



Breakout Session

Serial Modernization. The Fast, Economical and Scalable Path to Net Zero

Analyst and Investor Day
Bochum
July 1, 2025



1. Product Presentation: Serial Modernization

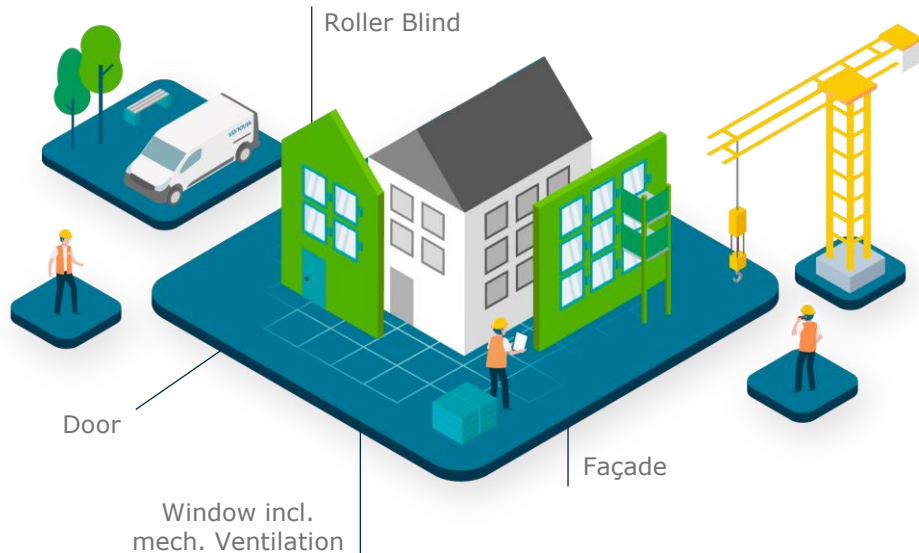
2. Technical Deep Dive: All-in-one Façade

3. Technical Deep Dive: Laser Scanner

4. Project Example: Garmisch-Partenkirchen

Serial Modernization with Industrial Prefabrication as a **VONOVIA** Supplement to Conventional Modernization

PRODUCTS



VISION & MISSION

Revolutionize the standards for modernization and preserve livable, affordable and resource-efficient living spaces for future generations.

Serial, sustainable and technology-driven modernization of existing properties to ensure climate neutrality by 2045 as an important investment driver.

Serial Energy Modernization: the Revolution in Renovation of Existing Buildings

- High prefabrication
- Modular structure & standardization
- Fewer interventions in the flats

Shorter Construction Times



Attractive Costs



- Quantity discounts
- Standard catalogue
- Lower and constant heating costs

- Easier assembly
- Fewer suppliers
- Lean processes

Less Complexity



More Climate Protection



- High energy standards
- Sustainable building materials
- Holistic concept



Focusing on All-in-one Façade to Accelerate Scaling of Serial Modernization

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Building Blocks of Serial (Energy) Modernization:

Out of Focus¹

Photovoltaic System

Supply of the in-house plant technology for electricity and heating requirements

Out of focus¹

Heating

Modular prefabricated units for hot water and space heating



Current Focus of Modernization Project

All-in-one Façade

Current serial focus

Prefabricated in timber panel construction, incl.:

- > Façade elements
- > Doors
- > Windows incl. mech. ventilation
- > Roller blind

+ Related Modernization Measures













Additional project-specific measures, e.g.

- > Surrounding area
- > Staircase
- > Electrical installation

¹ Sequential approach: facade first to set the building up for heat pump readiness, then heating

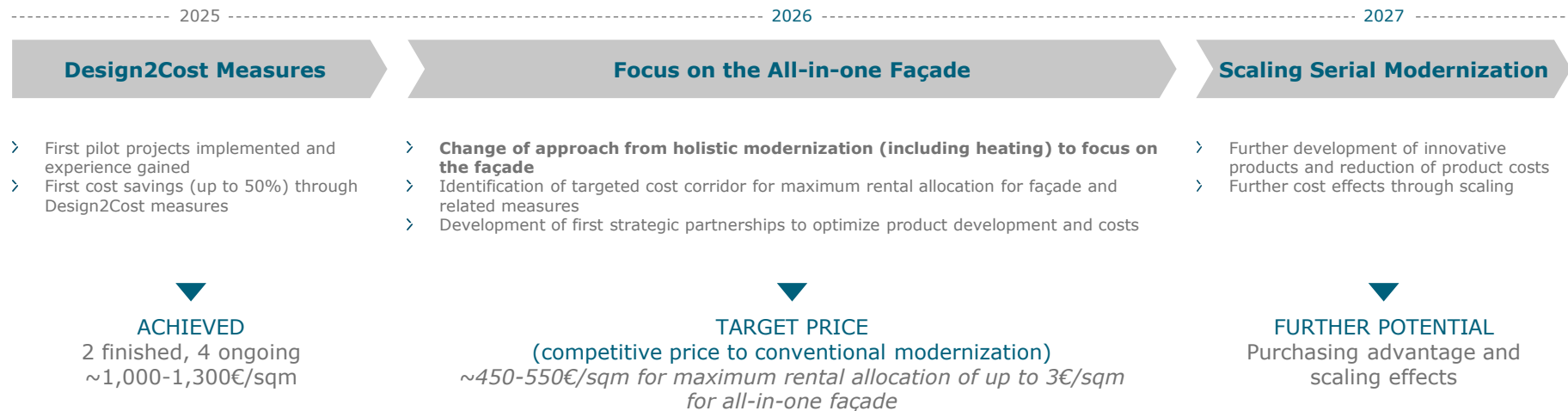
First Projects to Pilot Serial Modernization and to Qualify Partners are Already Being Realized

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FINISHED		Witten	Bochum				✓
# of units	>	112	>	24			
living space	>	8,300 sqm	>	1,200 sqm	18 m€ investment volume		
							
CURRENT		Köln	Garmisch-Partenkirchen	Norderstedt	Hannover	Heidenheim	→
# of units	>	9	>	54	>	28	22 m€ investment volume
living space	>	500 sqm	>	3,000 sqm	>	3,700 sqm	
							
PLANNING		Stuttgart	Hamburg	Langenfeld	Hannover	Lübeck	+ further projects →
# of units	>	27	>	350	>	168	170 m€ investment volume
living space	>	1,600 sqm	>	25,100 sqm	>	13,100 sqm	
							

The Next Step towards Cost Optimization in Serial Modernization Lies in Scaling

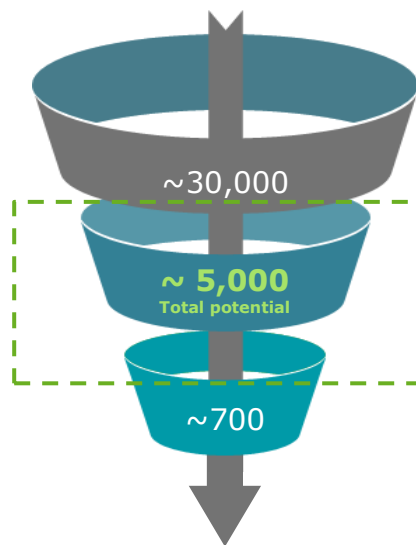
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Costs of Serial Modernization
in €/sqm living space

Selection Criteria for serial Projects Focus on the Viability of Pure Façade Modernization without Heating

Based on 55,000 buildings



K.O. Criteria

Criteria for filtering the portfolio according to buildings relevant to modernization, e.g.

- No listed building
- No commercial
- Year of construction before 1947

Climate Path Criteria

Investment before funding:

2 bn€

Criteria for identifying modernization projects suitable for serial modernization of the façade, e.g.

- Energy efficiency >150 kWh/sqm
- Heating older than 10 years
- District heating potential²

Low-hanging Fruits

Investment before funding:

350 m€

Factors for prioritizing optimal projects for serial modernization, e.g.

- No balconies/loggias
- Max. §559¹ potential
- No string renovation

¹ Modernization allowance to increase rents by up to 8% of investment amount ² From year 6 onwards

Standardization through the Development of an All-in-one Façade for Maximum Scaling Potential

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► LIVE DEMO



FOCUS

SCALABLE ALL-IN-ONE FAÇADE

- 1 Façade Elements**
Prefabricated timber frame construction or insulation elements
 - 2 Doors**
House entrance doors and cellar/roof entrance doors made of aluminum
 - 3 Windows incl. Mechanical Ventilation**
Triple-glazed windows
 - 4 Roller Blind**
Thermal insulation glazing and shutters
- + Related Measures**
Additional project-specific measures

High Tolerances and Deviations in the Existing Building are the Challenges for Serial Prefabrication






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► LIVE DEMO

3D-Scanner



› Benefits

-  High precision
-  Collection of potentially relevant data
-  Data basis for BIM¹ utilisation
-  Highest speed
-  Quality assurance



Project Example

Cologne, Buchforststraße



Use of 3D-Scanner

- › Internal measurement for preliminary planning
- › External measurement of the general contractor for planning and production
- › External measurement necessary for warranty reasons

¹ Building Information Modelling.

Shifting Revenue from Energy Suppliers to Vonovia through Reducing Energy Consumption at Large Scale

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- Fact sheet -
Garmisch-Partenkirchen

Project example: Garmisch-Partenkirchen

Scope of Modernization

Façade

- › Prefabricated façade modules including insulation and windows provided by Baufritz
- › Integrated ventilation with heat recovery
- › Existing balconies remain in place



Electricity

- › Installation of a photovoltaic system on the roof

Heating

- › Installation of pellet heating
- › Existing radiators remain in place

KPIs

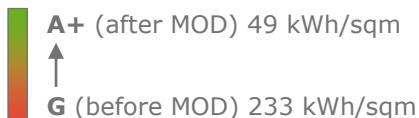
Revenue	Ø Net cold rent increase	2.1 €/sqm
	Ø Warm rent increase	0.9 €/sqm
Invest	Total invest	5.7 m€
	Net invest after subsidy	3.8 m€
Profit	Rental yield ¹	6.5 %

Project Description

Key Facts

- › 13 Building entrances
- › Built in 1975
- › 74 Units with
- › ~ 6,000 sqm living space

Execution



Construction Time

- › Serial on average 4 times faster than conventional modernization
- › Labour intensity reduced by 50%

¹ (Incremental in-place rent following modernization + incremental reletting rent + CO2 tax savings) / (construction cost – subsidy – interest advantage).

Summary: Serial Modernization just Becoming Product-ready and Will Be More than an Economic Alternative

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Serial modernization offers an **economical alternative** and supplement for a **faster** path to climate neutrality of the portfolio.

01



First modernization projects implemented. **Focus** on all-in-One **Façade** initiated for **lower** building **cost** and **faster scaling**

02



Results and learning of first projects show technical **readiness of serial modernization** for energy modernization

03

BACK-UP

Impressions from the Construction Site in Garmisch-Partenkirchen

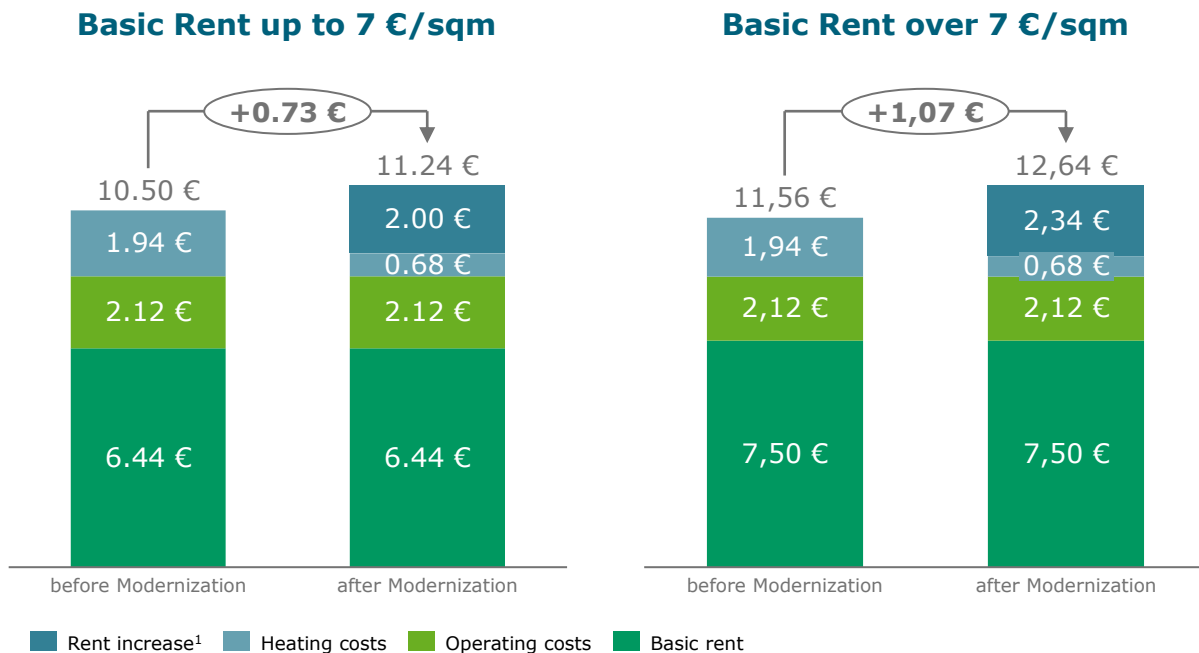
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Project Example: Garmisch-Partenkirchen



Modernization-related Rent Increases Are Kept Low by Saving on Heating Costs

Project Example: Garmisch-Partenkirchen



¹ Rent increase results from maximum increase minus interest advantage and subsidy plus heating allocation.

**Effective rent
increase to an
average of
0.90 €/sqm**

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