

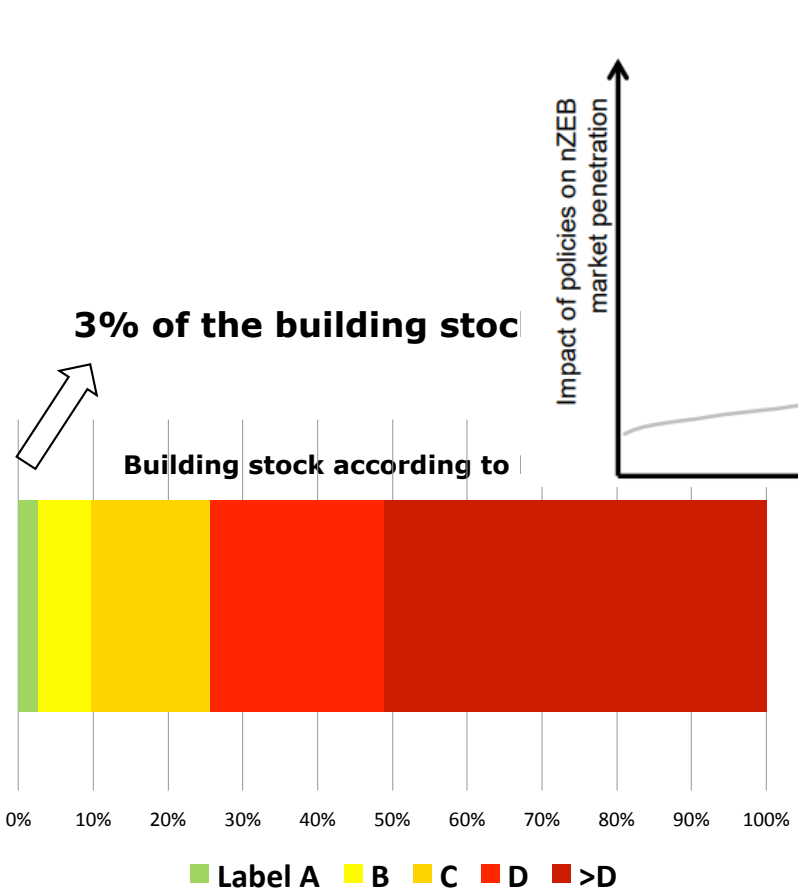
Industrial renovation and Europe's decarbonisation challenge

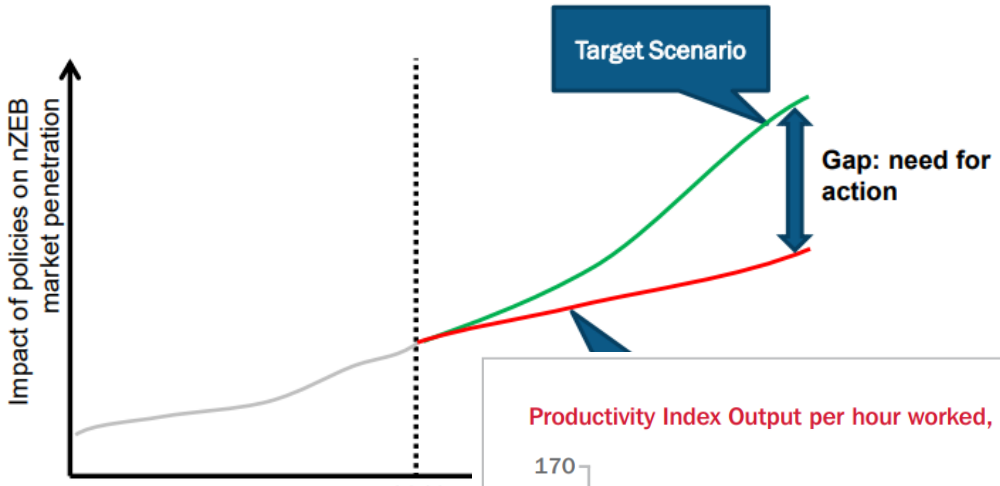
Jonathan Volt, Project Manager

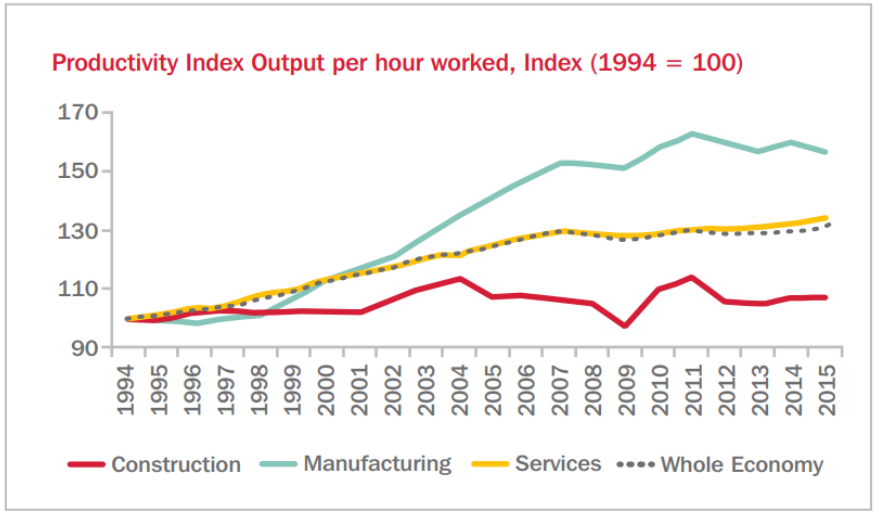
Sibyl Steuwer, Head of BPIE German office

ECEEE Summer Study, 2019

97% of EU buildings is not future proof







Europe's many renovation challenges

BPIE

BARRIERS

- Building owner lacks information
- Building sector lacks skills
- Financial constraints
- Complex legislation and unreliable support measures
- Fragmented renovation & lock-in effect

SOLUTIONS

- New business models
- Technical solutions
- Smoother renovation process
- Training of auditors and building professionals
- Streamlined financial solutions



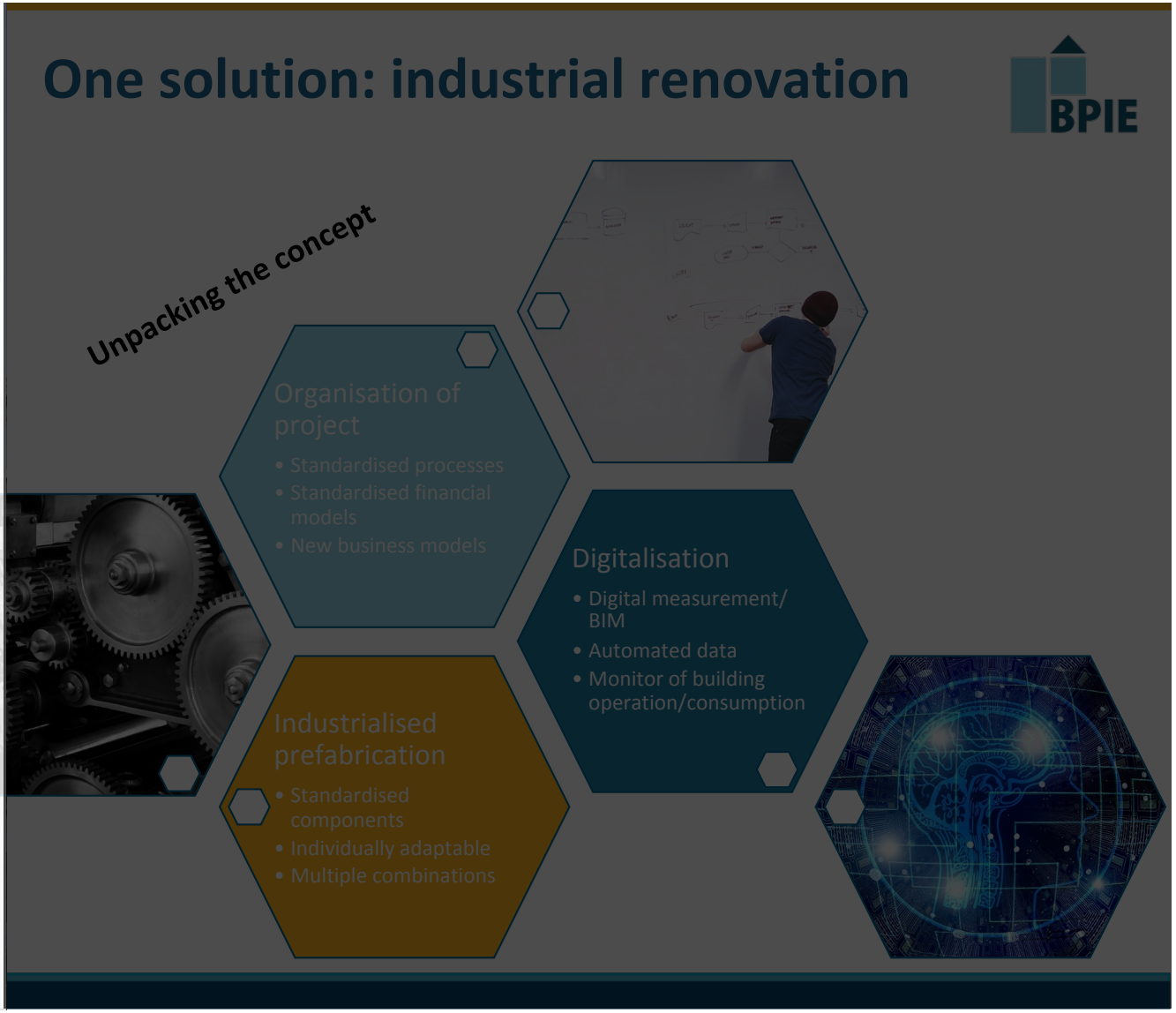




Project for Umweltbundesamt

- Analyse development related to prefabrication and industrial renovation in United Kingdom, The Netherlands and France
- Analyse research project and their potential
- → Assess the potential impact in Germany

Umwelt Bundesamt



Development in the frontrunner countries

United Kingdom

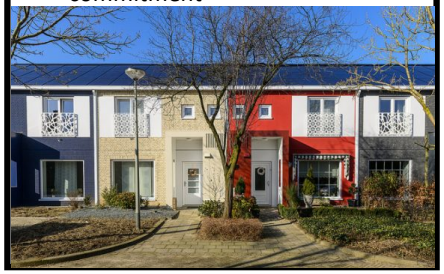
- **Quantity**: 15 net-zero renovations to date (2 projects)
- **Current cost level**: £90,000
- **Stakeholders**: >12
- **Target group**: Social housing
- **Main driver**: Ambition of cities (especially Nottingham and London)





The Netherlands

- **Quantity**: more than 2000 net-zero renovations to date
- **Current cost level**: around €70,000
- **Stakeholders**: >140
- **Target group**: Social housing
- **Main driver**: Dutch gas phase-out commitment

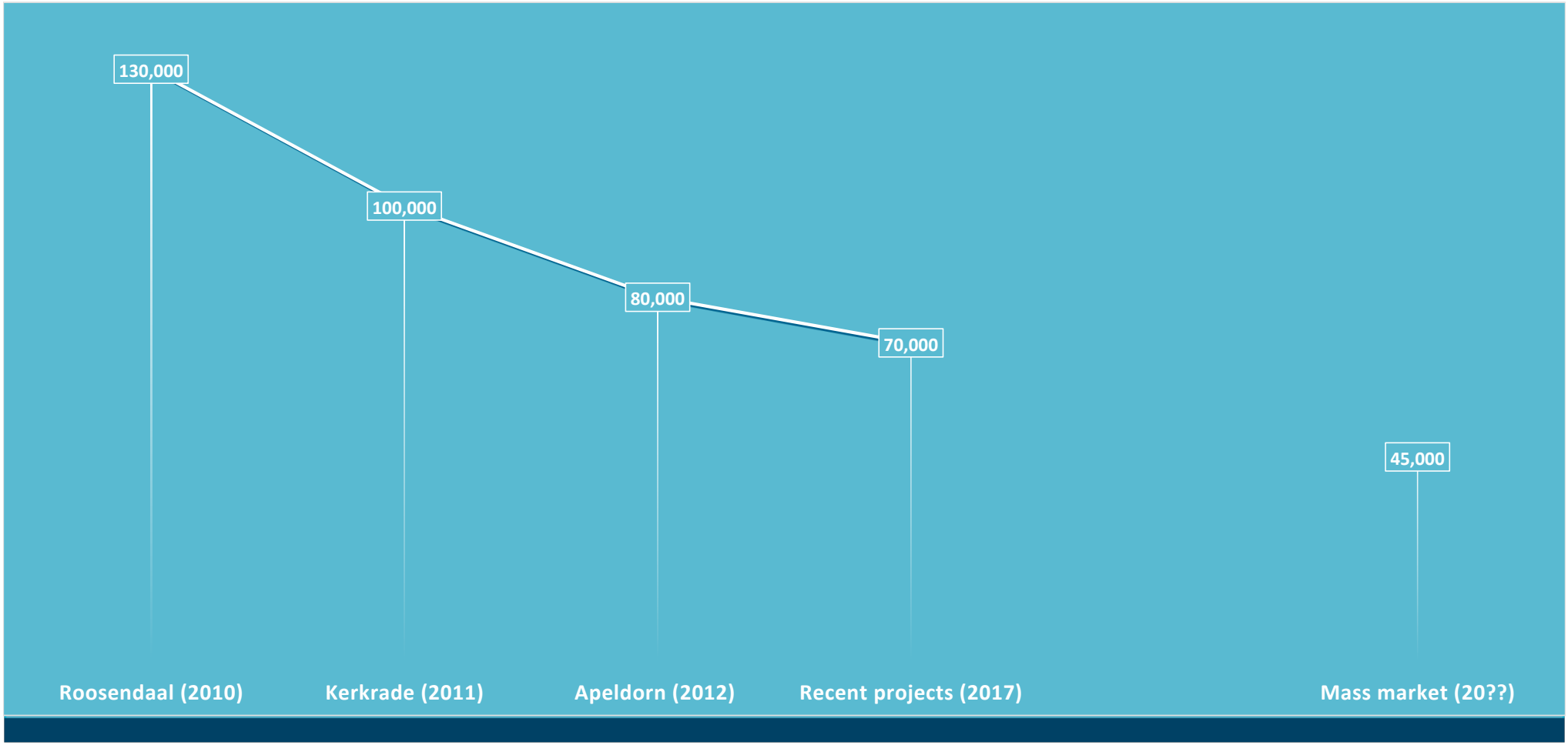


France

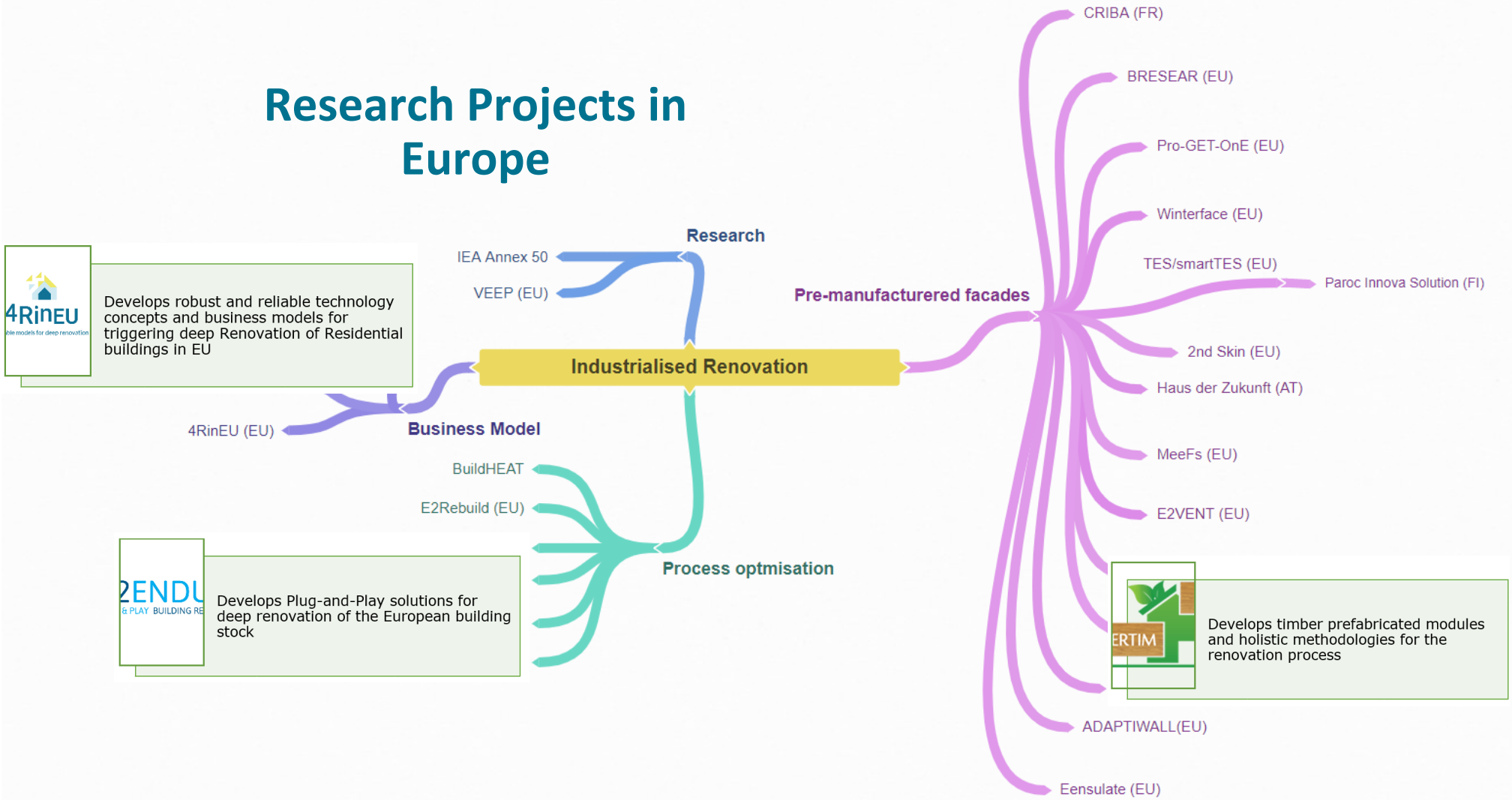
- **Quantity**: 22 net-zero renovations to date (2 projects)
- **Current cost level**: High
- **Stakeholders**: >36
- **Target group**: Social housing
- **Main driver**: French plan of renovating 500.000 homes per year



Stroomversnelling – Cost development in NL



Research Projects in Europe



Takeaways from research projects

Costs	• There are different ways to reduce costs
Value Chain	• Industrialised renovation solutions need a streamlined value chain
Quality	• BIM during design and construction stages improves preciseness of the technical detailing and accuracy of planning
Aggregation	• Digitalisation, new processes and one-stop-shops help to aggregate projects and reduce costs
Innovation	• Pilot projects allow companies to test innovative technologies



Interesting developments





Conclusions: Enabling factors

- ACTORS
- PROCESS
- QUALITY
- AGGREGATION OF DEMAND
- STATE SUPPORT

Enabling factors

- Actors
- Process
- Quality
- Aggregation of demand
- State support

- Need for visionaries/leaders to show the way
- Heterogenous instead of oligopolistic construction sector – new and more flexible actors needed
- Available & reliable suppliers
- Involvement and engagement of tenants

Enabling factors

Actors

Process

Quality

Aggregation of demand

State support

- Trust, transparency while also flexibility
- Standardisation
- Procurement
- Oversight about whole production chain and business model

Enabling factors

Actors

Process

Quality

Aggregation of demand

State support

- Certification of renovation solution providers
- Standardised contracts/tenders
- Standardised monitoring

Enabling factors

Actors

Process

Quality

Aggregation of demand

State support

- Market development team
- Smart use of building data
- New business models

Enabling factors

Actors

Process

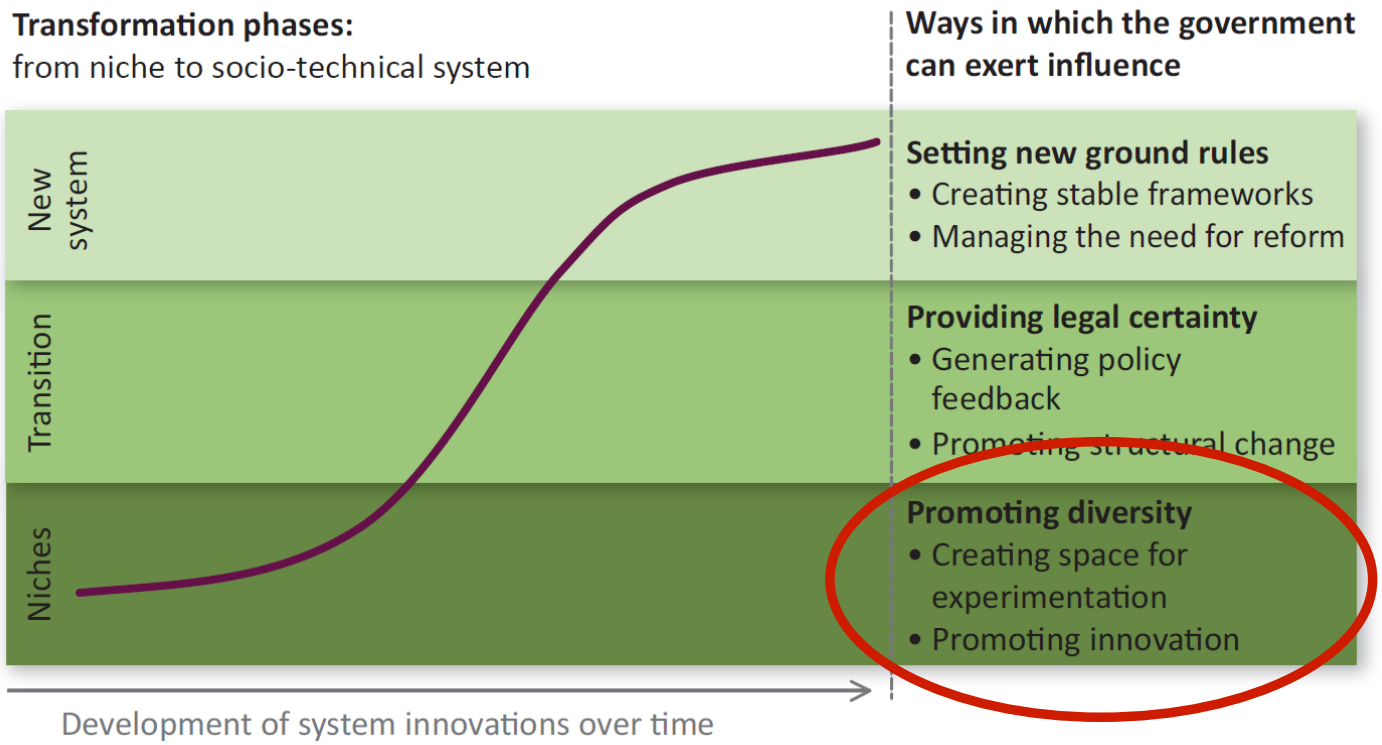
Quality

Aggregation of demand

State support

- Market development team
- Eliminating barriers in legal framework
- Innovation
- Dedicated support instruments such as loans, grants, tender schemes, etc.

State Support: From Niche to Mass Market



Source: SRU 2016


That's all Folks!



Thank you…

Jonathan Volt, Project Manager
Sibyl Steuwer, Head of BPIE German office

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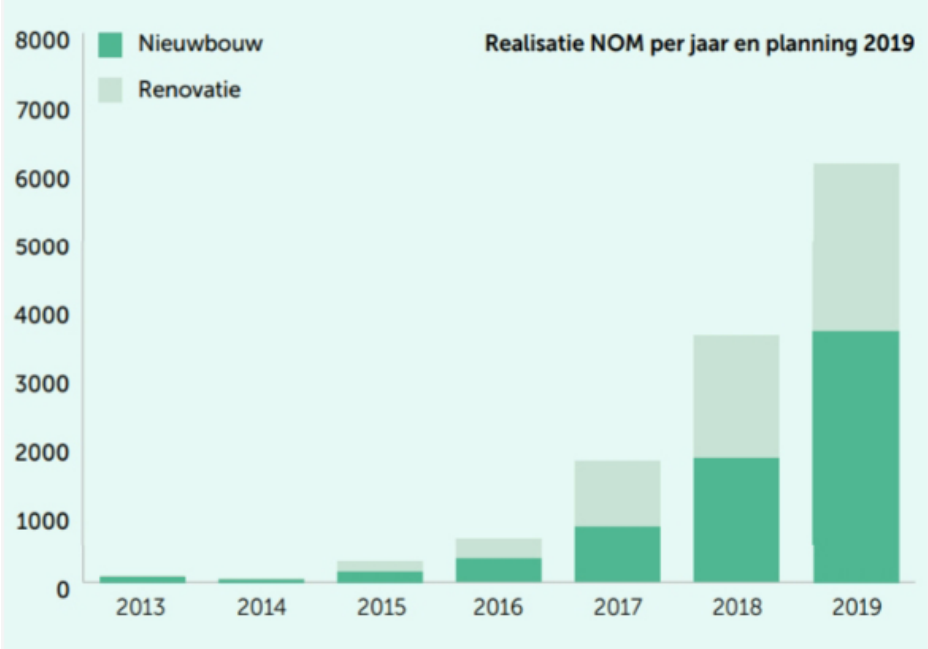
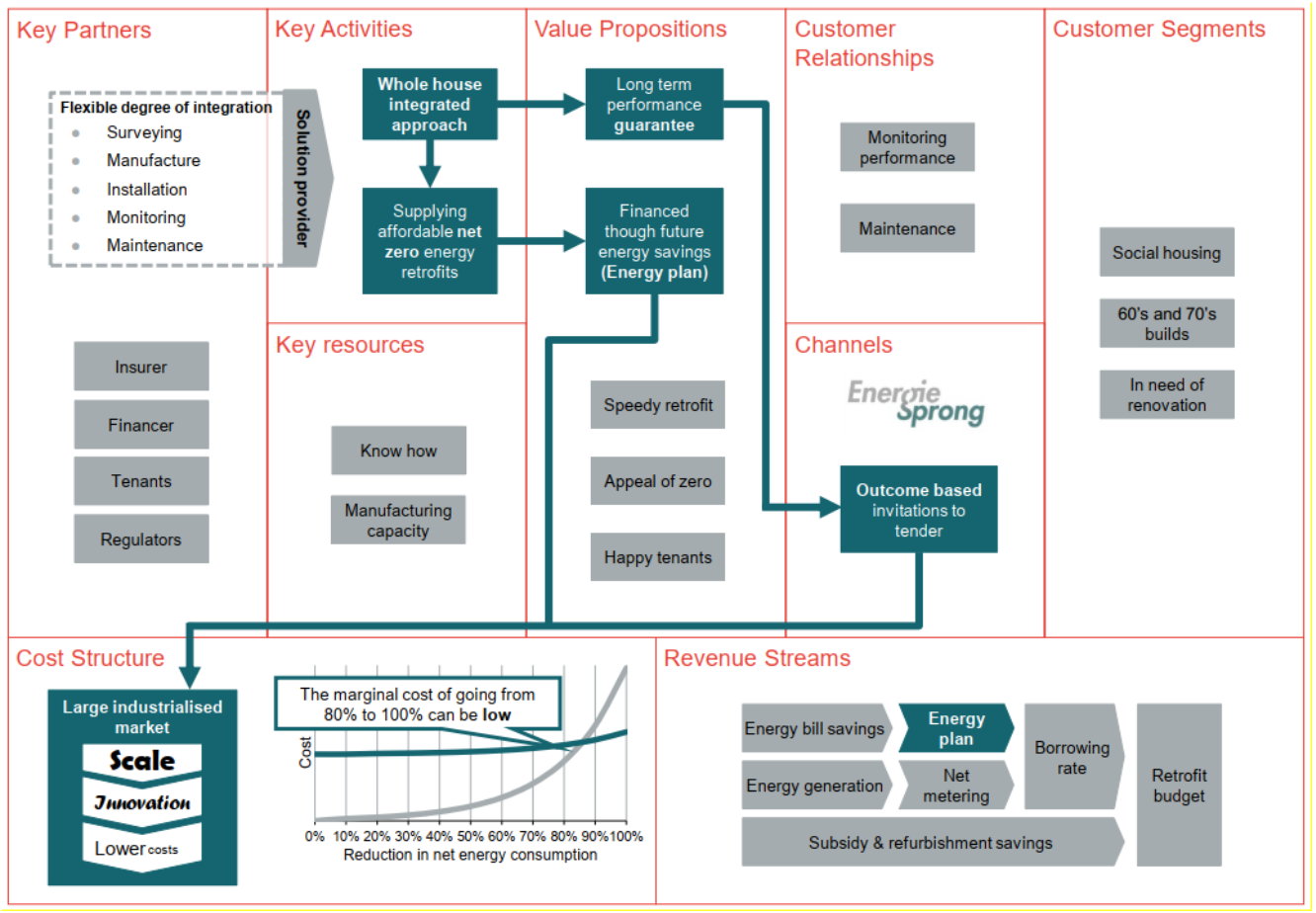
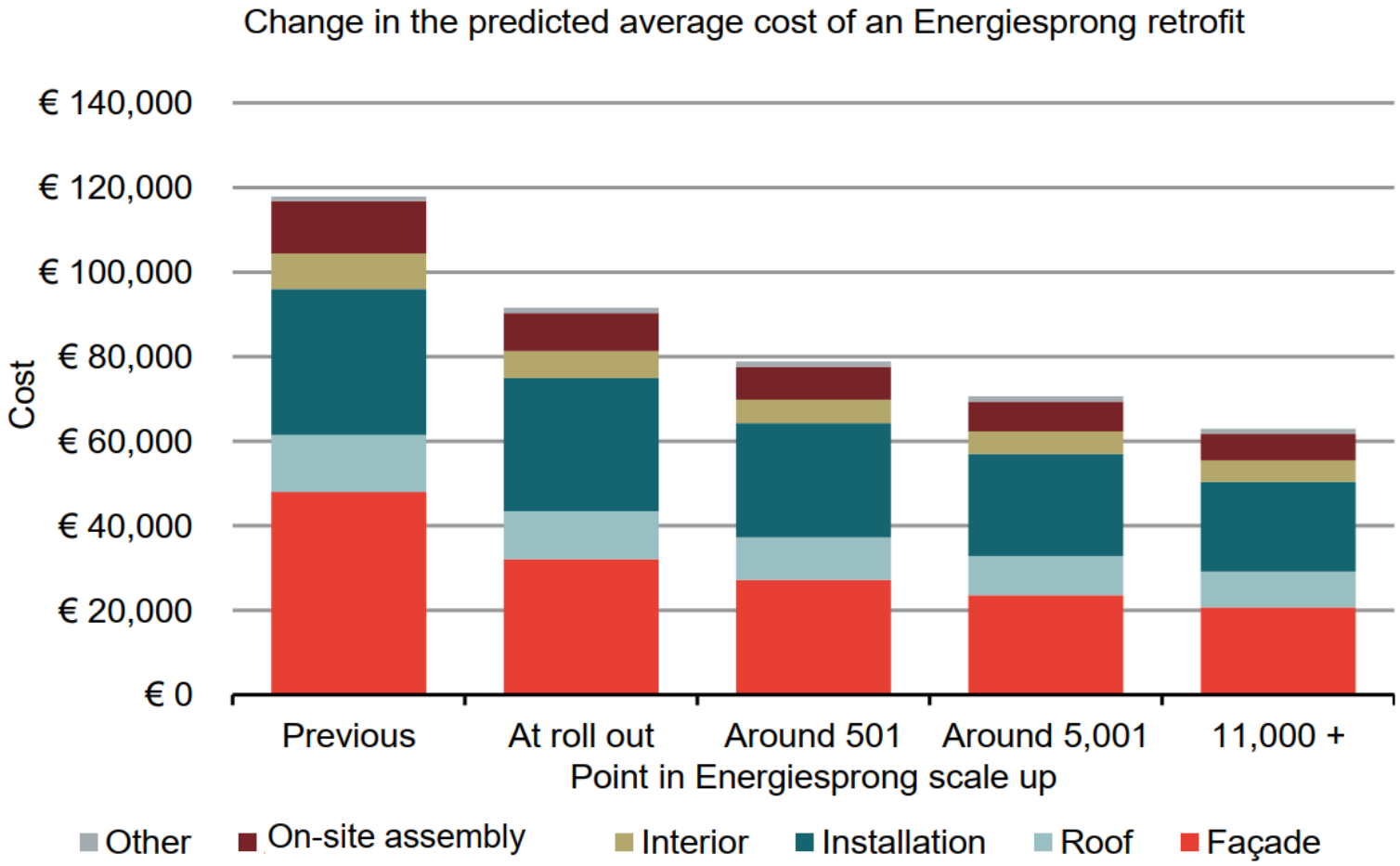

Realisatie NOM per jaar en planning 2019
Nieuwbouw
Renovatie
8000
7000
6000
5000
4000
3000
2000
1000
0
2013
2014
2015
2016
2017
2018
2019

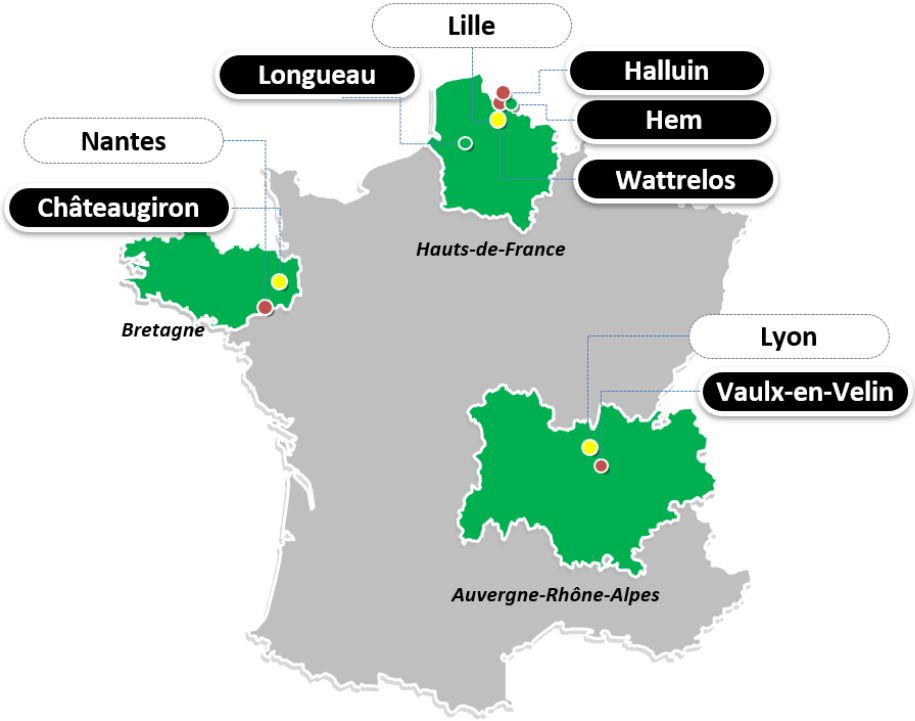
Figure 4. The Business Model Canvas for *Energiesprong*

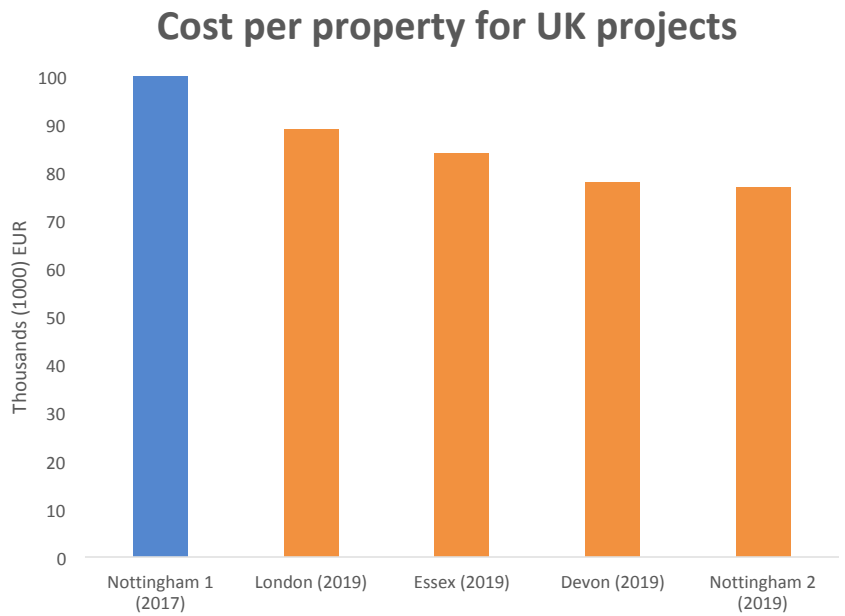



Change in the predicted average cost of an Energiesprong retrofit
€ 140,000
€ 120,000
€ 100,000
€ 80,000
€ 60,000
€ 40,000
€ 20,000
€ 0
Cost
Previous
At roll out
Around 501
Around 5,001
11,000 +
Point in Energiesprong scale up
Other
On-site assembly
Interior
Installation
Roof
Façade

Status in France

Social housing	Building typology	Number of dwellings	Location	Project finalization
Vilogia	SFH	10	Hem, Hauts de France	April, 2018
icf Habitat	SFH	12	Longueau, Hauts de France	September, 2018
est metropole habitat	MFH	988	Vaulx en Velin, Auvergne Rhone Alpes	March, 2020
neotoa	SFH	4	Chateaugiron, Bretagne	January, 2019
Vilogia	SFH	160	Wattrelos, Hauts de France	n/a
Notre Logis	MFH	90	Halluin, Hauts de France	n/a




Cost per property for UK projects
Thousands (1000) EUR
100
90
80
70
60
50
40
30
20
10
0
Nottingham 1 (2017)
London (2019)
Essex (2019)
Devon (2019)
Nottingham 2 (2019)