Main challenges and principles for an eHealth standardization strategy

Forum e-Zdrowia / eHealth Forum
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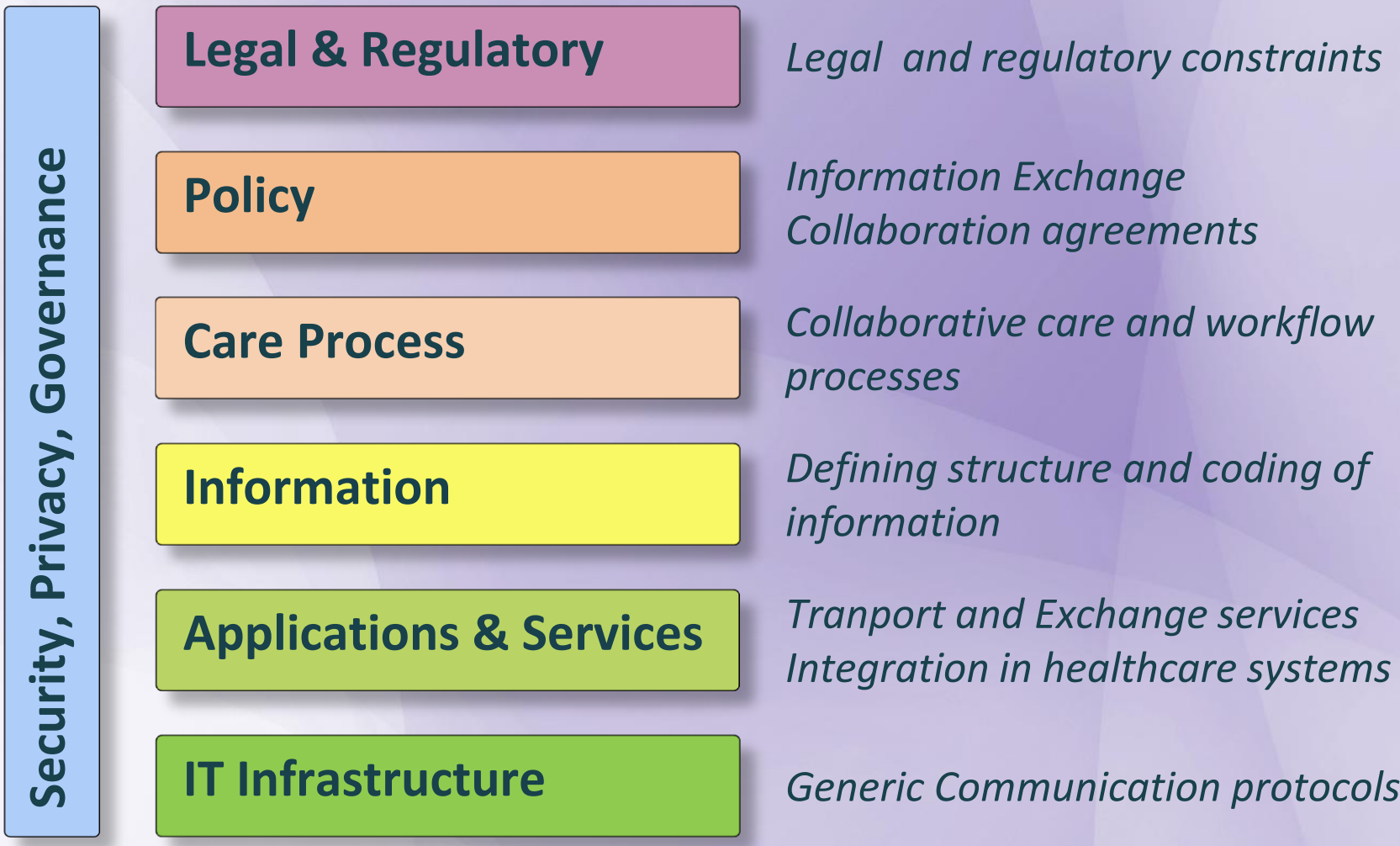
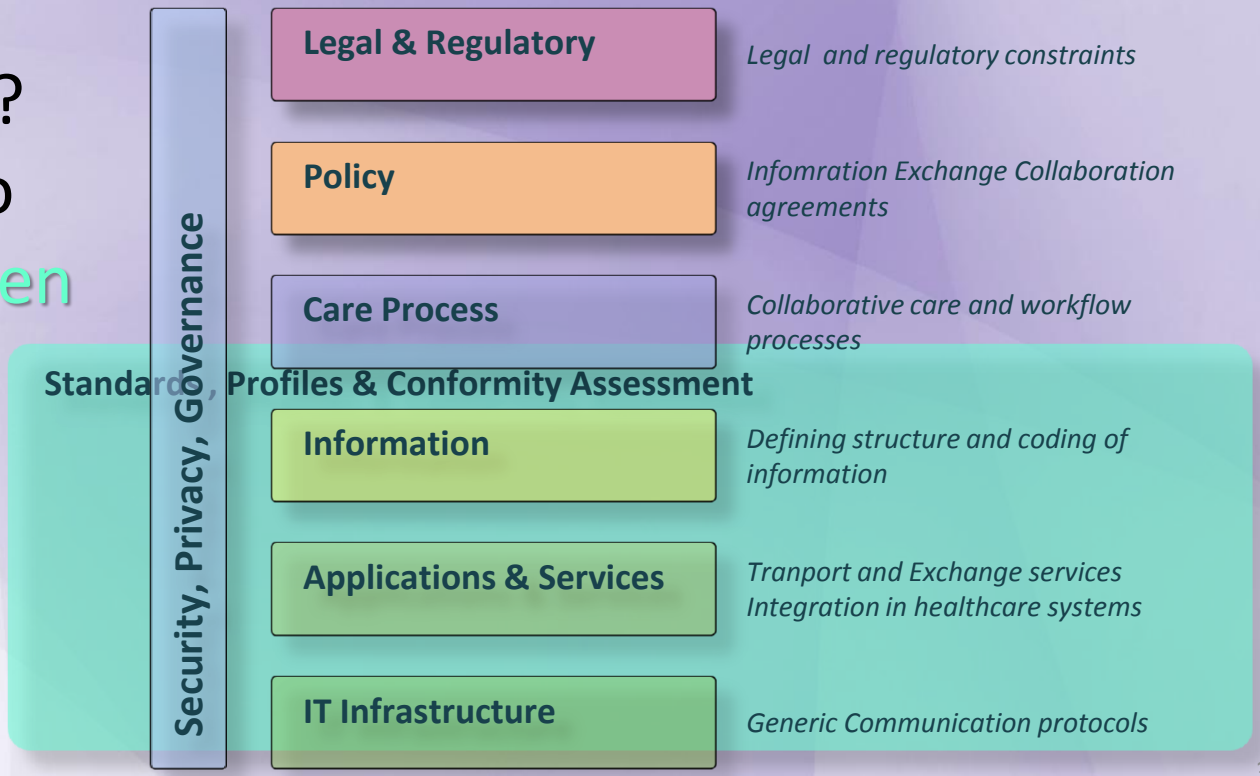
The many dimensions of Interoperability



From Refined ehealth European Interoperability Framework
EU eHealth Network, 23/10/2015

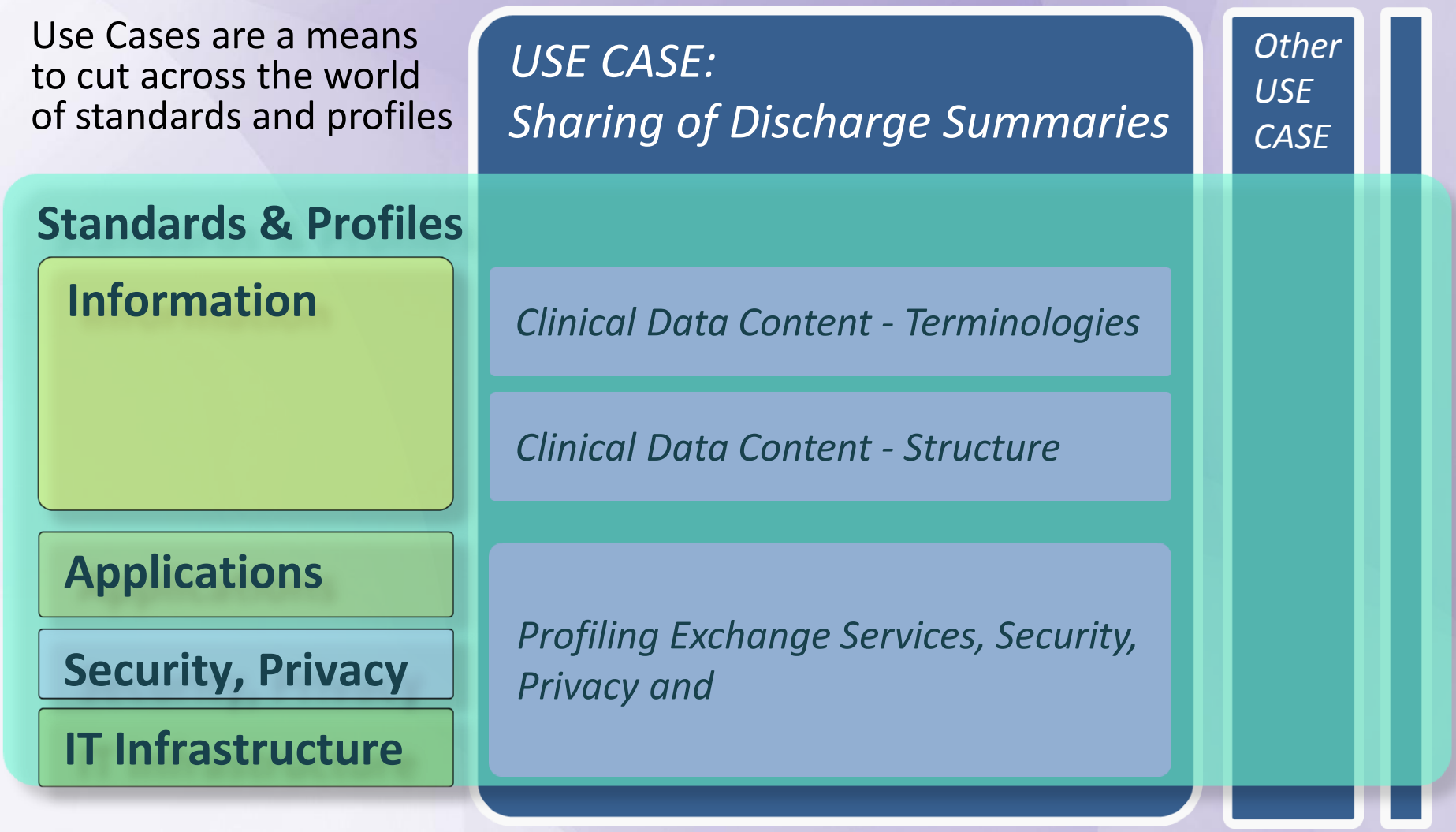
How to unpack standards and profiles ?

- The multiple facets of Interoperability were discussed earlier this morning.
- How can we put Standards and Profiles to use ?
- It is all about to unpack the green box.
- **Let's "cut through" to structure what is inside**



How to unpack standards and profiles ? Role of Use Cases

Use Cases are a means to cut across the world of standards and profiles

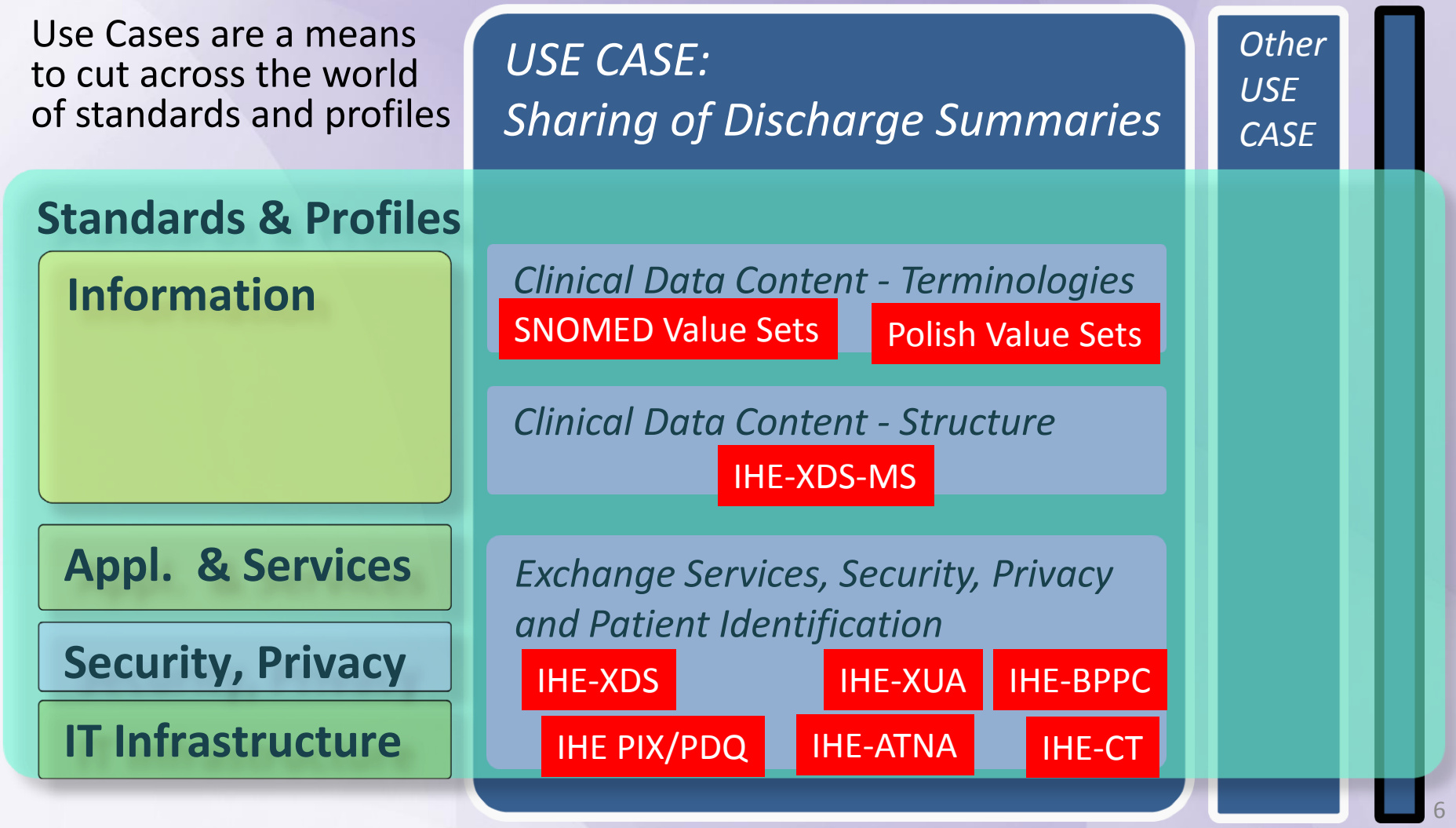


Need to structure the choice of interoperability profiles and standards

	Variety of Standards & Profiles
Care Process	*IHE Profiles* *HL7, DICOM*
Information	*Terminologies* • *SNOMED-CT, WHO: ICD-10, ICD-9* • *LOINC – Lab, DICOM – Imaging, IEEE – devices* *Clinical Data:* • *IHE profiles, Continua Guidelines* • *HL7 CDA, HL7 V2/V3, HL7 FHIR,* • *ISO, CEN, IEEE*
Applications & Services	*IHE Profiles, Continua Guiidelines* *HL7, DICOM*
Security, Privacy	*IHE Profiles, W3C* *IETF, OASIS, ISO*
IT Infrastructure	*IETF, OASIS, ISO*

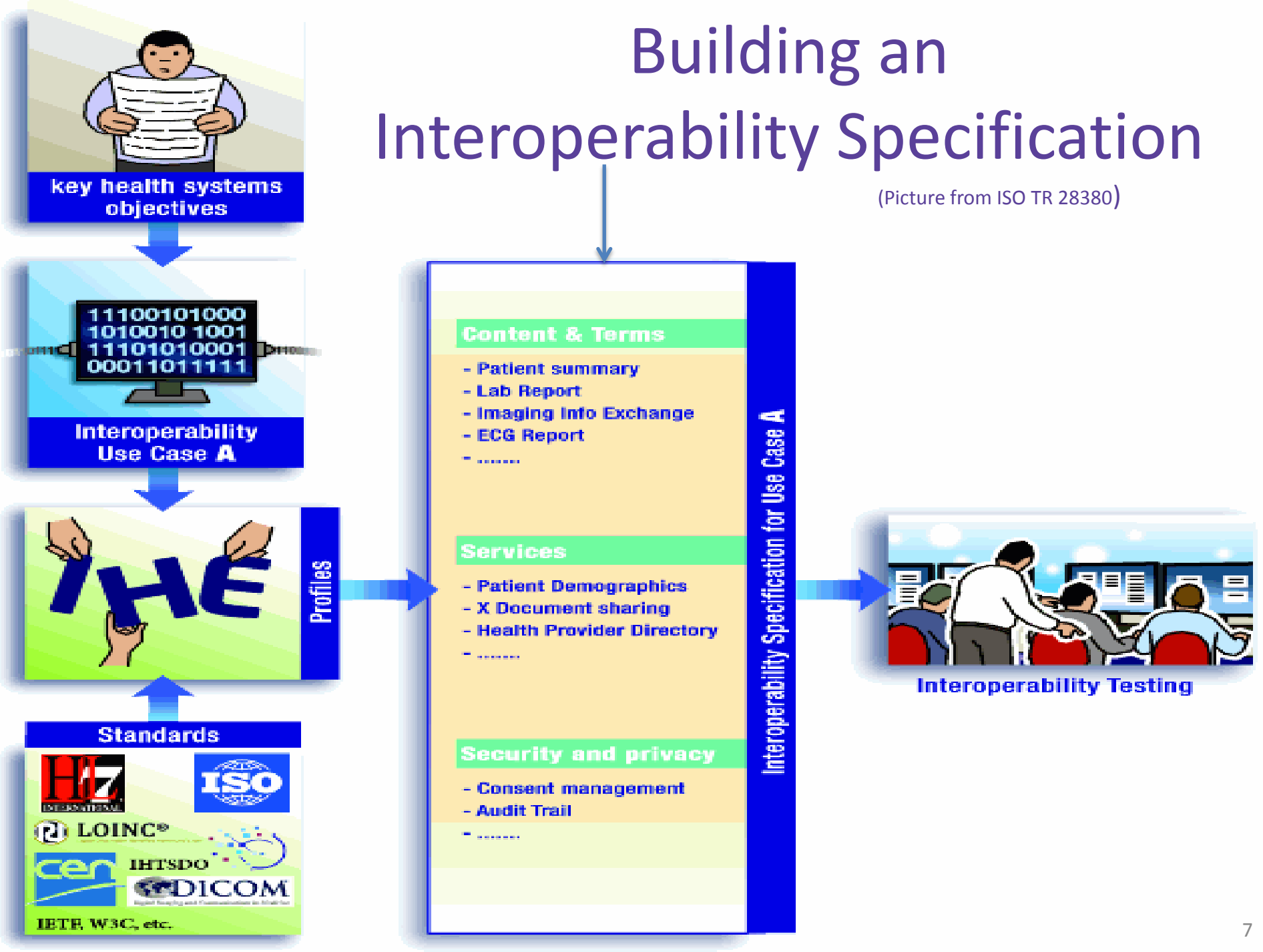
How to unpack standards and profiles ? Role of Use Cases with an example

Use Cases are a means to cut across the world of standards and profiles



Building an Interoperability Specification

(Picture from ISO TR 28380)



ISO Technical Report (ISO/TR28380) Compares three different strategies

1. Profile Based
   Set the functional requirements (use cases) and draw upon IHE Profiles to set an interoperability framework for projects. Tender infrastructure and separately edge system connections/upgrades

2. Customized Standards
   Develop project specific interoperability specifications. Tender in one or more projects.

3. Infrastructure Vendors
   Set the functional objectives for the project, tender and let the infrastructure vendor set the Interoperability Specifications

Comparing Interoperability Strategies

Implementation Strategies	1 Profile Based		2 Customized Standards	3 - infra-structure vendor
Areas of Impact associated with the interoperability pathway to adoption	Initial Cost	Life Cycle Cost	Initial Cost => Life Cycle Costs	Initial Cost => Life Cycle Costs
Technology				
Determine and Document Interoperability Use Cases				
Development of Interoperability Specification				
Maintenance of Interoperability Specification				
Connect new IT systems and devices to Infrastructure				
Connect existing IT systems/devices to Infrastructure				
Compliance Testing				
Build eHealth Infrastructure				
Change eHealth infrastructure				

Implementation Strategies	1 Profile Based		2 Customized Standards	3 - infra-structure vendor
Areas of Impact associated with the interoperability pathway to adoption	Initial Cost	Life Cycle Cost	Initial Cost => Life Cycle Costs	Initial Cost => Life Cycle Costs
Process				
Engage/educate key stakeholders				
Interoperability Specification Development Schedule Risks		N/A		
Develop implementation and testing schedule				
Change management				
Policy development				
Opportunities for change				
Environmental analysis				
People				
Recruitment of skilled staff - Domain knowledge				
Cost of adding support for new Interoperability use cases				
Awareness and education training				

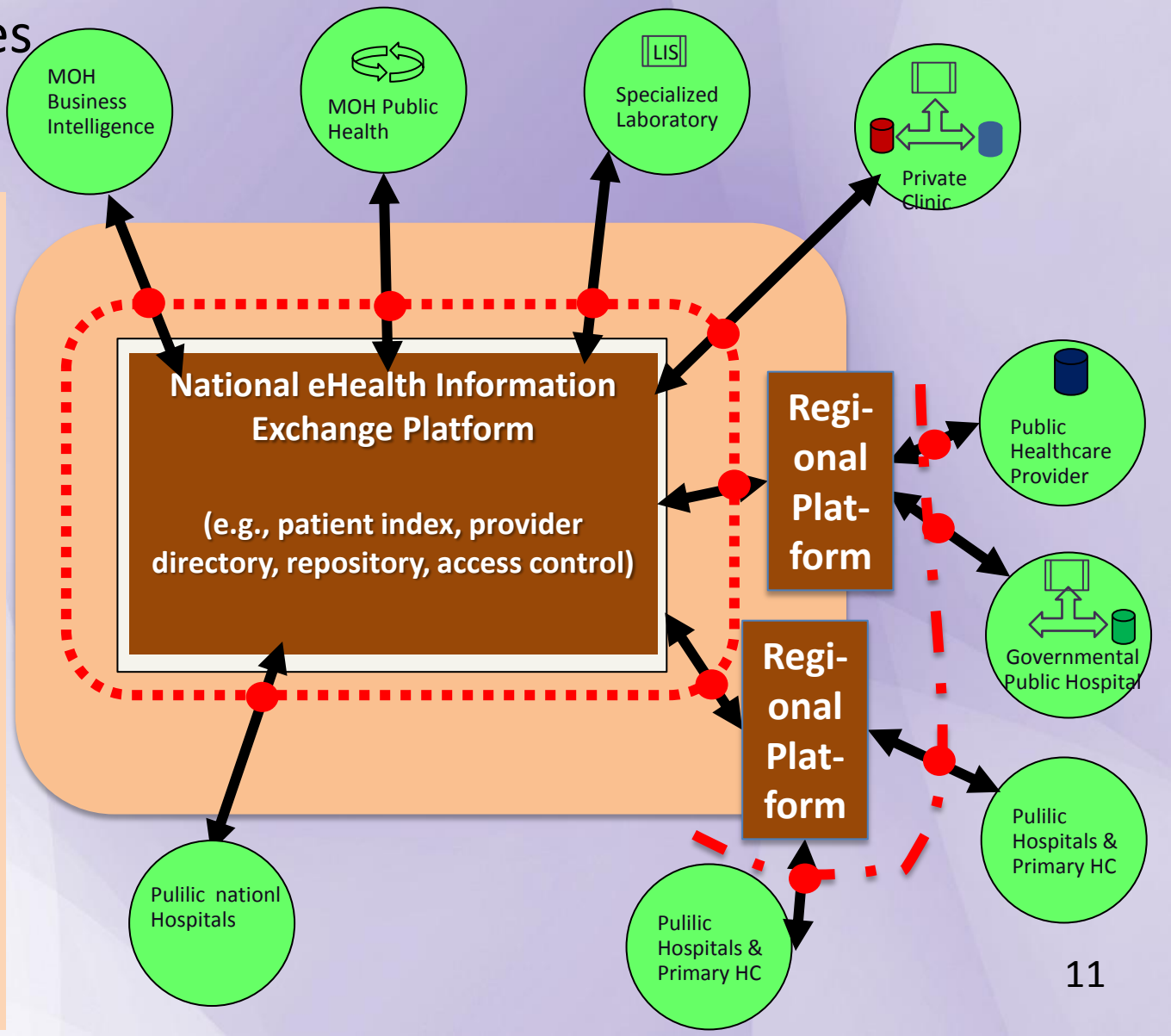
Moving forward. What are the next steps?

- Establish overall architecture and scope - Identify clearly the open boundaries

Why ?

Turn a complex system of systems into a set of modules with standard interfaces.

A minimal roadmap definition is needed to prioritize the “use cases” for interoperability and set basic policies



Suggested Steps for National Interoperability:

1. Setting **information exchange policies**
   - Topic to which policy makers may relate
   - Engages the establishment of a national approval process and chose what requires regulation
2. Select nationally relevant priority **Use Cases**
   - Broaden the national governance and the collaborative process
   - Pick three or four use cases
3. Establish high-level **National Interoperability Architecture**
   - See previous slide
4. Develop, review and adopt **National Interoperability Specifications** for the above set of use Cases
   - integrate a set of Profiles with national extensions)
5. Offer a corresponding **Testing Platform** (Adopt & Adapt Rigor/Tools) (details in Friday session)

➔ *Ensures that Interoperability is vendor/solutions neutral and for efficient procurement*

➔ *Ensures the best standard/profile given the use case is selected*

➔ *IHE Services assist several countries in one or more of the above steps*

IHE Profile Adoption Worldwide in Regional and National eHealth

Adopted across the world:

- *Lower Austria region*
- *US States (Vermont, New York, Texas, Pennsylvania, etc.)*
- *Nagoya City*
- *Dutch regions*
- *European Cross-Border (epSOS now moving to CEF/DSI)*
- *US ehealth Exchange (Sequoia, plus Care Equality)*
- *US CommonWell*
- *France*
- *Austria*
- *Italian Regions*
- *Denmark Regions*
- *Switzerland Regions*
- *Luxembourg*
- *German Regions*
- *Slovenia*

In deployment:

- *Finland, Denmark (PHR)*
- *Switzerland*
- *US Interop Standards Advisory*
- *US National Record Location Service (Surescript)*
- *Uruguay, South Africa, Japan*

27 IHE Profiles identified by EU Commission for public procurement

- This is part of Europe 2020 strategy for “Smart, sustainable and inclusive growth”.

- The European Commission stated that the 27 IHE Profiles have the potential to increase interoperability of eHealth services and applications to the benefit of patients and the medical community leading to their recognition in referencing in public procurement throughout the European Union.

- Details of the 28 July 2015 announcement in the Official Journal of the European Union can be found at:
  http://eur-lex.europa.eu/legalcontent/EN/TXT/?uri=OJ:JOL_2015_199_R_0011

27 IHE Profiles recognized under EU regulation 1025/2012

Regional, National, Cross-border: - Share - Patient Id - Imaging - Summaries - Lab - Privacy	XDS.b	XCF	XCA
	XDR	XDM	XCPD
	XDS-I.b	XDS-MS	XD-SD
	XPHR	PRE	DIS
	XD LAB	XUA	BPPC
Regional, National, Hospital Patient Id & Security		PIX	PDQ
		ATNA	CT
Hospital-HIS	PAM	SVS	
Hospital-Rad	SWF.b	SWF	PIR
Hospital-Lab	LCSD	LAW	LTW

http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:JOL_2015_199_R_0011

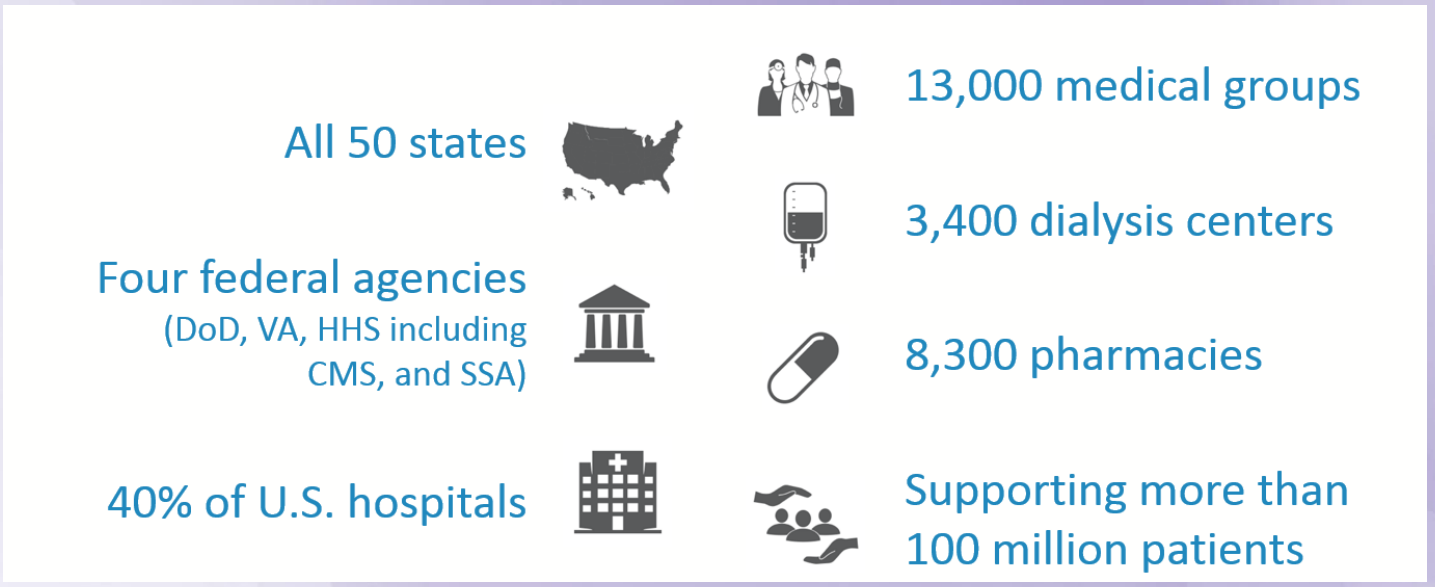
Digital Agenda, part of EU's 2020 strategy.

Four actions in the European Digital Agenda are directly relevant for eHealth:

1. Undertake pilot actions to equip Europeans with secure online access to their medical health data by 2015
2. Achieve widespread deployment of telemedicine services by 2020
3. Propose a recommendation defining a minimum common set of patient data for interoperability of patient records to be accessed or exchanged electronically across Member States
4. Foster EU-wide standards, interoperability testing and certification of eHealth systems through stakeholder dialogue

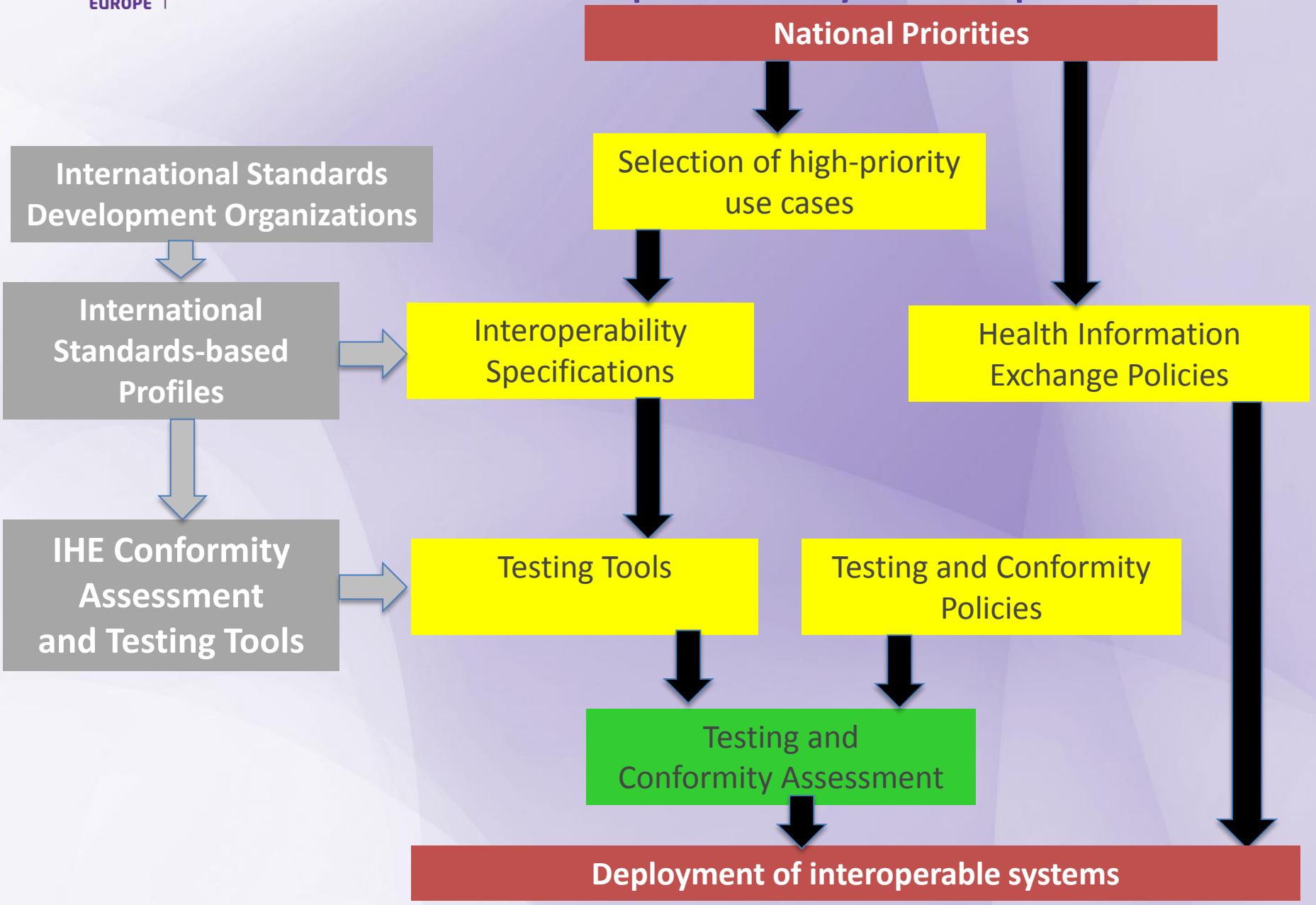
US Health Information Exchange

- Major public/private entities (Kaiser Permanente, Mayo Clinic, VA, DoD, Geisinger, state HIEs, etc.) are using nation-wide interoperability (Managed by Sequoia Project):



- Built upon IHE Profiles (Same set as epSOS):
  - Interchange (IHE XCA/XDR/XCPD)
  - Security (IHE ATNA), Privacy (IHE XUA)
  - Content: Consolidated CDA

eHealth Interoperability tasks process flow



Gain control of Interoperability

- Reduce complexity to master the details of the flow of information between different ehealth systems through the selection of Use Cases (description on an interop. problem)
- Simplify choices of Standards using Profiles when available. Otherwise profile them yourself (e.g. terminology value sets).
- Mandate profiles and standards in the context of each use cases. Develop national “interoperability specification” to record the selected profiles/standards and add national extensions if needed
- Ensure ownership and sustainability to demonstrate the value and build a culture of interoperability. Establish a “neutral” national interoperability center to:
  - turn policy priorities as use cases into interoperability specifications based on profiles.
  - Bring innovation as extensions of existing use cases or new use cases
  - offer test tools and organize conformity assessment

Thank-you for listening