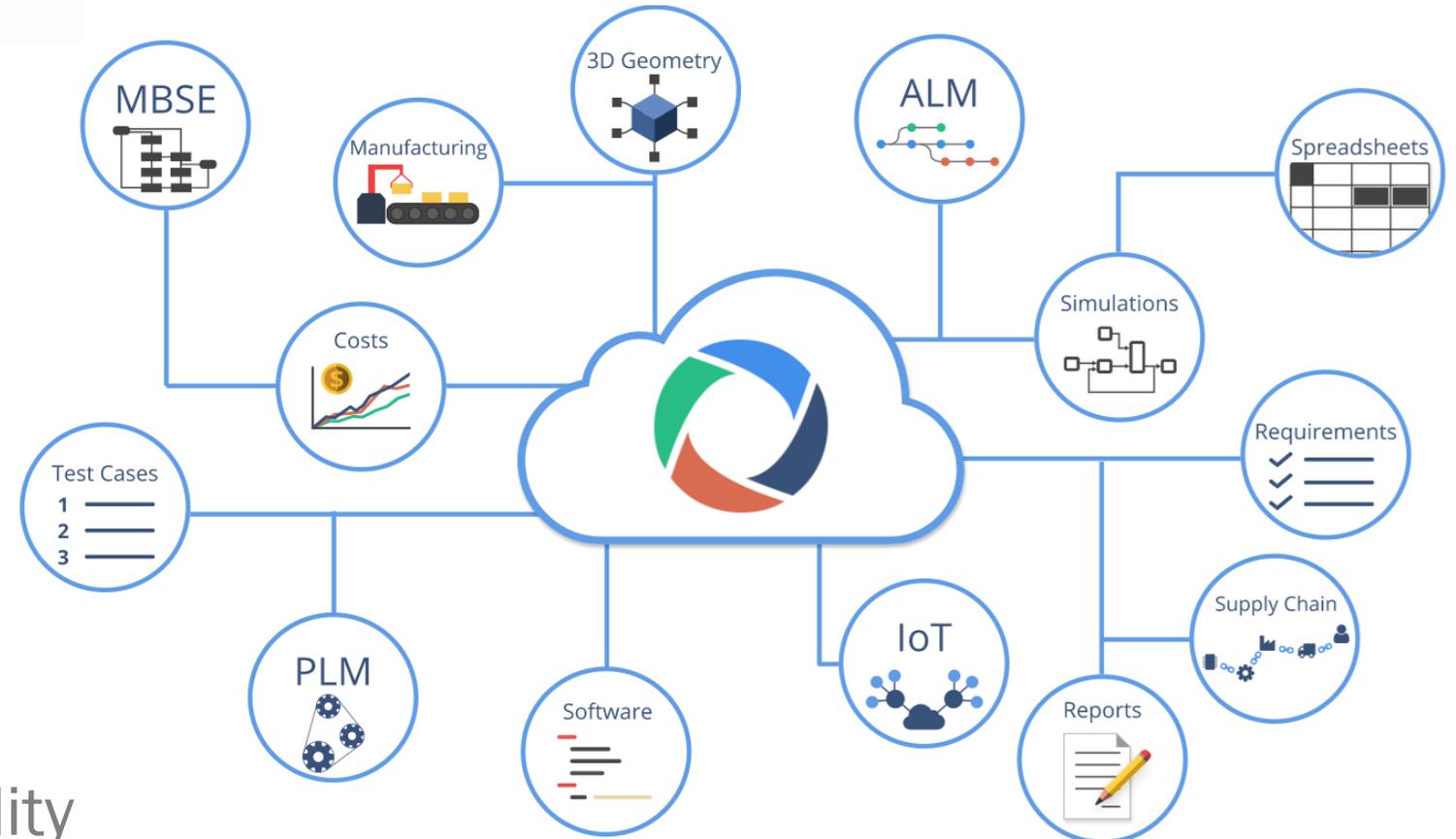




uc3m

Universidad Carlos III de Madrid

Computer Science and Engineering  
Department



## IMOLA 3

### Concepts of Interoperability

# Who am I

- SE Professor at Universidad Carlos III de Madrid (Spain)
- CTO at The REUSE Company
- Board Member of AEIS (INCOSE Spain)

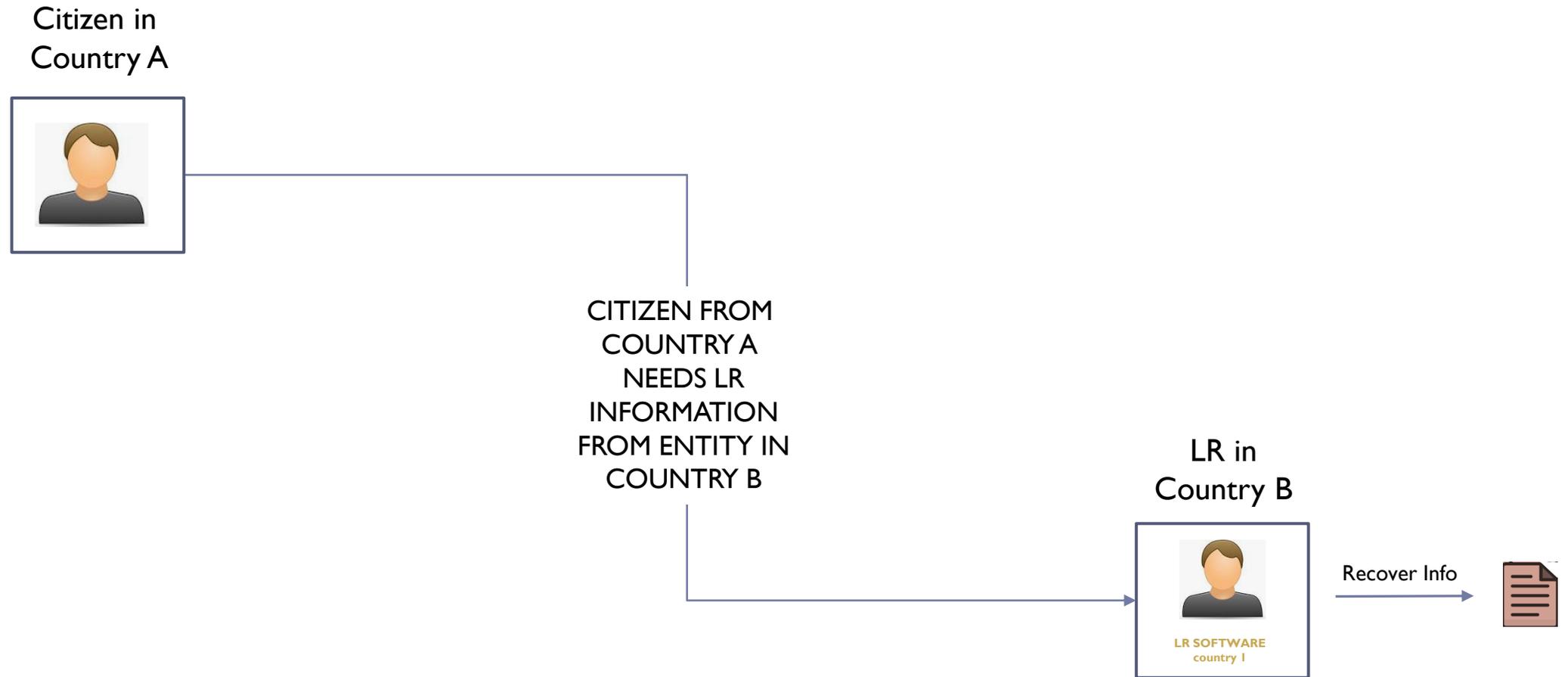


Dr. Juan Llorens

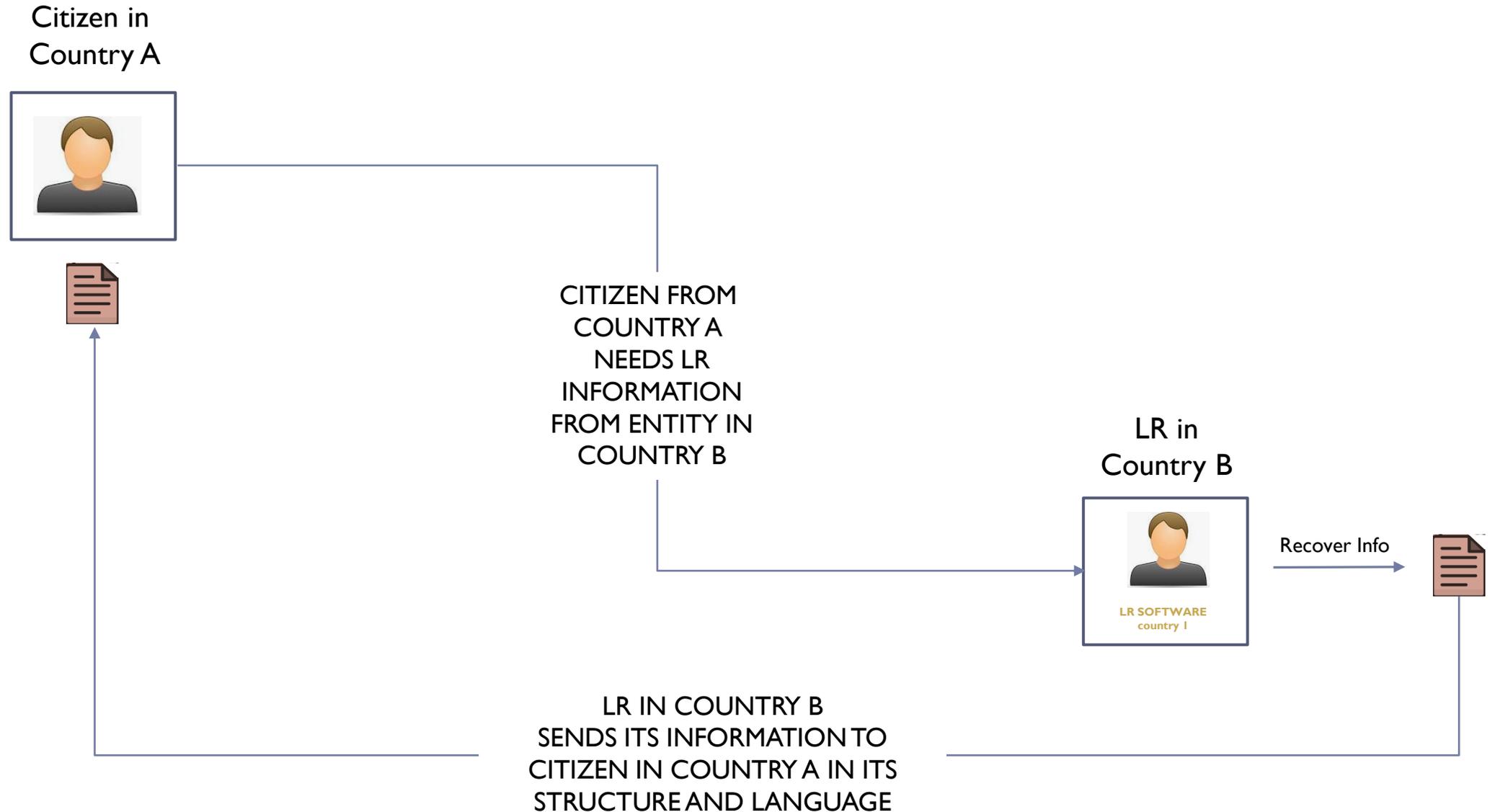
Juan.Llorens@uc3m.es



# Stakeholders core problem



# Existing Solution



# Desired Solution

Citizen in Country A



CITIZEN FROM COUNTRY A NEEDS LR INFORMATION FROM ENTITY IN COUNTRY B

LR in Country B



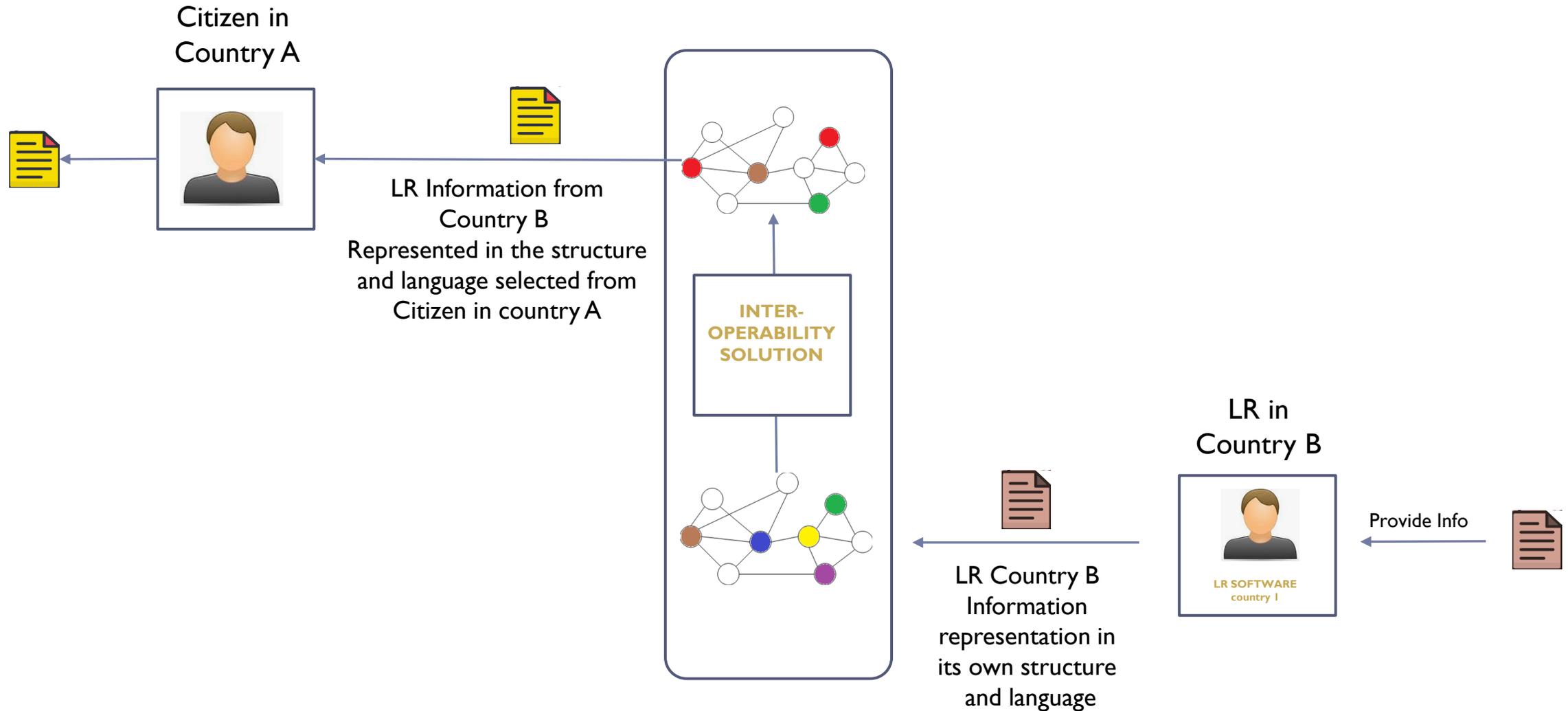
Recover Info



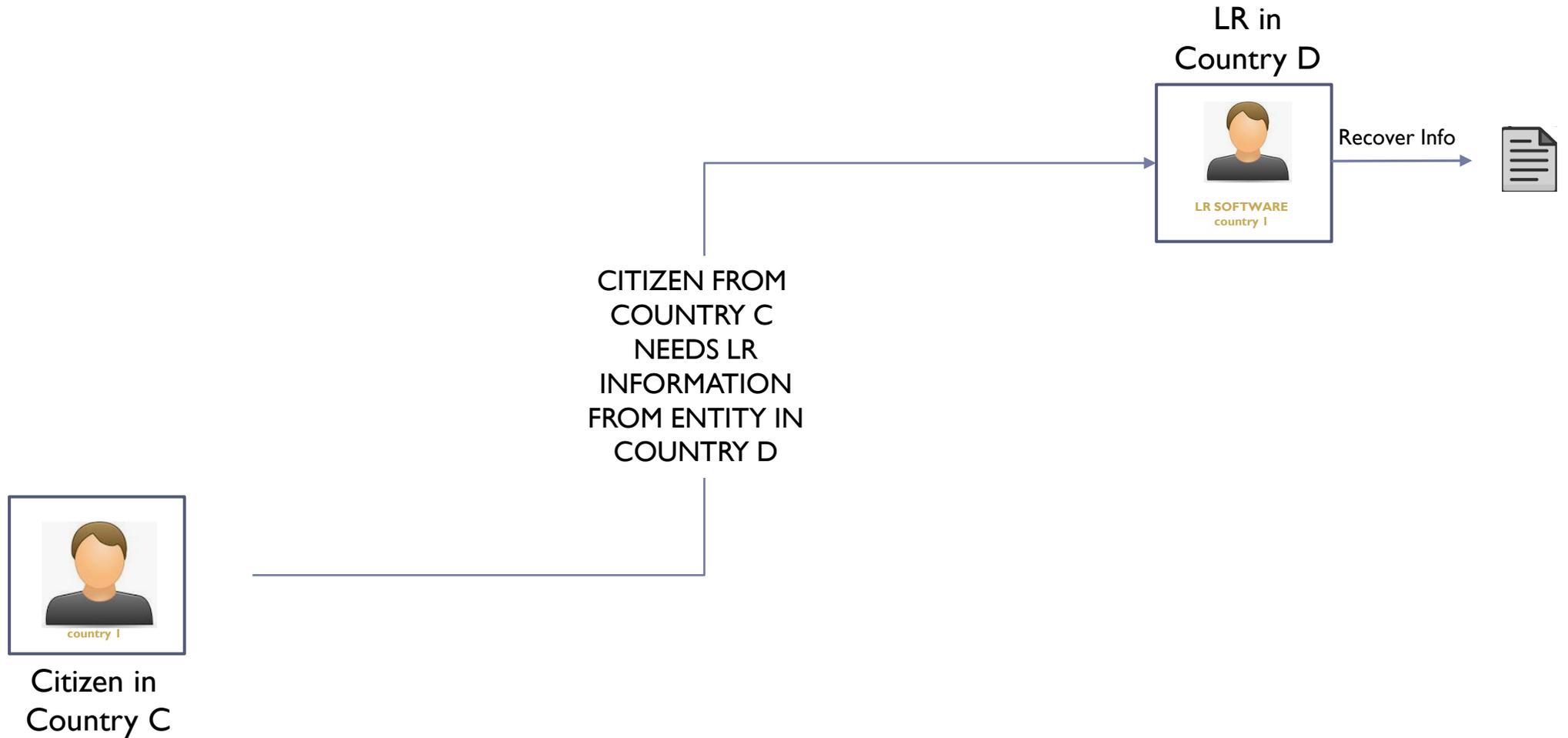
LR IN COUNTRY B SENDS ITS INFORMATION TO CITIZEN IN COUNTRY A IN THE STRUCTURE AND LANGUAGE OF COUNTRY A



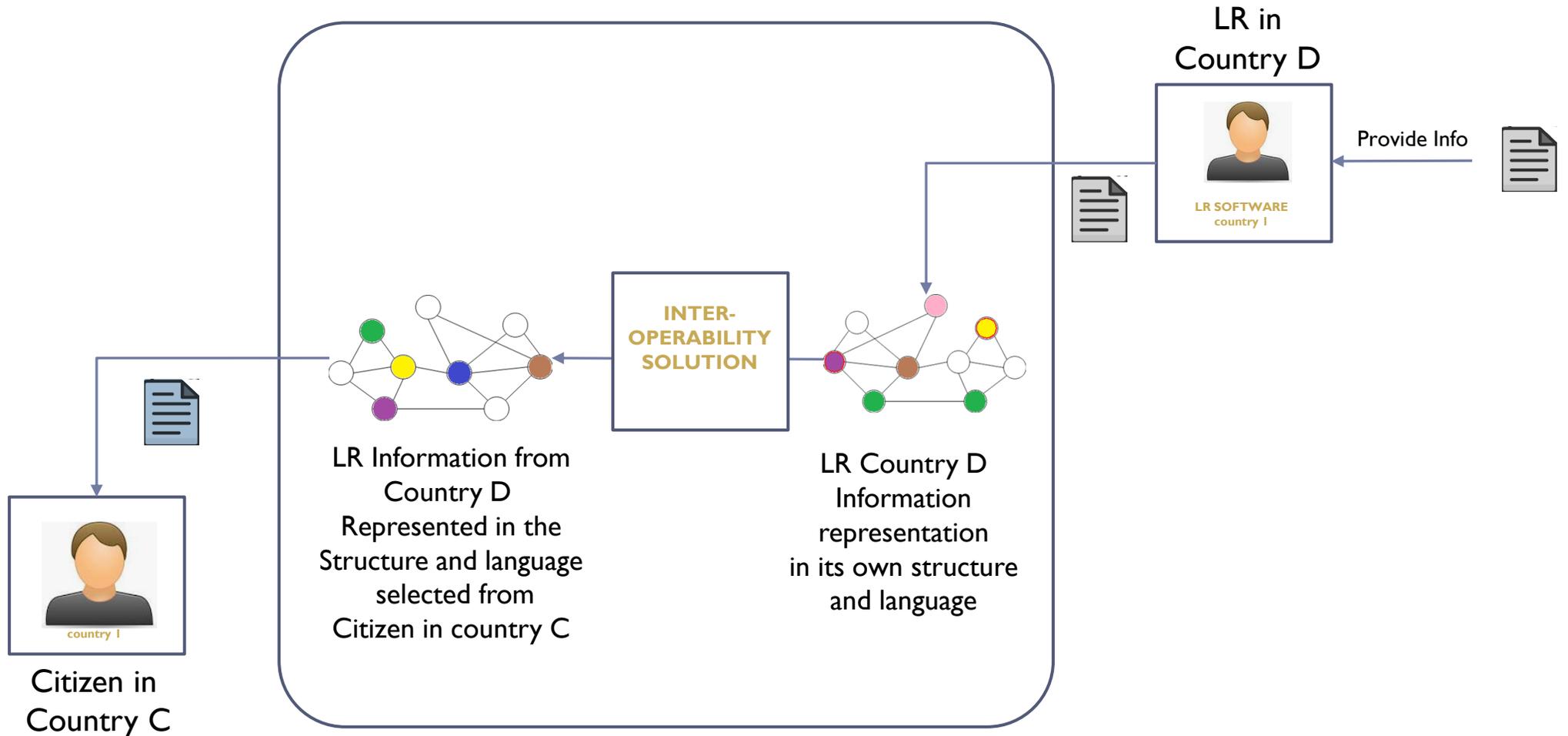
# How to implement the Desired Solution



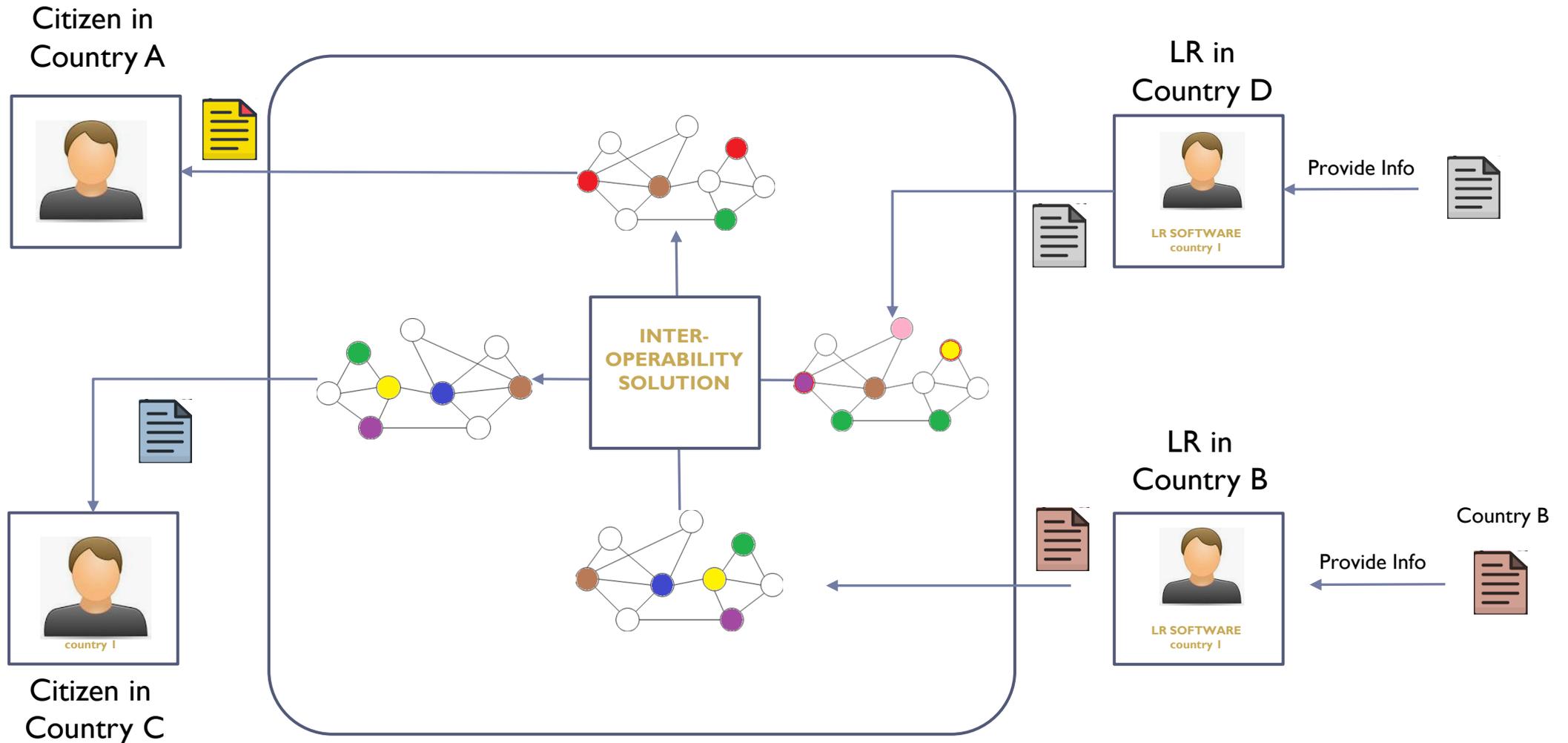
# How does this solution scale up?



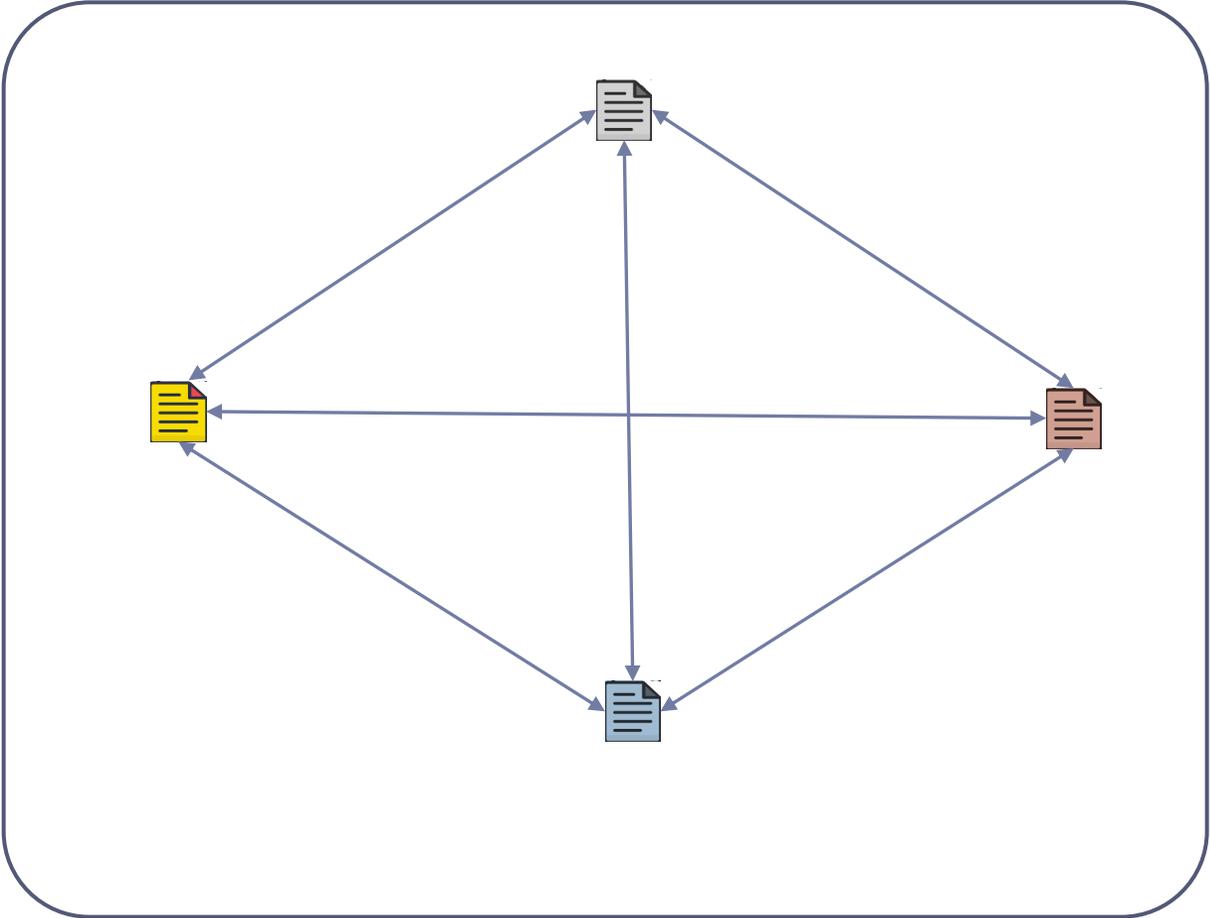
# Duplicating the interoperability services



# This solution does not scale up – Combinatorial complexity

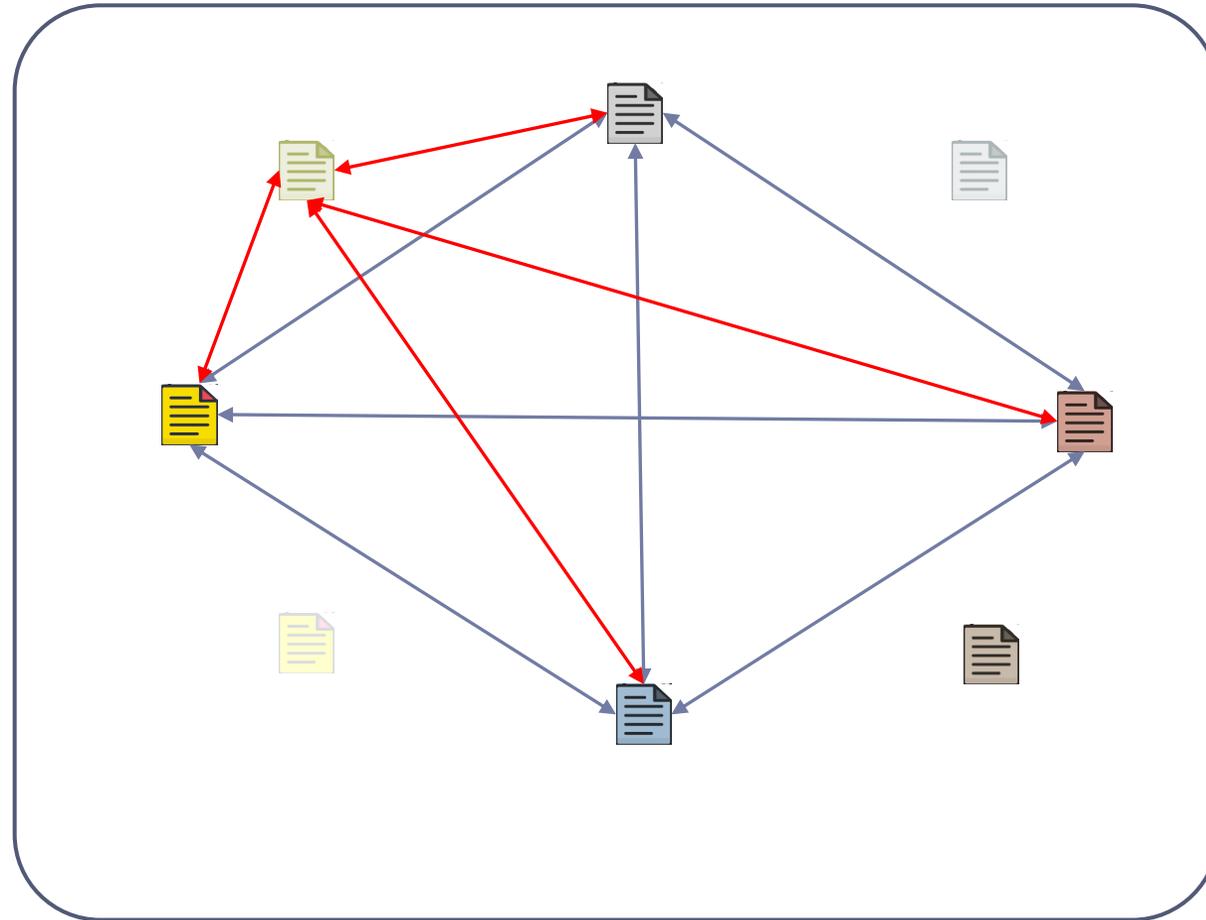


# Scalability of a Point-to-Point Solution



# Scalability of a Point-to-Point Solution

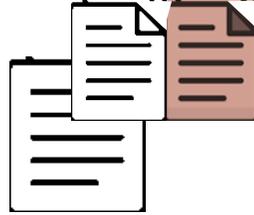
$2*(N - 1)$  new connections



# Too many interoperabilities to connect the LR in all the countries



# Pivot based Solution: Resources



ELRD: EUROPEAN LAND REGISTRY DOCUMENT

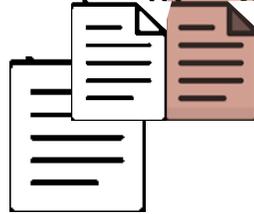
AUTOMATICALLY PRODUCED

FORMED BY :

- A KERNEL TEMPLATE TO BE INSTANTIATED (IN PIVOT LANGUAGE)
- AN ENRICHING SEMANTIC STRUCTRE MAPPING CONCEPTS FROM ONE COUNTRY TO A PIVOT LANGUAGE AND STRUCTURE



# Pivot based Solution: Resources

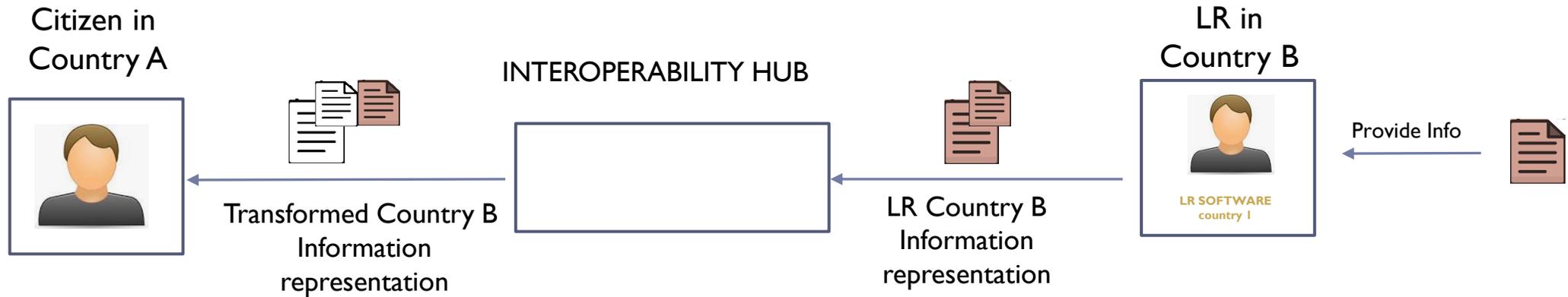


ELRD: EUROPEAN LAND REGISTRY DOCUMENT

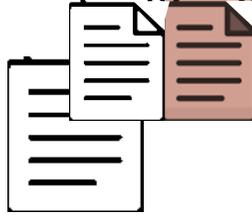
AUTOMATICALLY PRODUCED

FORMED BY :

- A KERNEL TEMPLATE TO BE INSTANTIATED (IN PIVOT LANGUAGE)
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# Pivot based Solution: Resources

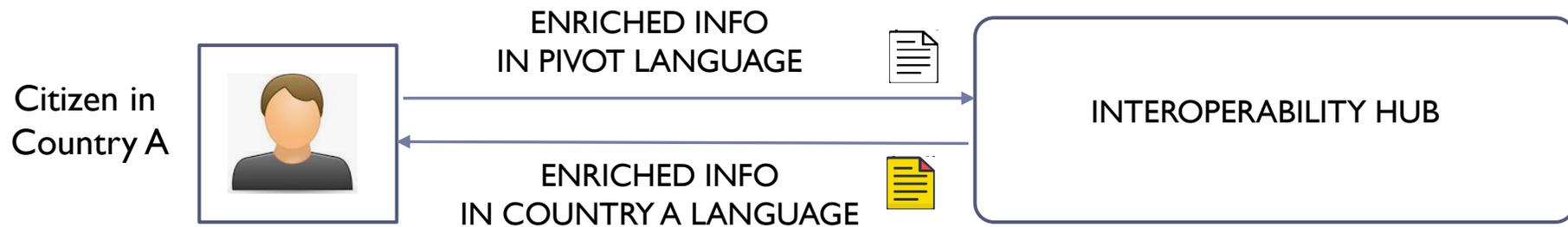
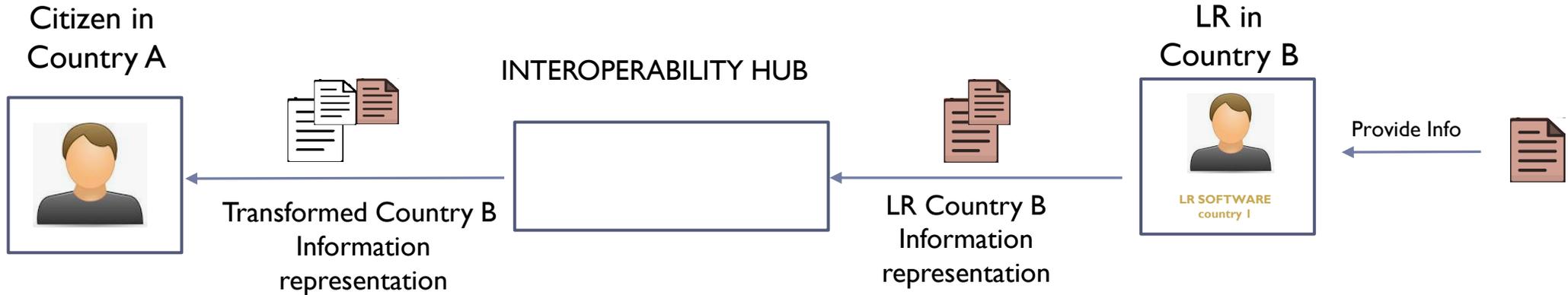


ELRD: EUROPEAN LAND REGISTRY DOCUMENT

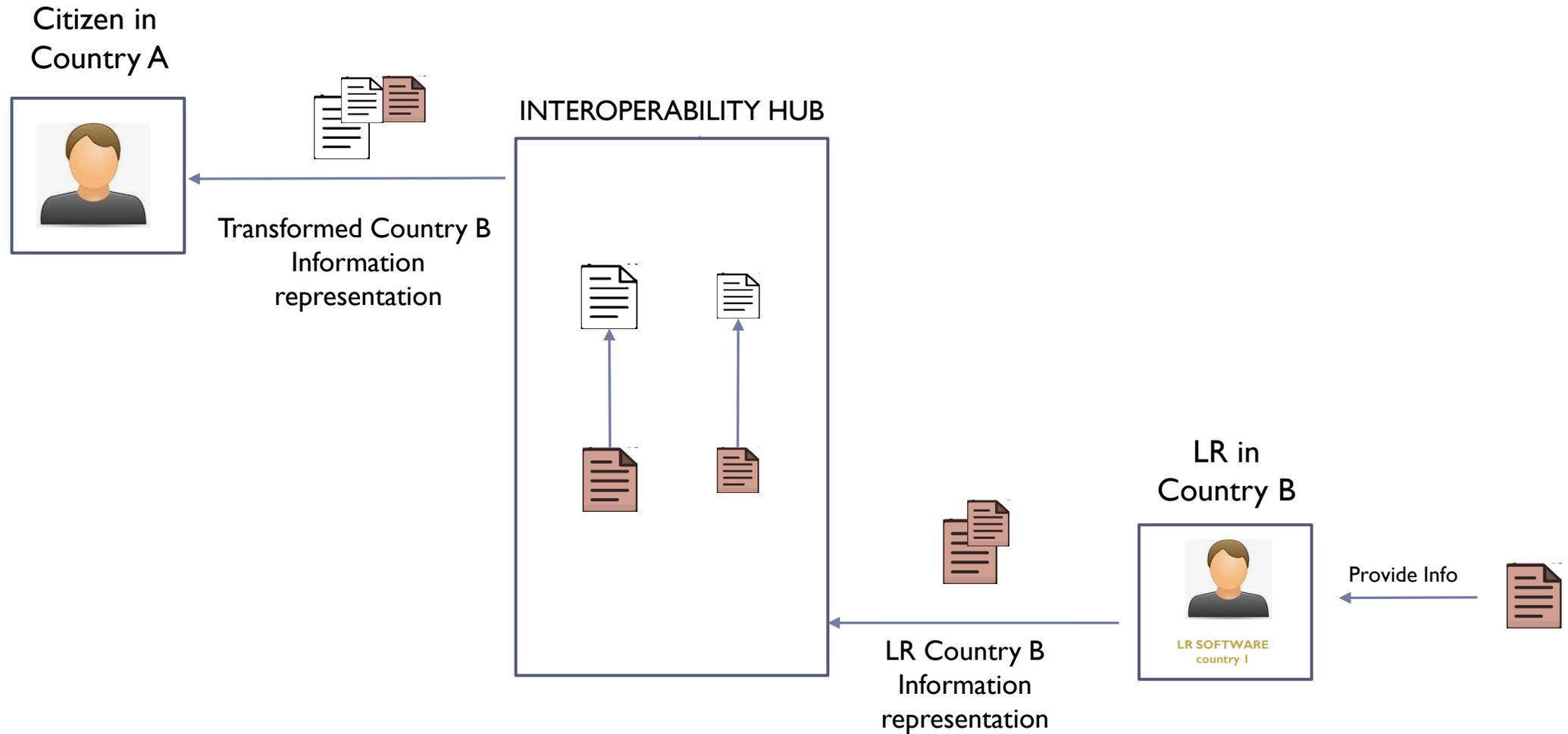
AUTOMATICALLY PRODUCED

FORMED BY :

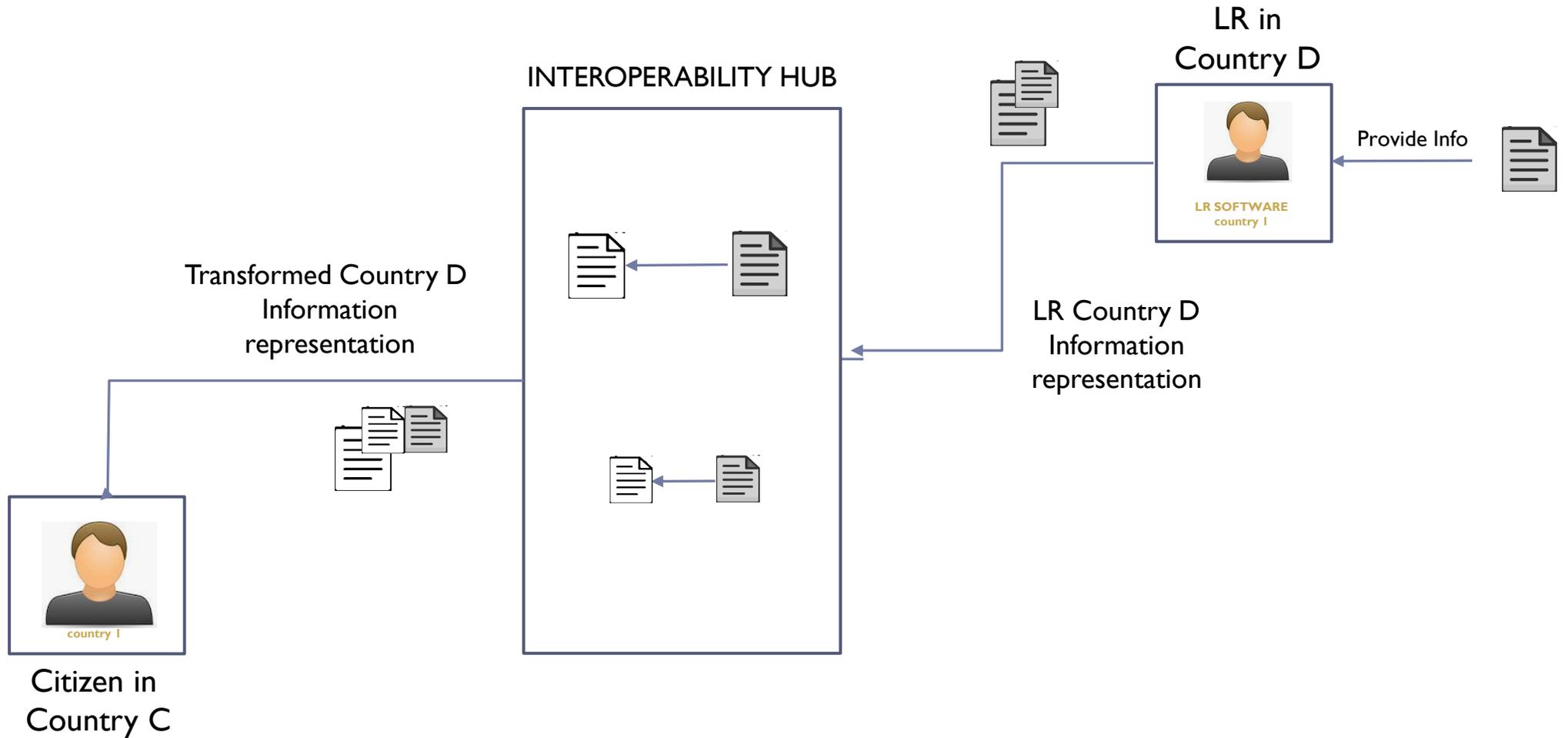
- A KERNEL TEMPLATE TO BE INSTANTIATED (IN PIVOT LANGUAGE)
- AN ENRICHING SEMANTIC STRUCTRE MAPPING CONCEPTS FROM ONE COUNTRY TO A PIVOT LANGUAGE AND STRUCTURE

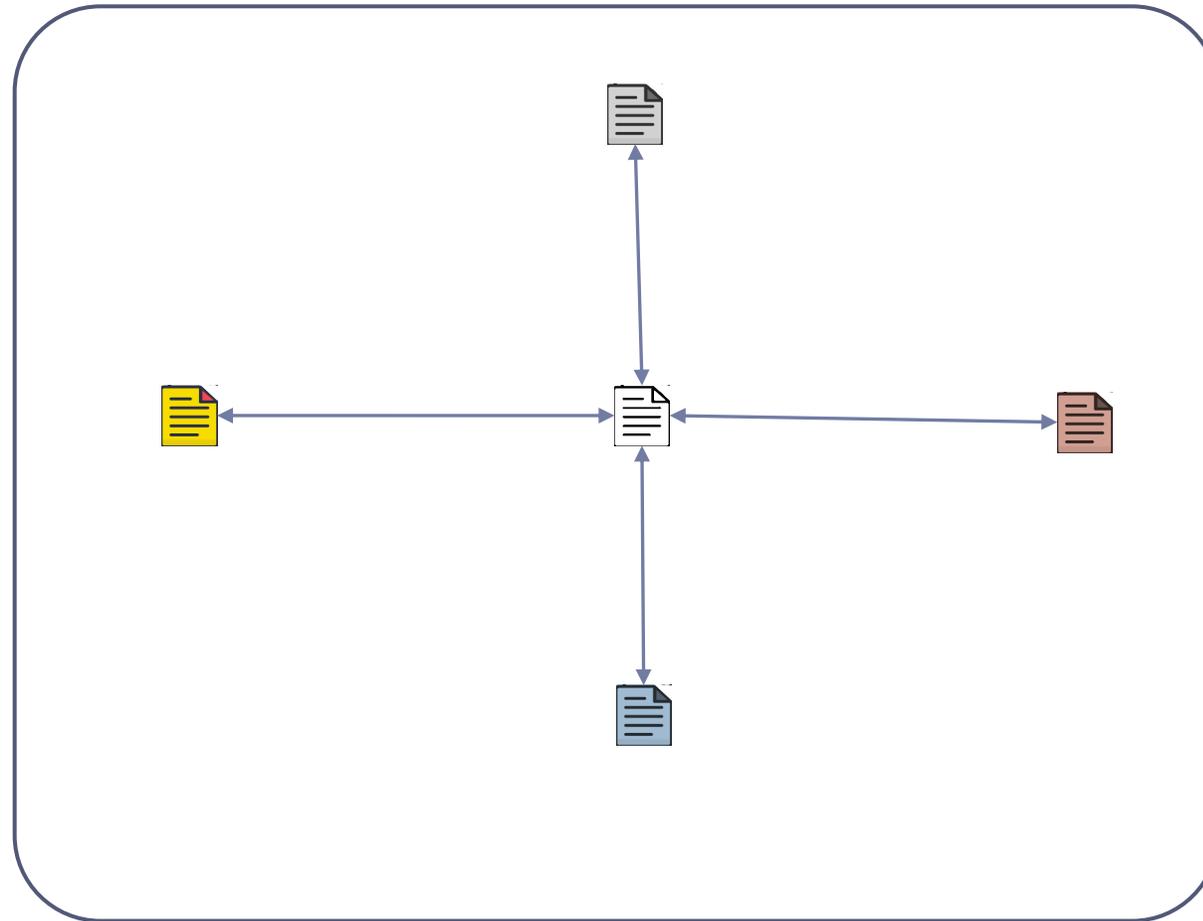


# Pivot based Solution



# Pivot based Solution

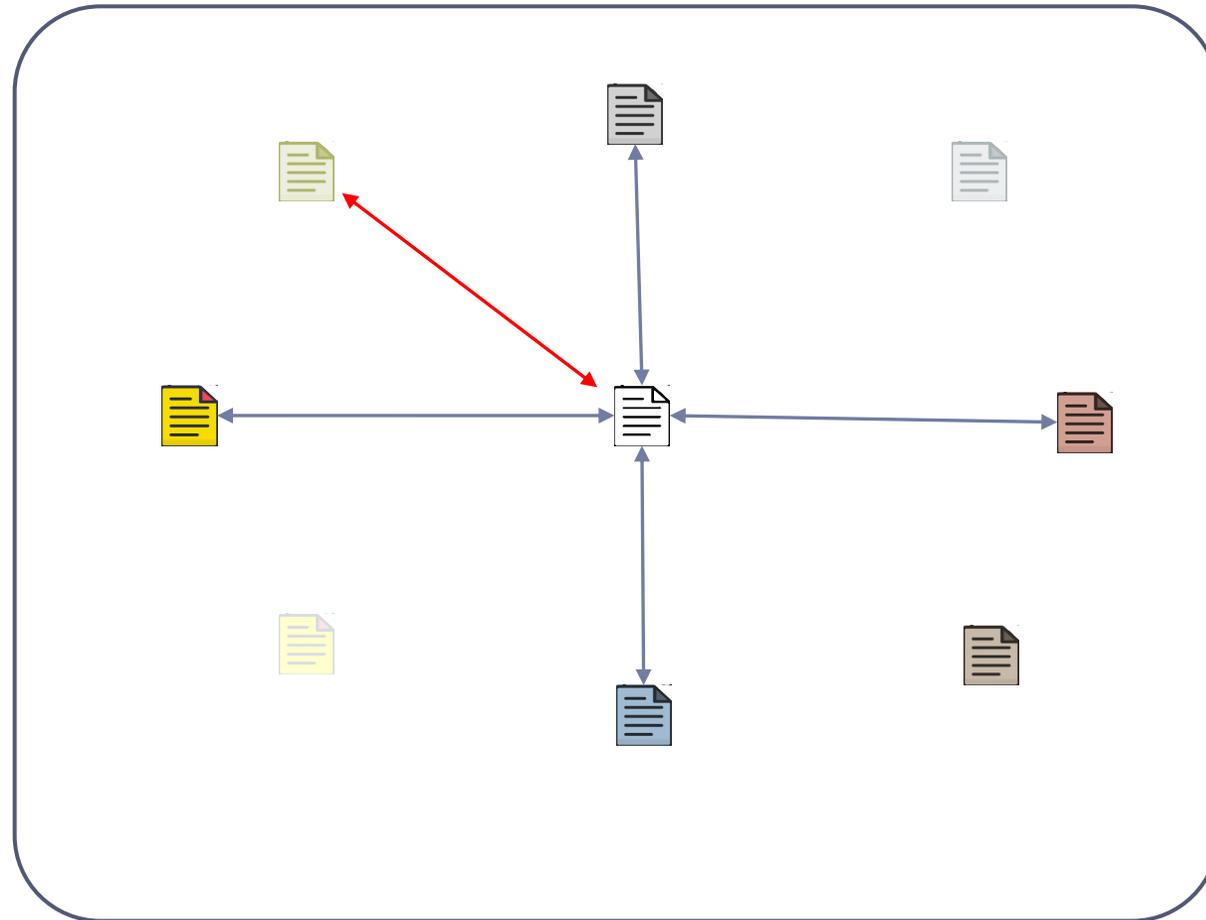




ONTOLOGY AND MAPPINGS



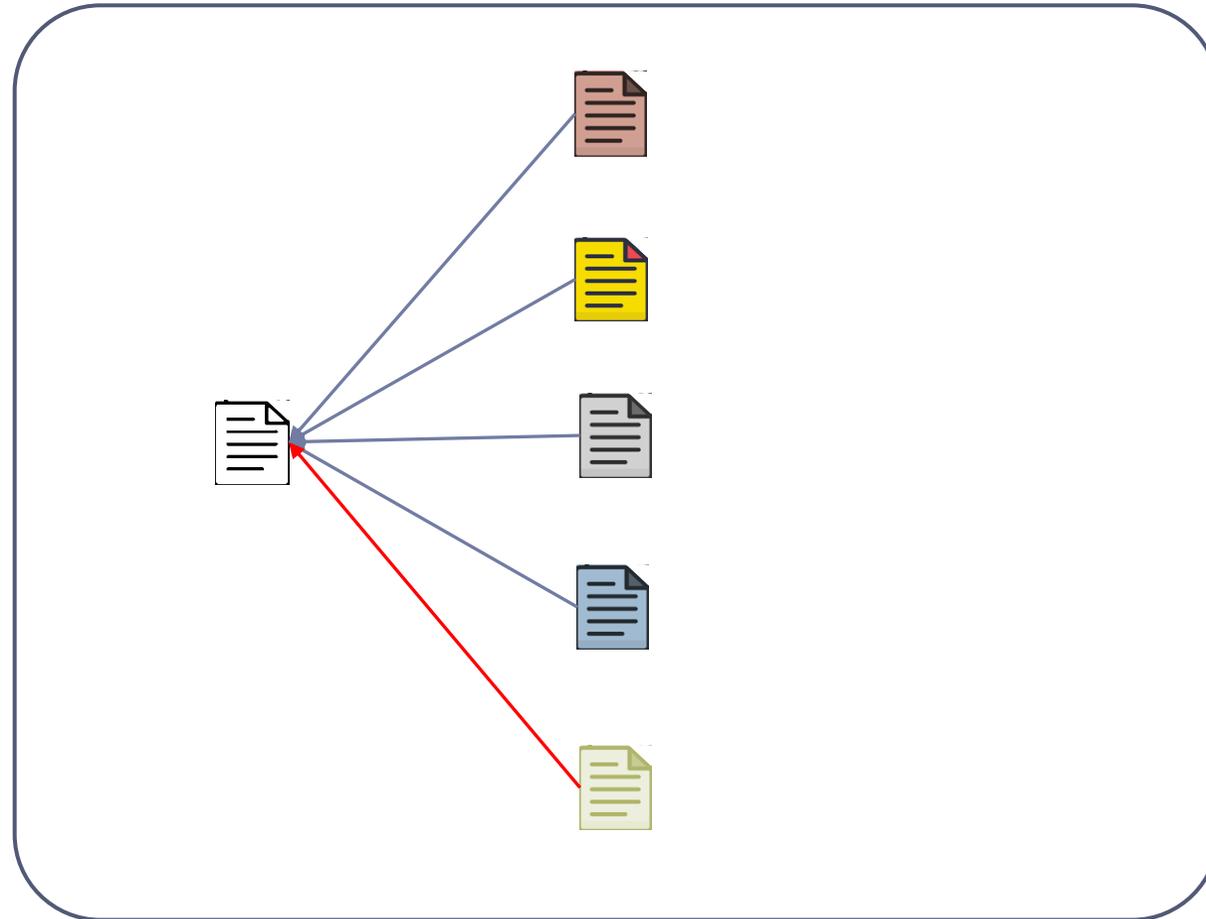
2 new connections



ONTOLOGY AND MAPPINGS



# Scalability of a Pivot based Solution: Core Template



ONTOLOGY AND MAPPINGS

