BIM-based toolkit for Efficient rEnovation in Buildings

BIM4EEB

- An EU-funded project supporting the renovation industry in retrofitting existing residential buildings with a complete **BIM-based toolkit to make the flow of information efficient and decrease intervention working time, while improving building performances, quality and comfort for inhabitants.**

- These tools will allow to **rapidly reconstruct 3D digital models of existing buildings** and to seamlessly integrate **semantic data** in order to perform advanced evaluations of design options for renovations.

- Main results will include guidelines for BIM implementation and providing an easy, practical and **operational platform as a central repository of information, namely Common Data Environment (CDE),** with different connected tools.

Partners' roles

Stakeholders' representatives

- **Building owner**
- Regione Lombardia
- SOLINTEL
- **Asset & facility manager**
- ALER
- PROCHEM
- CAVERION
- **Architects' representative**
- ACE

BIM4EEB toolkit

Tools developers

Industry
- One Team (SME)
- Suite5 (SME)
- Visualyink (SME)
- CGI

Research center
- VTT
- RI.SE
- IERC
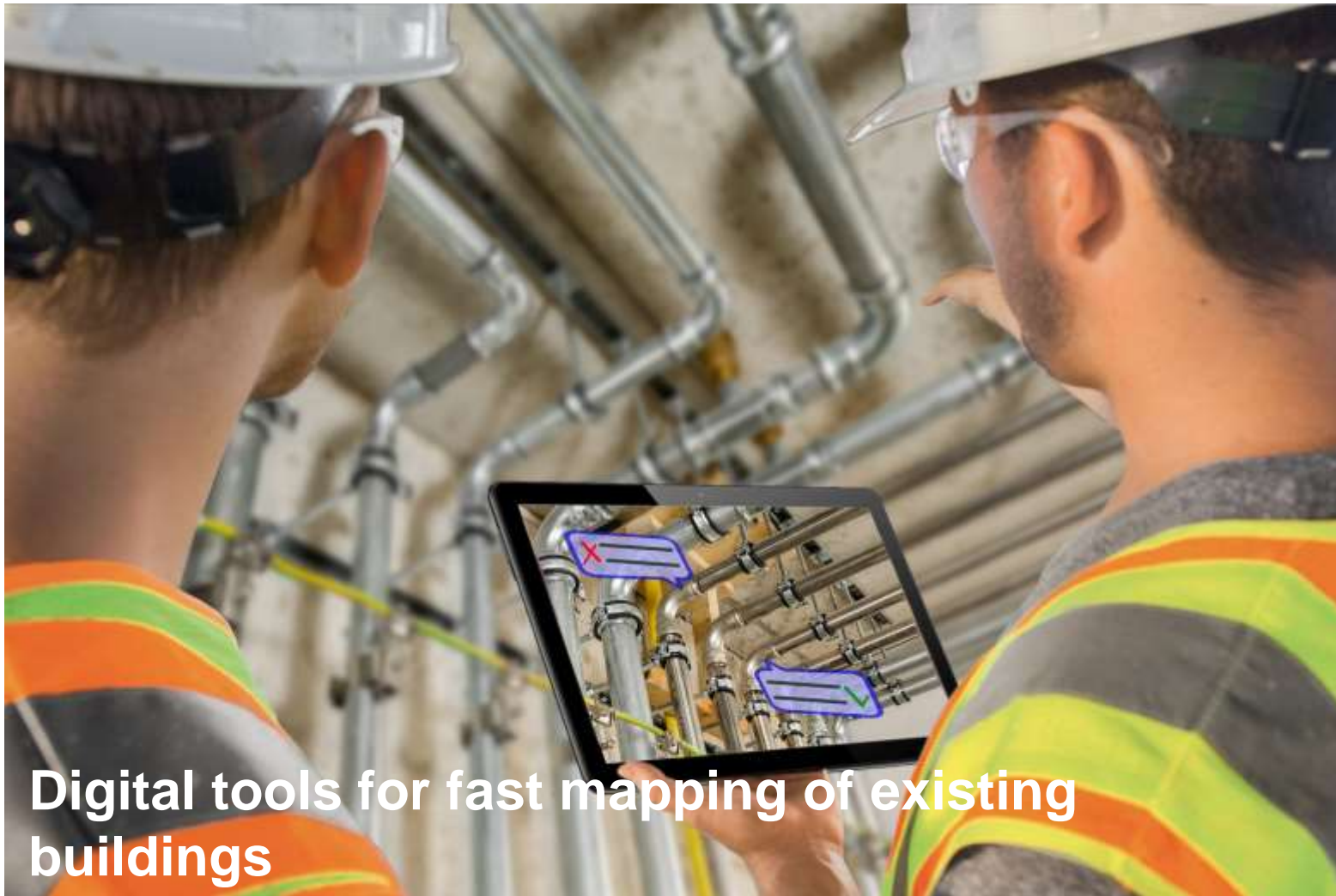
University
- PoliMi
- TUD
- UCC

The BIM toolkit
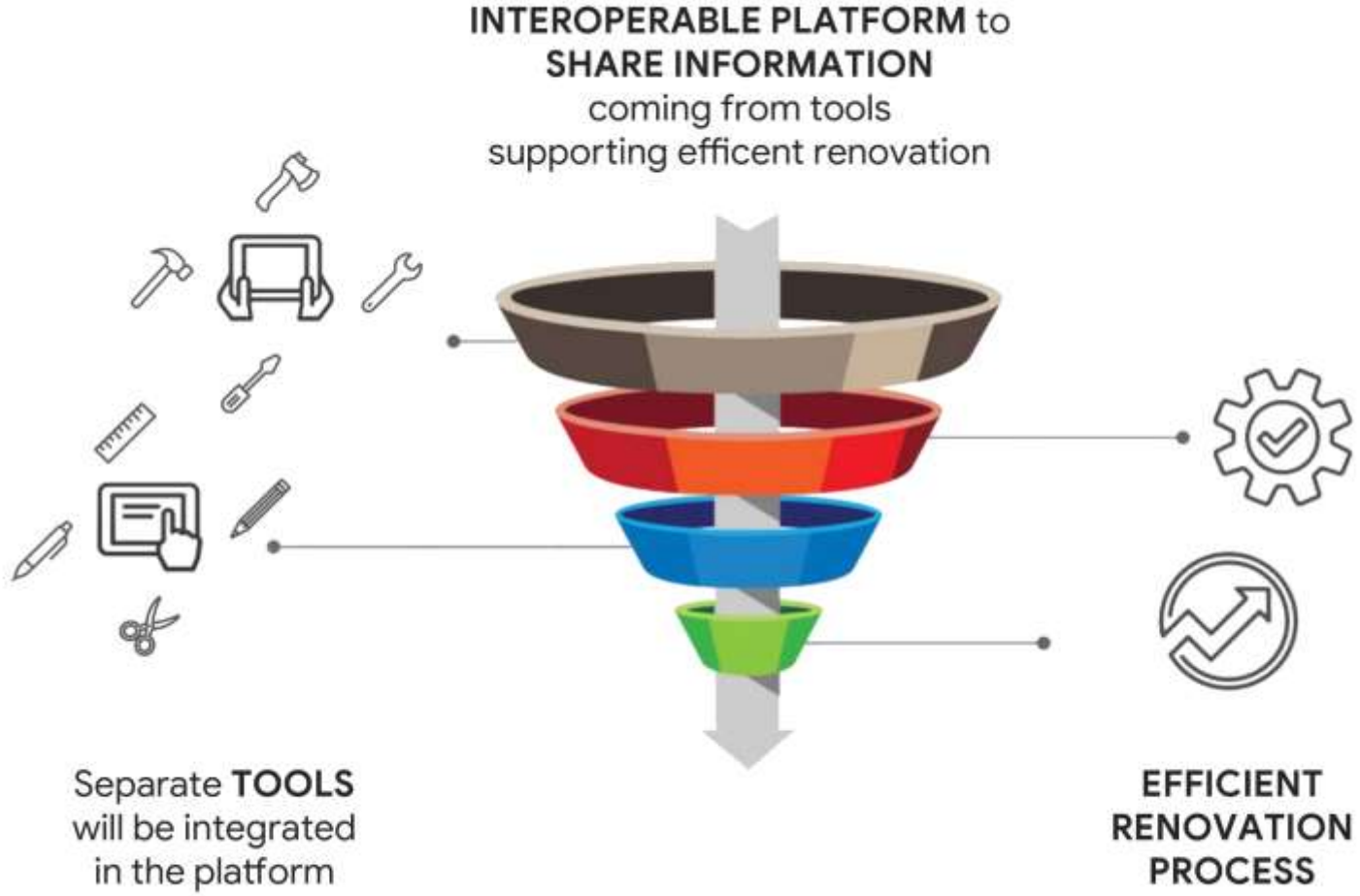
INTEROPERABLE PLATFORM to SHARE INFORMATION
coming from tools
supporting efficent renovation

Separate **TOOLS** will be integrated in the platform

EFFICIENT RENOVATION PROCESS

BIM4EEB

The BIM Tools

Digital tools for fast mapping of existing buildings

The BIM Tools

Tools for managing BACS and HVAC with BIM
Tools for BEM analysis

H2020

The BIM Tools

Tools for construction planning and tracking
Tool for inhabitants involvment

Main phases

Phase 1

Phase 2

Phase 3

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Construction & service companies

designers

owners & inhabitants

linked data & ontologies

BIMMS

AR for fast mapping & survey

BIMplanner BIM4Occupants

Auteras, BIMcpd, BIMeaser

Monza demo site (IT)
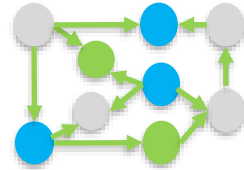
•Chorzow demo site (PL)

Tampere demo site (FI)

Requirements, linked data &ontologies

Tools development

Demonstration in relevant environment

Definition of requirements for an efficient renovation process

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TO DEFINE PRECISELY EVERY **ACTIVITY** THAT IS REQUIRED IN EACH STAGE OF A RENOVATION PROCESS

1

TO DEFINE THE MOST PROPER **INFORMATION EXCHANGE/SHARE PROCESS AND WORKFLOW**

3

OPTIMISATION OF THE RENOVATION PROCESS (i.e. to limit inefficiencies due to incorrect or redundant exchange of information)

5
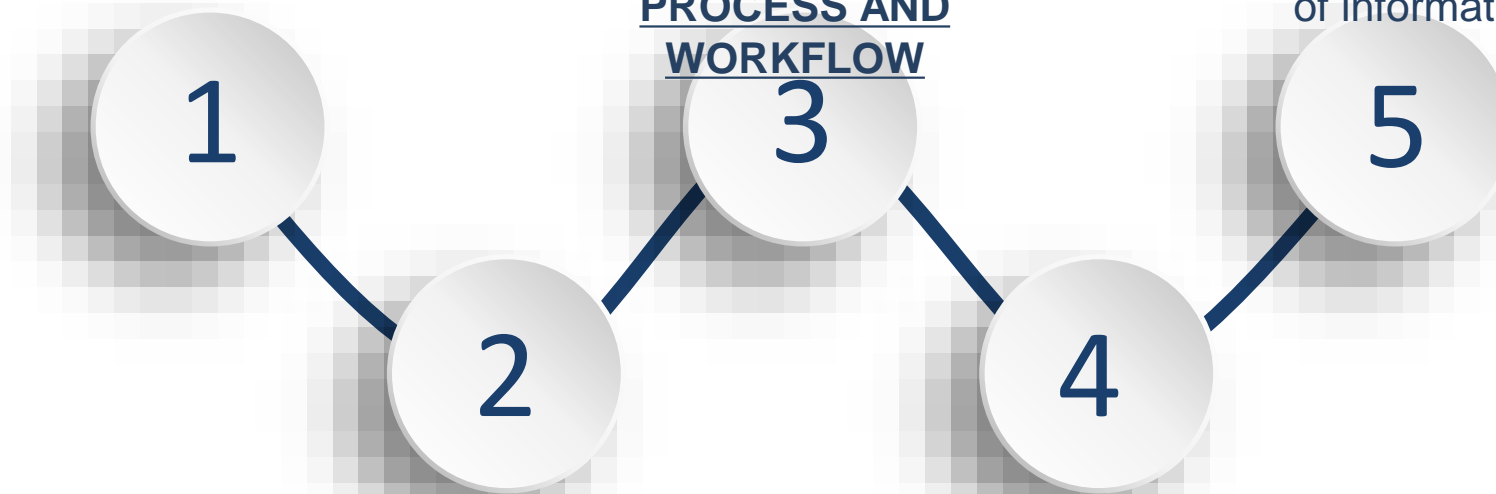
TO POINT OUT THE **INVOLVED STAKEHOLDERS** (as designers, architects, construction companies and service companies, but also owners and inhabitants) IN EACH SINGLE STAGE OF A RENOVATION PROCESS

2

TO INDIVIDUALISE **NECESSARY REQUIREMENTS** WHICH HAVE TO BE SATISFIED DURING RENOVATION INTERVENTIONS

4

SUSTAINABLE PLACES

H2020

Definition of relevant activities and involved stakeholders in actual and efficient renovation processes
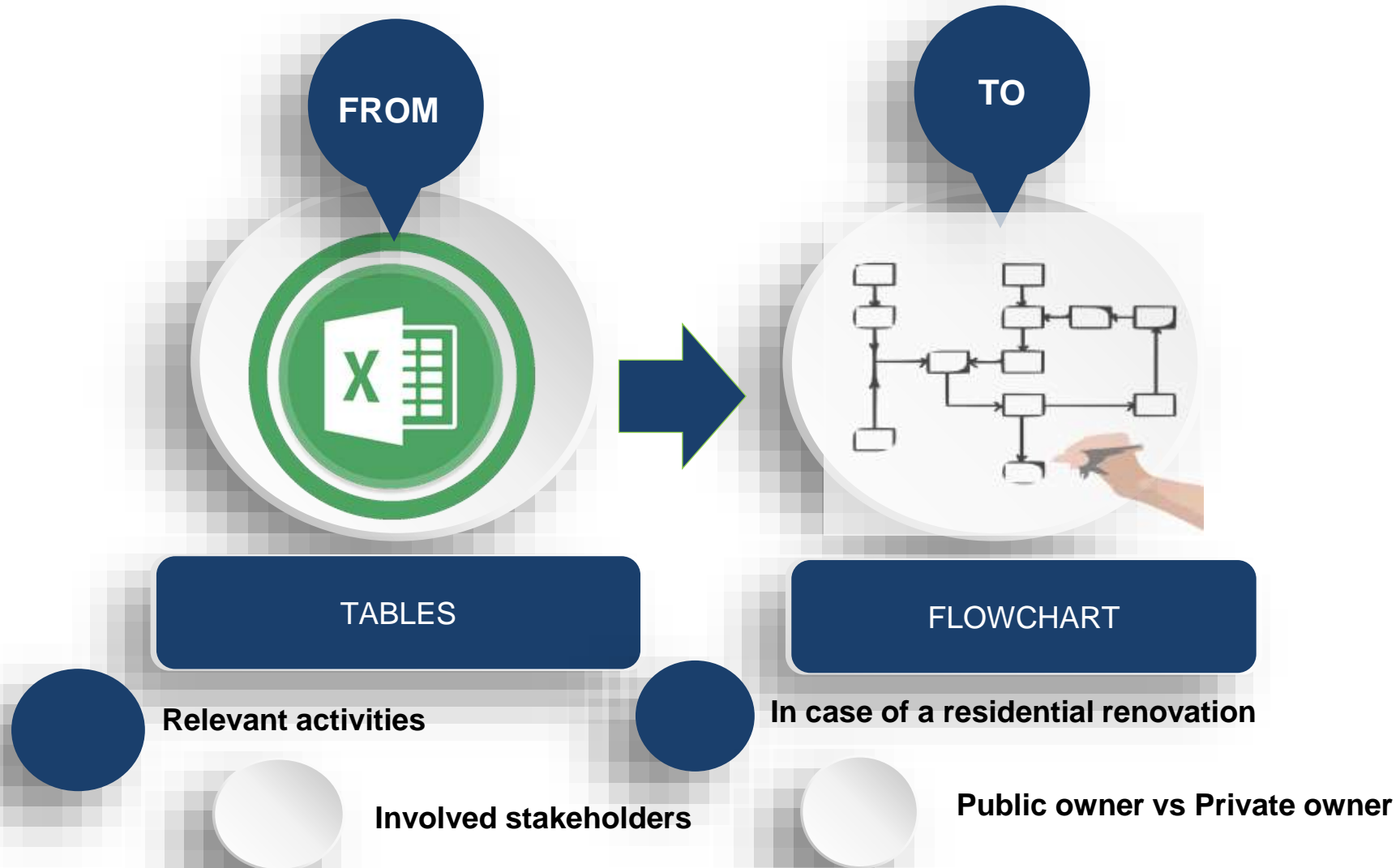
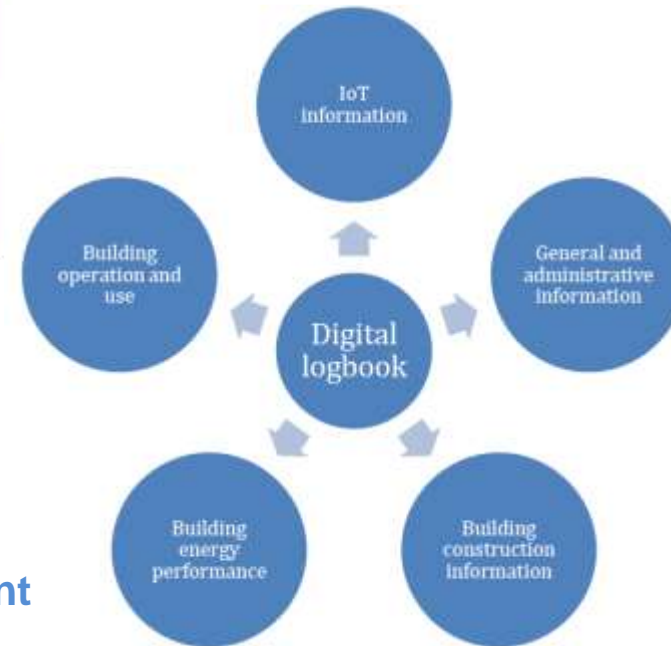# Definition of service companies' needs and requirements in renovation interventions
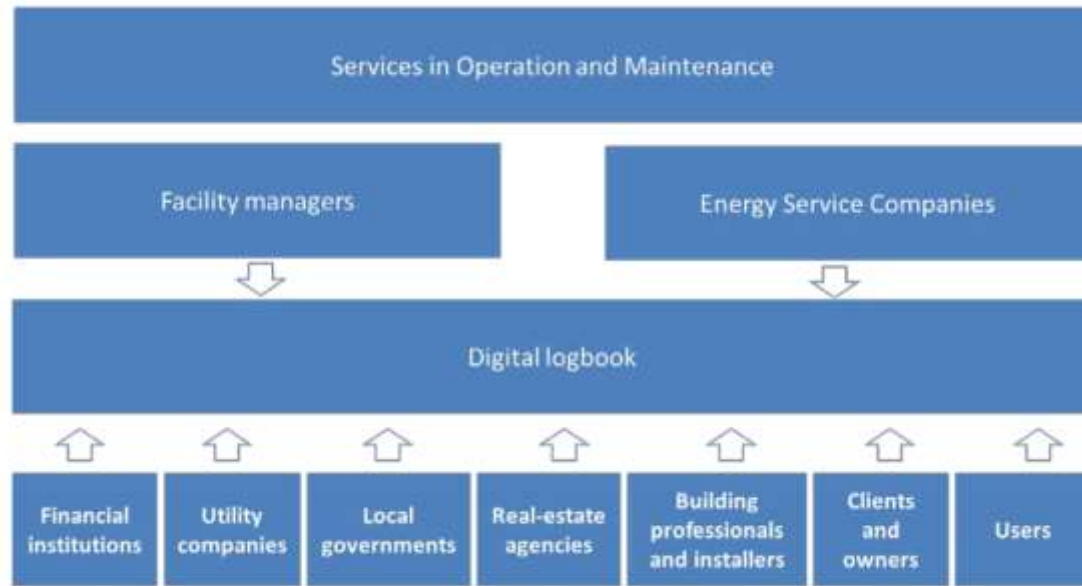
Main stakeholders considered in the definition of the information to be stored in a digital logbook

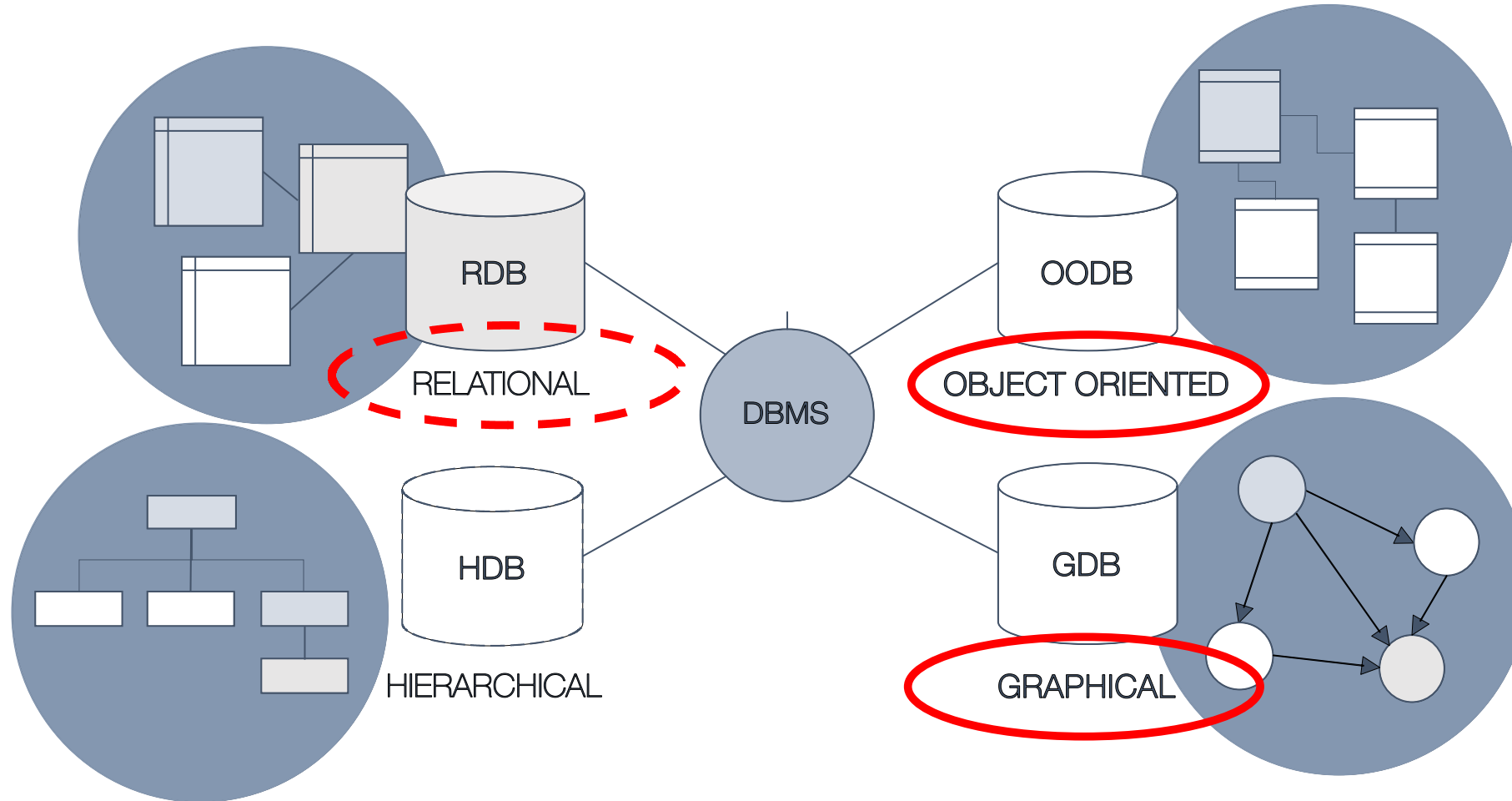**Groups of information considered for the development of BIM4EEB digital logbook**

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H2020

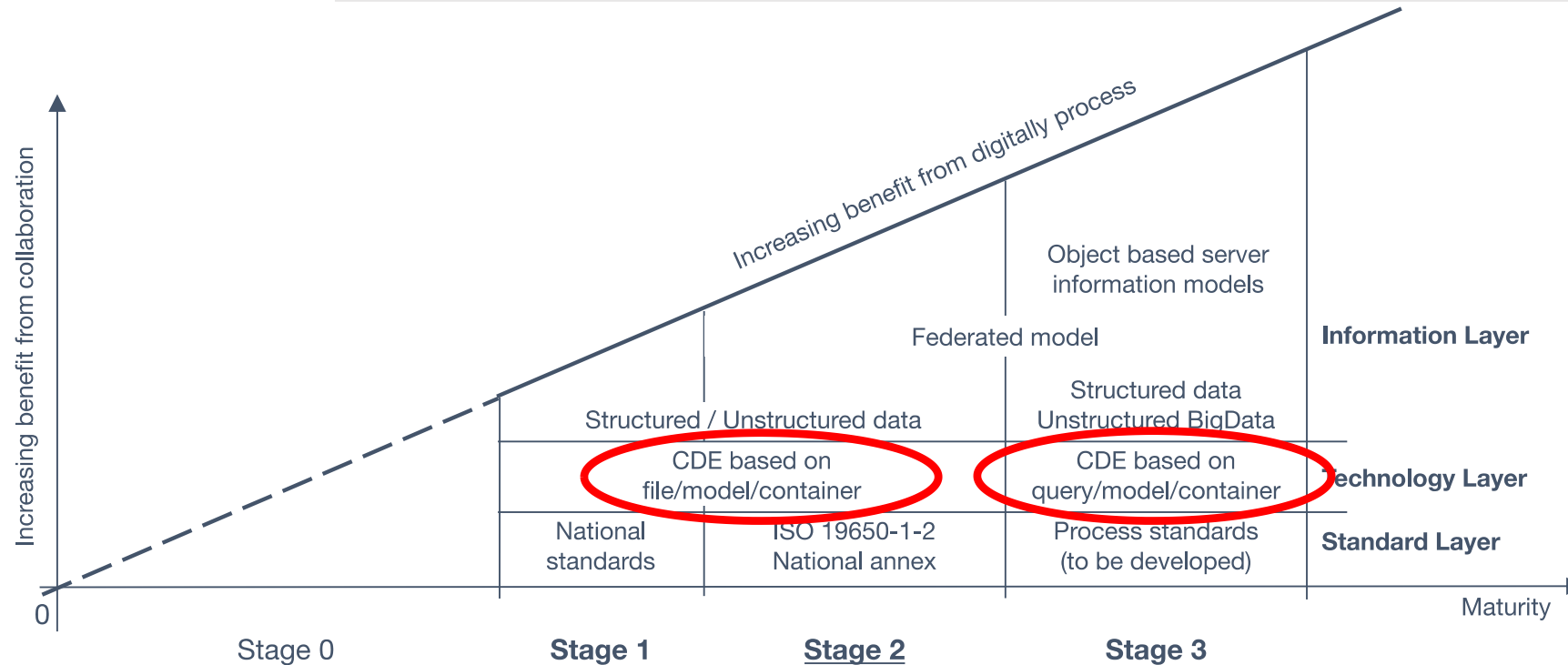# BIMMS architecture

EN ISO 19650-1:2019 - CDE

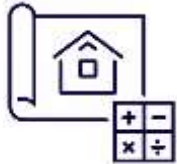| CDE | «common data environment: agreed source of _information_ for any given project or _asset_, for collecting, managing and disseminating each _information container_ through a managed process» |

Increasing benefit from digitally process

Increasing benefit from collaboration

Object based server information models

Federated model — **Information Layer**

Structured / Unstructured data

Structured data
Unstructured BigData

CDE based on file/model/container

CDE based on query/model/container — **Technology Layer**

| National standards | ISO 19650-1-2 National annex | Process standards (to be developed) | **Standard Layer** |

Maturity

Stage 0   **Stage 1**   **Stage 2**   **Stage 3**

The BIM4EEB toolkit

Fast Mapping of Buildings

BIMPlanner

BIM4Occupants

BIMMS
BIM Management System

BIMeaser

Auteras

BIMcpd

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Thank you for your attention!

28th October
Sustainable P