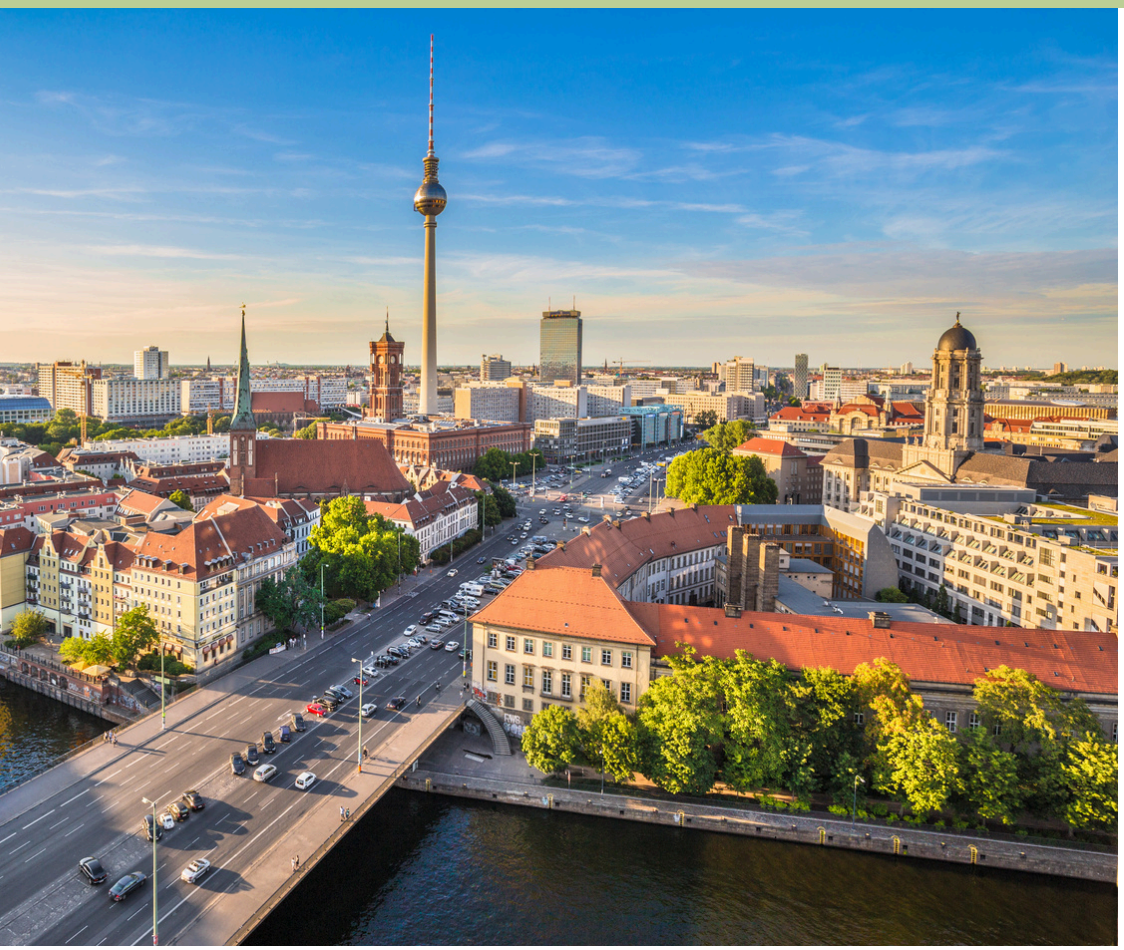
BERLIN

TURNING RISK INTO OPPORTUNITY: DECARBONISING STRANDED ASSETS AT A NEIGHBOURHOOD SCALE

A ULI Advisory Services Panel Report

25 FEBRUARY - 01 MARCH 2024



Urban Land Institute

cChange

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ULI Europe
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London, EC2M 4YJ
United Kingdom

About

About the Urban Land Institute

The Urban Land Institute is a global, member-driven organisation comprising more than 48,000 real estate and urban development professionals dedicated to advancing the Institute's mission of shaping the future of the built environment for transformative impact in communities worldwide.ULI's interdisciplinary membership represents all aspects of the industry, including developers, property owners, investors, architects, urban planners, public officials, real estate brokers, appraisers, attorneys, engineers, financiers, and academics.

Established in 1936, the Institute has a presence in the Americas, Europe, and Asia Pacific regions, with members in 80+ countries. The extraordinary impact that ULI makes on land use decision making is based on its members sharing expertise on a variety of factors affecting the built environment, including urbanisation, demographic and population changes, new economic drivers, technology advancements, and environmental concerns. Drawing on the work of its members, the Institute recognises and shares best practices in urban design and development for the benefit of communities around the globe.

More information is available at uli.org.

About the ULI Net Zero Imperative

The ULI Net Zero Imperative (NZI) is a multi-year initiative to accelerate decarbonisation in the built environment and is a significant aspect of ULI's work to advance its net zero mission priority. The programme sponsors technical assistance panels in a select number of global cities per year and is designed to help building owners, cities, and other relevant constituents reduce carbon emissions associated with buildings, communities, and cities.

About C Change

C Change is a ULI-led programme to mobilise the European real estate industry to decarbonise. We're a movement empowering everyone to work together for a sustainable future. We connect the brightest minds from across the value chain. We challenge barriers, share expertise, and champion innovation to move swiftly to accelerate solutions that will transform our industry and protect our planet. C Change means real change. C Change was formed in late 2021 by a group of leading real estate players that was united in its aim to focus on collaboration to ensure companies large and small have access to practical solutions and education on decarbonisation.

More information about C Change here.

C Change Project Sponsors

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About the ULI Advisory Services Programme

THE GOAL OF THE ULI ADVISORY SERVICES PROGRAMME (ASP) is to bring the finest expertise in the real estate field to bear on complex land use planning and development projects, programmes, and policies. Since 1947, this programme has assembled well over 700 ULI-member teams to help sponsors find creative, practical solutions for issues such as downtown redevelopment, land management strategies, evaluation of development potential, growth management, community revitalisation, brownfield redevelopment, military base reuse, provision of low-cost and affordable housing, and asset management strategies, among other matters. A wide variety of public, private, and nonprofit organisations have contracted for ULI's advisory services.

Each panel team is composed of highly qualified professionals who volunteer their time to ULI. They are chosen for their knowledge of the panel topic and are screened to ensure objectivity. ULI's interdisciplinary panel teams provide a holistic look at development problems. A respected ULI member who has previous panel experience chairs each panel.

The agenda for a five-day ASP is tailored to meet a sponsor's needs. The sponsor briefs ULI members, engage with stakeholders through in-depth interviews, deliberates on their recommendations, and make a final presentation of those recommendations. A report is prepared as a final deliverable.

A major strength of the programme is ULI's unique ability to draw on the knowledge and expertise of its members, including land developers and owners, public officials, academics, representatives of financial institutions, and others. In fulfilment of the mission of the Urban Land Institute, this report is intended to provide objective advice that will promote the responsible use of land to enhance the environment.

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The Advisory Services Programme acknowledges, with deep gratitude, the invaluable support provided throughout this process. We especially thank the Gewobag team for their insight and partnership in developing the Buckower Höfe case study. In particular, we are grateful to Inger Giwer-Gaul, Head of Portfoliomanagement at Gewobag AG Berlin, and Snezana Michaelis, former Board Member at Gewobag and now Board Member at SAGA AG Hamburg, for their time, guidance, and generous support throughout the project.

We would also like to thank Haris Piplas for his leadership in presenting the Kurfürstendamm case study and for helping shape the panel's reflections on sustainable commercial regeneration.

Special thanks go to Christian Schede and the Greenberg Traurig team for their generous hospitality in hosting the panel in Berlin and supporting the logistical delivery of the week.

Finally, ULI thanks the many stakeholders—over 75 individuals from across the public, private, and civic sectors—who contributed their time, perspectives, and insights to help shape the panel's findings and recommendations.

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Introduction

The built environment is a major contributor to global greenhouse gas emissions, accounting for nearly 40% of energy-related carbon dioxide emissions worldwide. Decarbonising the real estate sector is therefore critical to mitigating climate change risks and achieving international targets like limiting global warming to 1.5°C above pre-industrial levels.

The Decarbonisation Imperative

Buildings are responsible for 28% of global energy-related emissions from their operational energy use for heating, cooling, lighting and other systems. However, embodied carbon from construction materials, processes and end-of-life demolition/disposal accounts for an additional 11% of total emissions [1]. Despite improvements in energy efficiency, emissions from the built environment increased by 25% between 2000-2017, largely driven by a surge in new construction activity.

To align with a 1.5°C pathway, the International Energy Agency estimates that direct building emissions need to decrease by 50% by 2030 and be fully decarbonised by 2050. This requires a massive scale-up of both new green buildings as well as deep retrofits of existing stock at annual rates of 2-3%. Currently, global renovation rates are only 1-2% per year [2].

Within Europe specifically, nearly 75% of the building stock is energy inefficient, with almost a quarter constructed before 1945 [2]. Achieving the EU's climate goals will be impossible without significantly enhancing the energy performance of this ageing building stock through retrofits.

Embodied vs Operational Carbon

While much of the focus has historically been on reducing operational emissions from building energy use, embodied carbon is an often overlooked but critically important piece of the decarbonisation puzzle. A new building constructed today using traditional materials and methods can emit as much as half of its total life-cycle emissions before it even opens, through processes like mining, manufacturing and transportation of materials as well as construction activities on site.

As buildings become more operationally efficient, the proportion of total emissions from embodied carbon increases. Some estimates suggest embodied carbon could account for almost half of a new building's total carbon footprint by 2050 if operational emissions fall in line with climate targets. Retrofitting and reusing existing buildings can avoid these upfront embodied emissions compared to new construction.

Asset Stranding Risks

Failure to decarbonise buildings in line with climate goals poses significant risks of assets becoming economically "stranded" and devalued due to a combination of transition risks like:

- **Evolving regulations:** Policies like carbon pricing, energy performance standards, and mandatory disclosure requirements can increase operating costs and compliance burdens.
- **Market shifts:** There is growing demand from tenants, investors and other stakeholders for sustainable, energy-efficient buildings that can meet net zero targets.
- **Physical climate risks:** The direct impacts of climate change, such as rising temperatures, extreme weather events, sea level rise, etc. pose threats to building operations, cost and access to insurance and finance.
- **Transition risks:** As economies shift towards low-carbon models, assets reliant on fossil fuels or carbon-intensive supply chains may face disruptions and higher costs.

While these pressures affect all buildings to some extent, certain assets—particularly those with limited revenue potential or significant physical and social constraints—face disproportionately higher risks. In these cases, such as aging affordable housing stock, the business case for deep retrofit or regeneration is often weak. There may be no clear route to recouping investment costs through increased rents or sales values, making private-sector-led decarbonisation infeasible without public intervention or alternative funding mechanisms.

This makes a differentiated approach to risk and investment critical. High-risk, low-revenue assets require stronger public sector leadership, innovative financing tools, and governance models that account for non-monetary returns such as avoided social costs, health improvements, and community resilience. Recognising and addressing these dynamics is essential to ensure that climate transition efforts are both equitable and economically viable across all asset classes.

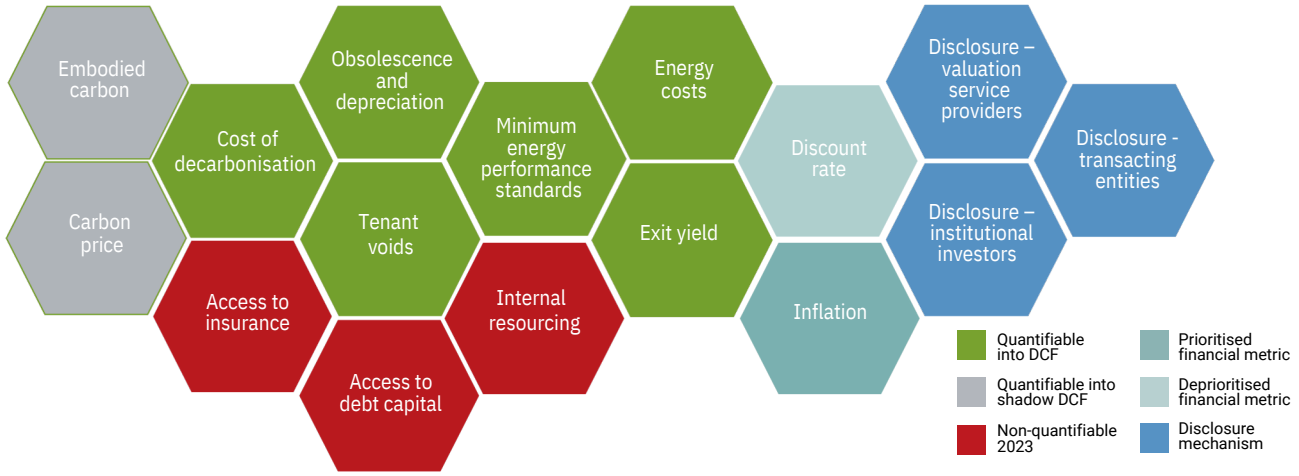
A recent study estimated that up to $16 trillion USD of real estate assets globally could be at risk of stranding by 2050 under a rapid decarbonisation scenario [3]. However, the risks are not evenly distributed - older, less efficient buildings in disadvantaged areas face higher vulnerability.

Addressing the decarbonisation challenge requires a comprehensive strategy that looks beyond just operational efficiency to embodied carbon, climate resilience, and transition planning. Taking an integrated, area-based approach can help mitigate risks while unlocking environmental, social and economic value creation opportunities.

Enabling a Just Transition through Decarbonising the Built Environment

ULI's 2022 report titled Breaking the Value Deadlock: Enabling Action on Decarbonisation notes that the path to decarbonisation is leading to polarisation of locations at regional, national, sub-regional and city levels, creating economic decline beyond prime markets [4]. This stifles broader economic growth and locks in social disadvantage.

Figure 1 - Eight transition risks can be quantified and assessed



Source: Urban Land Institute, C Change Transition Risk Assessment Guidelines, 2023

Institutional investors consider environmental risks core to investment decision-making. The feasibility of retrofitting towards decarbonisation, especially in the context of inflated underlying valuations, inevitably prioritises higher-value assets given the more favourable cost-to-value metrics. In turn, the availability of low-carbon premises is increasingly concentrated in these higher-value locations.

This results in lower-value areas beginning to spiral downwards in terms of real estate quality, energy efficiency and hence affordability, and in turn, occupier demand, resulting in declining values and risks of asset stranding. Across commercial sectors, occupiers with a requirement for customer-facing premises in locations with low supply of energy-efficient buildings indicate that they undertake some works themselves; however, they tend to seek new or recent stock as retrofitting the building in addition to renewable energy sources is beyond their capacity [5]. This results in unnecessary embodied carbon in new construction.

The decarbonisation agenda risks exacerbating existing inequalities if not managed carefully. A study by the University of Leeds found that low-income areas face higher energy costs and are more vulnerable to fuel poverty, yet have lower uptake of energy efficiency measures due to upfront costs and lack of incentives [6]. Similarly, research by the London School of Economics highlights how climate gentrification can price out lower-income residents from areas undergoing green redevelopment [7].

Need for a holistic, neighbourhood-scale approach

The decarbonisation of the built environment cannot be achieved through piecemeal, building-by-building efforts alone. A more comprehensive, area-based approach is required to unlock systemic solutions and realise the full potential for environmental, social and economic value creation.

At the core is a vision for integrated, place-based retrofit strategies centred on local communities rather than just individual properties. This means bringing all stakeholders together - residents, businesses, public authorities, investors and more - in a collaborative process to reimagine entire neighbourhoods as thriving, sustainable districts.

The benefits of this holistic approach are multifold:

- **Enabling coordinated interventions** across buildings, energy systems, mobility infrastructure, public realms and amenities within a defined geography. This coherence maximises impact while minimising potential conflicts or inefficiencies.
- **Unlocking economies of scale** by aggregating retrofit demand and implementing solutions like district heating/cooling networks that are unviable at a single building level.
- **Catalysing wider urban renewal and placemaking** by enhancing liveability, fostering community cohesion, and attracting further investment into the area.
- **Distributing environmental and socioeconomic benefits** more equitably across diverse communities rather than concentrating gains in prime areas.
- **Aligning public and private sector visions** to drive investments in synergy through consistent policy frameworks and innovative financing mechanisms.

At the neighbourhood scale, strategies can encompass a diverse mix of residential, commercial and industrial properties as well as public infrastructure. Key focus areas include:

- Densification and optimising land use through adaptive reuse and mixed-use development.
- Deep energy retrofits of existing building stock prioritised over new construction.
- Integrated sustainable mobility solutions and amenity enhancements.
- Decentralised energy generation, storage and distribution networks.
- Circular economy approaches to resource management and logistics.

However, this systems-level transformation requires unprecedented coordination and collaboration across sectors. Dedicated governance structures, stakeholder engagement processes, and public-private partnership models are critical enablers. Crucially, efforts must extend beyond prime real estate markets to truly drive an equitable transition. Disadvantaged areas facing compounding risks of asset stranding and entrenched socioeconomic challenges should be prioritised.

Objectives of the panel and panellists overview

Panel Objectives

The objectives of this panel were founded on the premise that we seek to achieve a fair and just transition in all our neighbourhoods and cities to ensure they remain investable and liveable.

To do this, we need to decarbonise all buildings and believe that this work can – and should – be seen as an integral part of wider urban renewal. In fact, we think it is no longer possible to separate addressing existing urban challenges from the need to decarbonise.

The risk of asset stranding is about a building not being fit-for-purpose anymore. This can relate to different elements – specific building elements such as location or building type, sectoral trends such as increasingly flexible working patterns and the impact of e-commerce on physical retail, or climate change and social issues. In practice, it is very hard to distinguish between the different elements, and they often intensify each other, with decarbonisation accelerating building obsolescence, especially for buildings/locations that face more structural issues.

To ensure buildings meet a relevant and long-lasting urban purpose, which include becoming net zero, they have to respond to current changes to structural demand. This helps realise the value uplift necessary to make the business case. For those sectors and buildings that generally face issues making the business case, such as social and affordable housing, the obsolescence risk and potential negative social impact are even greater. In addition to wider urban regeneration, these projects may also required scaling up and applying both decarbonisation and real estate initiatives across wider neighbourhoods or city districts to create cost-effective solutions and improve the business case for a greater number of buildings.

Therefore, the objectives of the panel were to:
Develop scalable multi-stakeholder solutions which build the business case for decarbonising assets at risk of stranding at a neighbourhood scale by unlocking, maximising, and sharing environmental, social, and economic value across the stakeholders.

And develop these solutions by:

- **Taking a holistic approach** to reduce or eliminate asset stranding by considering the different levers which could support value creation as part of decarbonisation, such as retrofitting, repurposing, planning, and financing.
- **Leveraging potential partnerships** among public and private stakeholders that, through working together on decarbonisation at scale, could "grow the pie" in terms of impact and value, and, in particular, recognise the importance and value of both quantitative and qualitative social outcomes.
- **Applying potential solutions** to the two areas – Kurfürstendamm High Street (commercial district) and Buckower Höfe (affordable housing estate) – in Berlin to identify universal principles that would work in all locations as well as specialist requirements /approaches to overcome obstacles in social and affordable housing and centre-fringe districts.

Panellists Overview

To tackle this complex challenge, ULI convened a group of 13 international experts spanning diverse fields including urban planning, architecture, real estate development, finance, policy, and innovation. These leading professionals generously volunteered their time and expertise to collaboratively develop innovative solutions.

By convening this diverse group of international experts, ULI was able to facilitate a rich cross-pollination of ideas, perspectives and best practices. The panellists' collective expertise spanned the critical elements required for holistic, neighbourhood-scale decarbonisation - from urban design and sustainable buildings to innovative financing mechanisms, public-private collaboration models, and community engagement strategies. This multidisciplinary approach exemplifies ULI's mission of sharing knowledge through public-private partnership to address complex urban challenges.

By leveraging the panel's global experience, the goal was to develop scalable multi-stakeholder solutions tailored to Berlin's specific context, focusing on the two case study areas Kurfürstendamm High Street and Buckower Höfe, while also identifying universal principles applicable to cities everywhere facing the decarbonisation imperative.

Panel Focus Areas

Berlin - Kurfürstendamm High Street (KFD):
A prominent commercial district where ageing building stock and shifting consumer and occupier trends have led to increasing vacancy rates and declining asset values. The challenge lies in repositioning the area as a future-proofed, sustainable commercial hub while balancing public and private sector interests.

Berlin - Buckower Höfe (BH):
A large-scale affordable housing estate with significant energy inefficiencies and socioeconomic challenges. The focus here is on creating a just transition that ensures affordability while modernising social infrastructure for long-term sustainability.

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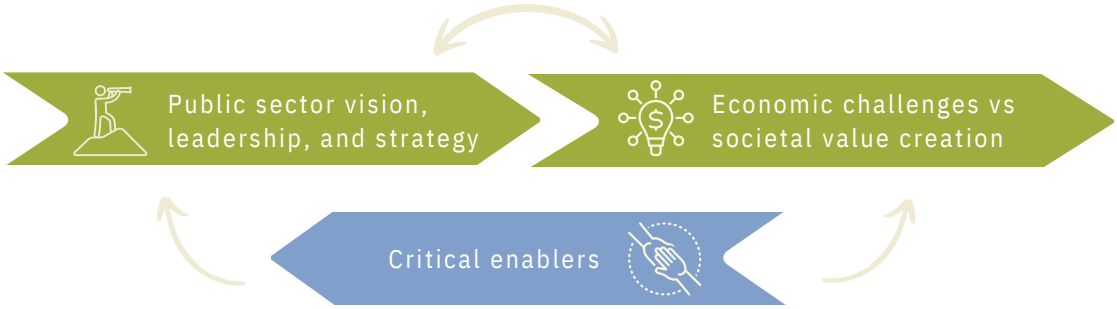
Barriers and Enablers

Decarbonising the built environment at a neighbourhood scale faces several key barriers that must be addressed. However, there are also critical enablers that can help overcome these obstacles.



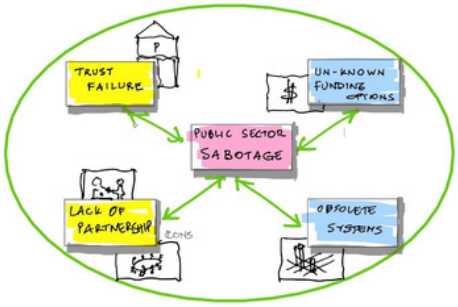
Public Sector Vision, Leadership and Strategy

One of the major barriers identified is the lack of clear vision, leadership and consistent strategies from the public sector on decarbonisation goals and implementation pathways.

Specific challenges include:

- **Multi-layered governance structures** leading to siloed approaches between different departments and agencies.
- **Lack of execution and follow-through** even when visions/strategies are set, resulting in an inconsistent policy environment.
- **Insufficient transparency and collaboration** between public and private sectors on aligned objectives.
- **Erosion of trust between stakeholders** due to intransparency and constantly shifting requirements.

A study by the Coalition for Urban Transitions highlights how integrated strategies that coordinate policies, governance, finance and stakeholders across different levels of government are essential for sustainable urban transitions [8]. Misaligned policies or lack of coordination can derail even the best-intentioned climate action plans.



Economic Challenges vs. Societal Value Creation

A major impediment is the disconnect between the upfront economic costs of decarbonisation borne by building owners/investors and the broader societal benefits that accrue to other stakeholders like tenants, communities and the public sector. From a property owner's perspective, the economic rationale for investing in decarbonisation measures is extremely challenging.

More energy-efficient buildings and a higher proportion of renewable energy necessitate substantial upfront capital investments at a time when:

- Construction and material costs have risen significantly.
- Interest rates have increased, driving up financing expenditures.
- There is current downward pressure on real estate valuations.
- Rent controls restrict the ability to increase rents to offset costs ("rent cap").
- There is a shortage of skilled tradespeople and contractors to undertake retrofits.

These factors have narrowed the corridor between sustainability objectives and profitability for real estate investors. The capital-intensive nature of retrofits, coupled with these prevailing economic headwinds, makes it very difficult to construct a compelling business case, especially in lower-income areas. However, the benefits of decarbonised buildings like reduced energy bills, improved health outcomes, increased economic productivity are distributed across society rather than solely captured by the investor bearing the upfront costs. This "value deadlock" where costs are concentrated but benefits are diffused acts as a major barrier to mobilising decarbonisation efforts at scale.

Figure 2 - For asset owners, the economic case is challenging

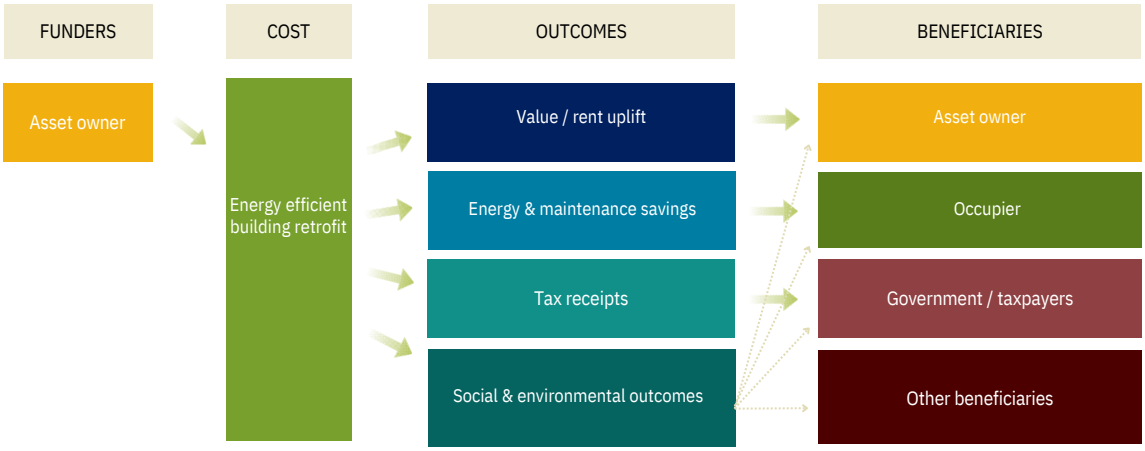
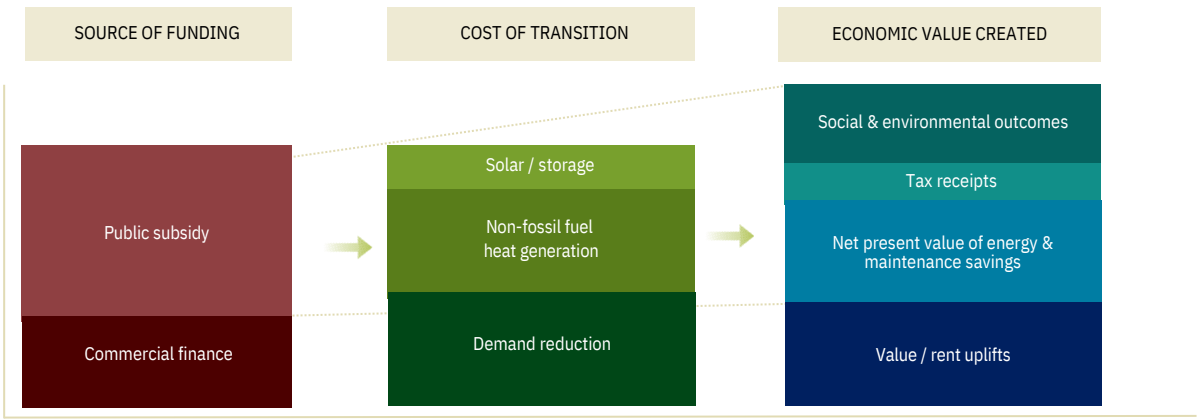


Figure 3 - For society as a whole, there is a positive return



Source: Adapted from Living Places, 2023

From a societal perspective, the value created from decarbonisation extends far beyond just the real estate asset itself. More liveable, sustainable communities foster economic growth, job creation, better public health outcomes, reduced emissions and increased climate resilience. However, this broader value is not adequately reflected in the investment models utilised by building owners today.

Innovative financing models and policies are therefore required to quantify, monetise and distribute these broader value streams in a way that aligns incentives across stakeholders. This could include:

- Public subsidies/tax incentives to share societal benefits.
- Voluntary/mandatory internalisation of carbon pricing
- Securitisation of cash flows from energy savings.
- Capturing productivity/health benefits for tenants.

Without such mechanisms to make the societal value proposition more tangible for investors, the economic barriers will continue hindering decarbonisation at the required pace and scale. In essence, the decarbonisation agenda necessitates a paradigm shift in how we evaluate the true costs and benefits across environmental, social and economic dimensions. Developing innovative, multi-stakeholder business models that can equitably distribute risks, costs and rewards is critical to driving the sustainability transition in a just and inclusive manner.

Critical Enablers

To drive decarbonisation at a neighbourhood scale, certain critical enablers around data, definitions, technology and funding solutions are required:

1. **Data and Definitions**: Lack of consistent data and standardised definitions around embodied vs operational carbon, whole-life assessments, net zero targets etc. impedes effective measurement and progress tracking.
2. **Technology Adoption**: Scaling innovative technologies like smart meters, building management systems, digital twins etc. is key to optimising energy use and operations.
3. **Funding and Financing**: Availability of public funds, green finance instruments, blended finance models etc. to mobilise upfront capital and distribute risk is essential.
4. **Capacity Building**: Developing the required skills, knowledge and institutional capacity across public and private sectors through training and knowledge sharing platforms.

While some of these barriers are not unique to Berlin, the city's complex multi-layered governance and history of asset stranding create additional challenges that exemplify the need for integrated, collaborative solutions. By addressing these barriers through clear public leadership, innovative policies and financing tools, and robust data/technology enablers, cities can unlock the full potential of neighbourhood-scale decarbonisation as a catalyst for environmental and socioeconomic renewal.

Guiding Principles

The Integrated, Place-Based Vision

Decarbonising the built environment through an integrated, place-based approach is not just about reducing emissions - it presents a powerful opportunity to catalyse the comprehensive revitalisation of entire urban districts into thriving, sustainable communities.

This holistic vision unlocks multi-dimensional value across environmental, social and economic spheres:

Environmental Benefits

- **Decarbonisation**: Coordinated retrofits, sustainable infrastructure and circular systems can drive significant emissions reductions in line with climate goals.
- **Climate resilience**: Nature-based solutions, flood mitigation, cooling measures and future-proofed design enhance resilience to physical climate risks.

Social Benefits

- **Community wellbeing**: Improved public realms, amenities, air quality and access to services foster stronger social cohesion and public health outcomes.
- **Equity and inclusion**: Targeted interventions in disadvantaged areas enable a just transition that shares benefits and opportunities across all communities.

Economic Productivity and Growth

- **Placemaking and amenity value**: Mixed-use vibrancy, sustainable mobility and quality public spaces increase desirability and land/property values.
- **Competitiveness and talent attraction**: Companies prioritise locating in liveable, sustainable urban districts to attract top talent and enhance productivity.
- **Green economic development**: Investment in sustainable infrastructure and retrofits drives job creation in green construction, clean tech and services.

Adopting this integrated systems perspective creates a positive feedback loop where the total value created for the area as a whole far exceeds the sum of its individual parts. It transforms decarbonisation from a narrow compliance obligation into an opportunity to comprehensively revitalise entire districts.

There are tangible advantages to this community-centred approach:

- It creates a compelling narrative around neighbourhood renaissance rather than just environmental targets. This powerful vision can drive engagement and buy-in from all impacted stakeholders.
- Coordinating interventions at an area level generates economies of scale and efficiencies in design and delivery. For instance, implementing shared district heating / cooling solutions is more cost-effective than separate systems for each building.
- By unlocking multiple value streams across environmental, social and economic dimensions, it enables stacking diverse funding sources and innovative investment models to support the transition.

By repositioning decarbonisation as a catalyst for neighbourhood renaissance, cities can build a compelling vision that garners stakeholder support and unlocks new financing sources oriented towards long-term value creation.

Figure 4 - Multiple returns from decarbonisation

Mindset Shift: Cost to Investment Approach

Mobilising the capital required for neighbourhood-scale decarbonisation necessitates a fundamental mindset shift in how the financial case is evaluated. Rather than viewing decarbonisation through a narrow cost lens, it should be reframed as an investment that generates multiple value streams and long-term returns across environmental, social and economic dimensions.

This expanded value proposition enables stacking diverse funding sources oriented towards their respective portions of the total value created.

Blended Financing Models

To construct a viable financing stack, a blended finance approach that pools capital from various public and private sources is critical:

- **Public Funding for Social/Environmental Outcomes**: Public funds, green banks, development finance institutions and tax incentives can monetise the societal benefits like climate resilience, public health improvements, green economic development and job creation. Examples include the UK's public-private Urban Climate Resilience Fund and France's green municipal investment bank.

- **Private Investment for Asset Value Uplift:** Property owners, investors and developers can capture value from increased rents, sales prices and asset appreciation resulting from enhanced sustainability, amenities and placemaking within revitalised neighbourhoods.
- **Institutional Capital for Energy/Operating Savings:** Securitising future energy and operating cost savings enables tapping large-scale institutional capital like pension funds oriented towards long-term, stable cash flows. Financial instruments like property-linked loans and green mortgage-backed securities can facilitate this.

This blended approach has several advantages:

- It distributes risk across diverse stakeholders based on their respective risk appetites.
- It aligns interests by allowing each party to invest towards capturing a portion of the value created.
- It mobilises different investor classes that individually could not achieve the required scale.

Integrated Funding Strategies

Implementing such blended financing requires integrated, collaborative strategies that coordinate various funding streams:

- **Public Sector Funding:** Leverage all existing programmes at EU, national and local levels for sustainable urban development, including innovation funds, regeneration grants, tax credits and more. For instance, Germany's "Sanierungsgebiet" programme provides subsidies for neighbourhood renewal.
- **Aligned Commercial Interests:** Bring in other beneficiaries like utilities, mortgage providers and insurers who have an interest in upgrading infrastructure and reducing climate risks to their asset portfolios.
- **Value Capture Mechanisms:** Use tools like land value capture, tax-increment financing and development charges to recycle a portion of the public and private value created back into funding neighbourhood improvements.
- **Long-Term Investment Vehicles:** Develop new investment products oriented towards capturing the long-term income streams from operating and energy savings, such as green real estate investment trusts (REITs).

By pooling diverse capital sources aligned to their respective risks and returns, cities can construct viable financing stacks to fund the upfront costs of neighbourhood-scale decarbonisation while equitably distributing benefits across stakeholders.

Robust methodologies to quantify environmental, social and economic value creation will be essential for mobilising institutional capital at scale. However, innovative financing models that integrate these value streams can transform decarbonisation from a cost burden into an opportunity for sustainable urban investment and inclusive economic development.

Tax Increment Financing (TIF):
A Tool for Unlocking Local Value

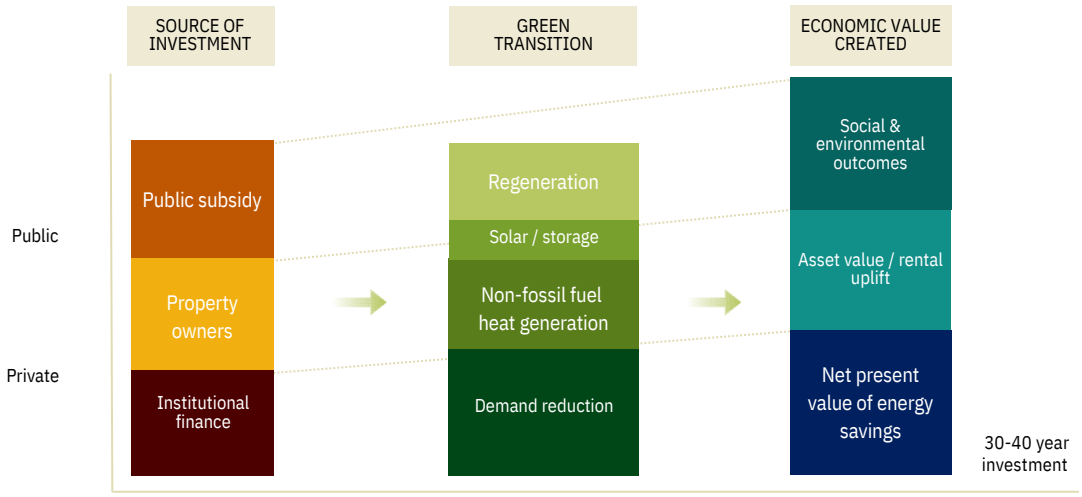
TIF is a public financing method that captures the future increase in property tax revenues generated by urban regeneration and infrastructure improvements. These additional revenues are ring-fenced and used to finance the upfront capital costs of redevelopment.

In Berlin, TIF can enable reinvestment into public realm upgrades, green infrastructure, and climate-adaptive features—ensuring that rising land and property values benefit the community. However, successful implementation requires robust financial modelling to ensure projected revenues are realistic and don't undermine the broader municipal tax base. When designed well, TIF can help neighbourhoods "pay for their own transformation" by recycling future value into present investment

Financing a Just and Green Transition:
Stacking Capital and Unlocking Value

Achieving decarbonisation at a neighbourhood scale—especially in areas facing socioeconomic vulnerability and physical deterioration—requires a profound shift in how investment is structured, prioritised, and deployed. Traditional real estate and urban infrastructure financing models often fail to account for long-term, cross-sectoral benefits that are harder to monetise or fall outside conventional investor mandates. Two critical levers—blended finance and integrated value creation—emerge as key strategies for overcoming this challenge, as illustrated in Figures 5 and 6. Figure 5 lays out a conceptual model for how layered capital structures can be deployed to de-risk investments and mobilise both public and private resources.

Figure 5 - Blended finance stack for neighbourhood regeneration



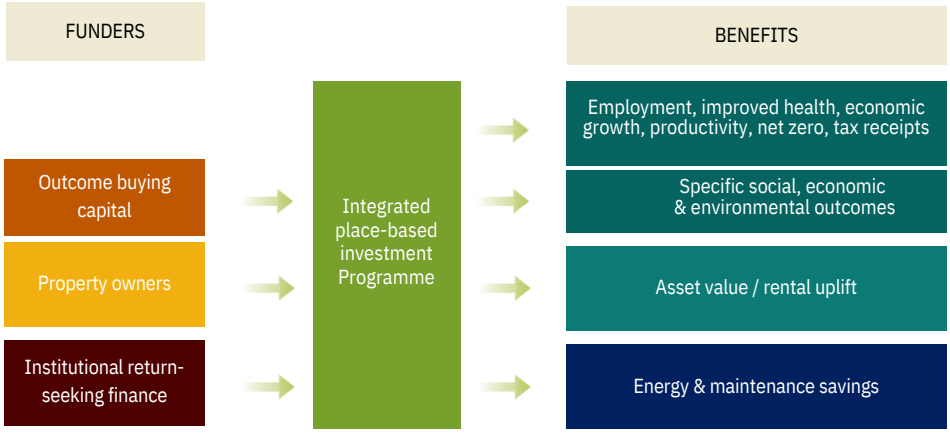
At the base of the stack are concessional forms of capital, such as public grants, EU structural funds, and philanthropic investments. These sources can absorb early-stage risk, fund enabling infrastructure, and underwrite non-commercial social outcomes that markets typically overlook—such as affordable housing retention, tenant wellbeing initiatives, or community engagement processes.

Above this foundation sit impact-driven investors and development finance institutions, willing to accept below-market returns in exchange for measurable social and environmental benefits. Instruments at this level include revolving funds, subordinated debt, and social or green bonds aligned with policy objectives. These actors play a pivotal role in bridging the gap between public mission and commercial viability, enabling experimentation and demonstration projects that can later scale. At the top of the stack are commercial and institutional investors—pension funds, real estate investment trusts (REITs), and private equity—who bring capital at scale but often require higher levels of certainty and risk-adjusted returns.

Once the groundwork has been laid through public investment and early-stage de-risking, these actors can fund retrofit delivery, site acquisition, or mixed-use developments that meet sustainability criteria and offer stable long-term cash flows. Critical to their participation is a robust pipeline of viable, investable projects supported by data, policy, and a clear exit strategy.

However, deploying such a blended structure is only part of the equation. To attract this spectrum of capital, we must rethink how value is defined, measured, and shared. Figure 6: Value Creation through Green Retrofit and Regeneration expands the lens from financial return to integrated value. It captures how decarbonisation, when embedded in broader regeneration efforts, generates multidimensional benefits across environmental, social, and economic domains. These include reductions in carbon emissions and energy bills, improved thermal comfort and indoor air quality, enhanced public health outcomes, job creation through local green construction, and increased community resilience.

Figure 6 - Value creation through green retrofit and regeneration



Source: Adapted from Living Places, 2023

Critically, many of these benefits accrue not just to investors or property owners, but to residents, municipalities, and society at large. As such, green retrofit programmes must be designed to ensure value is distributed equitably—avoiding unintended consequences such as displacement or green gentrification. Mechanisms like rent stabilisation, community benefit agreements, or social leasing models can ensure low-income households share in the upside.

Moreover, this integrated value unlocks new financial vehicles. For example, avoided healthcare costs or increased school performance linked to warmer, more stable homes could form the basis of social impact bonds. Energy performance contracting allows future energy savings to pay for upfront retrofit costs. Land value uplift—enabled by improved public realm and connectivity—can be captured and reinvested locally through tax increment financing or planning obligations.

Together, Figures 5 and 6 underscore a central thesis of this report: decarbonisation is not just a technical or regulatory challenge—it is a financial and governance opportunity. By reframing retrofit and regeneration as strategic investments that unlock long-term, cross-sectoral value, and by deploying blended finance to share risk and align incentives, cities like Berlin can deliver just, inclusive, and scalable climate action.

Scaling Ambition, Amplifying Impact: Decarbonisation as a Strategic Choice

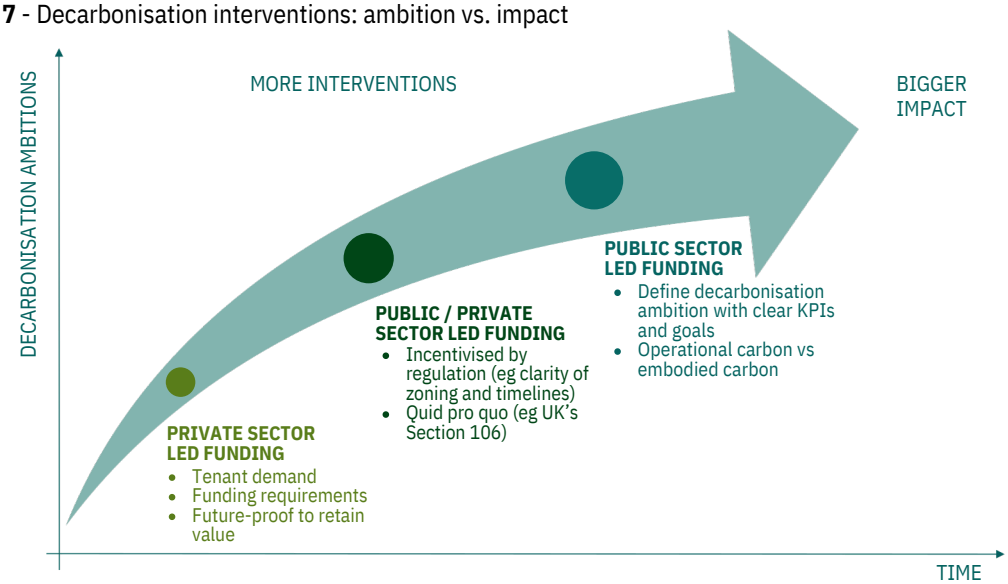
As interventions progress from asset-level technical upgrades to integrated, place-based strategies, their ability to generate impact. At the lower end of the ambition scale are conventional interventions such as individual building retrofits. These are often technically and financially feasible, compatible with short-term investment cycles, and typically deployed within the boundaries of a single asset. While these measures can yield useful energy savings and improved comfort, their broader impact is limited, particularly when considered in relation to urban-scale decarbonisation targets.

At the highest levels of ambition are systemic, district-wide strategies that combine deep retrofit with land-use planning, sustainable transport, decentralised energy, and inclusive public realm upgrades. These measures require more complex governance structures and capital coordination, but offer proportionately greater environmental and social returns. Such interventions are capital intensive and may involve higher perceived risk, but they also create a more robust foundation for long-term investment, policy alignment, and community support.

While lower-ambition interventions are often pursued due to their simplicity, lower upfront costs, and clearer business case. However, they may also expose portfolios to growing regulatory, reputational, and transition risks, particularly as net zero targets become more stringent. By contrast, high-ambition interventions—though more complex—can deliver long-term, stable value and position assets within a future-proofed investment context.

High-impact strategies also necessitate enabling conditions beyond the project level. These include cross-sector governance, integrated spatial planning, access to blended finance instruments (as outlined in Figure 5), and mechanisms to capture and reinvest the value created (as explored in Figure 6).

Figure 7 - Decarbonisation interventions: ambition vs. impact



Building the Business Case for Successful Urban Development

Density and Land Value Uplift

A core urban economic principle is that density generates higher land values and economic productivity due to agglomeration benefits like labour market pooling, knowledge spillovers and reduced transportation costs. Allowing greater densification through adaptive reuse of existing assets and vertical development can therefore drive substantial land value uplift. These increases in underlying asset values create an incentive for property owners/developers to invest in upgrading buildings and neighbourhood amenities. Value capture mechanisms like land value taxation, developer contributions or air rights sales can then recycle a portion of this uplift back into funding public realm improvements and infrastructure.

Mixed-Use Vibrancy and Reduced Automobile Dependence

Promoting a mix of residential, commercial, retail and community uses within a compact neighbourhood reduces the need for lengthy commutes and separate travel modes. This can significantly decrease private automobile usage and associated emissions from transportation. It also enhances the vibrancy and amenity value of an area by activating streets and public spaces throughout the day. Higher-density, pedestrian-friendly mixed-use districts have been shown to generate increased consumer spending, retail revenues and job opportunities compared to single-use, car-dependent areas [9]. This economic productivity uplift can be monetised through measures like sales taxes or tax-increment financing to fund further neighbourhood improvements.

Sustainable Infrastructure Investment

Investing in sustainable infrastructure like district energy systems, green spaces, active mobility networks and digital connectivity can reduce operating costs, enhance climate resilience and improve liveability standards for an area. These quality-of-life factors feed back into higher property values, rents and occupancy rates for real estate assets. The World Bank estimates that $1 invested in resilient infrastructure in developing countries can yield $4 in benefits through avoided losses and positive economic impacts [10]. Capturing even a fraction of this value through mechanisms like land value capture or property tax increments can help fund the upfront capital costs.

Accounting for the Social Cost of Carbon

A critical factor in building a comprehensive business case is properly accounting for the external costs that carbon emissions impose on society, known as the "social cost of carbon" (SCC). The SCC represents the economic damages associated with an additional tonne of carbon dioxide emissions, including impacts on agricultural productivity, human health, property damage from sea level rise, and increased risk of catastrophic events.

Robust methodologies for quantifying the SCC are enabling policymakers and businesses to incorporate these costs into decision-making processes:

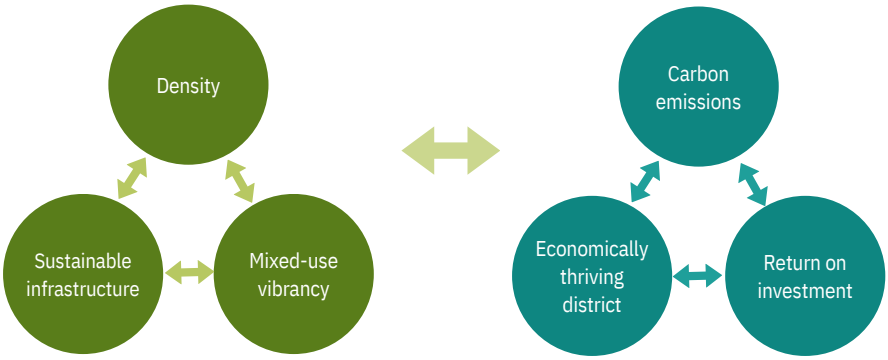
- The UK government uses an estimated SCC of £245 per tonne of CO2e in policy appraisals to reflect long-term environmental damages [11].
- In the United States, the Biden administration reinstated SCC estimates of $51 per tonne, which are used in cost-benefit analyses for regulations [12].

Pricing the SCC into financial models is becoming more prevalent in the private sector as well:

- Microsoft adopted a $15 per tonne carbon fee in 2012 to hold its business divisions financially responsible for emissions [14].
- Disney has an internal carbon price of $10-$20 per tonne to evaluate investments and guide decision-making [15].

Incorporating a monetised SCC enables properly evaluating the costs and benefits of urban development projects through a climate impact lens. For instance, the emissions avoided by promoting density, sustainable mobility and green infrastructure can be quantified as a societal benefit. As carbon pricing mechanisms like emissions trading schemes and carbon taxes expand, explicitly accounting for the SCC will become increasingly critical for building viable long-term business strategies aligned with decarbonisation pathways.

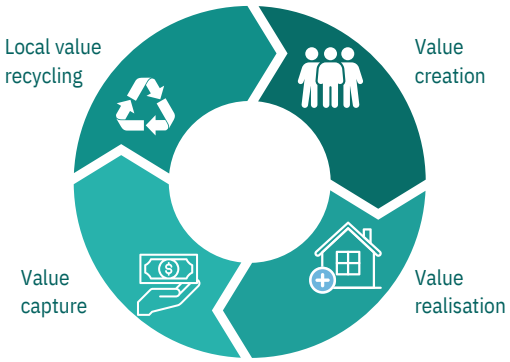
Figure 8 - Benefits of density and mixed-use development



Cyclical Value Creation

Collectively, these strategies of densification, mixed-use development and sustainable infrastructure investment can catalyse cyclical value creation. Unlocking these positive feedback loops requires an integrated, district-scale approach that coordinates public and private investment within a coherent placemaking vision. Innovative value capture mechanisms that equitably distribute costs and benefits across stakeholders are key enablers. By building a robust business case around cyclical value creation from sustainable urban development, cities can drive the transition to decarbonised, economically vibrant and liveable neighbourhoods at scale.

Figure 9 - Positive feedback loop in value capture



Systems Thinking Across Scales

Achieving these principles necessitates taking a systems-level approach to decarbonisation that holistically integrates strategies across the building, neighbourhood and city scales:

Building Scale:

- **Prioritise densification and adaptive reuse** of existing assets through deep retrofit rather than new construction to optimise land use and avoid embodied carbon. Promote mixed-use zoning within developments.

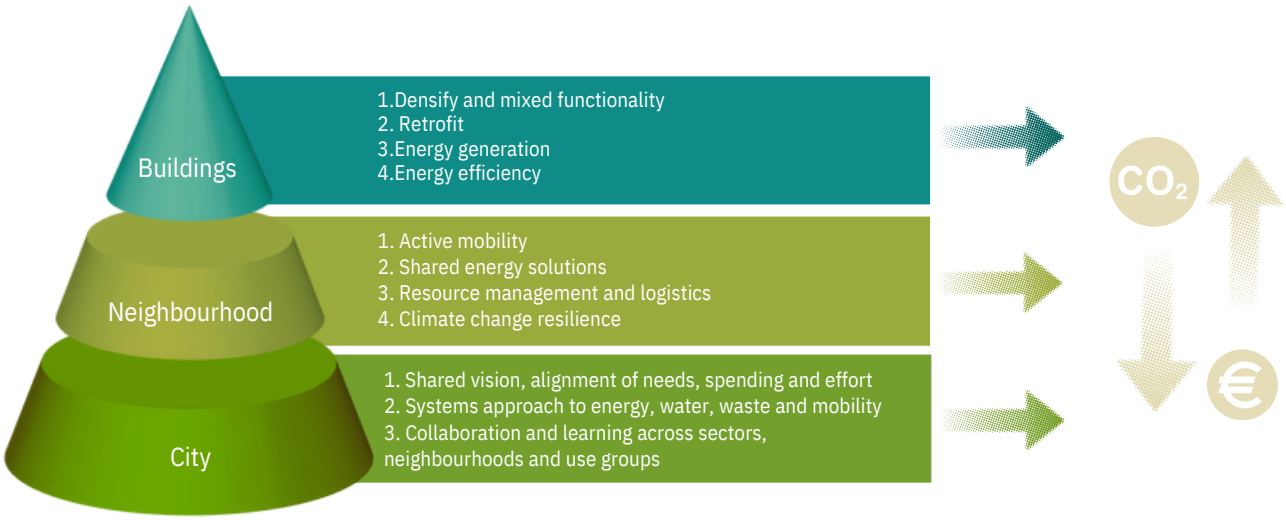
Neighbourhood Scale:

- **Densification and Mixed-Use Development:** Allowing greater densities through land use reforms, adaptive reuse and vertical development generates land value uplift to fund public realm improvements. Mixed-use activates streets, reduces vehicle miles travelled and enhances overall vibrancy.
- **Building Retrofits and Repurposing**: Prioritising deep retrofits over new construction avoids embodied carbon and extends asset life cycles. Repurposing obsolete buildings into housing, workspaces or community hubs optimises land use risks/rewards in delivering systemic change.
- **Sustainable Infrastructure:** Investing in district energy, sustainable mobility, digital connectivity, green/blue spaces and circular resource management enhances resilience while reducing operating costs.

City Scale:

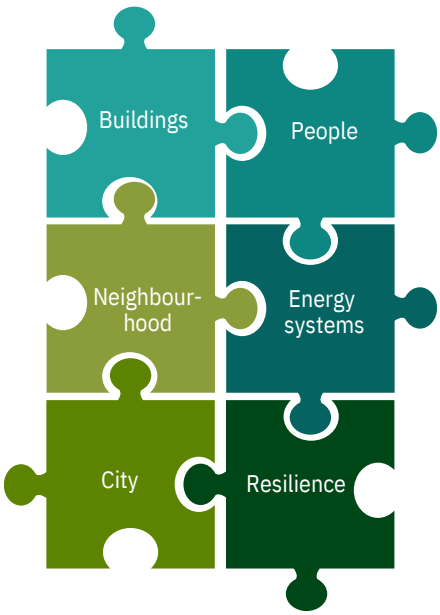
- **Aligning Visions and Strategies:** Public and private sector stakeholders must collaborate to align decarbonisation visions, strategies and investment priorities for consistency and synergy.
- **Consistent Policy Frameworks:** Transparent regulatory frameworks, standards and incentives provide clear market signals to drive the sustainability transition and manage transition risks.
- **Collaboration Across Sectors:** Unprecedented cross-sector coordination and partnership models are needed to pool resources, capabilities and share risks/rewards in delivering systemic change.

Figure 10 - Systems thinking across scales



Collectively, this systemic, place-based approach reframes decarbonisation as a catalyst for repositioning neighbourhoods into economically thriving, liveable and sustainable communities with enhanced social capital. Implementing such a paradigm shift will require unprecedented cross-sector collaboration, innovative financing solutions and an equity-driven approach to distribute benefits across all stakeholders.

Figure 11 - Integrated systems approach to urban decarbonisation



To realise this holistic value creation across all spheres, the panel identified three overarching principles:

1. **Distributed Benefits:** To drive the sustainability transition at the required pace and scale, the benefits must be equitably distributed across all stakeholders through targeted policies, incentives and business models. Ensuring a just transition that shares gains will build support, reduce political risk and enable faster progress.

2. **Collaborative Design**: Moving from viewing decarbonisation as an isolated building-level problem to capturing the full neighbourhood-level opportunity requires unprecedented collaboration and stakeholder engagement. This means bringing residents, businesses, authorities, investors and other parties together from the outset through participatory planning and co-design processes.

3. **Financial Innovation**: Decarbonising the built environment will require significant upfront capital. Innovative financing models are needed to reduce costs while unlocking new pools of capital oriented towards long-term value creation - such as blended finance structures, green investment vehicles, and mechanisms to monetise future revenue streams.

Case Study: Kurfürstendamm High Street

Principles for Decarbonising Urban Commercial Districts

Overview of the Area

Kurfürstendamm is a prominent boulevard in West Berlin, offering a mix of retail establishments, set against a backdrop of historic and modern architecture. Alongside retail, the high street offers diverse dining, cultural venues, and landmarks such as the Kaiser-Wilhelm-Gedächtniskirche. However, ageing building stock and shifting consumer and occupier trends have led to increasing vacancy rates and declining asset values, presenting a challenge for the district's future development.

While the Kurfürstendamm case study focused on a specific commercial district in Berlin, the process revealed several overarching principles that can be adapted and applied to drive the sustainable regeneration of comparable urban commercial hubs worldwide. As cities grapple with the urgent need to decarbonise and transform their built environments, these principles offer a roadmap for catalysing equitable, community-centered urban renewal.

Map source: OpenStreetMap

Adopting an Integrated District Approach

The prevailing model of addressing decarbonisation on an asset-by-asset basis is fundamentally limited in its ability to drive transformative change at the scale and pace required. Piecemeal, siloed interventions not only minimise potential impact, but also create inefficiencies and conflicts that undermine the sustainability transition. To overcome these constraints, cities must embrace a paradigm shift towards an integrated, district-level approach that holistically coordinates strategies across interconnected urban systems - buildings, mobility, energy, water, waste, public realms and digital infrastructure. This area-based lens enables maximising impact while catalysing wider urban regeneration within defined geographies.

Maximising Impact Through Alignment

Rather than pursuing narrow building-level retrofits or upgrades in isolation, an integrated district approach aligns complementary sustainability strategies to create thriving, liveable and climate-resilient neighbourhoods. For instance:

- Building retrofits and repurposing can be synchronised with sustainable mobility investments like pedestrianisation and cycling infrastructure to drastically reduce transport emissions.
- District heating/cooling networks and renewable energy solutions can be deployed at viable scales to efficiently serve entire districts.
- Green/blue infrastructure like bioswales and urban forests can be woven through public realms to enhance climate adaptation and amenity value.

By taking this cohesive systems view, cities can maximise decarbonisation while concurrently improving liveability, public health, resilience and economic productivity within communities.

Unlocking Economies of Scale

A district-scale approach also generates significant economies of scale and cost efficiencies compared to disparate asset-level projects. The World Bank highlights how coordinating infrastructure investments like district energy, sustainable drainage and utilities can reduce capital costs by 15-30% [16]. These economies of scale principle extend beyond just infrastructure. Aggregating retrofit demand across a defined area enables bulk procurement of materials and services, streamlining supply chains. It also creates opportunities for industrialised construction techniques and automation to enhance quality while reducing costs and timelines. From an operations standpoint, having centralised district management entities can optimise maintenance, monitoring and demand response across integrated systems. This drives further cost reductions compared to standalone asset management.

Catalysing Urban Regeneration

Critically, an integrated district approach positions sustainability as a catalyst for wider urban renewal and value creation rather than just an environmental compliance obligation. By holistically enhancing liveability, public realms, climate resilience and economic productivity, cities can reposition entire districts as vibrant, future-proof destinations for residents, businesses and investment. This catalytic effect is reinforced through a positive feedback loop - as an area's amenities, vibrancy and desirability increase, so does demand for housing, commercial space and urban amenities. The resulting densification and property value uplift can then be captured to fund further placemaking and sustainability improvements.

Case studies like King's Cross in London exemplify how this district-scale, sustainability-oriented approach can comprehensively regenerate post-industrial areas into economically thriving mixed-use communities. Replicating this model through an integrated district lens is vital for driving the equitable transition to sustainable, liveable and productive cities. By moving beyond narrow building-level efforts towards a holistic, area-based paradigm, cities can maximise decarbonisation impact while catalysing long-term environmental, social and economic value creation for communities. An integrated district approach provides the vital systems perspective to harmonise sustainability and urban development as mutually reinforcing imperatives.

King's Cross, London
Embedding Social Value in Regeneration Logic

King's Cross exemplifies how social regeneration—when treated as integral to a district's development logic rather than a secondary benefit—can anchor long-term value creation. Rather than leading with energy efficiency alone, the project embedded inclusive public realm, cultural infrastructure, education, and affordable housing into the masterplan. This generated trust, local buy-in, and social capital early in the process—factors that de-risked delivery and underpinned enduring market demand.

Importantly, this approach shifted perceptions of the area from post-industrial hinterland to civic destination, catalysing £3 billion in private investment and strong occupational demand across sectors. The district's success suggests that social sustainability—walkability, amenities, belonging—is not an externality, but a key driver of absorption, rental uplift, and resilience. More information available via ULI: King's Cross Case Study

Repositioning Commercial Districts as Sustainable Lifestyle Destinations

Decarbonising the Kurfürstendamm High Street presents a powerful opportunity to comprehensively reposition urban commercial districts as models for sustainable, low-carbon lifestyles and long-term economic resilience. Rather than viewing it as a compliance burden, this holistic placemaking approach cantered on sustainability can drive multi-dimensional value creation for businesses, commercial real estate investors and surrounding communities.

Promoting Mixed-Use Density and Vibrancy

A critical strategy is promoting density through mixed-use development that integrates commercial office/retail spaces with residential, hospitality and community uses within compact, walkable districts. This avoids urban sprawl while activating streets and public spaces throughout the day and evening.

Higher-density, pedestrian-friendly mixed-use districts have been shown to generate increased consumer spending, retail revenues and job opportunities compared to single-use office parks or shopping malls. Adaptive reuse of obsolete commercial spaces further optimises land use and avoids embodied carbon from new construction.

Toronto's King Street, Canada

Toronto's King Street provides a compelling example of how fostering vibrant, mixed-use density can revitalise an urban commercial corridor. King Street is a major transit spine running through Toronto's downtown core that had become overwhelmed by traffic congestion, hurting businesses and the public realm experience.

In 2017, the city implemented a bold "King Street Transit Pilot" that significantly restricted through vehicle traffic and prioritised public transit, cycling and walking along the 2.6km corridor. This allowed the street to be reclaimed as a vibrant linear public space. Key elements of the revival included:

- Curb lane patios and parklets for restaurants/cafes activating sidewalks.
- Public art installations and enhanced streetscaping
- Dedicated cycling infrastructure separated from transit lanes.
- Improved pedestrian crossings and public spaces at key intersections.

The pilot proved transformative - travel times for streetcars improved 25-40%, cycling volumes increased over 500%, and pedestrian traffic grew significantly [17]. Local businesses reported increased customer volumes and sales.

Building on this success, the city made the pilot's changes permanent in 2019 and expanded the revitalisation strategy with a King Street Transit Corridor Development Plan. This enabled intensifying mixed-use density through upzoning for mid-rise residential/commercial buildings while preserving the corridor's main street character. The plan incentivises adaptive reuse of heritage buildings, pedestrianisation of side streets, and requirements for wider sidewalks and public spaces integrated into new developments.

Over 50 development projects are now proposed or underway along the corridor. King Street exemplifies how promoting walkable, mixed-use density with high-quality public realms and sustainable mobility can reposition commercial corridors into thriving lifestyle destinations. The vibrancy attracts further investment, creating a self-reinforcing cycle of revitalisation. By embracing density - integrating residential, commercial, hospitality and community uses within compact, pedestrian-friendly districts - cities can unlock significant economic and placemaking value while aligning with environmental sustainability goals.

Investing in Workplace Placemaking and Mobility

To attract and retain top businesses and talent, commercial districts must drastically enhance liveability and amenity standards through investments in sustainable mobility, public spaces, urban amenities and an enriched public realm. Potential interventions include:

- Pedestrianising core commercial zones and investing in cycling infrastructure.
- Enhancing streetscapes, public plazas, parks and third spaces for outdoor meetings/collaboration.
- Integrating mobility hubs with EV charging, rideshare and micro-transit options.
- Deploying digital connectivity, smart building systems and district energy solutions.

Studies consistently link enhanced walkability, public spaces and amenities to increased property values, rents and occupancy rates for commercial real estate. This placemaking approach can reposition districts into vibrant, desirable workplace destinations.

Broadgate Neighbourhood, London, UK

The Broadgate neighbourhood in the City of London provides a compelling example of how investing in placemaking and sustainable mobility can reposition a commercial district into a vibrant workplace destination. Broadgate was originally developed in the 1980s as a prototypical office park - a cluster of monolithic office towers surrounded by vehicle roads and lacking any real public realm or amenities. By the 2010s, it had become outdated and unable to attract top tenants who prioritised liveability and amenity-rich environments. In 2014, the owners British Land and GIC embarked on a £1.5 billion placemaking transformation to reposition Broadgate as a pedestrian-friendly, mixed-use neighbourhood tailored to the modern workforce's lifestyle needs. Key interventions included:

- Pedestrianising over 50% of the 32-acre site by removing vehicular roads and parking.
- Creating over 5 acres of new public plazas, parks and outdoor amenity spaces.
- Enhancing streetscapes with trees, gardens, public art and alfresco dining areas.
- Integrating a cycle hub with secure parking for over 500 bikes.
- Improving connectivity to public transit nodes like Liverpool Street Station.
- Introducing a mix of retail, leisure and residential uses to activate the district.

The results have been transformative, pedestrian footfall increased over 200%, cycling volumes grew 40%, and tenant satisfaction scores jumped [18]. Major companies like Amazon, Aon and Pacers have relocated corporate offices to Broadgate, citing the amenity-rich public realm as a key factor. Broadgate demonstrates how prioritising sustainable mobility and investing in vibrant public spaces can reposition a commercial district into a highly desirable workplace destination that attracts top businesses and talent. The enhanced placemaking drives significant value creation through higher rents, occupancy rates and asset appreciation for commercial landlords. By embracing workplace placemaking centred around walkability, cycling infrastructure, greenery and urban amenities, cities can transform outdated commercial districts into economically thriving hubs that align with sustainability goals while meeting the lifestyle needs of today's workforce.

Fostering Circular Commercial Ecosystems

Repositioning as sustainable commercial hubs necessitates embracing circular systems for energy, water, waste and resource management at a district scale:

- Renewable energy from on-site solar, wind, waste-to-energy and energy storage.
- District heating/cooling networks and thermal storage serving commercial buildings.
- Comprehensive waste recycling, material reuse and industrial symbiosis between businesses.
- Integrating urban farming concepts like rooftop greenhouses to provide local produce.

Integrating these circular systems can significantly reduce operating costs and environmental footprints for commercial properties and districts. It also enhances resilience and future-proofs assets and neighbourhoods by reducing reliance on centralised utility grids.

Kalasatama District, Helsinki, Finland

The Kalasatama district in Helsinki provides a compelling example of how fostering circular systems at a commercial district scale can drive sustainability, resilience and economic productivity. Kalasatama is a former industrial harbour area being transformed into one of Finland's largest smart city districts, with new residential, office and retail developments alongside repurposed heritage buildings. At its core is the vision of creating an innovative circular economy ecosystem. Key circular initiatives include:

- A district heating and cooling network supplied by recovered energy sources like data centre waste heat, sewage water, and industrial excess heat.
- On-site wastewater treatment, nutrient recovery and local reuse of treated greywater for district cooling and irrigation.
- Comprehensive waste sorting and recycling facilities, with separate vacuum collection systems for different material streams.
- Urban farming through rooftop greenhouses, using recovered nutrients and water while providing hyper-local food.
- Industrial symbiosis between businesses, with one company's waste becoming another's raw material input.

This circular approach significantly reduces the district's demands on centralised utility grids and virgin material inputs. It also creates opportunities for new businesses and jobs within the circular value chains. For example, a startup called Kalasatama Circulating Nutrients is processing local biowaste into soil products and nutrient-rich fertilisers for the urban farms. Another firm, Verte, operates the rooftop greenhouses selling produce to local restaurants and grocery stores. The district's smart management systems optimise and integrate energy, water and material flows in real-time based on demand. This both enhances resource efficiency and provides resilience through decentralised backups during grid outages.

From an economic perspective, the circular model generates cost savings for commercial tenants through lower utility bills and waste fees. It also future-proofs assets by reducing exposure to supply risks and price volatility of energy, water and raw materials. Kalasatama demonstrates how fostering circular commercial ecosystems can align environmental sustainability and economic resilience at a district scale.

The diverse circular value chains create new revenue streams while the resource productivity enhances competitiveness for businesses.

Prioritising Climate-Resilient Commercial Precincts

With escalating climate risks, prioritising resilient design from the outset is critical for future-proofing commercial districts and safeguarding real estate investments. Strategies include:

- Flood risk mapping and resilient infrastructure design standards for commercial zones.
- Green infrastructure like bioswales for stormwater management in public spaces.
- Cool roofs, shading, urban greening to mitigate urban heat island impacts.
- Backup energy systems, elevated infrastructure and emergency planning.

The economic costs of climate impacts are immense - the World Bank estimates resilient infrastructure investments can yield £4 in benefits for every £1 spent through avoided losses and business continuity. Proactive resilience measures can protect commercial asset values whilst enhancing safety [19].

Align Public-Private Interests through Collaborative Governance

Transformative district-scale projects require unprecedented collaboration and alignment of objectives across the public sector, private sector and community stakeholders. Potential models include:

- Establishing public-private-people partnership (P4) governance frameworks and co-design processes.
- Formalising roles, responsibilities and equitable benefit-sharing mechanisms across parties.
- Creating consistent policy environments to provide transparency and de-risked investment signals.
- Building trust through early, tangible demonstrations of shared commitment and progress.

By bringing all impacted parties into participatory planning from the outset, collaborative governance can secure buy-in, manage disruption and accelerate the sustainability transition.

Barangaroo Development, Sydney, Australia

The Barangaroo precinct in Sydney provides a compelling example of how prioritising climate-resilient design can future-proof commercial districts and real estate investments against escalating climate risks. Barangaroo is a 22-hectare, high-density mixed-use development on Sydney's waterfront, comprising residential towers, office buildings, retail, public spaces and a new metro station. Given its coastal location, addressing flood risks from rising sea levels and storm surges was a critical priority.

Key climate resilience measures incorporated into Barangaroo's design include:

- Elevating the entire precinct's ground plane by 2.4-3.5 metres above the current 100-year flood level to allow for sea level rise projections to 2115.
- Constructing a 6-metre high permanent waterfront edge protection system with integrated stormwater drainage.
- Implementing a district-wide stormwater harvesting and re-use network to reduce flood risks.
- Orienting buildings and public spaces to enhance shading and natural ventilation for cooling.
- Incorporating 50% public green space with drought-tolerant landscaping and efficient irrigation.

These resilience features add an estimated 10-15% premium to upfront construction costs [20]. However, economic modelling shows the measures provide a net benefit over the precinct's 200+ year lifespan by mitigating projected climate damage costs.

For example, the elevated ground plane alone provides over AUD $5 billion in avoided damages from a 1-in-100 year coastal flood event. The green infrastructure and water recycling reduce potable water demand by 40%, delivering further operational savings [21]. From a commercial real estate perspective, Barangaroo's climate-resilient design enhances the long-term viability and value proposition of its office, retail and residential assets. It provides assurance to tenants and investors that the properties can withstand escalating climate impacts. Major corporate tenants like Westpac, PwC, HSBC and Lendlease have cited Barangaroo's sustainability and resilience credentials as key factors in their leasing decisions.

Barangaroo demonstrates that proactively integrating climate resilience from the outset, while incurring some upfront costs, can safeguard the long-term asset values, business continuity and investment attractiveness of commercial precincts in vulnerable locations. As climate risks intensify, this resilience premium will likely become a necessity rather than an option.

Catalyse Investment through Innovative Financing

Mobilising the significant upfront capital required necessitates innovative financing approaches that can capture and monetise the full spectrum of environmental, social and economic value created, including:

- Blended financing models that pool diverse public and private capital sources.
- Value capture mechanisms like land value capture and tax increment financing.
- Monetising future cash flows from operating/energy savings to access institutional investors.
- Leveraging public funds, green banks, resilience bonds for shared environmental / social benefits.
- Robust methodologies to quantify and distribute value across stakeholders are key enablers for viable financing stacks aligned with all parties' respective interests.

Phased Implementation for Effective Delivery

Rather than aiming for "big bang" transformations, an iterative, phased roadmap can drive faster progress and secure early wins:

- Start with stakeholder mobilisation, vision-setting and catalytic pilot projects.
- Create an enabling environment through supportive policies, incentives and capacity building.
- Scale through strategic real estate projects and district-level infrastructure investments.
- Establish monitoring, reporting and knowledge dissemination mechanisms for continuous improvement.

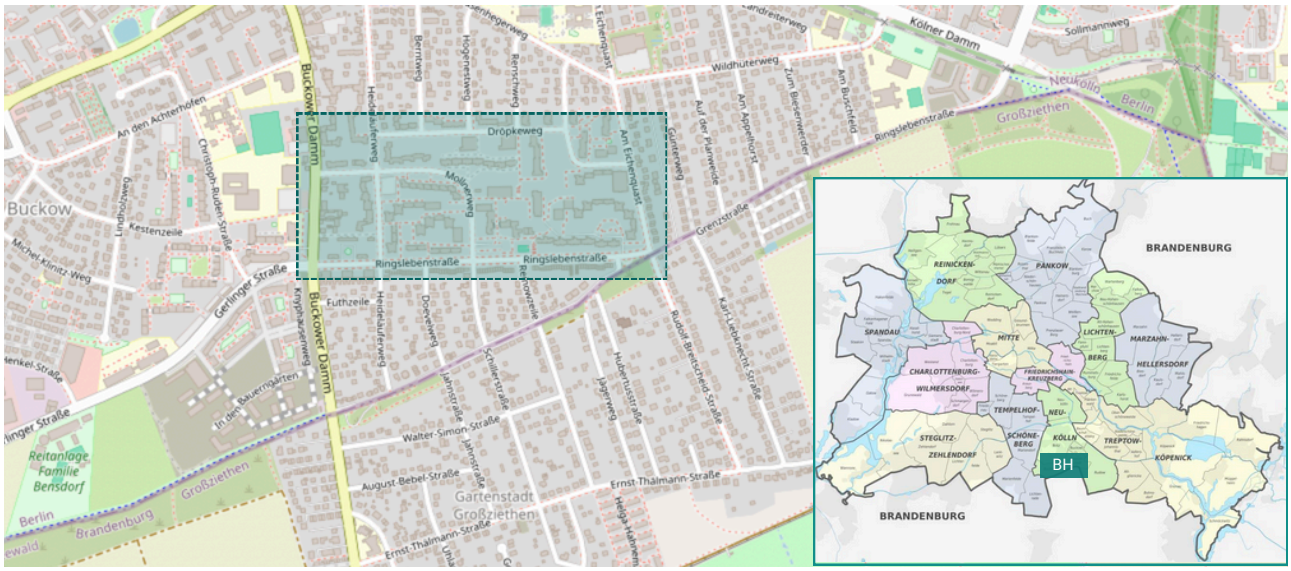
This agile approach delivers tangible benefits, demonstrates viability, secures buy-in and ultimately achieves transformation at scale through an integrated, lifecycle process.

Case Study: Buckower Höfe

Principles for Decarbonising Large-Scale Affordable Housing Estates

Overview of the Area

Buckower Höfe is a large affordable housing development located in the Neukölln district of Berlin. Owned and managed primarily by GEWOBAG, one of the city's major housing associations, it comprises over 2,000 apartments across mid-rise residential blocks interspersed with courtyards and green spaces. While providing much-needed affordable housing, the neighbourhood faces challenges typical of many post-war housing estates - an ageing building stock requiring renovation, lack of amenities and community spaces, poor connectivity to public transport, and limited economic opportunities for residents. However, Buckower Höfe's strengths include GEWOBAG's commitment to long-term refurbishment plans, an existing district heating network with spare capacity, and new residential developments emerging in surrounding areas. This creates opportunities to reposition it as a thriving, sustainable community.



Map source: OpenStreetMap

This section provides an analysis of innovative financing mechanisms for neighbourhood-scale retrofits, using the Buckower Höfe affordable housing district in Berlin as a case study. The strategies and findings presented are designed to be applicable to other comparable districts facing similar challenges in urban regeneration and decarbonisation. The report outlines a comprehensive approach to financing that integrates public and private capital, leverages value capture mechanisms, and explores novel financial instruments to fund the significant upfront investments required for large-scale urban transformation.

Decarbonisation Strategies

Decarbonising Buckower Höfe necessitates an integrated, area-based approach that aligns sustainability initiatives across buildings, energy, mobility, and public realms.

Building retrofits and repurposing should prioritise deep retrofits over demolition to optimise embodied carbon and adopt a "whole life-cycle" carbon approach. The adaptive reuse of underutilised spaces into community facilities should also be explored. Transitioning the entire neighbourhood to the existing district heating network, supplemented with on-site renewable energy from sources such as solar, biomass, and heat pumps, is essential. Establishing comprehensive recycling and waste management systems will further enhance district energy and circularity. Sustainable mobility and public realm improvements include pedestrianising core zones, investing in cycling infrastructure, improving public transit connectivity through new or enhanced bus routes, and upgrading streetscapes and green spaces. Climate adaptation and resilience strategies involve natural stormwater management through bioswales and permeable paving, cool roofs, shading, urban greening to mitigate the urban heat island effect, and implementing backup energy systems and emergency preparedness measures.

Building Retrofits and Repurposing

In the context of Buckower Höfe's regeneration, prioritising deep retrofits over demolition is crucial for optimising embodied carbon. This approach recognises the significant carbon investment already present in existing structures and seeks to leverage it, rather than incurring the substantial carbon cost of demolition and new construction. Deep retrofits involve comprehensive upgrades to building envelopes, mechanical systems, and interiors, dramatically improving energy efficiency whilst preserving the core structure. This strategy not only reduces carbon emissions but also minimises disruption to the community, as residents can often remain in situ during phased renovations. Deep retrofits involve comprehensive upgrades to building envelopes, mechanical systems, and interiors, dramatically improving energy efficiency whilst preserving the core structure. This strategy not only reduces carbon emissions but also minimises disruption to the community, as residents can often remain in situ during phased renovations.

Adopting a "whole life-cycle" carbon approach is essential for balancing operational and embodied impacts. This methodology considers carbon emissions from the extraction of raw materials, through construction, operation, and eventual end-of-life scenarios. For Buckower Höfe, this means carefully selecting retrofit materials and technologies based on their long-term environmental impact, not just their immediate energy-saving potential. It may involve using bio-based insulation materials, recycled content in building components, and designing for future adaptability and ease of recycling at end-of-life. This holistic approach ensures that short-term gains in operational efficiency do not come at the cost of increased embodied carbon, leading to genuinely sustainable outcomes.

Exploring the adaptive reuse of underutilised spaces into community facilities presents an opportunity to enhance social cohesion and improve quality of life for residents. This could involve transforming vacant ground floor units into co-working spaces, community kitchens, or wellness centres. Repurposing underused outdoor areas into community gardens or recreational spaces can foster a sense of ownership and pride among residents. By reimagining these spaces, Buckower Höfe can create a more vibrant, inclusive community that better meets the evolving needs of its residents, whilst maximising the use of existing built assets.

District Energy and Circularity

Transitioning the entire neighbourhood to the existing district heating network represents a cornerstone of Buckower Höfe's decarbonisation strategy. District heating systems offer significant efficiency gains over individual heating solutions, disruption to residents and may involve a phased approach, starting with the buildings closest to the existing network and gradually expanding outwards.

Supplementing the district heating system with on-site renewable energy sources is crucial for achieving a truly sustainable energy mix. Solar photovoltaic panels on rooftops and south-facing facades can provide a significant portion of the neighbourhood's electricity needs. Biomass boilers, utilising locally sourced waste wood or other

sustainable biomass, could provide additional heat during peak demand periods. Ground source heat pumps, while requiring significant upfront investment, offer an efficient, low-carbon heating and cooling solution that could be integrated into the district system. The combination of these technologies, tailored to Buckower Höfe's specific context and energy demand profile, will create a resilient, diversified energy system that minimises reliance on fossil fuels.

Establishing comprehensive recycling and waste management systems is essential for closing the loop on resource use within Buckower Höfe. This goes beyond traditional recycling bins to include initiatives such as community composting schemes, repair cafes to extend the life of household items, and potentially even small-scale anaerobic digestion for organic waste. Implementing a circular economy approach at the neighbourhood level can significantly reduce waste sent to landfill, lower carbon emissions associated with waste transport and processing, and potentially create local jobs in waste management and recycling. Education and community engagement will be key to ensuring high participation rates and the success of these initiatives.

Sustainable Mobility and Public Realm

Pedestrianising core zones and investing in cycling infrastructure forms the foundation of Buckower Höfe's sustainable mobility strategy. By prioritising active travel, the neighbourhood can significantly reduce carbon emissions from transport whilst improving public health and community cohesion.

Pedestrianisation of key areas creates safe, attractive spaces for community interaction and local commerce. This could involve transforming underused parking areas into public squares or creating a network of pedestrian-only streets linking key community facilities. Complementing this, a comprehensive cycling network with secure bike storage, repair stations, and potentially a bike-sharing scheme would provide a viable alternative to car use for short to medium-distance trips.

Improving public transit connectivity through new or enhanced bus routes is crucial for ensuring that Buckower Höfe is well-integrated with the wider city. This may involve working with local transport authorities to increase the frequency of existing services, introduce new routes that better serve the neighbourhood's needs, or implement bus priority measures to improve journey times and reliability. Additionally, exploring innovative solutions such as demand-responsive transport or community-run shuttle services could fill gaps in the public transport network, particularly for elderly or mobility-impaired residents. Enhancing public transport not only reduces carbon emissions but also improves access to employment, education, and leisure opportunities for residents, contributing to social equity and economic development.

Upgrading streetscapes, green spaces, and integrating amenities like playgrounds is essential for creating an attractive, liveable neighbourhood that encourages outdoor activity and community interaction. This could involve introducing rain gardens and bioswales along streets to manage stormwater whilst adding greenery, creating pocket parks in underused spaces, and upgrading existing playgrounds with natural play elements. Integrating public art, seating areas, and outdoor exercise equipment can create multi-functional spaces that cater to diverse community needs. These improvements not only enhance the aesthetic and recreational value of the neighbourhood but also contribute to climate resilience through increased vegetation and permeable surfaces.

Climate Adaptation and Resilience

Natural stormwater management through bioswales and permeable paving is a critical component of Buckower Höfe's climate adaptation strategy. As climate change leads to more frequent and intense rainfall events, traditional drainage systems can become overwhelmed, leading to flooding and water pollution. Bioswales - landscaped channels designed to concentrate and convey stormwater runoff while removing debris and pollution - can be integrated along streets and in public spaces. These not only manage stormwater effectively but also add greenery and biodiversity to the urban environment. Permeable paving in parking areas and less-trafficked streets allows rainwater to infiltrate into the ground, reducing runoff and replenishing groundwater. Together, these nature-based solutions create a more resilient urban water system whilst enhancing the neighbourhood's green infrastructure.

Implementing cool roofs, shading, and urban greening measures is essential for mitigating the urban heat island effect, which is expected to intensify with climate change. Cool roofs, which use reflective materials to reduce heat absorption can significantly lower building cooling needs and improve comfort for top-floor residents. Strategic placement of trees and pergolas with climbing plants can provide natural shading for buildings and public spaces, reducing surface temperatures and creating comfortable outdoor areas even during heatwaves. Green roofs and

facades not only provide insulation and reduce energy consumption but also contribute to biodiversity and air quality improvement. These measures, when implemented comprehensively across Buckower Höfe, can create a notably cooler, more comfortable urban environment that is better equipped to handle rising temperatures.

Backup energy systems and emergency preparedness measures are crucial for ensuring Buckower Höfe's resilience in the face of extreme weather events and potential grid disruptions. This could involve installing community-scale battery storage systems that can provide power during outages, particularly to critical facilities like community centres that could serve as emergency shelters. Developing a neighbourhood emergency plan, including communication protocols and designated safe gathering points, is essential. Additionally, ensuring that key buildings have passive survivability features - such as natural ventilation and daylighting - can help maintain liveable conditions during extended power outages. Regular community drills and workshops can help ensure residents are prepared for potential emergencies, fostering a resilient community that can adapt to and recover from climate-related challenges.

Implementation Roadmap

Transforming a large area like Buckower Höfe requires a phased, multi-stakeholder approach that balances ambition with practicality. The implementation roadmap outlined here provides a structured yet flexible framework for achieving comprehensive neighbourhood regeneration and decarbonisation. This approach recognises the complexity of urban transformation and the need for sustained engagement and adaptation throughout the process.

Phase 1:

Vision and Mobilisation: The first phase of the implementation roadmap focuses on establishing a strong foundation for the regeneration project. A crucial step is the establishment of a robust governance framework that brings together key stakeholders, including GEWOBAG (the primary housing association), residents, local businesses, and relevant municipal departments. This collaborative structure ensures that diverse perspectives are represented from the outset and fosters a sense of shared ownership over the project. Regular meetings, workshops, and communication channels should be established to facilitate ongoing dialogue and decision-making.

Co-creating a shared vision and regeneration strategy for a stakeholder expectations and guiding subsequent actions. This visioning process should be highly participatory, utilising methods such as design charrettes, community surveys, and interactive exhibitions to gather input from a wide range of residents and stakeholders. The resulting vision should articulate clear goals for environmental sustainability, social equity, and economic vitality, while respecting the unique character and heritage of Buckower Höfe. Alongside this visioning process, detailed technical assessments should be conducted to map opportunities and priorities. These assessments should cover areas such as building condition, energy performance, infrastructure capacity, and socio-economic indicators, providing a comprehensive baseline against which progress can be measured.

Phase 2:

Enabling Environment: The second phase focuses on creating an enabling environment that will facilitate the implementation of regeneration initiatives. A key aspect of this is streamlining policies and zoning regulations to enable appropriate densification and mixed-use development. This may involve working with city planning authorities to create special zoning overlays or expedited approval processes for projects that align with the neighbourhood's regeneration goals. Care must be taken to balance increased density with the preservation of green spaces and community character.

Introducing supportive financing tools is crucial for catalysing private investment and supporting community-led initiatives. This could include tax credits for energy-efficient retrofits, grants for community projects, and development incentives for mixed-income housing or local business spaces. Exploring innovative financing mechanisms such as green bonds or social impact investments can help attract additional capital to the project. Simultaneously, initiating workforce training and community capacity building programmes is essential for ensuring that local residents can benefit from the economic opportunities created by the regeneration process. This might involve partnerships with local educational institutions to provide training in green construction techniques, energy auditing, or community organising.

Phase 3:

Catalytic Investments: The third phase involves implementing high-impact projects that demonstrate the tangible benefits of the regeneration strategy and catalyse further investment. A priority should be the implementation of district-scale sustainable infrastructure, particularly in the areas of energy, waste, and mobility. This could include upgrading the district heating network, installing community-scale renewable energy systems, implementing smart waste management solutions, and creating a comprehensive network of cycling and pedestrian infrastructure. These investments not only reduce carbon emissions but also improve quality of life for residents and demonstrate the neighbourhood's commitment to sustainability.

Catalysing strategic building retrofit and repurposing projects is another key aspect of this phase. This could involve selecting a diverse range of buildings - from residential blocks to community facilities - for deep energy retrofits that showcase different technical solutions and financing models. Repurposing underutilised spaces into community assets, such as co-working hubs or cultural centres, can help revitalise the neighbourhood and create new social and economic opportunities. Upgrading public realms with amenities, green spaces, and climate resilience measures is equally important. This might include creating new pocket parks, implementing nature-based solutions for stormwater management, and enhancing streetscapes with public art and gathering spaces. These visible improvements help build community pride and demonstrate progress towards the shared vision.

Phase 4:

Scaling and Integration : The final phase focuses on scaling successful initiatives across the entire Buckower Höfe area and integrating the neighbourhood more closely with its surroundings. This involves expanding proven approaches in building retrofits, renewable energy deployment, and community programmes to cover all eligible properties and spaces within the neighbourhood. It's important to apply lessons learned from earlier phases to refine and optimise these scaled-up interventions.

Integrating surrounding neighbourhoods through improved connectivity is crucial for ensuring that Buckower Höfe doesn't become an isolated "sustainability island" but rather a catalyst for wider urban transformation. This could involve extending cycling and pedestrian networks, enhancing public transport links, and creating shared community facilities that serve both Buckower Höfe and adjacent areas. Establishing robust monitoring, reporting, and knowledge dissemination mechanisms is essential for tracking progress, maintaining accountability, and sharing insights with other urban regeneration projects. This might include regular sustainability reports, academic partnerships for longitudinal studies, and participation in national and international urban sustainability networks.

By delivering tangible early successes through this agile, phased process, the project can build momentum, secure ongoing buy-in from stakeholders, and ultimately achieve area-wide transformation. The iterative nature of this approach allows for continuous learning and adaptation, ensuring that the regeneration strategy remains responsive to changing needs and opportunities throughout its implementation.

Funding Mechanisms

Funding the upfront capital required for the comprehensive regeneration of Buckower Höfe necessitates innovative financing models that leverage diverse sources. The scale and complexity of the project demand a sophisticated approach that blends public, institutional, and private capital, whilst also capturing value created through the regeneration process itself. This multi-faceted financing strategy not only ensures sufficient resources for implementation but also aligns incentives among various stakeholders and distributes risk appropriately.

- **Public and Institutional Investment**

Public and institutional investment forms a critical foundation for the Buckower Höfe regeneration project. Federal and state urban regeneration grants and subsidies can provide significant initial capital, particularly for aspects of the project that deliver clear public benefits. These might include funding for energy efficiency upgrades in social housing, improvements to public spaces, or the implementation of sustainable infrastructure. In Germany, programmes such as the KfW Energy-efficient Urban Rehabilitation scheme could be leveraged to support comprehensive neighbourhood-scale interventions. It's crucial to align the project's objectives with national and regional policy priorities to maximise access to these funding streams.

Green municipal bonds represent an innovative mechanism for financing public realm and infrastructure upgrades. By issuing bonds specifically earmarked for environmentally beneficial projects, the city of Berlin could tap into the growing market for sustainable investments. These bonds could fund improvements such as district heating network upgrades, cycling infrastructure, or green space enhancements. The 'green' label can often attract investors at favourable interest rates, reflecting the lower long-term risk associated with sustainable infrastructure. To ensure credibility and attract institutional investors, it's important to adhere to recognised green bond principles and provide transparent reporting on the use of proceeds and environmental impacts.

Institutional investors, such as pension funds and insurance companies, can play a crucial role in providing equity for sustainable assets within the project. These investors are increasingly seeking long-term, stable returns from assets with strong environmental, social, and governance (ESG) credentials. Structuring investment opportunities that offer appropriate risk-adjusted returns while delivering clear sustainability benefits can attract significant institutional capital. This might involve creating a dedicated investment vehicle for energy-efficient social housing or developing a portfolio of mixed-use, low-carbon buildings within the neighbourhood.

- **Value Capture Mechanisms**

Value capture mechanisms are essential for ensuring that the benefits of regeneration are equitably distributed and that a portion of the value created is reinvested in the neighbourhood. Land value capture from zoning changes and densification represents a powerful tool in this regard. As the regeneration process enhances the desirability and potential of the area, strategic rezoning to allow for increased density or mixed-use development can significantly increase land values. Implementing mechanisms to capture a portion of this uplift, such as planning obligations or development charges, can generate substantial funds for community benefits and infrastructure improvements.

Property tax increment financing (TIF) is another valuable mechanism for capturing increased value resulting from regeneration. By ring-fencing the additional property tax revenue generated by the improved neighbourhood, funds can be raised upfront to finance initial investments. This approach effectively allows the project to 'pay for itself' over time as property values increase. However, careful financial modelling and risk assessment are crucial to ensure that projected increases in tax revenue are realistic and that the mechanism doesn't unduly impact the city's broader tax base.

Community ownership structures offer an innovative approach to recycling value into further improvements while also fostering a sense of local empowerment. This could involve establishing a community land trust that retains ownership of land while allowing for development, ensuring long-term affordability and community control. Alternatively, a neighbourhood investment fund could be created, allowing residents to invest in local regeneration projects and share in the financial benefits. Such structures not only provide an additional source of capital but also align the interests of residents with the long-term success of the regeneration project.

- **Private Capital and Securitisation**

Private capital plays a crucial role in scaling up regeneration efforts and implementing specific projects within the broader framework. GEWOBAG, as the primary housing association, can align its investment plans with the regeneration strategy, potentially accelerating planned refurbishments and incorporating higher sustainability standards. This might involve leveraging its assets to raise

additional capital for comprehensive retrofits or new sustainable housing developments within Buckower Höfe.

Green loans and mortgages for sustainable building retrofits represent an important mechanism for channelling private capital into individual property improvements. By partnering with local banks or specialist green finance providers, favourable lending terms can be offered for retrofits that meet specific energy efficiency or sustainability criteria. This not only makes it easier for property owners to finance improvements but also creates a clear market signal valuing sustainability. The potential foreduced energy costs and increased property values can make these loans attractive to both lenders and borrowers.

Securitisation of future energy and operating cost savings presents an innovative approach to financing upfront investments in energy efficiency and renewable energy. By aggregating the projected savings from multiple buildings or projects, a securitised financial product can be created and sold to investors. This allows for the monetisation of future cash flows, providing immediate capital for improvements. While complex to structure, such mechanisms can attract investors seeking exposure to the growing market for energy efficiency and sustainable infrastructure.

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About the Panel

LISETTE VAN DOORN

Panel Chair

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As chief executive of ULI Europe, Lisette van Doorn is responsible for the development of the Institute's activities across the region, including its renowned pan-European conferences and over 250 local meetings and events across 14 countries. She is responsible for working with ULI's staff both locally and globally to deliver more high-profile content and reports; coordinating Advisory Services panels and Urban Plan; and expanding the Institute's thought leadership across Europe. Van Doorn joined ULI in January 2015 from LIRE, her own consultancy business, which advises international institutional real estate investors and fund managers on strategy, organisational optimisation and portfolio structuring.

Prior to this, van Doorn was country manager for CBRE Global Investors where she managed a €1.6bn portfolio of assets in Italy and fund manager of two shopping centre funds (€ 1.3 billion) with assets in Spain, Portugal and Italy. Before joining CBRE Global Investors, van Doorn was founding chief executive for INREV, the European association for Investors in Non-Listed Real Estate Vehicles for four and a half years. Van Doorn started her career at ING Investment Management, where she held account manager and assistant controller positions before being made managing director of research & strategy for ING Real Estate Investment Management Europe.

ANNA MOORE

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Anne Moore is Founder and CEO of Domna (formely Hestia), a B2B residential retrofit business that makes energy efficiency easy and value-add. Domna are on a mission to eliminate the 25% of emissions from buildings, while adding to property values. Prior to founding Domna, Anna was a Partner with McKinsey, where she led the firm's UK construction practice, and co-led its European Sustainability Strategy practice.

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Anna Strongman is CEO of Oxford University Development (OUD), a joint venture between Oxford University and Legal & General set up to build Innovation Districts and subsidised accommodation for graduate students and the university workforce.

Anna was previously Managing Partner of Argent LLP in London, where she spent 12 years executing a range of asset, development, and business planning projects. Highlights included leading the Asset Management of King's Cross, developing Coal Drops Yard, and setting up a BTR portfolio with JV partners Related. Anna was instrumental in building the business from 40 people to a team of 200 over a ten-year period and led the corporate side of the business as Managing Partner. Before joining Argent, Anna worked in the planning and economic development team of Arup, worked for DTZ in Scotland, and lived for 18 months in Japan, where she studied Japanese and conducted research at the Japan Productivity Centre as a Daiwa Scholar.

CARLO CASTELLI

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Carlo Castelli is an architect and masterplanner. He studied architecture in Genoa, Italy where he completed a master's Degree in architecture and in 2011. He completed a Master in 'City Design and Social Science' at the London School of Economics and Social Science.

Through nearly 25 years' of experience on diverse urban contexts and complex buildings globally, Carlo has acquired a great understanding of how the various urban systems and processes shape the urban environment. He is accustomed to integrated, holistic design development at various scales, managing interfaces, coordination and brief interpretation towards the creation of successful urban environments, with real added value for the various stakeholders. Carlo chairs the Urban Infrastructure Council at the Urban Land Institute Europe and sits in the Executive committee of the LSE Global Real Estate.

DITTE LYSGAARD VIND

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Ditte Lysgaard Vind is chief innovation and science officer at Bloxhub. As well as the Chairwoman of the Danish Design Council and a member of the board of the Danish Green Building Council as well as the global SDG innovation lab UNLEASH. She is also the co-author of *A Changemakers Guide to the Future* (Lendager 2018) & *Danish Design Heritage & Global Sustainability* (Routledge 2023).

HARIS PIPLAS

Drees and Sommer

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Dr. Haris Piplas holds an Urban Design Master from the Technical University in Berlin, a research fellowship from Politecnico di Milano and a Dr. sc. from the ETH Zurich's (Swiss Federal Institute of Technology) Department of Architecture.

He figured as the co-author and associate in several urbanistic, landscape and architectural projects in Germany, Denmark, China, Austria, Eastern Europe, Morocco, Latin America, and other regions. He is also the co-author at 'Global Urban Toolbox', the author of "City Action Lab: An Integrated Urban Toolkit for Reactivating Cities in Post-Socialist Central Eastern Europe", and editor-in-chief of two editions of the European Association of Landscape Architects (IFLA) called " Adaptive Capacity of Cities" and "Political Implications on the Urban Landscape." He is the initiator of the "Reactivate Sarajevo" Project, and the curator "Sarajevo Now" at the 15th Architectural Biennale in Venice, and also Keynote Speaker at various conferences. Haris Piplas is also the former Chair Young Leader at ULI Switzerland and Young Leader committee member at ULI Germany, nominator for the Aga Khan Award for Architecture and the Advisory Committee of the European Forum Alpbach, in the 'Healthy Places' Committee at ULI Germany as well as an expert Consultant at the many International Agency at the UN and the EU.

JOHANN PLAGEMANN

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Johann Christian Plagemann serves as Project Manager in the Planning Division at GEWOBA AG in Bremen. Johann oversees various aspects including project development, earlystage acquisition assessments, land procurement, establishment of building rights, and orchestration of competitive procedures.

Previously, Johann served as Project Manager and Team Leader in the Design Department at GSP Architects in Bremen, particularly in residential and hospital sectors. His leadership also encompassed steering competition procedures to fruition. Before his tenure at GSP Architects, Johann held positions as an Architect at BHBVT Architects in Berlin. His diverse experience also includes contributing to various architectural firms in Berlin and serving as an Assistant at the Chair of Design and Building Construction at TU Berlin.

JÜRGEN FENK

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Jürgen Fenk leads the real estate division of Zech Group SE at DIH AG. He was until March 2025 Managing Director at Eastdil Secured, and previously, CEO of Primonial REIM. He was a Member of the Executive Board of SIGNA, a large Real Estate Investor and Developer in the DACH region. Jürgen occupied various Leadership positions and has extensive experience in the real estate, banking and capital market sectors. He also acts as an Investor in the PropTech and CleanTech space. Jürgen is a past Chairman of ULI Europe, as well as a ULI Global Governing Trustee.

MARIA VASSILAKOU

Vienna Solutions

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Maria Vassilakou was the first green vice mayor of Vienna and city councillor for urban development, traffic, climate protection, energy planning, and citizen participation. She strongly advocates sustainable urban development and gentle mobility. During her 10 years as vice mayor, Maria successfully implemented a vast transformation agenda. Now, Vienna has one of the most affordable pricing policies for public transportation amongst all European cities.

Having left city politics, Maria established Vassilakou Urban Consulting GmbH, where she focusses on urban transformation strategies and transition management. She draws from and shares her experience, know-how, and best practices from Vienna with cities across the globe. Since 2019, Maria has served as a member in the experts board which advised the European Commission on the design and implementation of the European Mission for "100 climate-neutral Cities by 2030".

RUFUS GRANTHAM

Living Places

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Rufus Grantham is one of the co-founders of Living Places, a not-for-profit advisory firm focused on place-based decarbonisation. He initiated the original development of the Net Zero Neighbourhood model for place-based decarbonization including co-writing the UK Government-funded Treasury business case for the approach while at Bankers without Boundaries, before setting up Living Places in July 2023.

Their work is centred around building the business cases for large scale demonstrators for holistic approaches to decarbonising whole neighbourhoods supported by long term patient capital rather than individual retail finance. Living Places is currently working on demonstrator projects with several large UK Local Authorities and is exploring potential projects in Europe. Prior to moving into this work 4 years ago, he worked in mainstream finance for over 20 years. Rufus is a member of the Scottish Government Green Heat finance Taskforce, sits on the Advisory Group for the Innovate UK Net Zero Living programme and is on a 9 month secondment into the UK Govt Department of Energy Security & Net Zero Local Net Zero team as a Blended Finance Expert.

VANESSA CRUZ GALARZA

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Vanessa Cruz Galarza has nearly two decades of experience in Real Estate. She has worked for real estate developers, LPs, GPs and set up a consulting firm. Her background is rich and diverse having been a global investor, portfolio manager, product development specialist and also focused on capital raising. Most recently she was Fund Manager / CIO for True North Real Asset Partners.

Over the last few years her focus has been on carbon sequestration opportunities via timber and afforestation; development on sustainable funds focused on brown to green strategies; and investment into Venture Capital (PropTech and ClimateTech). Prior to joining True North, Vanessa worked at Areim and was involved in the strategic business development of new products in the ESG space and prior as a global investor with Composition Capital Partners Fund of Funds, The Wellcome Trust and UBS Global Real Estate Multi Managers, amongst others. She holds a BA Economics from Universidad del Pacifico (Peru) where she is originally from, and is a CFA Charterholder.

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Vicki Odili is co-Director of tp bennett's Sustainability Team, bringing expertise to a variety of Architecture and Interiors projects. Vicki is a Passivhaus Certified Designer who champions exemplary sustainable design with a holistic approach. She is passionate about designing environmentally-sustainable, healthy and equitable spaces, whilst optimising tp bennett's own footprint as a practice. She particularly enjoys working alongside occupants, clients, and design teams to develop and build on their sustainability strategies. She appreciates the importance of a clear brief with sustainable targets and metrics to ensure that the goals are embedded throughout the design development process. Vicki is a vocal advocate for sustainable alternatives to bring change to the industry, and to empower everyone on our collective route to net zero carbon.

VIVIENNE KING

Impactful Places

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Dr. Vivienne King has held leadership positions in real estate for more than 30 years working in urban development, regeneration and management, joint venture partnerships, strategy development and ESG where she has been at the forefront of integrating ESG as a strategic imperative.

Over 20 years of Vivienne's career was in £14b institutional real estate investor, the Crown Estate where she was a member of the executive committee. Vivienne served as General Counsel and was promoted into leadership responsibility for HR, legal, marketing, corporate affairs, H&S, company secretarial, governance and ESG and she oversaw the Scottish business, leading its demerger to the Scottish Government. Vivienne was a key contributor to the growth of the Crown's indirect investment portfolio, now worth £1.3 billion.

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