

# Interoperability testing, a strategic business process

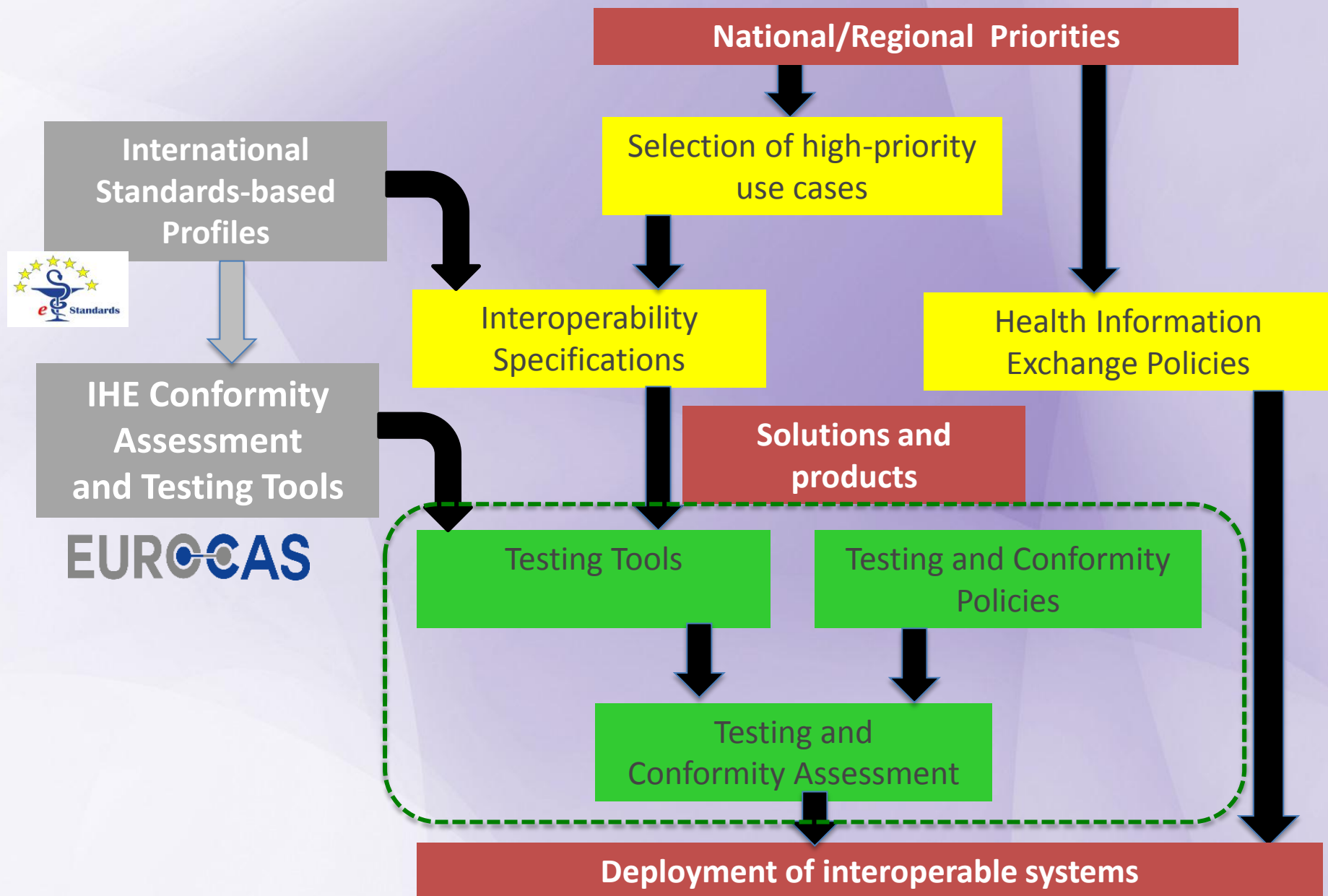
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*IHE-Europe, Director of Interoperability*

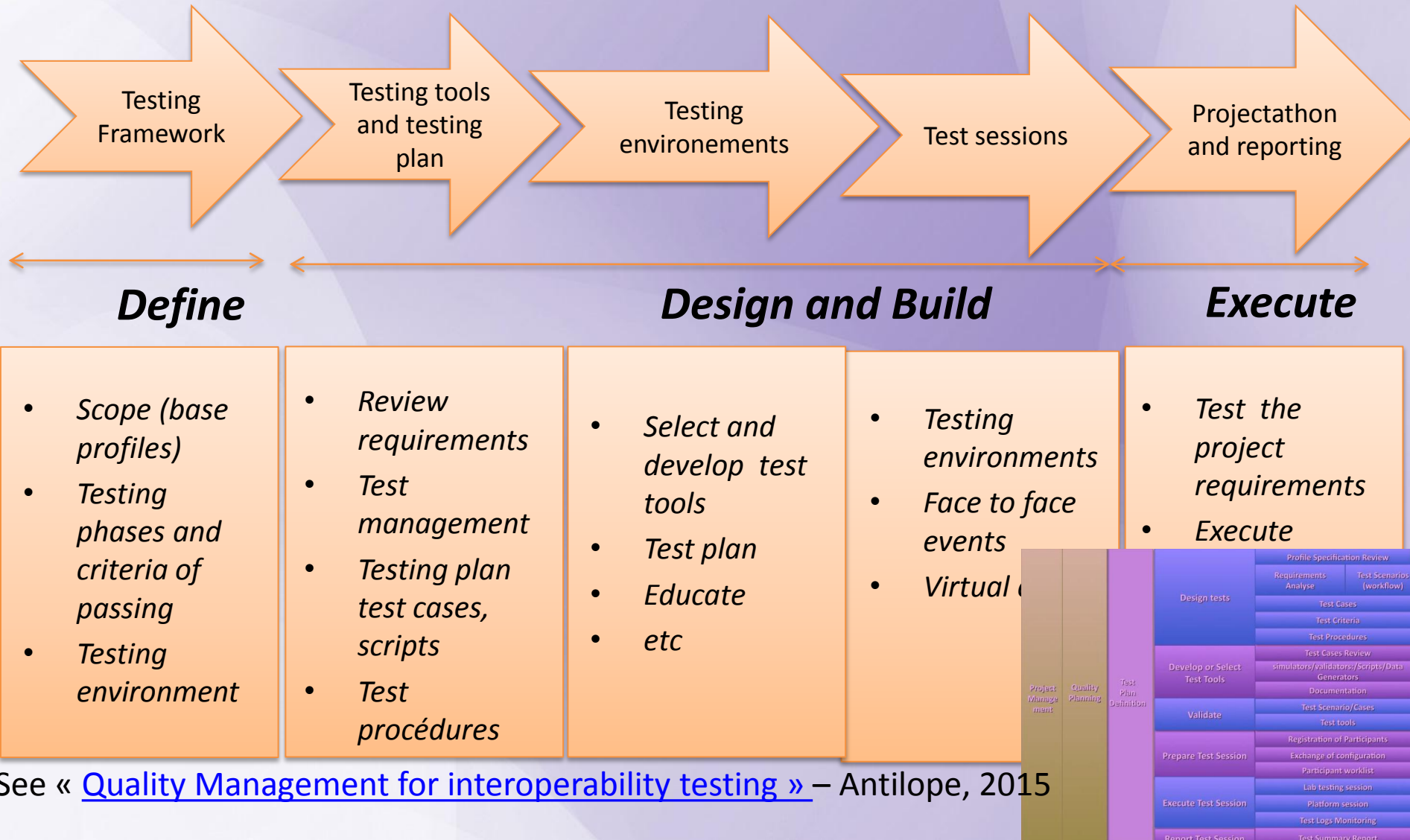
*Forum e-Zdrowia*

14 – 15 September 2017

# Introduction

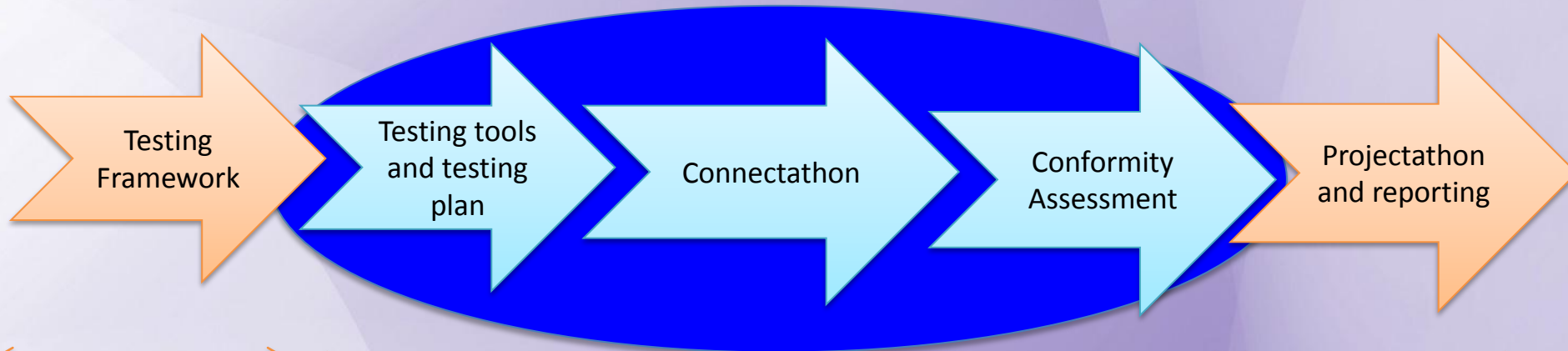


# Testing: a strategy and a process



See « [Quality Management for interoperability testing](#) » – Antilope, 2015

# Testing: a strategy and a process



## Define

- *Scope (base profiles)*
- *Testing phases and criteria of passing*
- *Testing environment*

## Use as a driver

- *Test management*
- *Testing plan test cases, scripts*
- *Test procédures*

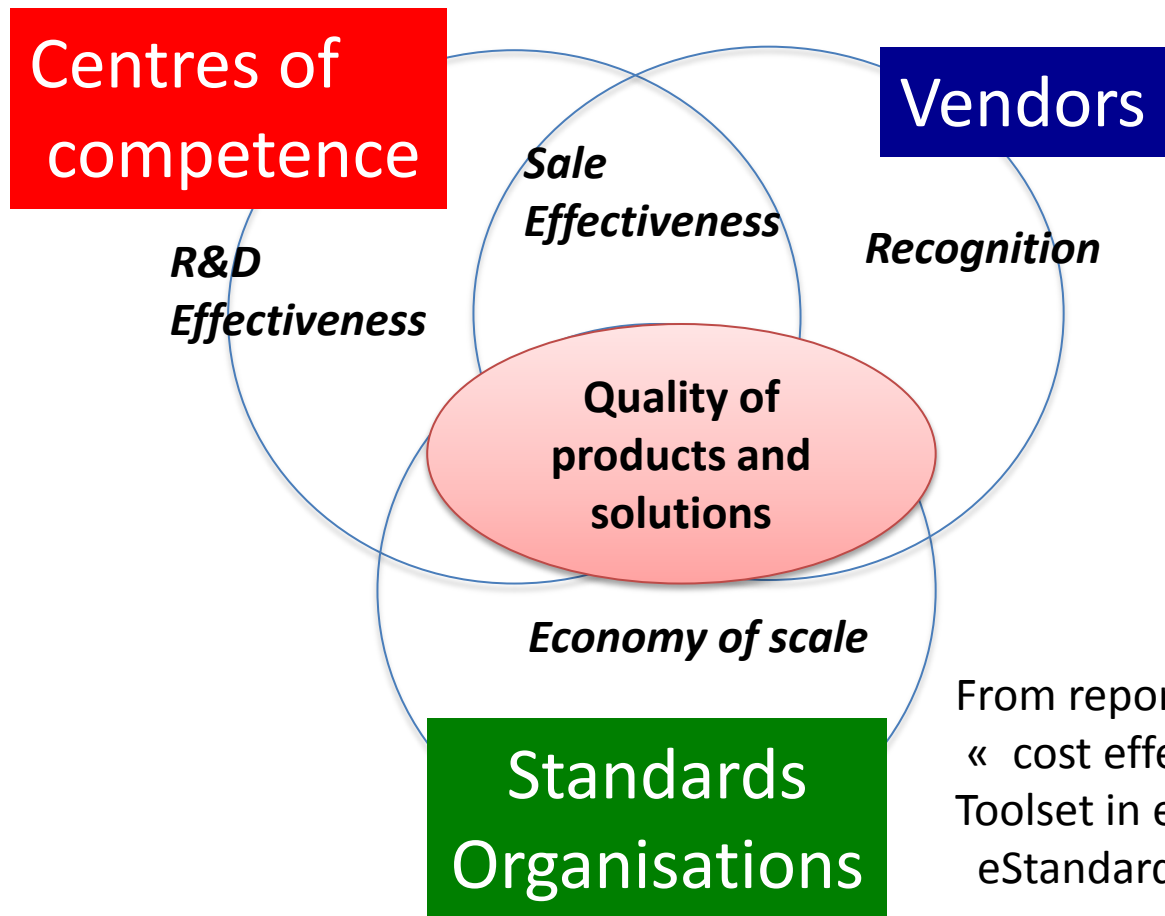
- *Testing events*
- *Face to face events*
- *Virtual events*

- *Tenders/acqui sition of solutions*
- *Cost-effectiveness*
- *Transparency*

## Execute

- *Test the specific project requirements*
- *Execute*
- *Report*

# Key drivers of the standards driven toolset

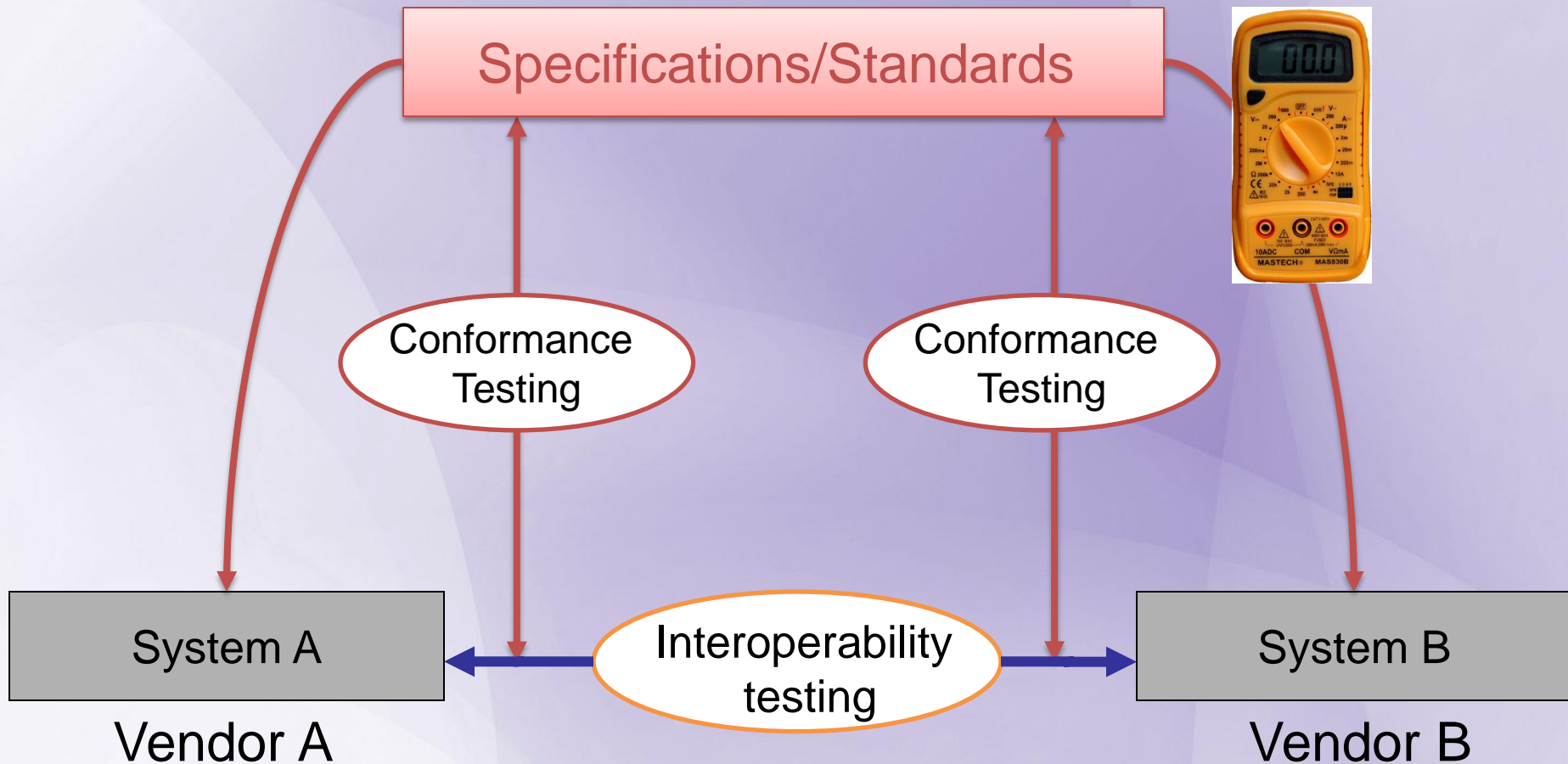


From report study on  
« cost effectiveness of the standards driven  
Toolset in ehealth interoperability »,  
eStandards, 2017

*the use of standards is not today extensively recognized by the market. For dissemination of the standards and profiles, European or national governance and policies should highlight the importance of them. .*

# I. Test plan and Testing tools

# Interoperability and Conformity



# Test Plan

- Describe the set of test cases and test scripts to assess conformance to requirements of the standards or specifications
- The test plan uses test procedures which describes step by step the implementation of the test cases contained in **an automated test tool** (for example validators) or defines via manual steps
- Generally supported by **a test management tool**



# The central role of the Gazelle Platform

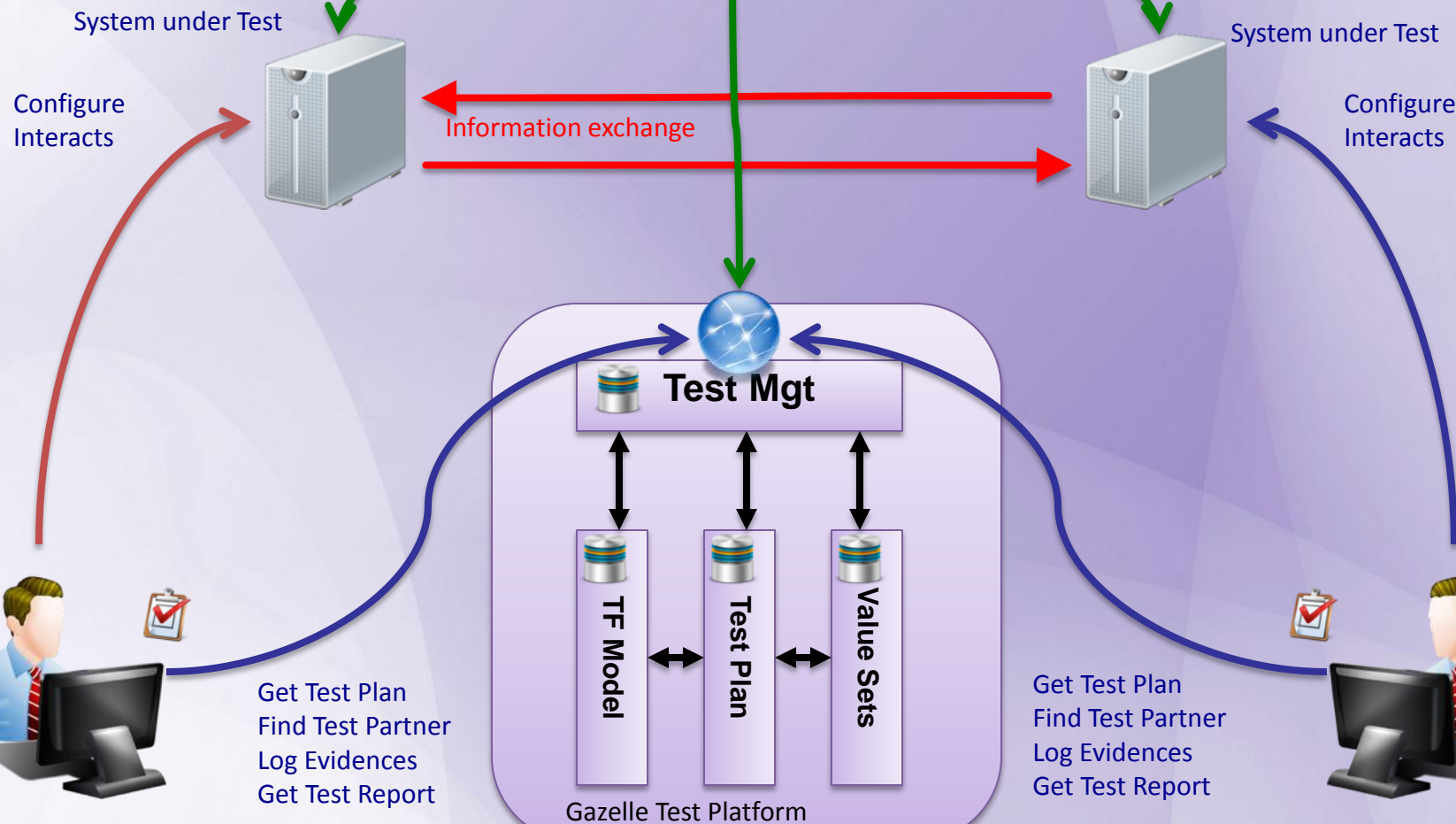


# Gazelle

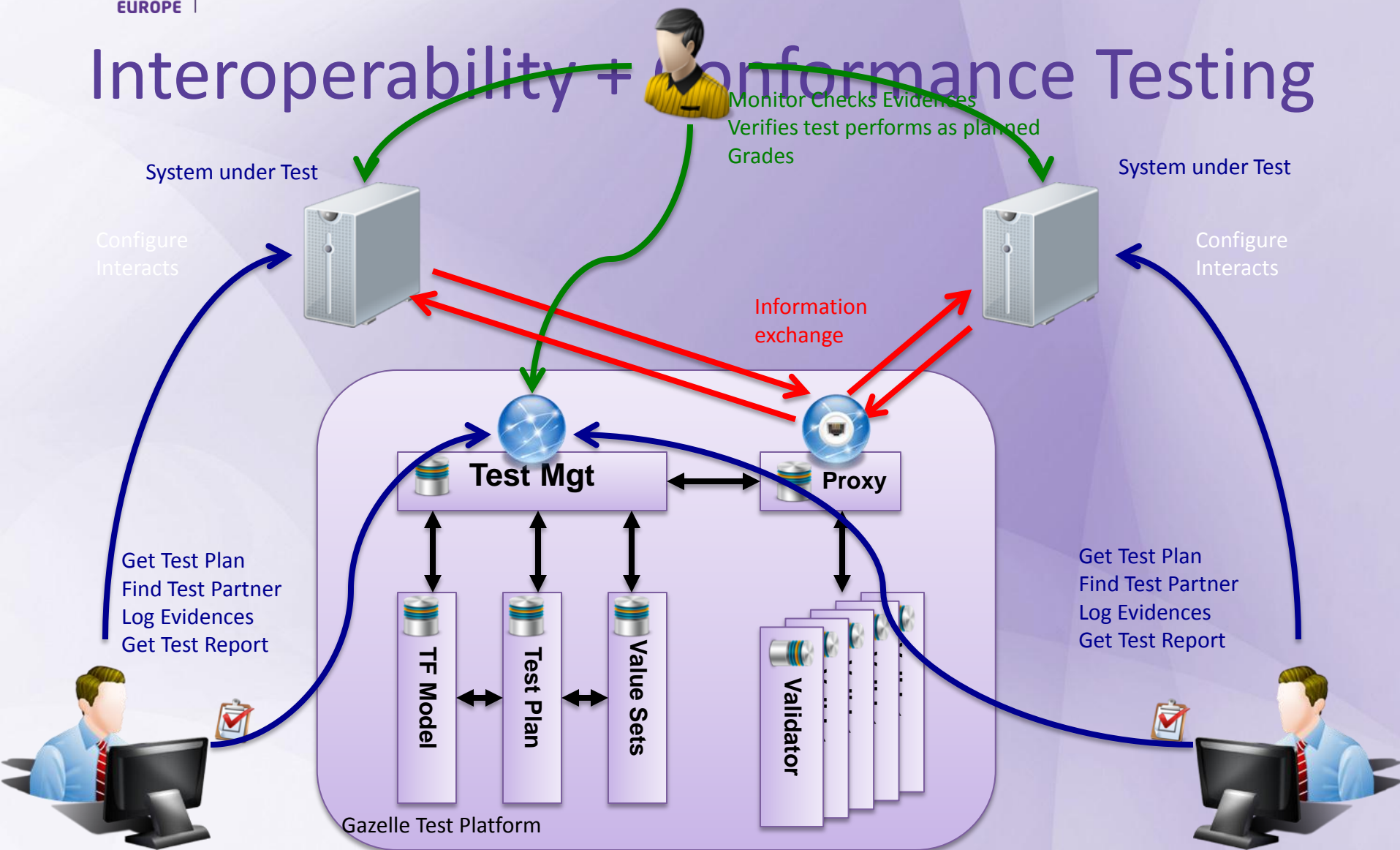
- Gazelle
  - a **test management** tools oriented toward interoperability conformance testing
  - a suite of IHE actors **simulators**
  - a suite of IHE **conformance checking** tools
  - Tools for data generation
  - Tools for automation of testing

Monitor Checks Evidences  
Verifies test performs as planned  
Grades

# Interoperability Testing



# Interoperability + Performance Testing



## II. Connectathon and peer testing



# IHE Connectathon

- Open invitation to vendor and other implementers community
- Test in rigorous environment with peers
- Advanced testing tools (GAZELLE, a GITB platform)
- Testing organized and supervised by project management team and monitors
- Thousands of cross-vendor tests performed
- Results recorded and published

# Connectathon key figures



**3020**  
tests  
performed

**105**  
systems

**83**  
companies

**360**  
participants

**54**  
Monitors

**23**  
countries

# Connectathons in Europe

## European Connectathons

**2001:** Charenton-le-pont Paris, France

**2002:** Villejuif in Paris, France

**2003:** Aachen, Germany

**2004:** Padova, Italy

**2005:** Noordwijkerhout, The Netherlands

**2006:** Barcelona, Spain

**2007:** Berlin, Germany

**2008:** Oxford, UK

**2009:** Vienna, Austria

**2010:** Bordeaux, France

**2011:** Pisa, Italy

**2012:** Bern, Switzerland

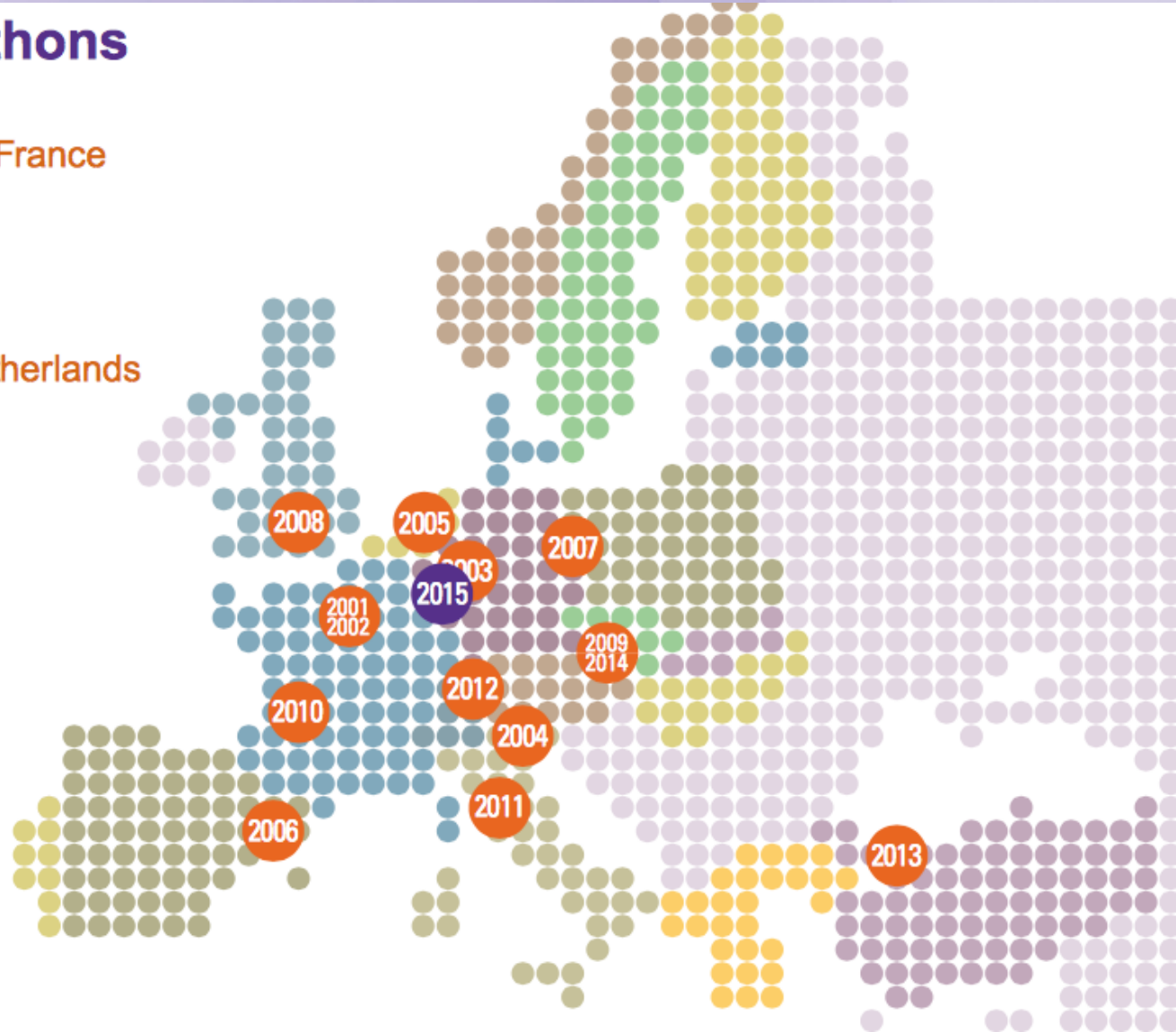
**2013:** Istanbul, Turkey

**2014:** Vienna, Austria

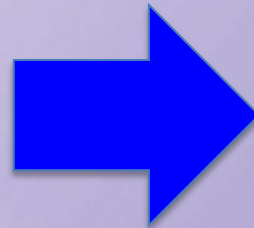
**2015:** Luxembourg

**2016:** Bochum, Germany

**2017:** Venice, Italy







## BENEFITS

### Users

- Qualifies vendors having adopted standards and profiles
- Facilitates decision making for tender responses from competing companies
- Give confidence to procurement process

### Vendors

- Reduce development costs and time to market
- Independant products testing by qualified test specialists and proven test tools
- Facilitate comprehensive interoperability tests with many peers in the industry

# Connectathon Results Browser

On-line registry showing for all Connectathons worldwide which vendors have successfully passed the tests with their products for a selected set of IHE Profiles.

- ❖ Health IT suppliers have the opportunity to showcase the IHE competency of their company.
- ❖ Health IT buyers can easily search for evidence of supplier's IHE claims.

<http://connectathon-results.ihe.net/>

**Result Matrix For integration\_profile : "Scheduled Workflow"**

Result with :

- Actor is 'Image Manager'
- Integration Profile is 'Scheduled Workflow'
- Connectathon is 'North-America 2005'
- All Companies

	AGFA GEVAERT NV	Cedara Software	Cerner Corporation	Eastman Kodak Company	Emageon	Fujifilm	GE Healthcare	Hitachi Medical Corporation	INFINITT	InSiteOne	Inteler Medio System
Order Placer	North-America 2005	North-America 2005	North-America 2005	North-America 2005	North-America 2005	North-America 2005	North-America 2005	North-America 2005	North-America 2005	North-America 2005	North-America 2005
Department System Scheduler/Order Filler			*	*					*		
Image Manager	*	*	*	*	*	*	*	*	*	*	*
Acquisition Modality		*		*		*	*	*			
Evidence Creator	*	*					*	*	*		
Image Display	*	*		*	*	*	*	*	*		

[New Search](#) [Save as xls](#)

**Disclaimer**

**Connectathon Results Browsing**

Simple browsing  
Advanced browsing  
www.ihe.net  
www.ihe-europe.org

Or

Or

- Display
- Document Consumer
- Document Registry
- Document Repository
- Document Source
- Enterprise Report Repository
- Evidence Creator
- External Report Repository Access
- Image Display
- Image Manager**
- Information Source
- Kerberos Server
- Kerberos Authentication Server
- Order Placer
- Order Result Tracker
- Patient Context Participant
- Patient Demographics Consumer
- Patient Demographics Supplier
- Patient Identity Consumer
- Patient Identity Cross-reference Manager

[Webmaster](#)  
 Consultation date: Mon, 27 Jun 2005 00:25:51 GMT  
 Last modified: Sun, 26 Jun 2005 23:20:56 GMT

# Product Registry

IHE Product Registry

Connexion Connexion CAS

IHE Product Registry Introduction Search Integration Statements TF

## Search Integration Statements



### Critère de recherche

Comme

Organisation

Nom du système

Type de système

System sub type

Domaine

Profil d'intégration

Acteur

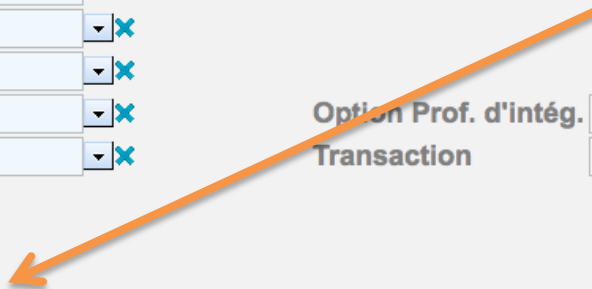
Date de publication Any

Initialiser

Option Prof. d'intég.

Transaction

713 IS available over the world



713 Integration Statements for this search

« « 1 2 3 4 5 6 7 8 9 10 » »

	Organisation	Mindray		Organisation	Iatric Systems, Inc.
	Nom du système/produit	A5 Anesthesia System		Nom du système/produit	Accelero Connect
	Version	01.02.00		Version	
	Date de publication	04/04/11		Date de publication	12/01/15

# Virtual Connectathons

- IHE Services can establish and operate a virtual testing session for
  - Educational purposes
    - IICC
  - Pre-procurement purposes
  - Vendor engagement
    - Arsenal.IT
  - Pre Connectathon Testing
  - Pre production testing
    - epSOS, eHDSI and more
  - In House testing
  - Testing support for a specific certification/labelling scheme

## III. Conformity Assessment



# Conformity assessment

- *Testing event where a single participant test the conformity of its product/solutions to standards and specifications (such as IHE profiles as defined in the IHE international CA Scheme). The result is a **test report**.*
- *Tests are monitored by a third party (a testing laboratory)*
- *The testing laboratory shall be an ISO/IEC 17025 accredited which allow equivalency between test laboratories over the world*
- *Ensure recognition of the reports and their trustworthiness*

# CASforEU

- CASforEU will serve a broad health IT ecosystem.
- CASforEU is a conformity assessment scheme defining
  - *Its governance* model that will ensure viability.
  - *Its development process* that will assure transparency.
  - *Its execution process* that will enable testing consistency, the cornerstone of any successful conformity assessment scheme.
- CASforEU *requirements* will provide consistency for the European Digital Single Market (DSM).
- The *implementation guide* will ensure that European / national / regional CASforEU partners implement CASforEU consistently and reduce costs by avoiding duplicate tests

## IV. Projectathon



# Connectathon vs Projectathon

- **Connectathon**: testing event where participants test the **conformity** of their systems to **IHE profiles and test interoperability with their peers**
- **Projectathon**: testing event where participants test the **conformity** of their systems to **project specifications** that are based on a **set of IHE profiles**
- The projectathon reuses the test tools and test plans and extends them for additional requirements specified by the project

# IHE websites

- **IHE International Web site**  
[www.ihe.net](http://www.ihe.net)
- **IHE Europe Web site (testing, services)**  
[www.ihe-europe.net](http://www.ihe-europe.net)
- **Connectathon white paper**
- **Connectathon Result:**  
[www.ihe.net/Events/connectathon\\_results.cfm](http://www.ihe.net/Events/connectathon_results.cfm)
- **Vendor Products Integration Statements**  
<https://gazelle.ihe.net/content/product-registry>
- **Participation in Connectathons**  
<http://ihe-europe.net/connectathon/connectathon>

# ***QUESTIONS ?***

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