

# The dynamic role of buildings in the energy system

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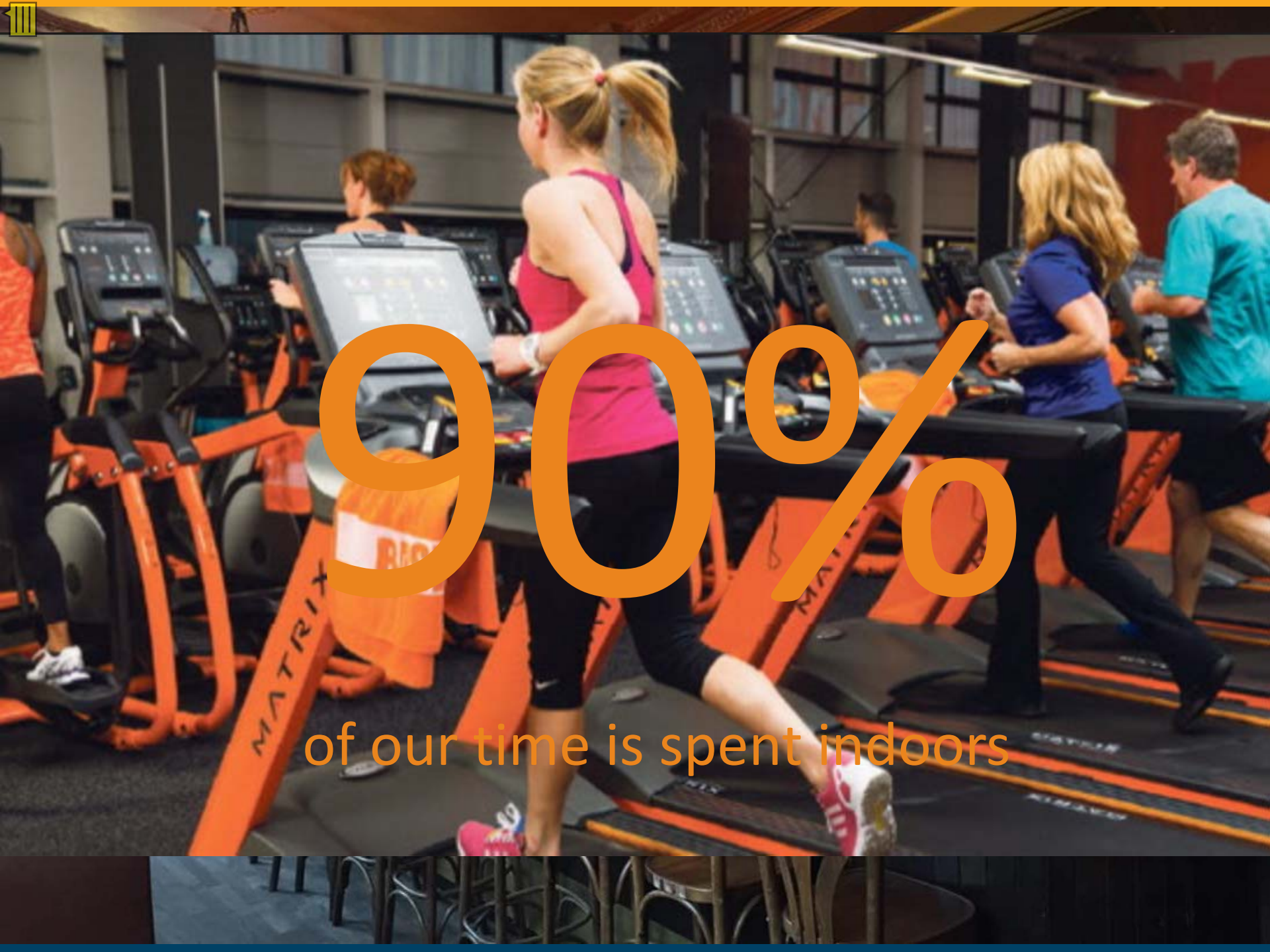
Buildings Performance Institute Europe

*7th REGIONAL ENERGY CONFERENCE*

*14th November 2017*

*Sofia, Bulgaria*





90%

of our time is spent indoors







# SMART BUILDINGS IN A DECARBONISED ENERGY SYSTEM

# IS EUROPE READY FOR THE SMART BUILDING REVOLUTION?

# OPENING THE DOOR TO SMART BUILDINGS

# SMART BUILDINGS DECODED

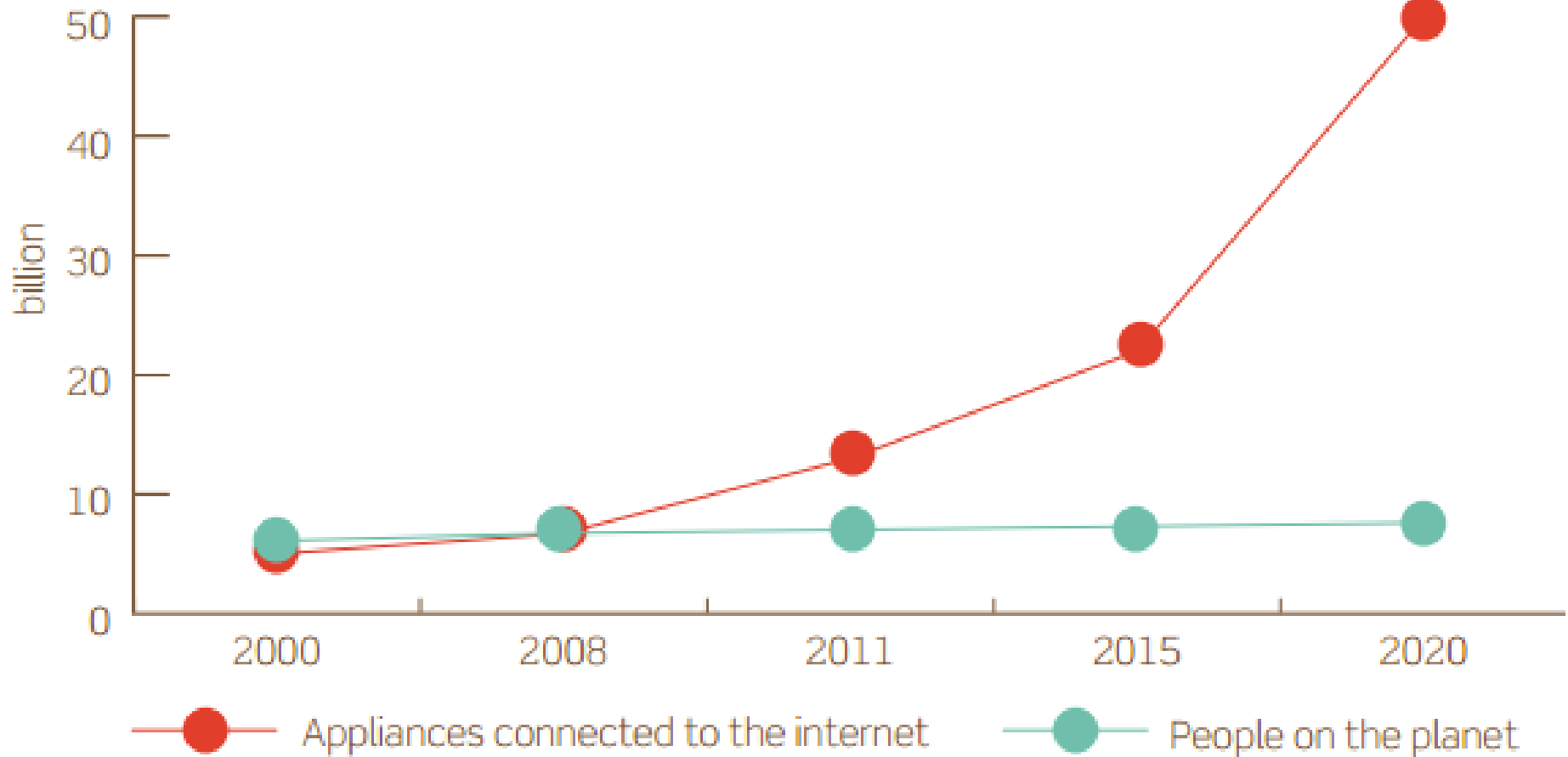
DRIVING THE TRANSITION WITH EU DIRECTIVES

THE CONCEPT BEYOND THE BUZZWORD



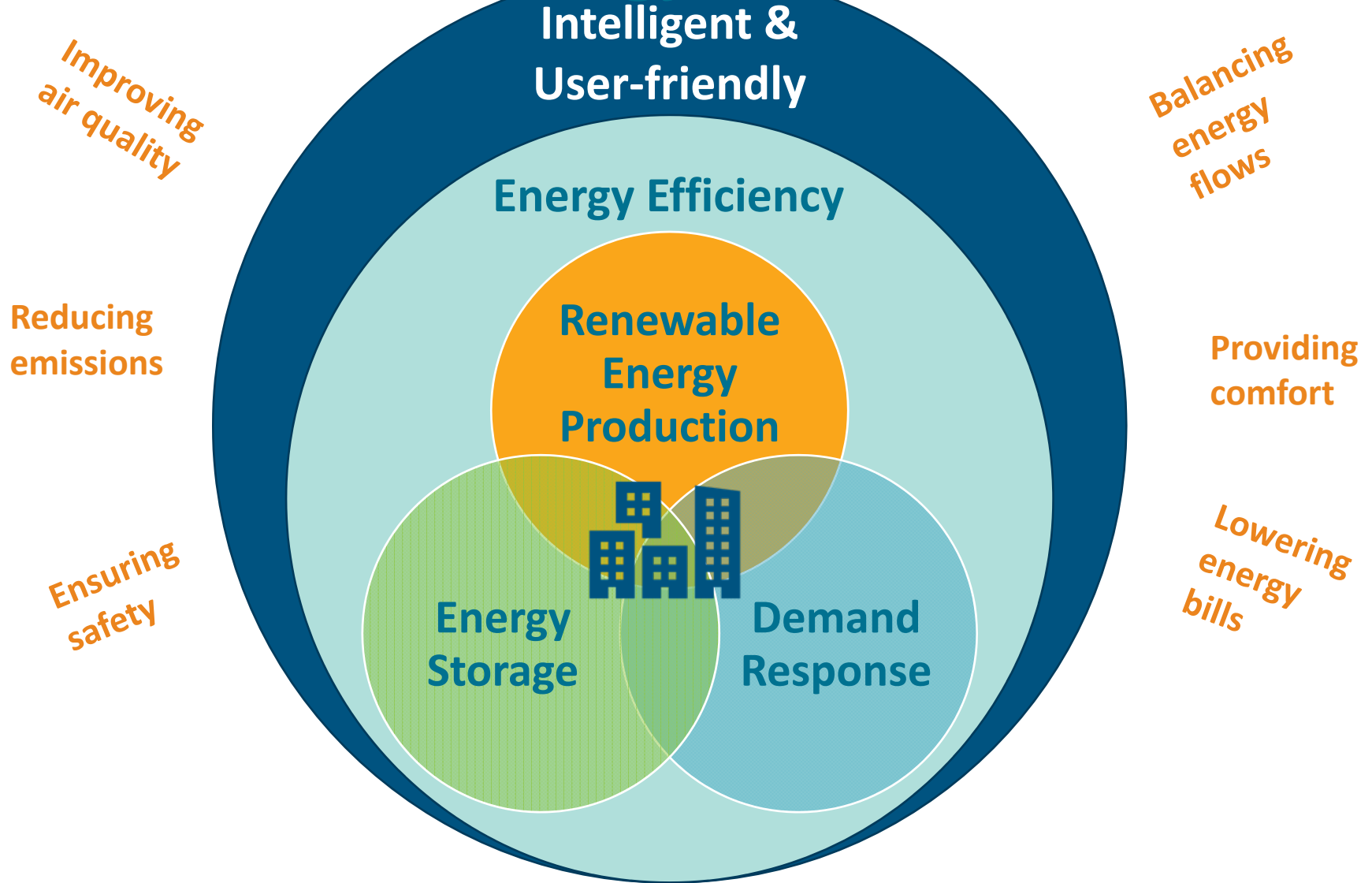


# Explosion of IoT and smart technologies





# Buildings are becoming micro-energy hubs



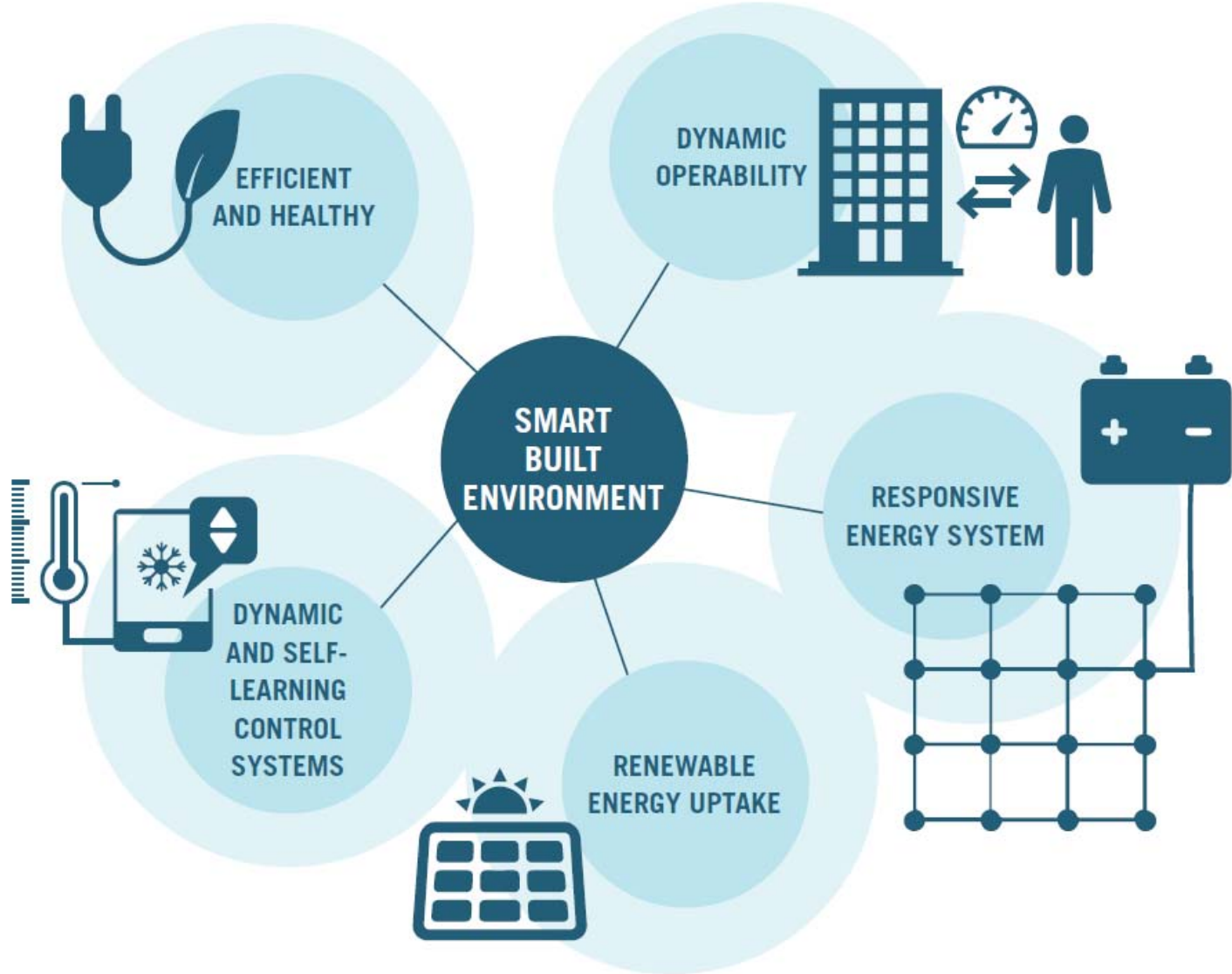
# A smart building is...



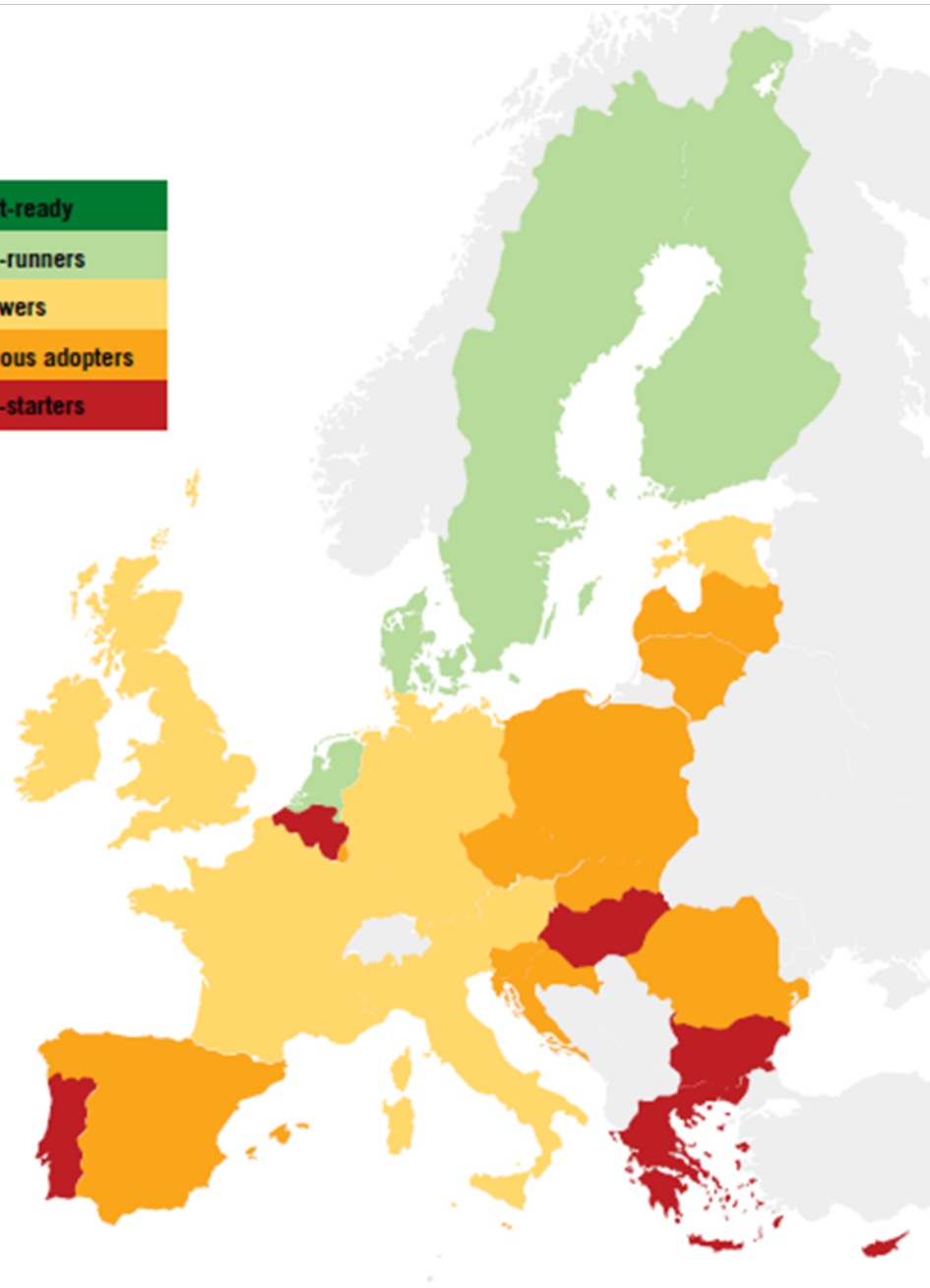
- *highly energy efficient*
- covers its very low energy demand to a large extent by on-site or district-system-driven *renewable energy sources*
- stabilises and drives a faster *decarbonisation* of the energy system through *energy storage* and *demand-side flexibility*
- *empowers its users and occupants* with control over the energy flows
- recognises and reacts to *users' and occupants' needs*



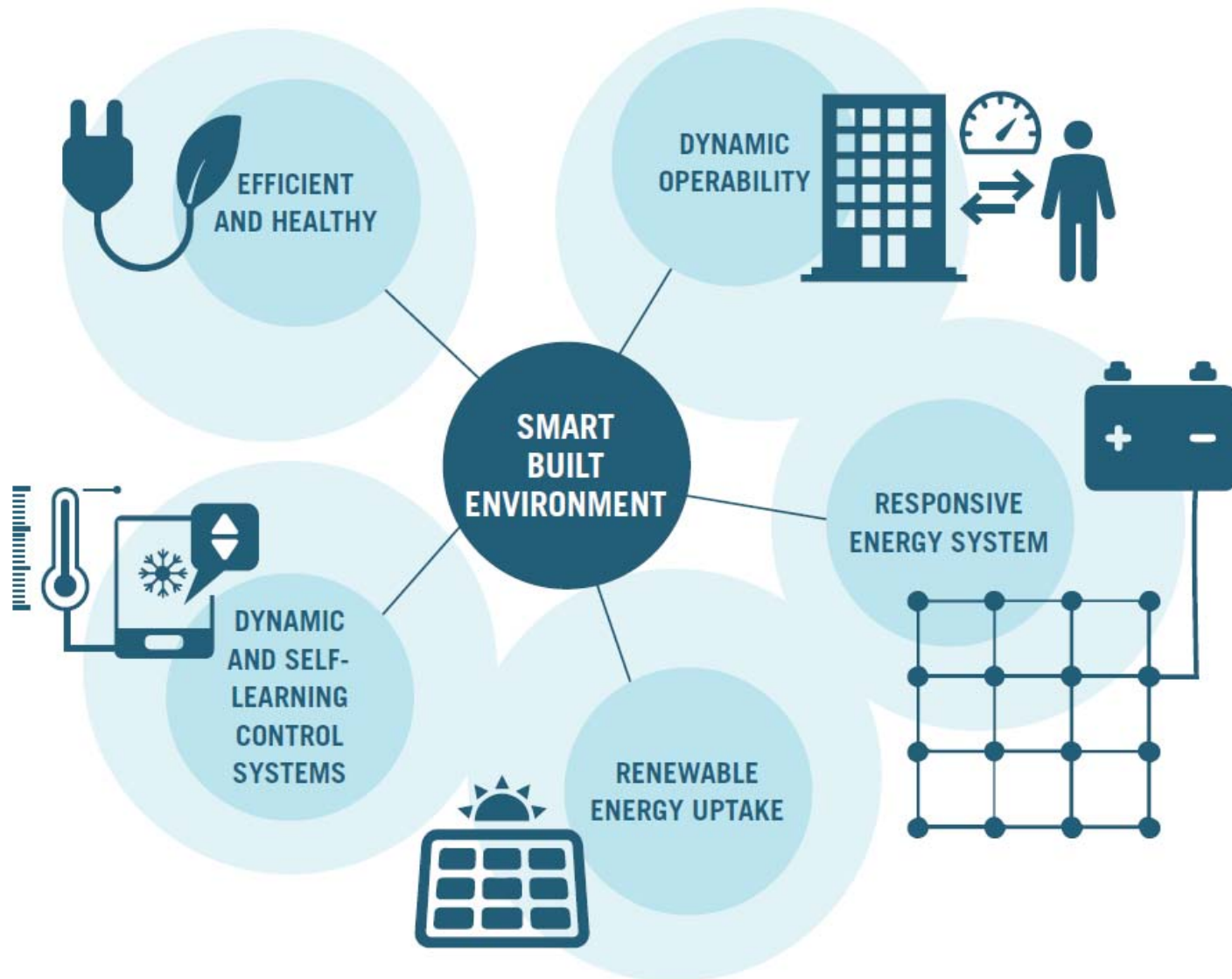
# Mapping a smart-ready built environment



*Smart-readiness*



# EU legislation plays an important role







# EU legislation plays an important role



Energy  
Efficiency  
Directive

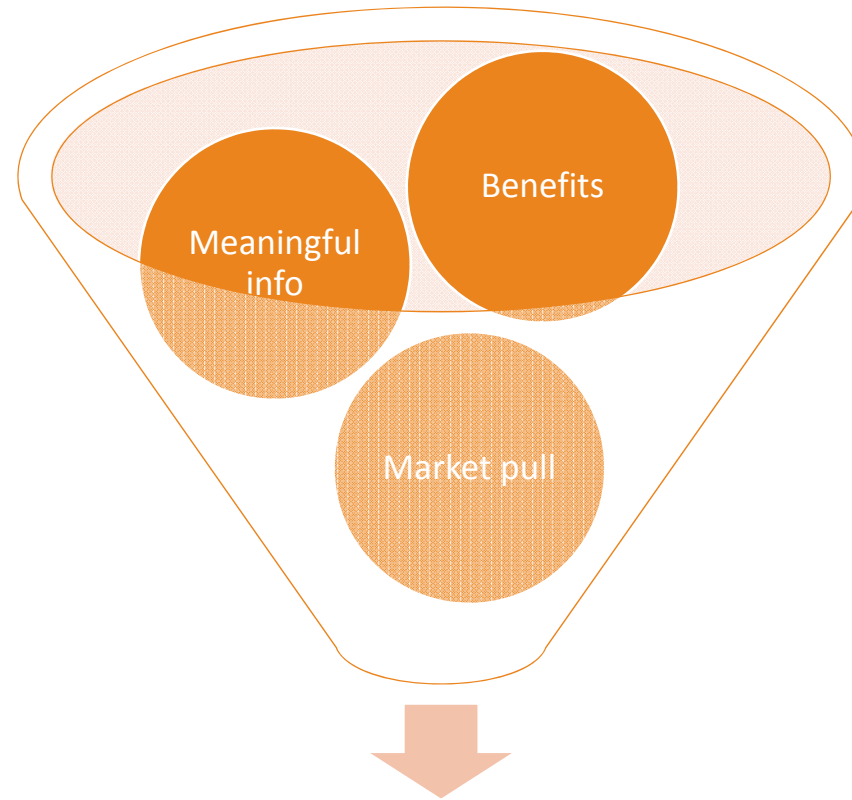
Energy  
Performance  
of Buildings

Renewable  
Energy  
Directive

Electricity  
Directive &  
Regulation



# Smartness indicator



**Effective indicator**



## FEATURES

### High building performance

- Reduction of energy demand
- Greater use of locally-produced renewable energy
- Healthy and comfortable indoor environment for occupants

### Dynamic operability

Empower occupants with control over the energy flows

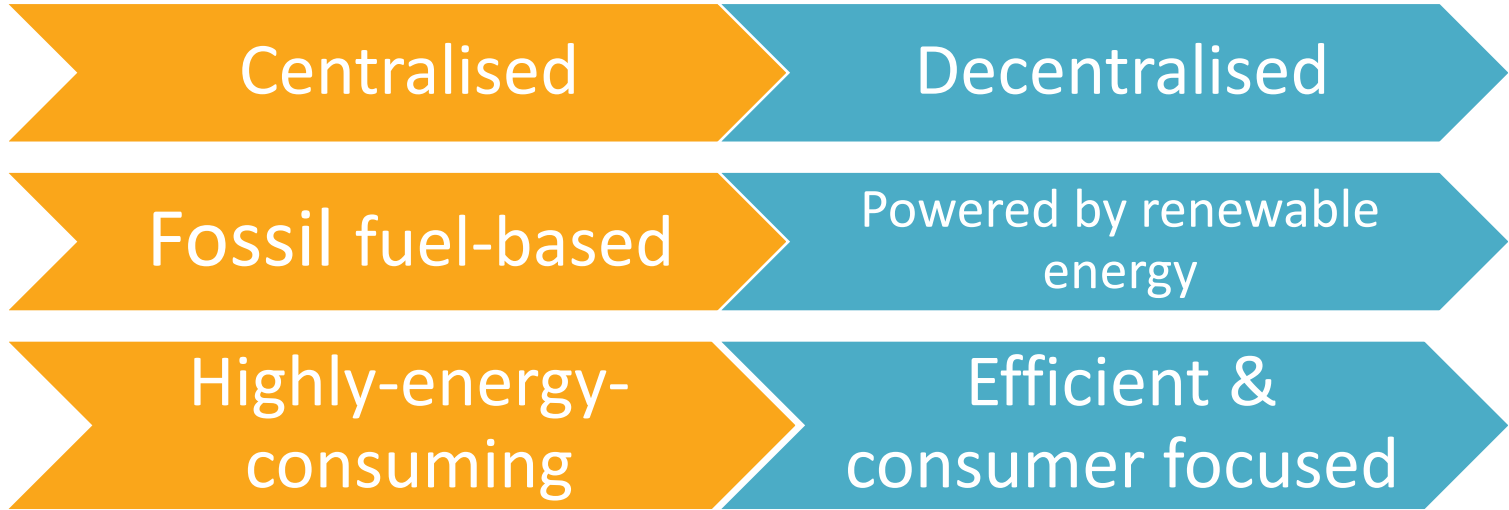
Enhance the ability to optimise comfort, indoor air quality, well-being and operational requirements

### Energy system responsiveness

Optimum operation of connected energy systems and district infrastructures



# Accelerate the smart and sustainable energy transition



# Smart Buildings empowering energy consumers

## From policy to real-world cases

21 November 2017

L42

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