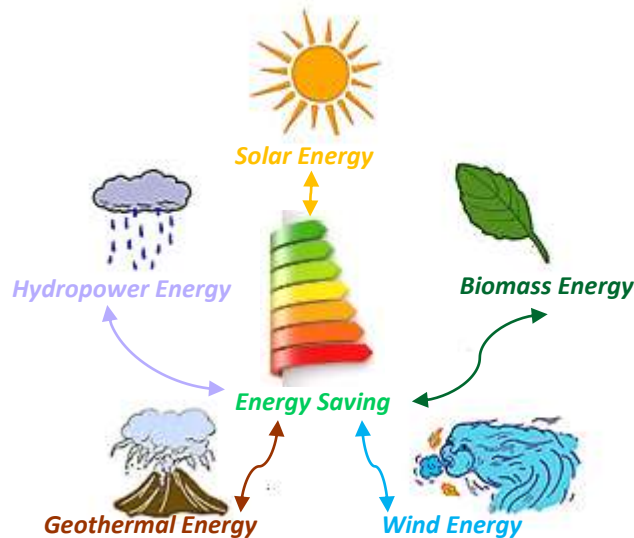




# How the building sector could unleash the *4<sup>th</sup> Industrial Revolution in Europe?*



[www.openexp.eu](http://www.openexp.eu)

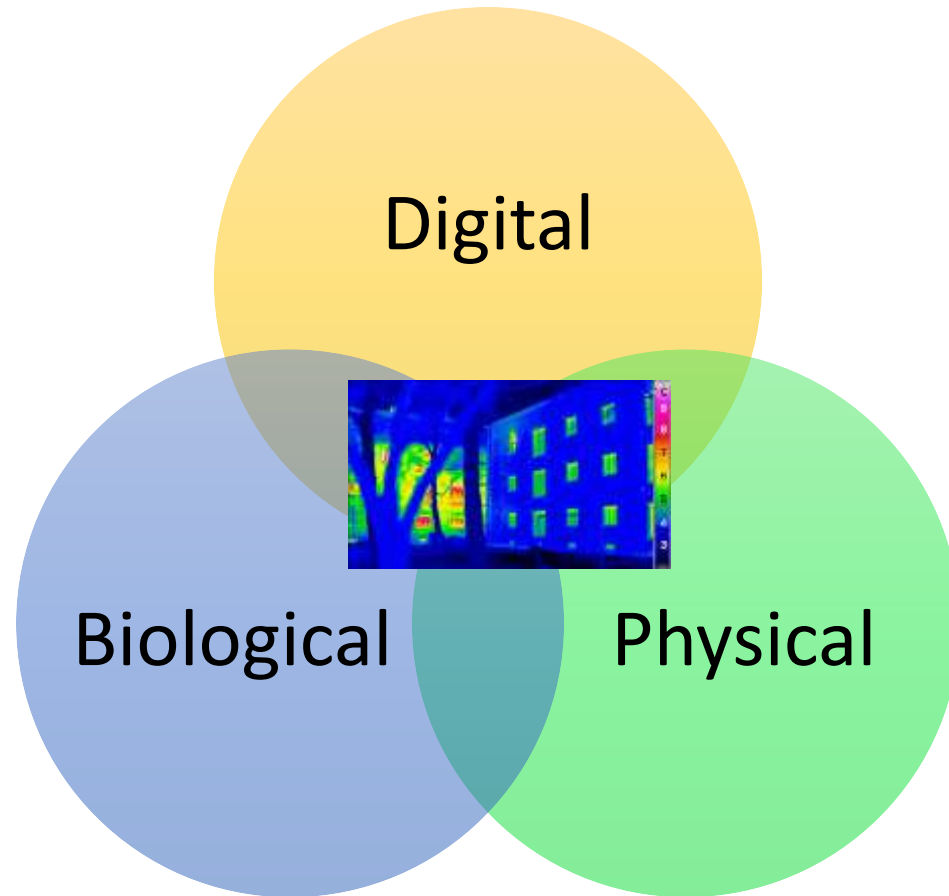
**Dr Yamina SAHEB**  
[Yamina.saheb@openexp.eu](mailto:Yamina.saheb@openexp.eu)

*Making the Negawatt  
dream a global reality*



@OpenexpEnergy

# Industry 4.0 = Digital + Biological + Physical



# Back to the fundamentals: Buildings need first to be comfortable and healthy



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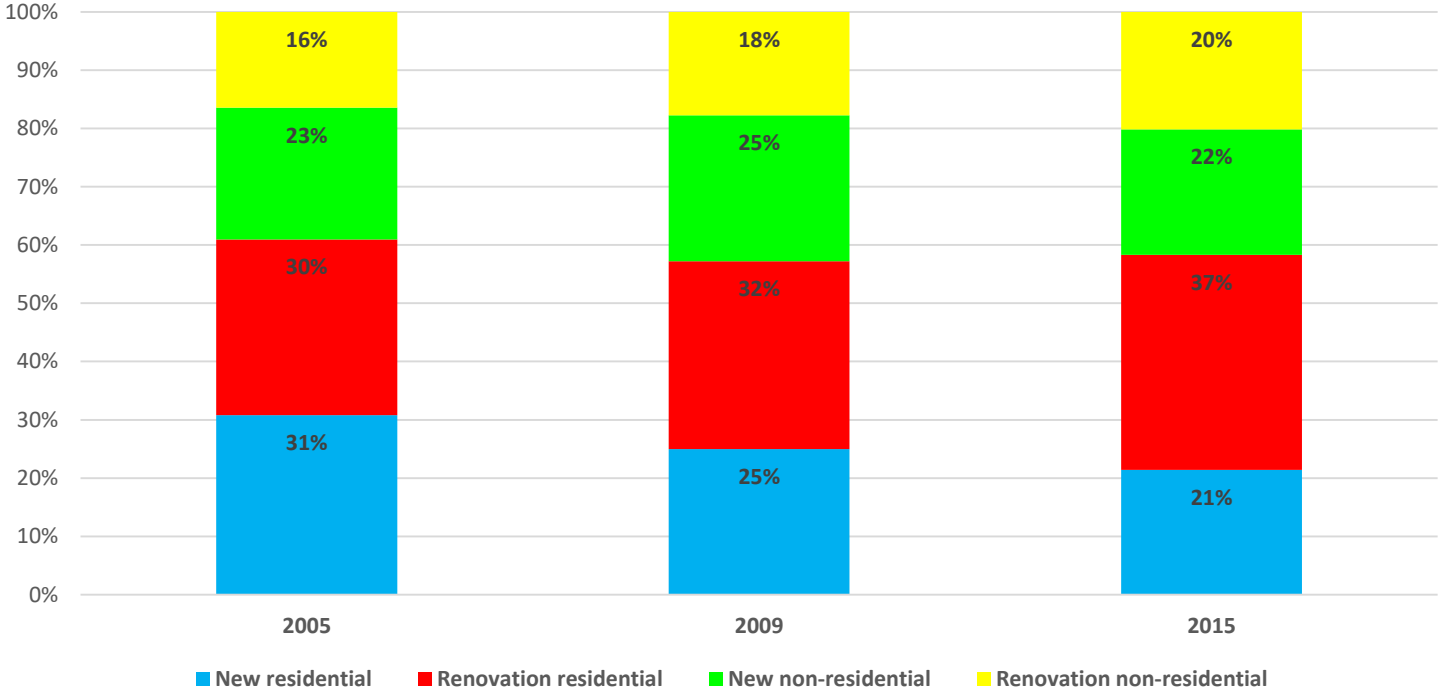
# The first fully 3D building opened in Dubai in May 2016



# Policy intervention has led to the emergence of an EU energy renovation market



## Market share of activities in the building sector



***The EU Energy Renovation Market is estimated at €109 billion and 882,900 jobs in 2015***



# At least 14 EU instruments include provisions aiming at energy renovation



## The fragmented policy “Diamond”

1. *Energy Performance Building Directive (EPBD)*
2. *Cost-optimum methodology regulation*
3. *Energy Efficiency Directive (EED)*
4. *Renewable Energy Directive (RED)*
5. *Ecodesign Directive*
6. *Labelling Directive*
7. *Emission Trading Scheme Directive (ETS)*
8. *Effort Sharing Decision (ESD)*
9. *Mechanism for Monitoring and Reporting (MMR)*
10. *Directive on Internal Market in Electricity (IME)*
11. *Directive on Internal Market in Gas (IMG)*
12. *State Aid Regulation*
13. *Multiannual Financial Framework (MMF)*
14. *Accounting rules (ESA)*



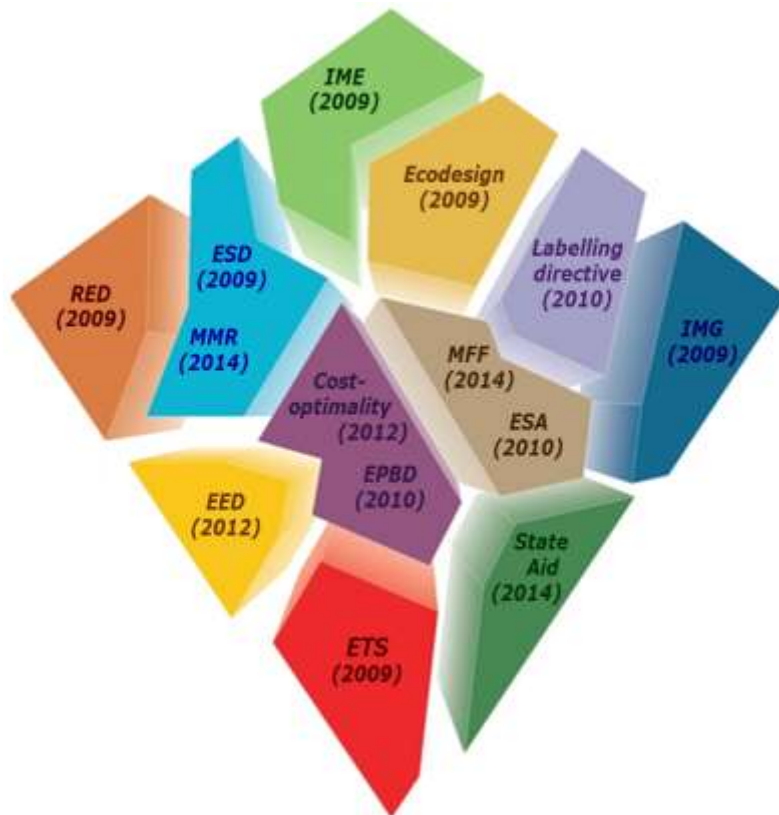
***The fragmentation of provisions aiming at energy renovation hinders the increase of the ambition level***



# The fragmentation of policy instruments matches well with the fragmentation of policy services and industry



The three levels of fragmentation (policy instruments, policy services and industry)



***A paradigm shift is needed in policy design, governance of energy renovation and the organisation of the industry and stakeholders to increase the ambition level***



# Industrialisation of energy renovation is needed to reduce renovation costs and accelerate the renovation pace



**Airbus A380  
company**

**A380 financial  
operations**

**A380  
Engineering**

**A380 Aircraft  
structure**



**Energy Renovation  
Facilitator**

**Risk sharing  
pool**

**Engineering &  
architecture  
firms**

**Cluster of energy  
renovation  
industries**





# The way forward

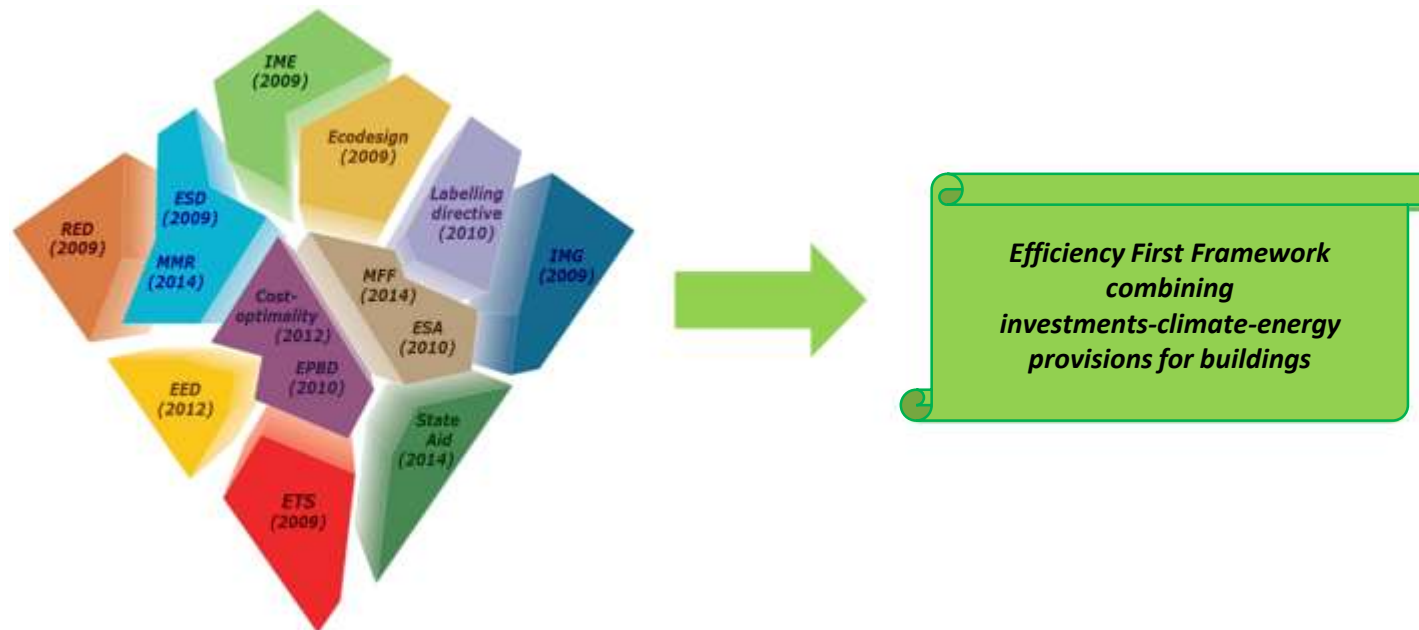


- 1. Efficiency First Framework for buildings: One single, streamlined investment framework which would include climate and energy requirements for buildings**
  - Clear target to transform EU buildings from being energy wasters to being highly energy efficient and energy producers each time a building is renovated
  - Carbon and energy savings targets for the overall stock by 2050 aligned with the Paris Climate Agreement
- 2. New governance structure:**
  - EU Energy Renovation Facilitator
  - EU Risk Sharing Facility
  - EU energy renovation industry (aggregators of components' industry)
- 3. Industrialisation of energy renovation:**
  - Moving from component-based energy renovation to Net Zero Energy Renovation Kits
  - Integration of buildings in the EU energy system
  - Digitalisation and use of new technologies





**Thank you for your attention**



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