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INTEROPERABILITY ISSUES RELATED TO LADM PROFILED IMPLEMENTATIONS – A FIRST EXPLORATION

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Model

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Introduction



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IT Architect

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Agenda

Interoperability Observations

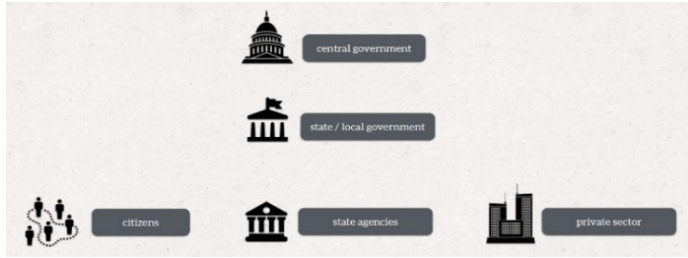
Standards

Challenges

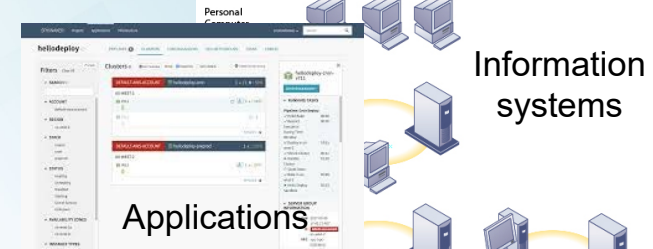
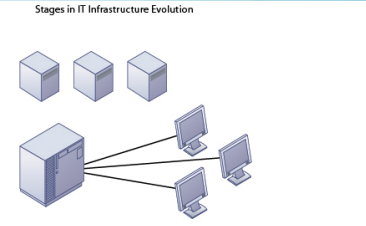
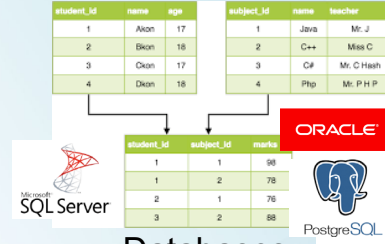
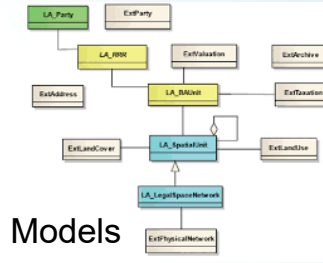
Practices

Approach

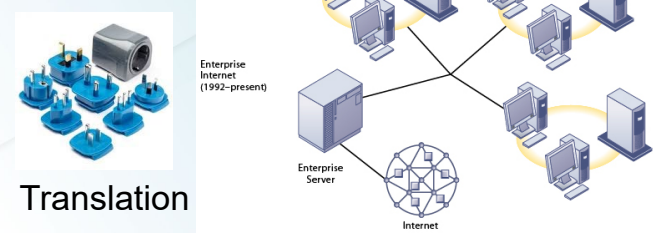
Observations



Stakeholders



Collecting



Interoperability

Interoperability means loosely coupled systems with components that are connected and can interact but still contain their own logic of operation (Chen, Doumeingts, & Vernadat, 2008)

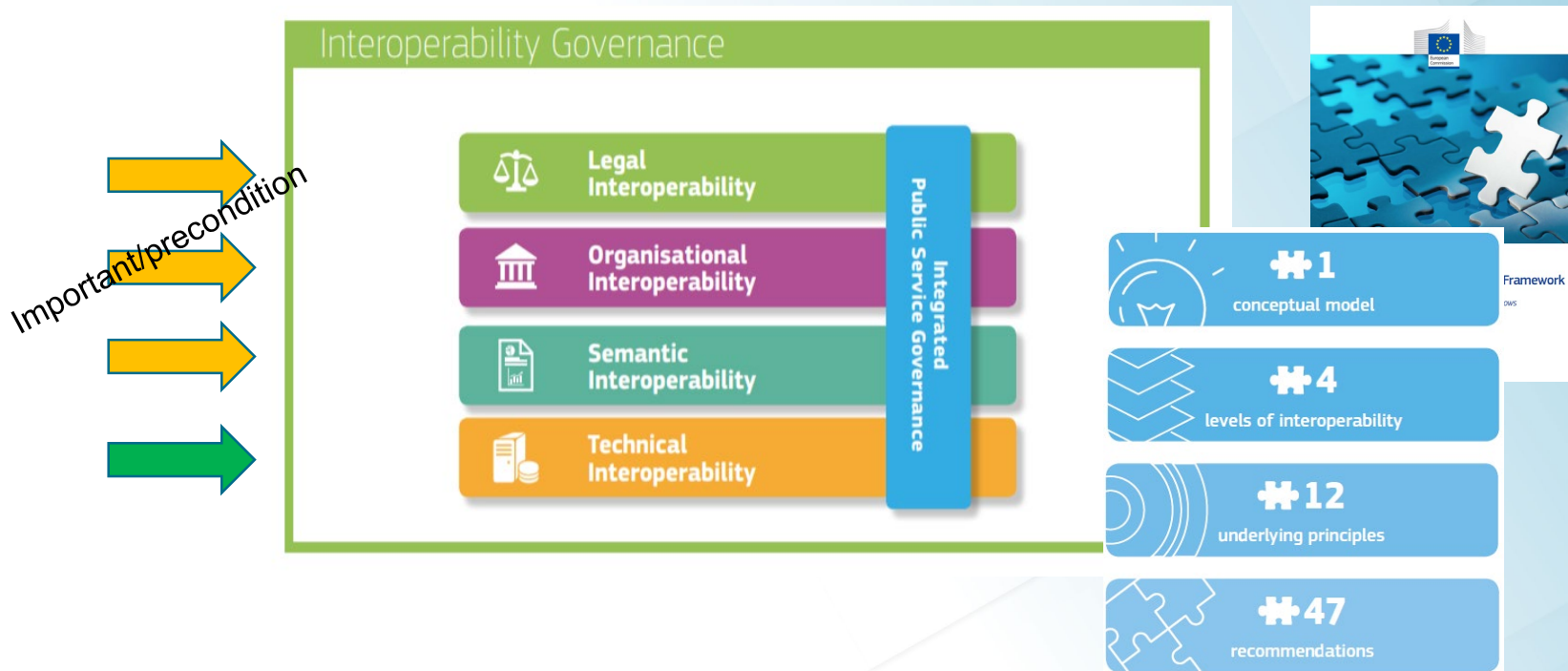
Interoperability can be contextualized in terms of coexistence, autonomy and a federated environment, whereas integration refers more to the concepts of coordination, coherence and uniformization (Chen, Doumeingts, & Vernadat, 2008).

The CEN/ISO 11354-1:2011 (2011) ‘the ability of enterprises and entities within those enterprises to communicate and interact efficiently’.

Interoperability means **loosely coupled systems and organizations** that are connected and can **interact efficiently, sharing information to support the business processes in agreed language** but still contain their own logic of operation

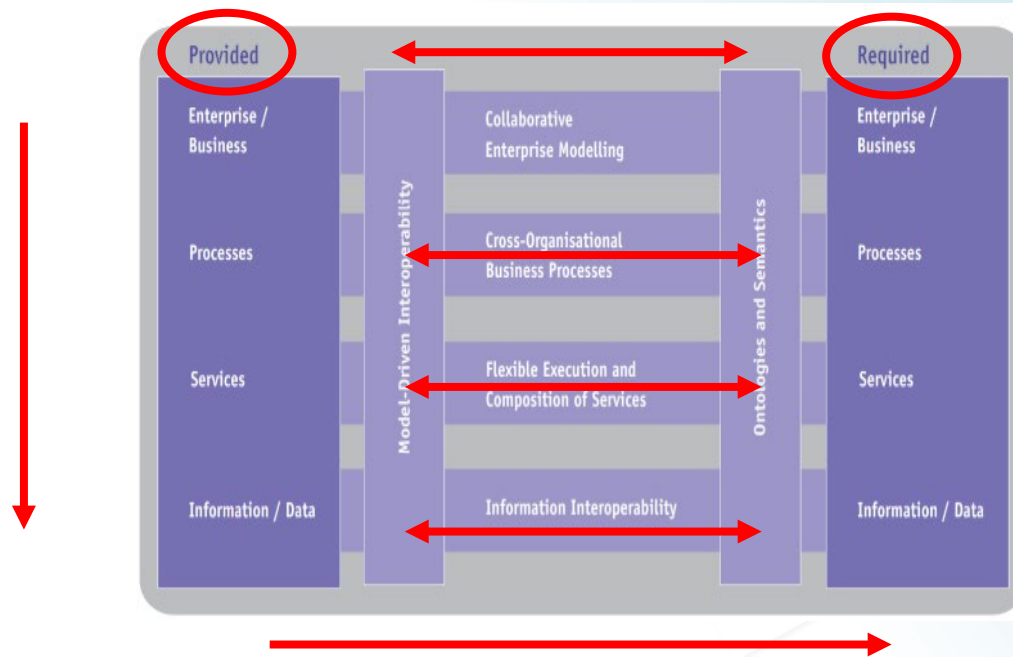
Interoperability refers to the ability of organizations to interact towards mutually beneficial goals, involving the sharing of information and knowledge between these organizations, through the business processes they support, by means of the exchange of data between their ICT systems’

European Interoperability Framework



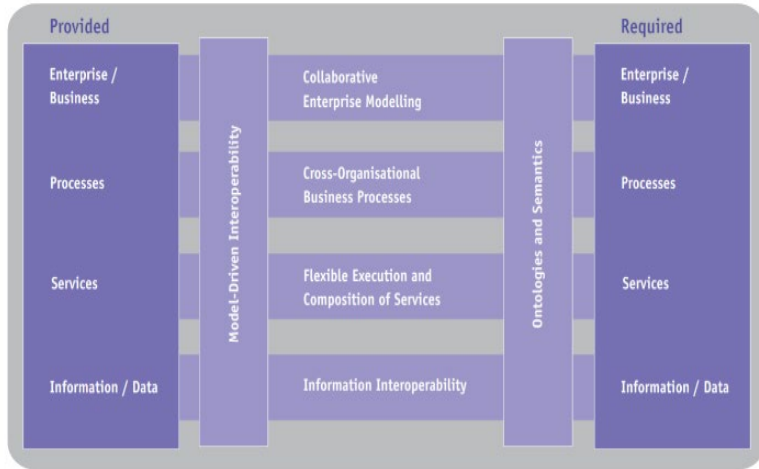
Source: New European Interoperability Framework. Brussels: European Commission. Retrieved from https://ec.europa.eu/isa2/eif_en

The Athena framework (2007)

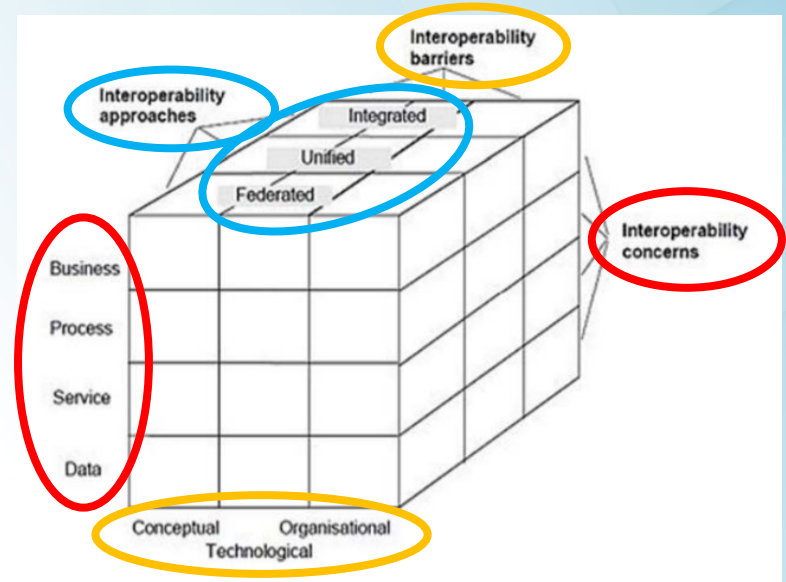
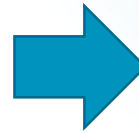


Source: The ATHENA Interoperability Framework. In R. J. Gonçalves, J. P. Müller, K. Mertins & M. Zelm (Eds.). *Enterprise Interoperability II - New Challenges and Approaches*

CEN/ISO standard 11354-1:2011



The Athena framework



Framework for Enterprise Interoperability a part of CEN/ISO standard 11354-1:2011 (ISO, 2011)

Source: The ATHENA Interoperability Framework. In R. J. Gonçalves, J. P. Müller, K. Mertins & M. Zelm (Eds.), *Enterprise Interoperability II - New Challenges and Approaches And ISO. (2011). ISO 11354-1:2011 ADVANCED AUTOMATION TECHNOLOGIES AND THEIR APPLICATIONS -- REQUIREMENTS FOR ESTABLISHING MANUFACTURING ENTERPRISE PROCESS INTEROPERABILITY -- PART 1: FRAMEWORK FOR ENTERPRISE INTEROPERABILITY. ISO/TC 184/SC 5*

Challenges operationalization

Time, cost, effort

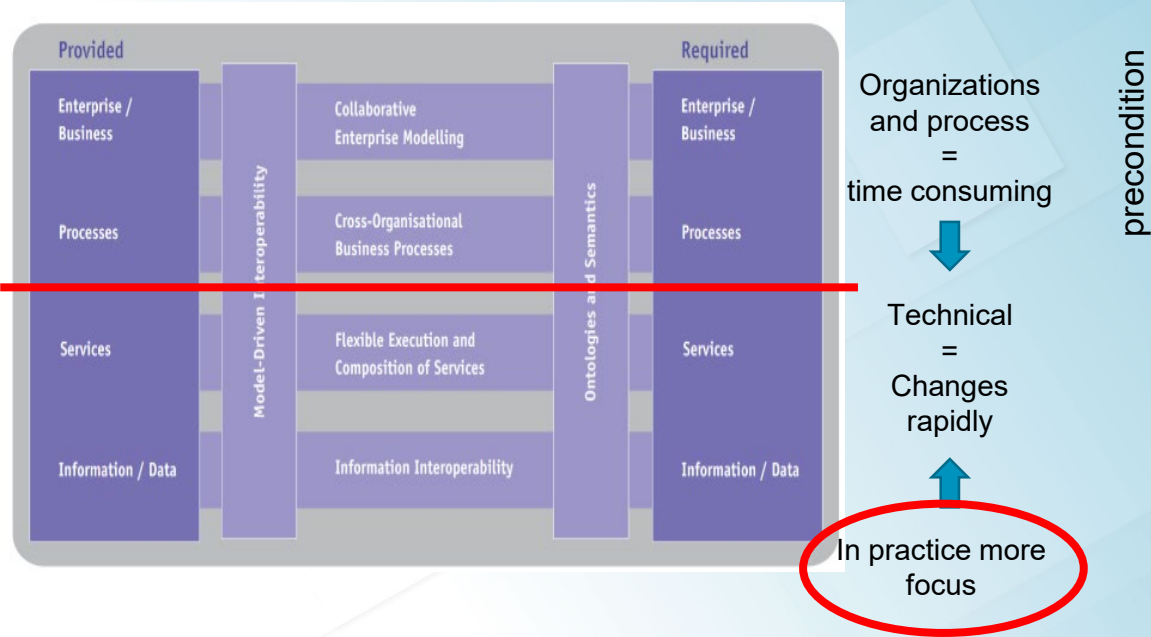
Stakeholders connected

Citizen-centric approaches

Organization has its own IS

Connecting Old IS and new IS

User friendly



LADM to Land profile

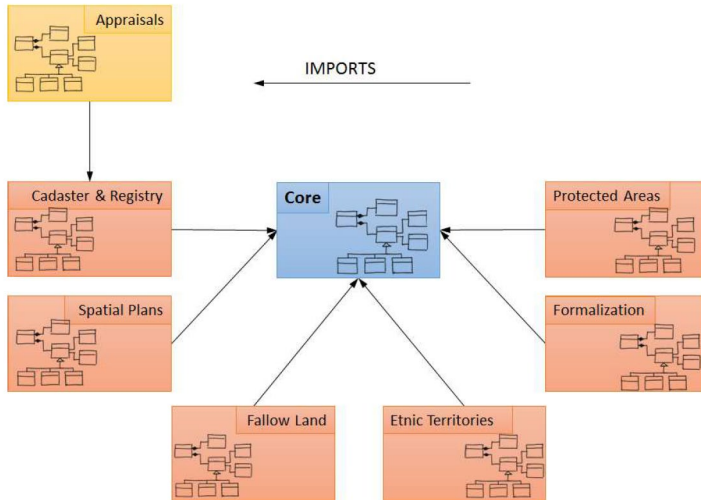


Figure 4: Modularization of the LADM-COL.

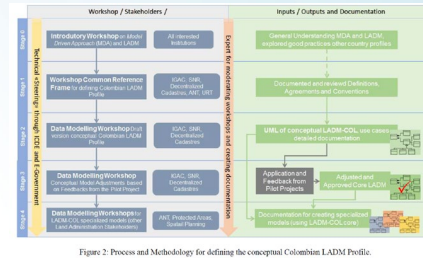


Figure 2: Process and Methodology for defining the conceptual Colombian LADM Profile.

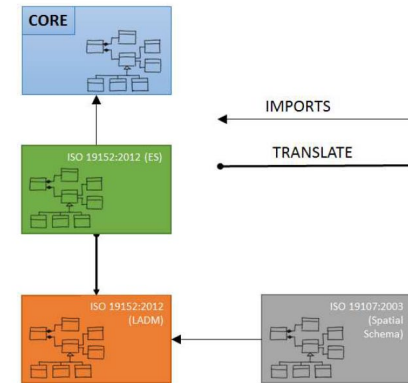
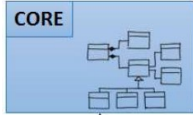


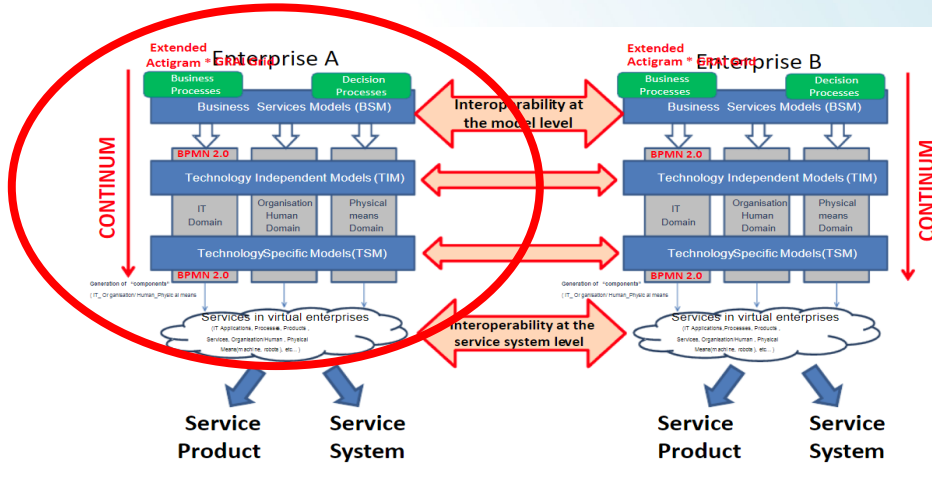
Figure 5: Modularization of the current LADM-COL.

Source: MDSEA - Architecture for interoperability and alignment of service system
 Jenni et al. 2017 - DEVELOPMENT AND EMPLOYMENT OF AN LADM IMPLEMENTING TOOLKIT. Washington DC: The World Bank.

Modeling and translation

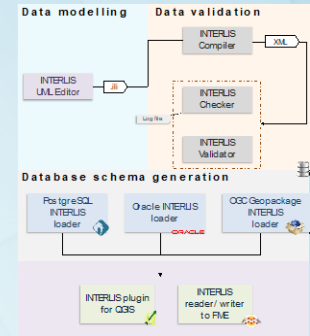


Models



Effort:

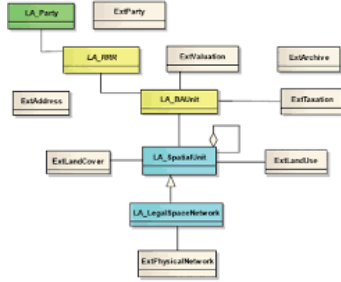
- Land profile
- Translation
- Tools
- Standard languages
- Experts / Automation



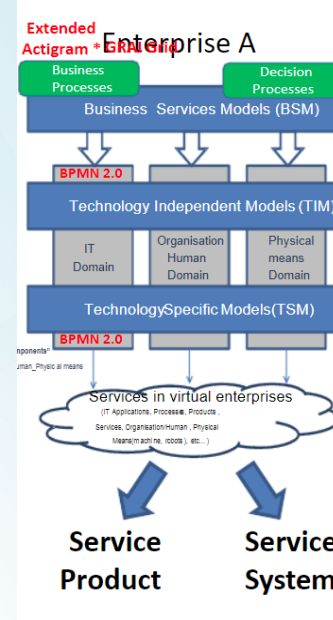
Tools

Source: MDSEA - Architecture for interoperability and alignment of service system
 Jenni et al. 2017 - DEVELOPMENT AND EMPLOYMENT OF AN LADM IMPLEMENTING TOOLKIT. Washington DC: The World Bank.

Approach



Minimum needed
in local profile?



Easy to
Translate,
generate
and update

Freeware
tools



Testing
use
cases



Collecting



Configuration



light weight
communication

Approach

Create a minimal Core profile from LADM ISO standard 19152 which is basis in 90% of local situation, extendable and backward compatible, with existing (freeware) tools with no expert knowledge.

In an easy way generate that minimal core model into functional schema which is the basis for Services and data storage.

Based on experiences and publications, generate the services for stakeholders and citizens and Data structures for a registration.

For Field Collecting apps create a minimal profile which is configurable from the core system, downloadable on any mobile device and use light weight communication standards and data formats so can also be used in Local and Mobile Networks with limited capacity.

The development, implementation and testing of these use cases to prove and adjust interoperability in land administration.

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