

30 Novembre 2012, Green City Energy On The Sea, Genova  
'Progettazione integrata: intelligent green building'



Giuseppe Dibari, Head of Sustainability – Deerns Italia SpA

Parte 1

Deerns Group

Parte 2

Il nostro ruolo

Parte 3

Un cambiamento di paradigma

Parte 4

Progettazione integrata: intelligent green building



Parte 1  
Deerns Group

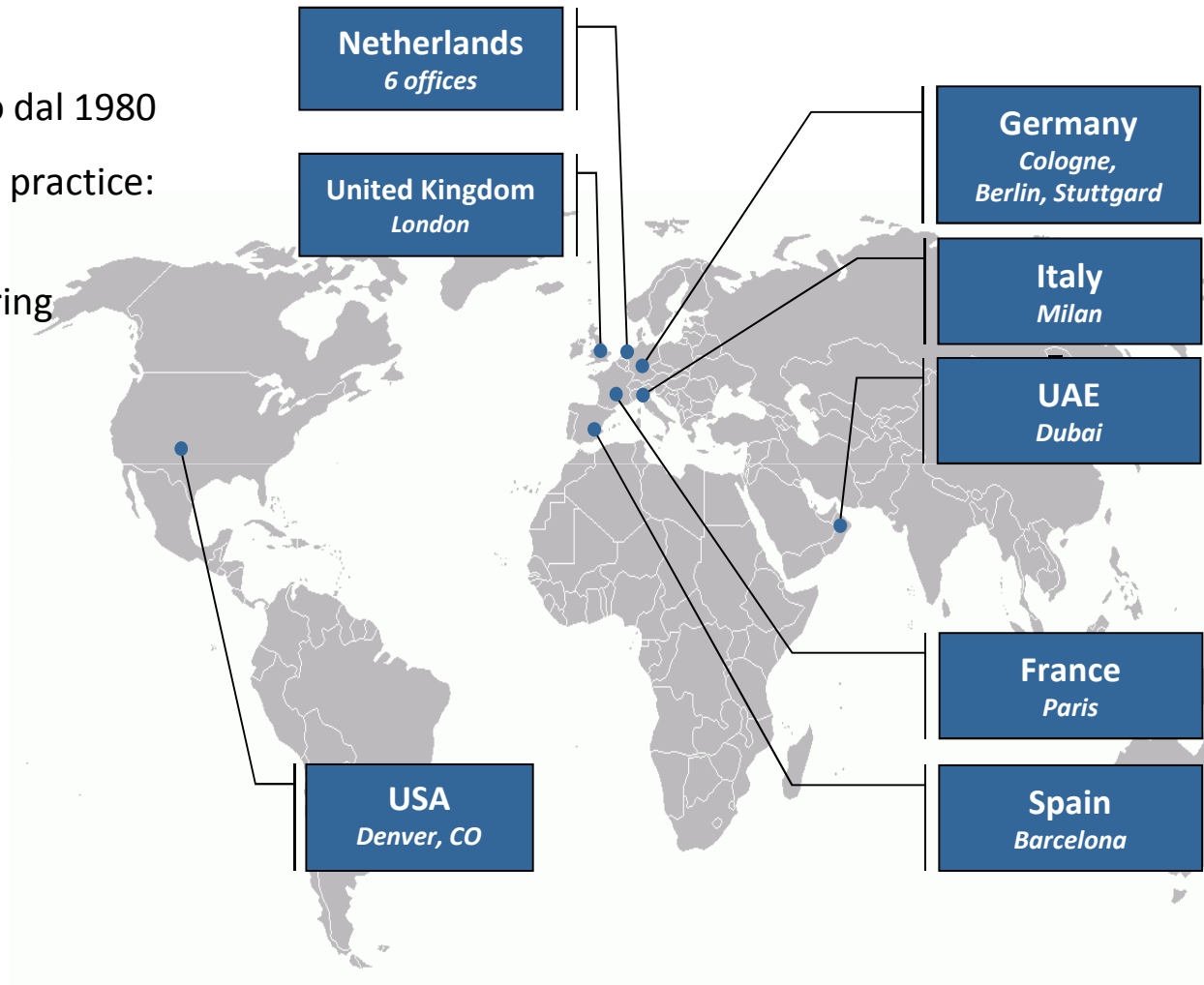
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- Fondata in Olanda nel 1928
- Presente sul mercato italiano dal 1980
- Multidisciplinary consultancy practice:
  - M&E Engineering
  - Fire Strategy & Engineering
  - Sustainability & Energy
  - Acoustics
  - Health & Safety
  - Vertical transportation
  - Data Centres
  - Airports
  - Hospital
- 15 Uffici
- 600 Professionisti





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# ... perchè una engineering practice?

## Evoluzione del Real Estate Property

## Real Estate - Facts and figures

## UK BS Industry - Fact and figures

## da 'Services' a 'Sustainability Engineer'

- **Costruzione e tecnologia:** da edificio 'massivo' a struttura leggera caratterizzata da un'importante integrazione IT ed elevati carichi interni
- **Edificio intelligente:** non carico di tecnologia ma di rapida risposta, efficace e semplice da usare
- **Produttività e utenti:** Comfort utenti, disponibilità 24/7, 'enabling resource'.
- **Corporate marketing tool:** CSR, sale and rent

■ Circa il **50% del consumo** di energia è correlato all'Industria delle Costruzioni (considerando tutte le tipologie edilizie, costruzione ed esercizio) <sup>(1)</sup>

■ Circa il **40%** delle emissioni di gas-serra sono correlate agli edifici (condizionamento, illuminazione, impianti in generale) <sup>(2)</sup>.

■ circa **2% UK PIL**

■ circa **250.000 impiegati**

■ circa **18.500 professional** member of (CIBSE) Chartered Institution of Building Services Engineers.

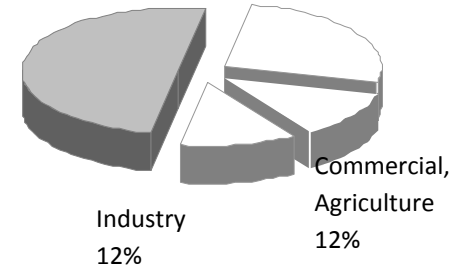
■ incidenza impianti di un edificio commerciale tra 30-60% del costi di riqualificazione <sup>(3)</sup>.

'[...] The hardware vision of services is changing as the building services engineer works more closely with the architect influencing about planning, orientation, space and building envelope and is more concerned with building environmental engineering or architectural engineering [...] <sup>(3)</sup> .

**FONTE:** (1) Zimmermann, Althaus, Haas(2005), (2) IPD Environment Code (2008), (3) Clements-Croome (2002)

**Buildings  
50%**

**Transportation  
26%**



**Oval Tower, Amsterdam**

Versatile  
Ingegnere  
Environmental Scientist  
Building Physicist  
Architetto  
Visionario

da 'Impiantista' a 'Ingegnere della sostenibilità'

'[...] The hardware vision of services is changing as the building services engineer works more closely with the architect influencing about planning, orientation, space and building envelope and is more concerned with building environmental engineering or architectural engineering [...]' <sup>(3)</sup> .



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building



- Automated & informed buildings (1980-1985)

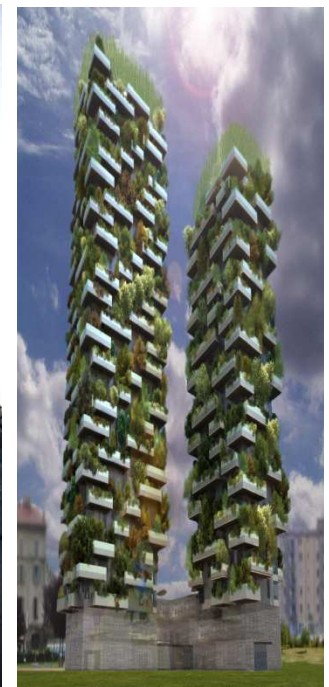
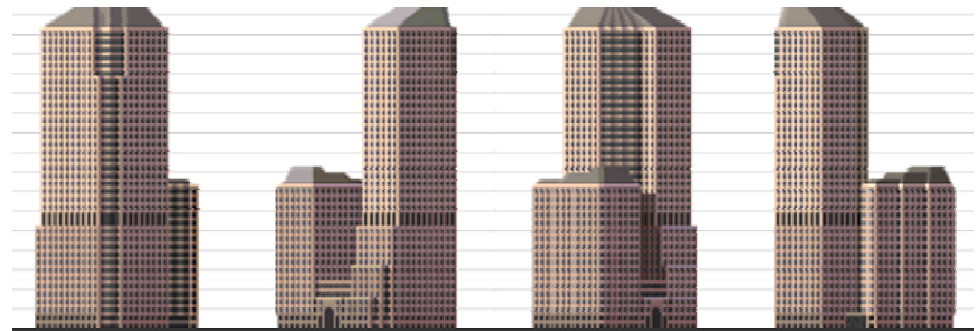
Buildings which offered highly sophisticated information and communication facilities

- Responsive buildings (1986-1991)

Buildings which responded to user requirements at a number of levels

- Effective buildings (from 1992)

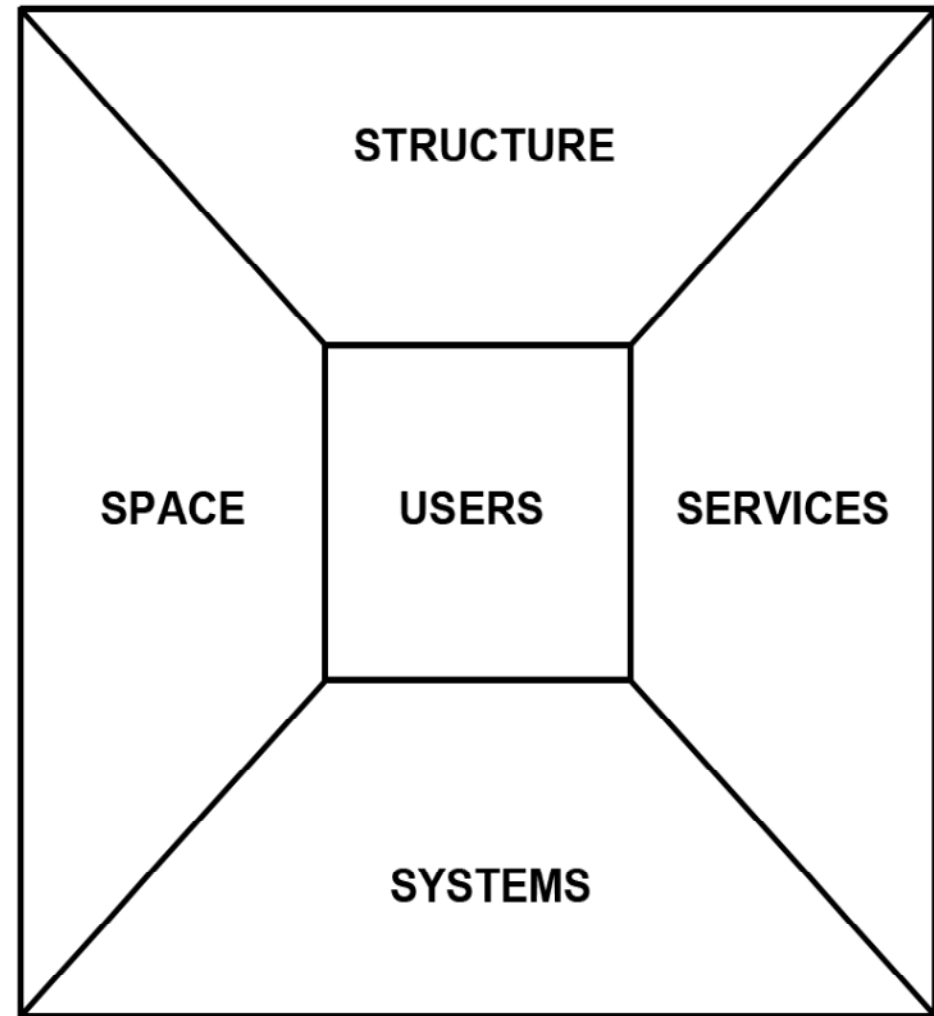
Buildings which provide a responsive, effective and supportive environment within which the organisation can achieve its business objectives



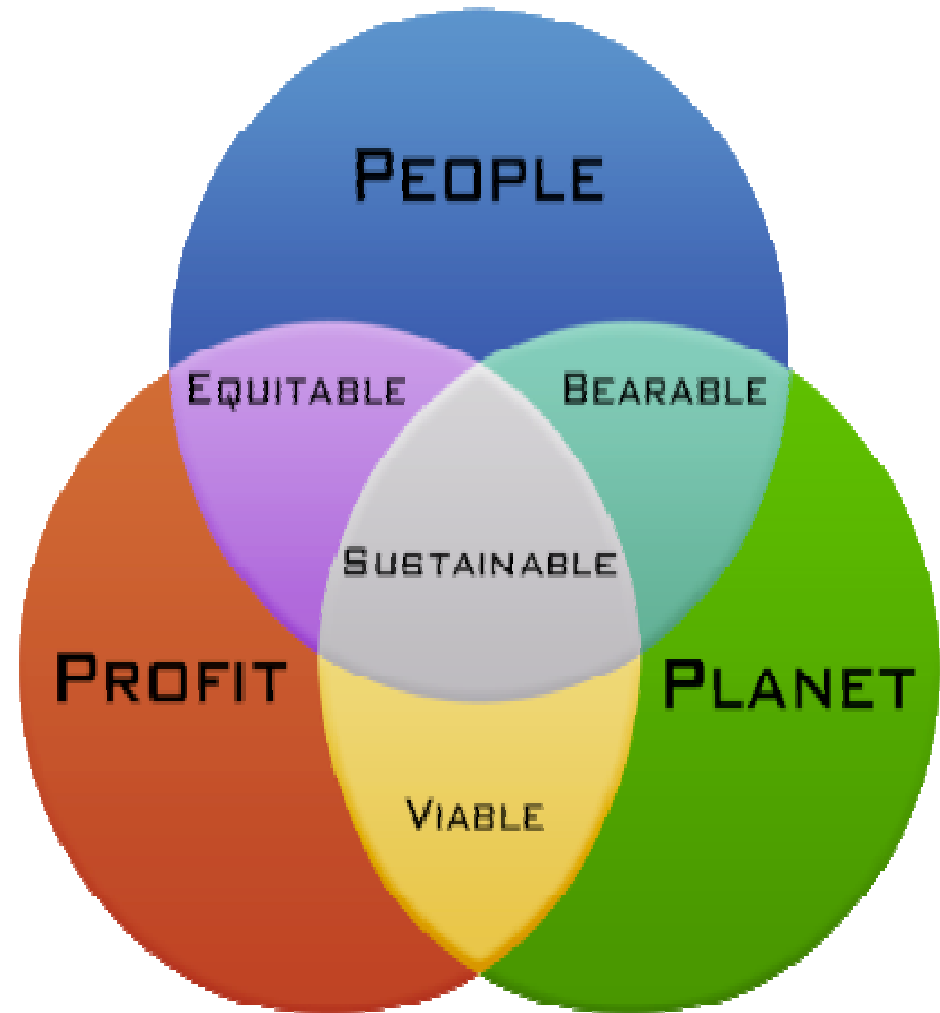
- Intelligent organization to get the most from intelligent buildings

An organisation to understand the importance of managing buildings strategically, integrating its buildings strategy closely to its business and organisational strategies having the knowledge and the skills available to manage its building services, information services, space management and building structures in a professional and integrated manner.

... make the best use of available information to improve performance and increase value.



- Reducing energy consumption
- Applying the “passive intelligence”
- Improving “sustainability”



*An **intelligent building** is one that is **responsive** to the requirements of occupants, organisations and society. It is **sustainable** in terms of energy and water consumptions besides being lowly polluting in terms of emissions and waste: **healthy** in terms of well-being for the people living and working within it; and **functional** according to the user needs'.*

**SOURCE:** Clements Croome 2009

- Città digitale (2000)

Enfasi sulle infrastrutture tecnologiche

- Città 'Sense & Respond'

Spazio urbano diretto da una politica efficace, in grado di comunicare con i cittadini, di accoglierli attraverso una rete capillare di servizi e di operare in maniera sostenibile attraverso una governance partecipata e una strategia coerente con l'uso delle tecnologie più avanzate.



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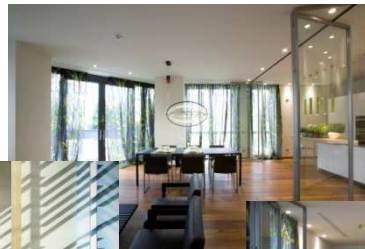








- Energia e Sostenibilità: La certificazione LEED
- Sistemi centralizzati ad alta efficienza (acqua di falda, pompe di calore, pannelli fotovoltaici, etc)
- Sistemi di automazione e controllo (BMS e home automation)





## Leadership in Energy and Environmental Design

A leading-edge system  
for certifying the  
greenest performing  
buildings in the world

© U.S. Green Building Council, 2008



## LEED NC v.3.0 – Livelli di certificazione

Platinum 80-100 points

Gold 60-79 points

Silver 50-59 points

Certified 40-49 points



## Energy & Atmosphere

**SSp1** - Fundamental Commissioning of the Building Energy Systems

**SSp2** - Minimum Energy Performance

**SSp3** - Fundamental Refrigerant Management

**EAc1** - **Optimize Energy Performance**

**EAc2** - On-site Renewable Energy

**EAc3** - Enhanced Commissioning

**EAc4** - Enhanced Refrigerant Management

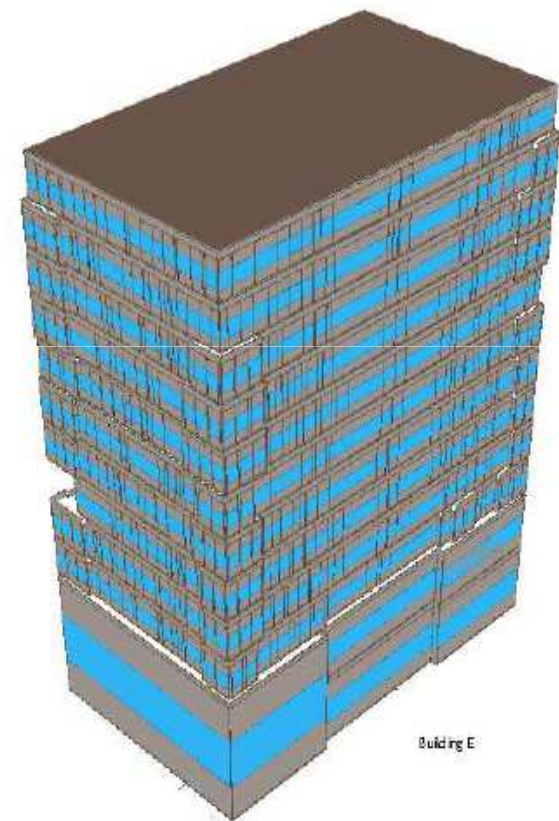
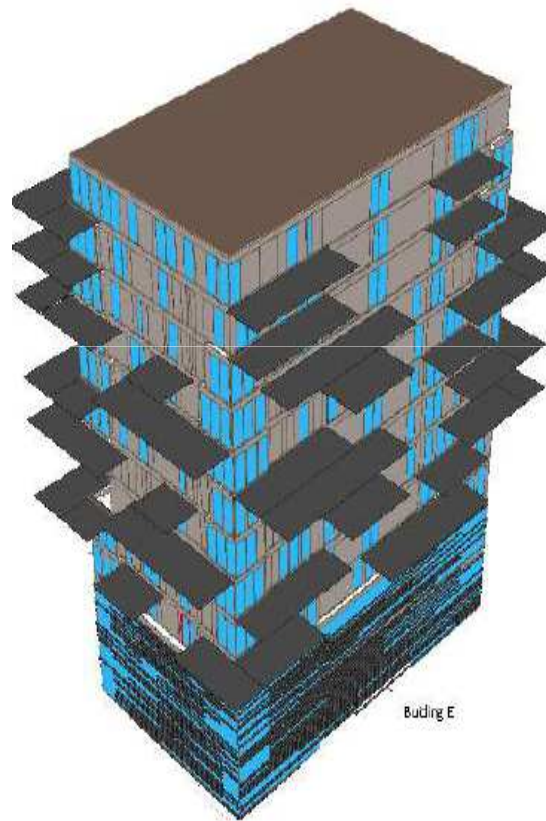
**EAc5** - Measurement and Verification

**EAc6** - Green Power



## Energy & Atmosphere

### EAc1 - Optimize Energy Performance



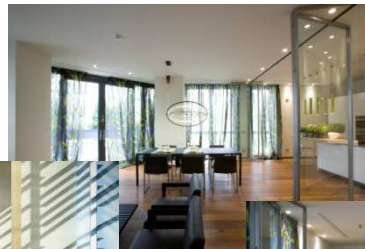
## Indoor Environmental Quality

- EQp1** - Minimum IAQ Performance
- EQp2** - Environmental Tobacco Smoke (ETS) Control
- EQc1** - Outdoor Air Delivery Monitoring
- EQc2** - Increased Ventilation
- EQc3** - Construction IAQ Management Plan
- EQc4** - Low-Emitting Materials
- EQc5** - Indoor Chemical and Pollutant Source Control
- EQc6 - Controllability of Systems**
- EQc7 - Thermal Comfort**
- EQc8** - Daylight and Views





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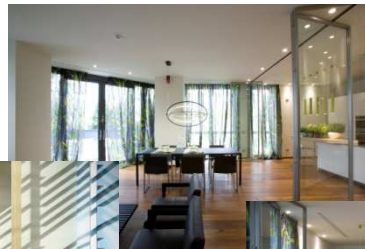
## RESIDENZE PORTA NUOVA ISOLA

- Impianti HVAC (riscaldamento, condizionamento e aria primaria) centralizzati
- Utilizzo diffuso dell'acqua di falda e pompe di calore a recupero totale, per produzione acqua calda/refrigerata e acqua calda sanitaria
- Utilizzo di fonti energia rinnovabile (fotovoltaico e pompe di calore condensata ad acqua di falda)
- Utilizzo di pannelli radianti, recuperatori di calore ad alta efficienza, free cooling centralizzato)
- Impianti elettrici e speciali (domotica nelle residenze)
- Integrazione, controllo in locale e remoto

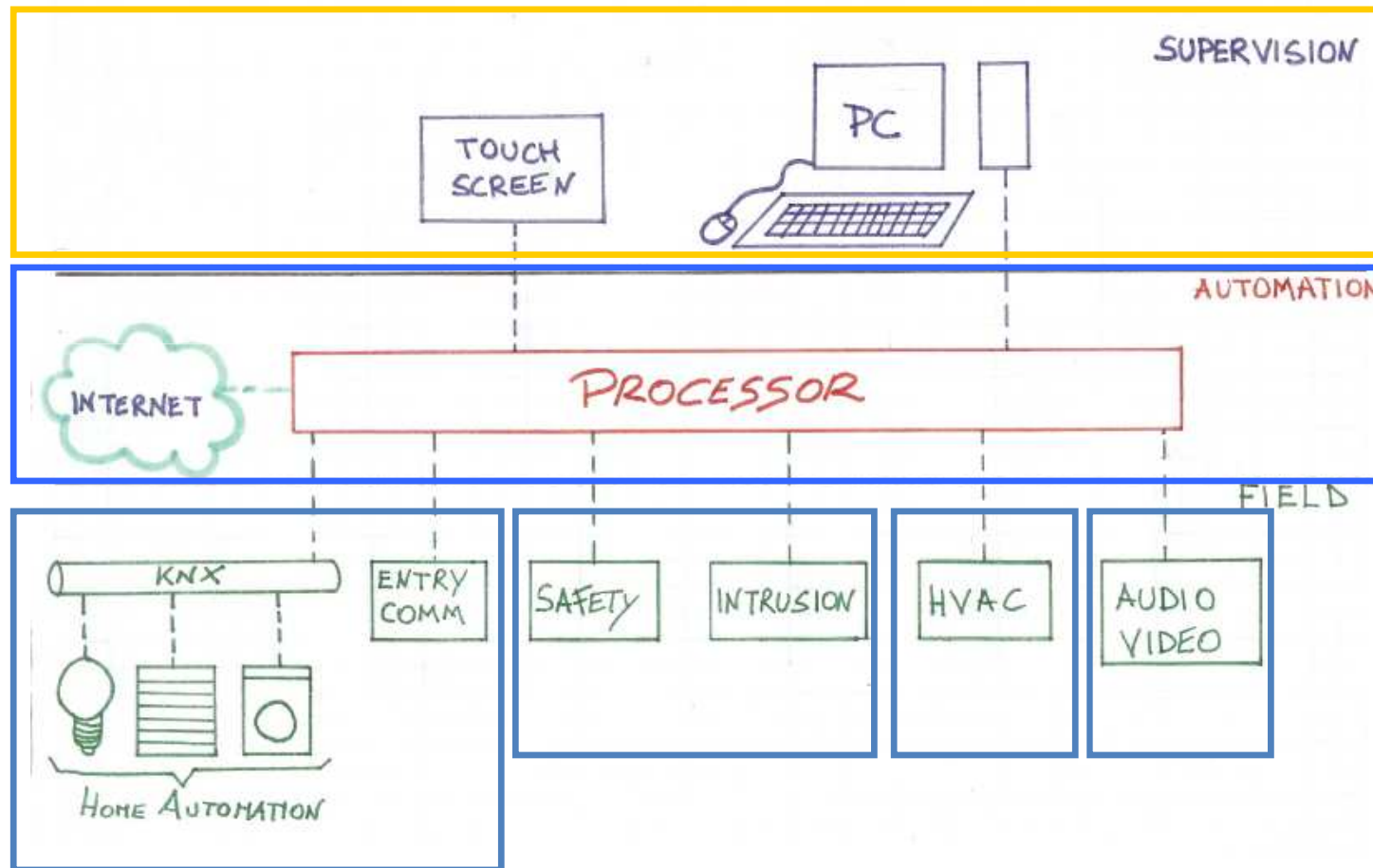




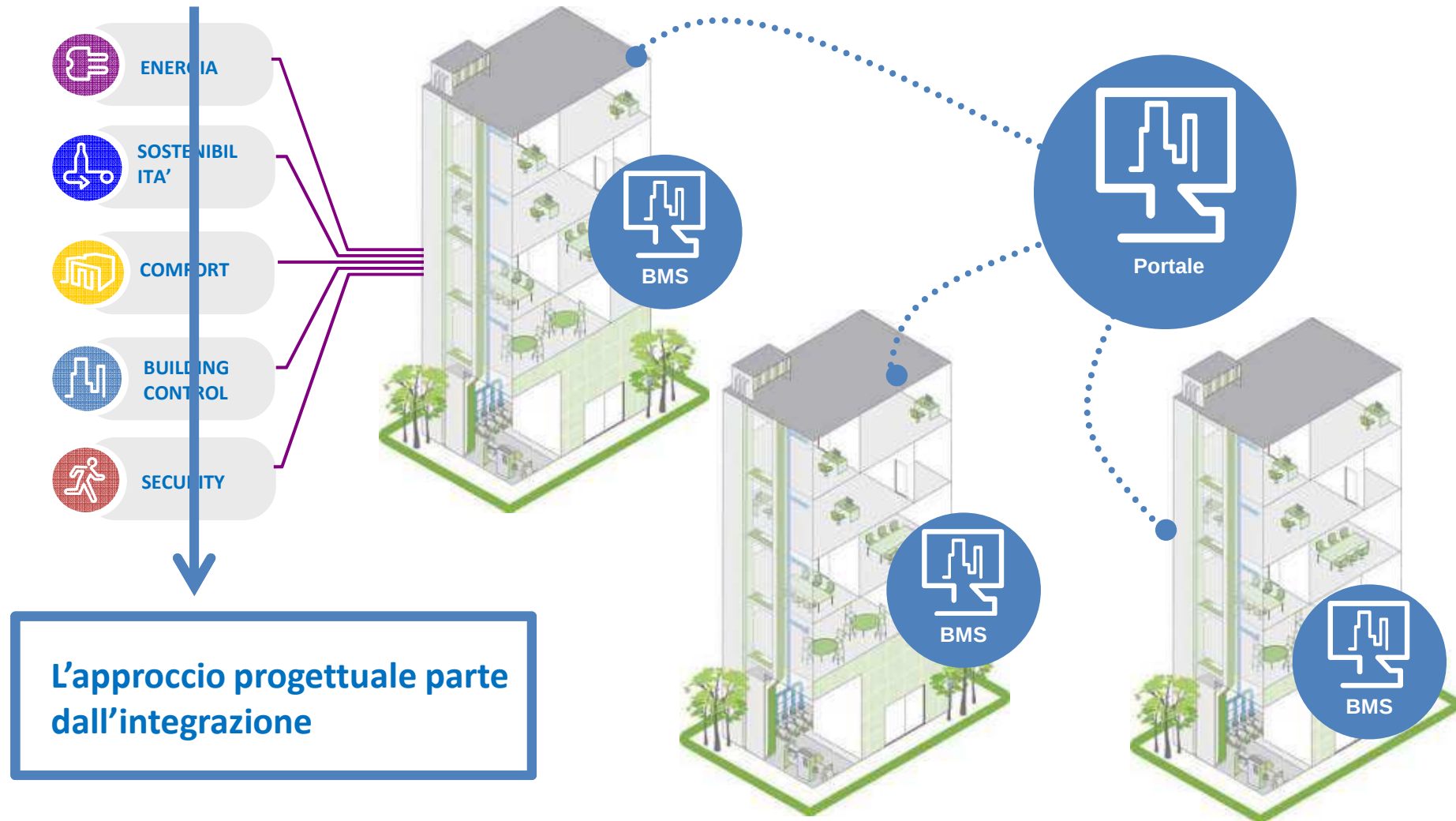
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## SISTEMI DI CONTROLLO E GESTIONE



## INTEGRAZIONE



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