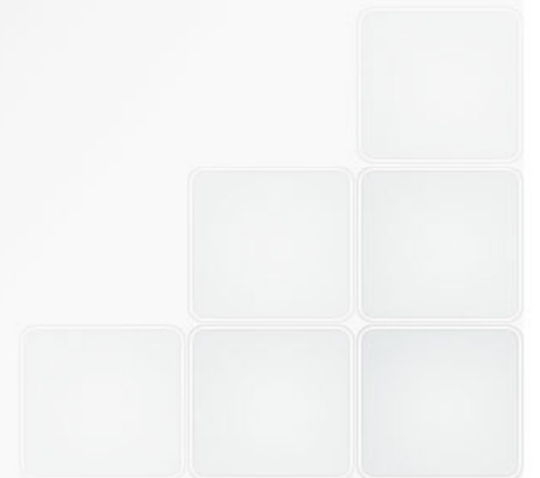# Standards and Open Platforms
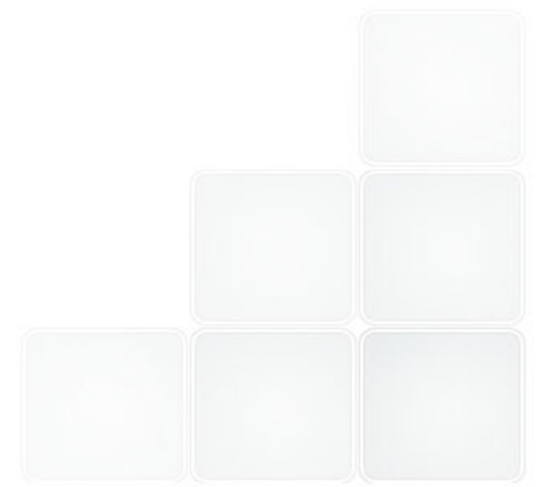
An Italian Perspective

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Genova SmartWeek
26th May 2016

ENEA and its DTE-SEN division

ENEA overview

- ENEA is the Italian National Agency for New Technologies, Energy and Sustainable Economic Development.

- It is the second major Italian public Research and Technology Organization operating in the fields of energy, environment and new technologies to support Country's competitiveness and sustainable development

- ENEA's mission is to develop new technological solutions to meet the societal challenges, fostering transition to the low carbon economy

- Research facilities: **9** Research Centers; **5** Research laboratories; **11** territorial offices; **Brussels** Liaison Office; **Headquarters** in Rome

- Human Resources: (+/-) **2600** permanent staff
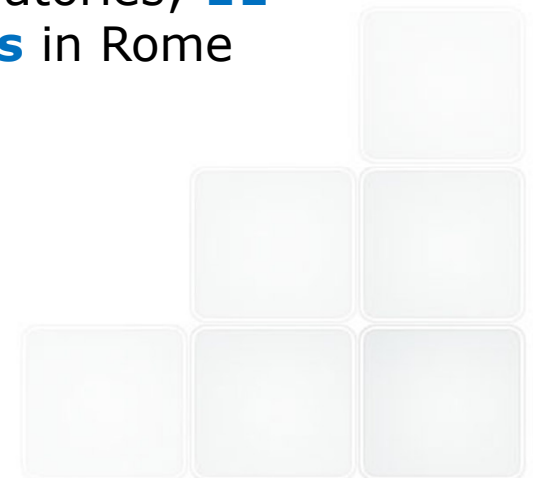
ENEA and IES-City Framework

- The Smart Energy (SEN) Division of ENEA has, as mission, the research & development, application and rollout of a systemic approach for Smart Cities & Smart Regions

- A lot of project about Smart Cities. Among them: RES NOVAE (Smart District), City 2.0 (Smart Lighting, Smart Mobility, Smart Communities) and Smart Village (a Smart District Model inside Casaccia Research Center)

- In the development of ENEA SEN Smart City projects the requirement for working in the context of an architecture for interoperability for Smart Cities services strongly arose

- So the definition of an open, scalable, standard-based architecture aiming to interoperability and replicability of smart city platforms and to foster the developing of ecosystems of services is, presently one of the objective of SEN

Learned lesson from projects and international cooperation
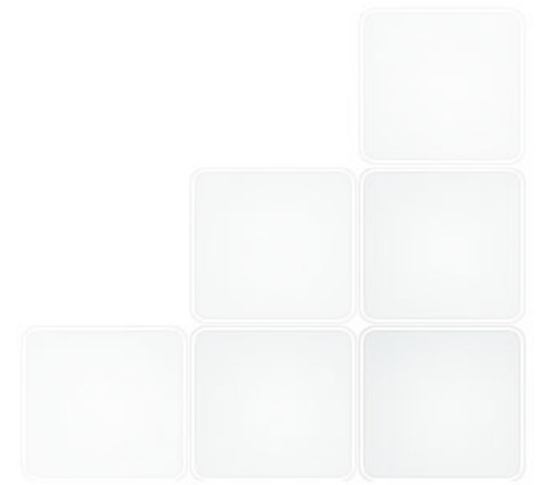
1. **The SMART CITY is happening**
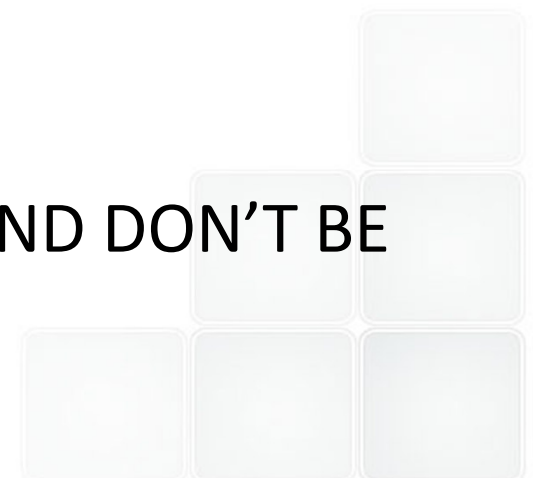
    -   The world has moved from 'test' to REAL LARGE SCALE actions.

        Examples:

        -   BUSAN, 50M€ of investment
        -   WIEN, 20.000 smart homes

    -   The Smart City is the engine for the growth

    Warning:

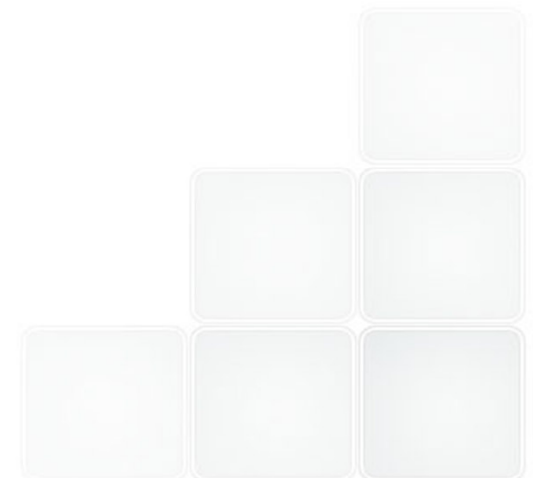   IT IS THE TIME TO GO, TAKE THE CHANCE AND DON'T BE THE LAST

Learned lessons about smart city

2. **The (SMART) CITY as an ECOSYSTEM**

- It evolves

- It is a complex system made by several interacting sub-systems and components
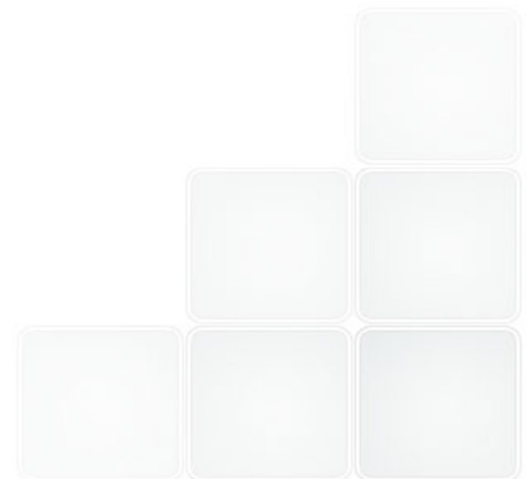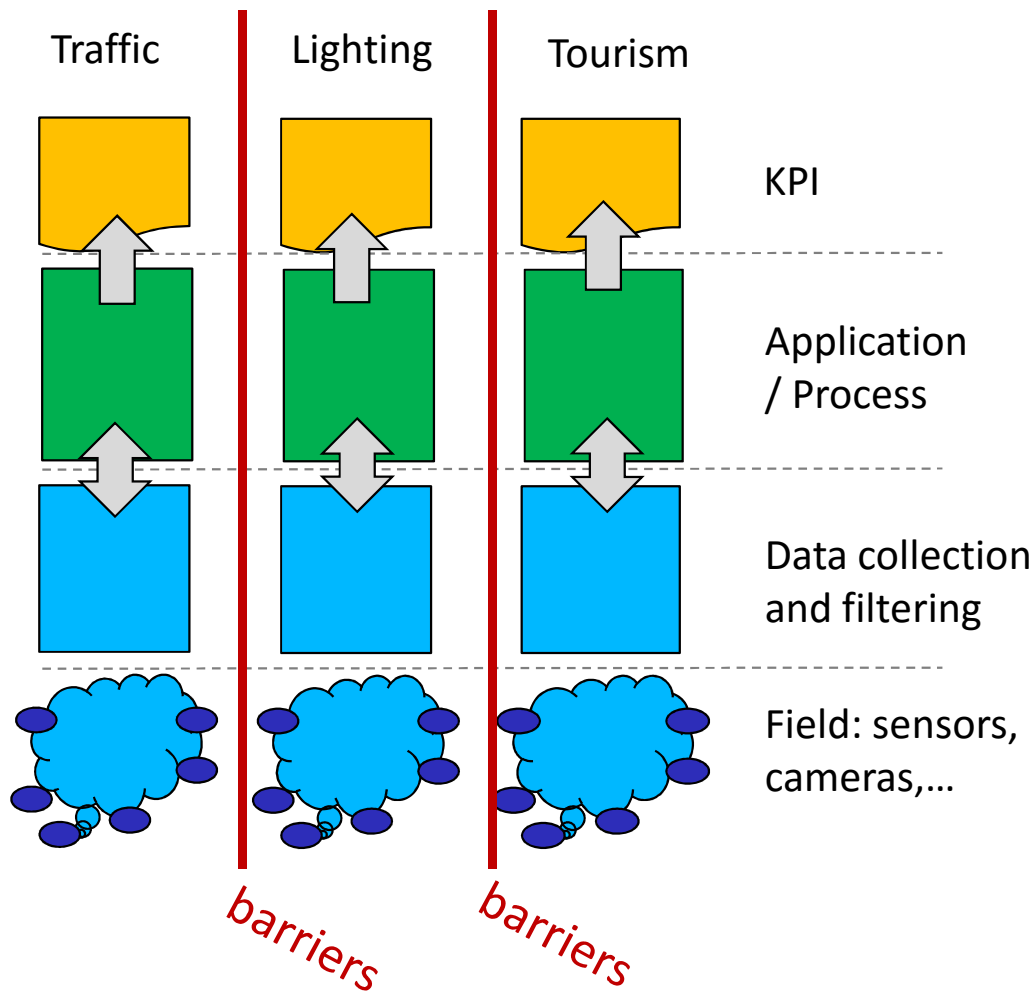
  Example: systems involved when a disaster happens: Police, Hospitals, Civil protection, Fire brigade, but also Traffic control

- PRIORITY:

  - To prevent the creation of SILOS

  - To make the application able to speak each other directly

  - To machine 2 Machine interoperability is necessary

Applications like SILOS

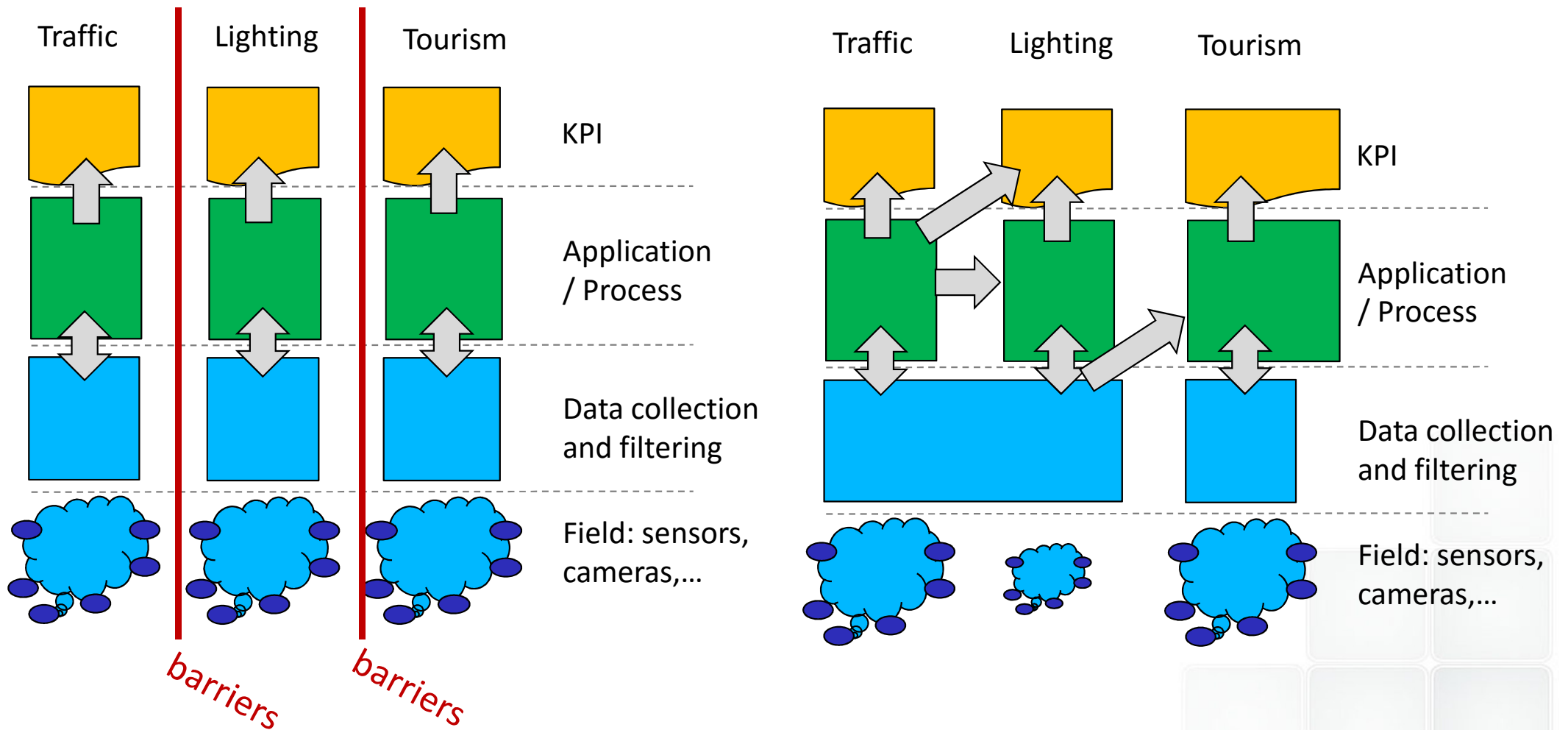## SILOS-like Vertical applications

Traffic	Lighting	Tourism	
			KPI
			Application / Process
			Data collection and filtering
			Field: sensors, cameras,…

barriers   barriers

Applications like SILOS

SILOS-like Vertical applications **vs** Interoperable applications

Learned lessons about smart city

3. Preserve the legacy

- We cannot abandon the existing systems and architecture
- We should create the conditions for the convergence

4. Smartcity solutions must be replicable and composable

- Replicability in other cities
- Composability reusing different components to build new solutions

   in order to dramatically reduce the costs of development and maintenance

5. Definition of common KPI

- Common metrics in order to allow comparison and evaluation of the quality of the services

Learned lessons about smart city
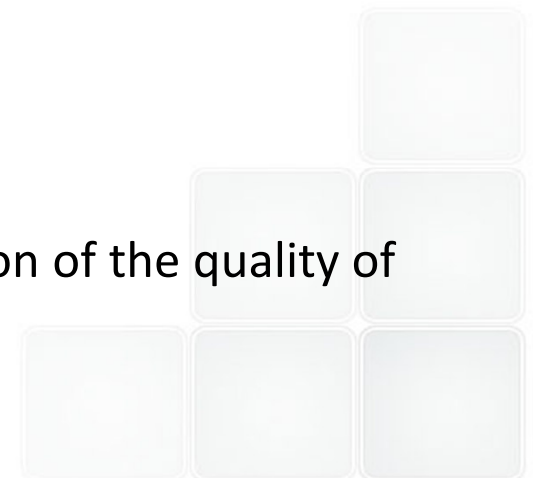
6. **<u>Standardization is needed</u>**

Only common standards allow interoperability and common KPI

WARNING: a trade off is necessary

- Standards too prescriptive risk to prevent innovation

- Standards too weak do not allow to understand each other

The SOLUTION: definition of some PIVOTAL POINT of INTEROPERABILITY

APPROACH: Accelerating the convergence between existing solutions and standards

(11 years occurred to have the «winner» between VHS and BETAMAX)
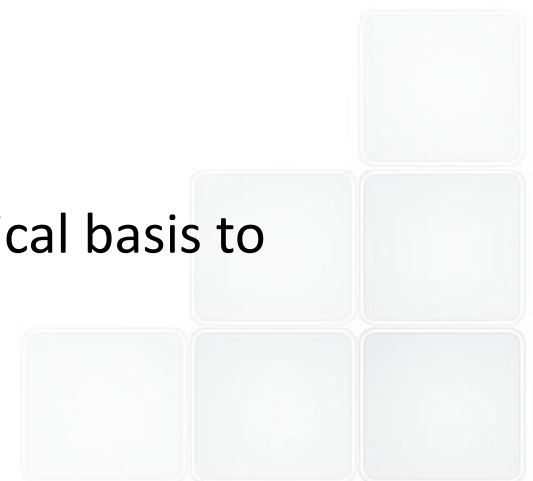
Learned lessons about smart city

7. <u>**OPEN PLATFORMS are the FUTURE**</u>

- To avoid lock-in

- To evolve in the time (scalability)

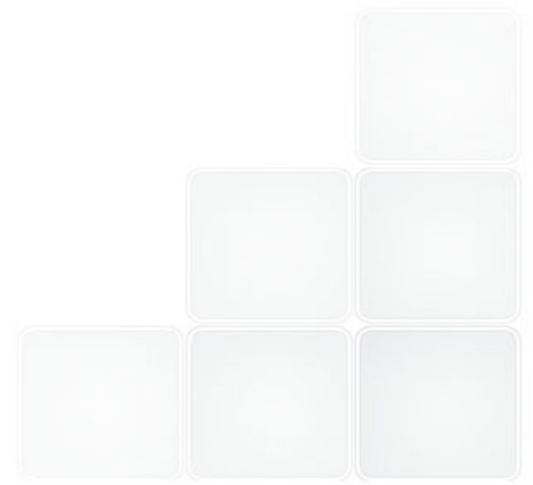- To allow third parties to add new (and innovative and unforeseen) services

WARNING:

Asking for «open platform» is not enough:

it is a concept that needs to be based on a common technical basis to express the requirements and to assure its real openness

ENEA and the international and national initiatives: the chances that Italy can catch
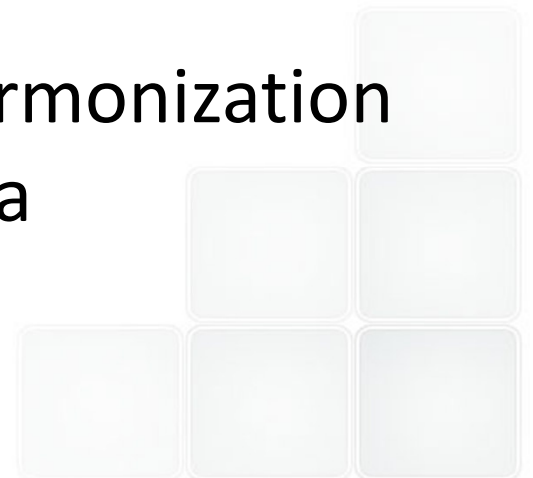
IES-City Framework: objective

An international initiative launched by NIST and several partners (ENEA, ETSI, ANSI, USGBC, FIWARE, MSIP) aiming to:
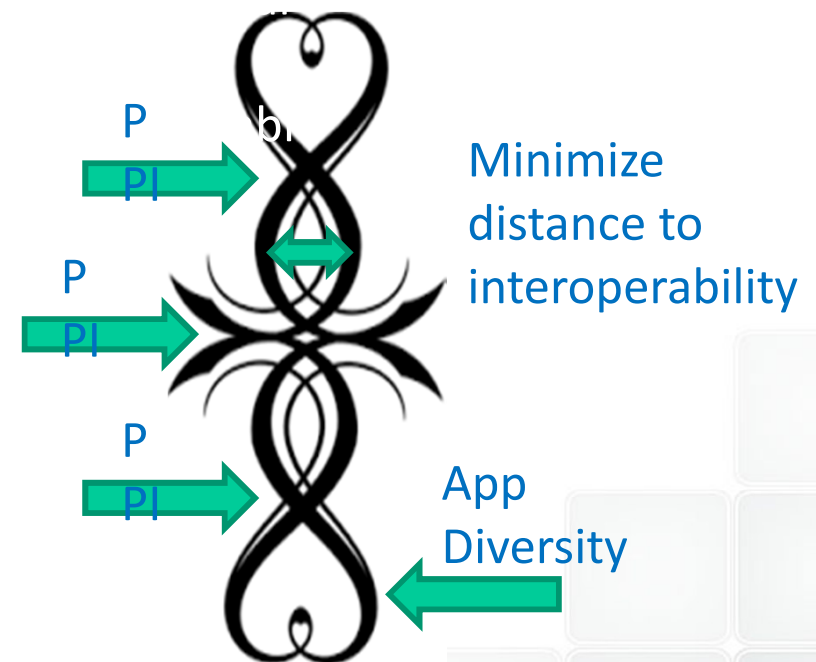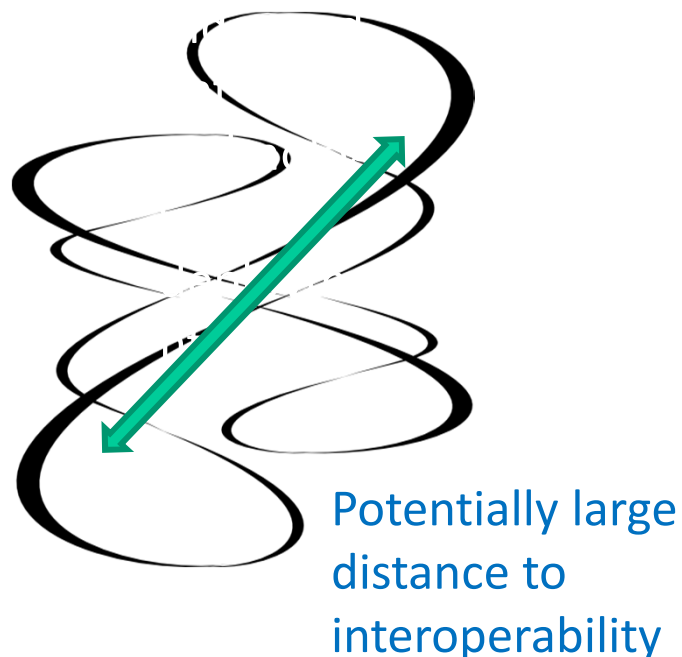
- create a reference framework for the development of architectures for incremental and modular Smart Cities

- facilitate convergence and encourage harmonization among the many standards and consortia

How does the common framework works?

it does NOT impose the SAME ARCHITECTURE to all
but
it asks for SOME COMMON **PIVOTAL POINTS of INTEROPERABILITY**

Potentially large distance to interoperability

P PI

P PI

P PI

Minimize distance to interoperability

App Diversity

Added value for Italy

This work will offer to the Italian PA

shared and unambiguous technical DEFINITIONS

to be used for writing Guide Lines and technical annexes for TENDERING

- Reduction of the time and effort to write tenders

- Reduction of the risk of missing the expected results

For example:

- Requirement check lists

- KPIs to describe the services to guarantee the quality of services

An Italian discussion group

For concretizing this perspective ENEA has launched an informal Italian Discussion Group on standards and open platform for putting into communication the IES-City Initiative with the interested Italian Stakeholders

This initiative has the following objectives:

• To bring the Italian requests and need on the international stage

• To facilitate and promote the adoption of the international results at national level

Moreover, it could be also an occasion for facilitating a national coordination strategy allowing to reach the critical mass for converging towards common open and interoperable architectures and standards.

The first meeting was held in Rome on April 15th 2016
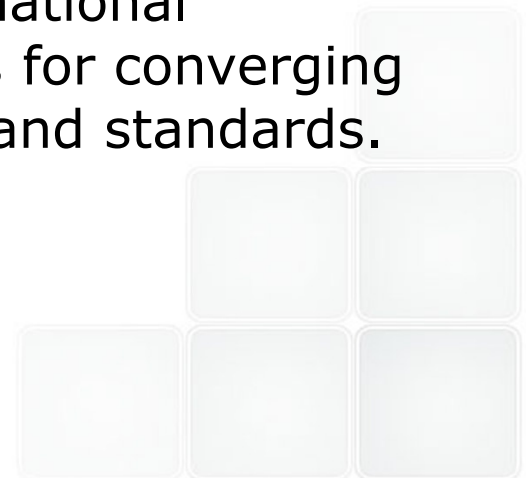
Thank you for your attention

For any questions or information requests please contact:

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