ELISE action
Webinar Series

Digital platform for the smart management of infrastructures:

The public lighting case

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20/05/2021 14:00 CEST (UTC+2)

European Location Interoperability Solutions for e-Government

Enabling Digital Government through Geospatial and Location Intelligence

ISA²

What is ELISE?

A BIT OF HISTORY...

2004
IDABC: Interoperable Delivery of European eGovernment Services

2010
ISA: Interoperability solutions for public administrations

- **Actions:**
  - EULF
  - ARE3NA

2016
ISA²: Interoperability Solutions for European Public Administrations, Businesses and Citizens

- ELISE

2021
DIGITAL: Digital Europe Programme

ELISE builds upon the outcomes of the former ISA actions EULF and ARE3NA. It is the only action of the ISA² Programme, aiming to improve Digital Government through Location Interoperability.

WHAT?

ELISE stands for **E**uropean **L**ocation **I**nteroperability **S**olutions for e-Government. It is one of the more than 50 actions in the European Interoperability Programme ISA2

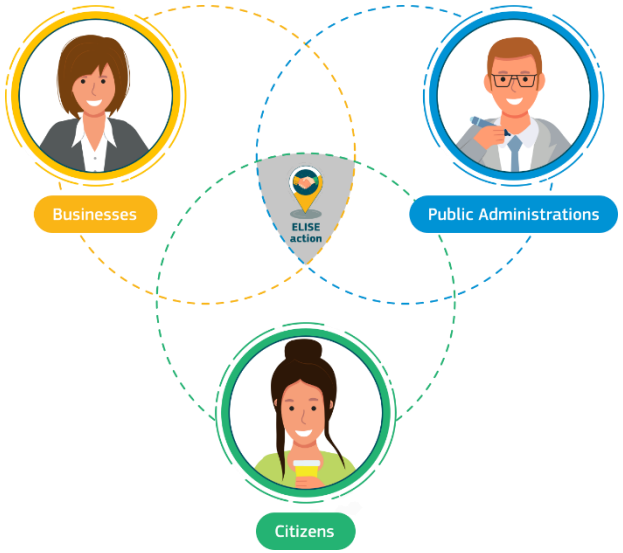
WHAT FOR?

To support Digital Government Transformation by making the best use of location data and technologies in an interoperable manner

FOR WHOM?

For all: citizens, businesses and public administrations

Location-enabled Digital Government Transformation



ELISE action objectives

ELISE action

Policy support

Supporting different policy initiatives at European and national levels

Emerging trends and technologies

Discovering how emerging trends and technologies enable more effective use of location data for policy and digital public services

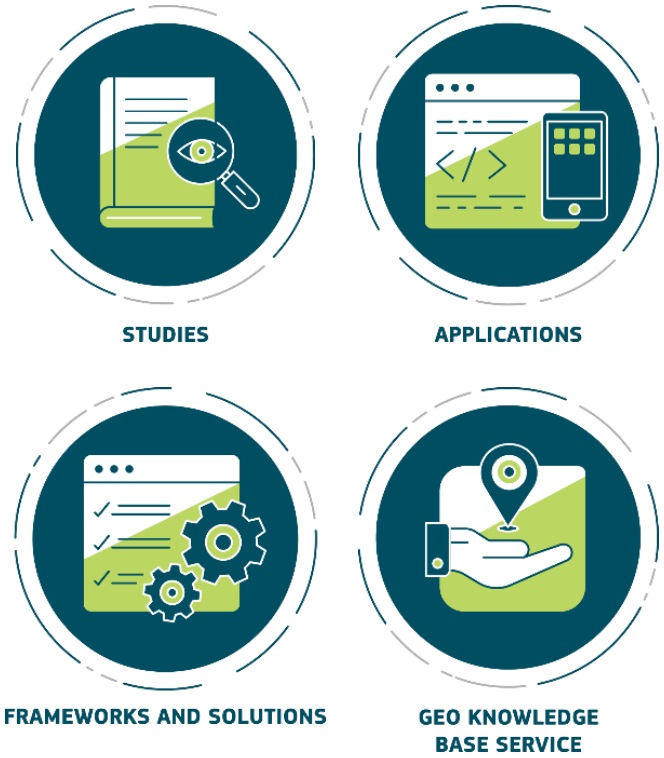
Interoperable frameworks and solutions

Providing reusable interoperable cross-border and cross-sector frameworks and solutions for public administrations, business and citizens

Building a Knowledge base

Building a Geo-Knowledge base to inform and train stakeholders and promote the adoption of good practices and innovations in location data

ELISE outputs and topics



- Evolution of Spatial Data Infrastructures
- Support of data ecosystems
- Technologies for location -enabled innovation
- Collaboration models
- Spatial skills for Digital Government Transformation
- Location data privacy
- Improving access to spatial datasets
- Supporting cross-border and cross-sector data sharing
- Location intelligence for policy and digital public services
- Supporting innovation, growth and Return of Investment
- Managing data quality
- Supporting the creation of common EU public services

5 Years

SOME ACHIEVEMENTS

Active engagement of ISA² Member States

- Complemented the EIF and NIFO with an extensive location interoperability framework and state of play assessments
- Helped put the INSPIRE Directive into practice with tools for data providers and a strong focus on use cases
- Built an extensive community of European and international stakeholders
- Raised awareness on new approaches to location-enabled digital transformation
- Helped to assess the role of SDIs in evolving business models, e.g. data ecosystems, digital platforms.
- Assessed new policies (e.g. GDPR, European Data Strategy) and technologies (e.g. Artificial Intelligence, Blockchain, API...)
- Promoted and facilitated better links on location data between public and private actors
- Provided guidance on improving spatial awareness and analytical skills for best use of data

3 EIF Toolbox solutions

Aims of Knowledge Transfer

Publications, news

Common vocabularies

Surveys, benchmarking

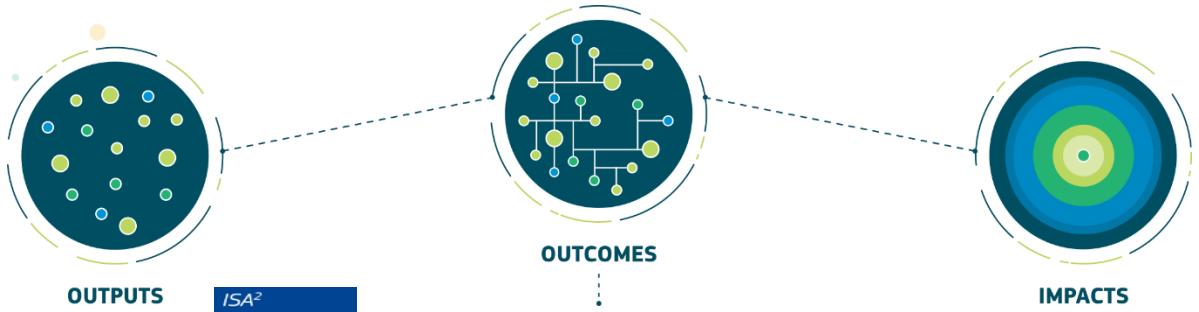
Educational material (videos, infographics)

Live events (webinars, workshops, conferences)

Networking, participation & collaboration

eLearning and training

Reusable toolkits, game for Knowledge Transfer



Our speakers

Nicoletta GOZO

ENEA
Coordinator of Lumiere & PELL and SmartItaly Goal Projects

Italian National Agency for New Technologies, Energy and Sustainable Economic Development

Laura BLASO

ENEA
Scientific Manager of PELL Project

Italian National Agency for New Technologies, Energy and Sustainable Economic Development

Gabriele CIASULLO

AgID
"Database and Open Data" Service Responsible

AGID The Agency for Digital Italy

The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.

What we will cover today

1. Introduction to ELISE Energy & Location Applications
2. ENEA PELL Project for the innovation of the management processes of strategic urban infrastructures
3. ENEA PELL Project: an innovative platform for the digital management of the public lighting infrastructure
4. PELL data model
5. Key messages, challenges and future outlook
6. Q&A

1

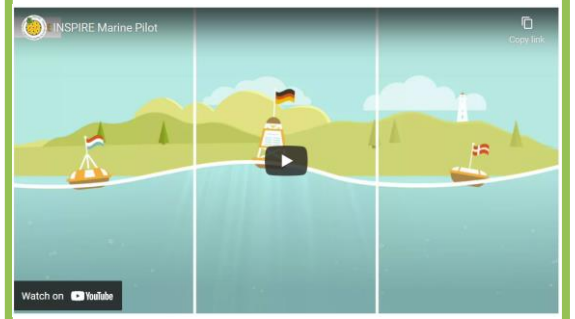
Introduction to ELISE Energy & Location Applications

APPLICATIONS

ELISE has developed cross-border pilots and applications to test location data interoperability principles in the following sectors:

MARINE

Supporting Member States in the management of Marine Strategy Framework Directive (MSFD) related spatial information



https://youtu.be/ROJqljr8aDU

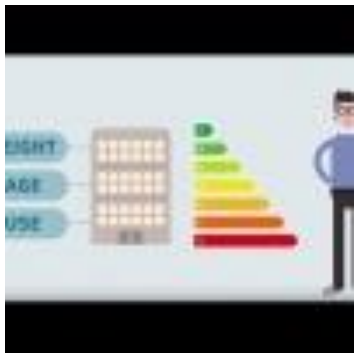
TRANSPORT

Developing and sharing best practices for the implementation of the Intelligent Transport Systems (ITS) Directive

https://www.youtube.com/watch?v=jnny5ATwTYE

ENERGY EFFICIENCY

Supporting public administrations, businesses and citizens engaged in energy policies' cycle

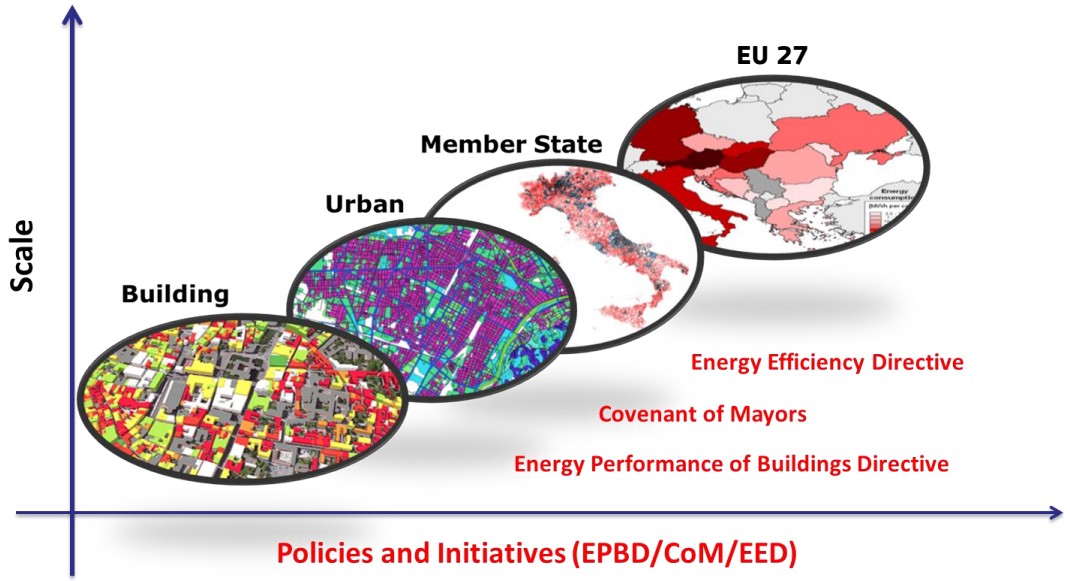


https://www.youtube.com/watch?v=Ftgy8uU9y2A

CULTURAL HERITAGE

Exploiting a pan-European gazetteer service

Location data interoperability principles and methodologies applied in the Energy Efficiency sector (1/3)

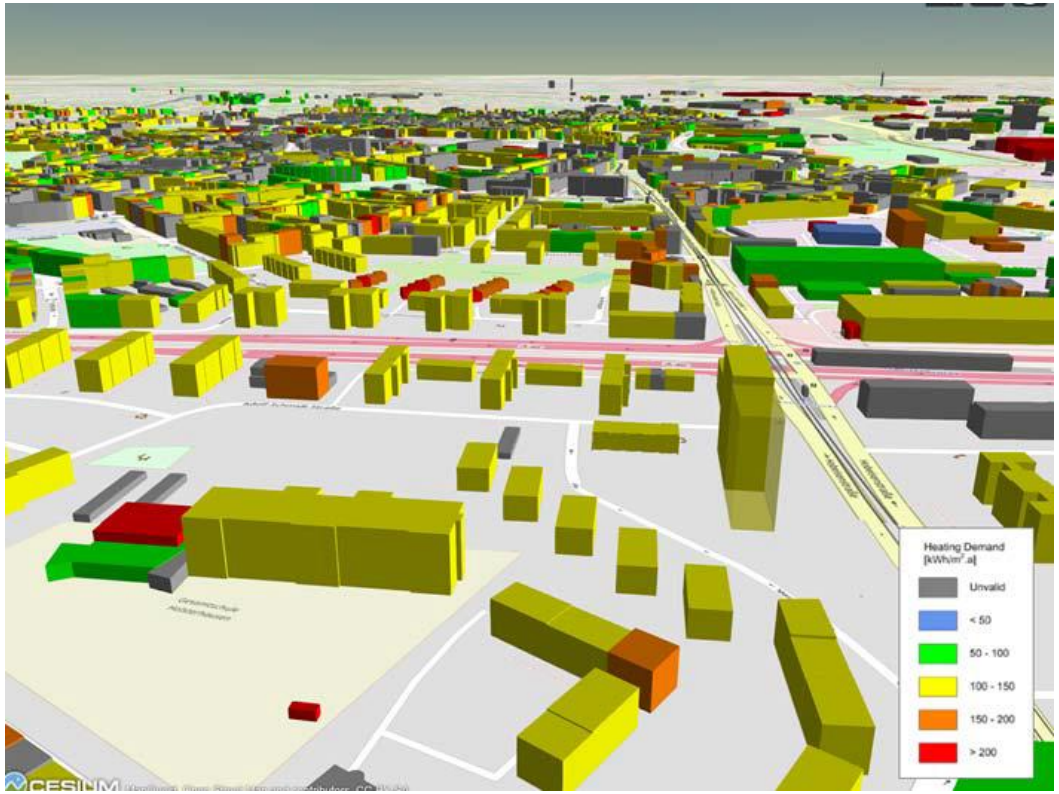


- To leverage location data at building level as an enabling factor to scale-up a set of methodologies to assess energy efficiency from local to district/city level and beyond.
- To use location-based data to support different types of stakeholders engaged in energy efficiency policies' cycle

Location data interoperability principles and methodologies applied in the Energy Efficiency sector (2/3)

- Buildings are responsible for the 40% of final energy consumption
- Over 75% of building stock is older than 25 years
- Averaged final energy consumption data: 185 kWh/m^2 for residential buildings and 280 kWh/m^2 for non-residential buildings
- Extensive renovation of buildings could cut 36% of their energy consumption by 2030

Location data interoperability principles and methodologies applied in the Energy Efficiency sector – use cases (3/3)



- Generalisation at EU level of a digital platform for public lighting being implemented in Italy in 8.000+ Municipalities
- Energy Performance Certificates (EPC) of Buildings harmonisation
- Harmonisation of SECAP (Sustainable Energy and Climate Action Plans), to support smart communities made by 100+ municipalities of the same Province, CoM signatories
- Harmonisation of energy simulations to assess the energy heat demand of buildings
- Assessment of energy performance of buildings using energy consumption data from smart meters.
- Role of geospatial information in in a regional energy strategy

2

ENEA PELL Project for the innovation of the management processes of strategic urban infrastructures

INNOVATION DIGITIZATION

MANAGEMENT EFFICIENCY

ENERGY EFFICIENCY

Management Process
Territories – Cities – Infrastrucutres - Services

NEW MANAGEMENT MODEL

Digital Solutions

Digital transition

Smart Cities

New Technology data

Platform Algorythm

Interoperability Platform

Smart Service Strategic Infrastructure

New management Model

Lumiere Project Goal

2010

- ❑ Energy efficiency
- ❑ Consumption and cost reduction
- ❑ Promotion of re-generation projects

Public Lighting Infrastructure

- ❑ Stakeholder
- ❑ Network
- ❑ Public Lighting Management Model

Critical Issue
National minimum Knowledge Standard

Lack of data

- Energy Consumption
- Cost
- Type of technologies
- Lamp post number
- Maintenance frequency
- Census data sheet

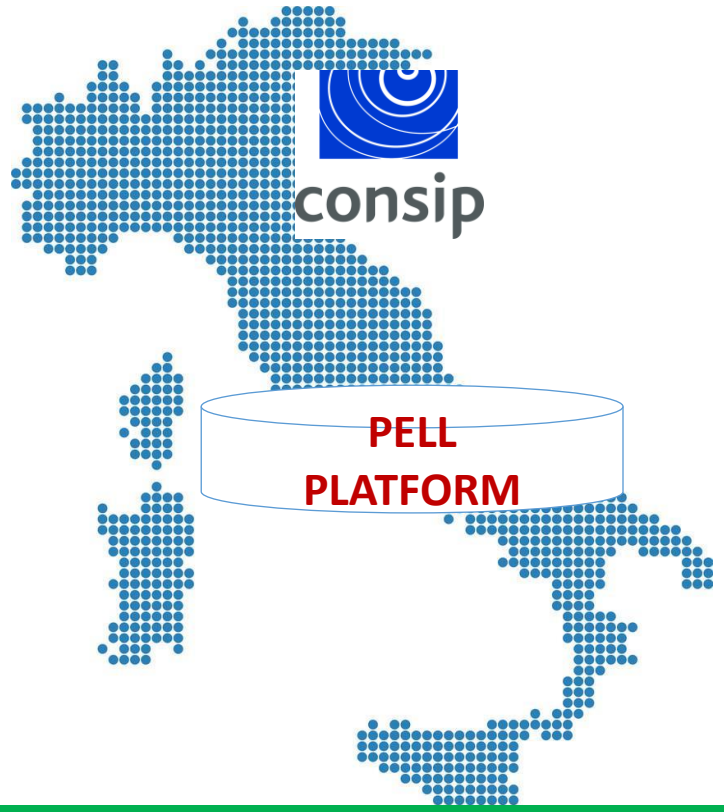
Lack of uniformity

Strategic relevant datasets

Census data sheet

Minimum standard Knowledge and evaluation

PELL: Technological and Methodological Solution



Infrastructure Management Model

PELL PLATFORM

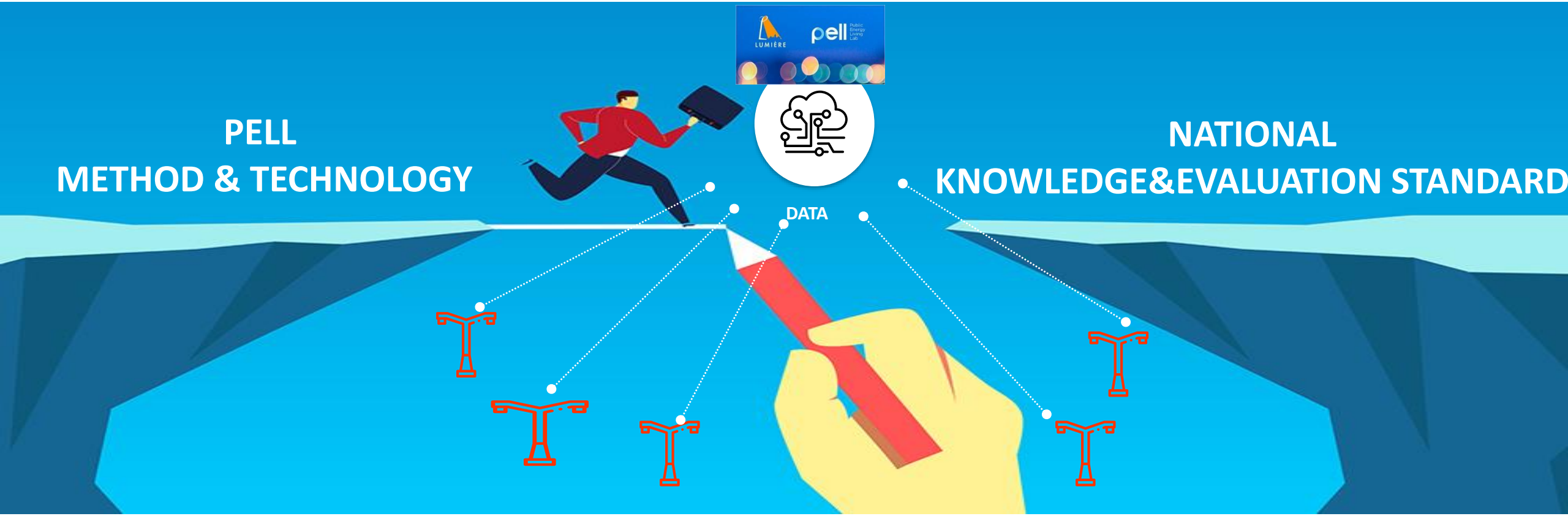
- Public lighting
- Schools
- Hospitals
- Smart Services ?
- Water resources

National Information System

- ❑ Municipalities
- ❑ Stakeholders
- ❑ Operators
- ❑ Market
- ❑ Citizens
- ❑ Governance

UNIQUE NATIONAL PLATFORM&STANDARD

Public Lighting



EUROPEAN INFRASTRUCTURE DATA SHARING

3

ENEA PELL Project: an innovative platform for the digital management of the public lighting infrastructure

PELL IP: KEY WORDS

1
- *Network Lumière & PELL*
- *Census data sheet and data model (static/dynamic data)*

2
- *Services (KPI, Urban indicators, tools, etc.)*
- *ICT Platform*

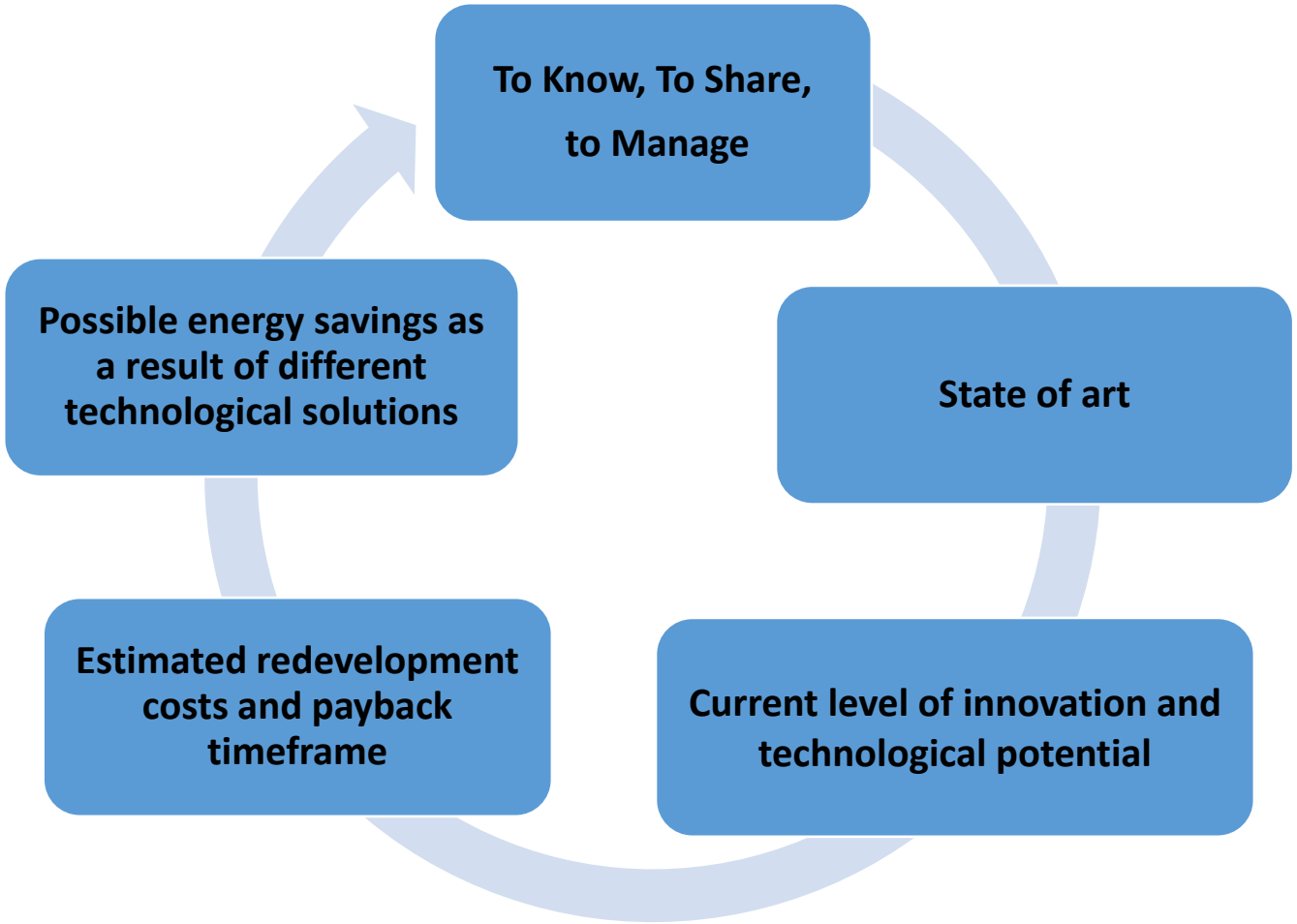
3
- *8.000+ Municipalities*
- *9 Millions of Light points (estimated)*

pell Public Energy Living Lab

PELL :https://www.pell.enea.it/enea/

PELL IP: the starting point

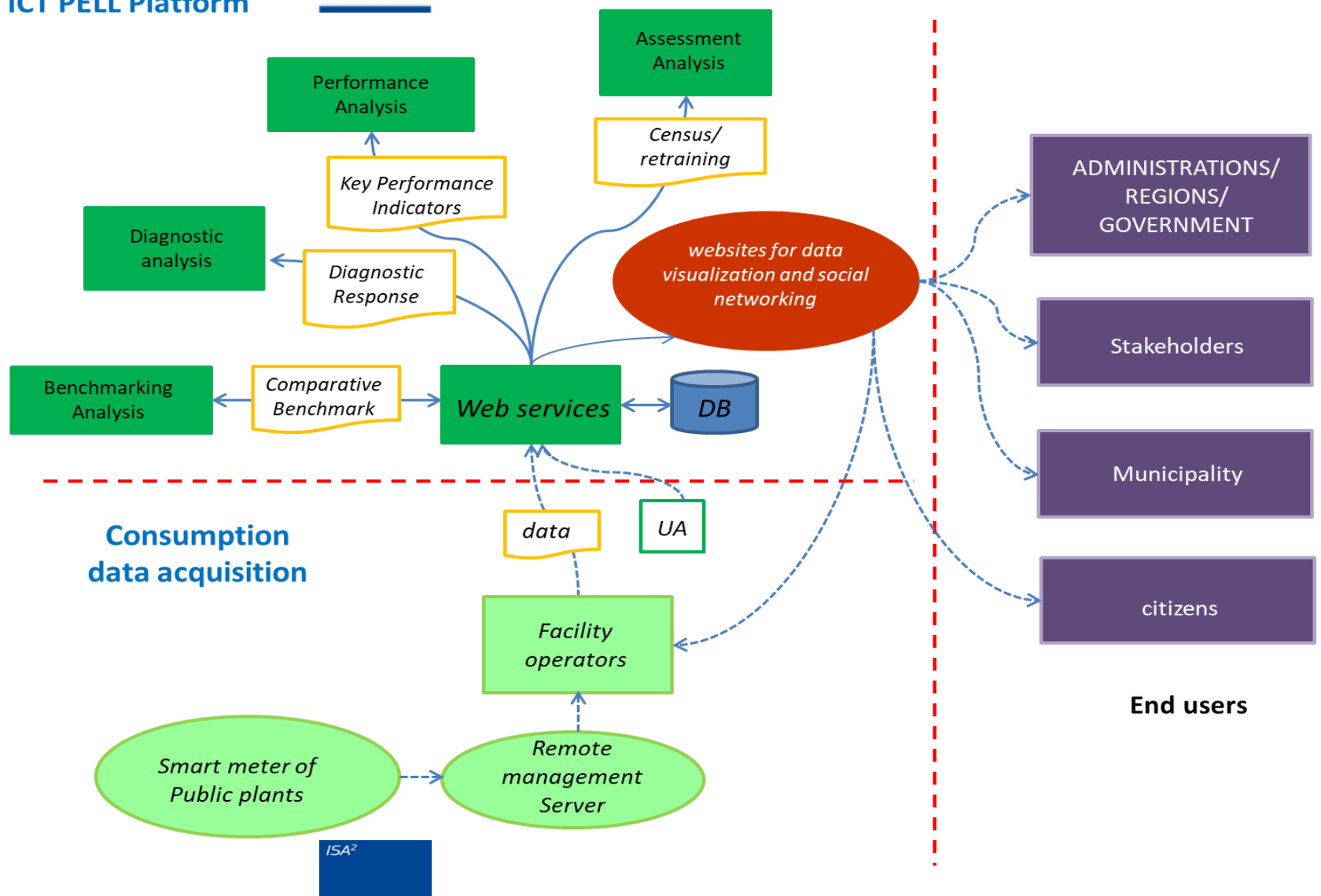
Census data sheet: strategic and standardized information, for the evaluation of Public lighting systems



PELL architecture

Static data

Dynamic data



Data Model

Network
Lumière & PELL

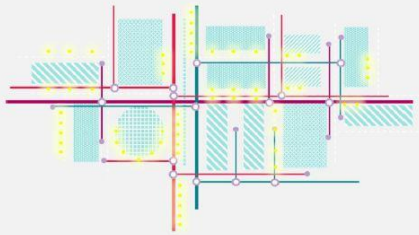
AGID Agenzia per l'Italia Digitale

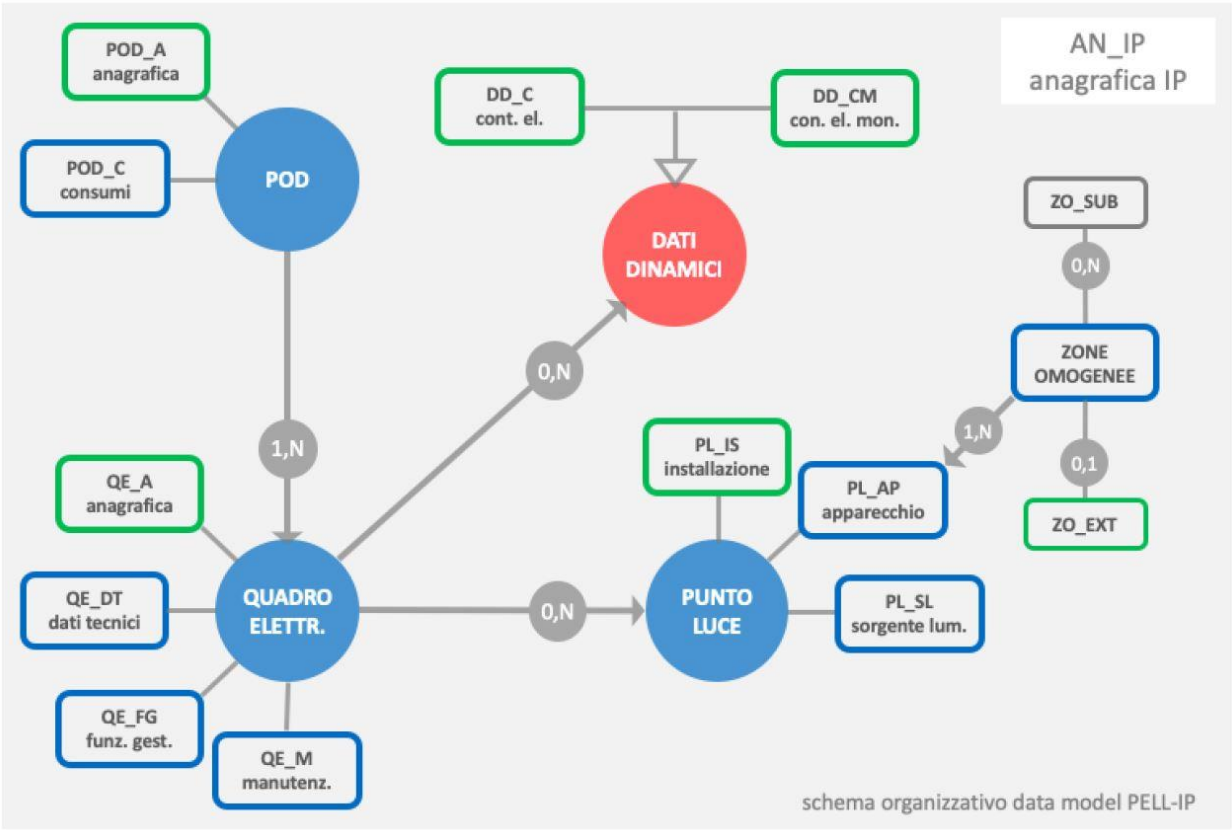
ENEA Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile

Specifiche di contenuto progetto PELL - illuminazione pubblica

versione 2.0 del 22 marzo 2021

Catalogo dei dati territoriali di riferimento per il censimento e l'efficientamento dell'illuminazione pubblica nazionale

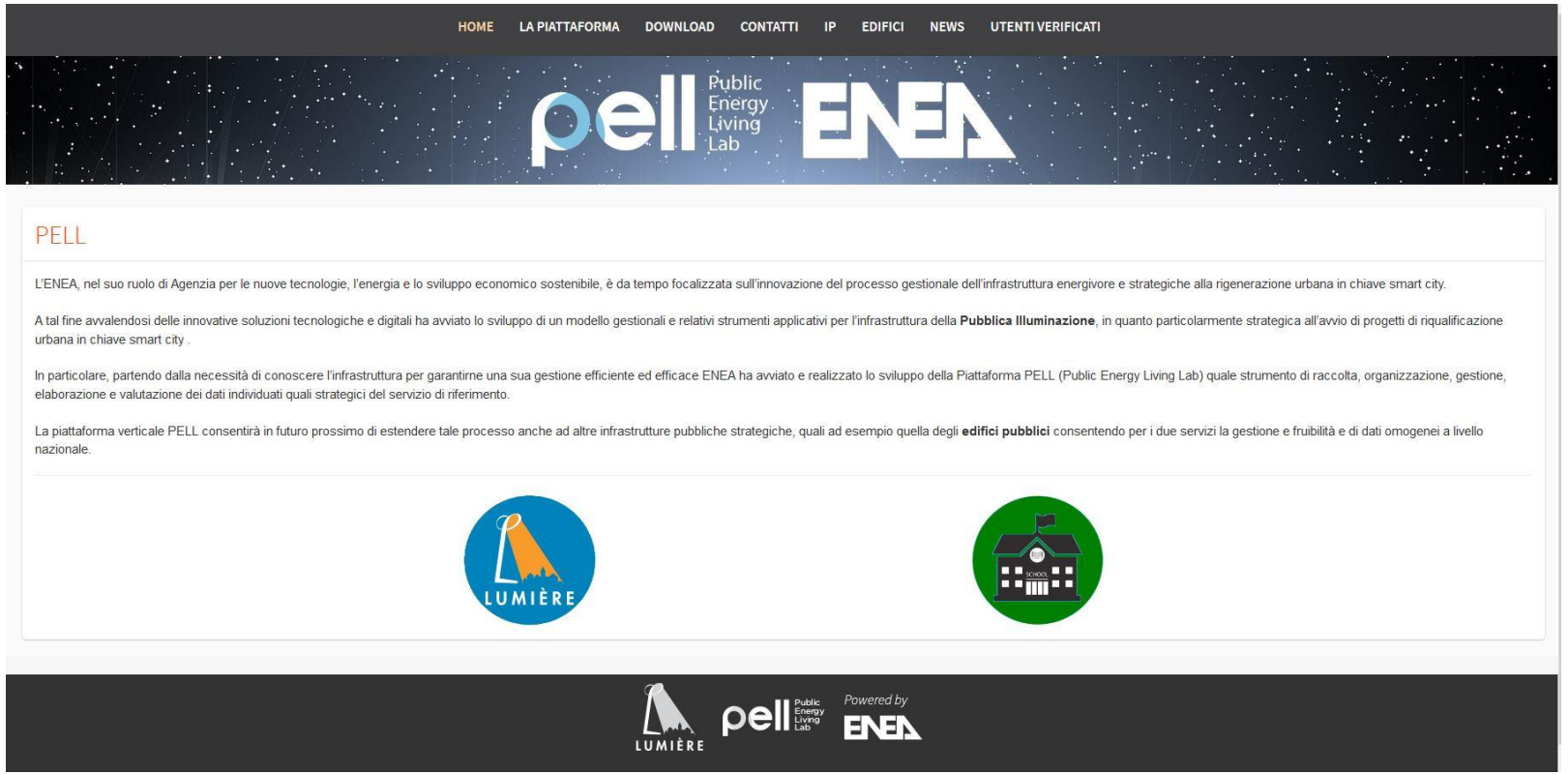




KPI, Urban Indicators, tools

1. Static KPI (Technological, Geometrical, BAU and BAT and Dimming)
2. Dynamic KPI (real energy consumption respect theoretical ones)
3. Urban Indicators (City, Region and Italy)
4. Tool: lighting simulations, economic and financial evaluation (SAVE), Shape File /XML converter (and vice versa)

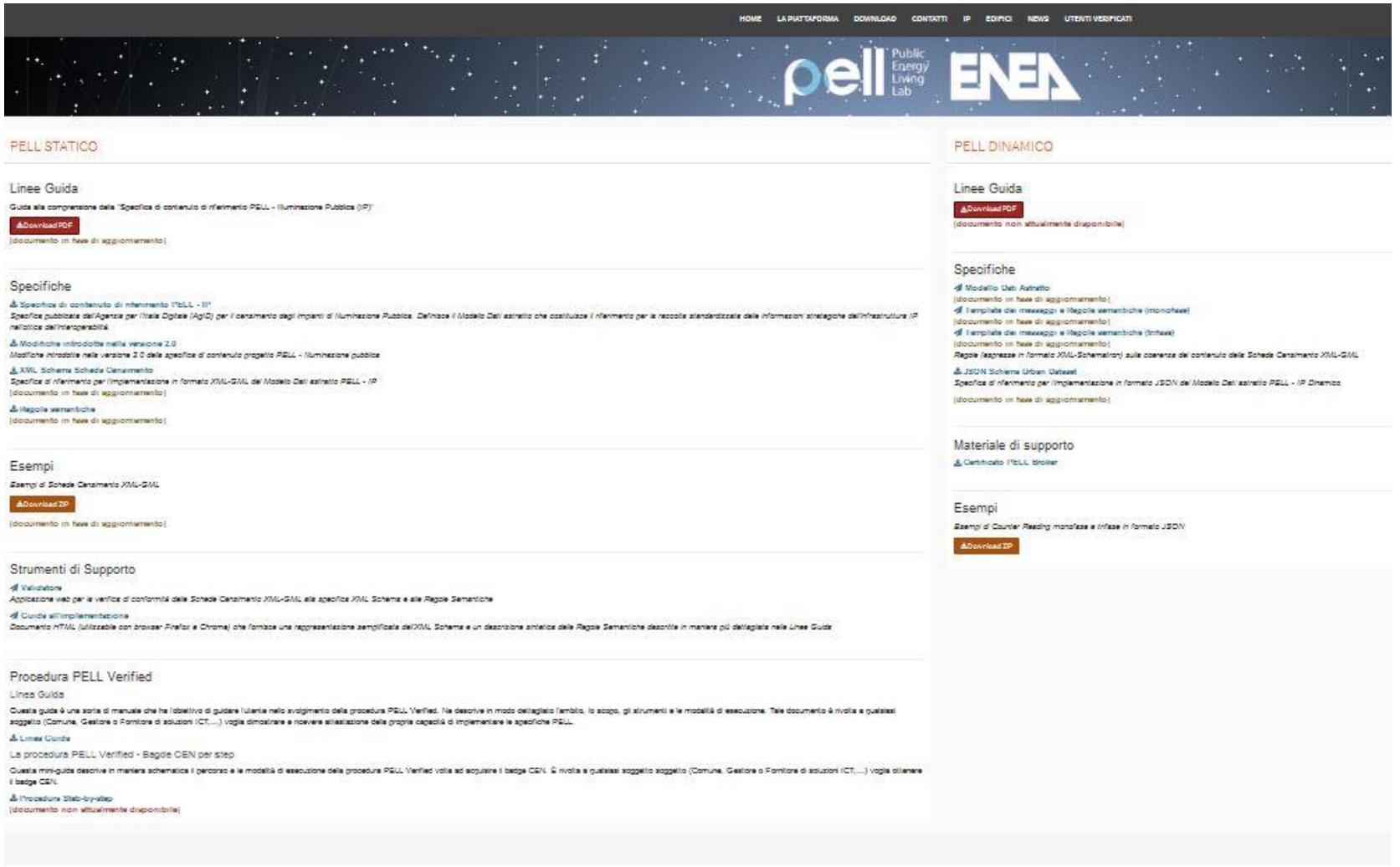
ICT Platform
Operating since 2019



PELL :https://www.pell.enea.it/enea/

Download section

- Data model scheme
- Guide Lines
- Examples of census data sheet
- Tools
- PELL Verified procedure



A new professional figure: Verified PELL Users List

HOME LA PIATTAFORMA DOWNLOAD CONTATTI IP EDIFICI NEWS UTENTI VERIFICATI

pell Public Energy Living Lab ENEA

UTENTI VERIFICATI

Il **badge PELL Verified** e la **lista utenti verificati** pubblicata in questa pagina hanno l'obiettivo di rendere riconoscibili e dare visibilità ai soggetti (software house, gestori, consulenti,...) che hanno dimostrato di essere in grado di implementare le specifiche PELL.
Gli **utenti verificati** sono, appunto, i soggetti che hanno ottenuto il badge PELL Verified, ovvero quei soggetti che, attraverso una apposita procedura (**procedura PELL Verified**), hanno dimostrato la capacità dei propri sistemi di produrre documenti conformi alle specifiche PELL. Solo i soggetti che compaiono nella lista pubblicata in questa pagina possono affermare di possedere un badge PELL Verified.
Si segnala, inoltre, che i dati che compaiono nella lista sono stati forniti dal soggetto a cui fanno riferimento, il quale ha acconsentito alla loro pubblicazione.

Le categorie utente previste sono: Comune, Gestore, Software House, Consulente.

Mostra 10 record per pagina

Denominazione utente	Categoria	Riferimento web	Contatto	Badge acquisiti
NeMeA Sistemi Srl	Consulente	www.nemeasistemi.com	m.boella@nemeasistemi.com	2020-04-08
City Green Light	Gestore	www.citygreenlight.com	pell@citygreenlight.com	2020-04-20
arch4energy srls	Consulente	www.arch4energy.com	info@arch4energy.com	2020-04-28
A3S Progetti Srl	Consulente	www.a3s.it	pell@a3s.it	2020-05-15
GeneGIS GI Srl	Software House	www.genegis.net	l.rigano@genegis.net, Luca Rigano	2020-05-26
Leonardo Web S.r.l.	Software House	www.lilpad.it	info@lilpad.it - 0175/68428	2020-07-01
Huna S.r.l.	Software House	www.huna.io	info@huna.io - 0280896950	2021-02-03

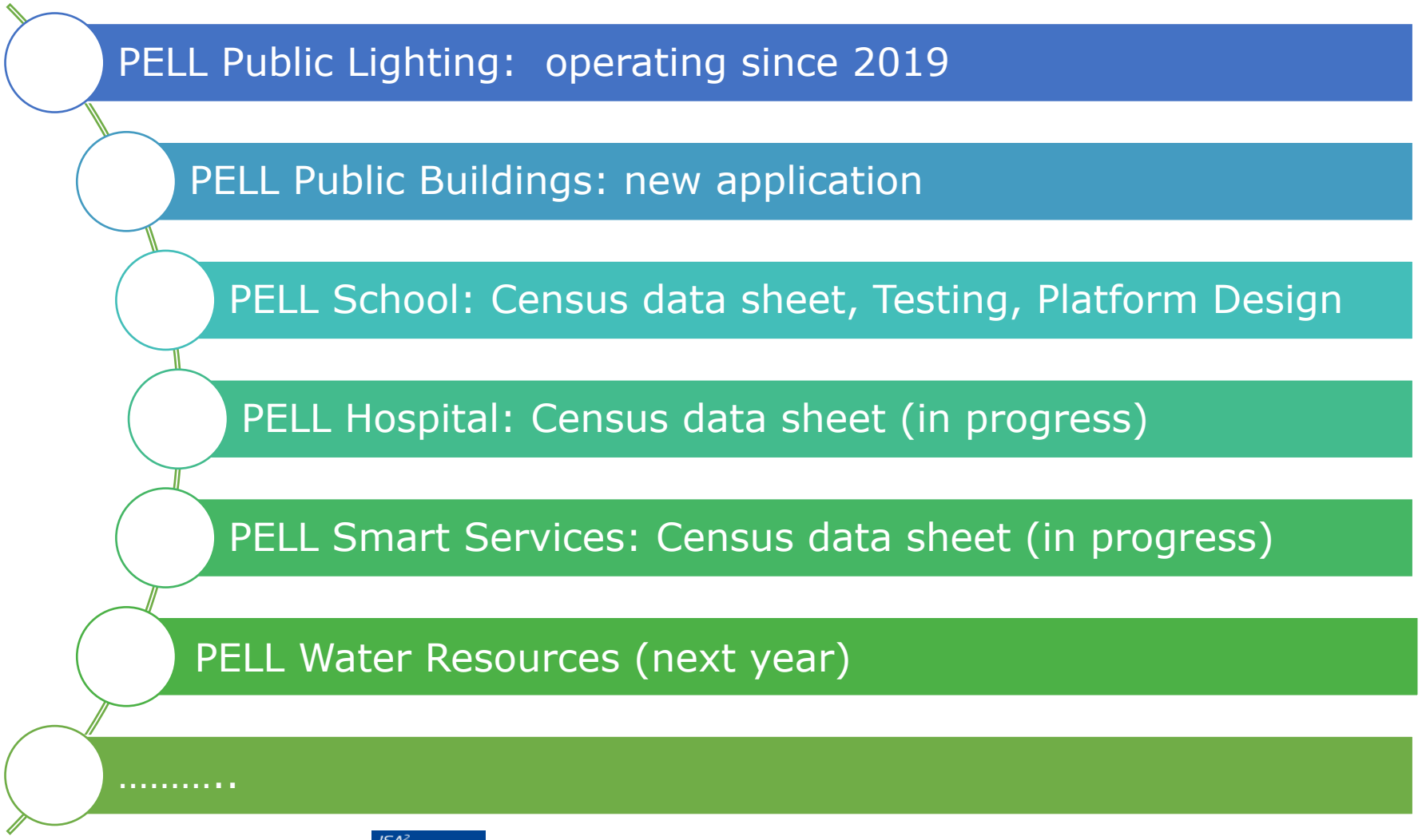
PELL Goals

- ✓ **Census of public lighting installations** (before and after redevelopment) (Data model PELL IP)
- ✓ Static **KPI**
- ✓ **Annual Census** (to track changes)
- ✓ **Connection to PELL** (dynamic data with smart meters)
- ✓ **Dynamic KPI**
- ✓ **WebGIS** dashboard (visualization of installations)
- ✓ **Urban Indicators** (aggregate data)

Where we are

- **13 Italian Municipalities** that have joined the platform
- **80.788 light points** collected
- **2 Big Management Facilities registered**
- **7 PELL Verified Users registered**

PELL Roadmap



4

PELL data model

The Italian Public Lighting data model

Gabriele Ciasullo

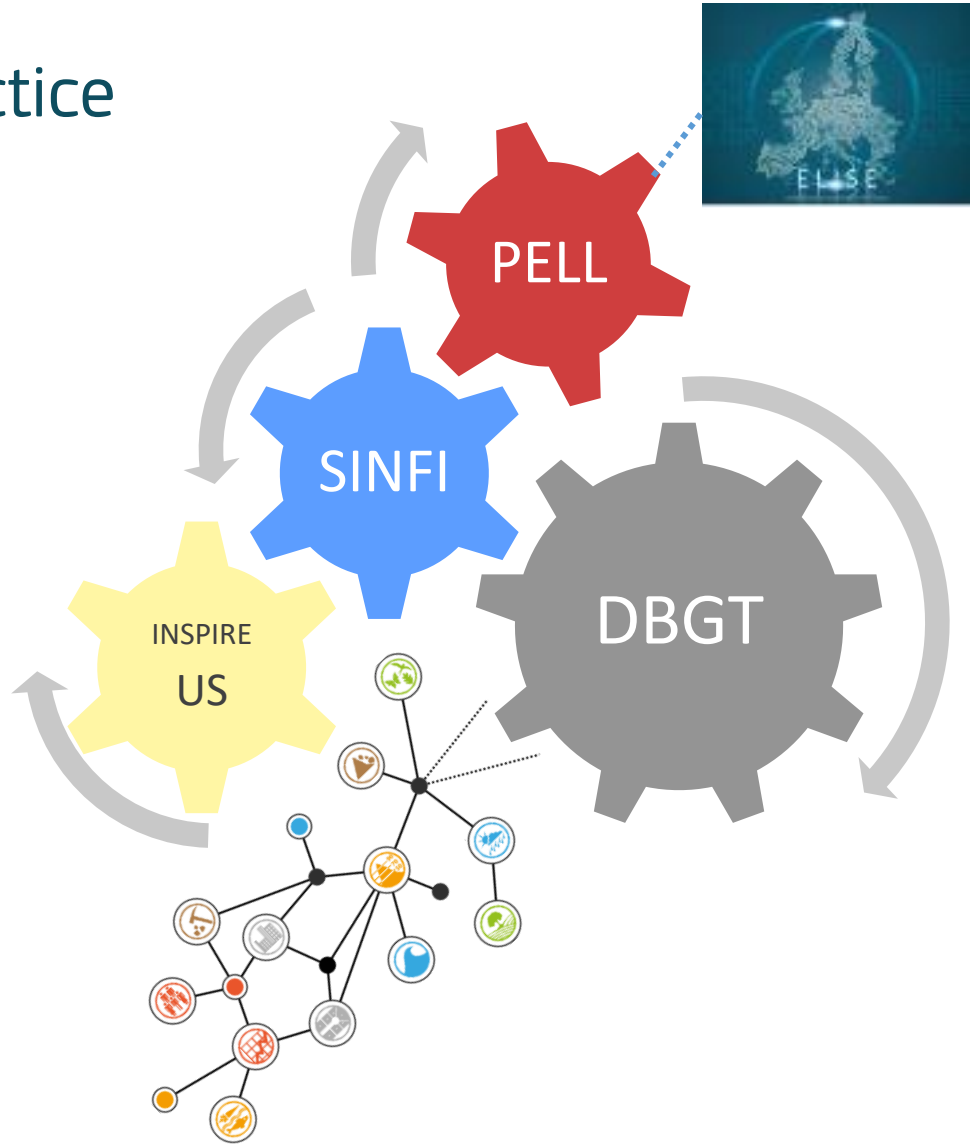
Leonardo Donnaloia

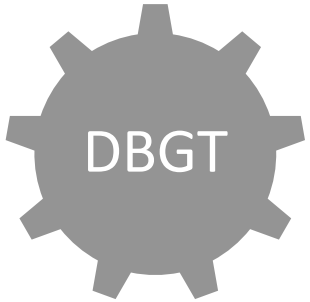
Antonio Rotundo

Interoperability & Once-only principle in practice

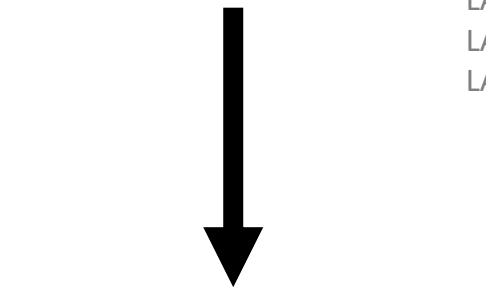
- The Agency for Digital Italy has been engaged to improve data interoperability by ensuring that the definition of new thematic data models will be consistent with the national and European reference specifications and by promoting the INSPIRE data and services in domains and projects beyond the environment, wherever possible.

- The specifications mainly refer to the **relevant INSPIRE data specifications** and **the national rules on the geo-topographic database (DBGT)**, the reference data model including the main base spatial layers and objects being harmonized to INSPIRE.





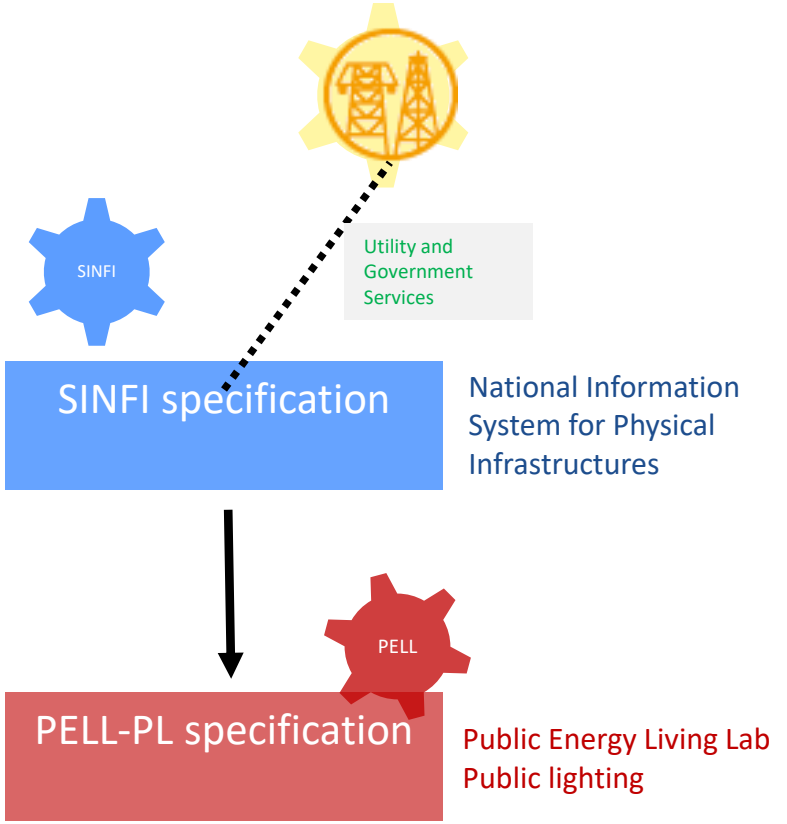
LAYER: 00 - Geodetic and photogrammetric information
LAYER: 01 – Mobility and transport networks
LAYER: 02 - Property and anthropization
LAYER: 03 – Traffic management and addresses
LAYER: 04 - Hydrography
LAYER: 05 - Orography
LAYER: 06 – Vegetation
LAYER: 07 – Utility networks
LAYER: 08 – Significant toponyms and geographical names
LAYER: 09 – Administrative units
LAYER: 10 - Relevant areas



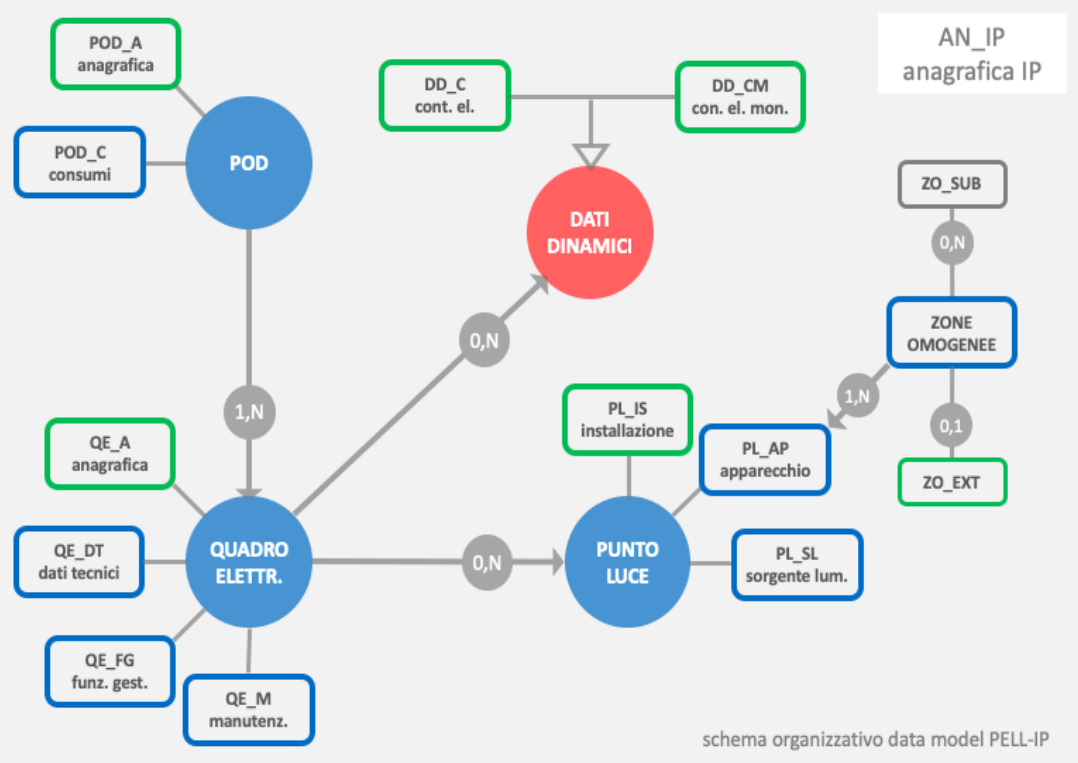
LAYER 07
Utility networks

THEME 0700 Networks encasing infrastructures
THEME 0701 Water supply network
THEME 0702 Water disposal network
THEME 0703 Electricity network
THEME 0704 Gas network
THEME 0705 Thermal network
THEME 0706 Oil network
THEME 0707 Telecommunications network

THEME 0708 PELL – Public lighting



Italian Public lighting data model



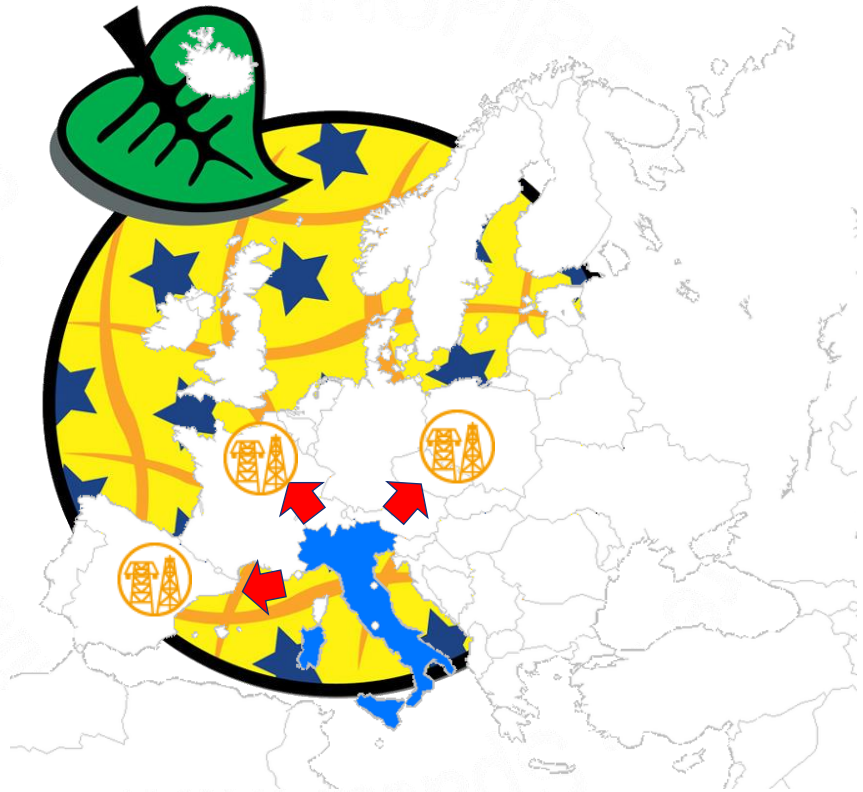
geodati.gov.it
Italian Catalogue for Spatial Data

Good practice for a common methodology

- Working Group Geospatial Solutions involved
- Update of the ELISE Energy Pilot multilateral non-monetary Callaboration Agreement
- Preparation and conduction of a survey at EU level about the state-of-the-art of the "smart management" of public lighting systems
- Next steps: school buildings and hospitals

A reusable solution at EU level

Proposal for a formal extension of the INSPIRE data specifications on Utility and Governmental Services (Electricity Networks schema), based on the Italian data model for public lighting, according to a feasibility analysis already carried out.




Thank you!

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Key messages, challenges and future outlook

- Good practice of a national **digital platform** for the smart management of public lighting.
- Potential for **extension** to other types of infrastructures (e.g. hospitals, schools).
- Benefits for Public Administrations (**lower energy bills**), businesses (**increased competitiveness and more jobs**) and citizens (**better services**).
- Investigation on the **re-usability** of the good practice in other countries.
- **Location interoperability** is the main enabler of the digital platform.
- The digital platform represents a concrete example of **location intelligence** applied in a **smart city** context.
- Any good practice in other EU countries, similar to PELL in Italy, as a concrete example of smart management of energy saving, using **digital platforms** & **location intelligence**?

Q&A

Thank you

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