.g. paper scanning.

Introduction

In order to provide quick and user-friendly public services to citizens and businesses, public administrations are trying to adopt customer-centric approaches and readjust their ways of working.

One way to achieve efficiency and increase user-friendliness is through the 'once-only principle'. Instead of asking the citizen for information that they have already provided, public administrations will reuse the information they already have.

Much of this information is stored in authoritative databases called base registries. As the authentic sources of data for public administrations, base registries are one of the basic building blocks of public services and are the key to making the once-only principle a reality.

The following document contains some good practices to foster access to the data contained in these base registries.

The good practices presented in this paper, are grouped according to the layered interoperability model proposed by the European Interoperability Framework (EIF), as depicted below.

Interoperability aspects of EIF

LEGAL				
Compliance with legislation	Bridging legislation	Service terms and conditions	Data sharing principles	
ORGANISATIONAL				
Oganisational structures	Collaboration	Service level policies	Governance processes	Business models
SEMANTIC				
Vocabularies	Code lists	Glossaries	Identifiers	
TECHNICAL				
Network for data transport	Interconnection architecture	Standards for data exchange	Security	

Good practices at **legal** level

COMPLIANCE WITH LEGISLATION

Good practice No 1:
Equivalence of paper and electronic base registries records is formalised in legislation

BRIDGING LEGISLATION

Good practice No 2:
Principles of data sharing across sectors are formalised to bridge differences in legislation

SERVICE TERMS AND CONDITIONS

Good practice No 3:
European initiatives provide legal support to ensure that personal data is processed in accordance with individuals' fundamental rights and freedoms

DATA SHARING PRINCIPLES

Good practice No 4:
Legislation regulating base registries uses technology-neutral terms or standards and specifications which are not proprietary

Good practice No 5:
When a common interconnecting infrastructure for base registries is available, legislation is used to force its use

Good practice **No 1**

Equivalence of paper and electronic base registries records is formalised in legislation.

- **MEMBER STATE INITIATIVES:** SPAIN (INTERMEDIATION PLATFORM), BELGIUM (MAGDA)

SPAIN - INTERMEDIATION PLATFORM.

This Platform is the interconnecting infrastructure initiative of base registries at national level. The platform works on the basis of the legal recognition of electronic records.

SOURCE: Law 11/207 of 22 June on electronic access to Public Services by the citizens.

BELGIUM - MAGDA.

Interconnecting infrastructure of base registries at regional level in Belgium. The Decree states that the information that is distributed by the Flemish Service Integrator has the same legal value as proof as when it is distributed on paper.

SOURCE: Decree 13/07/2012 concerning the establishment and organisation of the Flemish service integrator.

Good practice **No 2**

Principles of data sharing across sectors are formalised to bridge differences in legislation.

Citizen, land, vehicle and other registries are generally governed by sector-specific legislation, which may be a barrier to public administrations sharing electronic data across registries. Common data sharing principles, interoperability agreements on governance, accessibility and data quality will lead to improved access to data.

- **MEMBER STATE INITIATIVE:** NETHERLANDS (I-NUP)

NETHERLANDS - I-NUP.

Government programme of municipal governments, provincial governments, water boards and central government aiming to create building blocks for the Dutch public sector.

The Netherlands formulated 12 data sharing principles on 3 March 2003. These principles have to be followed by all of the 13 types of base registries.

Good practice **No 3**

European initiatives provide legal support to ensure that personal data is processed in accordance with individuals' fundamental rights and freedoms.

Protecting the sensitive personal data held in base registries is a legal and reputational 'must' for public administrations. European Union legislation on data protection and electronic communication provides a baseline. Nevertheless, public administrations may still have data protection concerns about access to their base registries. Working with national data protection authorities, involving them in the decision-making process, compliance monitoring and dispute settlement, builds trust. When providing access across borders, conformity to the guidelines of the European Data Protection Supervisor is recommended.

- **EUROPEAN INITIATIVE:** EULIS (EUROPEAN LAND INFORMATION SERVICE)

EULIS.

The main objective of EULIS is to provide easy access to land and property information for professional customers in Europe. It serves as a hub of information about different land registration conditions in participating countries (EULIS glossary).

The EULIS Consortium maintains a website to allow access for subscribers to information from Cadastre and Land Information Registries based on the respective national conditions.

Good practice **No 4**

Legislation regulating base registries uses technology-neutral terms or standards and specifications which are not proprietary.

Both Member States and the European Union need to beware of imposing technological constraints by specifying proprietary technologies when regulating the interconnection of base registries.

Overarching legal requirements describing the interconnection framework should be technology-neutral.

- **EUROPEAN INITIATIVES:** INSPIRE, BRIS (BUSINESS REGISTERS INTERCONNECTION SYSTEM)

INSPIRE.

Directive establishing an Infrastructure for Spatial Information in the European Union.

SOURCE: Directive 2007/2/EC.

BRIS - BUSINESS REGISTERS INTERCONNECTION SYSTEM.

Commission Implementing Regulation (EU) 2015/884 of 8 June 2015 has established the non-proprietary technical specifications and procedures required for the system of interconnection of business registries established by Directive 2009/101/EC of the European Parliament and of the Council.

SOURCE: Regulation (EU) 2015/884.

Good practice **No 5**

When a common interconnecting infrastructure for base registries is available, legislation is used to force its use.

The use of interconnecting infrastructure prevents the proliferation of point-to-point interconnections. Stakeholders should be involved in developing the legislation and be given enough time to prepare for implementation.

- **MEMBER STATE INITIATIVES:** ESTONIA (X-ROAD), BELGIUM (MAGDA)
- **EUROPEAN INITIATIVE:** BRIS

ESTONIA - X-ROAD.

Interconnecting infrastructure initiative of base registries at national level in Estonia. The Public Information Act establishes the X-Road interconnecting infrastructure.

SOURCE: The Public Information Act passed on the 15th November 2000 establishes the X-Road interconnecting infrastructure.

BELGIUM - MAGDA.

Interconnecting infrastructure of base registries at regional level in Belgium.

SOURCE: Decree 13/07/2012 concerns the establishment and organisation of the Flemish service integrator.

BRIS.

The Business Registers Interconnection System (BRIS) is the information system that will interconnect the business registries of all Member States.

SOURCE: Directive 2009/101/EC.

Good practices at **organisational** level

ORGANISATIONAL STRUCTURES

Good practice No 6:
Cross-organisational committees, with decision-making power, coordinate the interconnection between base registries

COLLABORATION

Good practice No 7:
Collaborative processes are put in place to design interfaces used for base registries

SERVICE LEVEL POLICIES

Good practice No 8:
The conditions for accessing data in base registries are formalised in agreements which are respected

GOVERNANCE PROCESSES

Good practice No 9:
Stakeholder engagement is an integral part of the lifecycle of the interconnection of base registries

Good practice No 10:
All base registries have data management in place

BUSINESS MODEL

Good practice No 11:
The owners of base registries have a business model for basic data that promotes its reuse

Good practice **No 6**

Cross-organisational committees, with decision-making power, coordinate the interconnection between base registries.

Consensus building and leadership are essential to the success of the interconnection of base registries. A cross-organisational committee at national level with decision-making powers helps achieve this. Its roles include promotion, coordination, harmonisation, monitoring, definition of interoperability principles and SLAs. The committee may or may not also be responsible for providing the underlying infrastructure and technology management.

- **MEMBER STATE INITIATIVE:** BELGIUM (FEDICT)

BELGIUM - FEDICT.

Fedict includes a committee in charge of interconnection of base registries. This committee facilitates the dialogue between the owners of base registries, the operational units involved in processing base registry data and the consumers of base registries' data.

Good practice **No 7**

Collaborative processes are put in place to design interfaces used for base registries.

Base registries are increasingly simplifying access to their data across sectors and across borders using interoperable interfaces to the benefit not only of public administrations, but also citizens and businesses.

- **MEMBER STATE INITIATIVES:** FINLAND (REGISTRY-BASED CENSUS), ESTONIA (X-ROAD)

FINLAND - REGISTRY-BASED CENSUS.

Base Registry Working Party is a committee that includes experts on base registries as well as information security and data protection experts. The main objective of the Working Party is to engage the management of information within local authorities and its stakeholders. This enables the identification of new development projects and applications for data.

ESTONIA - X-ROAD.

The X-Road management organization directs the activities of the X-Road project relating to planning, budgeting and cooperating with governmental institutions for the improvement of the platform.

Good practice **No 8**

The conditions for accessing data in base registries are formalised in agreements which are respected.

Agreements are essential in order to formalise the data provider/data consumer relationship and lock in commitment. They can range from declarations of intent to legally binding service level agreements. Agreements cover typically organisational (governance), semantic and technical specification aspects.

- **MEMBER STATES INITIATIVES:** SPAIN (INTERMEDIATION PLATFORM), BELGIUM (FEDICT)

SPAIN - INTERMEDIATION PLATFORM.

The Intermediation Platform is the interconnecting infrastructure initiative of base registries at national level. The Interoperability agreements are signed by the local entities that want to use the service to access the data of the base registries.

BELGIUM - FEDICT.

Fedict is responsible for Belgium's national eGovernment strategy. It promotes cooperation across the initiatives led by the Belgian communities and regions and provides an interconnecting infrastructure of base registries at the federal level.

There are service level agreements in place that express the service levels requested to the providers of Fedict services.

Good practice **No 9**

Stakeholder engagement is an integral part of the lifecycle of the interconnection of base registries.

Stakeholder engagement should be an integral part of any initiative to interconnect base registries because the initiative is bound to have a major organisational impact. Stakeholders' attention needs to be focused on user-centricity, i.e. the services most needed, and the business value, i.e. the benefits of interconnection. Awareness of the potential can be raised through training and an understanding of the benefits can be enhanced by exchange of information with organisations that are already interconnected.

- **MEMBER STATE INITIATIVES:** ESTONIA (ICT DEMO CENTRE), DENMARK (DIGITISATION STRATEGY)

ESTONIA - ICT DEMO CENTRE.

Part of the X-Road initiative. Delivers 'showcases' in different domains, such as interconnection of Business Registers and also provides advice on the use of the X-Road infrastructure.

DENMARK - DIGITISATION STRATEGY.

Good basic data for everyone was set up as part of the common public-sector digitisation strategy for 2011-2015 and adopted by the central government, the local governments and the Danish regions. The vision is for basic data to be the common high-quality foundation for public sector administration; efficiently updated at one place, and used by everyone. The programme will serve as one of the key pieces for the future development of e-government in Denmark.

Good practice **No 10**

All base registries have data management in place.

In the absence of interconnection, several base registries will hold the same data and create unnecessary duplication. This fragmentation generates inconsistencies, uncertainty as to which information is the most recent, and also breaches the principle of once-only registration in the EU public sector information directive. In addition, it is an administrative burden on citizens and public administrations. Robust data management processes and policies are critical for reliable sources of information.

- **MEMBER STATES INITIATIVE:** DENMARK (GRUNDDATA)

DENMARK - GRUNDDATA.

Danish public administrations responsible for land base registries have started to eliminate data duplication by identifying base registries' unique owners and through master data governance.

Good practice **No 11**

The owners of base registries have a business model for basic data that promotes its reuse.

High charges for providing access to or for using base registries' data are one of the obstacles to effective and efficient cross-sector collaboration. It is up to each organisation to find the business model which suits it best. However, it has been proven that lowering prices can potentially increase the number of users sufficiently to increase overall revenue, even when pricing at marginal cost. The case can also be made for making basic data that is widely used by public administrations available free of charge.

- **EUROPEAN INITIATIVE**: POPSIS

POPSIS.

As a follow-up on the PSI Directive, a study on the pricing of public sector information was conducted. This POPSIS study analysed the charging practices of 21 Public Sector Bodies and identified a clear trend towards lowering charges and/or facilitating the re use of public sector information within the Member States. In particular, the study illustrated that lowering prices and facilitating access to public sector information may increase the number of users, thus potentially leading to higher revenues, even in case of marginal cost pricing.

SOURCE: Directive 2003/98/EC.

Good practices at **semantic** level

VOCABULARIES

Good practice No 12:
Base registries are slowly moving towards the reuse of semantic assets

CODE LISTS
GLOSSARIES

Good practice No 13:
EU-wide projects make use of coded values to reduce semantic conflicts

IDENTIFIERS

Good practice No 14:
Entities can be unequivocally identified within the Member State and across borders

Good practice **No 12**

Base registries are slowly moving towards the reuse of semantic assets.

The lack of semantic interoperability is a major obstacle to the accessibility of base registries information. Base registries use often different models for even the most basic information, such as a person's first and family name(s). Unless semantic conflicts are resolved, base registries cannot interoperate. Semantic assets, such as the Core Vocabularies being developed under the ISA Programme, address this issue. For the benefits of semantic interoperability to be realised, Member States and EU projects should use them widely.

- **EUROPEAN INITIATIVES:** ISA CORE VOCABULARIES, BRIS

ISA CORE VOCABULARIES.

The Core Vocabularies aim to align the way that base registries describe their data records when exchanging or publishing data. The ISA Programme has already developed four of these Core Vocabularies, namely: Core Business (contributed to W3C and renamed Registered Organization), Core Person, Core Location and Core Public Service.

The Core Vocabularies can be found on the Joinup.eu portal.

BRIS.

The Business Registries Interconnection System (BRIS) has defined an entity model for the search of information about companies aligned with the ISA Core Bussines Vocabulary.

Good practice **No 13**

EU-wide projects make use of coded values to reduce semantic conflicts.

The coexistence of many languages may be a source of semantic conflicts. This is particularly challenging at the EU level, with its 24 official languages. Controlled vocabularies containing codes with a direct and unambiguous translation in every language can get around this problem in some cases (though they are not suited to registries containing large amounts of free-form data). The use of coded values created by standardisation organisations is preferable when available.

- **EUROPEAN INITIATIVES:** ECRIS, EULIS

ECRIS.

ECRIS or European Criminal Records Interconnection System provides an infrastructure interconnecting the Member States' registries of criminal records, allowing them to exchange information on convictions with one another. ECRIS triggers communication of criminal sanctions and offences by using a matrix of a list of codes of criminal sanctions and offences.

EULIS.

The EULIS contains an on-line multilingual glossary that helps understanding the semantics used in land registries.

Good practice **No 14**

Entities can be unequivocally identified within the Member State and across borders.

In order to avoid identification conflicts, the authority controlling the base registry typically assigns a single unique identifier to each physical or legal entity managed by the registry. A well-defined identification schema should be used in order to ensure the unambiguity and persistency over the time of the identifiers. The obstacles to overcome are data privacy and the lack of EU-wide identification schemes. Sector-specific identifiers, generated through hashing, can be used to preserve data privacy and still avoid conflicts. Concatenation can be a solution when base registries exchange data across borders.

- **MEMBER STATE INITIATIVE:** AUSTRIA (CENTRAL REGISTER OF RESIDENCE)
- **EUROPEAN INITIATIVE**: BRIS

AUSTRIA - CENTRAL REGISTER OF RESIDENCE.

The Central Register of Residence is a centralised repository of residents registries with online access to all of them. In Austria, every person receives a unique number from the Central Residents Registry that is used as the master personal identifier. For each sector, a sector- specific identifier is created by applying hashing function. The sector-specific identifier guarantees that the identifier cannot be used for any other purpose or by other authorities unless it is related to the original context.

BRIS.

Companies and their branches opened in other Member States should have a unique identifier allowing them to be unequivocally identified within the Union.

Good practices at **technical** level

NETWORK FOR DATA TRANSPORT
STANDARD FOR DATA EXCHANGE
INTERCONNECTION ARCHITECTURE

Good practice No 15:
Modular, loosely coupled service components are used for interconnecting base registries

SECURITY

Good practice No 16:
User and application access management is based on a federated structure of authorised users and applications

Good practice No 17:
A set of security principles is guaranteed via the appropriate trust-based mechanisms

Good practice **No 15**

Modular, loosely coupled service components are used for interconnecting base registries.

The technical heterogeneity which has resulted from base registries having been developed independently of each other can be overcome by using modular, loosely coupled service components interconnected. Service-oriented architecture (SOA) is emerging as the architectural style of choice for interconnecting base registries. There are numerous models. In a fully distributed model, the service infrastructure's main function is to facilitate the discovery of the services. Communication is point-to-point. In a semi-distributed model, the infrastructure offers some central services and acts as an interconnection hub.

- **MEMBER STATE INITIATIVES:** ESTONIA (X-ROAD), SPAIN (INTERMEDIATION PLATFORM)

ESTONIA - X-ROAD.

Platform independence is achieved by using the SOAP protocol. This way, X-Road provides a distributed, unified web-services based inter-organisational data exchange framework.

SPAIN - INTERMEDIATION PLATFORM.

Base registries interconnected via the Intermediation Platform, use a SOA-based transmission protocol. The software libraries developed by the platform can be used as part of the integration software to facilitate the connection of base registries to the platform.

Good practice **No 16**

User and application access management is based on a federated structure of authorised users and applications.

User access management systems that are not interoperable can be a barrier to data sharing across sectors or borders.

- **MEMBER STATE INITIATIVES:** SPAIN (INTERMEDIATION PLATFORM), AUSTRIA (CENTRAL REGISTER OF RESIDENCE)

SPAIN - INTERMEDIATION PLATFORM.

When accessing electronic services, users can give their consent to allow some of the requested data to be retrieved from a base registry through the intermediation platform. The consent is gathered whenever there is a need for it either on paper or by electronic form. Furthermore, all requests for data are logged by the platform to prevent misuse of base registries' data.

AUSTRIA - CENTRAL REGISTER OF RESIDENCE.

User Access Management of the Central Registry of Residence is organised into an application portal and a user portal. The application portal provides a list of applications that can be accessed by a given list of public administrations.

Good practice **No 17**

A set of security principles is guaranteed via the appropriate trust-based mechanisms.

Secure information exchange requires the use of electronic certificates to identify an entity, to sign, seal, timestamp or encrypt a document. Each Member State publishes a Trusted List of Certification Service Providers and the European Commission maintains a central List of Trusted Lists. This list is about to be expanded to cover other Trust Services as a result of the recently approved eIDAS Regulation No 910/2014 on electronic identification and trust services for electronic transactions in the internal market. Thus a chain of trust is available for secure cross-border exchange between base registries.

- **EUROPEAN INITIATIVES:** DIGITAL SIGNATURE SERVICE (DSS) TOOL, MS TRUSTED LIST.

DIGITAL SIGNATURE SERVICE TOOL (DSS).

DSS is the open source software tool that creates and verifies legally binding, interoperable and highly secure electronic signatures according to the interoperable formats defined by the eIDAS Regulation. The tool makes use of the MS Trust Status Lists (TSLs) to check the trustworthiness of the signing certificates. The tools can be found on the Joinup.eu portal.

MS TRUSTED LIST.

Member States have the obligation to establish and publish their Trusted List of supervised/accredited certification service providers issuing qualified certificates to the public.

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