

HL7 FHIR adoption in European health systems: the story in Portugal

**Webinar, 18 September 2024
15.00-16.00 CEST**

Online on Teams



The HL7 logo is displayed in a large, bold, red sans-serif font. The background of the entire slide is a blurred photograph of a laboratory with various glassware like flasks and beakers containing liquids, some of which are green. A dark blue semi-transparent banner is overlaid on the top right of the image.

HL7



HL7 Europe Labs-on-FHIR webinar series

A succession of open, online educational sessions 2023-24
related to the adoption of FHIR specifications
in Europe's laboratory systems and
the HL7 Europe FHIR Implementation Guide for Laboratory Reports

HL7 FHIR adoption in European health systems: the story in Portugal

Speaker introductions

- Presenters:

- Filipe Mealha, SPMS
- Sara Marques Russo, SPMS

- Panel:

- Alexander Henket, NICTIZ (NL)
- Jean-Michel Polfliet, eHealth Platform (BE)
- João Almeida, HL7 Portugal
- Giorgio Cangiali, HL7 Europe

Facilitator: Michael Strübin, HL7 Europe



Housekeeping



- Your facilitator: Michael Strübin, HL7 Europe
- The webinar will be recorded, slides will be shared in pdf.
- To help ensure a successful webinar please:
 - Stay muted
 - Feel free to use reactions/emojis during the presentations
 - Use the chat to make comments or raise your questions
 - Raise your hand if you'd like to speak
 - If you are invited to speak, please turn on your video and say who you are

HL7 FHIR adoption in European health systems: the story in Portugal

Agenda

- Welcome and introductions
- Filipe Mealha and Sara Marques Russo, SPMS
- Panel:
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- Discussion and Q&A



Filipe Mealha

Planning, Architecture, Compliance and
Engineering Unit Coordinator at SPMS, E.P.E.



Sara Russo

Semantic Interoperability Lead at the Planning,
Architecture, Compliance and Engineering Unit



SPMS is a public enterprise created in 2010 (Decree-Law 19/2010 of 22 March), functioning under the guardianship of the Ministries of Health and Finance.

Its aim is to provide shared services to organisations operating specifically in the area of health, in order to “**centralise, optimise and rationalise**” the procurement of goods and services within the NHS – in the areas:

PURCHASING AND
LOGISTIC

FINANCIAL SERVICES

INFORMATION AND
COMMUNICATION
SYSTEMS AND
TECHNOLOGIES

HUMAN RESOURCES

TELEHEALTH



HIS area	Strengths	Challenges
Data collection: data availability and usability	Functioning data collection systems Most countries have implemented a generic Unique Personal Identification Number or are planning to do so	Limited analytical capacity Data quality issues Lack of data from private health-care facilities Unclear roles and responsibilities for data exchange Limited data linkage
Data collection: digital health information systems and e-health	Growing interest for and promising developments in the area of digitalization of health information systems/e-health Most countries work with an EHR system or are planning to implement it	Large parts of data flows still paper-based Fragmentation and lack of interoperability The EHR system implemented only in some health-care facilities
Analysis and health reporting: indicators	Commonly clearly defined indicators are published at the national level Growing interest at health care facility level for using indicators for quality control and performance improvement	Underlying selection criteria for published indicators are not always clear Published indicators are not always clearly related to the health policy in the country Lack of good data and indicators for benchmarking across health-care facilities and need for capacity-building in this area
Knowledge translation, governance and resources	Understanding of policymakers and managers on the need for sound health information for decision-making	Limited use of health information for decision-making Lack of a clear HIS strategy Central multisectoral coordination mechanisms missing or functioning poorly Lack of resources and a general need for capacity-building An HIS is often understood to be the same as an EHR system Dependency on (temporary) donor funding

Source: WHO SUPPORT TOOL TO STRENGTHEN HEALTH INFORMATION SYSTEMS GUIDANCE FOR HEALTH INFORMATION SYSTEM ASSESSMENT AND STRATEGY DEVELOPMENT, published 2021



HEALTH INFORMATION SYSTEMS CHALLENGES

- ✔ IT systems have become an integral part in the provision of healthcare
- ✔ The provision of healthcare is becoming increasingly more dependent on quality data
- ✔ Data is scattered between several IT systems, within and across healthcare institutions
- ✔ IT systems are becoming more specific (specialized) and focused, and their development speed is increasing
- ✔ We need, as a central agency, to find a way to ensure that data can flow efficiently between IT systems
- ✔ We need, as a central agency, to build platforms



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Serviços Partilhados do Ministério da Saúde

DIGITAL E-HEALTH AUTHORITY

Ecosystem controller



National Data
Exchange Platform



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BUILDING PLATFORMS

“

PLATFORM

Space where different economic health operators can exert their digital activities in a **secure, reliable, auditable** and **normalized way**.

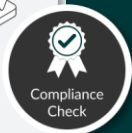
”



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BUILDING PLATFORMS

MANUFACTURER / IMPORTER /
DISTRIBUTOR OF EHR SYSTEMS



DIGITAL E-HEALTH AUTHORITY

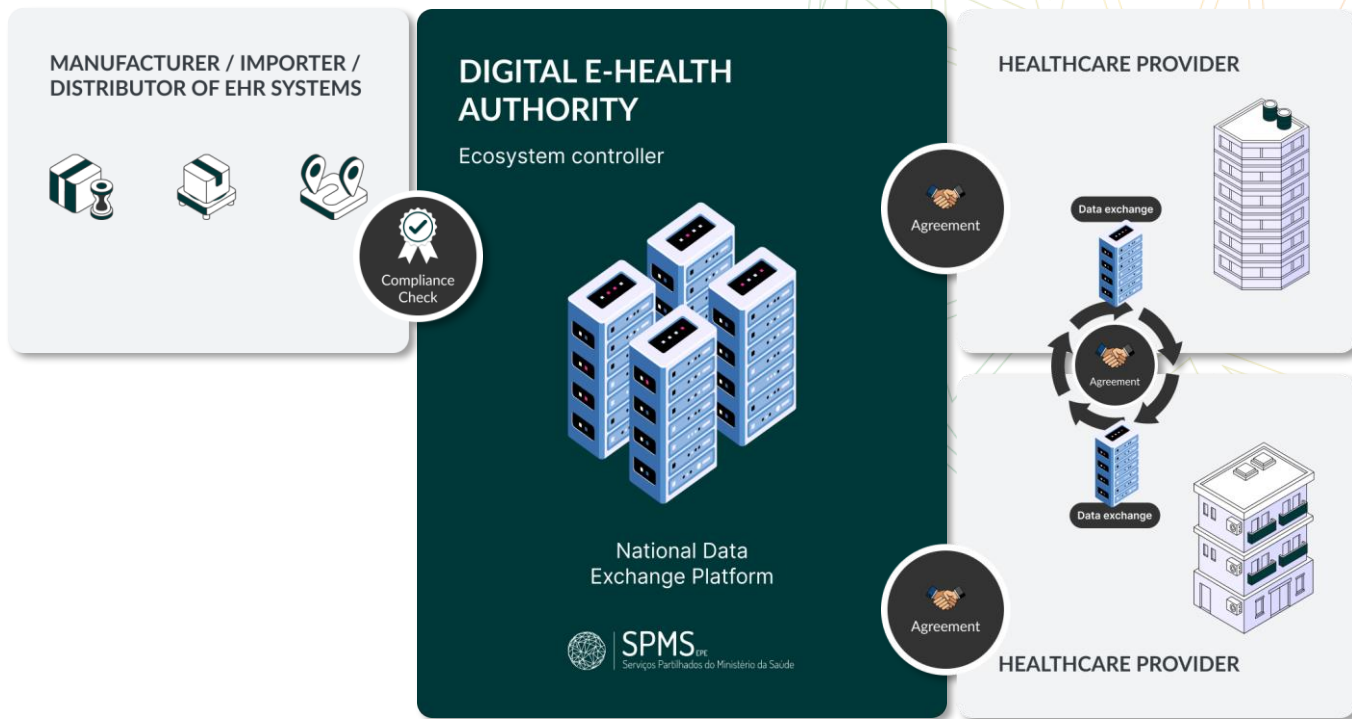
Ecosystem controller

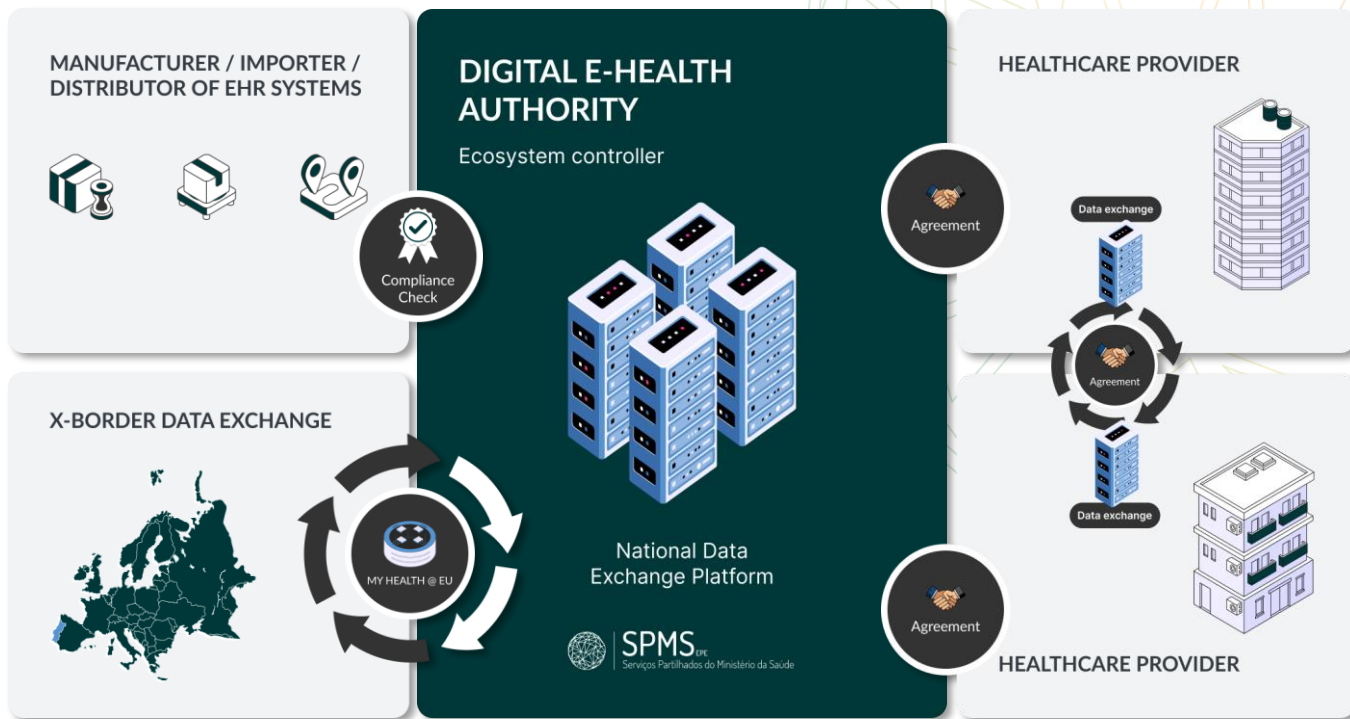


National Data
Exchange Platform



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MANUFACTURER / IMPORTER /
DISTRIBUTOR OF EHR SYSTEMS



**DIGITAL E-HEALTH
AUTHORITY**



National requirements check

BUILDING PLATFORMS

COMPLIANCE CHECK



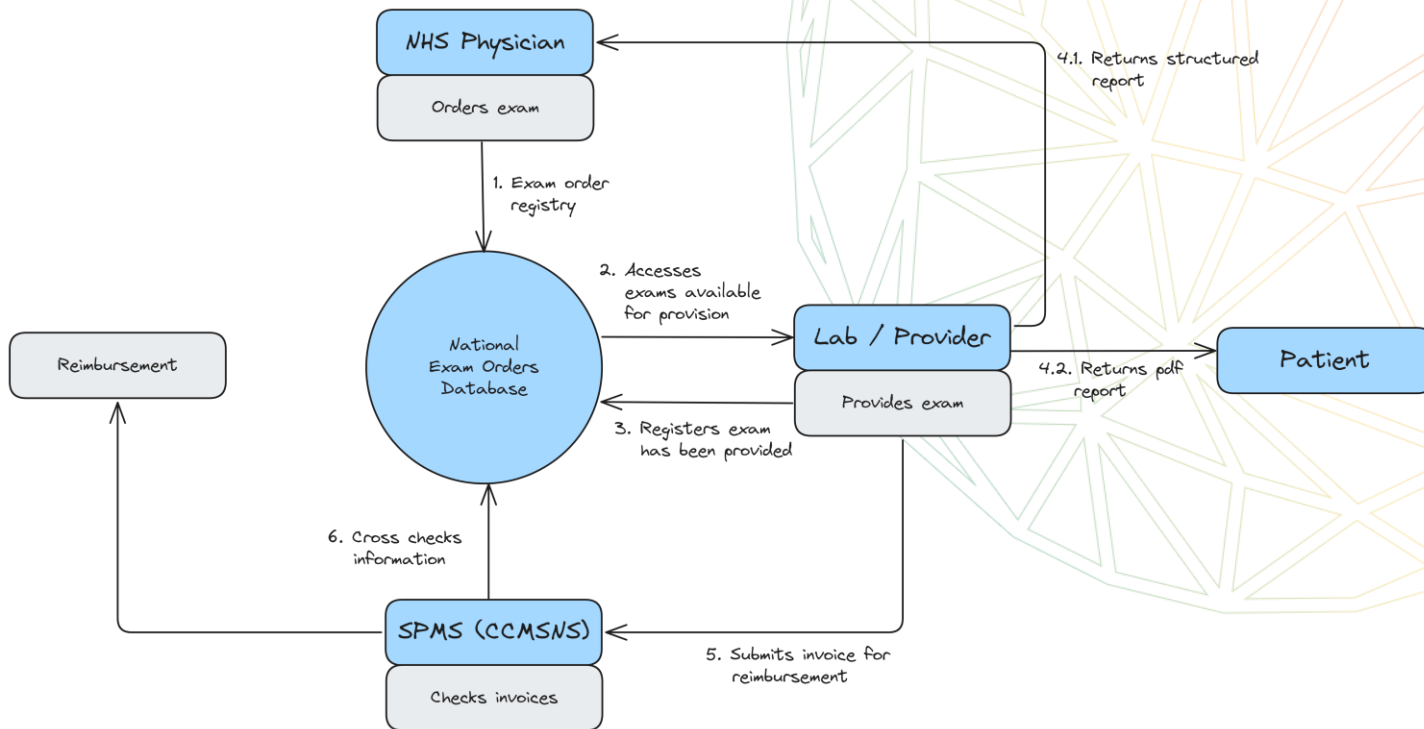
Self-compliance scheme where
Manufacturers submit their Softwares for
several testing procedures.

Implementation Guides based on HL7
FHIR and SNOMED CT serve as the core for
the national interoperability services and
compliance processes.



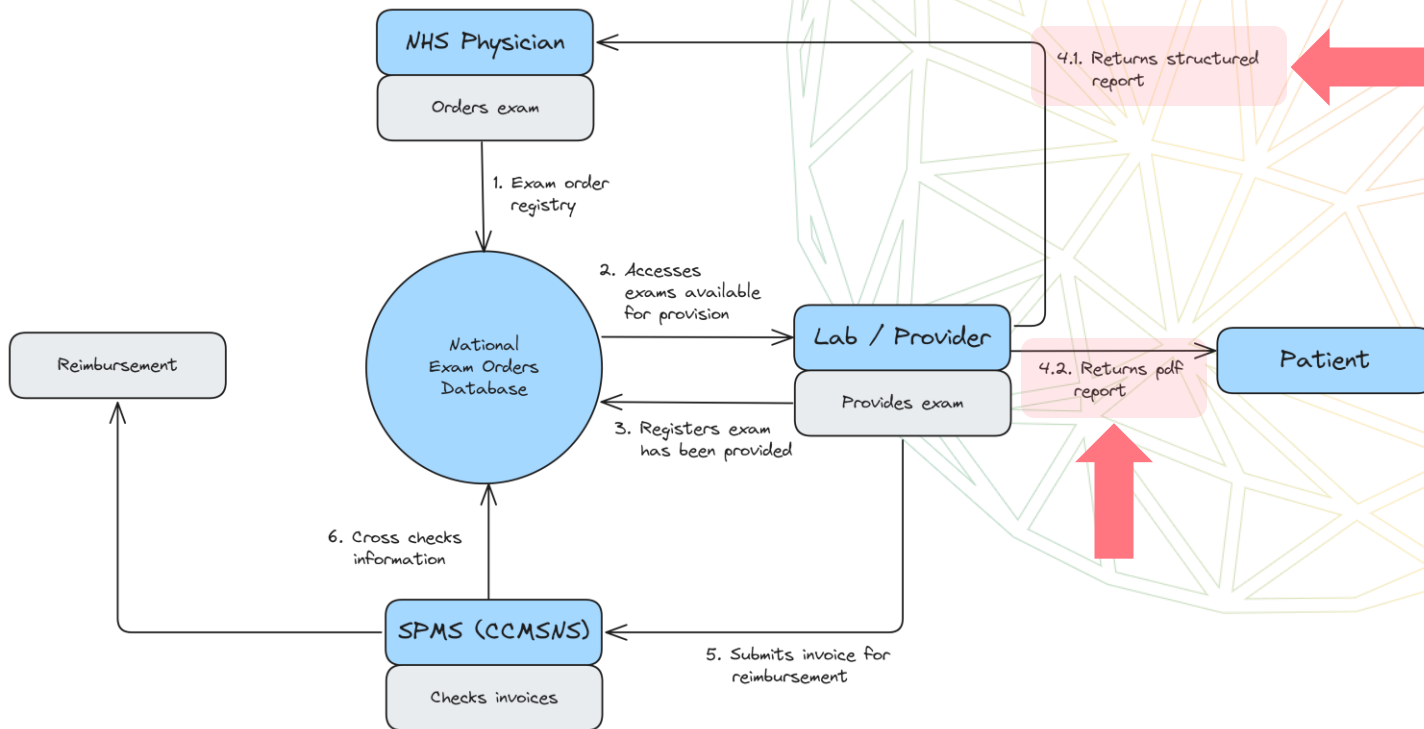


LABORATORY REPORT SHARING ECOSYSTEM



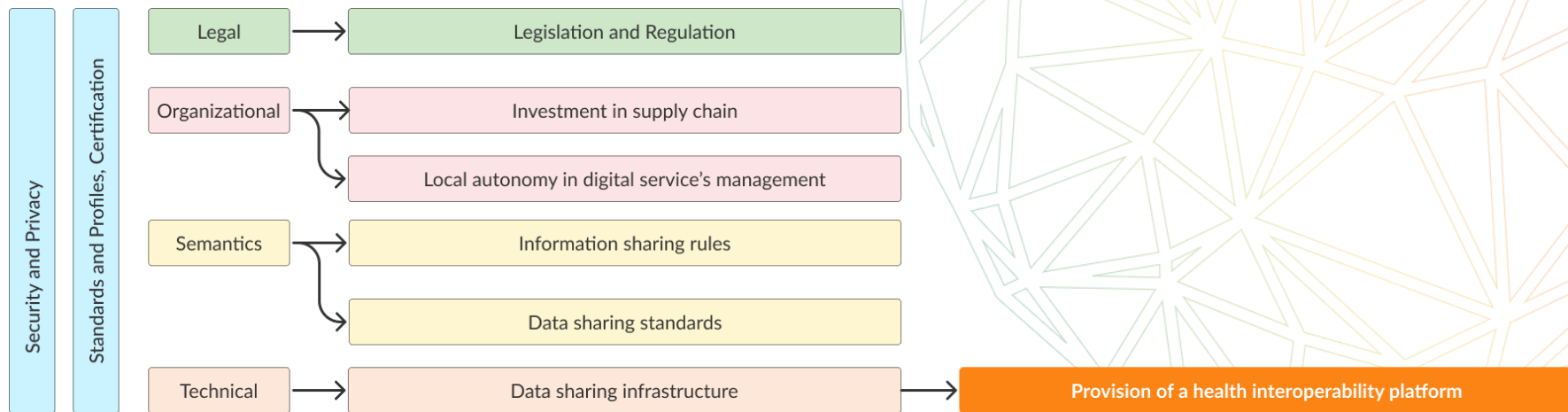


LABORATORY REPORT SHARING ECOSYSTEM





LABORATORY REPORT SHARING ECOSYSTEM





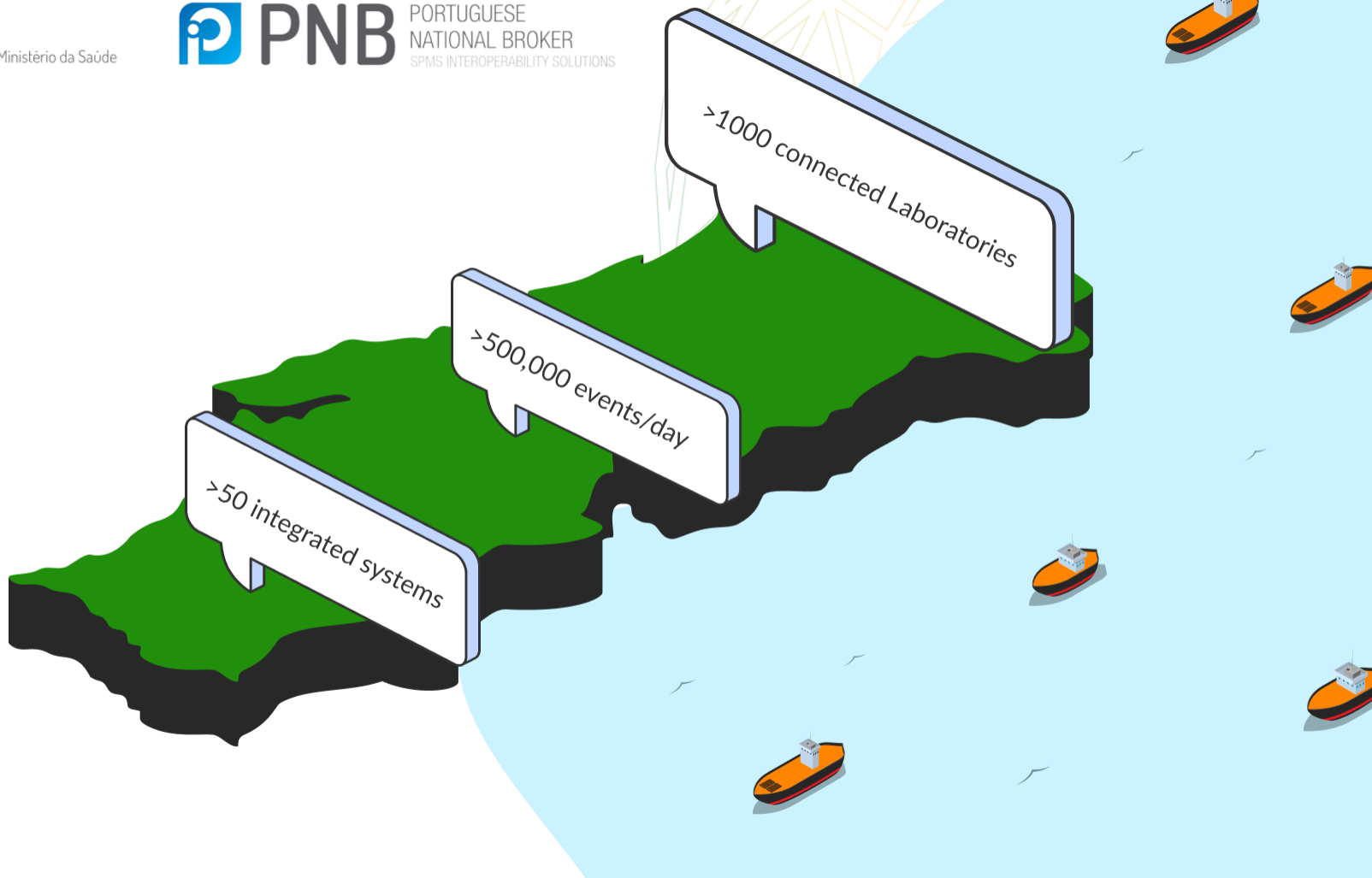
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PNB PORTUGUESE
NATIONAL BROKER
SPMS INTEROPERABILITY SOLUTIONS



FHIR

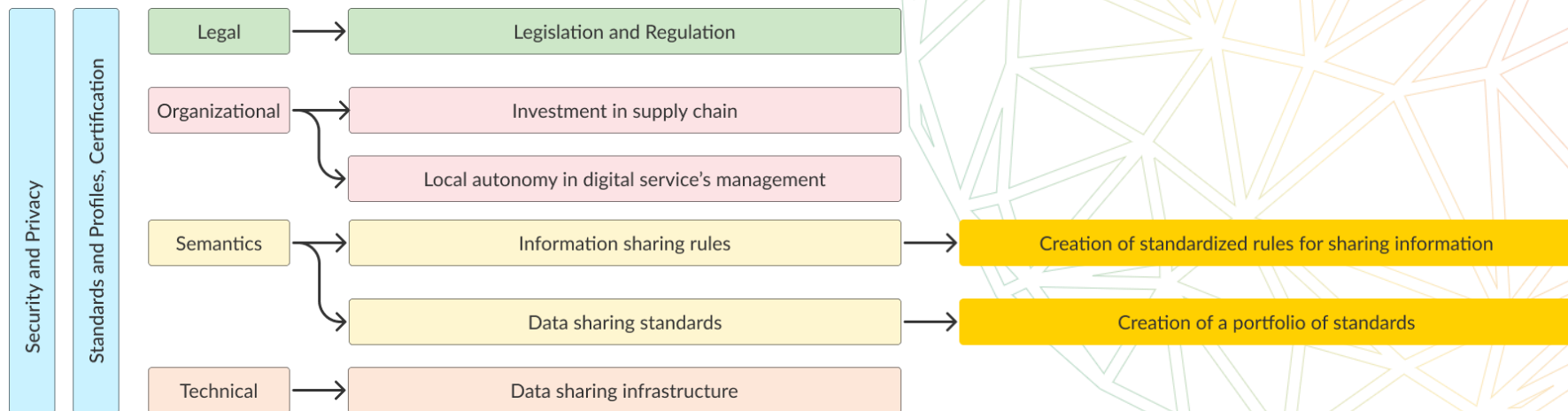




- ✓ Every transaction is handled as an event
- ✓ Every transaction is based on HL7 FHIR (STU3 / R4B)
- ✓ Reliable messaging is secured
- ✓ Synchronous and asynchronous communications are supported



LABORATORY REPORT SHARING ECOSYSTEM

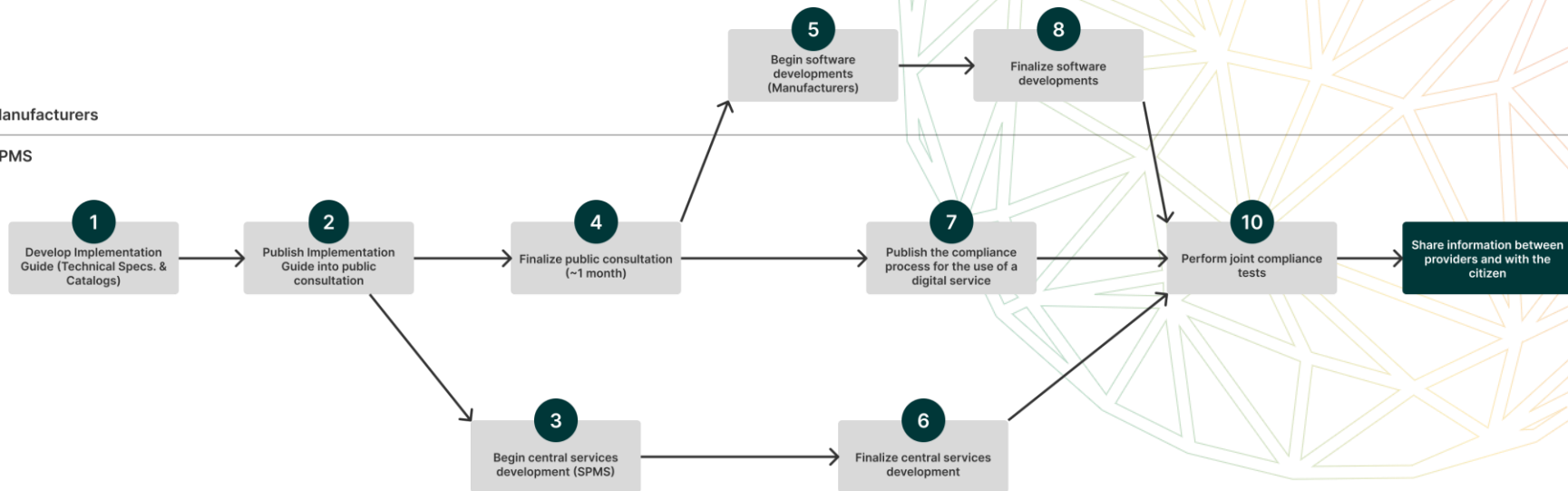




STANDARDS PUBLISHING CHAIN

Manufacturers

SPMS





PORTUGUESE CORE IMPLEMENTATION GUIDES



Portuguese Core Implementation Guide

Home Introdução ▾ Foundation ▾ Base ▾ Profiles ▾ Artefactos FHIR ▾

Home



Guia de Implementação Core

- Home
 - Introdução
 - Enquadramento
 - Regras de Versionamento
 - Histórico de Versões
 - Acrónimos e Abreviaturas
 - Orientações sobre Profiling
 - Foundation
 - Others
 - Base
 - Individuals
 - Entities #1
 - Workflow
 - Profiles
 - Others
 - Individuals
 - Entities #1
 - Workflow
 - Artefactos FHIR
 - Datatypes
 - Extensões
 - Systems



PRACTITIONER



PRACTITIONERROLE



ORGANIZATION



LOCATION



PATIENT



SLOT



SCHEDULE



WHAT WE MEAN BY AN IMPLEMENTATION GUIDE

1

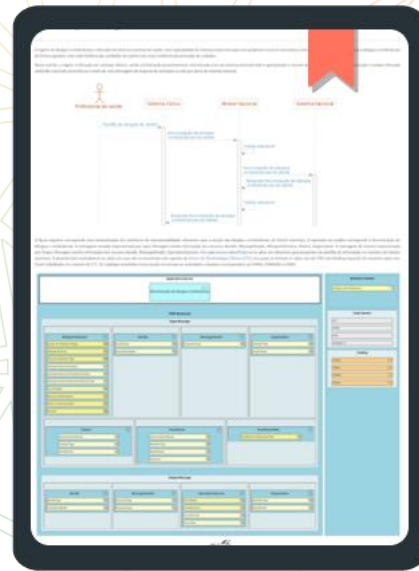
Use-case description

2

FHIR resources and semantic assets required

3

Example messages





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National Terminology Release Center - CTC

Competence center, focused on the use of International Clinical Classifications / Terminologies in Information Systems, in Portugal, in order to promote Semantic Interoperability.



CTC

CENTRO
DE TERMINOLOGIAS
CLÍNICAS



DGS desde
1899
Direção-Geral da Saúde



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ADMINISTRAÇÃO CENTRAL
DO SISTEMA DE SAÚDE, IP

CLINICAL
GUIDANCE

IT GOVERNANCE AND
TECHICAL
IMPLEMENTATION

FINANCIAL
RULER



NRC CURRENTLY PUBLISHED VALUESETS



ALLERGIES & ADVERSE REACTIONS



LABORATORY ANALYSIS



MEDICATION REGISTRY SUPPORT



NUTRITION



VACCINATION



RADIOLOGY



NUCLEAR MEDICINE



GASTROENTEROLOGY



CARDIOLOGY



GYNECOLOGY & OBSTETRICS



MEASURING UNITS



BIOGRAPHICAL & DEMOGRAPHIC
CHARACTERISTICS



PROFESSIONAL CATEGORIES



ADMINISTRATIVE REGISTRY



HEALTH SPECIALTIES

PT uses a
dictionary
approach

Currently 15
published
catalogs

the
Unified
Code
of
Units
Measure

LOINC[®]
from Regenstrief

edqm
stars

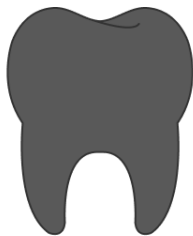
SNOMED CT
The global
language of
healthcare

orphanet



National Programme
for the Promotion of
Health Eating

Portuguese Nutrition
Catalogue



National Programme
for the Promotion of
Oral Health

Portuguese Oral
Health Catalogue



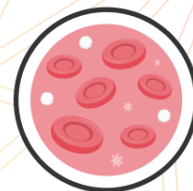
National Programme
for Cerebral-
Cardiovascular
diseases

Portuguese Cardiology
Catalogue



National Vaccination
Programme

Portuguese Vaccines
Catalogue



National Health
Institute Dr.
Ricardo Jorge

Portuguese Clinical
Analysis Catalogue

NRC WORK GROUPS (AS OF 2024)



LABORATORY ANALYSIS

CPAL

Portuguese Catalogue for Laboratory Analysis



MEASURING UNITS

CPARC

Portuguese Catalogue to Support Clinical Registries

the
Unified
Code
of
Units
Measure

LABORATORY USE CASE CATALOGUES

Code System
SNOMED CT
LOINC

Catalog
CPAL 7.0
Catálogo Português de Análises de Laboratório 7.0

Has Value Set

LOINC	SNOMED CT
Antimicrobial	ABO Group Phenotype
Clinical Pathology Procedure	Antimicrobial Type
Laboratory Study Type	Appearance of Specimen
	Blood Group
	Cast
	Cell
	Clinical Pathology Method
	Clinical Pathology Outcome
	Color of Specimen
	Consistency of Feces
	Crystal
	Microorganism
	Rhesus Factor
	Specimen
	Susceptibility



LABORATORY ANALYSIS

CPAL

Portuguese Catalogue for Laboratory Analysis



MEASURING UNITS

CPARC

Portuguese Catalogue to Support Clinical Registries

www.ctc.min-saude.pt/category/catalogos/

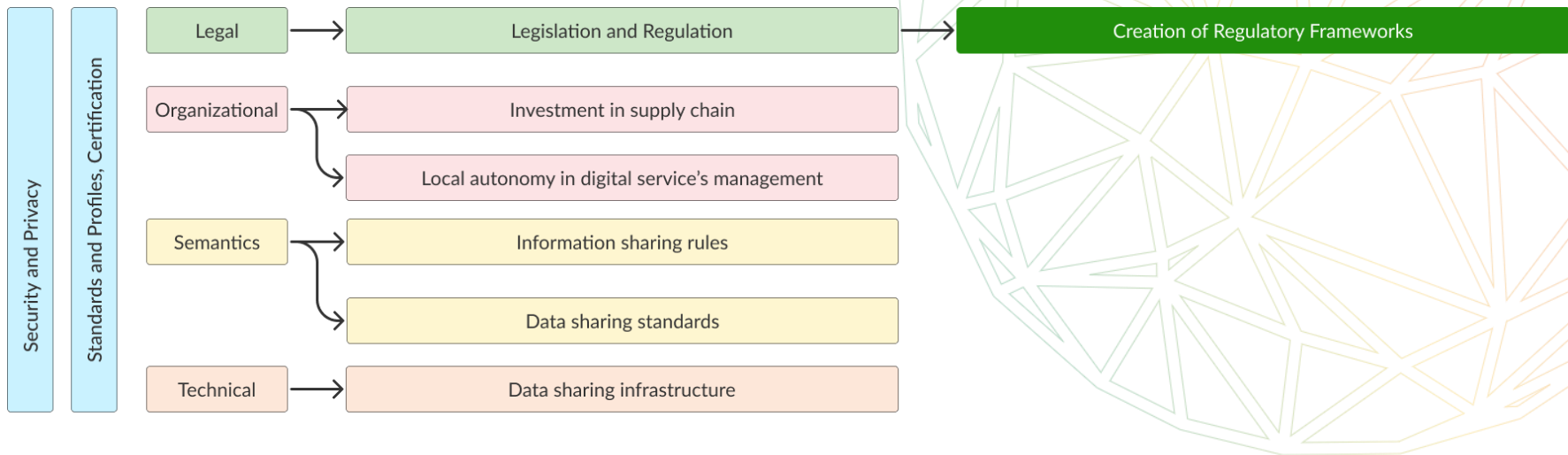
LABORATORY USE CASE - TEST CASES

✓ success
✗ unsuccessful

- ✓ Hemogram
- ✓ Urine Culture
- ✓ Urinalysis
- ✓ AB0 and Rh group
- ✓ Prolactin
- ✓ Fecal Occult Blood Test



LABORATORY REPORT SHARING ECOSYSTEM





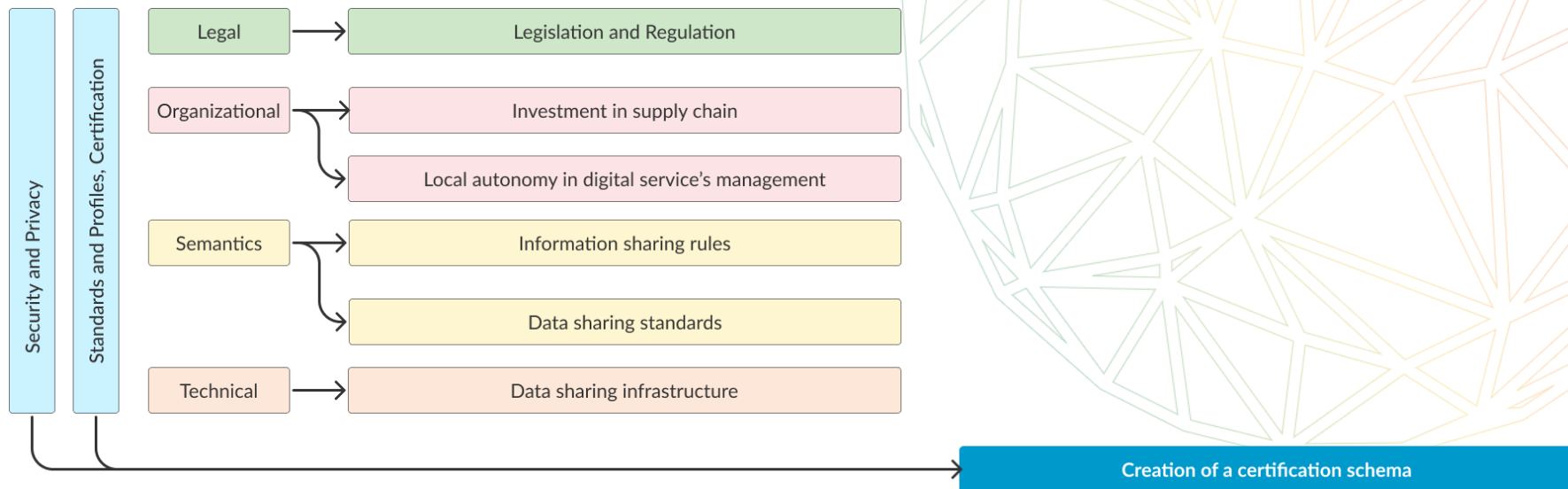
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- ☑ Regulations are passed by the Government / Ministry, however SPMS is requested to contribute
- ☑ **Ministerial order n.º 02/2022/SES and Ordinance n. 126/2018** are applicable to all entities ordering exams within the scope of primary healthcare and to all entities providing exams within the scope of the NHS
- ☑ From the 31st of March 2022 all exam orders are to be done exclusively by electronic means
- ☑ The provider entity must **make available to citizens and NHS health professionals the results of the exams** carried out, through the digital means made available for this purpose by SPMS, E.P.E.
- ☑ Failure to comply with the provisions of the previous paragraph will result in **the suspension of payment of exams** invoiced and sent to the Invoice Conference Center (CCF), managed by SPMS, E.P.E.



LABORATORY REPORT SHARING ECOSYSTEM

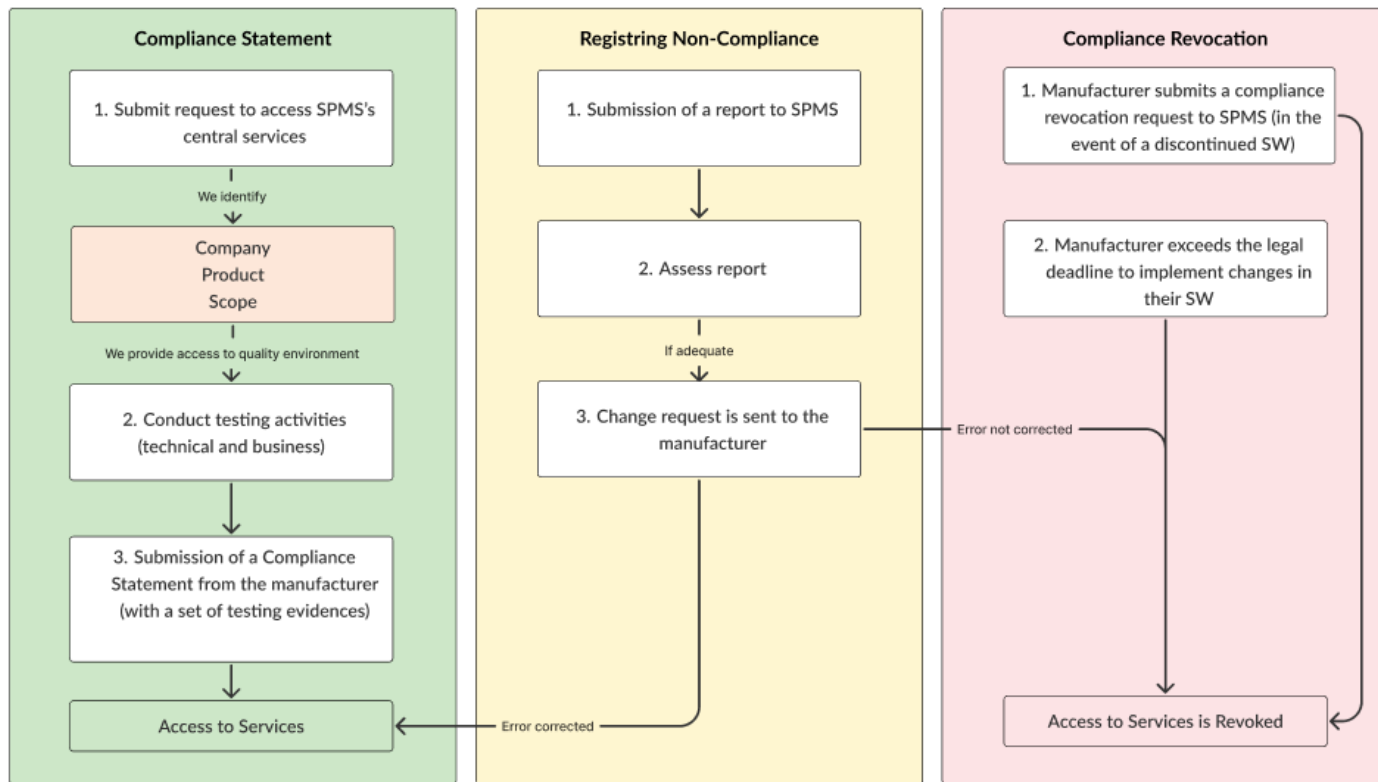




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COMPLIANCE ASSESSMENT PROCESS (SELF STATEMENT)





SOME CHALLENGES THAT WE FACE

- ✓ Current FHIR specs for this domain are lacking. EHDS is an opportunity to improve and further develop them
- ✓ There are still remaining quality of information issues. We have created a set of rules that help implementors to better adopt the semantic structures for this domain
- ✓ We do not yet have in production Terminology Services, which means that value-sets are being distributed in spreadsheets. These services should become available as a trial version latter this year 😊
- ✓ Compliance enforcement mechanisms are challenging and are being revised. EHDS is an opportunity to improve this.



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WHAT HAVE WE LEARNED?

**HOST REGULAR MEETINGS
WITH PROVIDERS AND
SOFTWARE VENDORS**



**KEEP
YOURSELF IN
THE EYE OF THE
HURRICANE**



WHAT HAVE WE LEARNED?

ENSURE THAT YOU ARE
WORKING FOR THE
RIGHT OPPORTUNITY /
PROJECTS THAT **WILL BE
IMPLEMENTED**



IT TAKES **A LOT OF EFFORT**
TO PRODUCE SEMANTIC
OR SYNTACTICAL ASSETS
FOR THEM TO SIT IN THE
“CORNER OF A DESK”



WHERE ARE WE STANDING WITH THE UPCOMING EHRXF?

- ☑ We (all MS) need more efficient mechanisms to ensure that TRUST is present everywhere in an information sharing network
- ☑ A new regulatory framework is needed, under the umbrella of the EHDS regulation is needed
- ☑ How do we deal with Innovation (AI)? Are our current IT systems obsolete?



Thank you!



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**REPÚBLICA
PORTUGUESA**

SAÚDE



SNS

SERVIÇO NACIONAL
DE SAÚDE

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Alexander Henket

Interoperability Specialist



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Over 25 years of experience

Interoperability Specialist at Nictiz, competence centre for digital information management in healthcare

Active member of HL7 Netherlands, HL7 Europe and HL7 International

Member of IHE NL



Jean-Michel Polfliet

Head of Standardization Team @ eHealth Platform

Belgian Public Institution

HL7-be Co-chair

DIGIRELAB - Project Facilitator

FHIR Labo Result in the Belgian ecosystem





Affiliate | Portugal 

- Pharmacist
- Working on healthIT for 11 years
- Chair HL7 Portugal and Tech Lead
- Researcher @ CINTESIS
- Lecturer @ FMUP
- Product owner @ Gravitare-Health





Giorgio Cangioli

- Co-facilitator of the HL7 EU Laboratory Report FHIR IG
- eHMSEG STF Architecture WG chair
- XpanDH and xShare Tech Specs WP leader (WP2)
- Technical Lead, Board member HL7 Europe
- Board member, CDA MG co-chair, AEC member at HL7 International

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Next steps

- Slides and recording on www.HL7.tv, notification to all registered attendees
- October/November: another webinar on “labs on FHIR”

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- Discussion and Q&A
- End



Thank you!