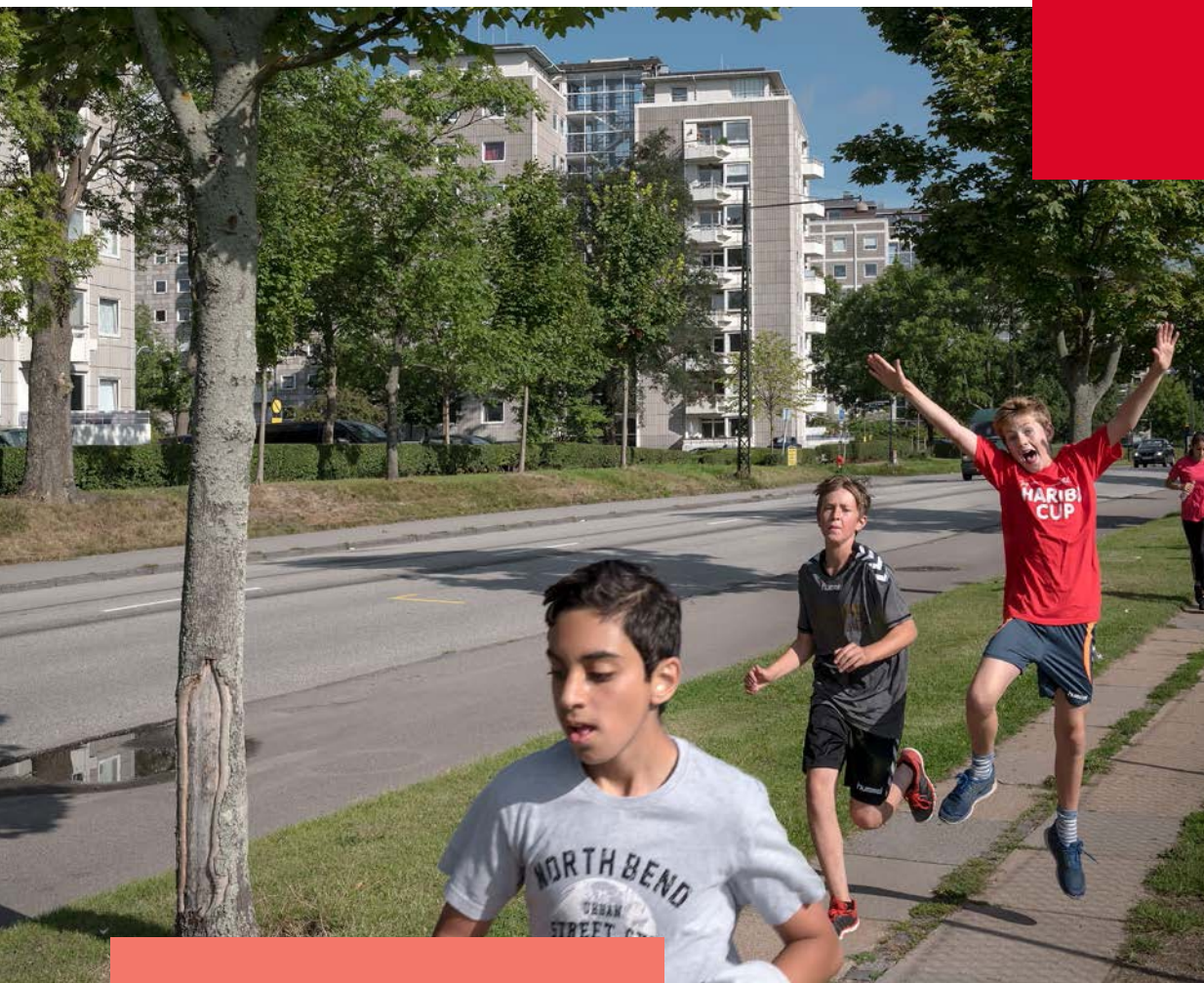



Upscaling urban regeneration

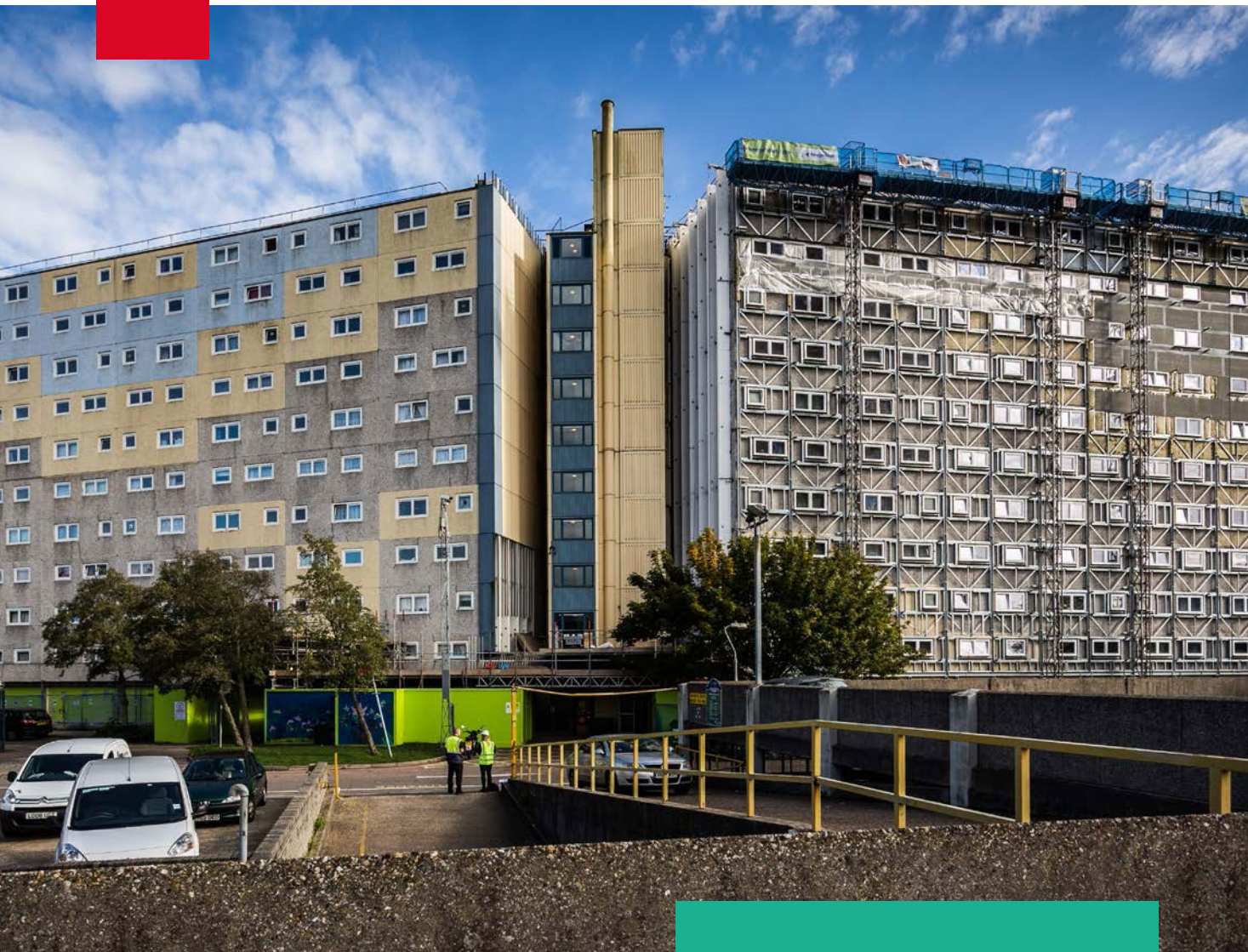
European frontrunner cases are leading the way



In cooperation with:

 Climate-KIC is supported by the EIT, a body of the European Union





ROCKWOOL, EIT Climate-KIC and BPIE want to dedicate a special thank you to all the people who contributed to this report. Particularly the project managers who offered in-depth information about the cases, Agneta Persson, Malmö Stad (Lindängen) - Peter Føhrby Nybom, BO-VEST (Albertslund) - Andries Geerse, We Love The City (Kolenkitbuurt) & James Traynor, ECD Architects (Wilmcote House). Thank you also to the inspiring speakers and enthusiastic individuals who participated at the workshop in Copenhagen, Claus-Bech-Danielsen, Danish Building Research Institute - Agneta Persson, Anthesis Group - Lukas Lundström, Eskilstuna Kommunfastigheter AB - Joachim De Wijs, Stebo - Cecilia Hugony, TeicosGroup - Davide Cali & Christoffer Rasmussen, Danish Technical University - Rachel Huxley, C40 - Peter Vangsbo & Marco Carreira Silva, Climate KIC Nordic - Anne Svendsen, Viegand Maagøe - Ulrik Eggert Knuth-Winterfeldt, Boligselskabet Sjælland - Dea Maria Petersen, KAB - Morten Koed Rasmussen & Morten Høg, Høje Taastrup Municipality - Jakob Jespersen, Lyngby-Taarbæk Municipality - Valter Glavičić, Labin Municipality - Piero Pelizzaro, Milan Municipality - Elisabeth Manford, DK Foreign Ministry - Niels Kåre Bruun & Kristoffer Saunamäki, BetterHome - Eva Elisabeth Gregersen, Copenhagen Municipality - Tomas Breddam, Roskilde Municipality - Klavs Jakobsen, Arkitekt KK Jakobsen - Mirella Vitale, Connie Enghus, Susanne Dyrbøl, Charlotte Dawids, Stinne Sanders, Kim Brandt, Steen Lindby. Jens Eg Rabek & Henrik Frank Nielsen, ROCKWOOL Group - Christian Jøelck, ROCKWOOL Nordic - Anđelka Toto Ormuž & Paolo Migliavacca, ROCKWOOL LAT - Jessica Smith & Ólöf Jónsdóttir, ROCKWOOL UK - John Relou, Rockpanel - Thanks to EDC Architects, Landsbyggefonden, Trianon and "We love the City" for helping with pictures.

Foreword

Across the globe more than 30 % of greenhouse gas emissions derive from energy use in buildings. By 2050 global building energy demand could increase by 50% if no action is taken. Reaching the Paris Climate goals requires investing in renovation of the existing building stock.

Increasing the energy efficiency of buildings is not only the most significant and cost effective investment cities can make to reduce their impact on climate, it is also the backbone to a future prosperous society. This is about people's right to live, learn, work, and recover in buildings that are comfortable and in which they feel, safe.

The choices we make today will define the cities of tomorrow. Our homes and buildings are a major part of our everyday lives and are important to the finances and wellbeing of our families. If we choose cost effective and energy efficient solutions every time we renovate we will enhance quality of life without compromising the architectural and aesthetic qualities that make a building special.

In May 2018 we invited a group of leading experts from across Europe to share their knowledge from successful large-scale urban regeneration projects. Projects which have increased the value and quality of buildings, improved indoor climate and daylight conditions, making buildings healthier and better to live and work in.

It is our hope that this report will provide valuable insights for future choices.

At ROCKWOOL, we've been applying the 7 strengths of stone to the world's biggest challenges for decades. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges-- from energy consumption and noise pollution, to fire-resilience, water scarcity and flooding. Our range of products reflect the diverse needs to the renovation challenge.

Mirella Vitale

SENIOR VICE PRESIDENT, ROCKWOOL GROUP



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KEY FACTORS for a successful
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Talking urban regeneration



More than 50 leading experts from around Europe joined together in Copenhagen to discuss urban regeneration.

During the workshop, organised by the ROCKWOOL Group and BPIE in May 2018, real cases and experiences were shared, followed by an interactive discussion between policymakers, architects, housing companies, researchers and consultants on how to move forward in a sustainable manner. The seed for this report was **planted at the workshop**.



“In the 60s and 70s social housing in Denmark was built on the idea of equality. Since then, society changed and today everyone wants to be unique, and we talk more about diversity than equality. Naturally, our perception of the long row of “equal” buildings have changed. This “mental renewal” is something we have to deal with and relate to as well. The physical transformation of a neighbourhood can have a positive impact on peoples’ mind, but it has to be aligned with social and organisational efforts.

In particular, we have learned that deep renovations combined with aesthetic quality and use of long-lasting materials are cheaper in the long run as maintenance becomes much cheaper and the buildings continue to look nice after some years.”

Claus Bech-Danielsen

PROFESSOR AT THE DANISH BUILDING RESEARCH INSTITUTE



“The social impact of energy refurbishment is hugely important and that is why we need to learn the lessons from successful projects. Energy refurbishment can actually improve residents’ ability to pay rent whilst also improving their quality of life. This can be seen in improved health from reduced asthma and improved learning with children now able to do their homework in comfortably warm bedrooms. In the long term, it also pays to do deep refurbishment as low energy demand and low carbon emissions are locked in for the life of the building.”

James Traynor

MANAGING DIRECTOR AT ECD ARCHITECTS



The answer to the climate change problem lies to a large degree in cities. Urban regeneration is important because we need to ensure that our cities, living spaces and working environment are fit for the future and enable the citizens to live a sustainable lifestyle. Urban regeneration is one of the main challenges our society is facing. I hope that this report of case studies and learnings identified in the exchange with leading experts is a valuable contribution inspiring cities and building owners to scale up urban regeneration.

Oliver Rapf
EXECUTIVE DIRECTOR, BPIE

“You can make business models out of business opportunities and we need to design new business models capturing the multiple benefits of energy renovations. Scaling up actions requires a significantly more focused effort and a broader and early collaboration between different stakeholder - government, businesses and private sectors - with various competencies throughout the process. It requires a more holistic approach and a long-term vision for the development of cities. Public authorities need to be engaged and should take the lead.”

Agneta Persson
HEAD OF ENERGY AND SUSTAINABLE CITIES NORDIC REGION



“Unless people are involved in developing the renovation project around their home they don’t feel ownership for the project.

The business model for small and medium-sized enterprises needs to change completely and focus on the whole renovation process. We have to support the citizens in the design of energy renovation, in defining the financial scheme, integrating existing incentives, helping them to comply with complex regulations. We can make change happen, but we need to guide the clients through all the phases of renovation.”

Cecilia Hugony
CEO TEICOSGROUP



“Any person who went through the process of a home renovation knows it can be a hassle; it is complicated and difficult to assess what you have to do, as well as when and how you should do it. The new role of “renovation mediator” helps to smoothen the renovation journey for the client by guiding them through the renovation jungle with all of its uncertainties regarding contractors, timings, fair pricing, material choices, etc. As the renovation is often also an emotional decision, the mediator should possess the skills to translate the emotions and motivations of the client, so that the building professionals can turn the dream into reality.”

Joachim de Wijs
ENERGY COORDINATOR, STEBO

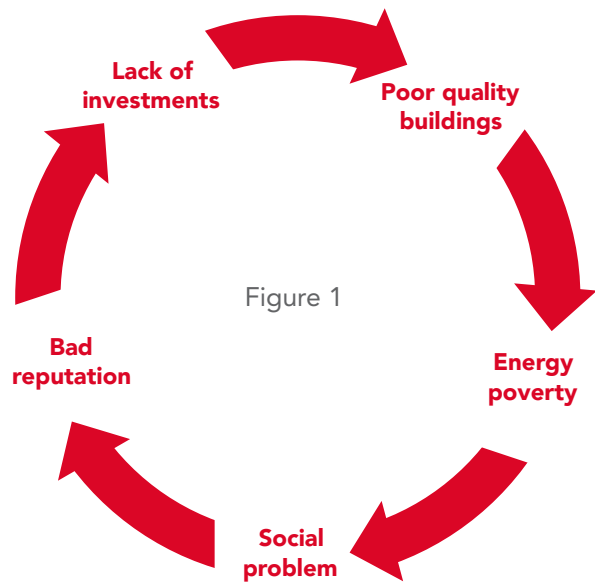


URBAN REGENERATION

A path to more sustainable cities

Many European cities struggle with disadvantaged neighbourhoods, characterised by multiple social problems, inadequate living conditions and bad reputations. These problems are often reinforcing each other in a vicious circle, causing a negative trend for the area (see example in Figure 1). The challenge to revitalise these areas is amplified by the situation that they are often physically and socially detached from the rest of the city.

The troubled areas can occupy one street or a complete district in the fringes of the city. Buildings forming them are now around 40-60 years old and were built at a time characterised with different societal ideals. During the 1960s and 1970s, there was a huge need for dwellings in cities and most constructions were built on the idea of equality. Time has changed and so has our expectations of the built environment. Moreover, most of these buildings are in a dire need of an upgrade, to lower the energy consumption, improve thermal comfort, as well as to improve aesthetics of the neighbourhood.



The concept of **urban regeneration** is defined as "a vision which leads to the resolution of urban problems and which seeks to bring lasting socio-economic, physical and environmental conditions of an area that has been subject to change." (Roberts and Sykes, 2000)



This report features four different urban regeneration stories from England, Denmark, Sweden and The Netherlands. The cases show that a comprehensive strategy comprising both physical and social initiatives can transform whole areas into attractive and liveable spaces, and can turn around the negative trend experienced in these neighbourhoods.

The identified success factors are (i) a strong long-term commitment from the public authorities, (ii) a well-adjusted combination of social and physical measures, (iii) the involvement and empowerment of the people living in the area, and (iv) an early collaboration between multiple actors with different expertise. The report does not intend to define what urban regeneration should be but rather provide inspiration for what and how it could be done.

The insights and recommendations presented in the report are based on interviews with project leaders of the cases, together with expert input gathered during a workshop. The workshop, which was organised by the ROCKWOOL Group and BPIE in May 2018, in cooperation with Climate KIC, featured real urban regeneration and renovation models, together with presentations on how to; (i) get residents trust and support, (ii) incorporate the multiple benefits, and (iii) lead by example as a public authority. In addition, the workshop included an interactive dialogue between local policymakers, architects, housing companies, researchers and consultants on how to facilitate a sustainable urban regeneration.

The report and workshop aimed to answer the following questions: (i) How is it possible to replicate the positive experiences in other cities and projects? Which are the key success factors? (ii) How can well-designed renovation projects improve the quality of life in a rundown or challenged urban areas?, and (iii) What is the best way to maximise the social benefits of energy renovation projects?



INSPIRING CASE 1

Collaboration enables a sustainable urban development in Lindängen

Lindängen is a suburb in the south-east of Malmö in Sweden, which was developed during the “Million Programme”; an ambitious public housing programme that reformed the Swedish building stock in the 1960s and 1970s. As many similar neighbourhoods, Lindängen struggles with social problems, inadequate housing and a bad reputation.

In an attempt to ensure a prosperous future for the city, Malmö has developed a strategy called “Comprehensive plan for Malmö”, which outlines the city’s long-term strategy, including the urban revitalisation of Lindängen. The wider plan aims to create a robust and long-term sustainable urban structure for an increased population, green growth and a continued development of Malmö’s attractiveness¹. The local plan for Lindängen intends to invest 500 million SEK (approx. €49 million) in the coming 5 years in physical and social measures, including a new school, family centre and new residential buildings. The project leader, Agneta Persson, reasons that “the ‘social muscles’ in the neighbourhood are strong, but the ‘physical skeleton’ needs an upgrade”².

The urban regeneration of Lindängen is a complex process involving multiple actors. For instance, the plan for Lindängen involves 14 different administrations within the municipality, as well as regular workshops with researchers, property owners and stakeholders. The collaborative approach makes sure that all relevant actors are involved and assign to a common vision for the neighbourhood.

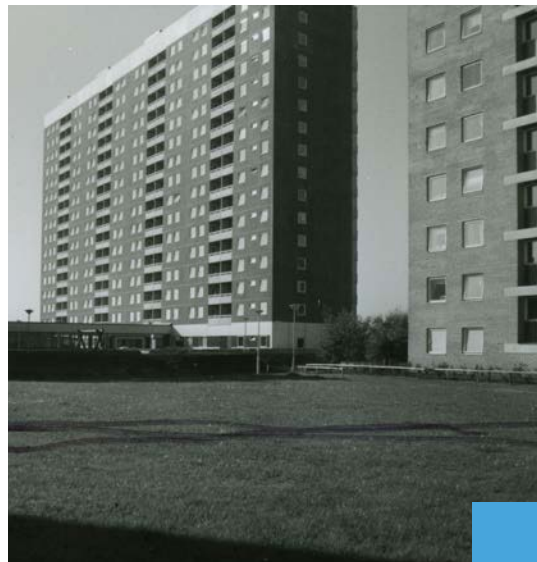
One of the key actors is Trianon, a private real estate company, which owns a considerable number of buildings in the area. When they planned to renovate their residential properties in Lindängen, they chose to collaborate with the city. The collaboration ensured a good balance between the physical transformation and the social initiatives. What is called “social contracts”, include initiatives like employment of unemployed residents in the area, summer jobs for young people, and re-using the old windows to build greenhouses for the residents. The combined measures have been successful in reducing vandalism, improved the general well-being and reduced relocation. For the first time in 40 years, new constructions are planned for the area. **Trianon concludes that the implemented measures have increased the value of their properties while reducing operational and maintenance costs.**



Lindängen, new Trianon buildings. Source: Trianon, Photographer: Pernilla Wästberg

KEY SUCCESS FACTORS

- The urban regeneration is part of a broader strategy for the city, which enables synergies between projects and initiatives
- The inclusive and collaborative stakeholder process ensures an effective process
- The social contracts in the renovation process increased the support among residents and increased their feeling of ownership
- The public-private partnership enabled the multiple benefits of the renovation, such as well-being, safety and local jobs, to be part of the business model



Lindängen, Million Programme-buildings in 1970s. Source: Malmö Stadsarkiv



Urban regeneration should focus on creating living spaces which are fit for the future

Oliver Rapf

Executive Director
BUILDING PERFORMANCE
INSTITUTE EUROPE

1 https://malmo.se/download/18.1256e63814a61a1b34c1ade/1491298771893/OP_english_summary_hemsida.pdf

2 <http://malmo.lokaltidningen.se/nyheter/2018-05-02/-500-miljoner-kronor-investeras-i-Lind%C3%A4ngen-2061652.html>

3 In Sweden, it is common practice that the heating cost is included in the fixed rent (i.e. building owners have a bigger incentive to renovate).

INSPIRING CASE 2

Alleviating energy poverty through a deep renovation of Wilmcote House in Somerstown

Wilmcote House was constructed in 1968 and consists of three connected 11 storey blocks of 107 residential dwellings, located in Somerstown in Portsmouth in England. Somerstown has for many years been one of the most underprivileged areas of the city but is undergoing a regeneration process. The Portsmouth action plan for the area outlines the objectives to generate (i) more housing alternatives, including a mix of tenure, (ii) better community facilities (health, youth and community buildings), and (iii) a better and safer outdoor environment⁴.

One part of the action plan is a deep retrofit of the Wilmcote House. **The city council believed that a whole building refurbishment of Wilmcote House could dramatically improve residents' standard of living, increase comfort levels and reduce heating bills.**

The challenge was massive as the building was initially built using a prefabricated reinforced concrete sandwich panel system with merely 25 mm of insulation. The poor insulation caused discomfort, energy leakage and was identified as the root cause of energy poverty problems for residents. According to a preliminary study by London School of Economics the residences experienced many problems related to their indoor environment: 66% of tenants considered the indoor temperature not to be comfortable, and 66% of the residents reported suffering from or having a family member affected by health problems which worsen in cold and damp conditions⁵.

The renovation procedure applied a holistic approach, which included external wall insulation, new heating systems, roof insulation and new highperformance windows. The new building performance standard meets the stringent EnerPHit standard (the retrofit equivalent to Passivhaus), with an expected energy saving of around 90%.



KEY SUCCESS FACTORS

- The Portsmouth City Council applied a long-term perspective for Somerstown and considered the vast societal costs of energy poverty
- A detailed assessment of different renovation alternatives found that a deep renovation would be the cheapest option over a 30-year period
- Involvement of the residents in comprehensive consultation and feedback rounds
- In addition, an early collaborative approach involving the Portsmouth City Council and a multi-disciplinary team, including architects, engineers and research bodies



A new home often means a new start

James Traynor

Managing Director
ECD ARCHITECTS

4 <https://www.portsmouth.gov.uk/ext/development-and-planning/planning/area-action-plans>

5 <http://www.rockwool.co.uk/advice/renovation-and-new-build/wilmcote-house---preliminary-findings/>

INSPIRING CASE 3

A three phased masterplan offers Albertslund a fresh start

Albertslund is a suburb in the western outskirts of Copenhagen in Denmark. In the early 1960s, the area had around 3.000 residents which through an ambitious urban planning strategy and an industrialised construction process grew to around 30.000 in less than a decade. In contrast to most suburbs in Northern Europe, Albertslund is known for its mainly low-rise housing stock but still shares the common problems of inadequate buildings, many social problems and a bad reputation.

In order to revitalise the area, the municipality developed an ambitious strategy; The Masterplan Syd. It is a holistic plan combining physical and social measures that were made possible through the collaboration between the municipality and 3 housing companies. The renewal of buildings in Albertslund is partly being funded by Landsbyggefonden⁶, which is a selfgoverning institution founded by public housing organisations and established by national law. The fund is based on solidarity and aims to enable the selffinancing of energy renovations of public houses in Denmark.

The Masterplan Syd consists of a three-phase renovation approach: The first phase renovated several multifamily houses with a total of 547 dwellings, completed in 2010. In addition to a better building performance (due to increased insulation), aesthetics was improved thanks to a new façade. Due to changed family situations, some of the small apartments were turned into more family-friendly dwellings.

The second phase was the renovation of 550 townhouses, which ended in 2014. The townhouses underwent a deep retrofit process comprising new facades and roofs, LED lights, kitchens, and a new waste management system. The renovation of the multifamily and townhouses have resulted in reduced energy bills for the residents of around 500 DKK (67 EUR) a month.

The third, and ongoing, phase is the renovation of the 1005 single-family houses which will end in around 2022. Different renovation approaches are being tested, including the option to demolish the buildings to the foundation and rebuild as new construction.

While the Masterplan has not been finalised, the physical revitalisation of the area is obvious. The upgraded buildings come with lower energy bills, reduced CO₂-emissions and better living conditions for the residents. The population in the area is now more mixed and there is a perception of a more sparkling neighbourhood.



KEY SUCCESS FACTORS

- Collaboration among key actors, the municipality, housing associations, Landsbyggefonden, together with active and engaged residents
- Big scale renovation but individualised approach. The residents were encouraged to design the interior of their building, with the result that all buildings look the same from the outside but very different from the inside
- Long-term planning is needed for success. When the Masterplan Albertslund is finalised, it will have been implemented for about 18 years



Aesthetic quality and long-lasting materials are cheaper in the long run

Claus Bech-Danielsen

Professor
DANISH BUILDING
RESEARCH INSTITUTE

INSPIRING CASE 4

Empowering the residents with social and physical measures in Kolenkitbuurt

Kolenkitbuurt was built in the 1950s to meet the growing demand for affordable housing and was considered to be the "symbol of the new Welfare State Holland"⁷. 60 years later, the neighbourhood, in Western Amsterdam in the Netherlands, was considered to be the worst in the country and struggled with poor houses, unemployment, overcrowded apartments and other social problems. Segregation was another major issue as few people of Dutch origin lived in the area, hampering the residents' prospect to acquire the language and culture. Furthermore, most residents perceived the area as "unpleasant" and "insecure". The effort to revitalise Kolenkitbuurt took off in 2003 with the Renewal Plan Kolenkitbuurt⁸.

The Masterplan for Kolenkitbuurt comprises social, economic and physical measures, which together aimed to transform the area from "somewhere I have to" to "somewhere I want to" live. According to the plan, it is important that the urban renewal is visible as the perception of the area is important and should be restored. Renovation and new construction of the buildings in the neighbourhood were combined with a more pleasant and accessible public space, in which the residents could meet and socialise. 85% of the residents voted in favour of the far-reaching plan⁹.

The physical transformation consists of the (i) demolition of 1.000 inadequate houses¹⁰, (ii) construction of 1.450 new highly efficient dwellings, and (iii) around 600 houses with architectural value were renovated. The outdoor environment was also redesigned, including new gardens in front of the buildings.

The social transformation comprises new schools and facilities, as well as a more mixed neighbourhood. Two highly energy efficient public schools were built in the area, with the purpose to facilitate better education opportunities for the residents. In addition, the schools are open beyond business hours and function as well as meeting places for the residents. Furthermore, all initial residents were promised an apartment in the regenerated neighbourhood, resulting in that most initial residents decided to move to the new bigger apartments, while newcomers (often younger people) moved into the smaller renovated apartments.

The economic transformation builds primarily on lower energy bills for the residents. The social housing sector in The Netherlands protects the residents from any dramatic rent increase, but more efficient buildings lower the energy bills for the residents. The energy savings for a single household reached up to 80%.



Kolenkbuurt, Source: We Love The City

KEY SUCCESS FACTORS

- A bottom-up approach where the residents are empowered and involved in the process
- The long-term urban renewal plan provides foresight and consistency for the residents
- The new buildings were built before the old ones were demolished to facilitate a smooth transition for the residents
- The urban transformation is visible



Kolenkbuurt, Source: We Love The City



Create ownership of tenants by involving them in the renovation project of their homes

Cecilia Hugony

CEO
TEISOC GROUP

7 Andries Geerse, Transforming Holland's poorest neighbourhood by non-profit organisations

8 https://www.amsterdam.nl/publish/pages/807603/4_1.pdf

9 Andries Geerse, Transforming Holland's poorest neighbourhood by non-profit organisations

10 All the waste from the demolition was reused.

Key factors for a successful urban regeneration



Analysing existing examples of urban regeneration, from which four were presented in this report, key success factors were identified. The valuable exchange between leading experts on the topic which took place at the workshop in Denmark has also made a significant contribution to the conclusions.

Urban regeneration is not the same as gentrification. It is, therefore, important to **make sure the residents are involved and empowered in the regeneration process**. While many disadvantaged areas would benefit from hosting a more mixed population, the means to achieve this cannot be to push out the most vulnerable groups. In contrast, a deep renovation will improve residents' ability to pay rent through lower energy bills. A successful urban regeneration process can lift a whole neighbourhood including the people in it.

A successful urban regeneration strategy cannot be fulfilled without knowing the needs of the residents. A **bottom-up approach where residents are involved can uncover new innovative solutions** while making the residents feel ownership of the process and increase their willingness to participate. Build on the existing culture rather than building something new! The case of an individual catalogue of measures in Albertslund demonstrates how a big scale renovation process can be personalised.

Look beyond the near-term period! **A long-term plan for the neighbourhood will increase the chances of a successful regeneration process**. The plan should incorporate the multiple benefits which a physical and social transformation will entail, such as better living standard and health, alleviation of energy poverty, an increase of real estate value, reduction of maintenance cost and mitigation of the areas climate change impact.

Furthermore, **the multiple benefits of deep renovation should be valued and monetised**. Research¹¹ shows that inadequate housing is linked with numerous societal costs, such as health care costs, higher safety and emergency costs and lower school results. Public authorities ought to incorporate these costs in their cost-benefit analysis.

The **physical transformation of a home and a neighbourhood can have a positive impact on people's view and behaviour**. A balanced urban regeneration process needs to combine physical and social measures in a harmonised manner. Physical and social measures are not two separate pieces but very much interlinked. One interviewee concluded that "a new home often means a new start".





The physical transformation of buildings should be long-lasting. It is evident that deep renovations using high-quality materials and combining the energy upgrade with an architectural upgrade are the cheapest solution in the long run. Deep renovation guarantees a very low energy demand for the next 30-50 years. In addition, maintenance and administrations costs are reduced as well.

In all the cases presented, the local authorities have played a key role. In Malmö, the **authorities have been successful in driving transformation through public-private partnerships** in which they safeguard the social aspects. Another key success factor is the breaking down of silos within the public governance, for example by setting up a task group with various departments (housing, energy, climate, social, budget etc) and involving solution providers early in the process. Scaling up deep renovation requires more collaboration between various stakeholder, assembling different skills and expertise.

Aggregating renovation projects to benefit from economies of scale. The **buildings built during the 1960s and 1970s are especially suited to an aggregated, and more industrialised, renovation approach** which could reduce the time spent on site and cost. New business models (including one-stop-shops, renovation mediators etc.) and new technologies should be supported and further explored.

Urban regeneration deserves additional attention as we need to transform our cities, living spaces and our working spaces in a sustainable manner. An upgraded building stock will enable and induce the citizens to live a more sustainable lifestyle. Urban regeneration is one of the main tasks for our societies to tackle. This report has, in a brief way, told the story of four urban regeneration cases and derived a number of key success factors. By borrowing key success factors from these and other cases, we encourage cities to develop their own urban regeneration path.



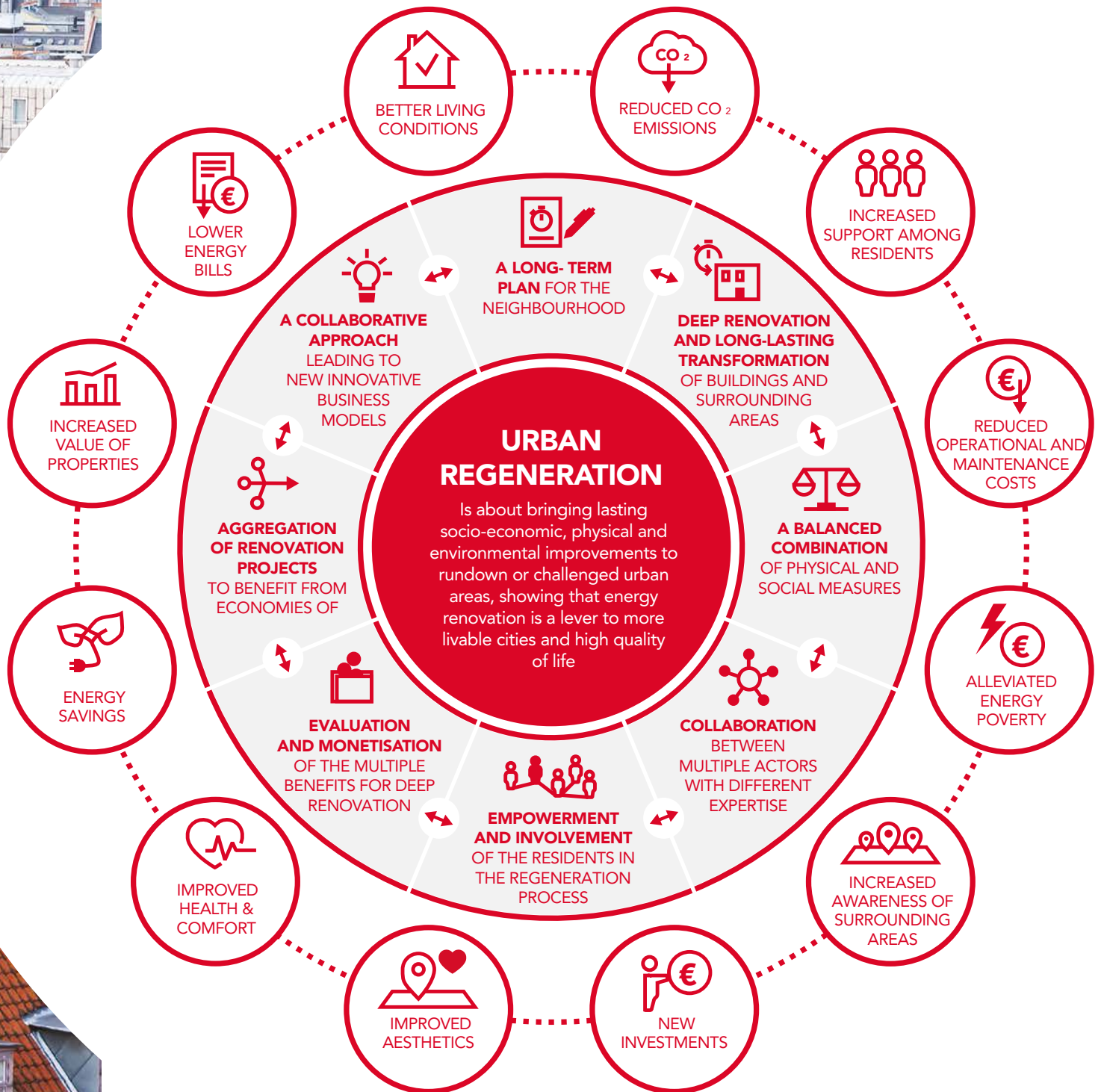
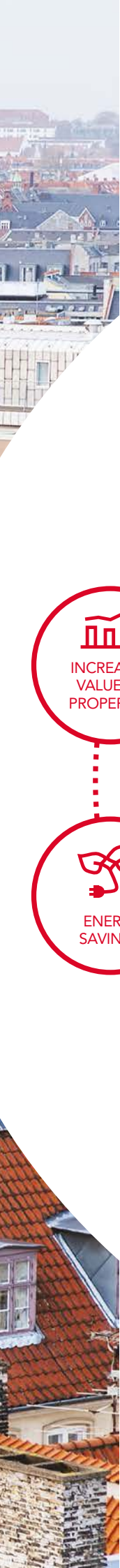
11 https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1604en_0.pdf





Key factors for a successful urban regeneration





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