04.10.2011

# From strategies to services
## – eHealth as the enabler for cross-border health care

# Closer Cooperation on Health Care



- Health Care has been and still is a strict national prerogative
- Previously only limited co-operation on a general policy level
- Substantial variations between national health care systems, but also similar challenges are faced and….
- …substantial similarities in political ambitions to reform health care as well as in the challenges to reach these goals
- The work started in 2003-2006 at the Ministerial Conferences
- In 2004 the eHealth Action Plan was adopted and the I2010 was created
- And in 2007 in Berlin the eHealth Initiative was created….

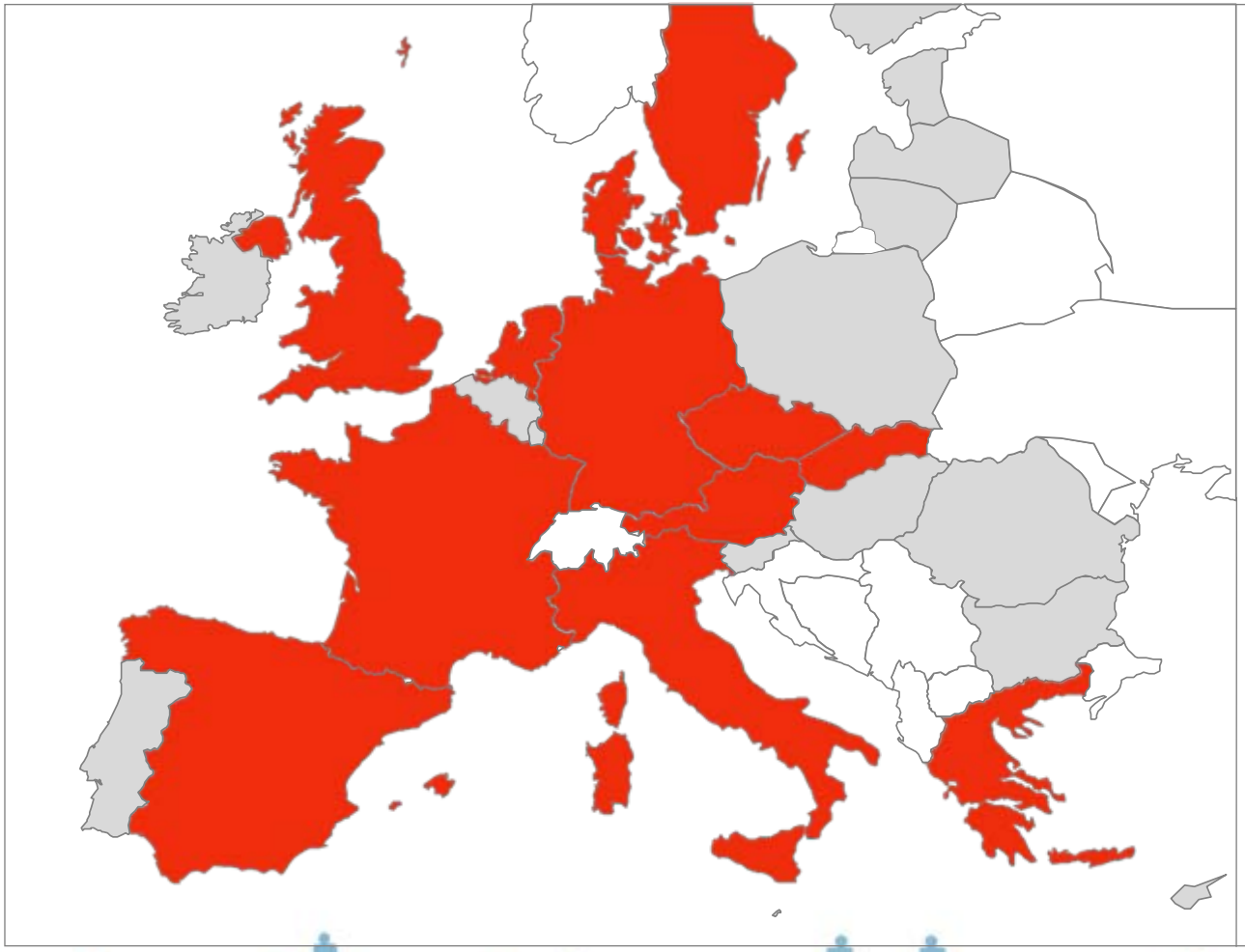
# 2008 a new era in eHealth



- Proposal for a European Directive on patients' rights in cross-border Health Care
- Commission Recommendation on cross-border interoperability of electronic health record systems
- Communication on telemedicine for the benefit of patients, health care systems and society
- eHealth Standardisation Mandate 403
- Council conclusion on Safe and Efficient health care through eHealth – Dec. 2009
- 1 Jan. 2010, the European eHealth Governance Initiative (eHGI), was launched through a Joint Action Initiative
- March 2011 a European Directive on patients' rights in cross-border Health Care

# epSOS Starting Countries





Austria
Czech Republic
Denmark
France
Germany
Greece
Italy – Lombardy
The Netherlands
Slovakia
Spain
Spain – Andalusia
Spain – Castilla la Mancha
Spain – Catalonia
Sweden
United Kingdom – England
United Kingdom – Scotland

# Stakeholder Collaboration

- epSOS & **CALLIOPE** in CALLIOPE WG7
- Communication with a broader audience in both directions
- Infrastructure for dissemination activities and Qualified feedback
- Input from Calliope's defined areas of work (Roadmap, EU-recommendations, Standards)
- Liaison between epSOS & **STORK, SPOCS, PEPPOL** (**HPRO Card** and **Netc@rds**)
- Develop common rules and specifications to assist mutual recognition of eIDs across national borders;
- Test, in real life environments, secure and easy-to-use eID solutions for citizens and businesses
- Interact with other EU initiatives to maximize the usefulness of eID services

Secure Identity Across Borders Linked

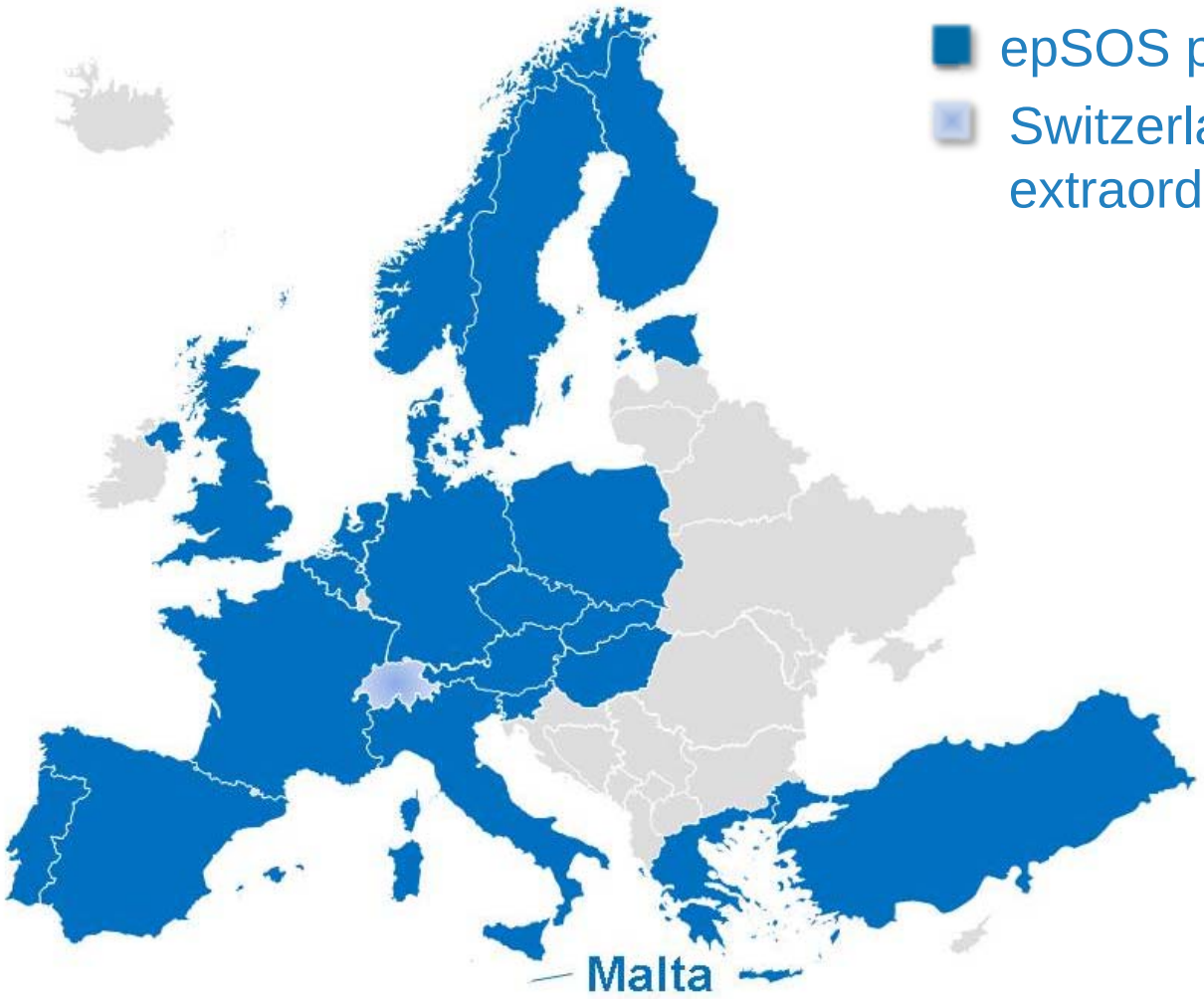
calliope
Call for Interoperability

Welcome to CALLIOPE
A European Thematic Network for eHealth Interoperability

epsos
EUROPEAN PATIENTS SMART OPEN SERVICES

http://www.calliope-network.eu/ http://www.eid-stork.eu/

# The epSOS participating nations




- epSOS participating nations
- Switzerland contributes as extraordinary member

# The epSOS Project Team



The Project Team consists of 47 eHealth beneficiaries from 23 member states:

**.at, .be, .ch, .cz, .de, .dk, .ee, .gr, .es, .fi, .fr, .hu, .it, .mt, .nl, .no, .pl, .pt, .se, .sk, .sl, .tr and .uk,**

http://www.epsos.eu/participants.html Including eg;

- Ministries of Health
- Competence Centers working with local organizations with thousands of Contributors
- IHE-Europe representing ICT industry team

# The epSOS Industry Team



| | | | |
|---|---|---|---|
| 3M | Accenture | Agfa | Apollo |
| CareCom | Cisco | CMP Medica | Compugroup |
| dbMotion | Dedalus | Dell | ERC |
| Engineering S.p.A | ETIAM | GE | Gnomon |
| IBM | Indra | Insiel | Intel |
| Mawell | Medicognos | Microsoft | Netsmart |
| Oracle | Posam | RISE | Steria |
| Tiani-Spirit | TrebleM | T-Systems | X-tention |

Industry Team Steering Group members are underlined

# Goals & Challenges



- Goal for the epSOS eHealth Project:
  - "*to develop a practical eHealth framework and ICT infrastructure [based on existing national infrastructures] that will enable secure access to patient health information, particularly with respect to a basic patient summary and ePrescription, between European health care systems*"
- Challenges to get there (based on the EIF (European Interoperability Framework)):
  - Legal Interoperability
  - Organisational Interoperability
  - Semantic Interoperability
  - Technical Interoperability

# From Strategies to Services



Provide concrete cross border services that ensure safe, secure and efficient medical treatment for citizens when travelling across Europe

- Focus on services close to the patient:
  - Patient Summary for EU Citizens
    - Occasional Visit
    - Regular Visit
  - ePrescribing for EU Citizens
    - Medication ePrescription
    - Medication eDispensation

- Build on existing National eHealth Projects and use experiences and knowledge from all Member States

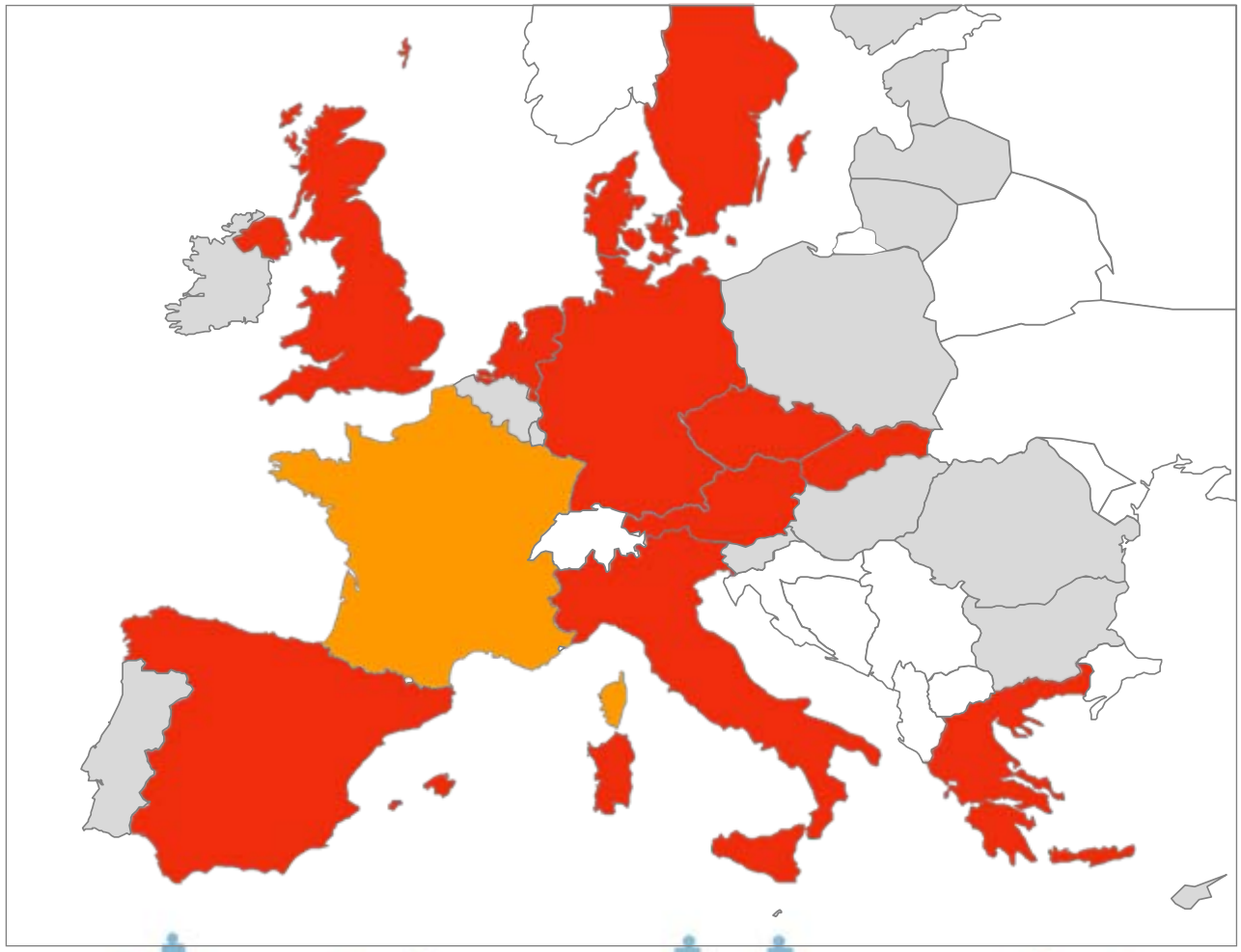
# epSOS extension objectives



1. **Consolidate and scale up** piloted epSOS services
2. **Extend and refine** functionalities of the two core services
3. Assess the use of the epSOS patient summary service in the context of the **European emergency (112) service**
4. Comparatively **assess the interoperability approaches** of epSOS services with those in other regions of the world,

# Availability of Patient Identifier 2008





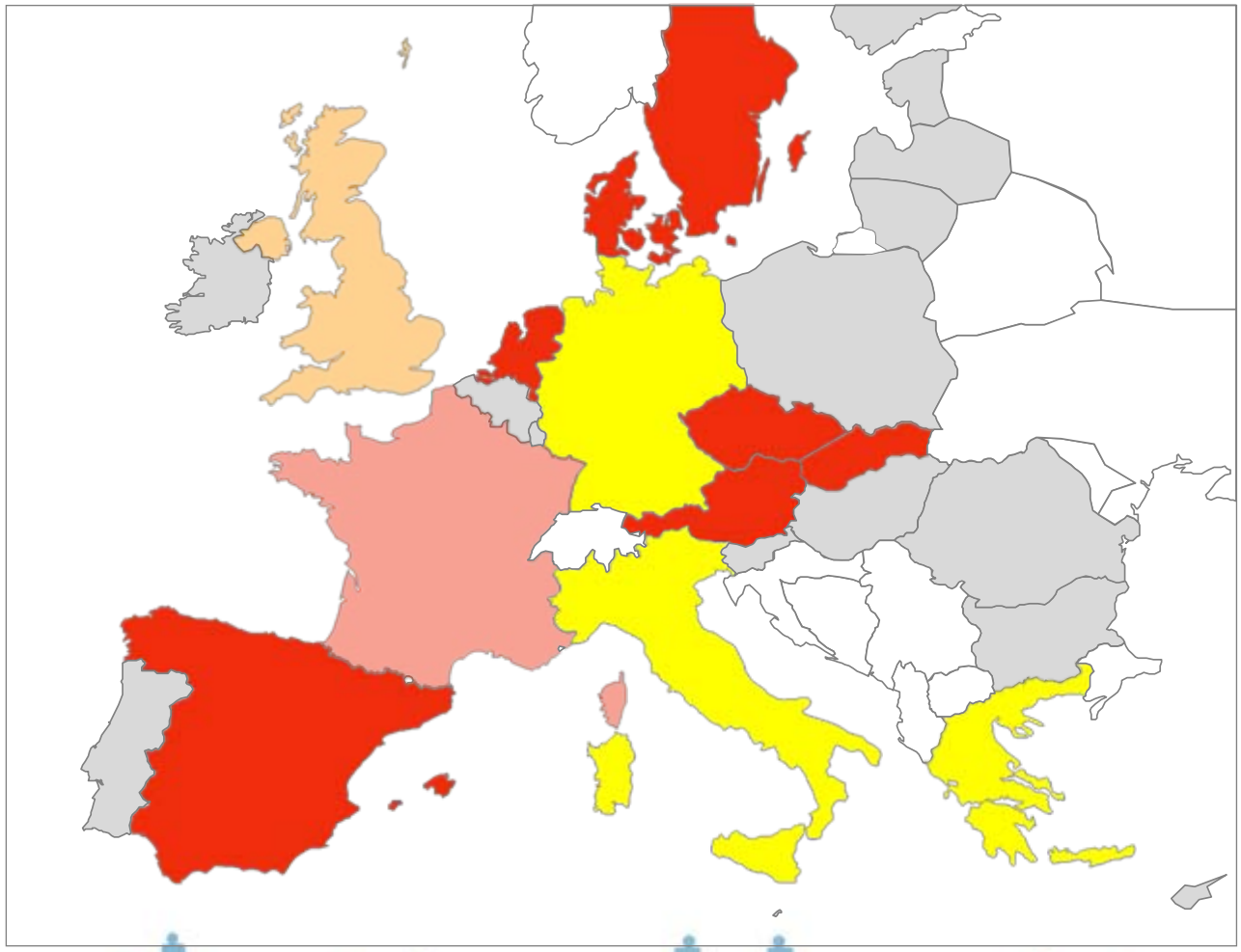
- Single (national) patient identifier
- Multiple (regional) patient identifiers
- EU memberstate (not participating)
- Non EU country

# Availability of Patient Identifier 2010

- Single (national) patient identifier
- Multiple (regional) patient identifiers
- EU memberstate (not participating)
- Non EU country

# Availability of Opt-out Consent 2008



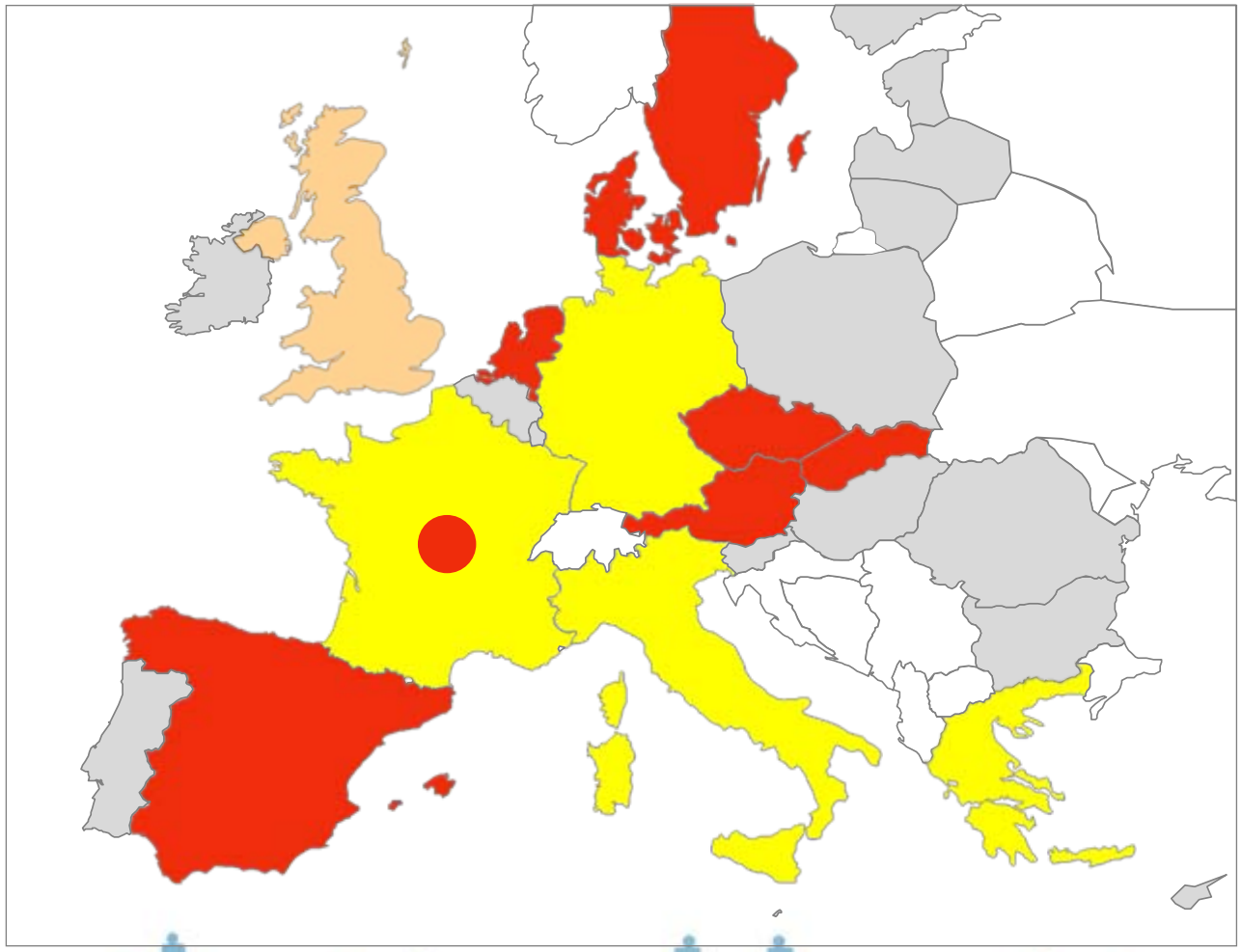


Nationally-led
- Fully available
- Partly available

Regionally-led
- Fully available
- Partly available
- Not available / unknown
- EU memberstate (not participating)
- Non EU country

# Availability of Opt-out Consent 2010



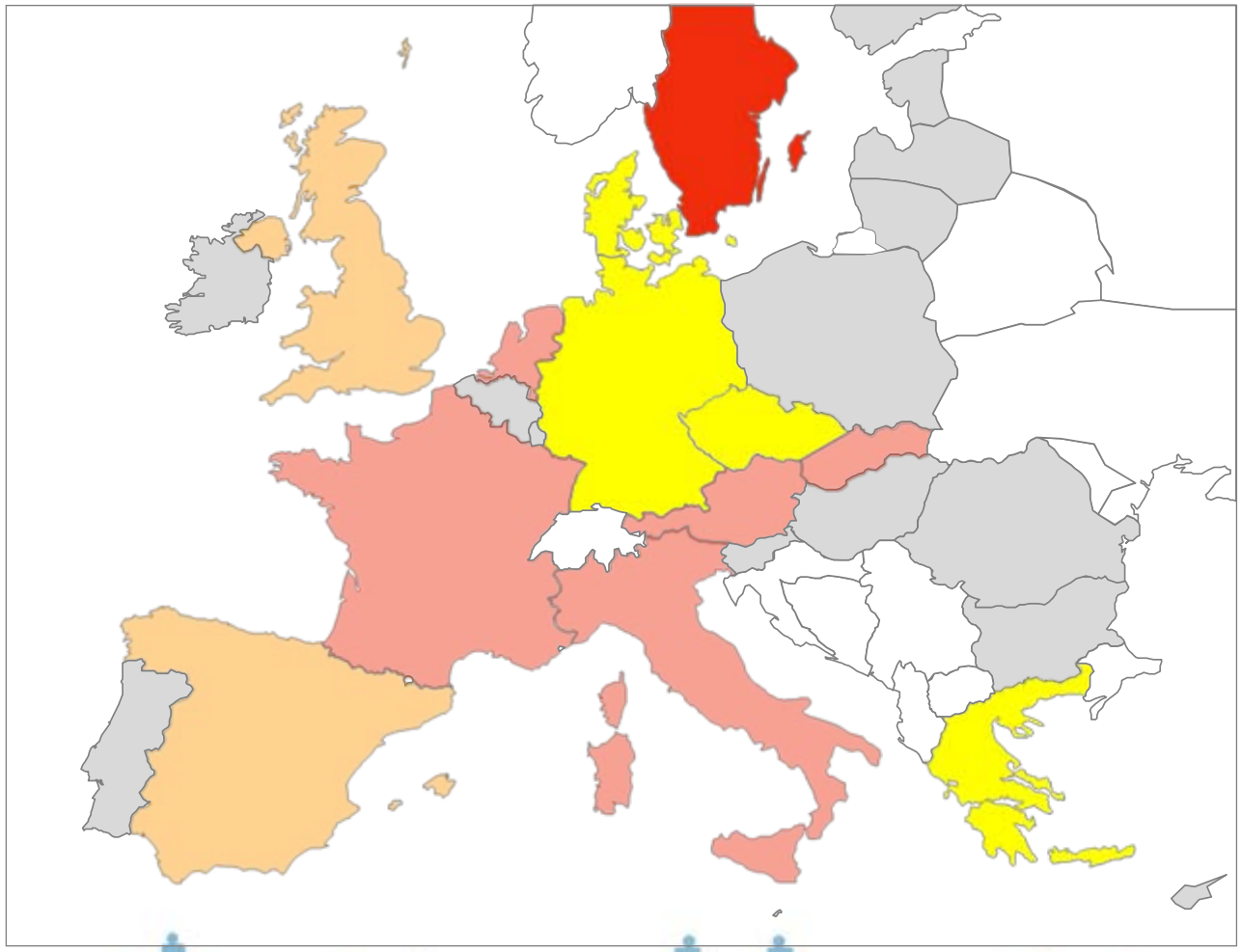


Nationally-led
- Fully available
- Partly available

Regionally-led
- Fully available
- Partly available
- Not available / unknown
- Opt-out likely to be implemented
- EU memberstate (not participating)
- Non EU country

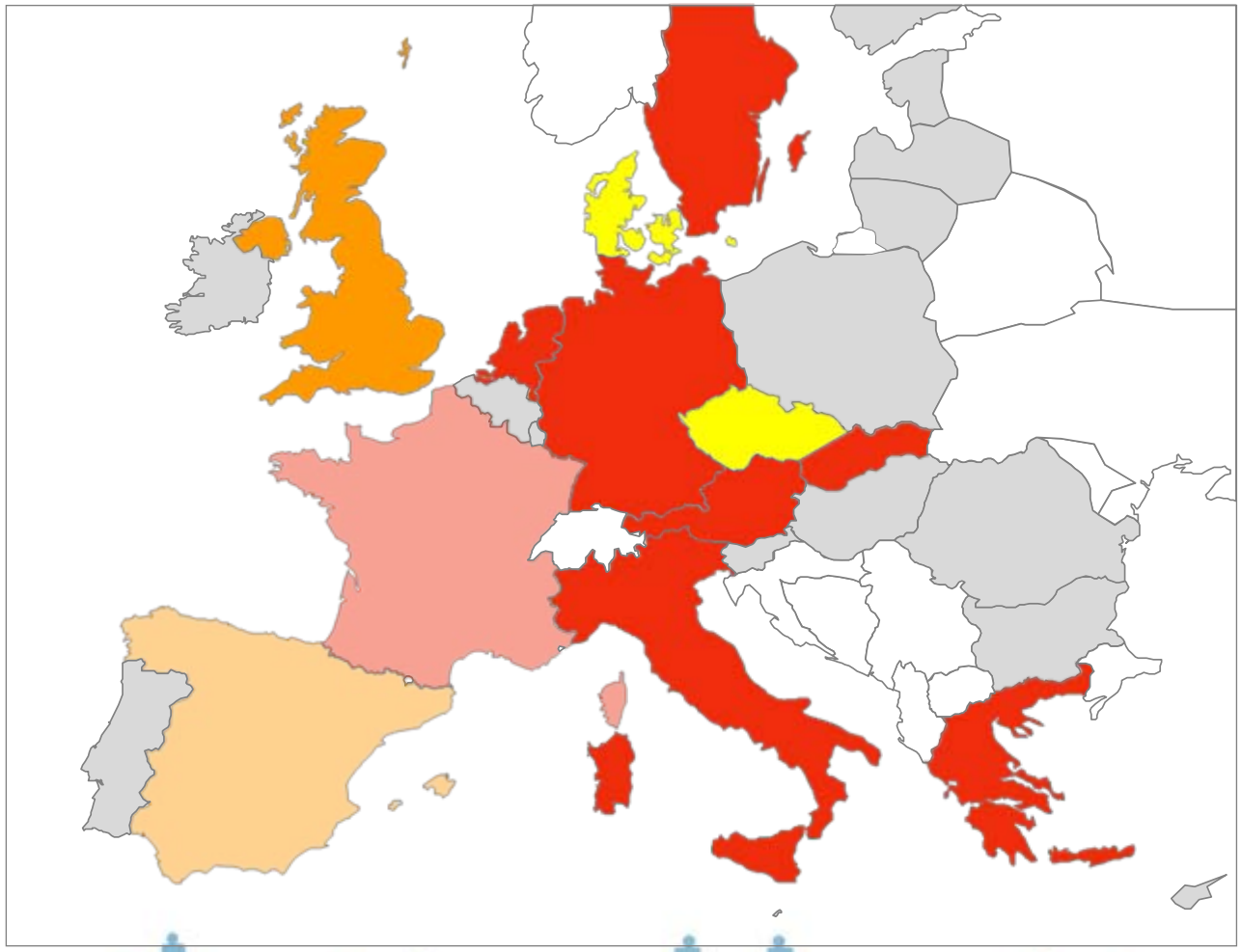
# HCP/HCP organisation Identifier Suitable for Authentication & Digital Signature 2008





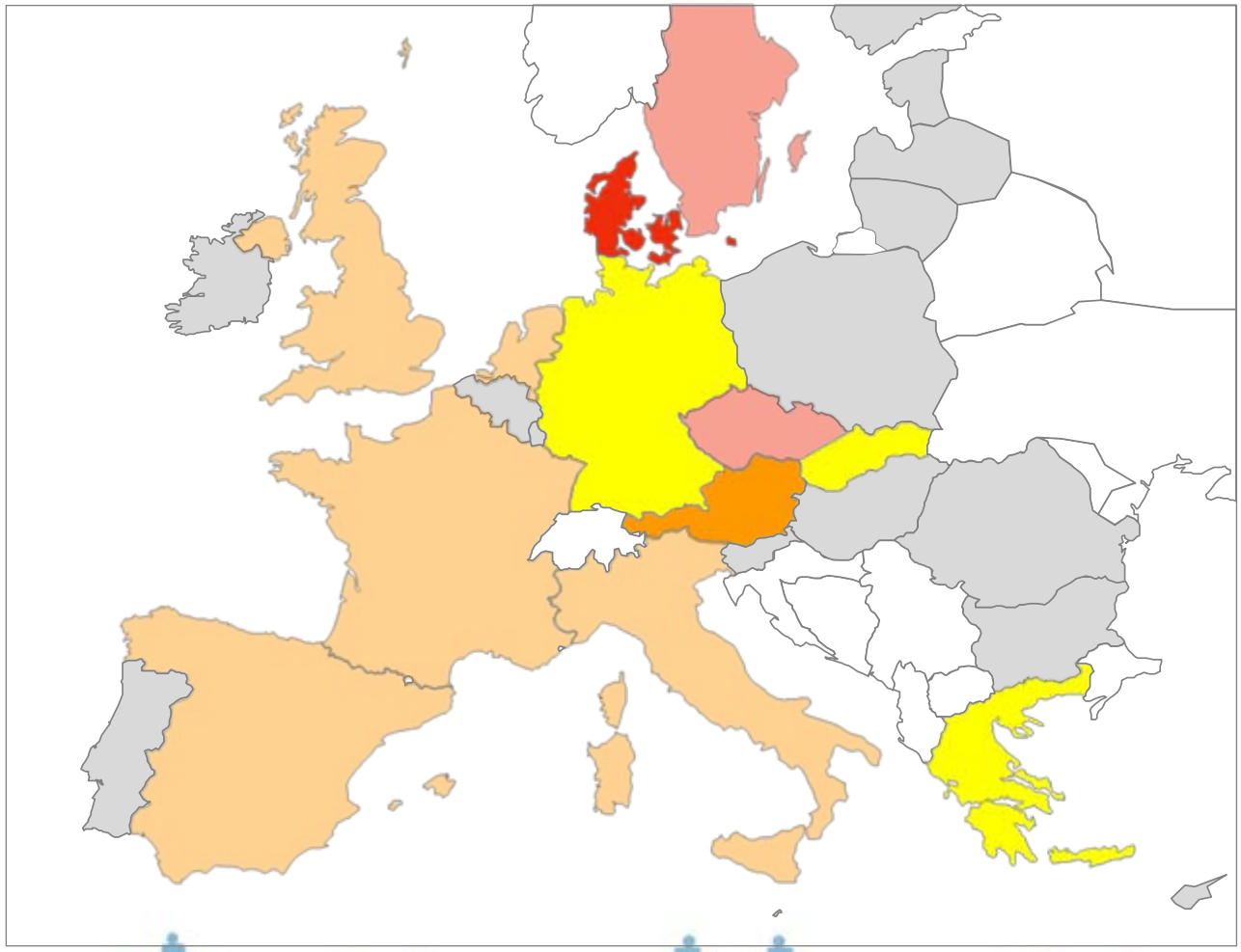
# HCP/HCP organisation Identifier Suitable for Authentication & Digital Signature 2010





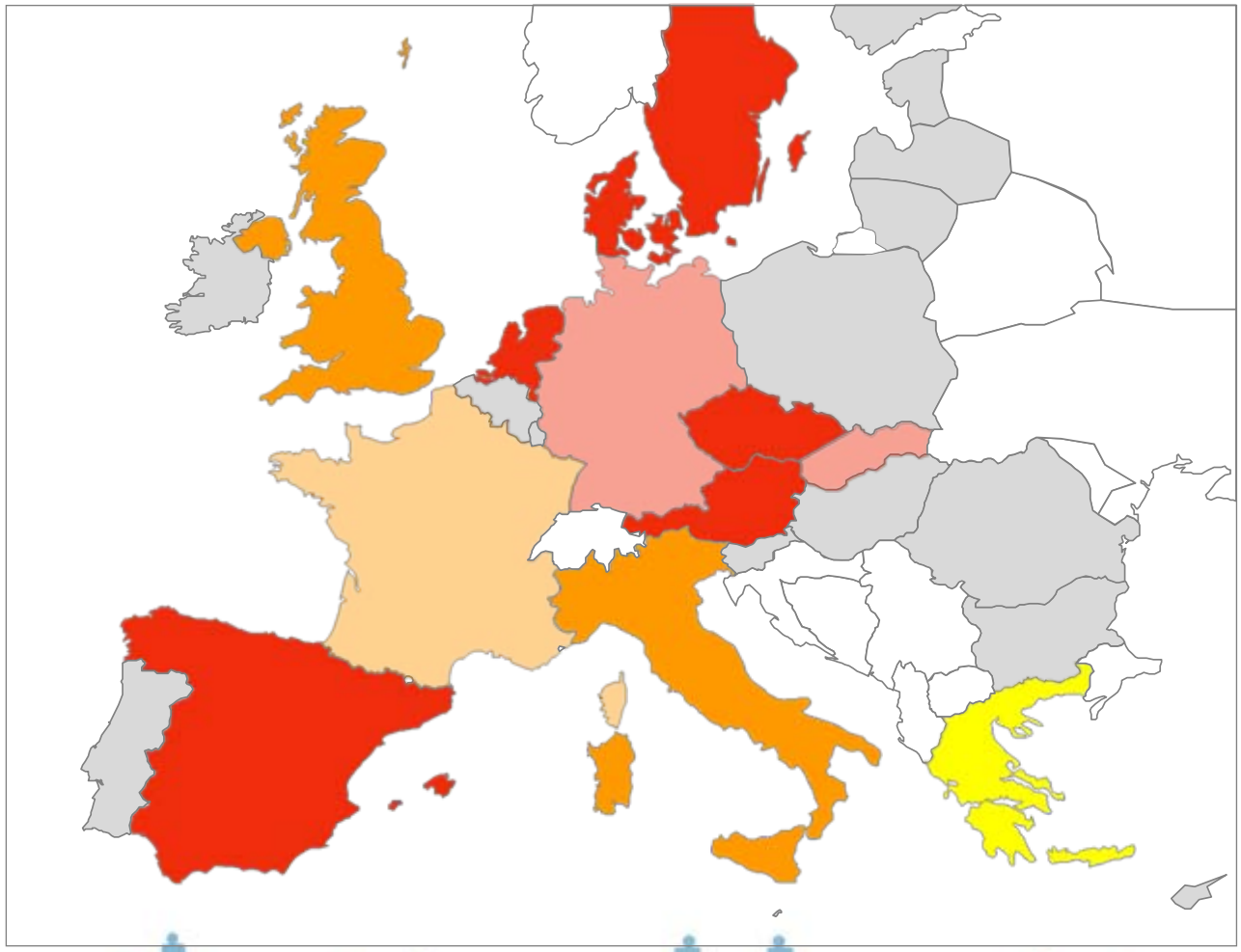
# Availability of Patient Summary 2008





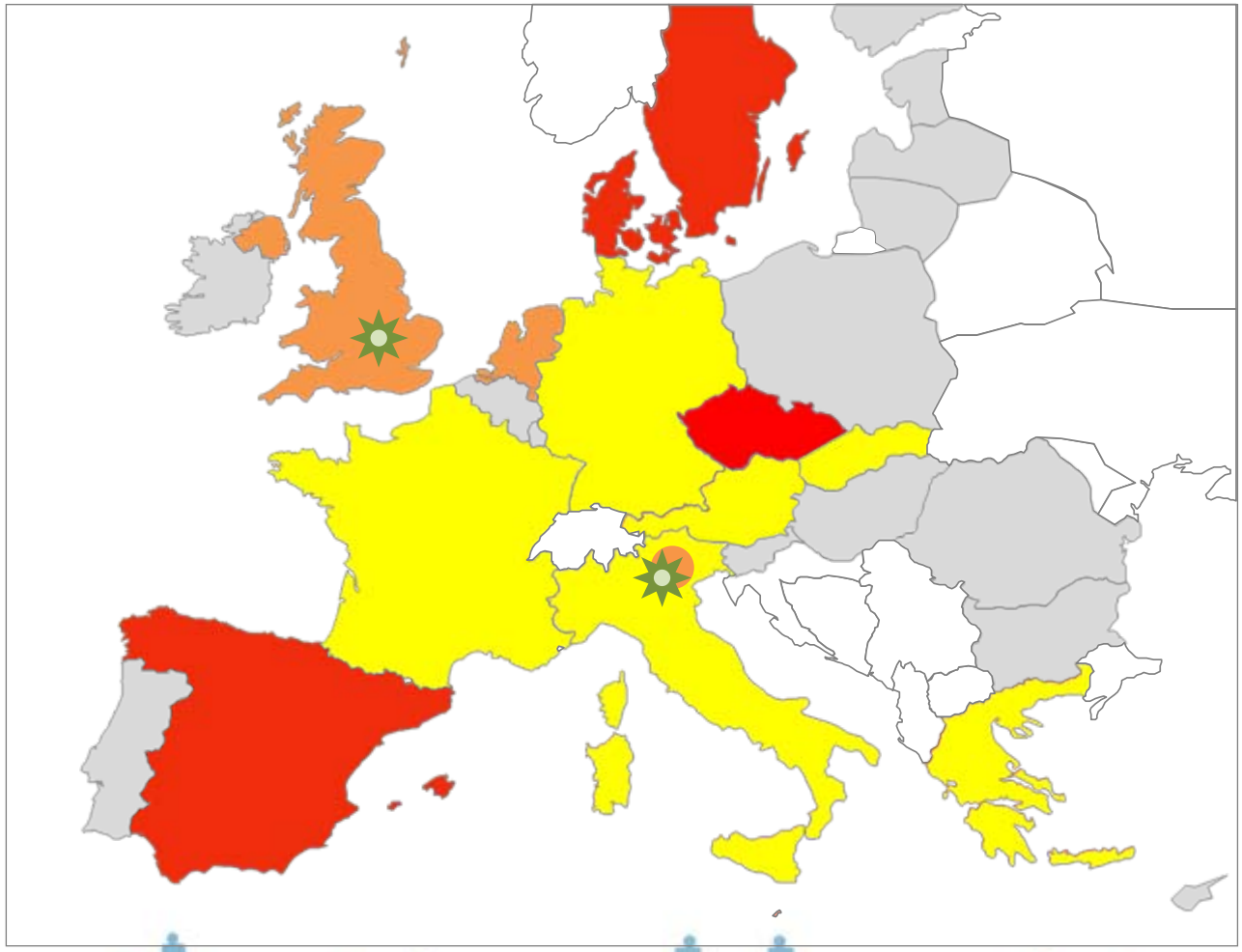
# Availability of Patient Summary 2010





# Retrievability of Patient Summary 2008

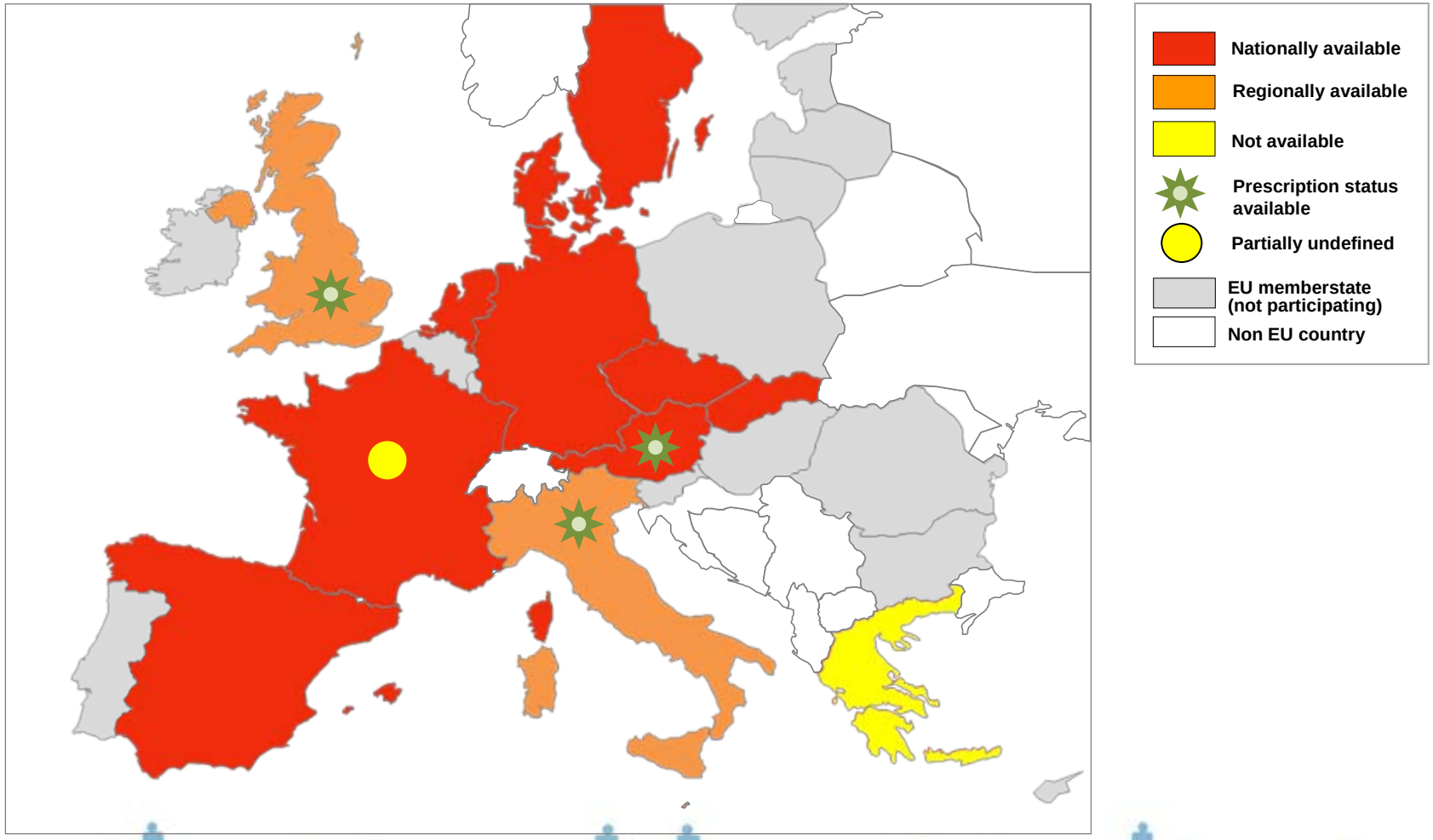




- Nationally available
- Regionally available
- Not available
- Prescription status available
- Only in one region
- EU memberstate (not participating)
- Non EU country

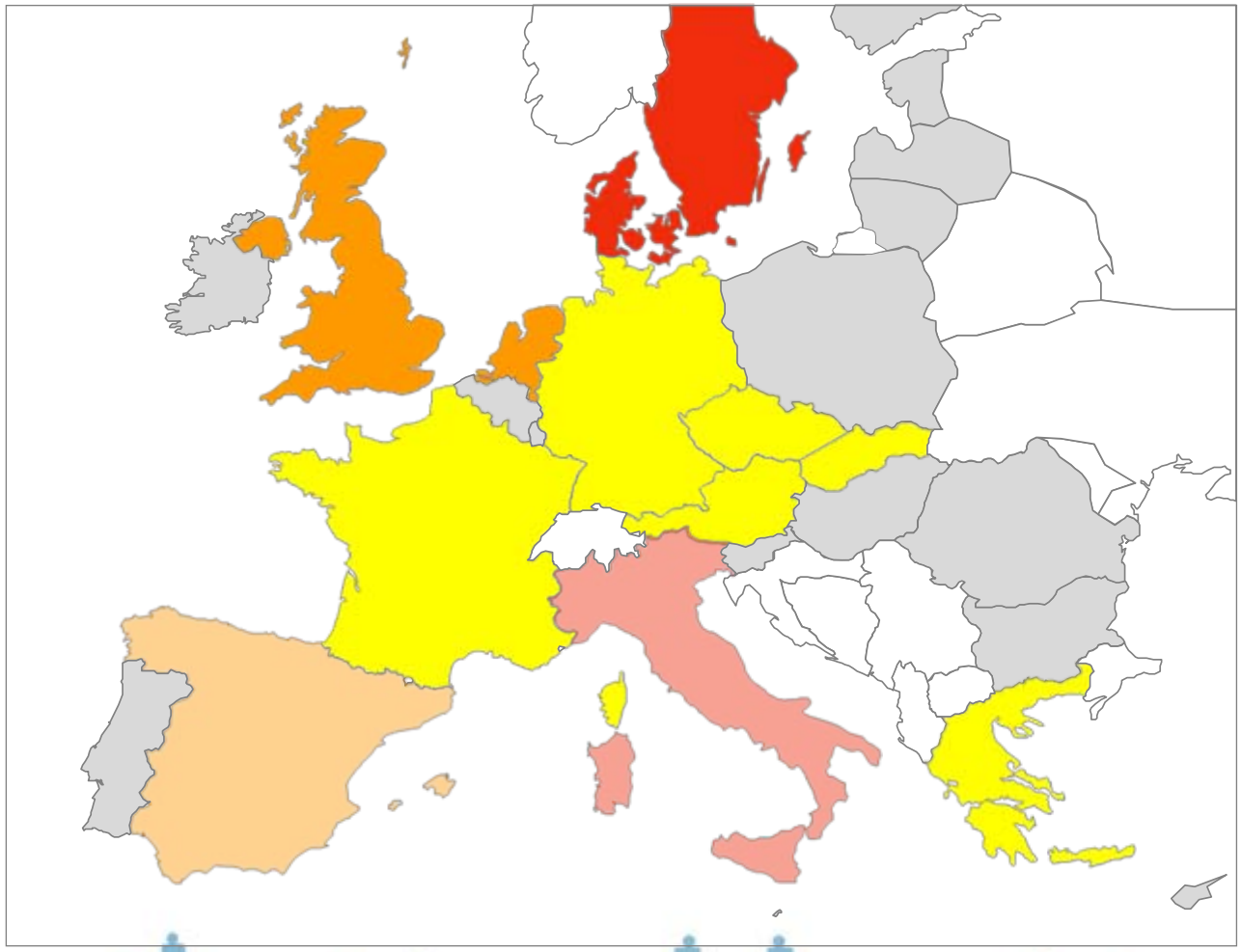
# Retrievability of Patient Summary 2010





# Availability of ePrescription 2008





>25% Nationally available & operational
<25%

>25% Regionally available & operational
<25%

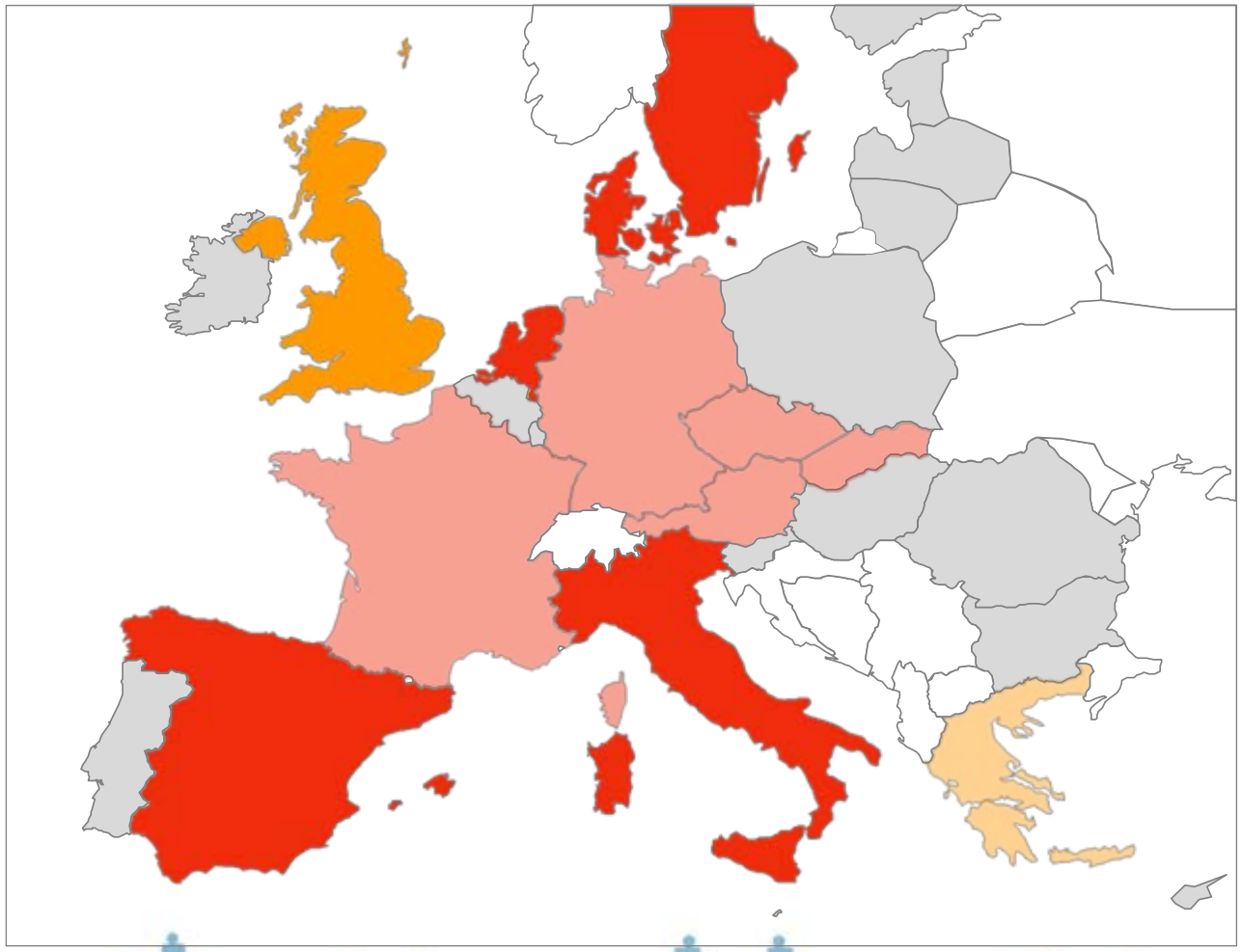
Not available / unknown

EU memberstate (not participating)

Non EU country

# Availability of ePrescription 2010





# epSOS as Pilot



## epSOS is a Large Scale Pilot

must be of limited scope but comprehensive, robust and universally accepted across MS, professions and cultures.

## long-term operation is out of scope of epSOS

But will deliver practical guidance and recommendations on how to make the transition from the pilots to normal operation.

# Legal Domain

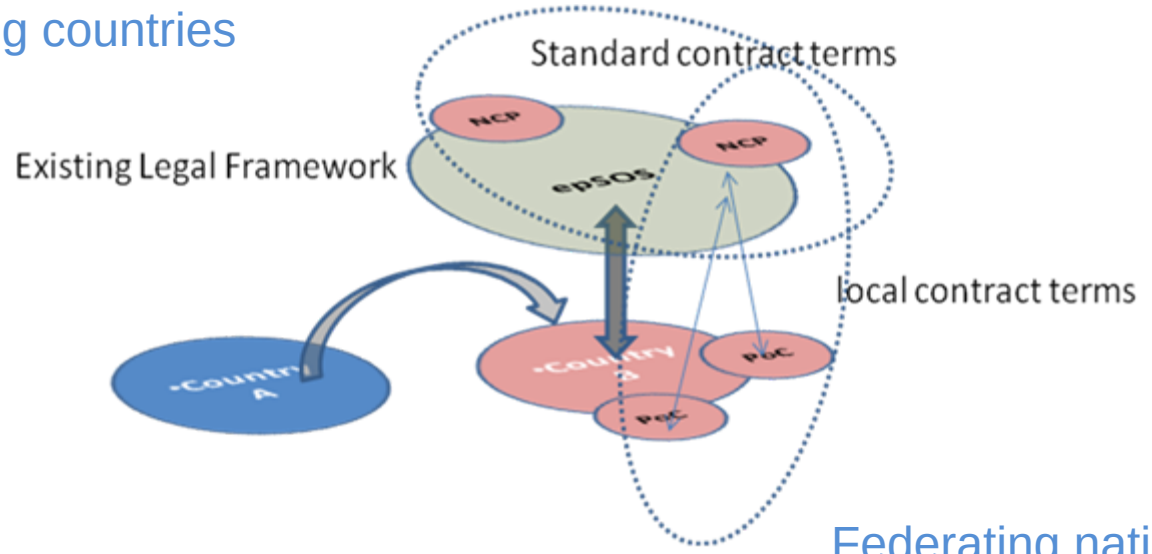
The project facilitates the sharing of patient data across EU borders **for the purposes of providing treatment to patients outside their usual country of residence**.

- Such data are shared within the "epSOS trusted domain" in the context of a '**circle of trust'.**
- The circle of trust is created by:
  - A **security policy** which sets common standards of security in data processing for all participating entities (NCPs and PoC)
  - A **framework agreement** governing data sharing between NCPs
  - A framework for data subject **consent** to data processing

# epSOS Trusted Domain



## Federating countries




## Federating national HCOs

A country becomes a member of the epSOS trusted domain.....

If a health care provider organisation (HCPO) demonstrates conformance to epSOS requirements then it may offer the epSOS services

The HCPO is accountable to the NCP

The NCP is accountable to the epSOS community

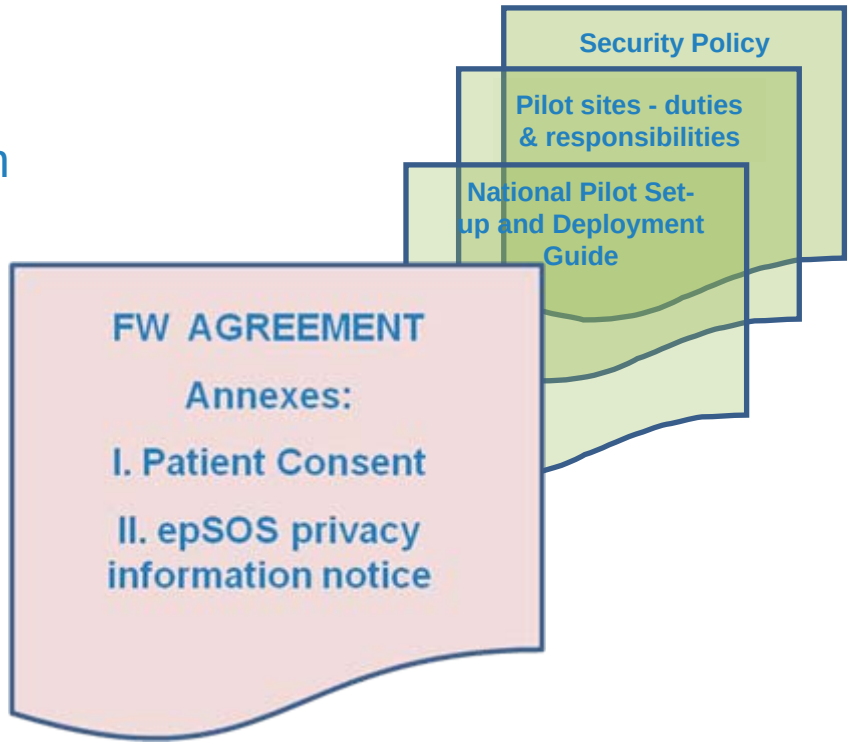
# National Agreements- epSOS blue print



A Framework Agreement

for the establishment of an

**epSOS NCP**



# Patient Consent in epSOS



Patient consent to the processing of health related data is a legal requirement in every EU country.

A freely given specific and informed indication of the patient's wishes by which s/he signifies his agreement to personal data relating to him being processed. ( Art 2(h) of the Data Protection Directive 1995/46/EC)

This means:

- Patient must be able to withhold consent
- Patient must be able to withdraw consent previously given
- Patient must know who (or what category of) person will process the data and why.
- Patient must know which data will be processed and for what purpose.

# Open issues (I)



- Dealing with different security levels applied today in Member States
- Dealing with different security cultures
- Dealing health care systems and health care practice diversity

# Organisational Domain

# Agreement about the PS 'Minimum dataset'

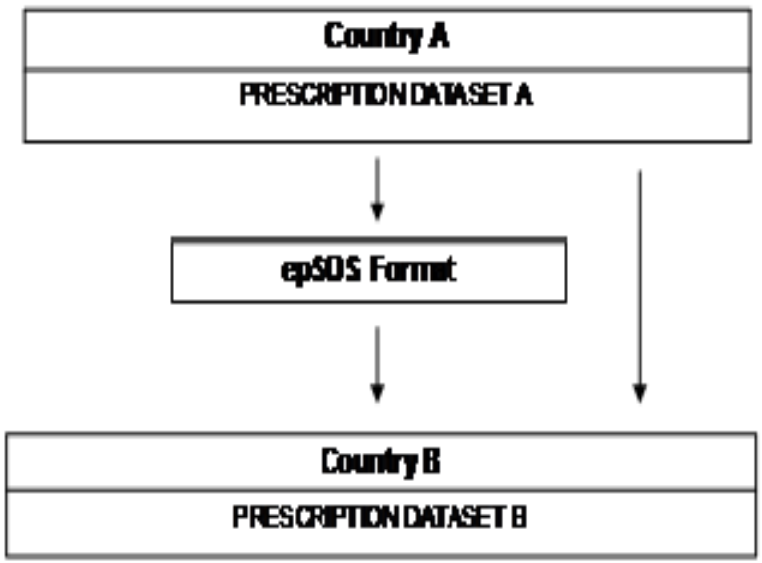


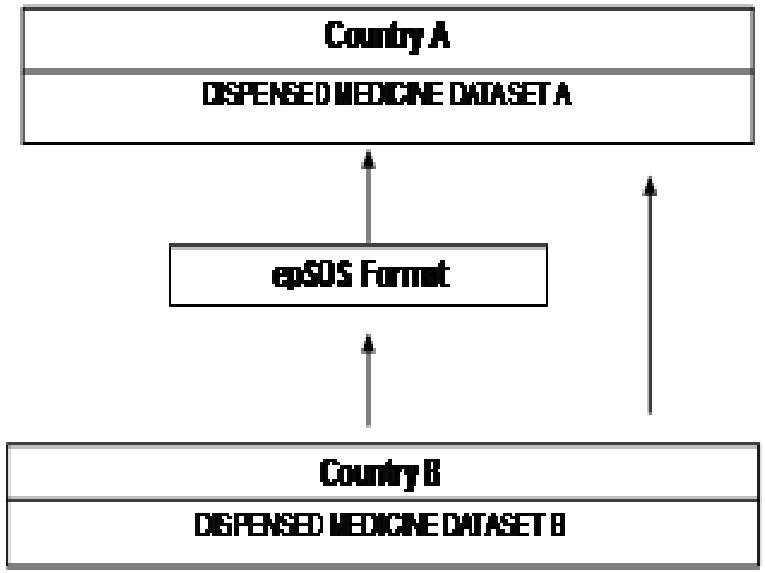
| Information/dataset | Contains |
|---|---|
| Patient Identification | Unique identification for the patient in that country. |
| Patient Personal information | Full name.<br>Date of birth<br>Gender |
| Allergies | Allergy description and agent |
| Medical Alerts | Other alerts not included in allergies |
| List of current problems | Problems/diagnosis that need treatment and/or follow up by a HCP |
| Medication Summary | Current medications |
| Country | Name of Country A |
| Date of creation of PS | Data on which PS was generated |
| Date of last updated | Data on which PS was updated |
| Author organization | At least an author organization (HCPO) shall be listed. In case there is not HCPO identified at least a HCP shall be listed. |

# Agreement on the datasets of ePrescription



- **Minimum and maximum datasets to interchange in the interoperability scenario for the Use cases**
  - **Two different datasets: prescription and dispensed medicine**



# Agreement on the datasets of ePrescription



- **Three different blocks in each dataset**
  - **Patient Identification**
  - **HCP identification**
  - **Medicine: prescription and dispensed medicine data**

**Prescription Item ID**

**Original or copy of the prescription in Country A**

**Country B Single concept**

- Active ingredient (Country B)
- Strength of the medicinal product (Country B)
- Medicinal product package (in Country A)
- Pharmaceutical dose form (in Country B)

**Brand name of the medicinal product prescribed in Country A**

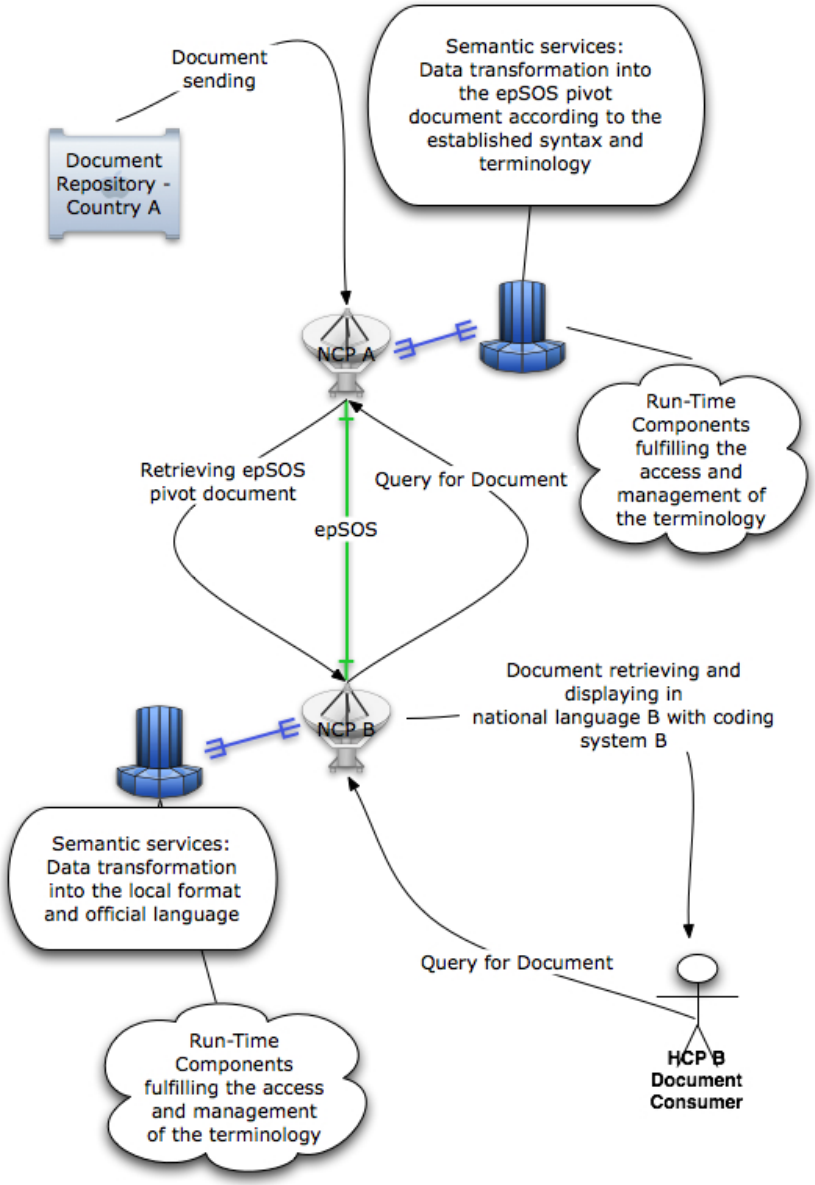
**Number of packages**

**Posology**

**Date of issue of the prescription**

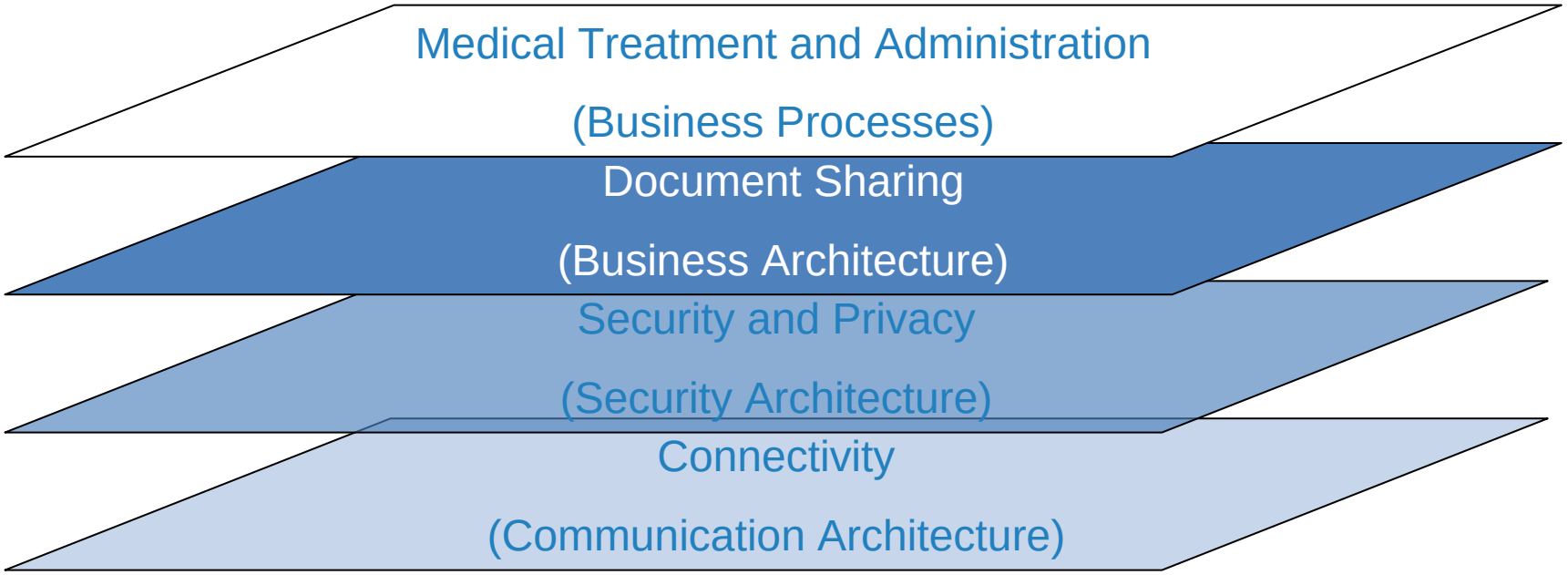
# General Flow of Information





# Layering of Architectures



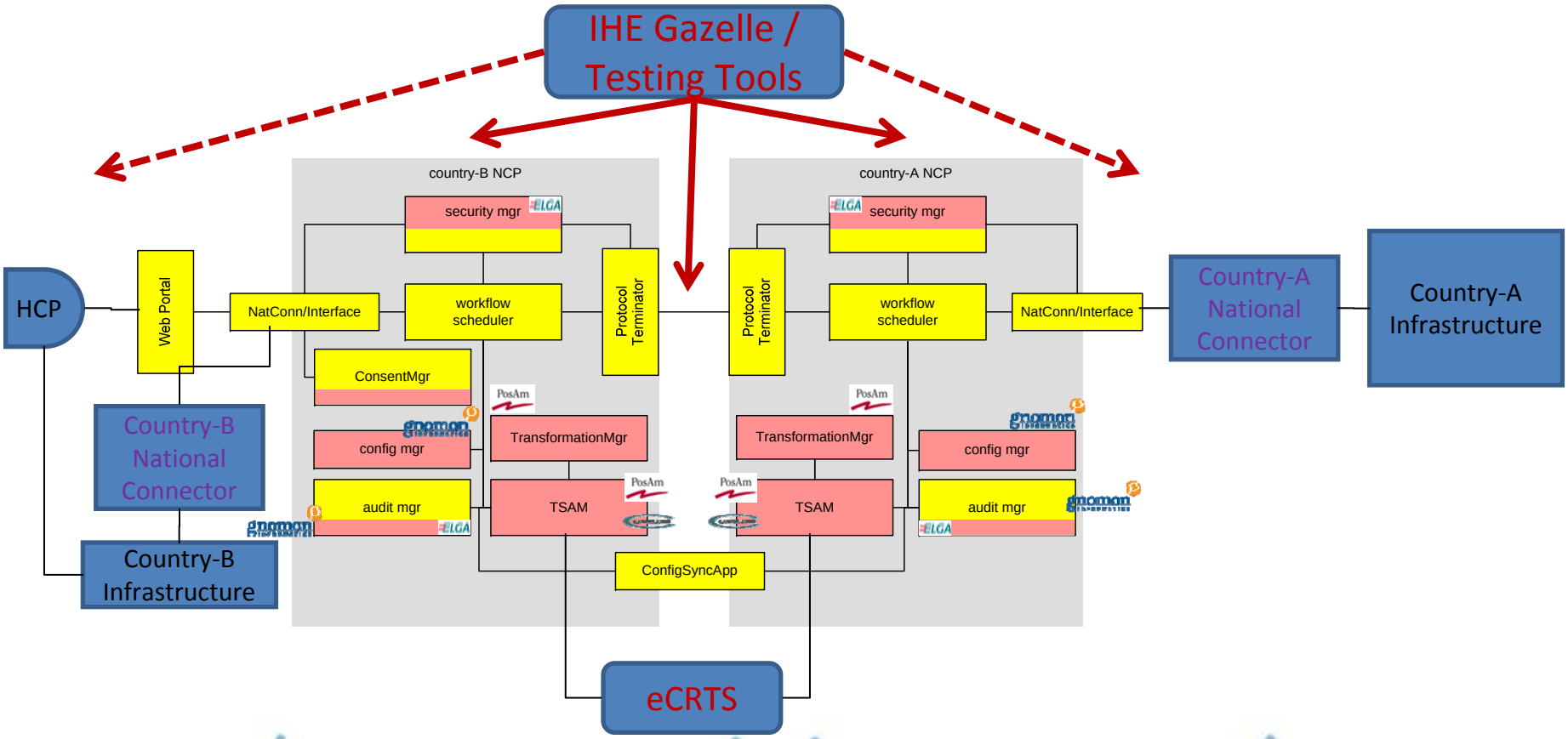


# Technical Domain Overview

(see full ”epSOS General Technical presentation” for details)

# Testing Specified Components





# Example of translation work



| Code sys | SNOMED-CT | ICD-10 | EDQM | ATC | LOINC | HL7 | IHE | ISO | ISCO | UCUM |
|---|---|---|---|---|---|---|---|---|---|---|
| Value set | AdverseEventType<br>ReactionAllergy<br>AllergenNoDrugs<br>ResolutionOutcome<br>BloodGroup<br>Severity<br>CodeNoMedication<br>SocialHistory<br>CodeProb<br>statusCode<br>MedicalDevices<br>UnknownInformation<br>Procedures<br>Vaccinations | IllnessesandDisorders | DoseForm<br>RoutesofAdministration<br>Package | ActiveIngredient | BloodPressure<br>PregnancyInformation DocumentTitle<br>Sections | ActCode<br>PersonalRelation.RoleType<br>Confidentiality<br>RoleClass<br>EntityNamePartQualifier<br>Telecommunic.AddressUse<br>AdministrativeGender<br>TimingEvent<br>NullFavor<br>URL Scheme | ActCode<br>RoleCode | Country<br>Language | HealthcareProfessionalRole | Units |
| Term:<br>Status: | 500 terms | 1700 | 600 | 5600 | 20 | 130 | 10 | 20 | 10 | 40 |

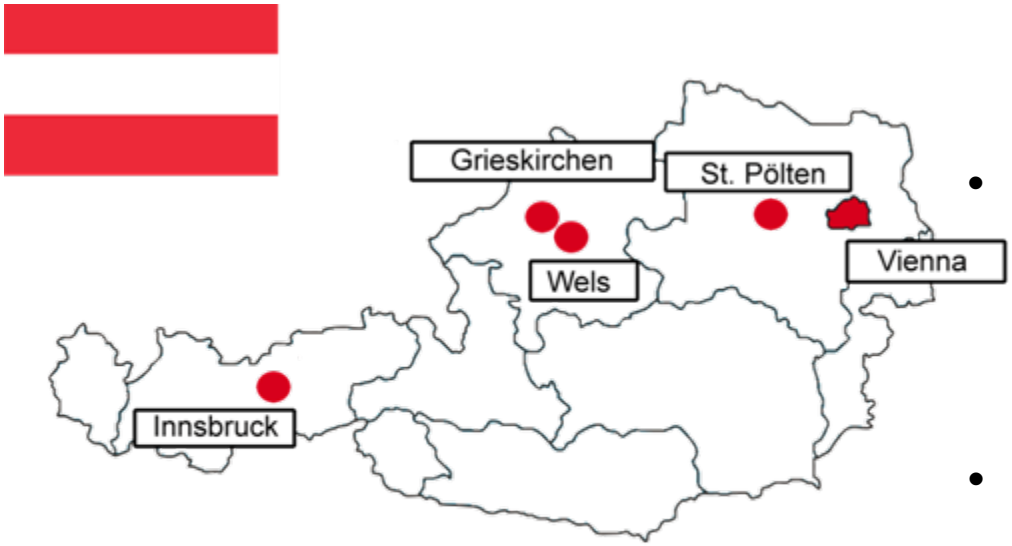
# epSOS Pilot Site Candidates



## Total numbers

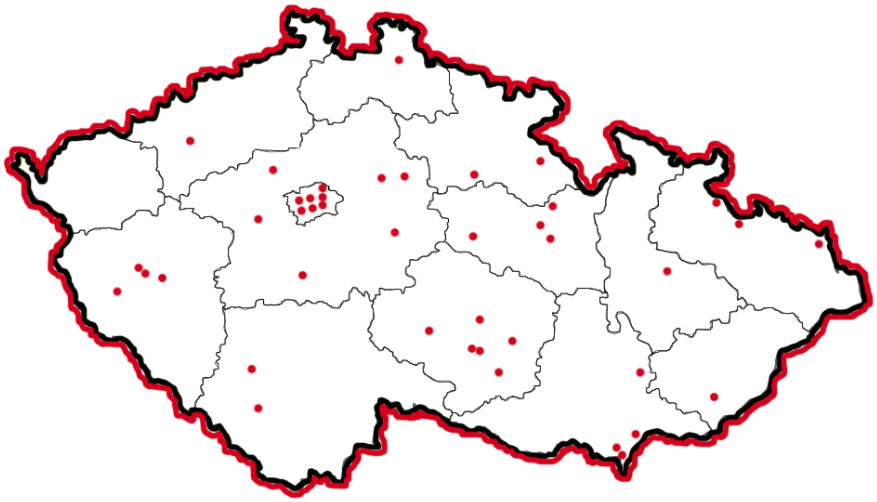
| INFRASTRUCTURES INVOLVED | PS/eP |
|---|---|
| Health Care Provider Organisation (HCPO) | 3.445 |
| • Hospitals | 183 |
| • Farmacies | 2.149 |
| • Point of Care (PoC) | 1.113 |
| **HUMAN RESOURCES INVOLVED** | |
| Health Proffesionals | 30.157 |

# Pilot Site Candidates: Austria



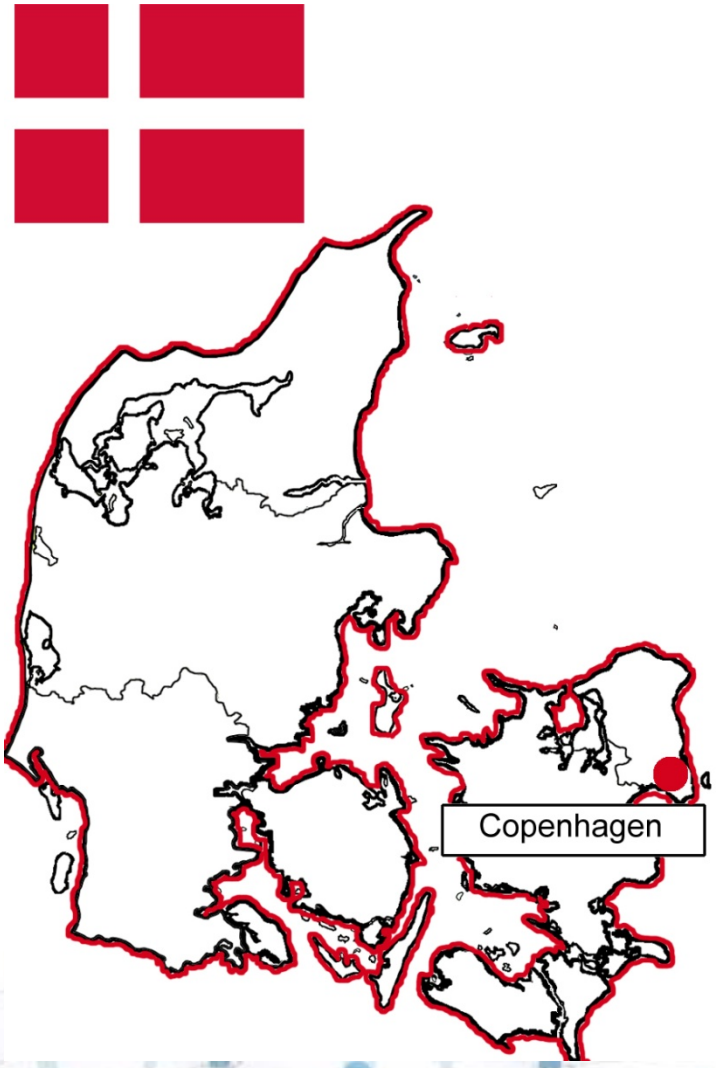

- **Involved regions:** five cities - Innsbruck, Grieskirchen, St. Pölten, Vienna and Wels
- **Coverage:** Patient Summary (acting as Country A & B) in Innsbruck, St. Pölten and Vienna. eDispensation (acting as Country A) in Grieskirchen and Wels
- **Acting as Country A:** Estimated annual outwards patient flow: approx. 7,200
- **Acting as Country B:** 4 hospitals, 136 GPs and specialists

# Pilot Site Candidates: Czech Republic



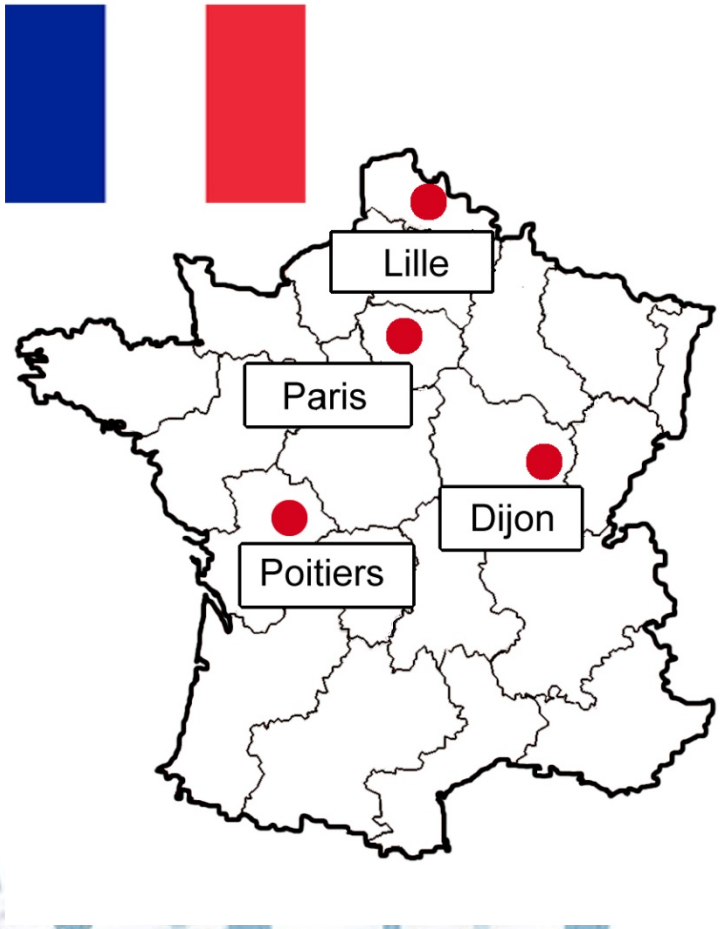
- **Involved regions:** the whole country
- **Coverage:** Patient Summary, acting as Country A & B
- **Acting as Country A:** over one million patients with an electronic health record. Estimated annual outwards patient flow to epSOS countries: 7,300
- **Acting as Country B:** 10,000 HCPs within 6,000 HCOs, of which 50 are hospitals (see map), scattered all over the country

# Pilot Site Candidates: Denmark




- **Involved regions:** the whole country, and in particular Copenhagen
- **Coverage:** Patient Summary (acting as Country A), ePrescription (acting as Country A & B) and eDispensation (acting as Country A & B)
- **Acting as Country A:** eP for the entire country. Estimated outwards patient flow: approx. 8,000
- **Acting as Country B:** 3,100 GPs and specialists, 60 hospitals, eDispensation at 2 pharmacies in Copenhagen

# Pilot Site Candidates: France

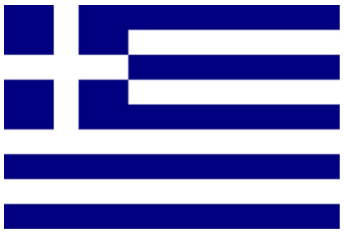


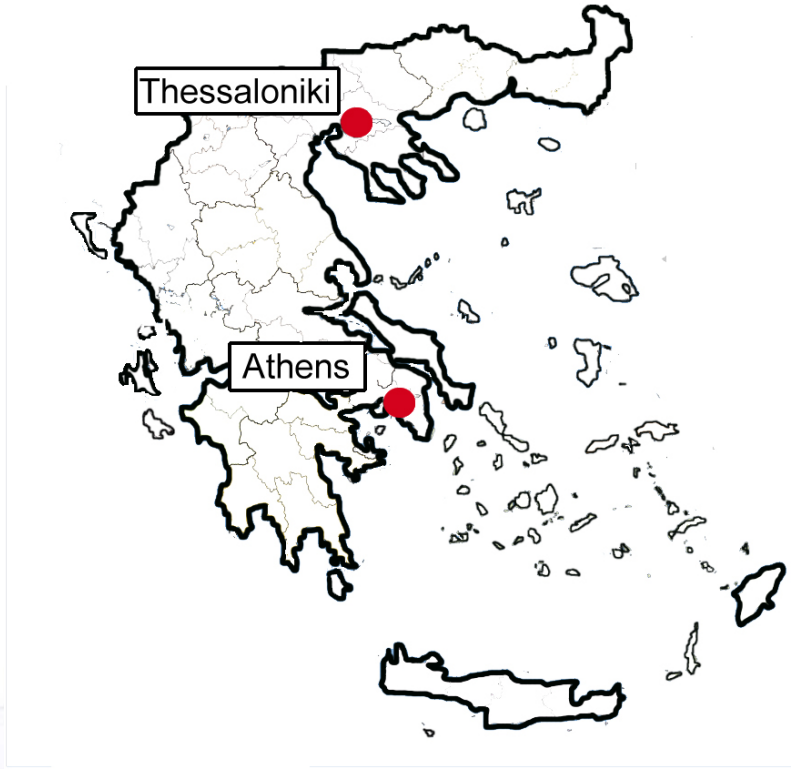

- **Involved regions:** four cities - Dijon, Lille, Paris and Poitiers
- **Coverage:** Patient Summary (acting as Country A & B) for incoming and outgoing Erasmus students at the universities of Dijon, Lille, Poitiers and Paris-X.
- **Acting as Country A:** 600 French students from the 4 universities participated in the Erasmus programme 2006/07 (outgoing)
- **Acting as Country B:** the four universities received more than 400 incoming Erasmus students in 2006/07

# Pilot Site Candidates: Germany

- **Involved regions:** Baden-Württemberg, Bavaria, Rhineland-Palatinate
- **Coverage:** Patient Summary, acting as Country A

# Pilot Site Candidates: Greece



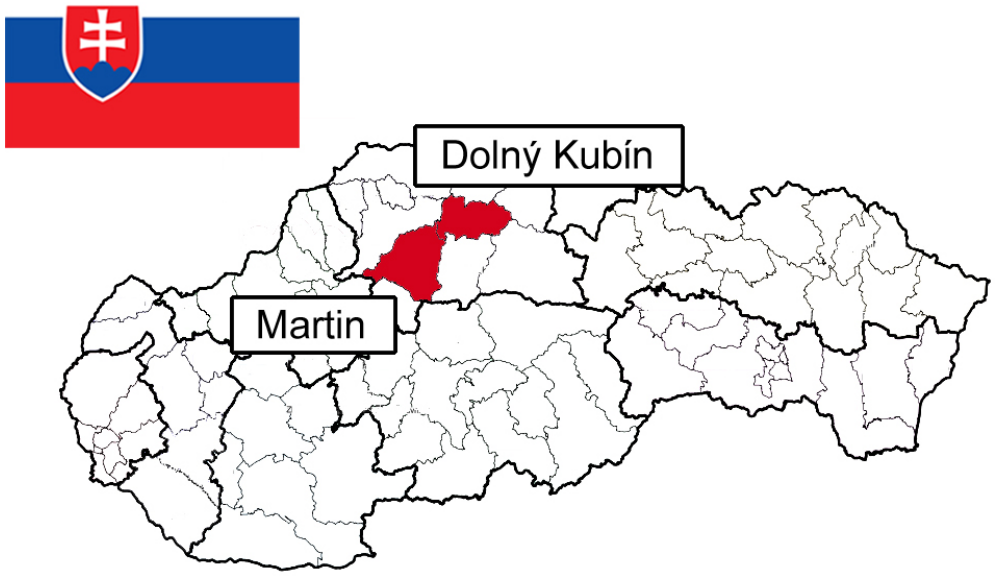



- **Involved regions:** two cities – Athens and Thessaloniki
- **Coverage:** Patient Summary and ePrescription/eDispensation, acting as Country B
- **Acting as Country B:** estimated HCOs/HCPs involved: 15 pharmacies, 2 hospitals, 20 HCPs. Total annual tourist flow (inwards): over 6 million visitors

# Pilot Site Candidates: Italy

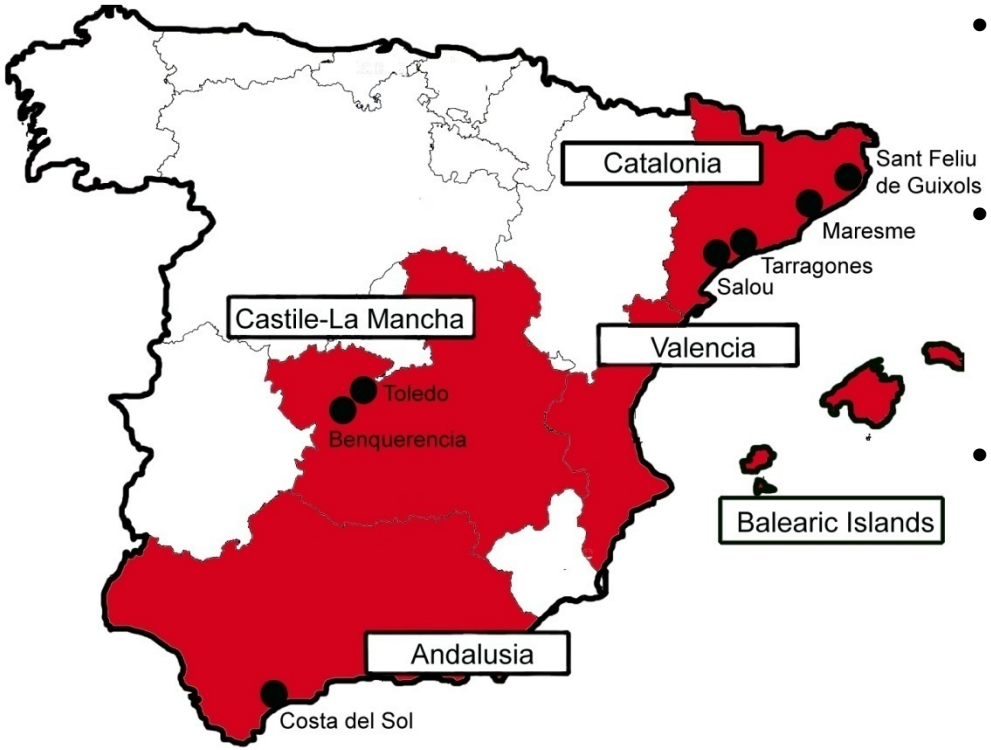
- **Involved regions:** Lombardy, in particular the provinces of Pavia and Brescia
- **Coverage:** Patient Summary (acting as Country A & B) and ePrescription/ eDispensation (acting as Country A)
- **Acting as Country A:** Acting as sender of PS in the provinces of Pavia and Brescia. The whole region Lombardy acting as sender of eP information and receiver of dispensed medicine information
- **Acting as Country B:** Acting as receiver of PS in the Garda Lake area (Brescia)

# Pilot Site Candidates: Slovakia




- **Involved regions:** Martin and Dolny Kubin
- **Coverage:** Patient Summary and ePrescription/Dispensation, acting as Country A & B
- **Acting as Country A:** PS and eP for 10,000 citizens
- **Acting as Country B:** eP at 8 pharmacies in Martin and Dolny Kubin. PS at 2 hospitals and 15 outpatient care units

# Pilot Site Candidates: Spain



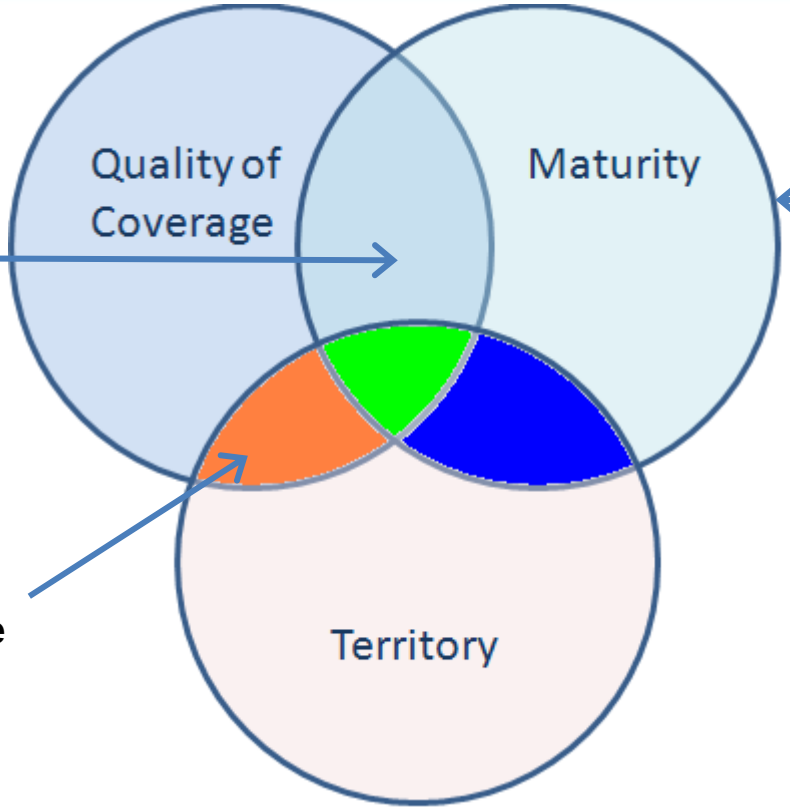

- **Involved regions:** Andalusia, Balearic Islands, Castile - La Mancha, Catalonia, Valencia
- **Coverage:** Patient Summary and ePrescription/Dispensation, acting as Country A & B
- **Acting as Country A:** PS for the entire population of all five regions. eP for the entire population of all regions except CLM.
- **Acting as Country B:** PS and eP/eD in the whole regions of Valencia and the Balearic Islands, and in selected cities/provinces in Andalusia, Catalonia and CLM

# Pilot Site Candidates: Sweden

- **Involved regions:** the whole country, and in particular Östergötland, Scania, Stockholm and Norrbotten
- **Coverage:** Patient Summary and ePrescription/Dispensation, acting as Country A & B
- **Acting as Country A:** eP for the entire country. Acting as sender of PS in Östergötland and Norrbotten
- **Acting as Country B:** acting as receiver of PS in Östergötland and Norrbotten. eP/eD at selected pharmacies in Stockholm, Scania and Norrbotten

# Quality of coverage of use case elements






**Piloting as Country A & B and with all scenarios**

**Ammount of professionals & domestic population covered with eP or PS**

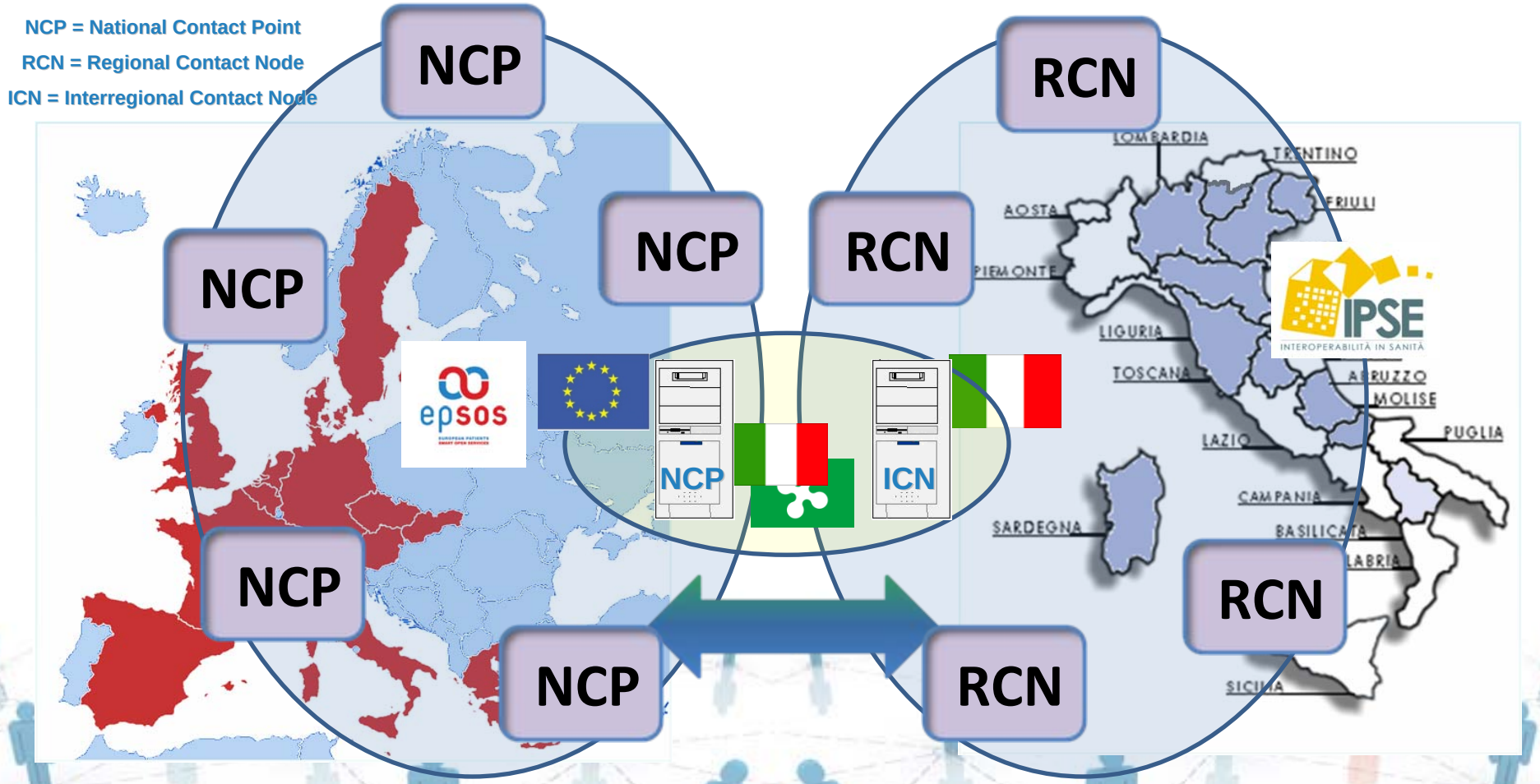
**High Quality of Coverage & High territory coverage**

- Q.C.- Scenarios 1-6
- **Best score**.-Large QC & Extended Maturity & All Territory
- Many HCP & Territories type 1,2
- Piloting both as Country A and B & in a Strategic Territory Spot

# Eg. National, Regional, Local

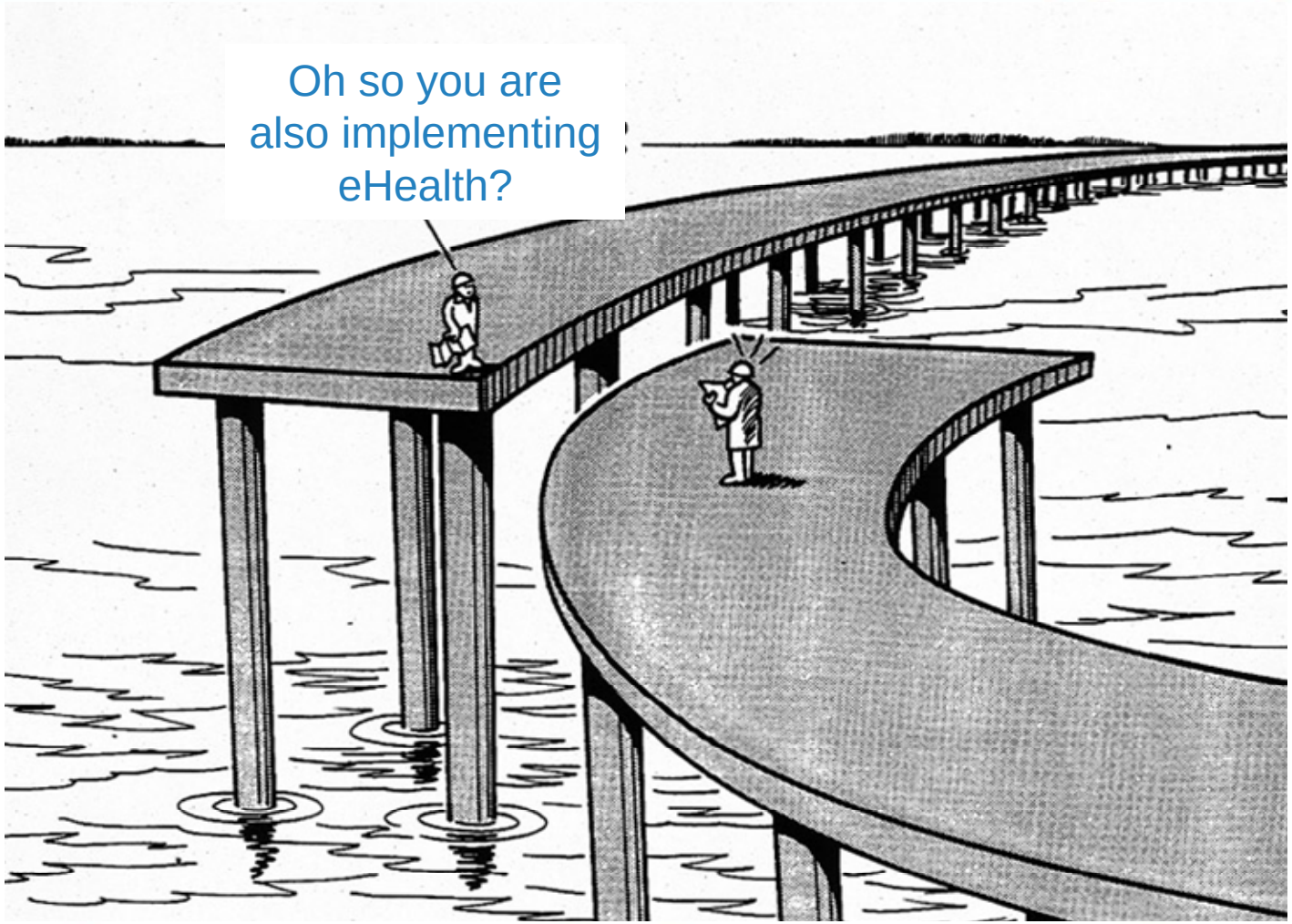


*epSOS and IPSE*: to implement PS/eP interoperability among the Italian Regions in an epSOS compatible way



# Cooperation is Key






*base from Mikael Erlandsson*

# Backup

Thank you for your attention!

info@epsos.eu