

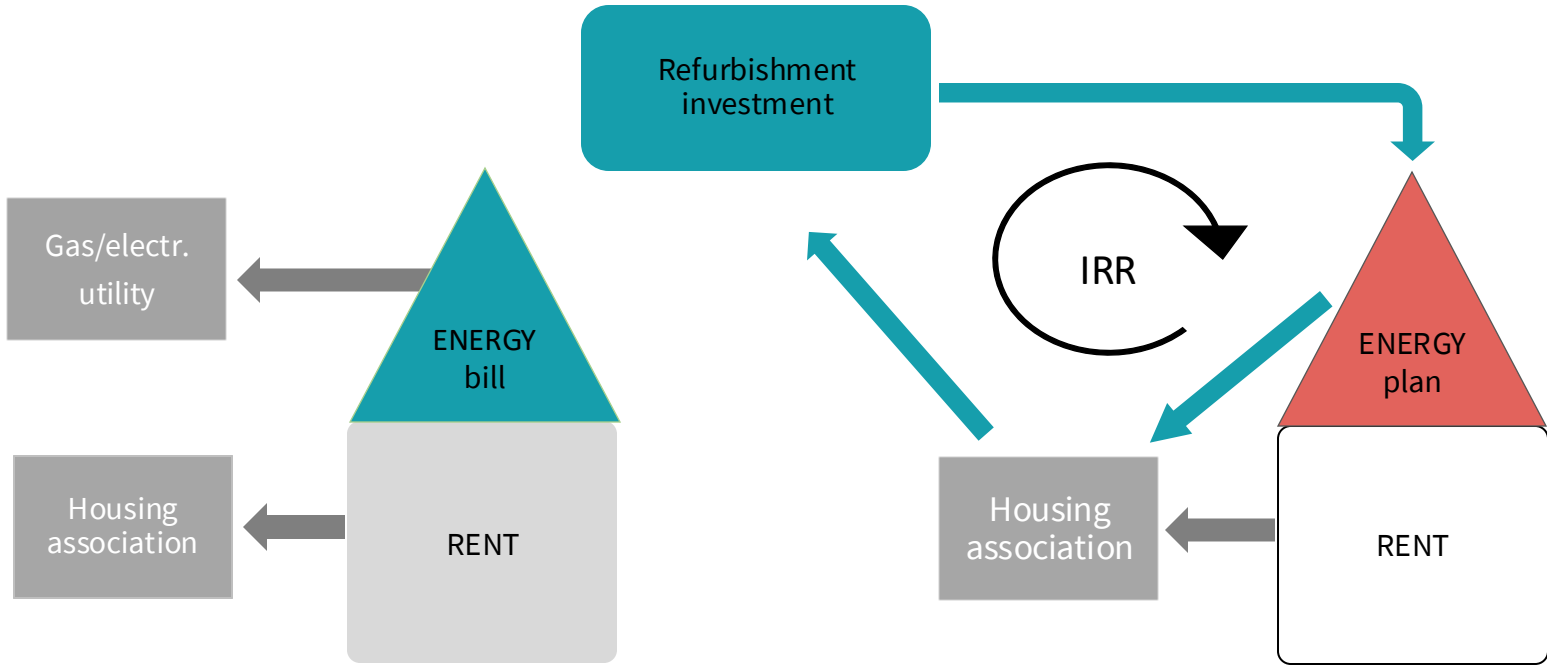
energie
sprong





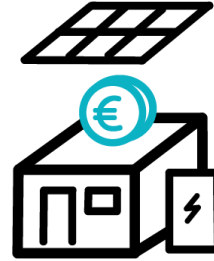
BEFORE REFURBISHMENT

AFTER REFURBISHMENT

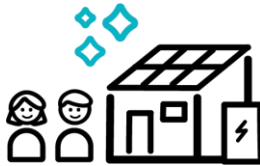




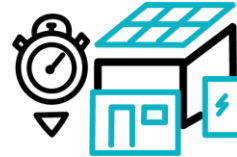
QUALITY
long-year warranty



AFFORDABLE



ATTRACTIVE



QUICK

THE ENERGIESPRONG PROMISE

21° C
ALL YEAR
ROUND

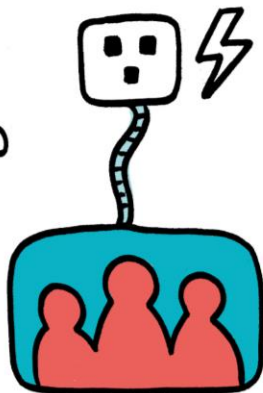


40
MIN
HOT WATER



180L
PER
DAY

ENERGY
PLUGLOAD



EQUAL TO
HOUSEHOLD
USAGE
REQUIREMENT

FEELS
GOOD



SOUNDS
GOOD

22,0°

Thermostaat



21,8°

Temperatuur



14%



Verbruik

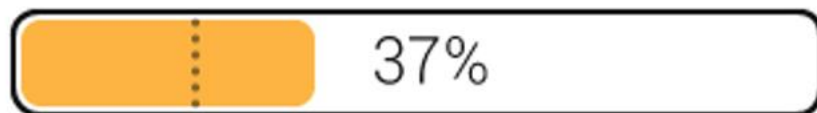


Ventilatie





Opwekking



%

kWh

maand

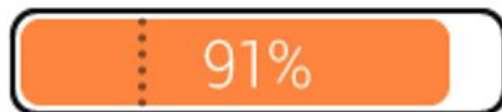
jaar



Huishoudelijk



Gebouw



Warm water



Volume Deal over Europe of NET ZERO ENERGY REFURBISHMENTS



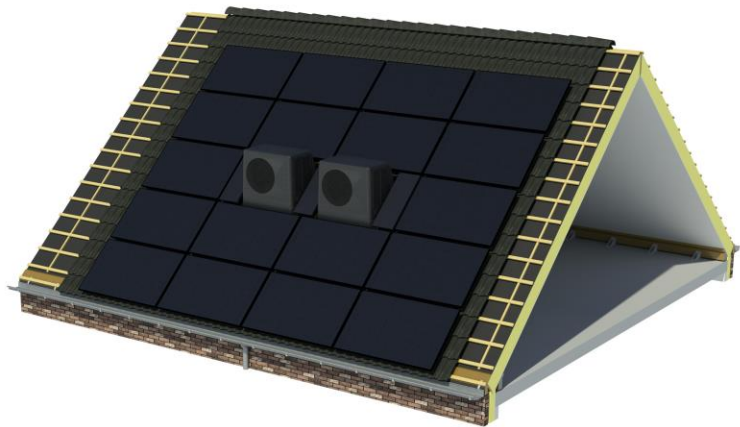
INTEGRATE & INDUSTRIALISE

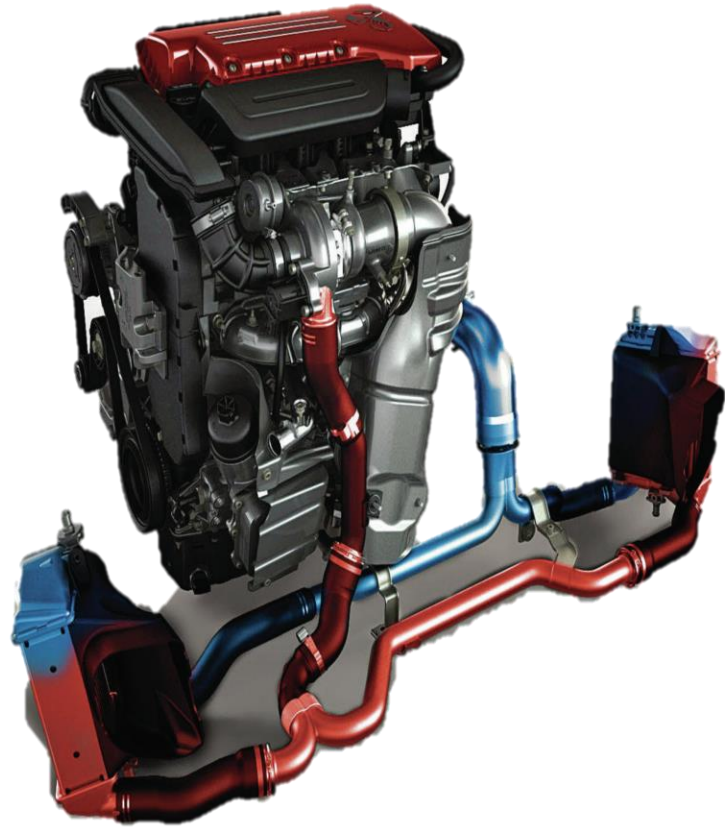












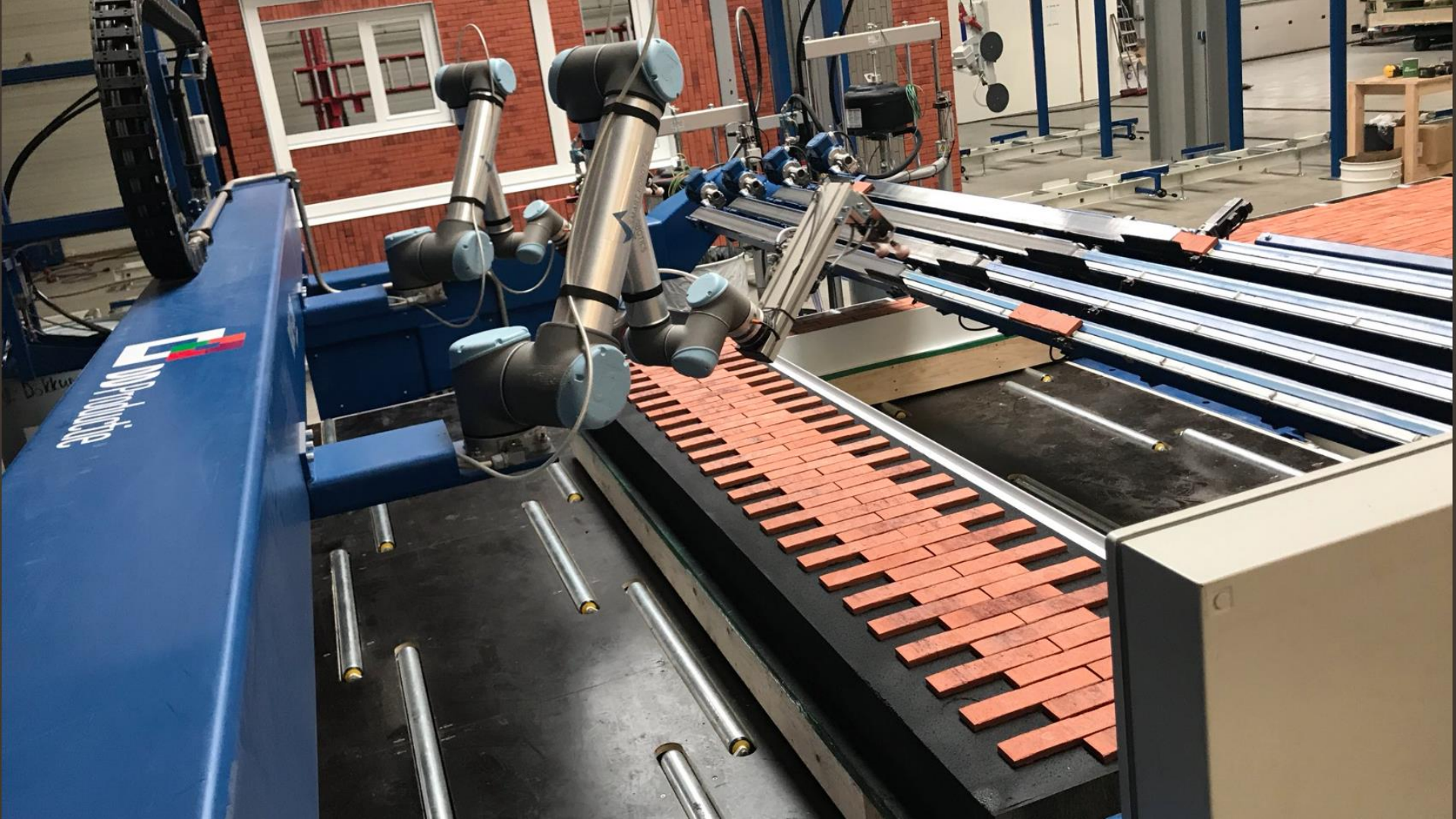


DD Productie

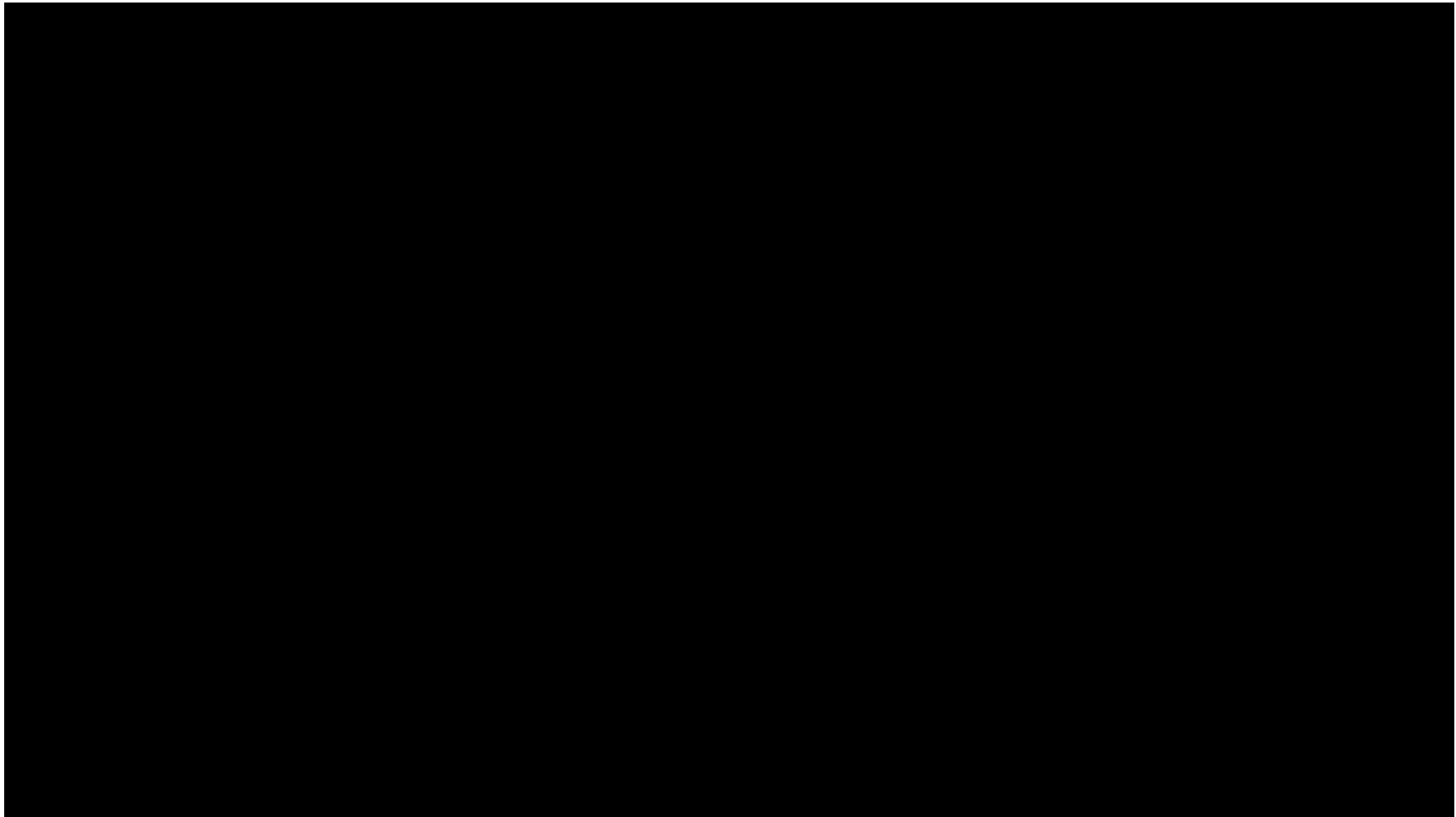
ROBI-ONE
a HSM Innovation

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10







Take aways for other countries and climates

- > It's not only technical, it's a business case
- > Create something people WANT to have (market conditions)
 - > Quality
 - > Affordability
 - > Quick
 - > It has to make the neighbours jealous
- > Renovations as an integrated whole-house approach (create a renovation package)
- > Organise initial volume (by dealmaking)
- > Create a scalable product



Thank you!

The Energiesprong serial retrofit approach in Germany

3rd Renovation Lunch

June 13 2024



Powered by



Bundesministerium
für Wirtschaft
und Klimaschutz

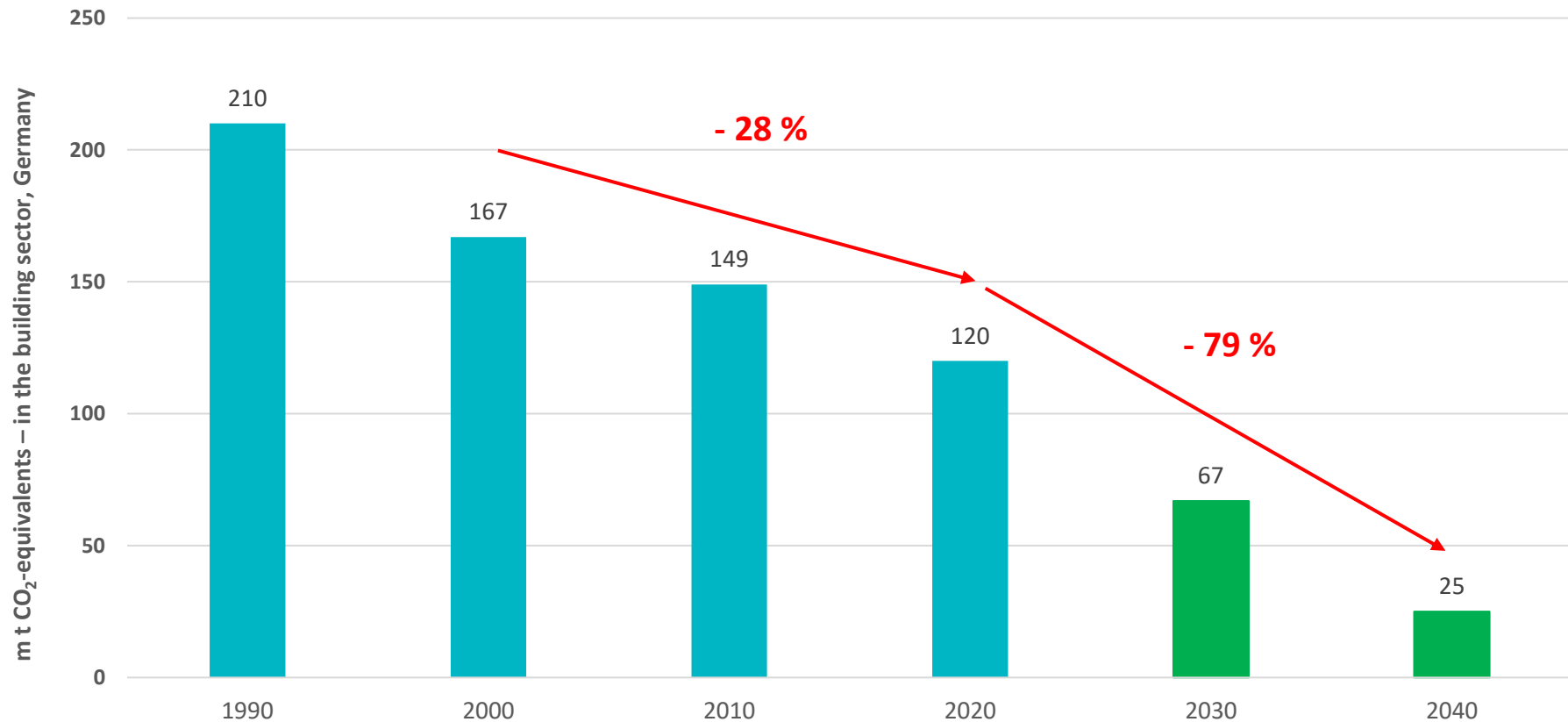
Die Veröffentlichung dieser Publikation erfolgt im Auftrag des Bundesministeriums für Wirtschaft und Klimaschutz. Die Deutsche Energie-Agentur GmbH (dena) unterstützt die Bundesregierung in verschiedenen Projekten zur Umsetzung der energie- und klimapolitischen Ziele im Rahmen der Energiewende.





Motivation

Target trajectory for the building sector



Multiple obstacles for building retrofit



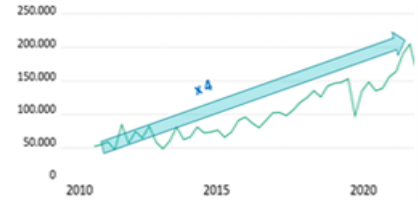
Process complexity



Significant price increase

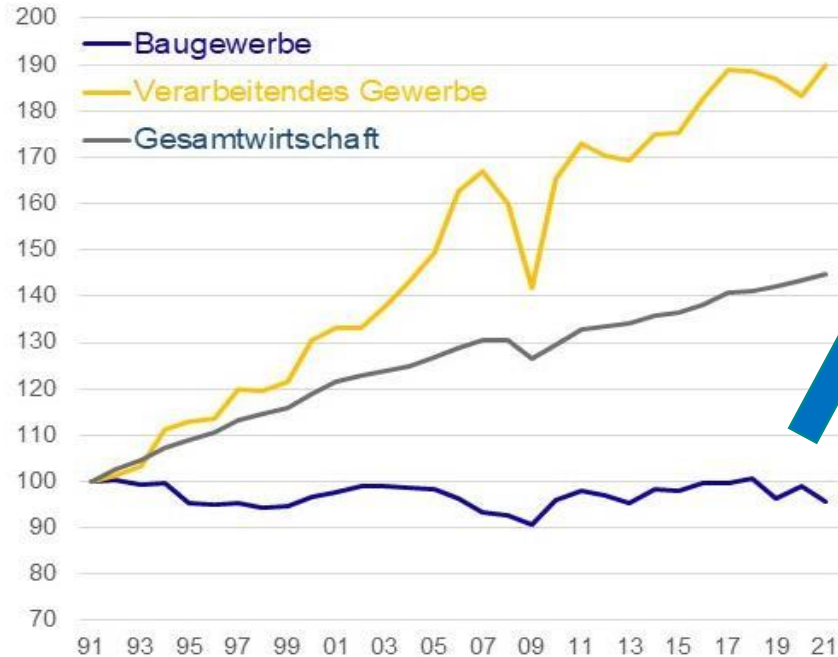


Rising energy costs



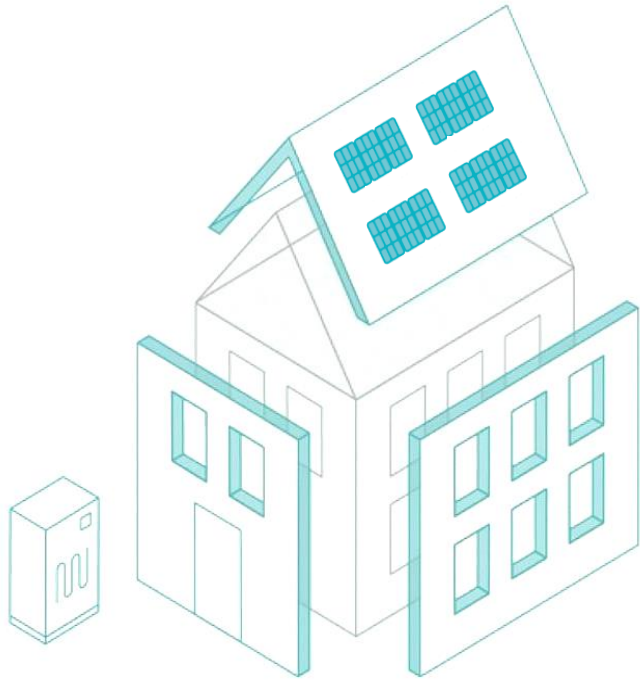
Increasing shortage of skilled worker

Solution: increasing the productivity



**Possible:
productivity x 2**

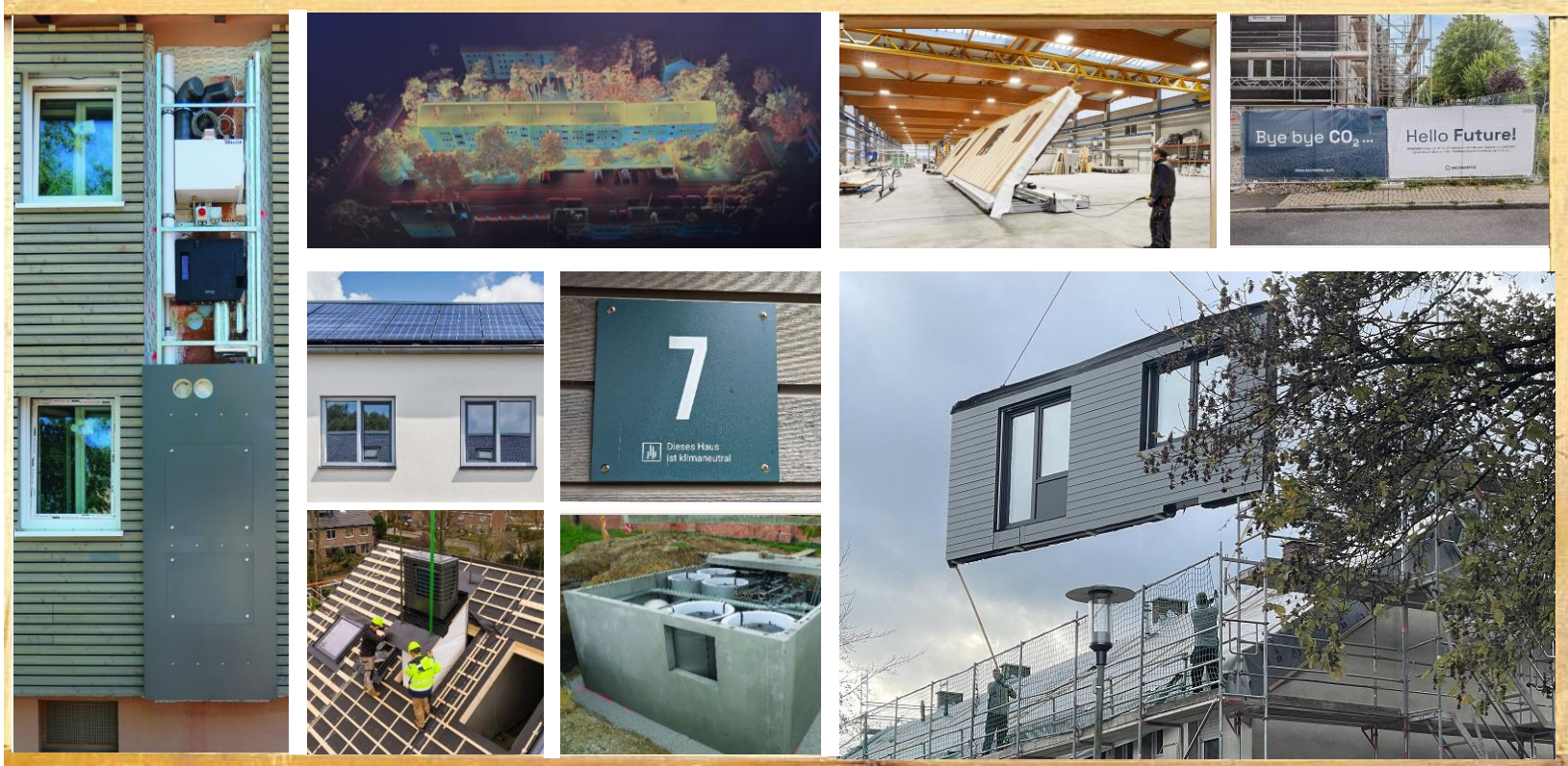
Quelle: Statistisches Bundesamt, eigene Berechnungen



New Energiesprong Approach

energie
sprong
de

Retrofit as a toolbox



New construction process



Pre-fabricated facades



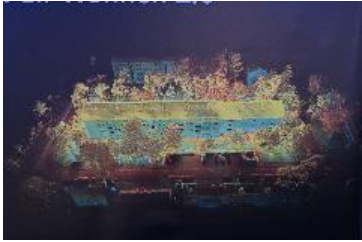
Pre-fabricated roofs



Modulised energy supply

Standardisation of acquisition, planning and construction

New overall processes



Quelle: Gewobau Erlangen/ Klaus Dieter Schreiter



Quelle: Opitz Holzbau



Quelle: Tamara Pribaten/dena



Quelle: VBW Bochum

3D scanning &
automised design

Pre-fabricated façade,
roof, energy supply

Installation of the
elements

NetZero building



Quelle: Gewobau Erlangen, Klaus Dieter Schreiter



Quelle: FactoryZero



Quelle: Tamara Pribaten/dena

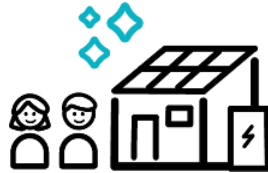


Quelle: Tamara Pribaten/dena

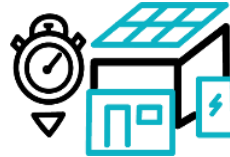
Rethinking building refurbishment

- > Modular design and construction
- > Optimised processes, less interfaces
- > Standardised approach

Easy/attractive



Fast



- > On-site speed
- > Retrofit during holiday or in occupied state
- > Avoiding intermediate areas

SCALABLE

- > High building quality
- > Energy efficiency (class A+)
- > Embodied carbon of the construction
- > Consistent, predictable quality

Good



Affordable



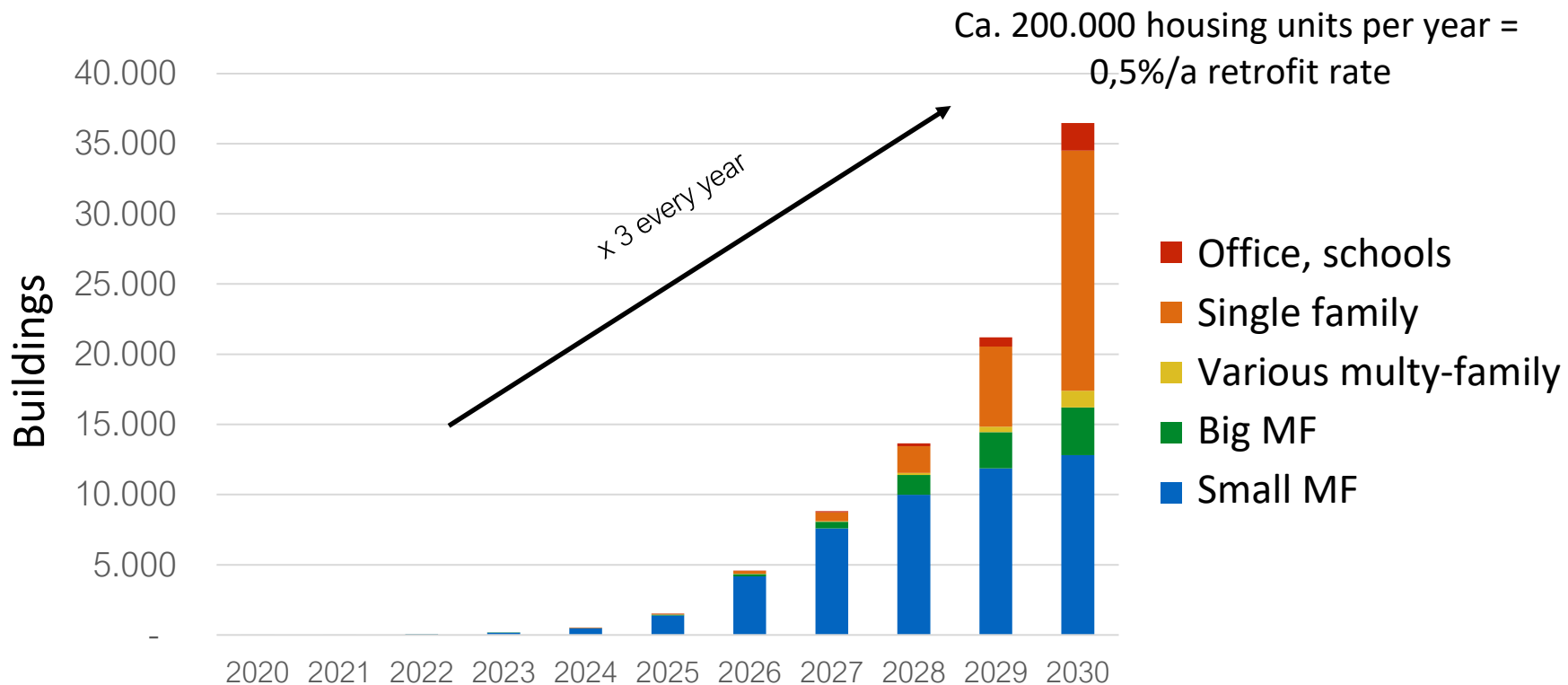
- > Refinancing with no impact on warm rents
- > Cost-neutral due to federal funding
- > Projected price drop
- > Additional benefits through „add-ons“ (e.g. top-up, extensions)



Status of the market development

energie
sprong
de

Potential DE

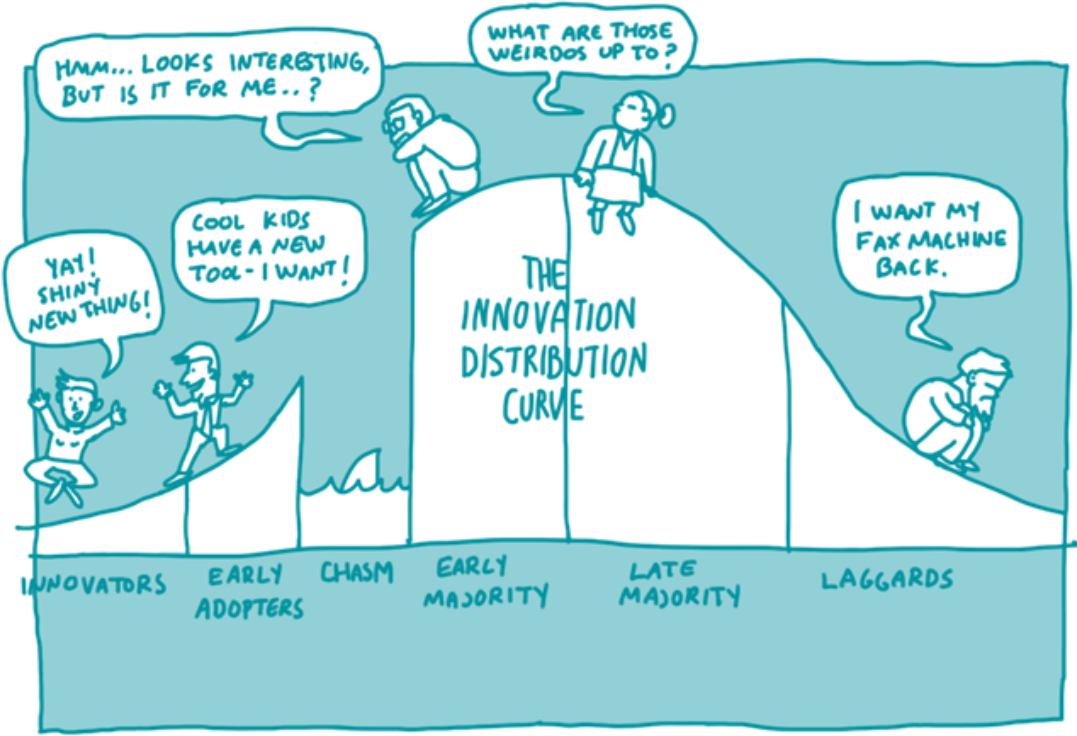


Implementation of innovations – funding of politically desired measures

- > Suppliers tend to price in the subsidies
- > Expensive for the fiscus
- > Limited succes
- > „exit strategy“



Implementation of innovations – acknowledge how innovation goes



Energiesprong market development team

Project support, change management, creating transparency & alliances

Funding Guidelines Industrial Development

Product development: guarantee, monitoring, contracts, tenant electricity (incl. legal review)

Project support: Tenant involvement & contract



Tenants

Building owner

Attractive offer (e.g. Accelerator Programme)

Attractive quantity (e.g. Volume Deal)

Energiesprong Market Development Team powered by dena



Total solution provider (construction companies/contractors)

Manufacturers



Bus. Case Understanding the construction industry

Analyse construction cost drivers and look for ways out

Approach suitable foreign players

Optimal boundary conditions

Optimal boundary conditions



Politics

Funding guidelines Industrial development

Inclusive rental with contingents

Phases of market development



<u>CHALLENGES</u>				
	<ul style="list-style-type: none">• Find innovators• Solve technical issues	<ul style="list-style-type: none">• Costs still too high• Optimize processes	<ul style="list-style-type: none">• Create constant demand• Keep innovating	<ul style="list-style-type: none">• Create perfect product
	• BUILDING UP + MAINTAIN NETWORKS – LINKING PEOPLE			

IT

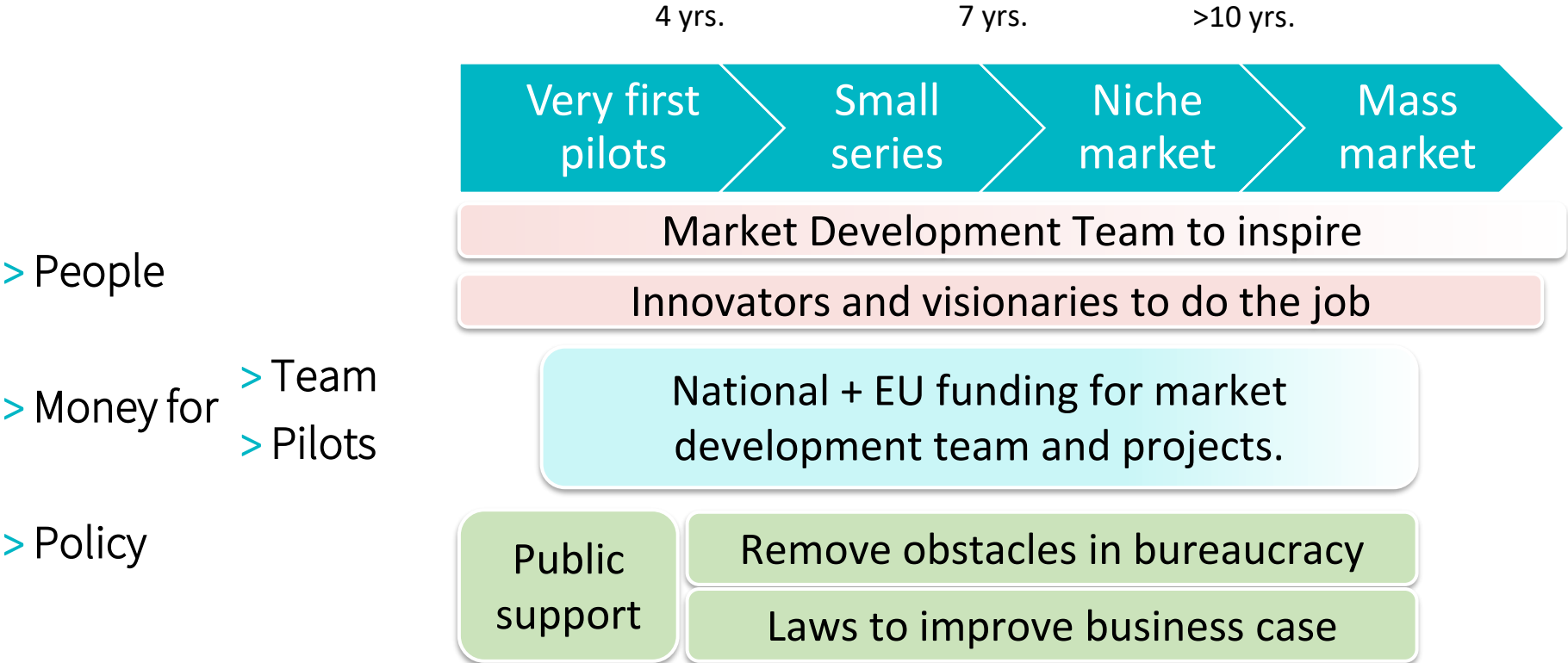
UK

FR

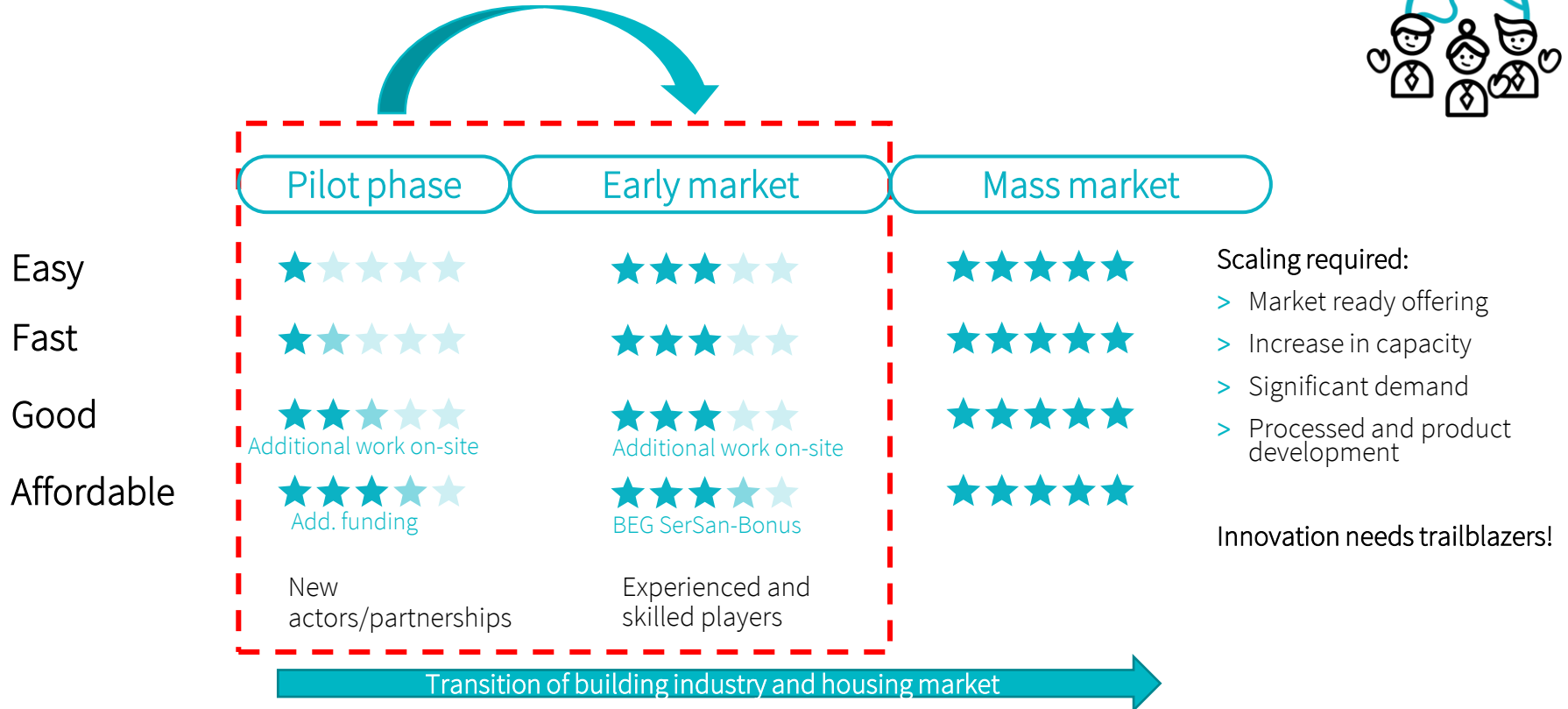
NL

DE

Factors for successful market development



Market development status





26 projects implemented: 410 HU
14 projects in realisation: 873 WE
> 100 projects in planning phase: > 10.000 WE

Status: 06/2024



Expansion to other market segments

Non-residential buildings

- > Public, federal and municipal buildings
- > Focus:
 - > Accomodation
 - > Office and administration
 - > Schools + gyms

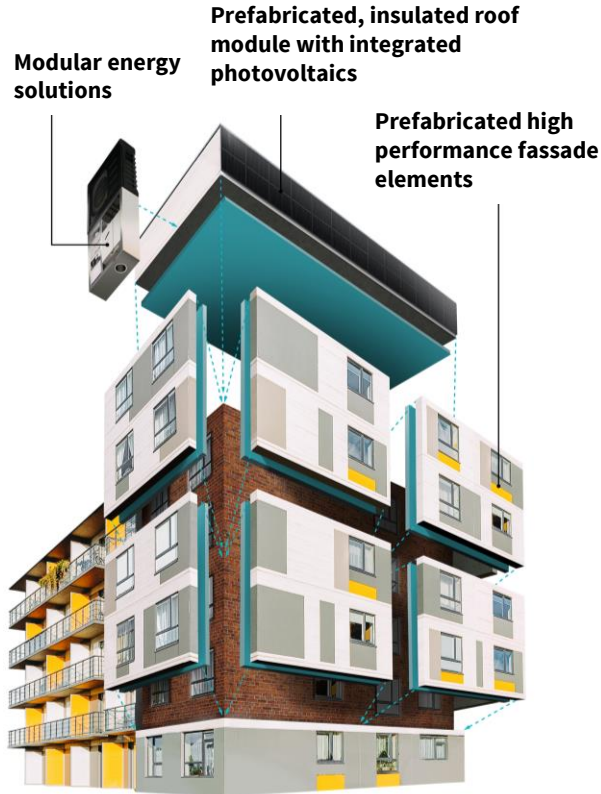


Single housing

- > Kick-off in 2023
- > First projects implemente
- > Vast interest due to attractive funding
- > Attractive for the industry through high number of buildings



Path to non-residential buildings



+ Different requirements and boundary conditions



+ Ventilation



+ Cooling



+ Efficient shading



+ Lighting and electrical supply



+ Fire safety

Examples: non-residential buildings



Verwaltungsgebäude Tierpark, Berlin
ZRS Architekten Ingenieure; Zimmerei Sieveke

Bildquelle: https://holzbauatlas.berlin/sanierung-verwaltungsgebaeude-tierpark_zrs-architekten/

Fotograf: Matthew Crabbe



Mehrgeschossiges Wohngebäude, Augsburg
Latke Architekten BDA, Gumpp & Maier GmbH

Bildquelle: <https://projects.gumpp-maier.de/17-gruentenstrasse-augsburg.html>



Studierenden-Wohnheim Eckenbergstrasse, Essen
müller.schurr.architekten, ACMS Architekten GmbH

Bildquelle: <https://acms-architekten.de/detailsseiten-projekte/wohnheim-eckenbergstrasse-essen>



Turnhalle, Leutkirch

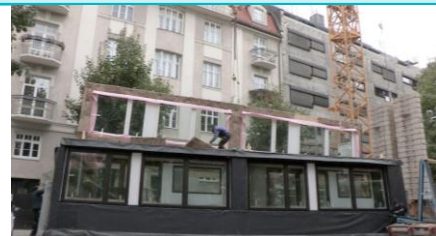
<https://www.energieinstitut.at/wp-content/uploads/2018/10/TES-Verfahren-in-Leutkirch.pdf>

Bildautor: Christoph Morlok



Geschäftsgebäude Kaiserslautern
Architekturbüro pg

Bildquelle: <https://www.energiesprong.de/newsroom/meldungen/2023/erste-serielle-hybrid-sanierung-eines-geschaftshauses/>



Wohn- und Geschäftshaus, München

Anton Ambros GmbH

Bildquelle: <https://www.iensen-media.de/so-flexibel-und-einfach-kann-moderner-holzbau-sein/>

District administration office Dillingen, Bayern

- > Year of construction 1967
- > Extension and renovation: 04-11/2019
- > Retrofit with building being occupied
- > 6.347,31 m² GFA
- > Wooden framework and TES façade
- > Efficiency standard: german KfW 55
- > 6.000.000 € total gross costs
- > Parties involved: DBW Architekten, Haunsheim; Holzbau: Gump & Maier; Fachplanung TES-Fassade: Vallentin + Reichmann Architekten GbR, München



Bildquelle: DBW Architekten <https://www.dbw-architekten.de/beitrag-01/>

Tierpark administration building, Berlin

- > Energetic retrofit
- > Facade elements as wooden framework
- > Construction 2019
- > 3 storey
- > 3.556 m² GFA
- > Costs/m² BGF: 843 €
- > Parties involved: [ZRS Architekten](#); ZRS Ingenieure, IGZ; Zimmerei Sieveke



Bildquelle: © ZRS Architekten Ingenieure & Tierpark Berlin-Friedrichsfelde, Fotograf: Matthew Crabbe
https://holzbauatlas.berlin/sanierung-verwaltungsgebäude-tierpark_zrs-architekten/

Hybrid retrofit Kaiserslautern

- > Hybrid refurbishment of a commercial building
- > Construction method / supporting structure of façade: cross-laminated timber elements
- > Year of construction 2023
- > 8 storeys
- > Parties involved: Architekturbüro pg1, CLTech



Bildquelle: © Architekturbüro pg1

Feuerwache Charlottenburg Nord, Berlin (in Umsetzung)

- > Year of construction: 1968
- > Original building: reinforced concrete skeleton construction
- > Client: BIM (Berlin Real Estate Management)
- > Participants among others: ZHN Architects, Sieveke Holzbau



Examples: serial retrofitted schools



Waldorfschule Prenzlauer Berg, Berlin
MONO-Architekten; Niehues & Winkler Ingenieure; Pampelbau
Bildquelle: <https://holzbauatlas.berlin/fassadensanierung-sk-plattenbau-mono-architekten/>
Fotograf: Gregor Schmidt



Waldorfschule Märkisches Viertel, Berlin
Anton Ambros GmbH, TES EnergyFacade
Bildquelle: <https://www.ambros-haus.de/schulsanierung-waldorfschule-berlin.html>



Realschule Buchloe, Bayern
m2s müller.schurr.architekten, Anton Ambros GmbH,
TESEnergyFacade
Bildquelle: <https://www.ambros-haus.de/zukunftsweisende-schulsanierung.html>



Wilhelm-Leuschner Schule, Heuchelheim, Hessen
Architekt: pape oder semke
Bildquelle: <https://www.giessener-allgemeine.de/kreis-giessen/heuchelheim-ort848764/grundschule-heuchelheim-ueberraschen-schueler-baudezernentin-tanzeinlage-13948053.html>
Foto: PM © pv



Gesamtschule Wetter, Hessen
m2s müller.schurr.architekten, Rubner Holzbau, C+P - Christmann
& Pfeifer Construction, TES EnergyFacade
Bildquelle: https://www.zukunftaltbau.de/fileadmin/user_upload/Veranstaltungen/Herbstforum_Altbau_2019/Referenten/Vortraege/Herbstforum_Altbau_Jochen_Schurr_Serielle_Schulsanierung_27112019_Downloadfreigabe.pdf



Felix-Fechenbach-Berufskolleg, Detmold, NRW
pape oder semke architekten; BCS-Ingenieure; Ingenieurbüro Schmitz
Bildquelle: <https://www.papeodersemke.de/sanierung-des-felix-fechenbach-berufskolleg-zurplusenergieschule-detmold/#>

Marienfelde elementary school, Berlin

- > Facade renovation of reinforced concrete sandwich elements
- > Timber panel construction
- > Decentralized mechanical ventilation through façade elements
- > 4 storeys
- > Architects/specialist planners/participants:FDA; dlw Architekten; SIEVEKE GmbH



Bildquelle: Bezirksamt Tempelhof-Schöneberg
Fotograf: © Stefan Meyer

Examples: single housing



Zweifamilienhaus, Baden-Württemberg
Sanierung und Umbau mit vorgefertigten Elementen
Holzrahmenbau und Eigenleistungen
Beteiligte: Taglieber Holzbau GmbH (u.a.)
Bildquelle: dena_Energiesprung



Dreifamilienhaus, Baden-Württemberg
Sanierung und Umbau mit vorgefertigten Elementen
Holzrahmenbau und Eigenleistungen
Beteiligte: Taglieber Holzbau GmbH (u.a.)
Bildquelle: dena_Energiesprung

Kontakt

energie
sprong
de



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Nichtwohngebäude, technische Optimierung



[energiesprong.de](https://www.energiesprong.de)

