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Calculation methods for single-sided natural ventilation - simplified or detailed?

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CLIMA 2016 – WS28 Cost-effective deep renovation of buildings
24.05.2016



DEEP ENERGY RENOVATION AND ONE-STOP-SHOP SOLUTIONS
FOR PRIVATE HOME OWNERS

Tine Steen Larsen, associate professor, Aalborg University

www.go-refurb.eu



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 649865

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About the project

- Inspire homeowners to carry out deep energy renovations
- Achieve 50-80% reduction in energy use
- Easy, economical and efficient
- Bridging demand and supply side
- One-Stop-Shop



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About the project

- Focus on 'deep renovation'
- Push the market of energy renovation in existing buildings even further
- The project builds on existing knowledge and best practice
- Is funded with 2 mio. € by Horizon2020



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13 partners in 6 EU countries

- Local authorities
- Local companies
- Knowledge institutions

From Belgium, the Netherlands, Germany, Slovenia, Estonia, Denmark

 **BAUVEREIN**
HALLE & LEUNA eG

 **bostoен**

 **Buurkracht**
SAMEN MET ENEKIS

 **CLEAN**
INNOVATING GREEN SOLUTIONS

 **LEIE DAL**

 **Gemeente Leeuwarden**

 **iSW**
Institut für Strukturpolitik und Wirtschaftsförderung
gemeinnützige Gesellschaft mbH

 **BSC**

 **TREA**
Region of Tartu

 **provinsje fryslân**
provincie fryslân

 **AALBORG UNIVERSITET**

 **vito**
vision on technology

 **RECTICEL**
insulation

 **ProjectZero**
Bright Green Business



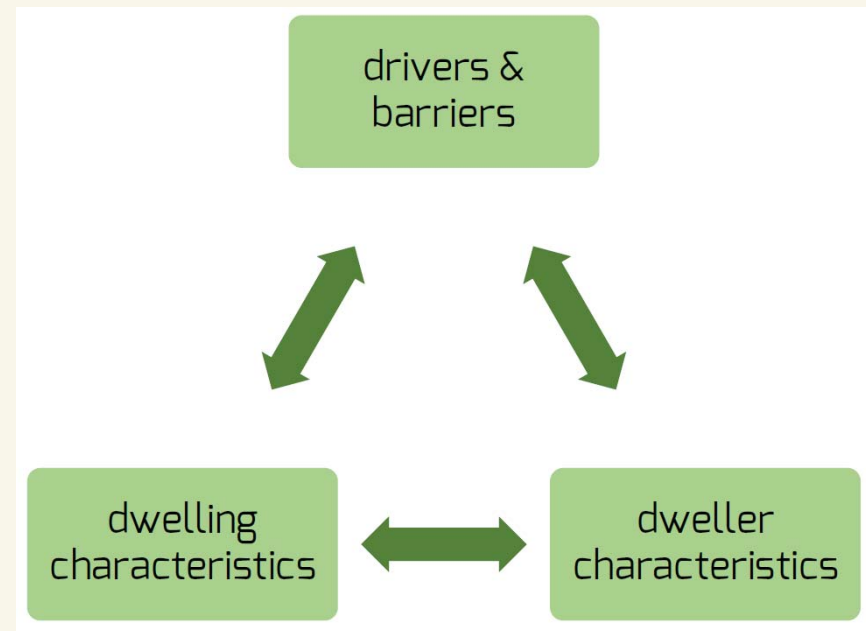
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 **refurb**

Drivers and barriers for deep renovation

Depend on

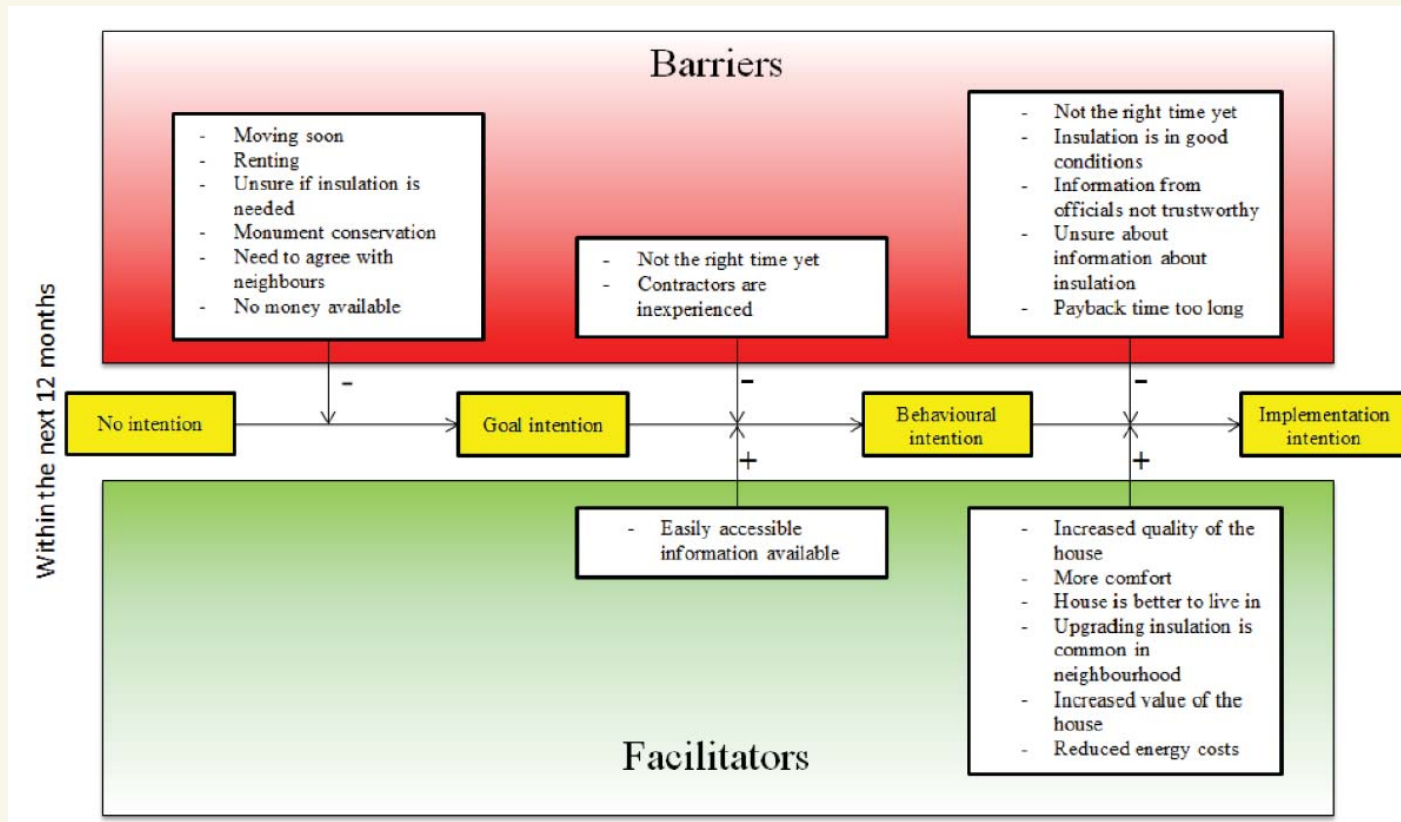
- The dweller (income, age, family pattern, young family, empty nesters, convinced energy savers, just moved in)
- The dwelling (type, condition, energy bill)



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Drivers & barriers in different stages of the decision making process



Source: Christian A. Klöckner, NTNU, Norway, 2013



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Technical drivers and barriers

Technical drivers and barriers are linked with the dwelling characteristics and the challenge to renovate to NZEB.

DRIVERS:

Urgency for renovation & lock-ins

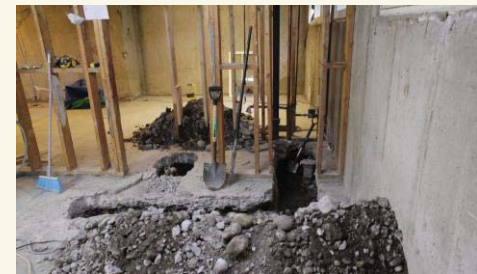
Availability of tailormade stepwise approach for NZEB-renovation

Inconveniences and defects in the house

BARRIERS:

Inconvenience linked to the renovation

Technical possibilities



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Financial drivers and barriers

Financial drivers and barriers are linked with the financial possibilities of the dweller and the cost of the NZEB-renovation.

DRIVERS:

Subsidies, financial incentives, etc.

Energy bill

Return on investment

BARRIERS:

Feel secure about investment

Cost for NZEB-renovation

BOTH:

Availability of financial possibilities to invest

Willingness to invest in energy efficiency / competing products



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Social and behavioural drivers and barriers

Social and behavioral drivers and barriers are linked with the decision making process of the dweller.

DRIVERS:

Renovation needs & intentions: increase comfort level, cosiness, personalization, taste, adjust architectural concept...

Advice, unburdening & guidance

Awareness of energy saving potential

Accurate, reliable & tailor-made information

General knowledge level

Neighbourhood action, group action

BARRIERS:

Decision making, self-reliance & empowerment

BOTH:

Momentums for renovation (why now?)

Availability of time to manage renovation project



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DEMAND ↔ SUPPLY

- Bridging demand and supply side
- Mapping of the supply side
- Mapping all the different technical solutions that fit consumer needs



One-stop-shop concept



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One-stop-shop concept

Holistic approach to the renovation process by combining **technology combinations** and **improved communication** between the house-owner and the supplier

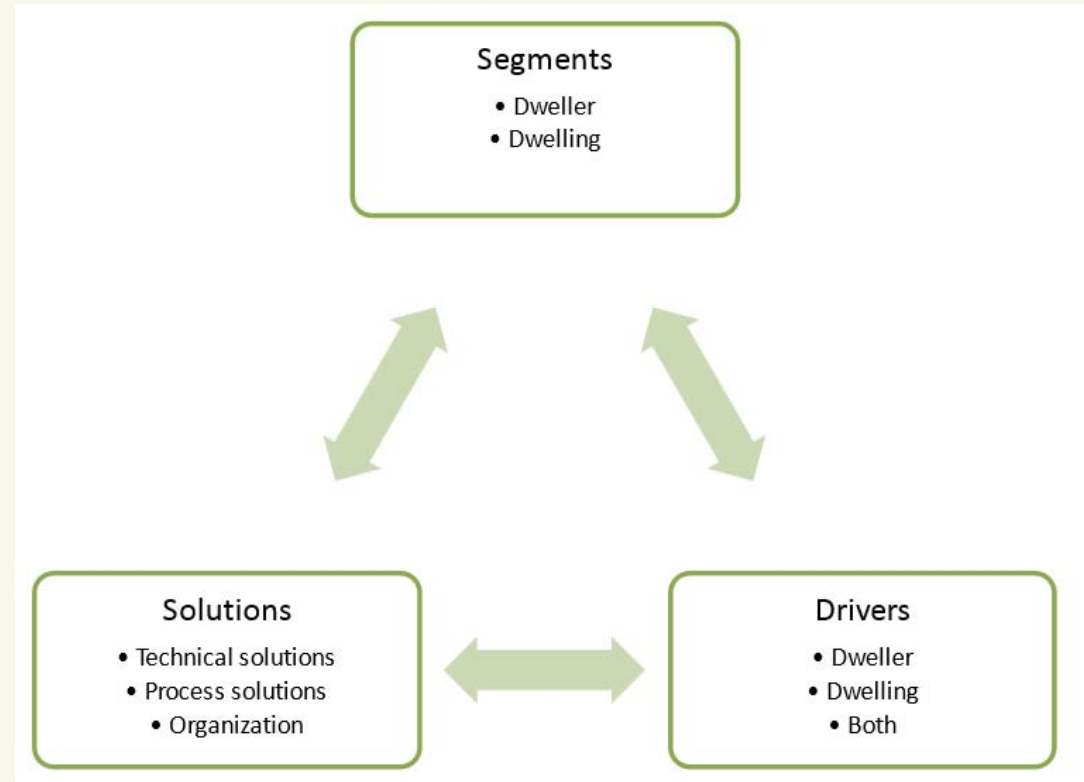
- Local partnerships
- Local energy solutions
- Closeness to consumers in the participating countries
- Simplifies the possibilities and gives an overview
- Prioritizes the investment
- Provides a compelling offer



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Tailormade solutions



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”
Best case examples from 6 EU countries
will inspire home owners to take action



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<http://go-refurb.eu/>

deep home energy renovation exceeding borders and regions



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