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Policy Brief
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Increasing energy efficiency in residential building renovations

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INTRODUCTION

Improving energy efficiency in residential buildings is a key strategy to achieve the European Union's climate, energy and decarbonisation goals. Many technical measures and solutions are available; however, energy efficiency measures are often not prioritised in building renovations' planning and design phases, which limits their adoption. This policy brief examines barriers and challenges that prevent the implementation of energy-efficient solutions and offers recommendations for overcoming them. The findings are based on a comparative case study of building renovations in Sweden and Denmark.

Key challenges in the planning and design of building renovations

PRIORITIZATIONS OF BUILDING DESIGN ASPECTS AND TECHNICAL INSTALLATIONS

- There is a primary focus on technical installations and architectural aspects, often at the expense of energy efficiency measures.
- Despite formulated energy goals, energy-related topics were either briefly discussed at the end of meetings (Sweden) or treated as minor agenda items (Denmark), which reflects the low priority of energy issues.

ENERGY-FOCUSED RENOVATIONS VS. "BUSINESS AS USUAL" APPROACHES

- The involved professionals tended to rely on familiar standard measures, to reduce energy consumption "as much as possible". This was done without precise calculations or measurements and decisions were based on experience and rule of thumb.
- Despite having initially ambitious energy goals, both cases were business-as-usual renovations rather than energy-focused initiatives.
- There was insufficient time or a place on the agenda to explore innovative or advanced energy solutions.

CHALLENGES ASSOCIATED WITH ENERGY CALCULATIONS AND THE DELINEATION OF RESPONSIBILITIES FOR ENERGY-RELATED TASKS

- Energy calculations were carried out by energy consultants, however, they were commonly overlooked and not integrated into the actual planning and design.
- Individuals responsible for energy-related tasks, such as energy consultants or members of energy groups, often remained passive or in the background.

AVAILABILITY OF FINANCIAL SUPPORT FOR ENERGY EFFICIENCY INITIATIVES

- Financial constraints and strict financial requirements played a major role in shaping the scope and prioritisation of energy efficiency measures in both cases.
- In Sweden, there were additionally very strict payback rules and as a result only a few, simple standard energy efficiency measures were selected.
- In Denmark, the building renovation was funded through subsidies from the National Building Foundation, loans, and internal funds. This particular funding strategy also led to a focus on repairing existing issues instead of adopting energy efficiency measures.

TRANSLATING OVERARCHING ENERGY OBJECTIVES INTO SPECIFIC, ACTIONABLE GOALS: FROM GENERAL TO SPECIFIC

- Both cases had ambitious energy goals. The issue was that they were poorly communicated and difficult to translate into clear, actionable steps for the renovations in both countries. This led to a gap between the original ambitious energy goals and the actions taken during the renovations.

Policy recommendations

INTEGRATING ENERGY CONSIDERATIONS SYSTEMATICALLY

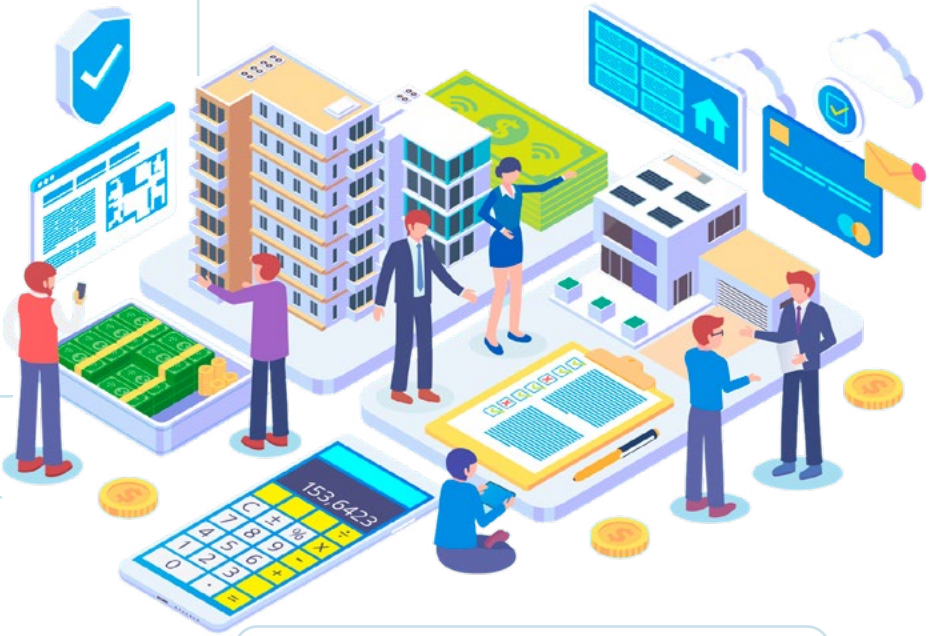
- Establish clear standards, procedures, and routines to make energy efficiency a mandatory aspect of the planning and design phases of building renovations. This would help to ensure that energy goals and issues are consistently prioritised and not overlooked

ORGANISATIONAL SHIFTS

- Create an organisational culture that prioritises energy efficiency for all activities in a company, including renovation and construction projects
- Ensure that also the upper management prioritises energy efficiency, especially regarding financial decisions
- Provide training programs for employees, including external actors such as architects, engineers, and building managers to promote the adoption of (new and innovative) energy-efficient renovation strategies.

INCREASED FINANCIAL INCENTIVES AND ALTERNATIVE FUNDING MODELS

- Develop subsidies and financial mechanisms that go beyond minimum and standard building renovations and have a stronger focus on energy efficiency.
- Explore funding options to overcome budget limitations and enable energy-efficient measures, e.g. encouraging public-private partnerships (e.g., between governments, private investors and building owners) to fund renovations.



ADOPTION OF DIGITAL TOOLS AND SMART ENERGY SOLUTIONS

- Use of multi-criteria tools to assess the impact of energy efficiency measures, taking into account factors such as budget, function and technical requirements.
- Implement energy monitoring systems to track energy use before and after a renovation, to ensure that the adoption of energy efficiency measures are measurable and effective.

THE IMPORTANT ROLE OF THE ENERGY CONSULTANTS

- Do not simply include but also integrate energy consultants or experts during the planning and design phases by e.g. giving them time and a place on the agenda and ensuring that energy calculations are used during the planning and design of renovations.
- Energy consultants can play a key role in translating broad energy goals into actionable steps, they can contribute to ensuring that these goals are effectively communicated and achieved during the renovation.

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