



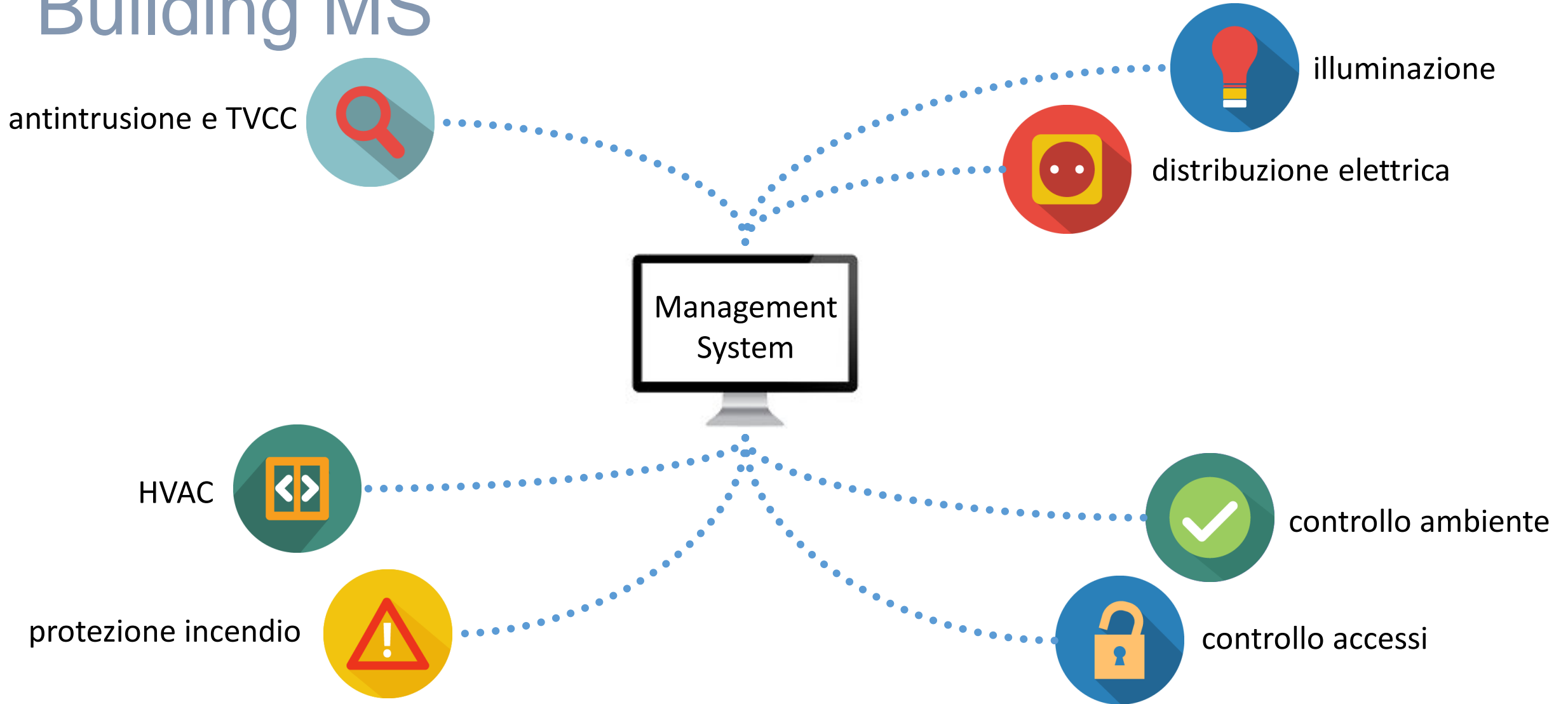
POLITECNICO
MILANO 1863

BIM e BMS

la base per la progettazione dello smart building

Smart Building Expo
Milano – 17 novembre 2017

Building MS



Building MS



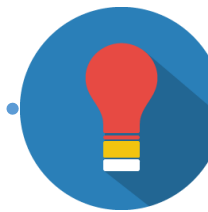
Documenti ed elaborati 2D
(*rappresentazioni*)



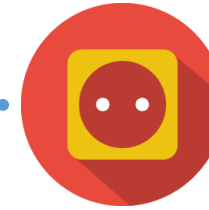
Sensori e dispositivi



Management System



illuminazione



distribuzione elettrica



HVAC



antintrusione e TVCC



protezione incendio



controllo ambiente

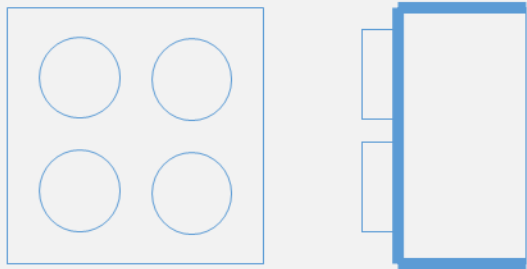


controllo accessi

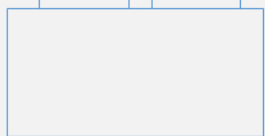


BIM

Rappresentazione tecnica



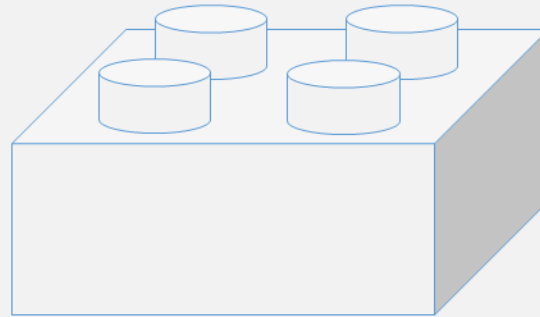
Graphic
Information



2D

CAD drawing

Rappresentazione realistica



Graphic
Information

3D

CAD drawing

Virtualizzazione della realtà



Graphic &
Not-graphic
Information

| | |
|-------------|--------------|
| NAME: | LEGO |
| TYPE: | BLOCK |
| COST: | 0,02 € |
| N.: | 123-AX-34-JK |
| DATE: | 12-12-2012 |
| VALIDATION: | YES |
| | |

2D; 3D; 4D; 5D; 6D

BIM object



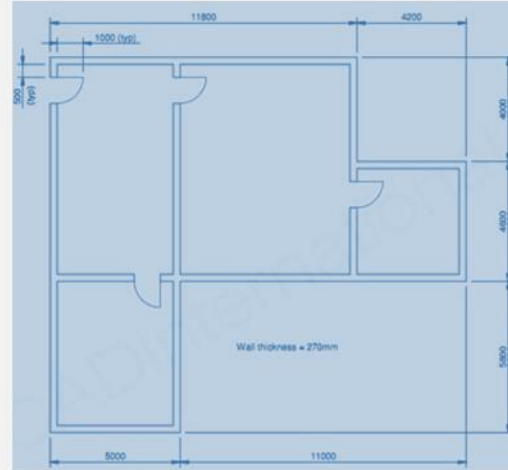
BIM



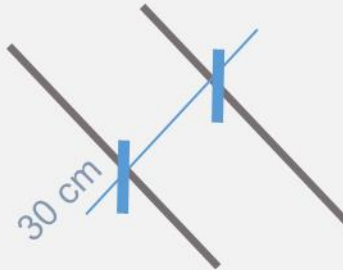
What do you think



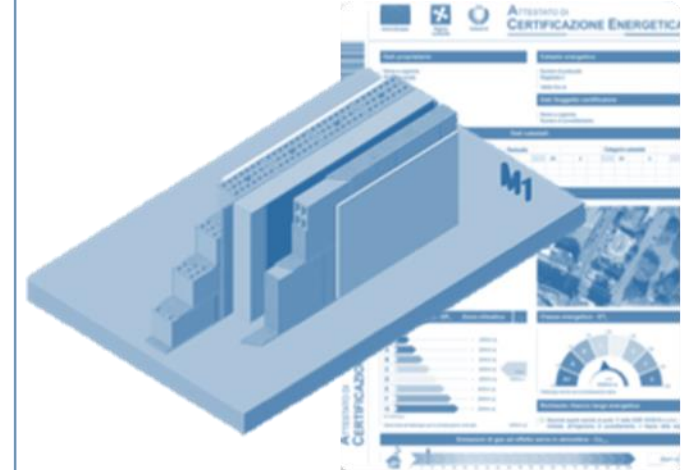
WALL



What CAD understands



LINE

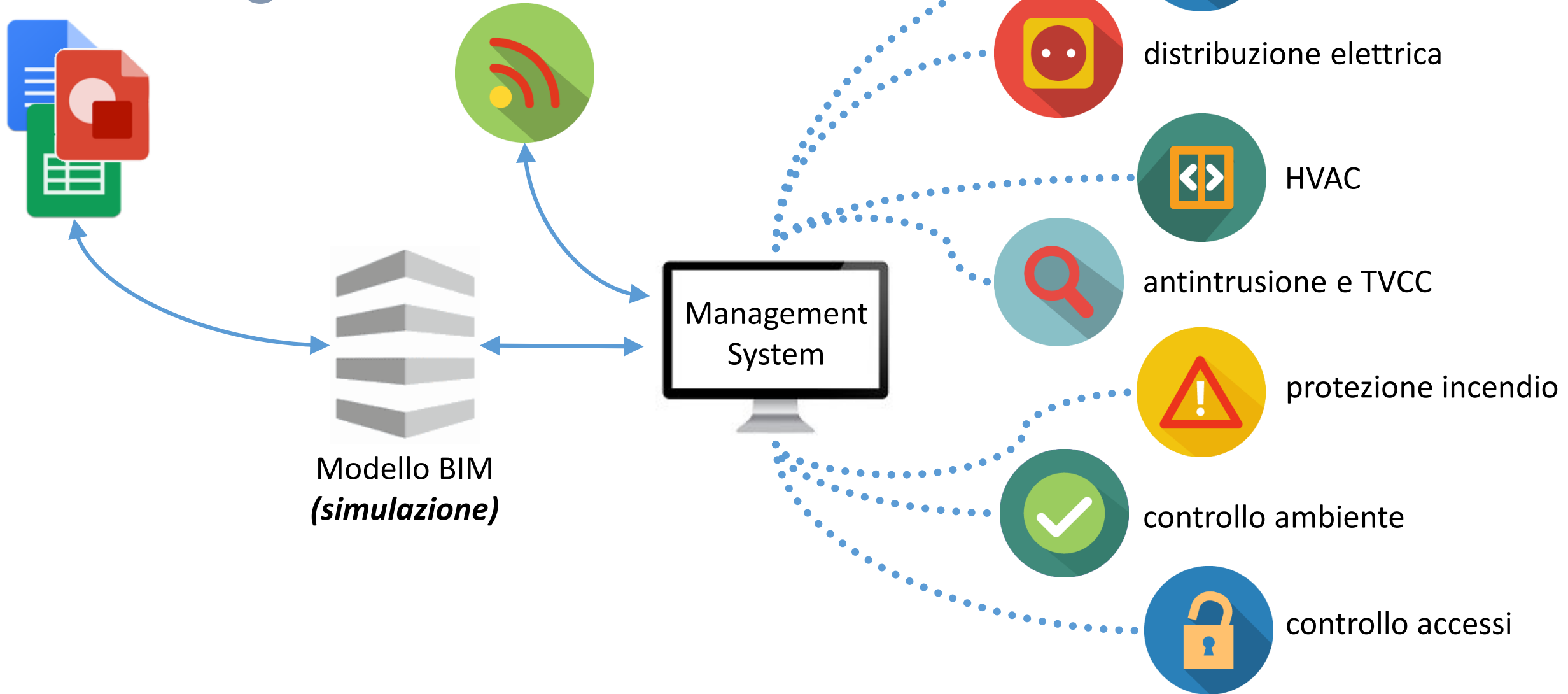


What BIM knows

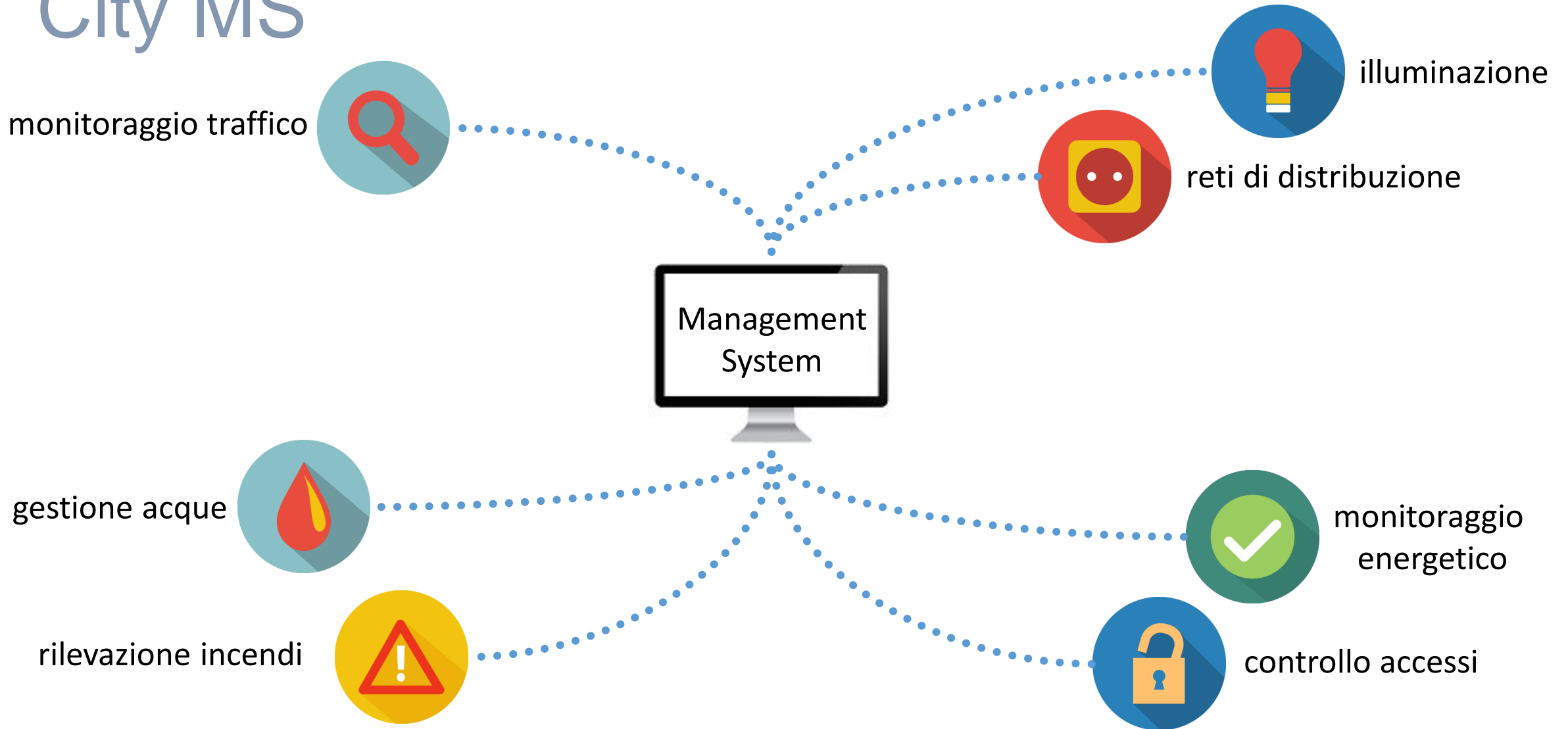


WALL

Building MS and BIM



City MS



Caso studio

[Tesi De Marco – Nuti]



gestione dati

1 MODELLO BIM ALL'UTENTE



2 MODELLO BIM AL GESTORE E CLOUD ALL'UTENTE



3 MODELLO BIM AL GESTORE E SEGNALAZIONI DAI COMPONENTI



4 MODELLO BIM AL GESTORE E SISTEMI DI INDOOR MAPPING



sensori di localizzazione



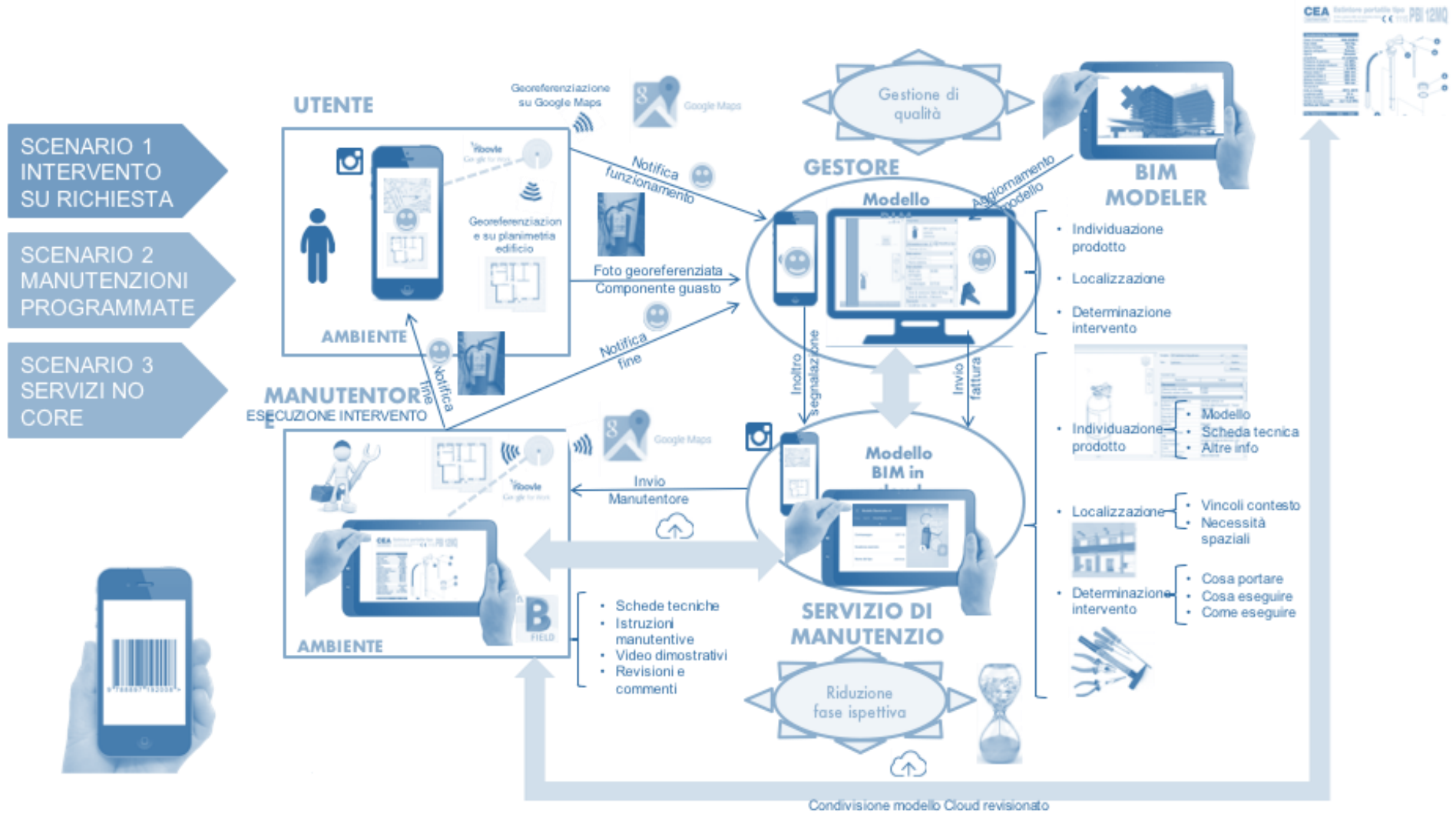
Bluetooth Low Energy (BLE) Beacons
Emissione di segnali Bluetooth
Triangolazione posizione ricettori

Applicazioni mobile
Ricezione di segnali Bluetooth

“Nextome”
Orientamento su cartografia edificio
Individuazione propria posizione
Individuazione punti di interesse

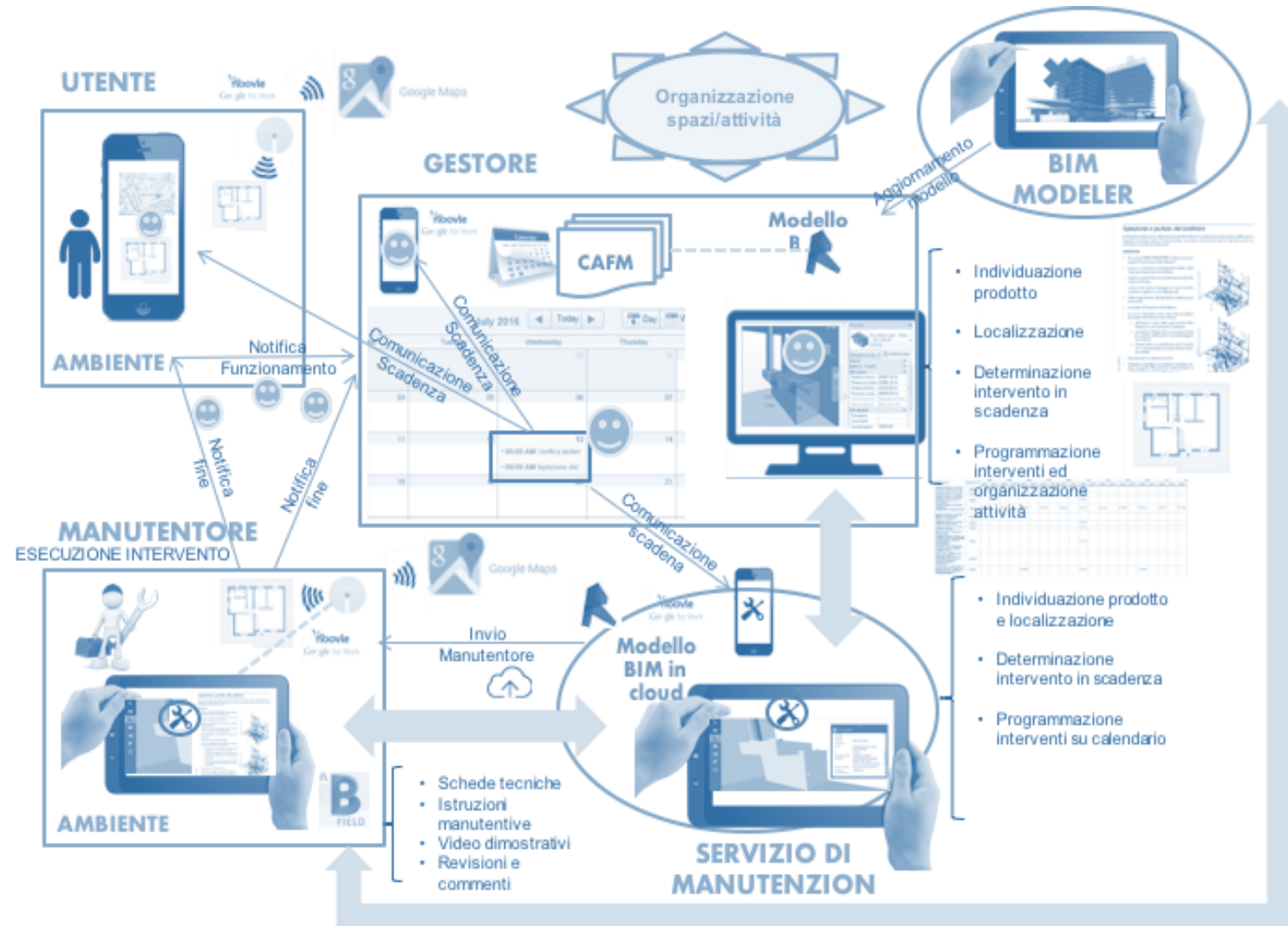


manutenzione a guasto



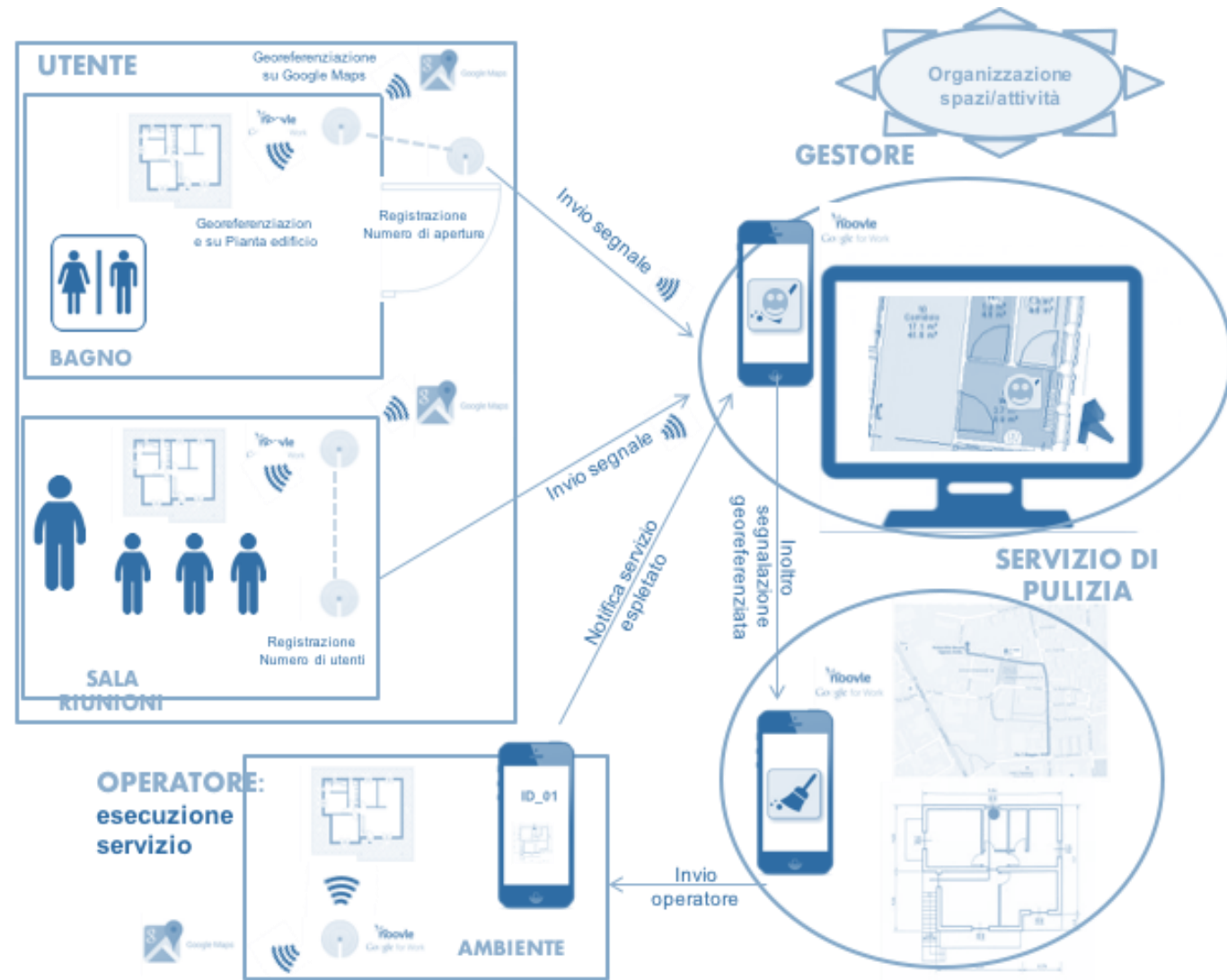
manutenzione programmata

- SCENARIO 1 INTERVENTO SU RICHIESTA
- SCENARIO 2 MANUTENZIONI PROGRAMMATE
- SCENARIO 3 SERVIZI NO CORE



gestione corrente

- SCENARIO 1 INTERVENTO SU RICHIESTA
- SCENARIO 2 MANUTENZIONI PROGRAMMATE
- SCENARIO 3 SERVIZI NO CORE



grazie

Claudio Mirarchi

Politecnico di Milano

PhD Candidate

Claudio.mirarchi@polimi.it

office:

via ponzio, 31

20123 milano (ITA)

<http://www.polimi.it>

Mobile +39 3387147061

Tel. +39 02 2399 6500

Fax +39 02 2399 6020

Alberto Pavan

Politecnico di Milano

research fellow

alberto.pavan@polimi.it

office:

via ponzio, 31

20123 milano (ITA)

<http://www.polimi.it>

Mobile +39 3474530437

Tel. +39 02 2399 6500

Fax +39 02 2399 6020

Alberto Pavan

BAEC engineering

senior partner

alberto.pavan@baec.it

office:

p.zza lima, 3

20124 milano, (ITA)

<http://www.baec.it>

Mobile +39 3474530437

Tel. +39 02 202499 65

Fax +39 02 202499 69