



THE SHARING AND REUSE OF IT SOLUTIONS

Generic Knowledge Sharing Module



OUTLINE

1. Introduction

2. The Sharing and Reuse Framework for IT Solutions (SRF)

3. Examples of how the SRF can be used



1. INTRODUCTION



INTRODUCTION



This knowledge sharing module was produced under the [ISA² programme](#) of the European Commission, aimed at public administrations, service providers, policymakers and central body representatives.



It is based upon the [Sharing and Reuse Framework for IT Solutions](#), a set of recommendations providing guidance to help public administrations share or reuse IT solutions (software and services).



This generic knowledge sharing module is part of a threefold information package, which also includes one specific module for policymakers and central body representatives and another specific module targeting IT managers.

LEARNING OBJECTIVES

Recognise the benefits of the sharing and reuse of IT solutions

Understand the Sharing and Reuse Framework for IT solutions and how you can use it

CURRENT SITUATION

Public administrations often have **similar needs** in terms of IT solutions but might not be aware of it.

Overlapping effort is occurring in the development, procurement and maintenance of IT solutions

EU countries are currently spending close to **€40 billion a year** on IT for public administrations.



The real problems?

- Money and time is being wasted on effort duplication.
- Missed opportunities for collaboration and synergy.

IMPORTANCE

Why is it important to share and reuse IT solutions?

By promoting the sharing and reuse of IT solutions, public administrations and central bodies improve the interoperability of their IT systems and services, which saves money and increases the quality of eGovernment services. All of this contributes to the development of the EU Digital Single Market and strengthens the EU's position as a world leader in the digital economy.

-  **Lower costs**
-  **Contribute to the Digital Single Market**
-  **Modernise the public sector**
-  **Make public administrations efficient & effective**
-  **Collaborate across borders**
-  **Facilitate free movement of people and services**

THE BARRIERS TO THE SHARING AND REUSE OF IT SOLUTIONS

4 types of barriers to sharing and/or reusing IT solutions have been identified:



Organisational

e.g. Limited awareness of similar needs across sectors, fragmented IT infrastructures.



Legal

e.g. Uncertainty regarding limitation of, or exceptions to, IPR.



Technical

e.g. Difficulty adapting legacy systems.



Communication

e.g. Lack of awareness about existing solutions.



2. THE SHARING AND REUSE FRAMEWORK FOR IT SOLUTIONS (SRF)





THE ORIGIN OF THE SRF

- The SRF was developed under the [ISA² Programme](#), which is managed by DIGIT D2.
- The ISA² programme supports the development of digital solutions that enable public administrations, businesses and citizens in Europe to benefit from interoperable cross-border and cross-sector public services.
- The programme puts in place the necessary instruments to boost interoperability at EU and national level, such as:
 - a revised European Interoperability Framework [\(EIF\)](#);
 - a revised European Interoperability Strategy [\(EIS\)](#);
 - an architecture, the European Interoperability Reference Architecture [\(EIRA\)](#);
 - a cartography of solutions, the European Interoperability Cartography [\(EIC\)](#).

THE SHARING AND REUSE FRAMEWORK (SRF)

- Public administrations should follow the SRF at all stages of the lifecycle of IT solutions and at all levels of public administrations.



Identifies 4 main types of barriers to sharing and reuse faced by public administrations



Makes 10 generic recommendations accompanied by specific recommendations to overcome the barriers and stimulate sharing and reuse



Offers 19 recommended measures for central bodies to support their administrations in implementing the recommendations of the SRF



Suggests 20 supporting instruments to help public administrations to share or reuse IT solutions

THE RELATIONSHIP BETWEEN BARRIERS, RECOMMENDATIONS AND SUPPORTING INSTRUMENTS



Barrier

The Framework is divided according to 4 types of barriers that have been identified as obstacles to sharing or reusing IT solutions.



Recommendation(s)



Generic recommendations correspond to each barrier,



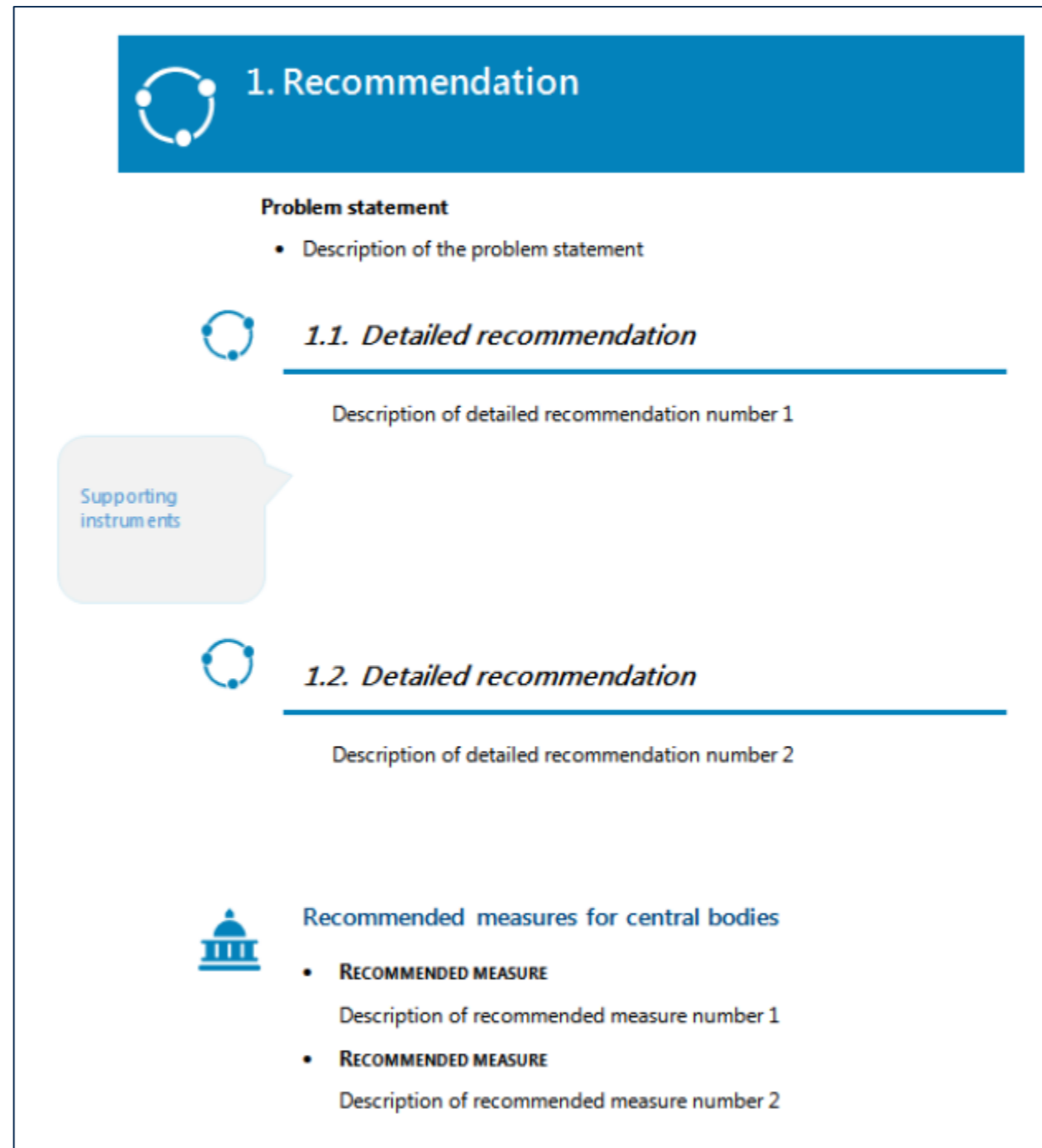
supported by specific recommendations on how to overcome the barrier.



Supporting
instrument(s)

Supporting instruments are listed throughout the framework to support sharing or reusing IT solutions.


THE DOCUMENT STRUCTURE OF THE SRF





THE 10 GENERIC RECOMMENDATIONS




THE 19 RECOMMENDED MEASURES FOR CENTRAL BODIES

- 
- Coordinate IT governance within and across Member States.
 - Provide a forum where public administrations can exchange information.
 - Support the harmonisation of business processes when implementing new legislation.
 - Support projects with high potential for sharing and reuse.
 - Implement business models that encourage public administrations to pool their resources.
 - Provide specialised resources.

- 
- Manage IT solutions like portfolios using a common reference architecture.
 - Offer generic and reusable building blocks.
 - Encourage the reuse of IT solutions by using an Application Programming Interface (API).
 - Provide testing environments and organise plugtests.

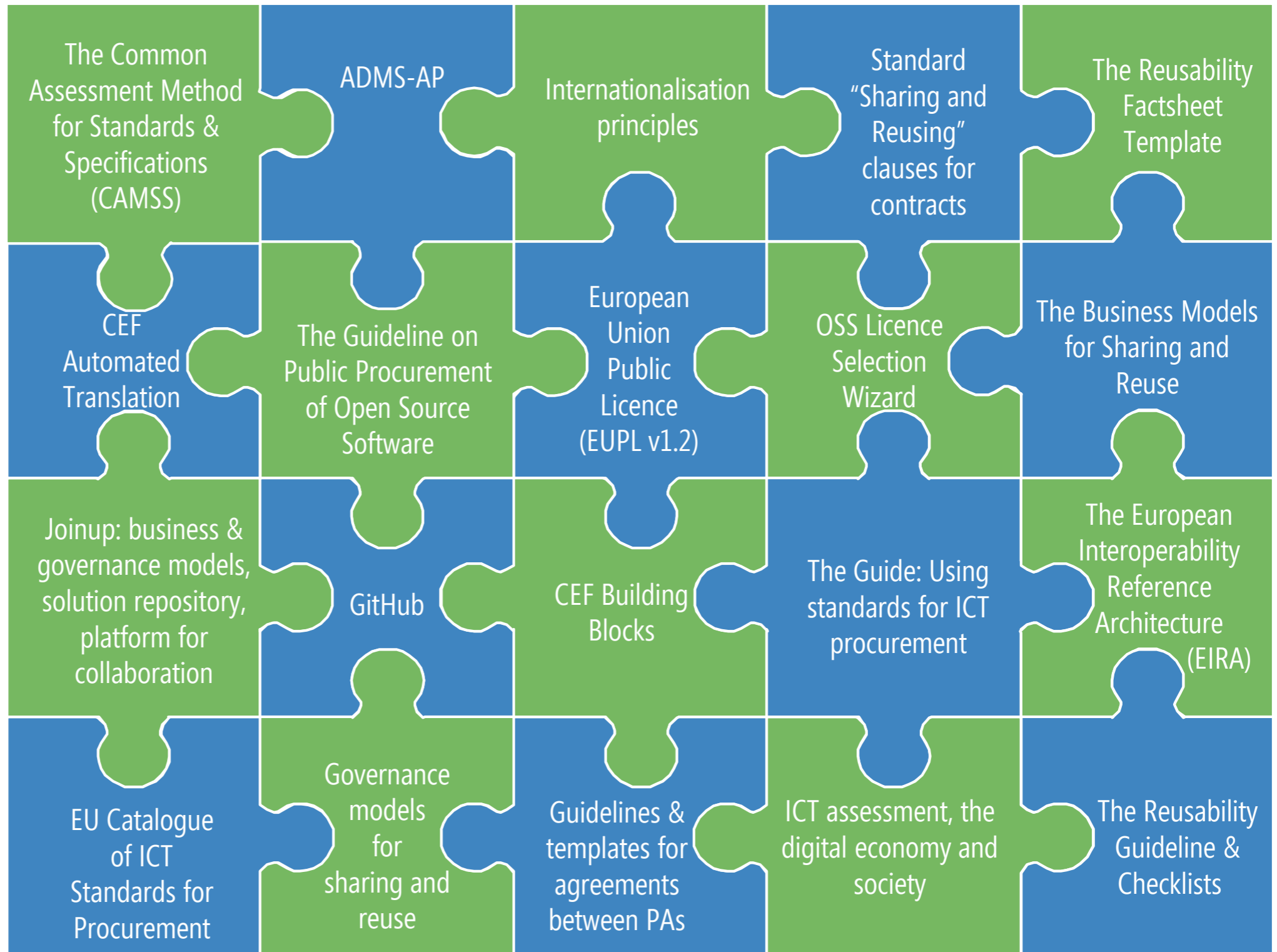
- 
- Select and promote the use of appropriate licences.
 - Support the use of common standards and specifications.
 - Provide support on matters related to intellectual property rights and licensing.

- 
- Operate national/regional registries and consolidate them at the EU level.
 - Provide guidance on registries.
 - Organise workshops to raise awareness and share know-how.
 - Organise exchanges between public administrations.
 - Share information on APIs or requirements for shared services.
 - Support internationalisation principles.

19

OVERVIEW OF THE 20 SUPPORTING INSTRUMENTS IN THE SRF

Explore the supporting instruments by clicking the puzzle pieces.





3. SOME PRACTICAL EXAMPLES OF HOW THE SRF CAN BE USED



ORGANISATIONAL



1. ENHANCE CROSS-ORGANISATION IT GOVERNANCE

Problem statements

Public administrations are using self-designed, -procured and -maintained IT solutions independently. This fragmented infrastructure leads to duplication of IT solutions and impedes their sharing and reuse.

There is limited awareness of similar activities and requirements across different administrative levels.

1. ENHANCE CROSS-ORGANISATION IT GOVERNANCE

Solutions

- Public administrations can benefit from alignment with a defined IT governance structure.
- Cross-organisation IT governance can help public administrations implement public services and other eGovernment systems faster and more efficiently. It can also avoid duplication of efforts and/or IT solutions and strengthen accountability.
- Consider co-creation and coordination between public administrations on a solution level as a standard approach.

1. ENHANCE CROSS-ORGANISATION IT GOVERNANCE

In practice

- In 2010, 7 municipalities in the Kongsberg region of Norway established a cooperative body (**SuksIT**) to work together on the digitalisation of their public administrations.
- They have developed a common **ICT infrastructure** and are responsible, together, for the planning of actions related to digitalisation.



2. FOLLOW GUIDELINES AND TEMPLATES WHEN DRAFTING COLLABORATIVE AGREEMENTS

Problem statements

- Writing and negotiating a collaborative agreement between public administrations can be a difficult, expensive and lengthy process.
- A poorly written agreement may overlook aspects of a collaborative project such as responsibilities, handling of complaints, project change control, and/or intellectual property rights. This may hamper an otherwise harmonious relationship and, as consequence, undermine the degree of trust between public administrations.

2. FOLLOW GUIDELINES AND TEMPLATES WHEN DRAFTING COLLABORATIVE AGREEMENTS

Solutions

- Follow existing guidelines and standard templates for collaboration agreements.
- Agreements can be drawn up for collaborative development, maintenance or use of IT solutions.
- Agreements based on guidelines and containing clearly defined objectives are more trustworthy for public administrations and will stimulate collaboration.
- The use of a common template including recommendations on the structure of the agreement itself, SLAs, financial terms, liabilities, IPR, project governance & responsibilities, etc.

2. FOLLOW GUIDELINES AND TEMPLATES WHEN DRAFTING COLLABORATIVE AGREEMENTS

In practice

- The European Commission has developed its own "*Guidelines and templates for agreements between public administrations*". This document contains guidelines and 6 reusable and customisable templates for different types of agreements for collaboration, which could be used for the sharing and reuse of assets among public administrations.



3. ADOPT BUSINESS MODELS THAT FACILITATE SHARING AND REUSE

Problem statements for sharing

- Individual administrations (usually) do not have a mandate to create value for other administrations. Consequently, they may not see the benefit from shared development, resulting in higher costs, facing higher development effort and missing out on long term sustainability for their IT solutions.
- The development and maintenance of a reusable solution requires additional effort, with the benefits of sharing only to be enjoyed later on. Along with expertise scarcity, this may deter public administrations from truly applying collaborative principles.

Problem statement for reuse

- Legacy information systems often have multiple (inter)dependencies, making them difficult to abandon without significant costs, thus acting as a deterrent to explore alternatives.

3. ADOPT BUSINESS MODELS THAT FACILITATE SHARING AND REUSE

Solution for sharing

- Public administrations should choose and describe the most appropriate business model, taking into account the form of cooperation and business needs.

For example, by adopting a common approach to procurement, public administrations can achieve increased value for money and cost savings through improved planning and coordination across organisations, reduced repetition of work and sharing of experiences and IT tools. The development and provision of shared services can also achieve similar efficiency and financial gains.

3. ADOPT BUSINESS MODELS THAT FACILITATE SHARING AND REUSE

Solution for reuse

- In the context of procurement, when assessing the Total Cost of Ownership (TCO) of an IT solution, costs related to end-of-life management should also be taken into account. Such costs should be included in the legacy solution cost to address constraints in transitioning to a new application.
- Consider making your IT solution available as Software as a Service (SaaS) for higher reuse potential. SaaS can bridge the knowledge and resource gaps for smaller public administrations by “outsourcing” the development, implementation, customisation, operation and change management of a solution to another entity.

3. ADOPT BUSINESS MODELS THAT FACILITATE SHARING AND REUSE

In practice

- Joinup provides a list of successful **“Business models for sharing and reuse”**. The document presents cases of sharing and reuse among public administrations. The cases’ description focuses on the business model aspects, covering, when relevant, the cost model, the business case, the incentives or rationales for sharing and reuse. The 12 examples of business models presented in this study address various ways of delivering public services based on sharing and/or reusing of assets, on national, European or regional levels.



LEGAL



1. PROMOTE LEGAL CERTAINTY

Problem statement

- When considering sharing or reusing IT solutions, public administrations may face both uncertainty about liability exposure for stakeholders and the infringement of intellectual property rights assigned through copyright and patents.
- When IT solutions process personal data, public administrations may impose fines due to exposure of such data.

1. PROMOTE LEGAL CERTAINTY

Solutions and supporting instruments

Use standard templates for liability agreements



To facilitate collaborative software development and cooperation, public administrations should use standard templates for liability agreements.



Decide & communicate ASAP about the type of rights' attribution approach



By using certificates of origin and collaboration agreements, public administrations can optimally inform developers of the requirements related to contributing to an IT solution, in addition to ensuring that the guardian of the project has the appropriate ownership rights.

1. PROMOTE LEGAL CERTAINTY

Solutions and supporting instruments

Detect licence compatibility issues



Given that public administrations collectively use hundreds of licences, this may lead to compatibility issues. To reduce this risk, it is important to detect licence incompatibilities as early as possible. The "*EC Online licence wizard*" tool helps to reduce this risk, support public administrations to find the most appropriate licence and identify possible incompatibilities early on.

Use existing open source software licences to share your IT solution



Public administrations should use licences with the least legal friction possible and limit incompatibilities between them by reusing existing licences instead of writing their own. For example, the [European Public Licence \(EUPL\) v1.2](#) allows software to be freely used, modified and shared.

1. PROMOTE LEGAL CERTAINTY

Solutions and supporting instruments

Process personal data



The [GDPR](#) will be enforceable as from 25 May 2018. It replaces the Data Protection Directive and aims to provide one set of rules for all EU member states, although tailoring might still be required.

Personal data processing concerns the following areas:

- Notice
- Legitimate Processing
- International Data Transfers
- Other EU Data Protection Laws
- European Data Protection Board
- Employment Data
- EU-U.S. Privacy Shield

2. PROCURE IT SOLUTIONS IN A TRANSPARENT & OPEN WAY

Problem statements

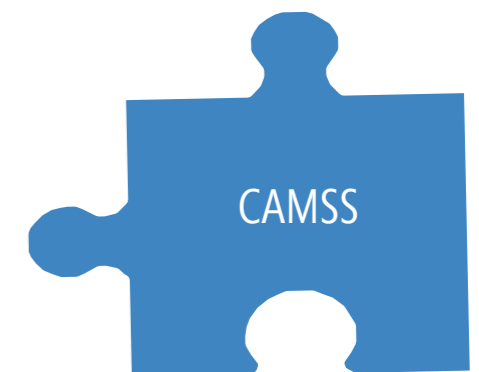
Even if public administrations see the benefits of open source standards and specifications, they may be restricted from choosing such solutions, for multiple reasons:

- There are procurement policy issues: references to non-standard specifications or to specific sources, trademarks, patents, etc.
- There is vendor lock-in, or having one supplier entrenched over a long period of time.

2. PROCURE IT SOLUTIONS IN A TRANSPARENT & OPEN WAY

Solutions and supporting instruments

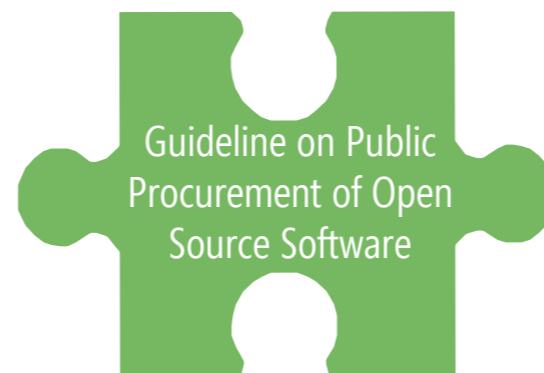
- Public administrations should use common standards and specifications in ICT procurement.
- Public administrations should use standard clauses and contractual templates that facilitate sharing and reuse of IT solutions.
- Share assessments of standards and technical specifications, such as the "*Common Assessment Method for Standards and Specifications (CAMSS)*".



2. PROCURE IT SOLUTIONS IN A TRANSPARENT & OPEN WAY

Solutions and supporting instruments

- The involvement of communities in the development and maintenance of IT solutions fosters competition between service providers, especially when large communities can contribute instead of one single company. One of the main strengths of open source software is that the development process, at its best, involves a community of several firms, individuals and other contributors. The "*Guideline on Public Procurement of Open Source Software*" explains how public administrations can acquire open source solutions and why they should.



2. PROCURE IT SOLUTIONS IN A TRANSPARENT & OPEN WAY

In practice

- As part of their [Government Service Design Manual](#), the UK Government provides an [Digital Service Standard](#), indicating how open source fits into the Government IT strategy, as well as a very useful [Open Source Procurement Toolkit](#).



TECHNICAL



1. DOCUMENT, SHARE & REUSE COMMON SOLUTION BUILDING BLOCKS

Problem statements

- To provide better services, public administrations need to increase the scope and volume of information exchange with each other across borders and sectors. To facilitate these exchanges, the need for interoperability in Europe is pressing.
- The risk of creating new digital barriers for administrations, businesses, and citizens when developing new IT solutions.

1. DOCUMENT, SHARE & REUSE COMMON SOLUTION BUILDING BLOCKS

Solutions and supporting instruments

- Use a common terminology to design, assess and find common IT solution building blocks to increase interoperability and decreases the development cost of often very complex IT systems.
- Document key solution building blocks using a common reference architecture.
- Check the reusability of existing IT solutions before developing new ones.



2. ENHANCE YOUR IT SOLUTION'S TECHNICAL READINESS

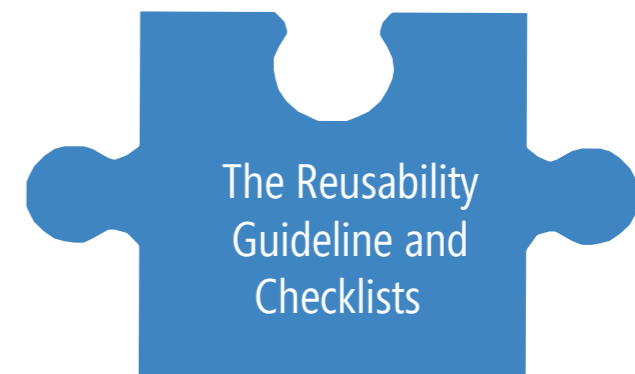
Problem statements

- The internal architecture of an IT solution and the technologies that it uses have a huge impact on its reusability.
- Legacy systems are very costly or impossible to adapt to even slightly different business needs.
- Old, inflexible technologies are often difficult to scale up to support increased usage.

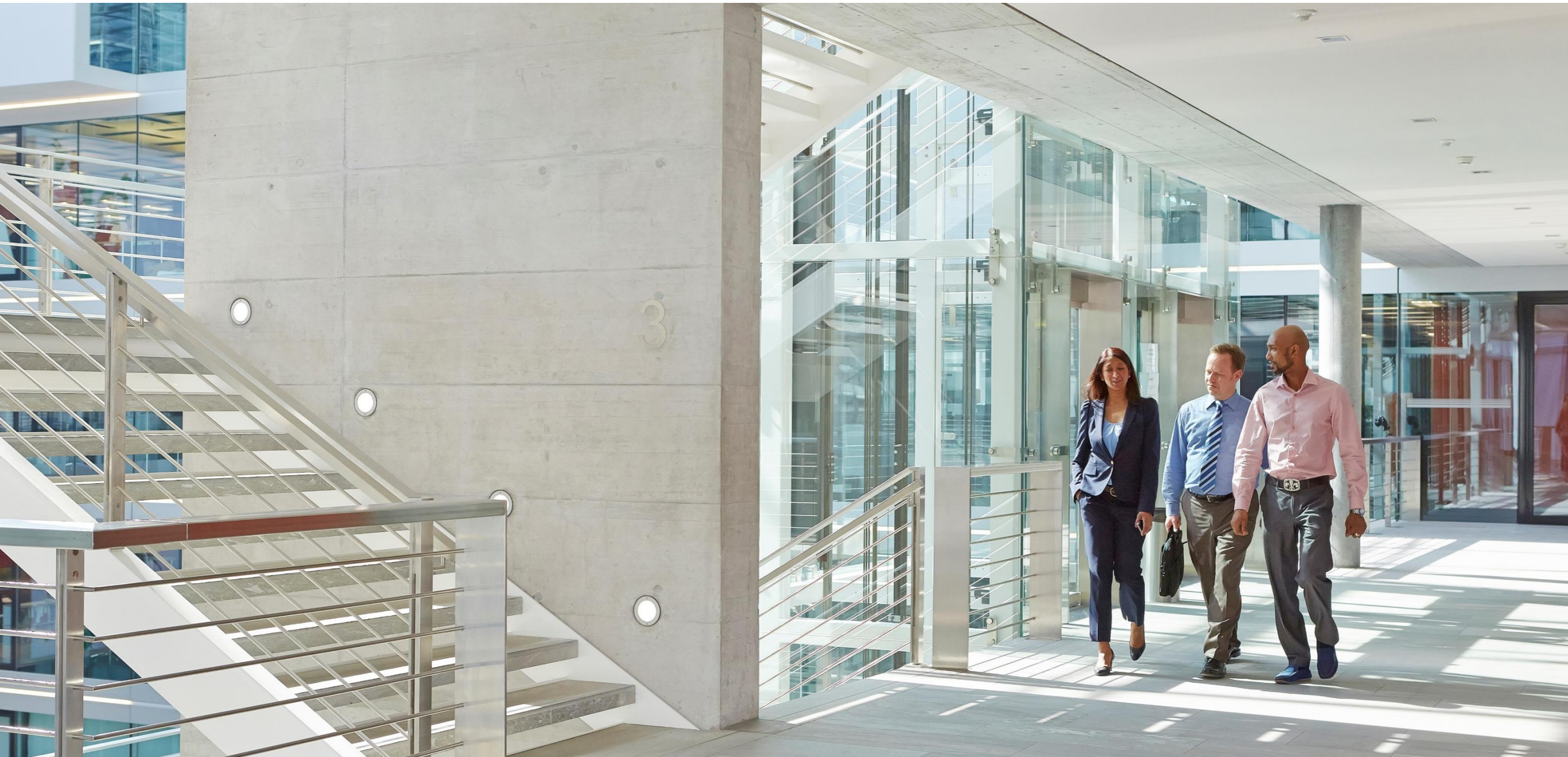
2. ENHANCE YOUR IT SOLUTION'S TECHNICAL READINESS

Solutions and supporting instruments

- Design your IT solutions to be extensible and modular.
- Design your IT solutions to be scalable.
- Plan adequate levels of maintenance and support.
- Assess the maturity level of IT solutions.



COMMUNICATION





1. INCREASE VISIBILITY & TRUST OF AVAILABLE IT SOLUTIONS

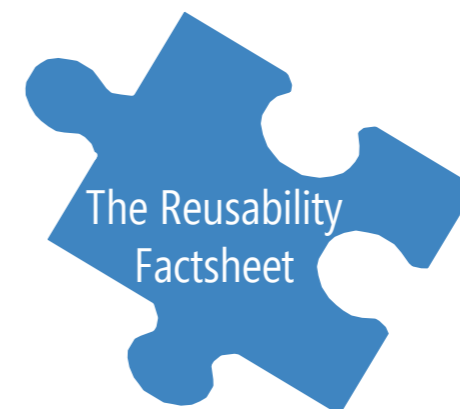
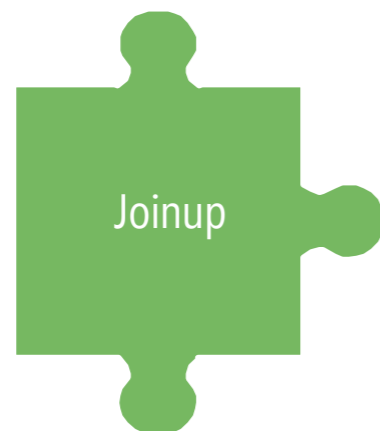
Problem statements

- IT solutions are not being reused.
- IT solutions are not trusted with regard to their future support & maintenance.
- There are many IT solutions on the market, some poorly described.
- Awareness about existing solutions cross-border and cross-sector is insufficient.

1. INCREASE VISIBILITY & TRUST OF AVAILABLE IT SOLUTIONS

Solutions and supporting instruments

- Use common repositories to share your IT solutions.
- Use standard ways to describe your IT solutions.
- Provide insights into the quality, usage and support structure of your IT solution.
- Demonstrate the cross-sector reusability of your IT solution.





2. TAKE INTO ACCOUNT THE MULTILINGUAL EU ENVIRONMENT WHEN DEVELOPING IT SOLUTIONS

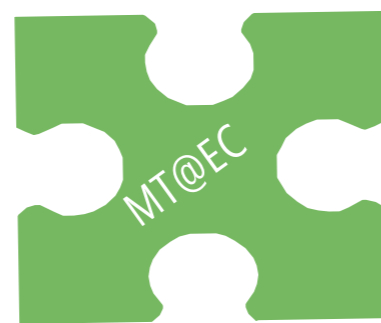
Problem statements

- Public administration leaders may not always see a business need for multilingualism from a user's perspective. However, for an IT solution to be reused across borders, it should be internationalised. Internationalisation in this context refers to designing software so that it can be adapted to other languages or regions without needing major engineering changes.
- A lack of multilingual support in the structure of an IT solution can make reuse impossible. As a result, the IT solution will not be able to build a community around itself, thus endangering its sustainability.

2. TAKE INTO ACCOUNT THE MULTILINGUAL EU ENVIRONMENT WHEN DEVELOPING IT SOLUTIONS

Solutions and supporting instruments

- Follow basic internationalisation principles to allow your solutions to be adapted to other regions without engineering changes.
- In order to facilitate reuse in a multilingual environment, public administrations should translate technical documentation into the languages of other Member States.



Machine Translation
at the EC





4. CONTACT





CONTACT

Find news about sharing and reusing IT solutions

Download the [Sharing and Reuse Framework for IT Solutions](#)

Take part in other related activities on the [Joinup](#) communities!

[Join our Sharing and Reuse of IT Solutions Community and contact us:](#)

Directorate D — Digital Services
Unit DIGIT.D.2 — Interoperability
E-mail: ISA2@ec.europa.eu
European Commission
B-1049 Brussels

The screenshot shows the Joinup website interface. At the top, there is a navigation bar with the European Commission logo and the 'joinup' brand name. Below this is a search bar and a 'Login or Sign up' button. The main header area contains the text 'Share and reuse interoperability solutions for public administrations'. A breadcrumb trail indicates the current location: 'European Commission > ISA > Joinup > Communities > Srs > Welcome'. The main navigation menu includes 'Find solutions', 'Share and Collaborate', 'Keep up-to-date', and 'People'. Below this, there are tabs for 'Find communities', 'My Communities', 'Recommended', and 'Editor's Choice'. The featured community is 'Sharing and Reuse of IT solutions', which has a 3.75/5 rating from 4 votes and a 'Join this community' button. A list of related items is shown below, including 'The Sharing and Reuse Framework', 'Sharing and Reuse Awards Contest', 'Conference', 'Members list', 'Related', 'Communications', and 'About'. A 'Learn more' button is also present. At the bottom, there are tabs for 'Latest News', 'Latest activity', and 'Latest e-Library Content'. On the right side, there are social media sharing options (Facebook, Twitter, Google+, LinkedIn) and a 'Mailing list' sign-up form with the email address 'srs[at]joinup[dot]ec[dot]europa[dot]eu'.

Спасибо Gracías اشكر Obrigado Спасибо Dank U
Grazie Ευχαριστώ Danke
Merci Thank You Ngiyabonga Dank U
Dziękuję Ευχαριστώ Diolch Thank You Ngiyabonga Tack
Danke Grazie Tack
Merci Dank U Diolch Thank You Ngiyabonga Tack
Dank U Terima Kasih Diolch Grazie Tack
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