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# Blockchain in Public Administration

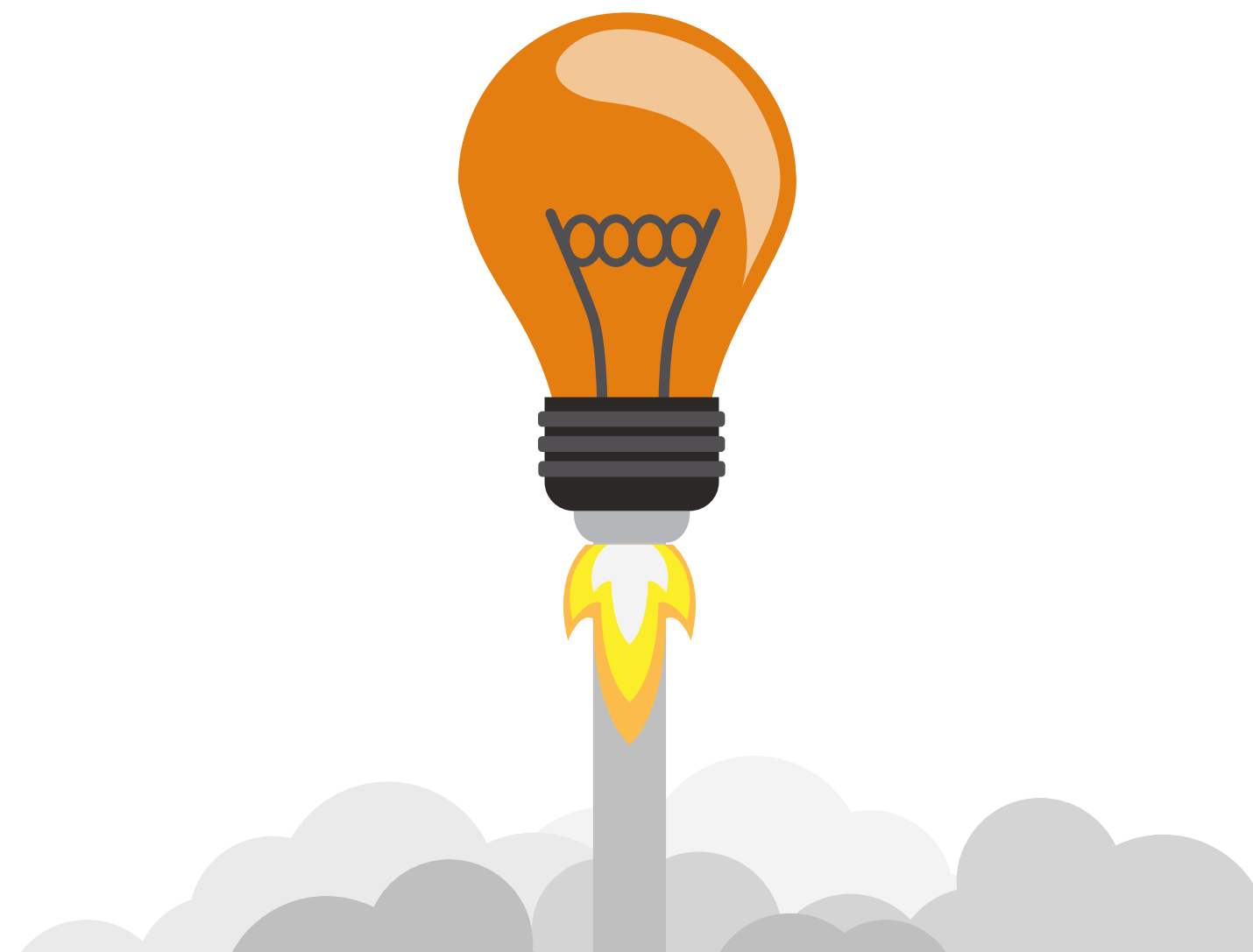
Projects, challenges and potentials

## Italy: transforming digital government

*Innovation in Public Administration*

# A different approach

*Digitalization should change the way citizens interact with PA. Whenever possible, citizens should not require services but the PA should provide them automatically based on life events.*



# EU Coordination



At national and EU level, through the European Blockchain Partnership and European Blockchain Observatory, AGID is working at:

1. Defining use cases that can have EU-wide target. First Use Case picked up by EC is the Diplome service
2. Defining the EU interoperability model
3. Development of the EU Self Sovereign Identity model (eSSIF)
4. Definition of the EU infrastructure requirements based on the European Blockchain Service Infrastructure **EBSI**



## Government transformation

The digital transformation of government is a key element to the success of the Single Market; helping to remove existing digital barriers and preventing further fragmentation arising in the context of the modernization of public administrations

## Standards Landscaping

There is a large number of standardization initiatives on DL/Blockchain technologies. At the same time, there is a relative shortage of experts with relevant experience. The combination of both facts requires more coordination and wider participation to deliver timely sound standards.

## Privacy and Data Protection

The interplay between the GDPR and DLTs is complex and still under debate. It is key for EU that the GDPR should be kept in mind when moving toward the definition of standards applied to Blockchain/DLT.

## Digital Identity and Signature Mgt

EU has developed the Regulation on electronic identification (eIDAS Regulation), to provide a regulatory environment to enable secure and seamless electronic interactions between businesses, citizens and public authorities.

## European industrial priorities

Ref. Digitising European Industry initiative (DEI) with the objective to reinforce the EU's competitiveness in digital technologies and ensure that its citizens and businesses can draw the full benefits from digital innovation in the so-called 4th Industrial Revolution

## Financial & Tax compliance

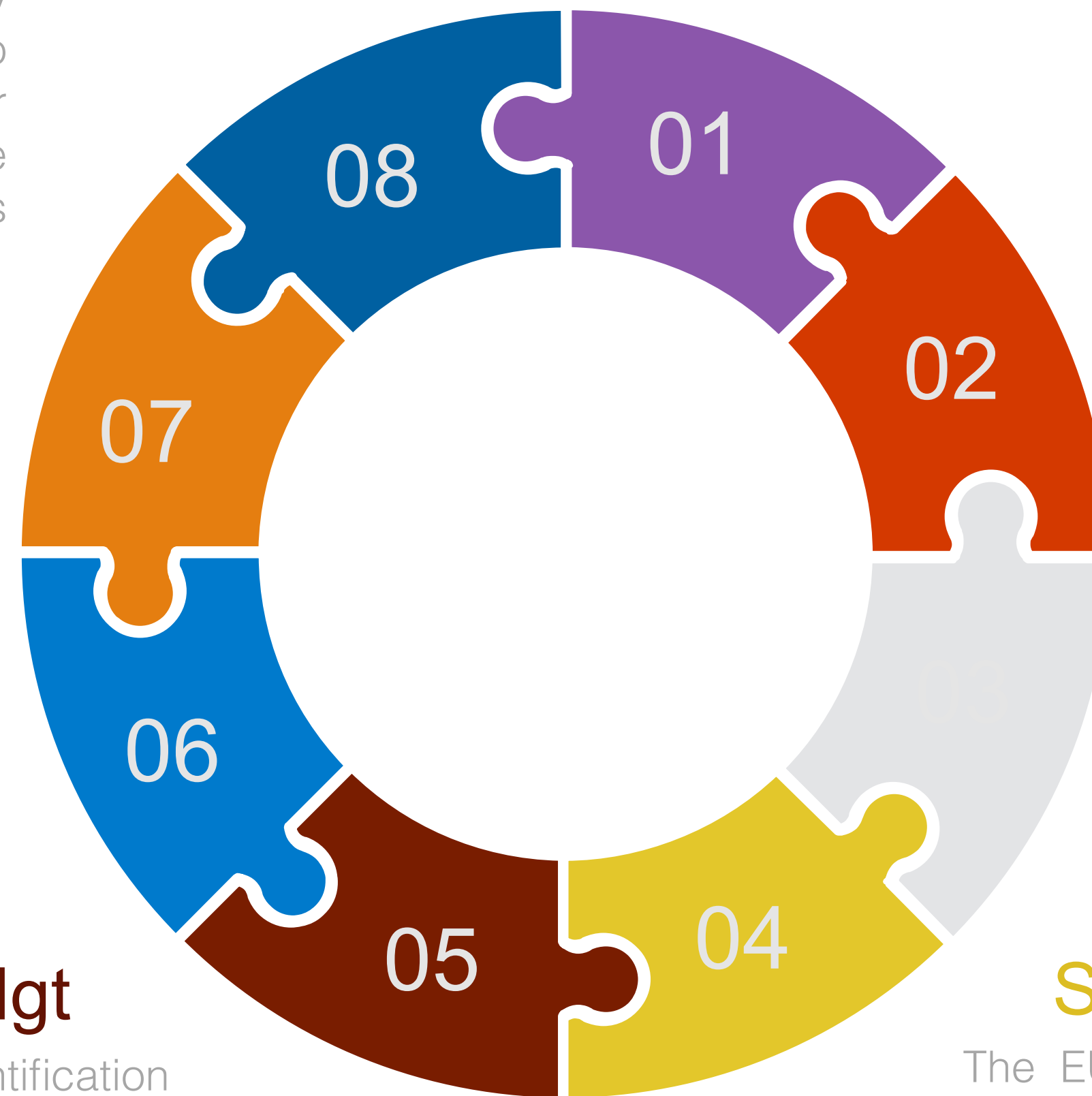
Standards on DL/Blockchain technologies should take on board key elements to reduce the administrative burden of compliance with the global and European regulations for financial stability and the compliance of AML & Tax Compliance regulations.

## Business cases from research

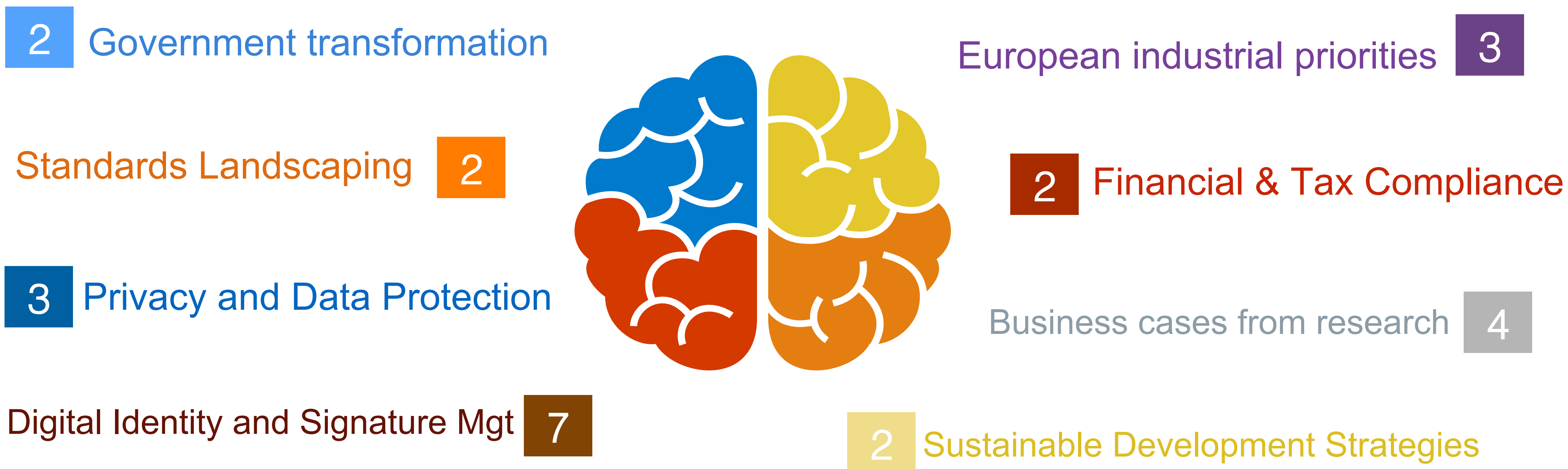
Both at national level and at European level, several research projects are being funded on Blockchain and DLTs. All these projects will produce a documented output that can be useful for standardization bodies.

## Sustainable Development Strategies

The EU Sustainable Development Strategy aims to identify and develop actions to enable the EU to achieve a continuous improvement of quality of life through the creation of sustainable communities able to manage and use resources efficiently



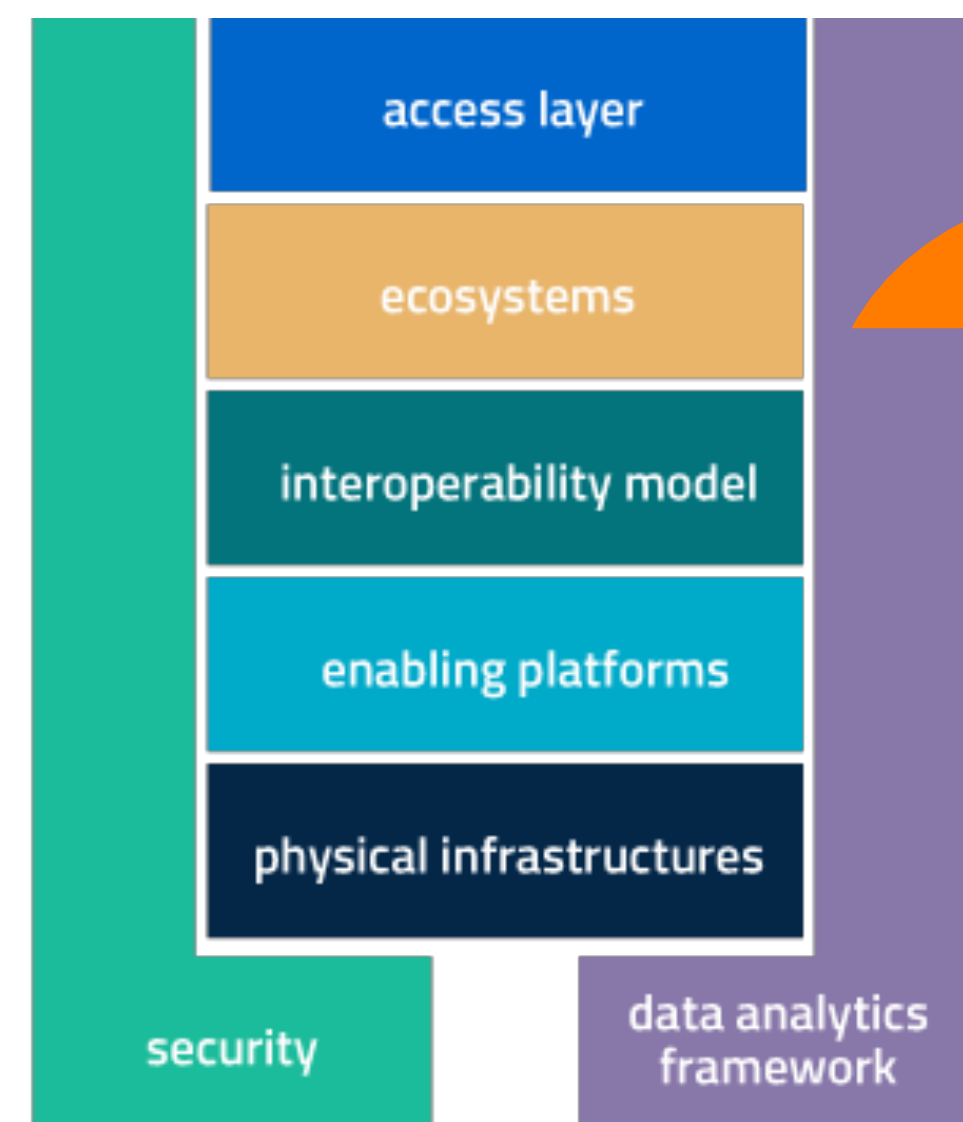
# Number of recommendations developed





# The Italian ICT strategic model

The Italian Three Year Plan for Digital Transformation governs the implementation of the strategy in terms of objectives, actions and expected results



# Use cases

## INTEROPERABILITY

Document and information sharing among government entities

## WELFARE

Notarization of corporate compliancy to worker's health regulations

## CULTURE

Proof of ownership and origin of Italian cultural patrimony

## SCHOOL & HIGHER EDUCATION

Notarization of study career certificates and cross country attestation

## AGRICULTURE AND CUSTOMS

Product lifecycle tracking and custom clearance

### ACTORS

AGID

### ACTORS

National Welfare Insurance Institute (INAIL) & AGID

### ACTORS

Ministry of Culture & AGID

### ACTORS

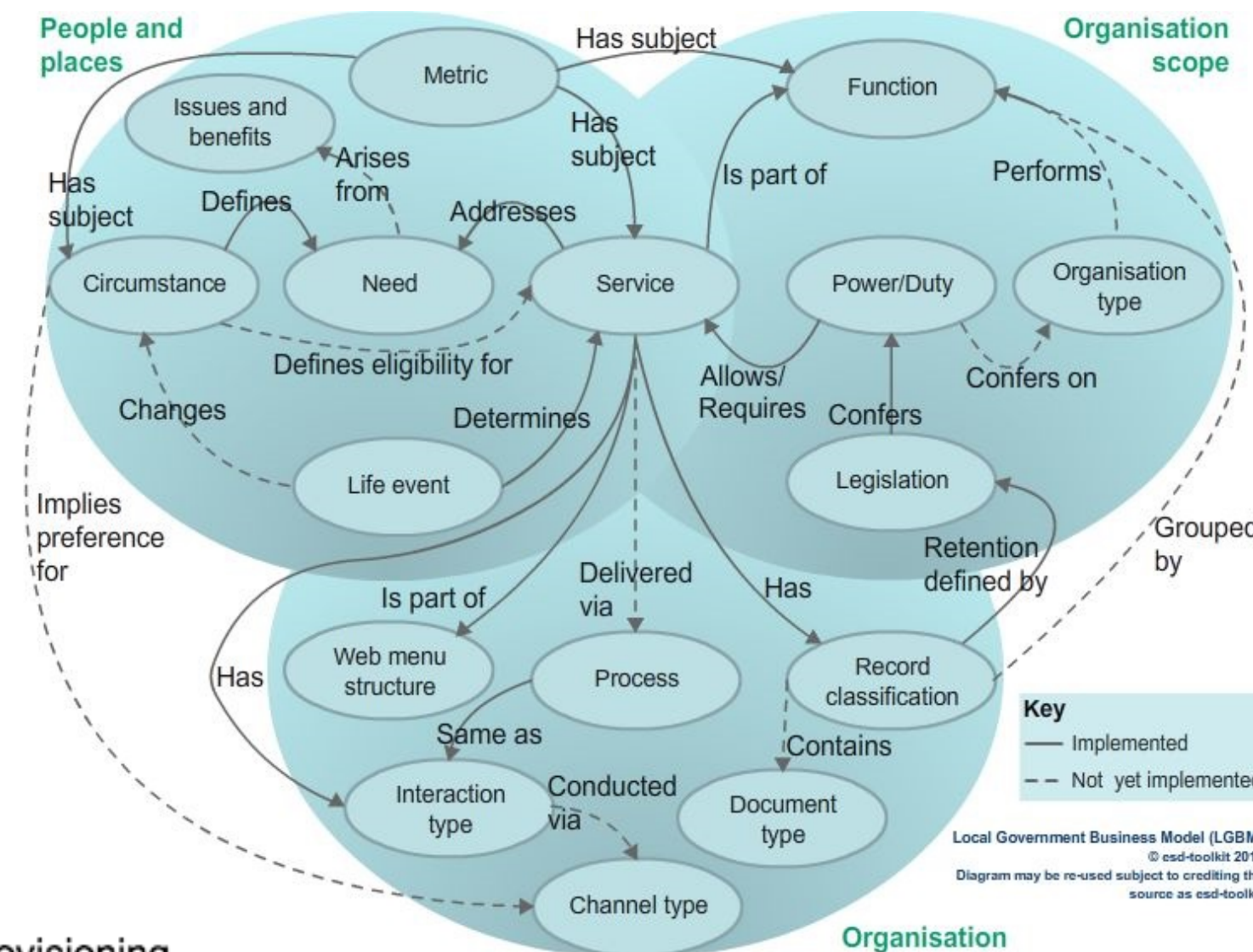
Italian National Academic Recognition Centre (NARIC-CIMEA) & Ministry of Education (MIUR)

### ACTORS

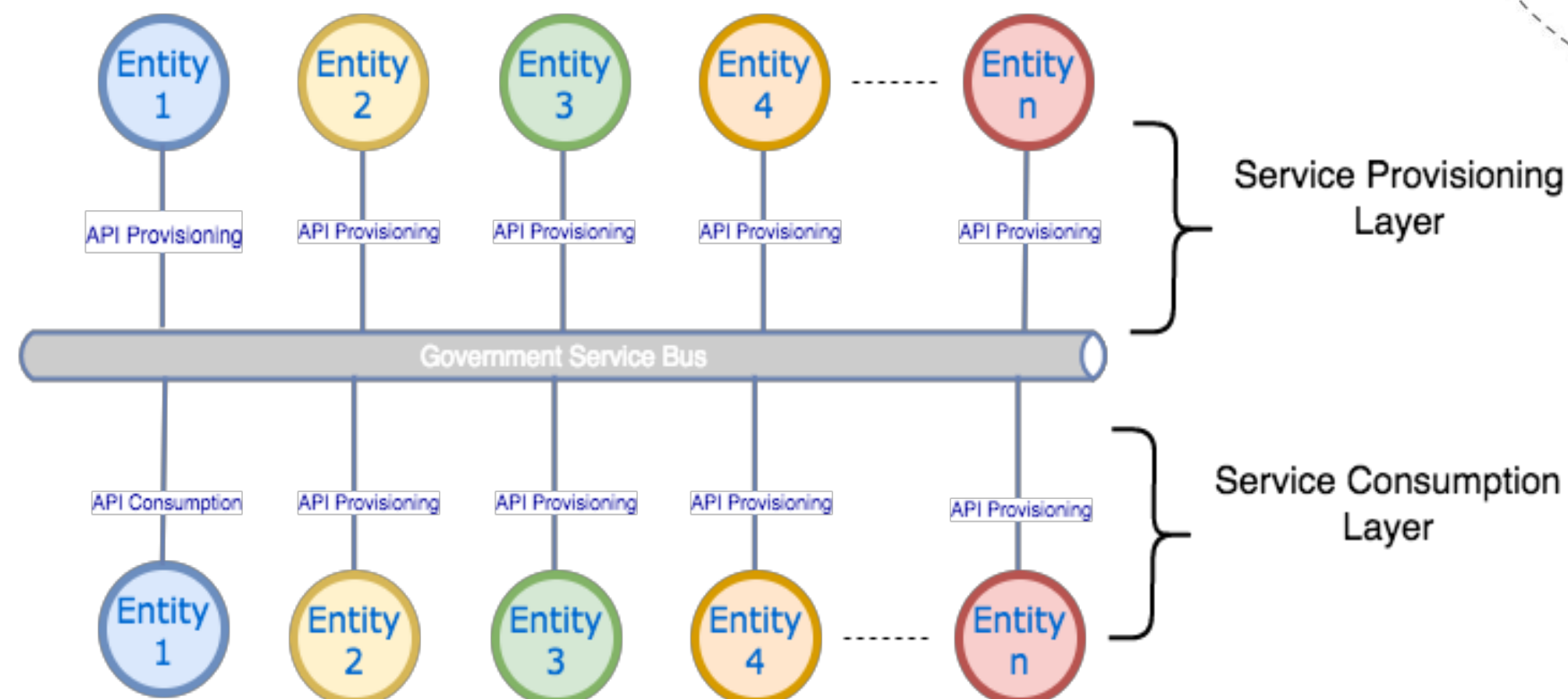
Italian Customs Agency

# Government Service Model & Interoperability

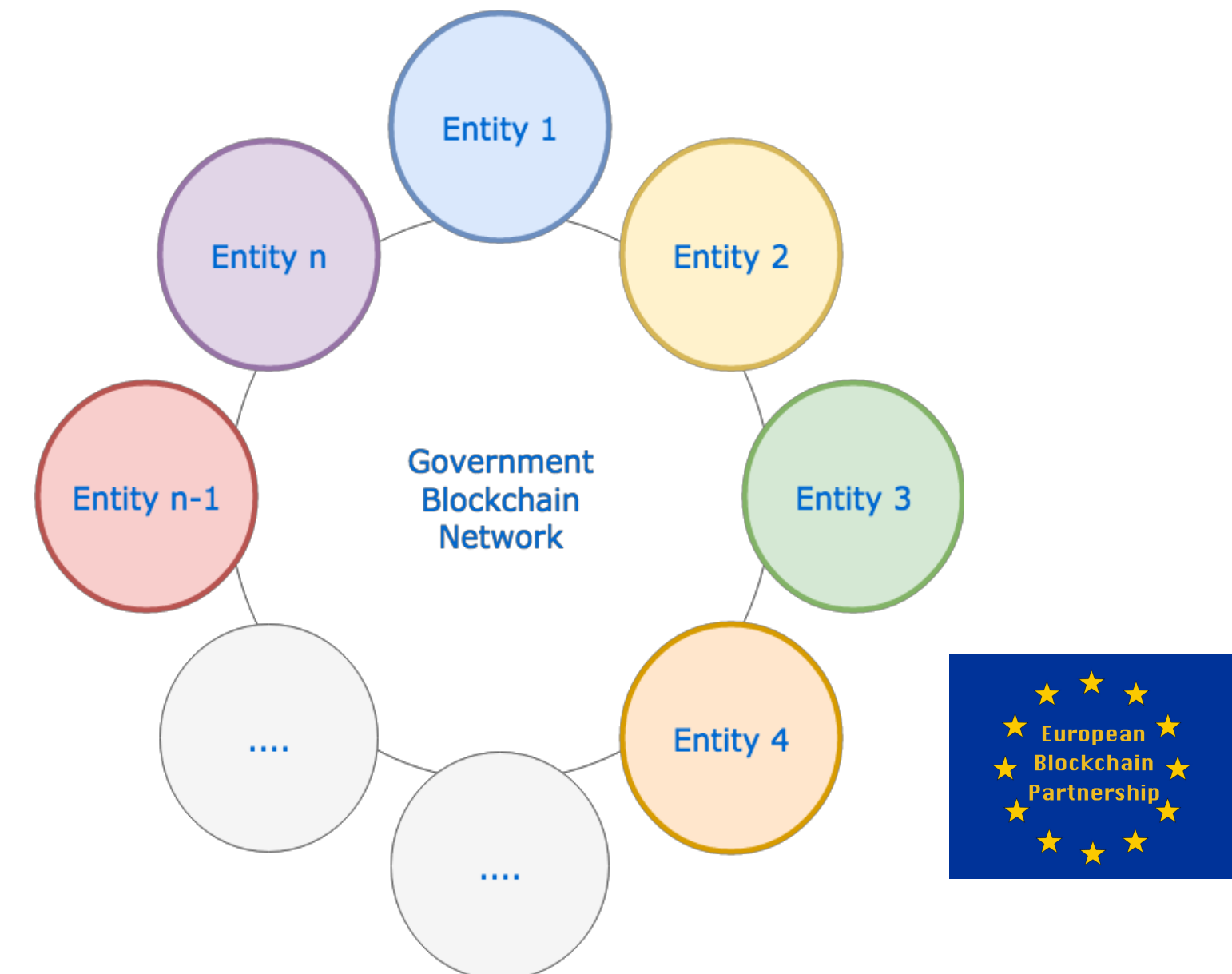
## Existing Local Government Model



## Interoperability Approach



## A blockchain-bases model







# Strenghts

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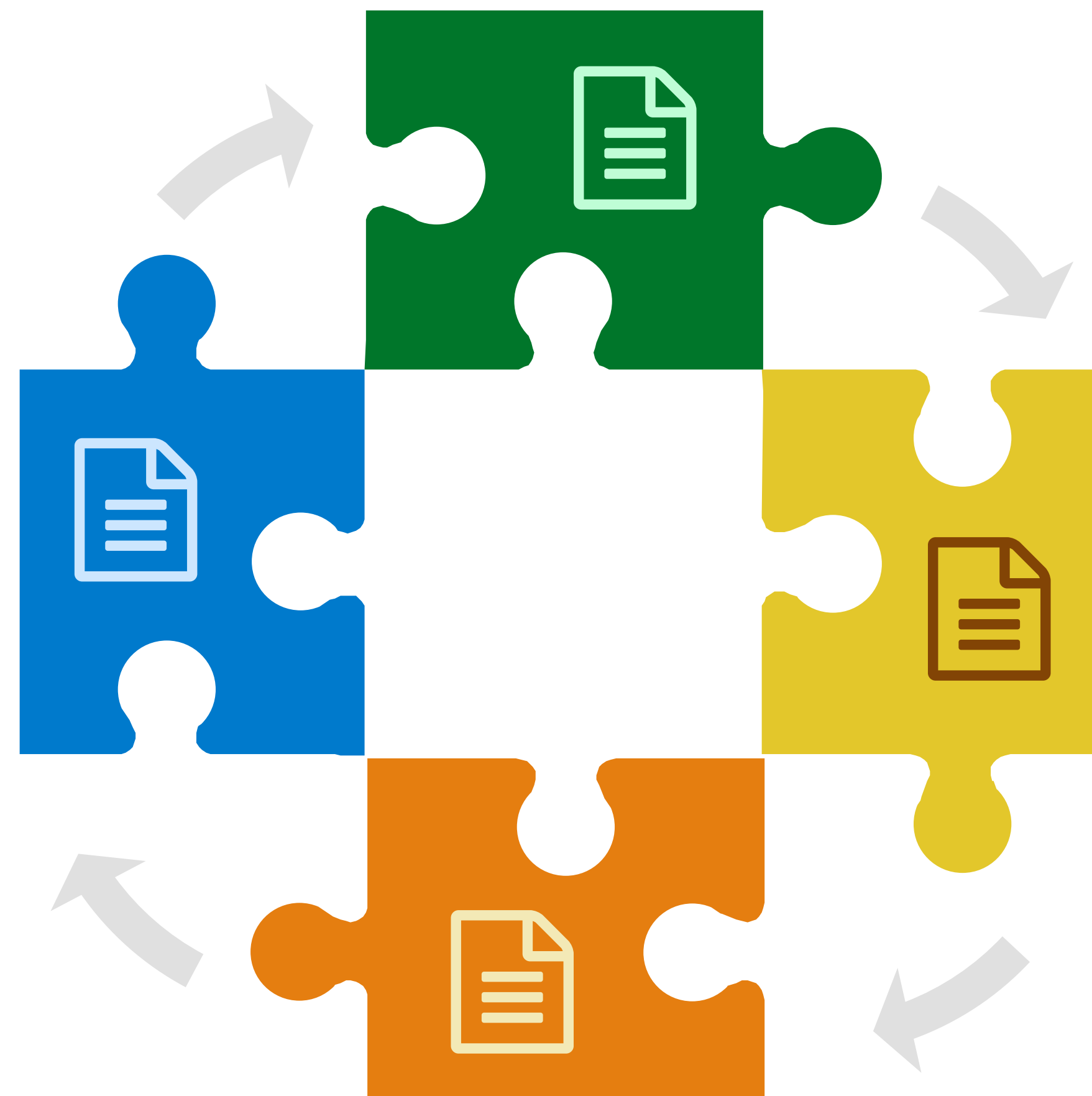
Once Only principle  
by design

Blockchain technology can guarantee full application of the Once Only Principle

F

Fully Paperless  
processes

All processes can be truly digitized and easily accessible from all actors. Citizen will not have to provide such information again to the Administration.



Reduced impact on  
existing processes

R

Handling information through the blockchain and driving Administrative Processes through Smart Contracts will ensure that existing processes won't be changed but only 'guided'

Decentralization

D

Processes keep being decentralized and each Administration maintains its role and area of competence.

*Information is moving, not processes...*

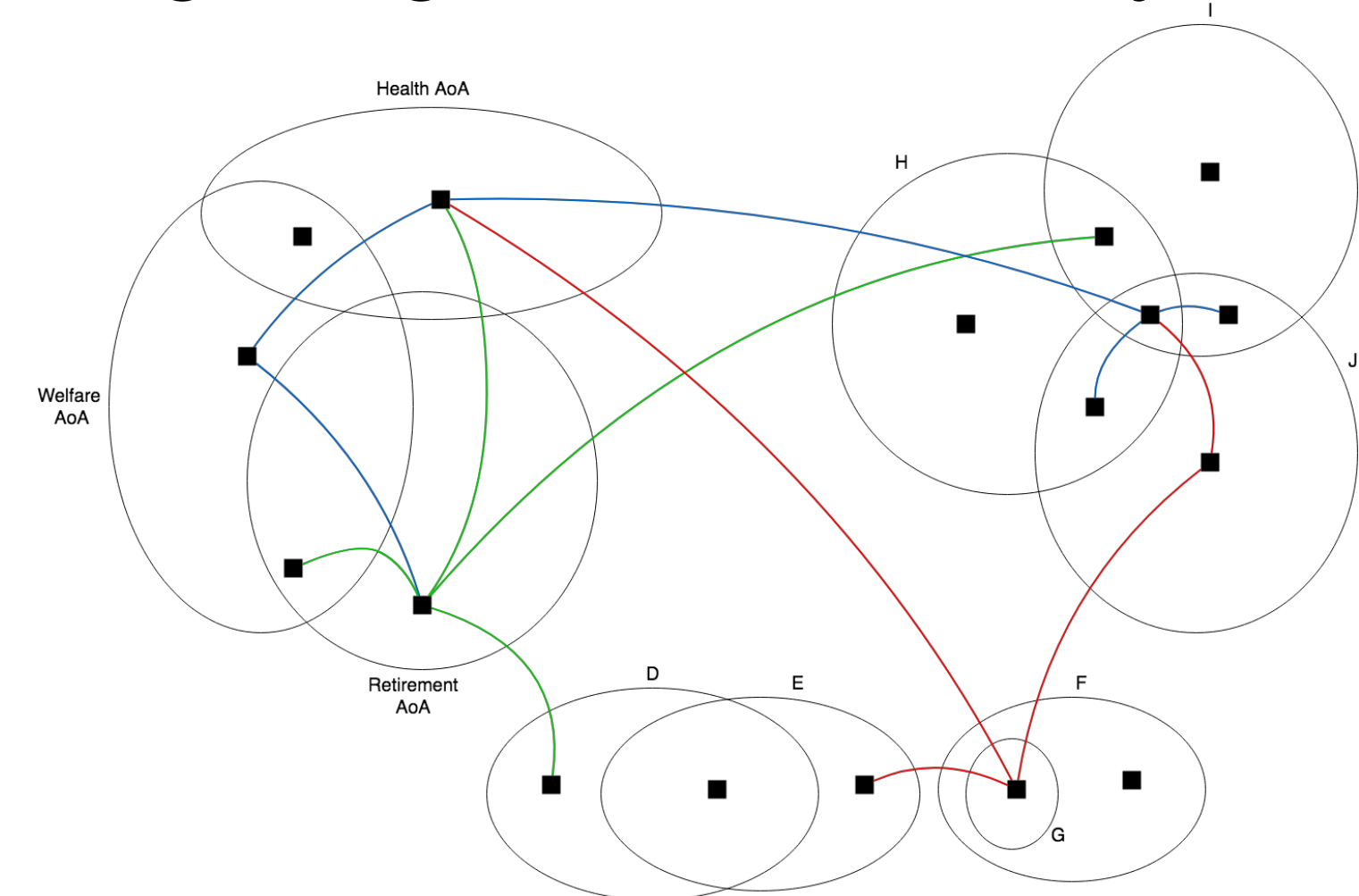
# Challenge: The need of a new consensus model

Global consensus in service provisioning is rarely a government requirement and therefore the classic approach of Proof Of Work, Proof Of Stake, and others will not fit the Government Service Blockchain governance model.

A new consensus mechanism is then required to allow any blockchain to work properly in Public Administration services

## Distributed Proof of Authority (D-PoA)

allows to have authoritative areas where one or more administrations are responsible for the approval (consensus) on performed transactions, here the Authority is not anymore applied overall but, as the chain itself, its distributed and flexibly adapted to the various authoritative areas constituting the government ecosystem





# Diplome Project

## Student Qualification Certification



**The ministries of the 48 countries referring to the European Higher Education Area declared:**

[...]

We also urge the adoption of **transparent** procedures for the recognition of qualifications, prior learning and study periods, supported by **interoperable digital solutions**

[...]

To further promote student and graduate mobility, we welcome and support initiatives such as the **digitalisation of the Diploma Supplement**, and commit to support higher education institutions to pursue further student **data exchange** in a **secure, machine-readable** and **interoperable** format, in line with data protection legislation.

[...]

We call on the BFUG to take the issue of digitalisation forward in the next working period.

[...]

**The European Parliament resolution of 25 October 2018 on promoting automatic mutual recognition of diplomas (2018/2838(RSP))**

[...]

whereas improving recognition procedures for higher education and upper secondary education diplomas and for the outcomes of learning periods abroad is a **prerequisite** for the establishment of a **European Education Area**

[...]

Calls on the Member States to make a political commitment and put in place mechanisms for the **automatic mutual recognition** of higher education and upper secondary education qualifications, as well as the outcomes of learning periods abroad, in line with the objectives of the European Education Area;

[...]

Asks Member States to increase transnational cooperation and to make use of **new technologies** in order to increase **efficiency**, reduce **costs**, improve **transparency** and build **trust** to that end, with a view to taking advantage of the educational and job opportunities stemming from the internal market;

[...]



EMPOWERING  
EHEA Paris 2018  
EUROPE'S YOUTH

Conférence ministérielle européenne  
pour l'enseignement supérieur



European Parliament





Education



#blockchain4people

# What is DiploMe?

*Diplome is an **open** and **interoperable** layer that leverage the DLT/Blockchain technology to build a **transparent** and **trusted** network of student's qualifications.*

*Diplome supports **automated mutual recognition** of education and professional qualifications, improving efficiency in the recognition process and reducing at the same time costs for citizens and Public Administration.*

enic-naric.net

gateway to recognition of academic and professional qualifications



**AGID** | Agency for Digital Italy



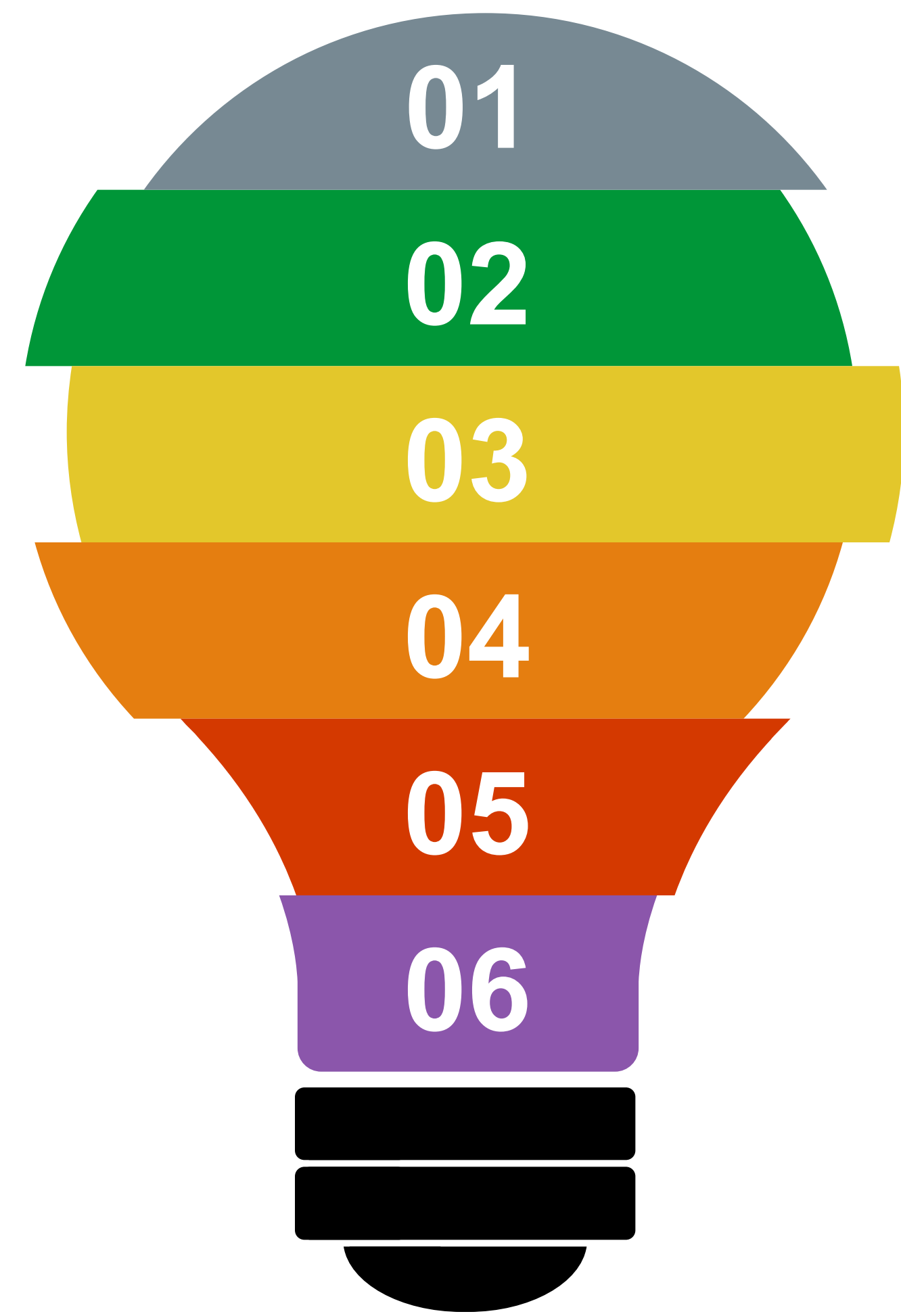


Education



#blockchain4people

# Main characteristics



2

## Portability

Complete **data interoperability**: we defined a common ontology and represented it with JSON format

4

## Minimization

On-chain data are only the ones required to provide **secure and reliable information** about the qualification

6

## Openness

Once allowed by data owner, information is always presented with a **standardized** approach

## Quality

All data stored in the chain are provided by certified entities. **Informatin source is bound and registered with the data**

## Security

With an innovative approach to data axchange, information stored is **protected** through cross-cryptographic techniques

## Control

Data owner has **full control** of his own data and is the only player allowed to disclose stored information



**AGID** | Agency for  
Digital Italy

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