

INNOVATIVE

CITY-

BUSINESS COLLABORATION

Urban Infrastructure Initiative – Framework
for city-business collaboration



ABSTRACT

Conducted between 2010 and 2014, the WBCSD Urban Infrastructure Initiative (UII) was an innovative global project that contributed to setting the framework for city-business collaboration at the early planning stage and demonstrated the role of business as a strategic partner to help cities turn their ambitious sustainability visions into reality.

This multi-sector collaboration between 14 leading global companies worked with 10 cities around the world using a structured engagement process. Bridging organizations played an important role in facilitating the development of a relationship between the UII teams and the cities, especially in early discussions to identify the scope of engagement and the urban challenges to be addressed. The UII teams then conducted transformation assessments to create “solutions landscape” reports for the cities with integrated, cross-sector solution recommendations.

An important outcome of this major initiative suggests that all cities seeking to realize their sustainability objectives can benefit substantially from engaging with business early in the planning and strategy development process. Another important observation from the overall evaluation is that global companies can bring a wealth of experience and knowledge of what works from their global operations, to which even cities in highly developed economies do not always have access.



CONTEXT

The WBCSD established the UII to showcase a new model of strategic engagement between cities and business early in the planning process.

Cities are at the leading edge of the global sustainability agenda. By 2050, 70% of the world's population will live in cities—this is where the battle for a sustainable future for humanity will be won or lost. Cities around the world are rising to this challenge by pursuing ambitious objectives that will make them more competitive, resource efficient, resilient and inclusive.

Realizing their sustainability visions in practice is a complex challenge for city leaders. It typically necessitates major transformations in the design, construction and operation of a city's infrastructure systems—including buildings, energy, mobility, telecommunications, water, sanitation and waste management services—and optimizing the linkages between these systems.

Businesses that are committed to sustainability and experienced in delivering effective solutions can help cities navigate these challenges, contributing to the strategy as well as providing specific infrastructure, technology, services and financing solutions.

Cities have long sourced solutions and services from the private sector and have engaged businesses to design, build, operate and maintain major infrastructure. However, under this traditional model, businesses are generally involved late in the city's planning/implementation life cycle, with limited opportunities to provide strategic input.



OBJECTIVES

The UII was established to demonstrate the valuable role that business can play in supporting cities in turning their sustainability vision into a practical, cost-effective action plan through early engagement in the strategy and planning process. The initiative developed an innovative engagement platform to mobilize multi-company, multi-sector expertise. The aim was to work collaboratively with cities to identify a portfolio of potential solutions to holistically address the complex cross-cutting sustainability challenges cities face.

BUSINESS PARTICIPANTS

The UII brought together 14 leading member companies:

Co-Chairs

- Cemex (building materials)
- GDF SUEZ (energy and environmental services)
- Siemens (urban infrastructure)

Members

- Acciona,(renewable energy and water)
- AECOM (support services)
- AGC (materials and components)
- EDF (energy)
- Honda (motorcycle and auto manufacturing)
- Nissan (auto manufacturing)
- Philips (healthcare, lifestyle and lighting)
- Schneider Electric (energy management)
- TNT Express (goods transfer)
- Toyota (auto manufacturing)
- United Technologies (building systems and aerospace)

These companies are sustainability leaders and have a strategic interest in unlocking markets for the innovative solutions that will be essential in driving urban sustainability transformations around the world. The opportunity to align sustainability with the expansion of strategically important future markets provides a strong rationale for collaboration, even between companies that are traditionally competitors.

CITY PARTICIPANTS

The UII worked with 10 cities in different regions of the world. The partner cities were at different stages of development, offered different systems of governance, and had different urban development and sustainability challenges.

UII PARTNER CITIES

TILBURG

The Netherlands

Tilburg has a bold ambition to be climate neutral and climate resilient by 2045—zero net carbon emissions and protected against climate change effects.

PHILADELPHIA

USA

Philadelphia aims to be the greenest city in North America and has established the Greenworks Philadelphia plan focusing on energy, environment, equity, economy and engagement.

GUADALAJARA

Mexico

Guadalajara has a vision to transform the city into a modern, sustainable metropolis at the center of an integrated and rejuvenated region.



TURKU Finland

Turku's Climate and Environment Program, launched in 2009, targets greenhouse gas (GHG) emissions per capita 30% below the 1990 level by 2020.



KOBE Japan

Kobe has developed the Kobe Environmental Future City Initiative, which is focused on addressing major sustainability challenges including disaster resilience and a rapidly aging society. It targets GHG emissions of 25% below the 1990 level by 2020

YIXING China

Yixing has set a clear goal to become China's "demonstration city of scientific and sustainable development" by 2020.

GUJARAT CITIES India

Ahmedabad, Surat, Rajkot, Vadodara Gujarat is the only Indian state with a Climate Change Department and was the first state to announce a comprehensive solar energy policy. Cities are taking the lead: Ahmedabad's bus rapid transit system is being replicated in other Indian cities.



OTHER PARTIES/STAKEHOLDERS

The initial city selection and engagement was facilitated by "bridging organizations" — respected third-party stakeholders that have a detailed understanding of the local context. The bridging organizations were:

- ICLEI – Local Governments for Sustainability (Turku and Tilburg)
- The State Government of Gujarat (Gujarat cities)
- The China Business Council for Sustainable Development (Yixing)
- Japan Facility Solutions (Kobe)
- The Inter-American Development Bank (Guadalajara)
- The Urban Land Institute (Philadelphia).

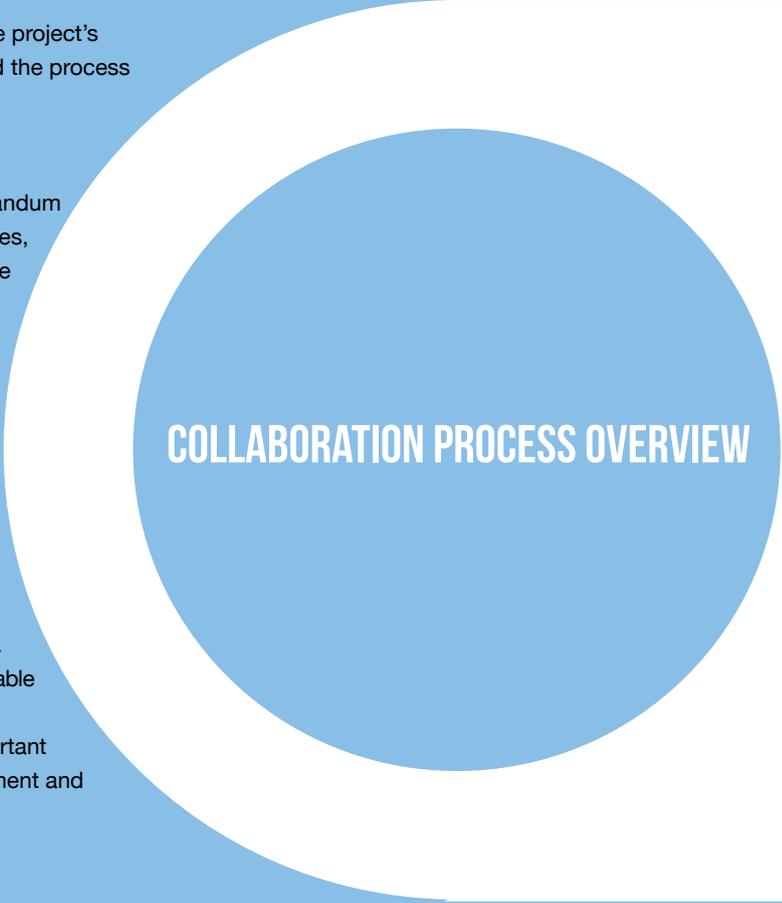
PROCESS AND GOVERNANCE

Collaboration governance

A detailed governance document codified the project's governance, decision-making processes, and the process for city engagements.

The agreement to partner with each city was documented in a non-legally binding memorandum of understanding (MoU) detailing the objectives, the engagement process and the scope of the engagement. The collaboration was a temporary agreement ending with the publication of a "solutions landscape" report for the city.

In common with other WBCSD projects, Ull established an Assurance Group as a core element of the project's governance. It was charged with ensuring, and ultimately testifying, that the Ull maintained a high level of integrity, independence and accountability. Made up of highly experienced and knowledgeable urban planning and sustainability experts, the Assurance Group was also able to offer important guidance and advice on Ull design, development and implementation.



COLLABORATION PROCESS OVERVIEW



SCOPE OF COLLABORATION

The scope of the collaboration was based on the needs and challenges of each city and the expertise of UII partners.

The geographical scope of the engagement was generally defined by the administrative boundary of the partner city. However, in some instances challenges or solutions extended across these boundaries. For example, in Guadalajara the UII worked with the Municipality of Guadalajara, the central municipality of the seven that make up the broader metropolitan area of the city.

The general process for the UII city engagements consisted of five main steps:

- 1** Identify partner cities, working with the bridging organizations. The criteria for the selection were: an existing sustainability vision; the strong commitment of the city leadership to implement this vision; and a willingness to engage constructively with business.
- 2** Agree on the scope and process for engagement during initial discussions. A meeting with city leaders helped to identify the main topics to be considered by the UII and to determine the process to be followed. This discussion triggered a dialogue which led to agreement on priority issues to be addressed during the engagement.
- 3** Engage in dialogue with the city to put together an “issues landscape”. This dialogue brought together businesses and city officials to jointly discuss the issues the city faced and the areas where businesses could best contribute to developing practical solutions. During the dialogue, the UII team gained a full understanding of the city’s sustainability vision and targets and the barriers to progress. The dialogue ended with agreement on the transformation process to follow.
- 4** Organize a transformation assessment to create a “solutions landscape”. In each city, the UII mobilized a multi-disciplinary team of company experts to work collaboratively with senior city officials. These teams took an integrated, cross-sector approach to analyzing the city’s major sustainability challenges and to developing a “solutions landscape” (i.e. a portfolio of solutions) to address these challenges. The UII engagements were several steps removed from tendering and procurement processes, allowing for wide-ranging conversation with total transparency. The UII functioned like a laboratory in which cities explored and tested different options.
- 5** Publish a public report on the conclusions and recommendations. Individual city solution landscape reports are available at www.wbcasd.org/urban-infrastructure.aspx.

TABLE 2: OUTPUTS OF THE COLLABORATIONS WITH EXAMPLES

Business contributions to strategy development and decision-making

UII Examples

Innovative and effective solutions

- **New technologies.**
 - o Intelligent transport systems: Turku, Tilburg, Yixing, Kobe, Guadalajara, Philadelphia.
 - o Smart electrical grids and local energy management systems: Turku, Kobe, Philadelphia.
 - o Green infrastructure: Gujarat cities, Yixing, Philadelphia.
- **Energy efficiency in buildings.** Improving the energy efficiency of a city's building stock was a priority issue in all 10 UII partner cities. Proposed solutions cover design and planning regulations, technology, market enhancement measures, policy incentives, consumer awareness and engagement, and innovative financing mechanisms.
- **Sharing experiences from other cities.**
 - o In Tilburg and Turku the UII team was able to share the experiences of other European cities in developing green logistics schemes.
 - o In Guadalajara the UII team was able to bring knowledge of how Mexico City had established a single integrated planning regulation to facilitate the renewal of the historic city center.
 - o Solutions for wastewater management in Gujarat benefited from the team's knowledge of successful projects in Chennai and private sector involvement in natural wetland restoration in China.
 - o The Philadelphia UII team drew on the experiences of other leading US cities in defining the value of the EcoDistrict model.

Integrated approaches to addressing urban challenges

- **Urban planning.** In both Yixing and Gujarat the UII team worked with the cities to identify how enhanced urban planning approaches could help address urban infrastructure challenges in an integrated manner.
- **Integrated solution development.** In Guadalajara the UII team was able to map how solutions across four main areas—mobility and logistics, buildings and housing, security, and waste—could support and reinforce each other. In Philadelphia the UII team helped develop a package of integrated solutions using the EcoDistrict model as a platform to optimize and integrate innovative infrastructure solutions at the district level.
- **Working across departments.** A key benefit of the UII engagements was the platform for promoting and supporting inter-departmental dialogue and overcoming concerns about shared functional responsibilities, duties and budgets.
- **Working across municipal boundaries.** In Guadalajara the UII team explicitly identified the solutions that required cross-boundary approaches for effective action and implementation.
- **Integrated assessment tools.** Working with Kobe the UII introduced the use of the CASBEE-City tool as a platform for the integrated understanding of the challenges and the evaluation of solutions.

TABLE 2: OUTPUTS OF THE COLLABORATIONS WITH EXAMPLES

Business contributions to strategy development and decision-making	UII Examples
Financing and implementation	<ul style="list-style-type: none">• Solution prioritization. In all the UII engagements, the team assisted the city by identifying the key considerations and next steps, and developed a basic prioritization analysis of the suggested solutions landscape.• Implementation roadmaps. In Yixing and Guadalajara the UII teams developed high-level implementation roadmaps at the request of the cities to assist with the prioritization and sequencing of key solution proposals.• Private finance options. In Gujarat the UII team presented a range of potential options for the mobilization of private capital to support the implementation of proposed wastewater management solutions. In Philadelphia, the UII team made specific financing recommendations for proposed infrastructure and technology solutions.• Market mechanisms. A number of the UII engagements provide solutions and recommendations to create and enhance local markets for energy efficiency technologies and services. For example, in Yixing the UII proposed several market-based policies to encourage energy efficiency improvements and suggested possible financing mechanisms.
Development of the local green economy	<ul style="list-style-type: none">• Green economic development. In Tilburg the UII made recommendations on enhancing the sustainability of the city's business parks—a central element of the local economy. In Kobe and Philadelphia the UII emphasized the opportunity for city authorities to support the local establishment and growth of green businesses by driving demand for sustainable solutions and providing opportunities for their market deployment.
Private sector sustainability leadership	<ul style="list-style-type: none">• Energy Efficiency in Buildings (EEB) Manifesto. The UII teams in Tilburg and Kobe proposed local versions of the innovative EEB Manifesto—a set of voluntary measures to drive action on building energy efficiency that was a key outcome of the WBCSD's Energy Efficiency in Buildings Project• City fleet management. The UII team was able to share best practices from the private sector in improving the operational and environmental efficiency of large vehicle fleets as well as supporting the uptake of low-emissions vehicle technologies.

CITY PERSPECTIVES ON THE VALUE OF THE UII

OUTCOMES

“Our experience with the WBCSD’s Urban Infrastructure Initiative has been very encouraging and has brought new solutions and cooperation possibilities to our awareness... Together with the UII partners we developed a portfolio of new actions for our sustainability program... We are now better aware of the solutions and new forms of cooperation that advanced businesses can offer. The early engagement of businesses means we are now well-placed to use this knowledge in planning our new strategies and actions. We will also look for ways to make this new approach part of our regular strategy and program process.”

Jarkko Virtanen, Deputy Mayor of Turku

“[The UII engagement] reinforced our thinking that the stakeholder approach is the way to go... Working with the UII opened up an entire new network for us. Dialogue is crucial and mutual inspiration can lead to new ideas and business cases. We want to follow up and turn those business cases into local Green Deals.”

Berend de Vries, Deputy Mayor of Tilburg

“I am confident that through the in-depth cooperation with WBCSD and the scientific guidance of the Yixing UII report, the city, as the ‘Capital of Chinese Pottery’ and ‘Oriental Water City’, will pragmatically take a better path towards sustainability.”

Zhang Lijun, Mayor of Yixing

“The sustainability of cities cannot be achieved by isolated efforts but requires the involvement of governments, society and business. Guadalajara’s transformation requires a modern and sustainable infrastructure program that ensures high quality of life, integrity and safety. It is with this intention that Guadalajara has developed together with the WBCSD a transformation plan for our city, with a comprehensive, modern and far-reaching vision.”

Francisco Ayón López, Mayor of Guadalajara

“In order to build capacity for urban sustainability solutions and accelerate their adoption, we simply must work collaboratively. Cities need to continue to share best practices with one another while also problem solving alongside our partners in the private sector who share many of our goals. The Urban Infrastructure Initiative engagement allowed us to do just this... We came away with new ideas, benefitted from technical expertise, and gained meaningful external validation.”

Michael A Nutter, Mayor of Philadelphia

Outputs

The immediate output of each city engagement was the solutions landscape report. Each report is publically available and is summarized in the [Final Report of the UII](#). Table 2 presents an overall analysis of the UII engagements and the resulting solutions and summarizes specific examples of how the UII engagements added value to partner cities.

Longer term impacts

In the longer term, the value of these contributions will be measured by how these business inputs help cities accelerate progress toward their sustainability vision. It is too early to evaluate this long term impact, but both Turku and Yixing are conducting a detailed assessment of mobility options. The city of Yixing has also been chosen in December 2014 as one of the Sino-German Low Carbon Ecological Pilot Demonstration Cities. The city of Tilburg has expanded its use of the UII dialogue model to enhance the effectiveness of sustainability planning processes. The City of Philadelphia is drawing on the UII’s recommendations to improve the efficiency of its vehicle fleet and to strengthen the administration’s ability to advance progress toward their municipal building energy use reduction target.

Performance against objectives

The most important measure of performance is city leaders’ perception of the value of the collaboration.

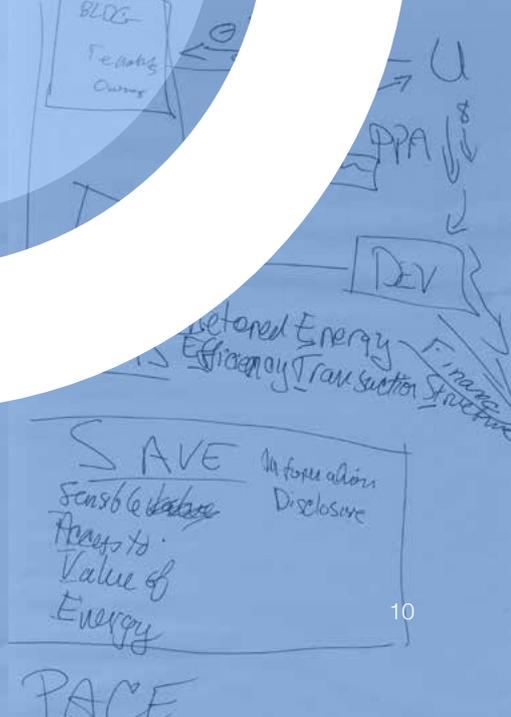
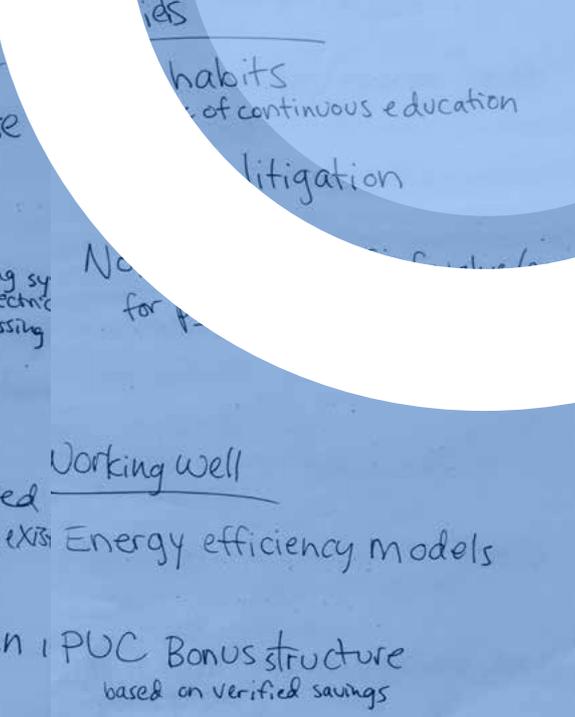
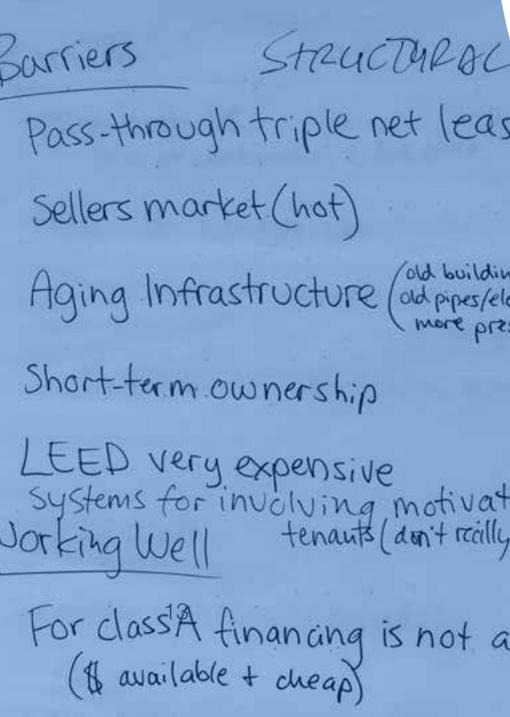
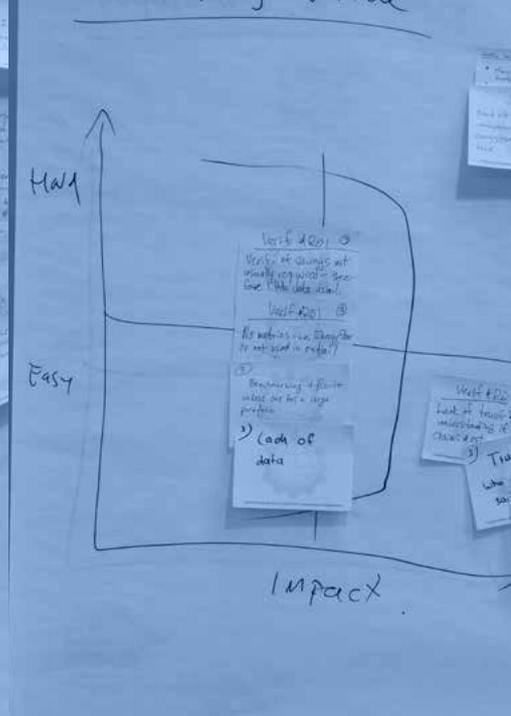
The UII also met its objective of developing an evidence base demonstrating that the early strategic involvement of business can be of real benefit to city administrations aiming to advance sustainability.

More broadly, the UII demonstrated the willingness and capabilities of leading businesses to be strategic partners in advancing the urban sustainability agenda. It showed that business has a detailed understanding of the challenges and constraints that cities face in pursuing their sustainability agenda and that business can be a valuable contributor in helping cities find solutions to overcome these challenges—particularly when involved early in the planning process.

Future or additional collaboration

The WBCSD’s new Zero Emissions Cities project will build on the success of the WBCSD’s Urban Infrastructure Initiative. Using a similar engagement model, it aims to catalyze global action to create low-carbon cities. It will work with city governments and other key stakeholders to help develop roadmaps to transform city energy systems towards zero emissions and then identify opportunities to drive implementation. The goal of the project is to use this innovative partnership model to work with at least 20 cities by 2020.

ANALYSIS



INNOVATION

The UII developed and tested an innovative new approach for dialogue and collaborative engagement between cities and business early in the sustainability planning process. This approach was applied in a number of different countries/regions around the world, confirming its applicability in a range of economic, political, social and cultural contexts.

The UII made an important contribution in pioneering how to bring together city sustainability leadership and business innovation to drive rapid transformation towards sustainable development.

SUCCESS FACTORS AND OVERCOMING CHALLENGES

The UII project identified several factors that support effective dialogue and collaboration between cities and business:

- **Support and involvement of the city leadership.** The support and involvement of the mayor in UII engagement was an essential ingredient for success. It sent a clear signal of its importance and value. It also provided a mandate for the participation of other senior civic leaders, managers of key departments within the administration, as well as other senior planning, technical and sustainability professionals.
- **Effective exchange between experts.** A unique characteristic of the UII approach was the opportunity for city experts and company team members to have broad-based interactions in their areas of expertise, sharing ideas and insights. These two-way exchanges were central to the effectiveness of the UII dialogues.
- **Local, national and international expertise.** While the required company expertise varied from city to city, the UII transformation teams were able to bring a mix of expertise. This ensured a detailed understanding of the local context while also providing best practices from other cities in the same country or internationally.
- **Bridging organizations.** Bridging organizations played an important role in facilitating the development of a relationship between the UII team and the city, especially in early discussions to identify the issues landscape and the scope of UII engagement.

LESSONS LEARNED

The Ull project experience resulted in numerous general lessons.

1 There are several barriers to city-business engagement and the Ull project has shown how these can be overcome:

- Lack of awareness of the potential business contribution—Cities are often unaware of the constructive role that business can play and/or the value business can bring to their strategic planning processes.
- Perception of biased input—City officials may not have full confidence that business representatives will give input that is in the city's best interests and assume that they will use engagement only as means to pursue their own commercial interests.
- Lack of suitable engagement processes—Cities may not have processes that enable strategic engagement with business early in the planning cycle, or they may be unsure of how such a process could be established or integrated into existing regulations or stakeholder engagement and planning processes.
- Regulatory-related constraints—Regulations, especially those relating to public procurement, can limit interactions between cities and the private sector. Such regulations are intended to ensure the integrity and effectiveness of public procurement and planning processes. However, they may have the unintended consequence of losing valuable input from business that could benefit the city and its citizens.

2 The Ull process is flexible and broadly applicable. It was able to generate value for a diverse range of cities around the world with different economic, political, social and cultural contexts. These cities also spanned a broad range of sizes—with populations from 180,000 to more than 5 million. This suggests the broad applicability of this approach.

3 The Ull process is applicable to a range of city strategy and planning activities. The Ull engaged with cities on a range of strategies, programs and initiatives that supported their overall sustainability vision. This experience indicates that early strategic engagement with business could make a beneficial contribution to a variety of city strategy and planning activities.

Company participants also learned valuable lessons:

- Cities face serious resource and capacity constraints that are different to those experienced by businesses.
- City processes and decision-making are made complex by political priorities and considerations.
- Urban sustainability challenges cut across departments and technical functions.
- Collaborating with colleagues from different sectors and different professional backgrounds provides new insights about technologies and industries.

The lessons learned led to the following recommendations for the primary stakeholders on how to promote or encourage early engagement between cities and business on sustainable development.

CITIES TO

- 1 Work with business as a key stakeholder in sustainability strategy development.
- 2 Develop or enhance stakeholder engagement and consultation processes to leverage the value of working collaboratively with business.
- 3 Clarify the scope for early business engagement in sustainability strategy development under local regulatory frameworks and consider removing the barriers to business engagement that are not in the public interest.
- 4 Create or strengthen cross-departmental coordination to enable integrated solutions to urban sustainability challenges.

BUSINESSES TO

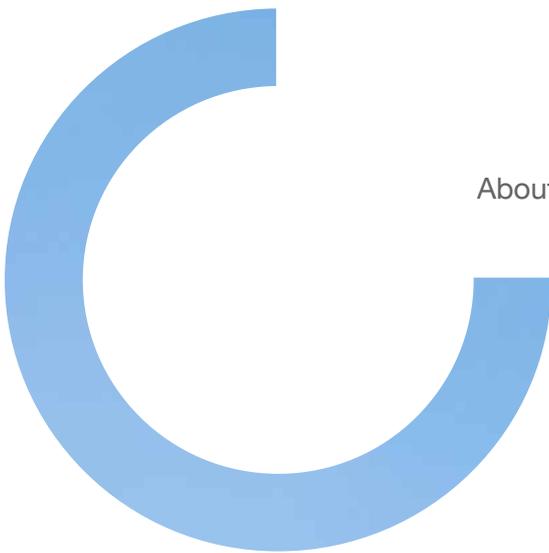
- 5 Pursue opportunities for sustainability strategy partnership with cities.
- 6 Collaborate with other businesses and professional experts on urban sustainability strategy development.

INTERNATIONAL ORGANIZATIONS, NON-GOVERNMENTAL ORGANIZATIONS (NGOS) AND URBAN PROFESSIONAL ASSOCIATIONS TO

- 7 Support and facilitate strategic engagement between cities and business as an effective tool to drive urban sustainability.

Author

Matthew Lynch (former WBCSD)



About the WBCSD

The World Business Council for Sustainable Development (WBCSD), a CEO-led organization of some 200 forward-thinking global companies, is committed to galvanizing the global business community to create a sustainable future for business, society and the environment. Together with its members, the council applies its respected thought leadership and effective advocacy to generate constructive solutions and take shared action. Leveraging its strong relationships with stakeholders as the leading advocate for business, the council helps drive debate and policy change in favor of sustainable development solutions.

The WBCSD provides a forum for its member companies - who represent all business sectors, all continents and combined revenue of more than \$8.5 trillion, 19 million employees – to share best practices on sustainable development issues and to develop innovative tools that change the status quo. The council also benefits from a network of 70 national and regional business councils and partner organizations, a majority of which are based in developing countries.

About ICLEI

ICLEI - Local Governments for Sustainability is the world's leading network of over 1,000 cities, towns and metropolises committed to building a sustainable future. By helping our Members to make their cities sustainable, low-carbon, resilient, biodiverse, resource-efficient, healthy and happy, with a green economy and smart infrastructure, we impact over 20% of the world's urban population.



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INNOVATIVE

CITY-

BUSINESS COLLABORATION

Indore, India – Collaboration as a driver
for sustainable mobility





ABSTRACT

Until the end of 2015, the WBCSD Sustainable Mobility Project 2.0 (SMP2.0) will be collaborating with the city of Indore in India to develop a holistic sustainable mobility plan that addresses the mobility issues prioritized by the city.

The project has brought together a cross-sector group of multinational mobility-related companies, referred to as the SMP2.0 City Task Force, to work with city officials and local stakeholders, including the private sector, non-governmental organizations (NGOs) and citizens. The collaboration follows a series of steps encompassing an in-depth assessment of Indore's current state of mobility and its economic constraints, the development of sustainable mobility indicators and the identification of potential integrated solutions. Throughout the process, the SMP2.0 City Task Force has been drawing on previously developed tools and best practices.

The final mobility plan and roadmap will include enablers, financing options, the timeframe and areas of deployment. It will serve as the basis for a detailed action plan to be developed and implemented by Indore and its local stakeholders. The city will be able to monitor progress towards sustainable mobility using the set of indicators and calculation methodologies developed by the SMP2.0 City Task Force.

The WBCSD Sustainable Mobility Project 2.0 demonstrates the potential for mobility-related companies to support the transformation towards sustainable urban mobility in the early stages of strategic planning, data gathering and assessment. Moreover, it confirms that a common methodology, designed to be applicable to any city, is an excellent starting point but needs to be tailored to the structure of the city authority and the specific roles involved, the desired speed of application and the city's objectives.

Cities working with SMP2.0

Bangkok, Thailand
Campinas, Brazil
Chengdu, China
Hamburg, Germany
Indore, India
Lisbon, Portugal

CONTEXT

Indore, one of the 10 fastest growing cities in India, is committed to improving mobility with a multimodal transport system that includes efficient, reliable, safe and affordable public transport. It has introduced the first of three planned bus rapid transit systems, which will total approximately 35 km, and launched a shared bicycle service in early 2015.

The city is one of six around the world collaborating with mobility-related companies to develop sustainable mobility plans through the Sustainable Mobility Project 2.0 (SMP2.0). SMP2.0 aims to speed up and scale up the implementation of sustainable mobility, believing that solutions need to be chosen across the whole spectrum of mobility modes through a holistic approach providing a comprehensive and integrated set of solutions.

The ultimate goal is to accelerate and extend access to safe, reliable and comfortable mobility for all, aiming for affordability, zero traffic accidents, low environmental impacts, and reduced energy and time demands. Specifically, the project aims to:

- Develop a sustainable mobility roadmap for Indore based on an assessment of mobility indicators and using best practices evaluated as having the greatest impact on those indicators. The roadmap will be an important input to the city's Comprehensive Mobility Plan for 2021.
- Encourage collaboration between other cities and companies aiming to achieve a transformation towards sustainable mobility. SMP2.0 aims for Indore and the other cities in the project to showcase:
 - o Sustainable mobility indicators that measure potential solutions to enable cities to better implement sustainable mobility solutions;
 - o How to develop a detailed roadmap and action plans to improve sustainable mobility in an integrated manner;
 - o How to apply cross-sector solutions that can be scaled up to accelerate progress towards sustainable mobility;
 - o The necessary policy accelerators and framework conditions to support the rapid and widespread deployment of sustainable mobility solutions.



CITY OF INDORE

Indore, in the northern Indian state of Madhya Pradesh, has a population of 2.4 million in an area of 530 km². Private vehicle ownership is increasing rapidly, with an associated increase in the accident rate, including fatalities.

Indore was invited to participate in SMP because of its commitment to sustainable mobility and because its location and stage of mobility development contribute to a balanced global group of cities.

Indore is developing a comprehensive mobility plan towards 2021. Among other aspects, it envisages an integrated, multi-modal public transport system that is fast moving, comfortable, safe, user-friendly and reliable, with integrated land use, equitable allocation of road space between different transport modes, and compliance with safety laws.

Several of the city's senior decision-makers, supported by relevant experts, participate in the project, including the district collector (the chief administrative and revenue officer) and the chief executive officer of the special purpose company responsible for urban transport (AiCTSL). The police commissioner also attends meetings with the SMP companies, which are held approximately every two months.

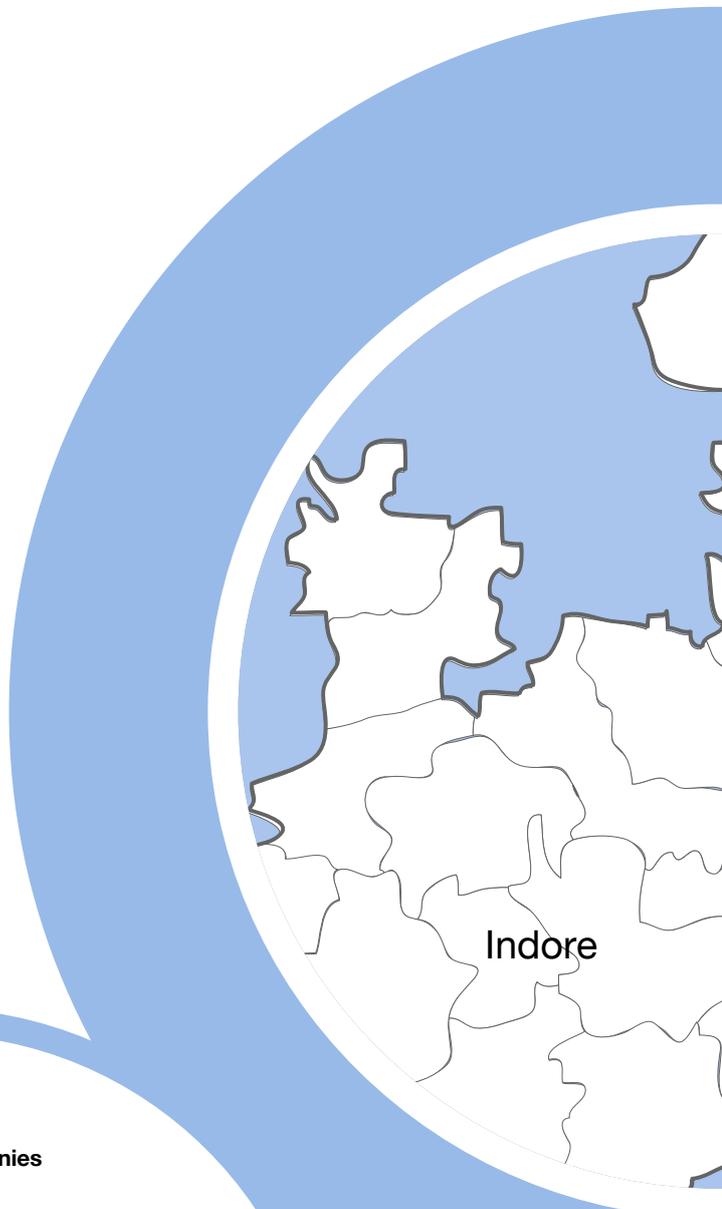
BUSINESS

SMP2.0 was established by the World Business Council for Sustainable Development to build on its earlier work in this field. It brings together a global, cross-sector group of 15 mobility-related companies to accelerate progress towards sustainable mobility.

The group has collectively developed the engagement process, the methodology and the tools and provides input to specific city project teams. The Indore project team consists of Ford Motor Company (the host company for the Indore project), BMW, Brisa, Fujitsu and Volkswagen.

SMP2.0 project member companies

- BP:** oil and gas
- Bridgestone:** auto and truck parts manufacturer
- Brisa:** operation and maintenance of highways and toll roads
- BMW:** automotive, motorcycles and engines
- Daimler:** automotive
- Deutsche Bahn:** railway and bus operations
- Ford:** automotive
- Fujitsu:** information technology
- Honda:** automobile, motorcycle and power equipment manufacturing
- Michelin:** tires
- Nissan:** automobiles
- Pirelli:** tires
- Shell:** oil and gas
- Toyota:** automotive
- Volkswagen:** automotive



2.4
million

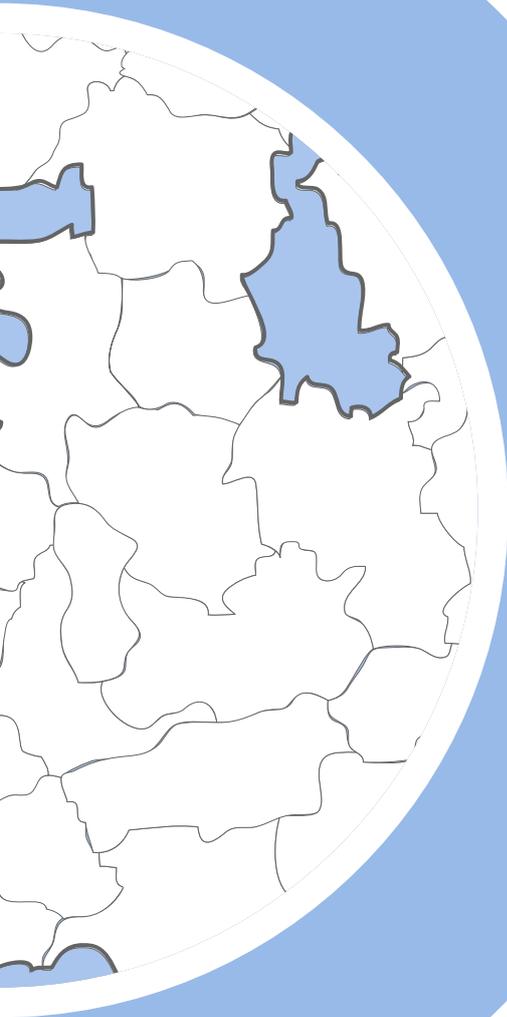
POPULATION

population of 2.4 million in an area of 530 km².



OTHER STAKEHOLDERS

The project's governance includes an Assurance Panel made up of eminent organization and university representatives who bring technical expertise. The Indore project also benefits from the expertise of EMBARQ, the sustainable transport program of the World Resources Institute, as well as local academics, shop owners, activists and parking management organizations bringing specific expertise. The process includes engagements with other local stakeholders.



CITY INDORE

PROCESS AND GOVERNANCE

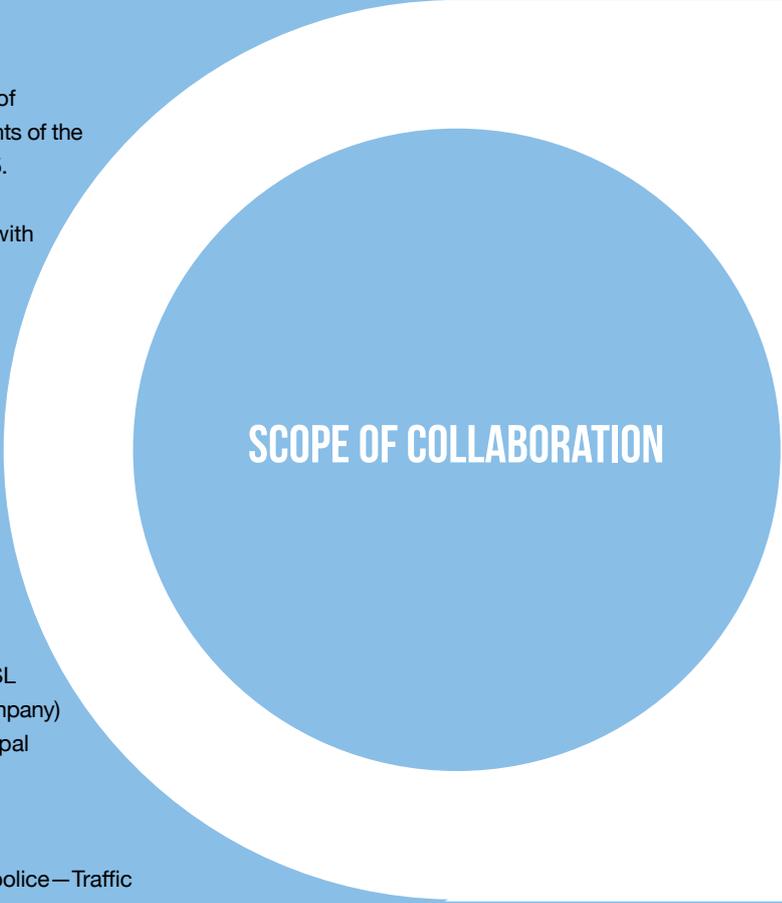
COLLABORATION GOVERNANCE

SMP2.0 and the city signed a memorandum of understanding (MoU) setting out the key elements of the engagement over 18 months to the end of 2015.

A Steering Committee oversees the project, with members from the city authorities, the police and academic bodies, as well as the private sector SMP2.0 city task force. It meets at least quarterly to monitor progress and provide advice and direction. The Steering Committee also meets with local stakeholders to share issues and concerns.

The Indore SMP2.0 Steering Committee

Chair	District collector, Indore
Co-Chair	SMP2.0 project director
City Members	Chief executive officer, AiCTSL (special purpose transport company) Commissioner, Indore Municipal Corporation Chief executive officer, Indore Development Authority Additional superintendent of police—Traffic Regional transport officer Joint director, Town and Country Planning Urban Development Department, State of Madhya Pradesh Academia/university representatives



SCOPE OF COLLABORATION

COLLABORATION PROCESS OVERVIEW

Preliminary

SMP2.0 invited the city to join the project and member companies liaised with city leaders to establish their willingness to engage. Following agreement to proceed, the SMP2.0 City Task Force worked with officials from AiCTSL and transport and urban planning departments to identify relevant public authority participants. SMP2.0 carried out background research providing relevant information on the city.

The engagement

The SMP2.0 process consists of several stages involving frequent interaction with city representatives over the course of 18 months as summarized. Understanding the city's objectives is an essential first step that enables the project team to propose relevant indicators, such as congestion, travel time and access to mobility services. When the indicators are agreed on with the city, the team identifies the best solutions from the SMP2.0 toolbox of best practices. Indore carries out pilots such as changes to parking regulations (see example below) and the project engages with stakeholders to discuss and refine the solutions.

Summary of stages in the SMP2.0 process

- Clarify city objectives and challenges and the SMP2.0 project process
- Identify and build the network of relevant city officials and stakeholders
- Research the current mobility state and economic constraints in Indore
- Develop indicator calculations using the sustainable mobility indicator set SMP2.0 has created
- Identify the most relevant indicators for Indore
- Identify potential solutions among the SMP2.0 collection of best practices and technological solutions, targeting Indore's priority indicators.
- Consider financing options, barriers and enablers.
- Engage with stakeholders, including businesses, authorities, non-governmental organizations and citizens' representatives
- Develop a mobility plan and roadmap, including policy and behavior change proposals

The collaboration covers land-based passenger and freight transport in the metropolitan area and considers access to services, road safety, congestion, inter-modal connectivity and the quality of public areas.

The memorandum of understanding includes commitments shown in table 1.

Table 1: Memorandum of understanding commitments

SMP2.0 commitments	City commitments
Provide the relevant expertise from the member companies	Provide access to the data necessary to evaluate the indicators
Apply the SMP sustainable mobility indicators	Bring together the different players within the local authorities
Analyze the indicators and propose suitable solutions to improve performance	Develop the city roadmap
Support the development of the city roadmap	Create an action plan to implement the roadmap by the end of 2015
Facilitate a review process	

OUTCOMES

OUTPUTS

As the project is continuing through 2015, the final outputs are not yet available. The immediate outputs consist of calculations for a holistic set of sustainable mobility indicators in Indore together with best practice cross-sector solutions designed to meet the city's priorities.

The final project output will be a mobility plan and roadmap that includes enablers, financing options, the timeframe and areas of deployment. This will be the basis for a detailed action plan to be developed by Indore. The city will be able to monitor progress towards sustainable mobility using the set of indicators and calculation methodologies developed by the SMP2.0 City Task Force.

The most important impact on the city is new collaboration between various municipal departments, citizen and business stakeholders, and transport organizations that is stimulated by their involvement in the network created for this project.

EXAMPLE

A trial is exploring solutions to heavy congestion in a 1.2 km commercial area where traffic consists of two-wheel and four-wheel vehicles and rickshaws and where sidewalks are blocked by shopkeepers' goods and parked vehicles.

Following research into traffic characteristics and potential solutions, the trial piloted designated parking places for each vehicle type, restricted loading and unloading, and limited the encroachment of goods onto the sidewalks. Engagement with citizen and business stakeholders identified improvements to the original plan and achieved support for the final proposals.

PERFORMANCE AGAINST OBJECTIVES

Performance can only be fully assessed following project completion. Progress to date has demonstrated the value of cross-sector business collaboration with the city.

IMPLEMENTATION AND FINANCING

As the project is continuing through 2015, the implementation and financing will occur during the final stage of the project in late 2015.

FUTURE COLLABORATION

Future collaboration opportunities will be decided once the project is completed.

ANALYSIS



INNOVATION

- The project brings together businesses from several sectors to work with the city to develop a holistic approach to urban mobility rather than individual businesses bidding on tenders for isolated solutions.
- The project methodology begins with the mobility issues prioritized by the city and works towards integrated solutions rather than bringing isolated solutions to the city to address perceived issues.

SUCCESS FACTORS

Success depends on a multi-sector business task force achieving the productive engagement of all relevant city entities and individuals to build an inclusive process. The initial delivery of relevant indicator calculations and potential solutions is important to demonstrating the value of the project and maintaining the city's commitment.

The methodology and tools have deliberately been built to be transferable to any city and city mobility clusters have been identified specifically to enable scaling up.

CHALLENGES ENCOUNTERED

The data required to make indicator calculations is not always readily available, requiring some adaptation and support for the city to collect relevant data. It is possible that data will not be available for some indicator calculations. Following the project, the city faces the challenge of maintaining the indicators without the support of SMP2.0.

The availability of city resources—people, time and budget—is limited, making it difficult to meet the project's tight schedule.

LESSONS LEARNED

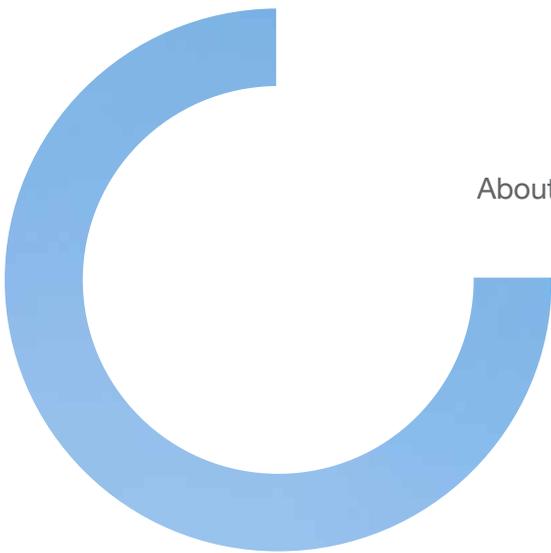
As the project is not yet completed, a full set of lessons supporting replicability in other projects cannot be defined. However, at this stage it is clear that a multi-sector business team can collaborate successfully with a city to develop pilot projects in support of a longer term sustainable mobility plan.

The project has confirmed that a common methodology, which SMP2.0 designed to be applicable to any city, needs to be adapted to the specific challenges of a city such as Indore. The process must be tailored to the structure of the city authority and the specific roles involved, the desired speed of application, and the city's objectives. Best practices collected from all over the world provide a valuable toolbox and it is necessary to select relevant solutions that can be tailored to individual city needs.

Using and refining a methodology that is applicable to cities all over the world will enable scaling up to achieve a significant impact on urban sustainability.

Author

Sophie Roizard (WBCSD) and Roger Cowe (consultant)



About the WBCSD

The World Business Council for Sustainable Development (WBCSD), a CEO-led organization of some 200 forward-thinking global companies, is committed to galvanizing the global business community to create a sustainable future for business, society and the environment. Together with its members, the council applies its respected thought leadership and effective advocacy to generate constructive solutions and take shared action. Leveraging its strong relationships with stakeholders as the leading advocate for business, the council helps drive debate and policy change in favor of sustainable development solutions.

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INNOVATIVE

CITY-

BUSINESS COLLABORATION

County of Scania, Sweden
– Resilient Regions Association





ABSTRACT

Established in 2011 in the County of Scania in southern Sweden, the Resilient Regions Association (RRA) was co-founded by public and private actors to address resilience challenges. The association's goal is to build more resilient societies with the ability to quickly overcome and recover from social, environmental and economic pressures.

To address Scania's regional challenges, the RRA established Resilient Community Skåne (RCS). It is comprised of a political network mandated with establishing the overarching agenda for the work of RCS and embedding resilience in Scania's long-term political decision-making and an executive's network that brings together public and private stakeholders with direct interests, responsibilities and needs to build capacity and develop strategic initiatives.

RRA and its Resilient Community Skåne organize thematic workshops, advance research on urban functionality and generate integrated solution approaches that they plan to implement in the future.

REGIONAL CONTEXT

The County of Skåne (Scania) is the southernmost province of Sweden. With an area of 11,000 km² and a population of 1.2 million inhabitants, it is the country's second most densely populated area. Scania is comprised of 33 municipalities. Malmö is the largest one, with a population of over 300,000 inhabitants, followed by Helsingborg and Lund. Moreover, western Scania is situated in the Öresund border region, connecting it with Denmark's Greater Copenhagen area. The entire cross-border region has a population of 3.8 million people.

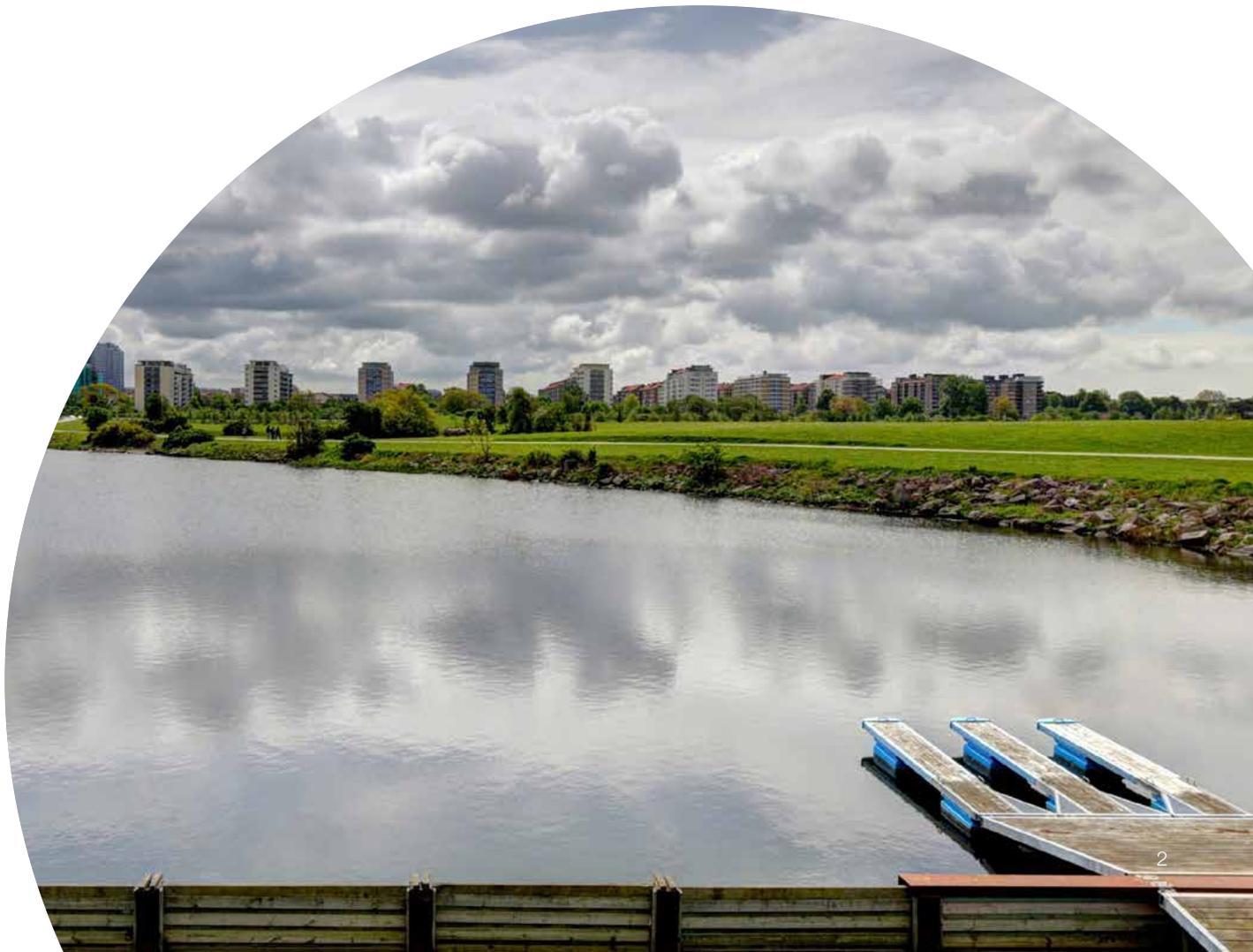
Along with the region's focus on food production and processing, Scania's economy is primarily based on high-value-added sectors such as life sciences, multimedia, information and communications technology (ICT) and clean technology. Indeed, Scania has distinguished itself as a research and technology hub, particularly through its universities in Lund and Malmö and strong regional innovation policies and initiatives. Due to its expanding sectors and proximity to the Copenhagen area, Scania has been growing faster than the rest of the country, both economically and in terms of population.

Resilience challenges

To improve Scania's sustainability and resilience while retaining and enhancing its attractiveness, it is critical to maintain the region's infrastructure and functionality, especially in light of a growing urban population. With the global issue of climate change translating into region-specific challenges such as rising sea levels and urban heat islands, the region is under increasing pressure to ensure that its cities function in an efficient, smart and sustainable way. This necessitates a regional resilience and urban sustainability perspective and the fostering of effective collaboration between multiple cities in their common geographical area.

Systemic urban flows of people, money, goods, services, energy and information are a key aspect of city resilience, sustainability and functionality and inherently linked to their surrounding region. Realizing that such flows are often operated by companies either through the private sector or municipally owned entities, resilience is not a mere public matter but also an issue for the business sector and necessitates city-business cooperation.

Due to the large number of actors involved, it is crucial to establish the necessary personal and institutional links between the relevant stakeholders through a common and neutral platform to jointly analyze, discuss and act on urban functionality and resilience with a focus on urban flow functionality. The Resilient Regions Association (RRA) was initiated to bring together these actors and advance structural capacity-building, exchange and joint action on resilience. Realizing the need for regional platforms working towards improving a specific area's functionality, RRA developed the Resilient Community model for multi-stakeholder regional cooperation. The Resilient Community model RRA first established Resilient Community Skåne (RCS) to improve urban flow management and resilience in the County of Scania.





OBJECTIVES

The objective of the Resilient Regions Association and its resilient community concept is to generate increased resilience by bringing together urban flow stakeholders to address regional and long-term challenges resulting from social, economic and ecological pressures, leading to more functional and attractive communities. RRA's mid- to long-term objective is to replicate this model in other regions across the country and internationally.

Resilient Community Skåne specifically seeks to enhance resilience and urban flow management in the County of Scania.

INITIATOR OF THE COLLABORATION

The Resilient Regions Association was established in 2011 as one of seven regional innovation cluster initiatives in Scania. RRA has positioned itself as a neutral arena where the public sector, the private sector and academia meet and collaborate to develop solutions for a more resilient society.

E.ON, SAAB AB, the insurance company If, the Swedish Armed Forces (Försvarsmakten), Lund University and Scania's County Council (Region Skåne) are the founding members of the non-profit association. Originally established under the label Training Regions, RRA's initial focus was on safety and risk management. In 2013, it shifted its focus to overall resilience planning and management. Since its inception, membership has grown to include more public, private and academic entities from various parts of Sweden.

Scania was the natural choice to serve as the first resilient community due to the existing network and founding members. Since early 2014, Resilient Community Skåne has been focusing on building a more adaptive Scania with robust functions and flows. RCS is open to the region's system-controlling actors, such as its municipalities, regional authorities, private companies and researchers, as well as everyone interested in working towards the community's goals. Participation in RCS is formalized through membership in RRA.



**RESILIENT
REGIONS
ASSOCIATION**

Head
Legal form
Founded in

**Magnus Qvant
Non-profit
2011**

PARTICIPANTS IN THE COLLABORATION

REGION AND MUNICIPALITIES

Region Skåne is Scania's regional council. It is composed of an assembly that serves as the highest political decision-making body and an executive committee. The council is mainly in charge of the public health care and public transport systems. Further responsibilities include the promotion of regional business development and interregional cooperation. Within this remit, Region Skåne was one of the founding members of the Resilient Regions Association and Resilient Community Skåne. In fact, the previous chair of Region Skåne's executive committee played an important role in establishing RCS and building political support for the initiative.

Scania's county administrative board (Länsstyrelsen Skåne) and the region's association for local authorities (Kommunförbundet Skåne) are further important public members of RRA and active in RCS.

Malmö and Lund were the first two municipalities to join the platform, followed by Båstad. Moreover, the municipalities of Kristianstad, Helsingborg, Trelleborg, Eslöv and Landskrona are participating in activities arranged by RRA. The municipal departments involved are foremost those related to risk management, environmental and city planning, as well as business development and innovation.

BUSINESS

The Resilient Regions Association divides the private sector into two categories according to their roles in city-business cooperation. On the one hand there are those companies that contribute to operating cities by providing vital functions such as water and wastewater management, electricity and heat. Their objectives are closely aligned with those of the cities in which they operate as they aim to achieve higher urban efficiency and resilience while ensuring the cost-effectiveness of the operations.

The other type of company consists of the solution providers that are interested in selling their technical products and services to cities and regions. Their main interest lies in generating a greater market share.

Both types of companies are members of RRA and participate in RCS. The companies involved range from small enterprises such as iFACTS, 4C Strategies and Combitech to large companies such as Siemens, SAAB, IBM and E.ON.

ACADEMIA

As one of RRA's founding members, Lund University has played an important role in shaping the association's urban flow methodology through conceptual and applied research. Its Center for Societal Resilience contributed to the establishment of RCS. Malmö University is another academic member of RRA. Its Internet of Things and People Research Center is involved in resilience research and capacity building. Both universities are members of RRA's board.



COLLABORATION PROCESS AND GOVERNANCE

The Resilient Regions Association addresses resilience from a holistic perspective by providing a collaboration platform for public and private actors managing urban flows. In addition to being able to participate in RRA's open arena, its members gain access to current research and best practice knowledge through seminars, training, workshops and study trips. These are carried out by the association's wholly-owned non-profit service company Resilient Regions International.

The association's day-to-day operations are managed by a team of four staff members. In line with RRA's multi-stakeholder approach, its board is comprised of 12 members—six from the private sector and six from the public sector.

RRA serves as an umbrella organization that provides services to Resilient Community Skåne and any future resilient community to be established in other parts of the country and abroad (see figure 1).

Resilient Community Skåne operates via its two steering networks. The political network consists of local and regional politicians. They are mandated with establishing the overarching agenda for Resilient Community Skåne's work and embedding resilience in Scania's long-term political decision-making.

The RCS executives network consists of municipal leaders and managers from the business sector who operate in the systemically and socially important material and resource flows of cities. The executives network meets on a quarterly basis to identify, define and prioritize regional challenges and generate project ideas. It also makes decisions concerning study tours, workshops and conferences that are then provided by RRA's service company. In its overarching role, RRA supports the work of the executives network by providing feedback, channeling resources, and identifying funding opportunities and suitable partners.

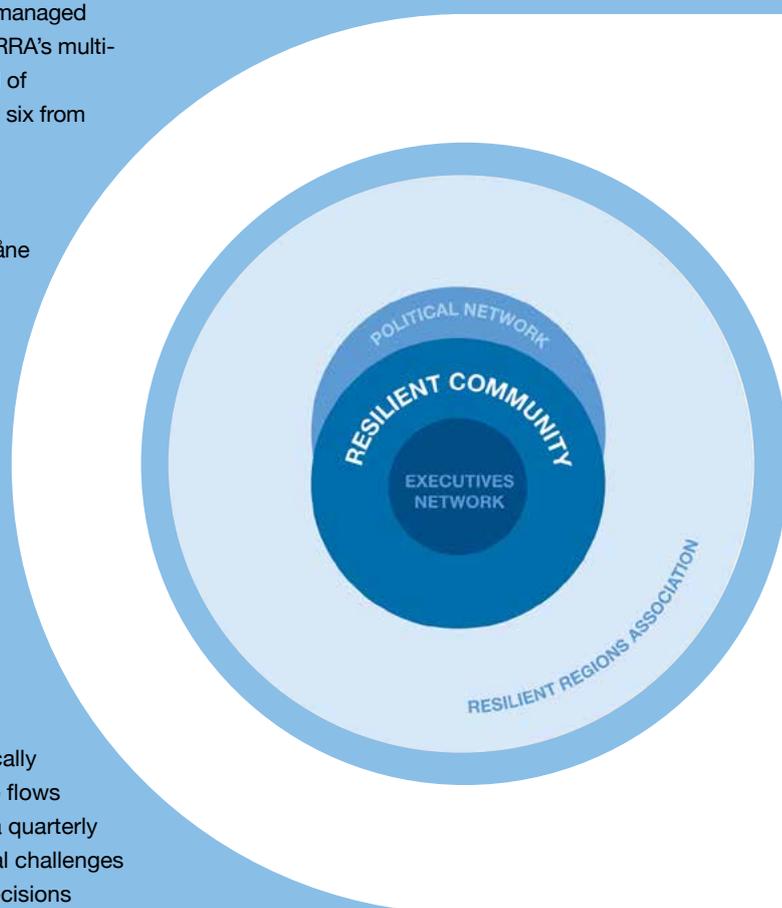
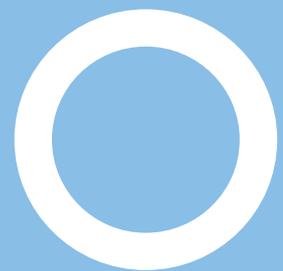


Figure 1: Resilient Regions Association and its resilient community concept (2015)

To ensure that the political and executives networks are adequately linked, joint meetings between the two entities are envisioned.

TRANSPARENCY AND ACCOUNTABILITY

The process of developing the Resilient Regions Association and its resilient communities concept has been a multi-stakeholder effort since the beginning. To date, ensuring balanced co-ownership remains of high importance to RRA. As a result, the association's board is equally staffed by representatives from the public and private sectors.

Furthermore, RRA and RCS membership is open to any entity that has a stake and interest in regional resilience. All protocols and documentation are available through formalized membership. Several RRA and RCS activities are also open to non-members. This ensures that all relevant stakeholders are able to participate in the association's and community's work on resilience.

To guarantee that the work of RCS is in line with regional public interest, economic development and environmental protection, the political network is charged with providing its overall agenda. Along similar lines, it was decided that a mayor or municipal director would be elected as chairperson of the executives network as opposed to a private sector representative. Resilient Community Skåne, for instance, is currently headed by one of the municipal chief executives.

While individuals and citizens are not represented in RCS itself, they may be involved in specific projects such as focus groups. At this stage, however, there is no mechanism to actively incorporate citizen participation in the resilience work. Similarly, national agencies are not directly involved in RCS; however, several of them have engaged in dialogues with RRA to provide input into the association's work.



FINANCING

The Resilient Regions Association and its Resilient Community Skåne are financed through membership fees. In fact, to be able to participate in the regional community, an entity needs to become a paying member of RRA. Membership dues differ between the various entities. Municipalities pay annual fees as determined by their population. Private companies and organizations, on the other hand, pay a service fee based on their annual turnover in addition to a fixed membership fee. Authorities and regions are charged according to yet another scheme.

The money is used to cover staff costs and to finance RRA and RCS activities. Funding for large-scale project implementation is primarily sought from Sweden's government agency for innovation, VINNOVA, as well as from the EU-level through, for example, the Horizon 2020 framework.

PROJECTS AND ACTIVITIES

Since the Resilient Regions Association and especially Resilient Community Skåne are still in the start-up process, most of their outputs to date have been in the realm of research, capacity building and stakeholder engagement.

Research

Theoretical and practical research on resilience and urban flows provides the basis for the work of RRA and RCS. Since 2012, extensive research has been conducted in the field (see example 1).

1 Urban flow research

In collaboration with Lund University, the municipalities of Malmö and Lund, and the company iFACTS, a method was developed to identify and measure urban flows at a local level. In 2012 and 2013, the model for data collection was tested on municipal and private system-controlling operations, and pilot tests were carried out in Malmö and Lund. In late 2013, the method was further developed with a focus on how to use the analysis and draw conclusions. The results and methodology will be published in early 2015 in the form of a handbook. This will include a concrete and practical description of the steps required to conduct an urban flow analysis.

Workshops and seminars

Workshops and seminars have been held on a regular basis to build members' capacity on specific topics. After the flooding in Malmö in August 2014, for example, an urban flow analysis workshop about the consequences of the heavy rainfall and the impact on the city's societal functions was organized. Moreover, a workshop analyzing the food supply in the region was conducted in November 2013 (see example 2).



2 “Problem challenging workshop” on food security

Most grocery stores depend to a large extent on international suppliers for their daily deliveries. Disruptions in international supply chains can easily put the food supply for large cities at risk. In cooperation with the Swedish National Food Agency (Livsmedelsverket) and the Skåne Food Innovation Network (Livsmedelsakademin) Resilient Regions Association organized an expert workshop in November 2013. Twenty-six stakeholders, representing regional municipalities, authorities, the public sector as well as academia, met to discuss and brainstorm the regional challenges and solutions associated with ensuring an effective and efficient food system. One outcome was the identification of the need for a centralized food distribution plan to react to crises. In the case of Malmö, workshop results suggest using the city’s five market places to distribute food effectively for the whole city, rather than relying on logistically complicated distribution through decentralized grocery stores. Actors from the municipalities and companies have since been discussing concrete implementation requirements.



Annual conference

The first annual Functional Cities conference was held in October 2014. Speakers presented on how cities can maintain their functionality, attractiveness and effectiveness in the future, even under societal pressure. To disseminate the outcomes of the conference, a mini book, *Bigger Faster Wetter*, was published summarizing the presentations.

Study trips

Several study trips have been arranged for RRA and RCS members in order to gain national and international knowledge and expand their networks beyond regional and national borders. For example, Swedish delegations have participated in ICLEI’s Resilient Cities conferences in Bonn, Germany, and the Smart Cities Expo in Barcelona, Spain.

Future projects

To add to the outputs and outcomes that have been generated to date, RRA and RCS are continuously identifying new projects within the realm of resilience. Several project proposals are currently under review and funding is sought from the national and EU-level to implement them. In addition, a new format for city-business interaction will be introduced (see example 3).

3 Solution pitches

In order to create a platform for innovative thinking and a stage for technical solutions, Resilient Regions is planning to organize solution pitches. Similar to elevator pitches, the idea is to bring different entrepreneurs together in a venue and let them present their state-of-the-art products and services. During sessions of 90 minutes per presentation, the participants will introduce their concepts and products to a mixed audience from the public and private sector. The workshops have two purposes. Firstly, interested parties are offered an overview of available technology. Secondly, individuals from the businesses and municipalities involved can directly meet, exchange follow-up questions and discuss further steps. The presentations will be compiled in a library and made available to members.



LONG-TERM IMPACTS

The Resilient Regions Association and resilient communities concept were established to provide long-lasting and expanding platforms for capacity building and stakeholder engagement. As the networks have grown, more and more system-controlling actors and solution providers have met to discuss problems, exchange ideas and brainstorm innovative solutions. New contacts between public, private and academic leaders have continuously been established, some of which have led to concrete collaborations outside the arena (see example 4).

4 Connecting solution providers with the public sector

Small and medium-sized companies that function as solution providers often lack the capacity to do a large-scale market analysis to identify a common challenge for which their product provides a solution. While their products may hold much potential to address a city's needs, concrete opportunities for application within urban systems and the resulting improvements often remain to be identified and translated into non-technical language. In such cases, facilitation between public sector representatives that are aware of the cities' needs and solution providers can prove to be very helpful. One example is SIGMA, a Swedish ICT company that developed a multi-sensor monitoring instrument incorporating nine different sensors with a battery life of up to six years, Bluetooth connection and a total production cost of about US\$ 15-25. This platform can be used to act upon data in real-time. It can be used to monitor bridges and dykes, within facility management solutions, etc. The sensors that have been used so far are temperature, humidity, air pressure, light, moisture, accelerometer, gyroscope, e-compass, CO₂ and passive infrared. It is easily integrated with external data services like weather forecasts. Resilient Regions Association facilitated a dialogue between the solution provider and local government representatives. As a result, SIGMA has been involved in different projects on tunnel surveillance, micro weather monitoring and surveillance of dykes keeping water from reaching a city situated below sea level.





FUTURE AND ADDITIONAL COLLABORATION

As the first resilient community evolves, other Swedish regions and neighboring countries are already expressing their interest. According to RRA's strategic plan for 2015-2017, the association seeks to have established at least three resilient communities in Sweden and to have laid the foundation for one international community by the end of 2016. Discussions are currently underway in the areas of Stockholm, Linköping and Denmark.

In addition to spreading the resilient communities concept, RRA engages in conversations and collaboration efforts around thematic issues (see example 5).

5 International cooperation for firefighters

In order to be truly resistant to environmental shocks, the measures to establish resilience should not be confined to municipal or even national borders. Resilient Regions Association has taken a first step in establishing cross-border services and is currently facilitating international cooperation between Swedish and Danish firefighting services in the Öresund region. As the Swedish training and education system in firefighting and disaster response is recognized for its holistic and comprehensive approach, the Danish municipalities welcomed the proposal for collaboration. Bordering cities will benefit significantly from such cooperation because of resource-pooling in manpower, equipment and knowledge. In this way, shocks such as damages from floods and storms will be easier to deal with in the future.

ANALYSIS



Increasing value to stakeholders
1) Lack of awareness importance (wider public)
3BC Awareness/Education
LEED Plus important if C&E linked
Lowering B2B
Focus of Focus
Short-term focus

Financing & Investing
1) Public programs
2) Focus on cost (instead of use)
3) Competing priorities
4) Lack of information (for decision-making)
5) Lack of common language (energy, finance, sustainability)
6) Policy of
7) Solution
8) Energy audit
9) Technology

Hard
Easy
Impact
1) Lack of data
2) Lack of information
3) Trust
4) Low quality

Regulation & Policy
1) Do not expect immediate
2) Incentives to utilities
3) NEED A NAME
4) Incentives to utilities

Barriers/challenges
Aging infrastructure (old pipes (ie) competing w/ ee opportunities)
Lack of education
Workers + operators
(and/or B+C) don't have

Working well
Models for... + value (energy)
Younger work force
sustainability +

Structural
Pass-through triple net lease
Sellers market (hot)
Aging Infrastructure (old building sys old pipes/electrical more pressing)
Short-term ownership
EED very expensive
Systems for involving motivated tenants (don't really exist)
Working Well
For class A financing is not an (\$ available + cheap)

Working well
Energy efficiency models
PUC Bonus structure based on verified savings

Working well
BLDS
Feasible
Owner
PA
DEV
Shared Energy
Energy Efficiency
PACE
SAVE
Sensible
Process to Value of Energy
Disclosure
PACE

INNOVATION

Resilient Regions Association and Resilient Community Skåne use an innovative framework for city-business engagement: By focusing on resilience and cities' dependence on functional urban flows, they ensure that the multi-stakeholder conversations are problem-driven and solution-oriented. Instead of addressing specific issues, an integrated systems approach drives their agendas.

Working with resilience is a complex endeavor. To identify and contextualize urban flow interactions, the Resilient Regions Association uses a triple helix research model: As opposed to the traditional academia-centered approach, it also includes private companies and the private sector.

The division of companies in system-controlling actors on the one hand and solution providers on the other presents a novel point of departure for private sector engagement. Companies operating vital urban functions are assumed to share the same city objectives as public entities. Due to their important role and long-term experience, system-controlling actors often have a better understanding of the requirements of a city in terms of resilience and urban flow management, while solution providers often focus on developing their products and services (see example 3).

CHALLENGES ENCOUNTERED

The Swedish elections in September 2014 took a particular toll on the expansion of Resilient Community Skåne's activities. Its political network was brought to a standstill due to the turnover of elected officials, some of which had been major drivers of the network. While the newly elected politicians show positive interest in RCS and resilience as an emerging topic, more time is required to form the new political agenda.

SUCCESS FACTORS AND LESSONS LEARNED

While enhancing resilience and urban flow functionality is important for any region, establishing a resilient community needs to be seen as a process—from the identification of challenges, stakeholders and different interests to the actual launch of the regional platform. The following aspects have been proven necessary in setting up a resilient community.

Shared objectives

By differentiating between the different types of industry players and recognizing that cities and system-controlling actors from the private sector share similar objectives, interaction between the two entities is more open. As a result, it is easier to collaborate openly on resilience and urban flow challenges.

Open arena

Providing a neutral meeting place to discuss and exchange ideas is of utmost importance in enabling city-business dialogues. Both RRA and RCS provide such an open and neutral arena.

Political will

Political will and the ability to attach the community agenda to the local

and regional plans are crucial to the success of the resilient communities concept.

Communicating research

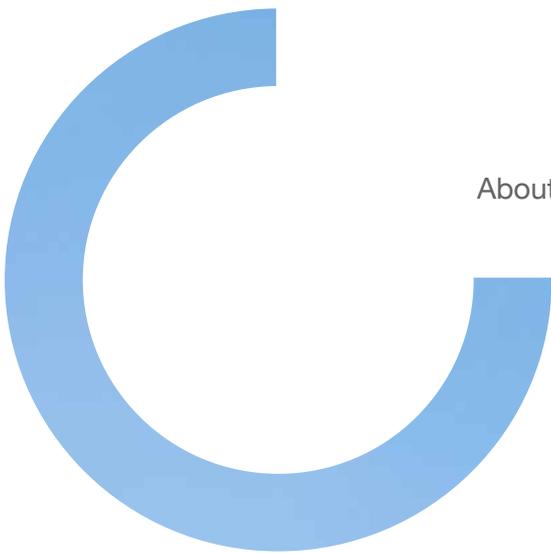
Academic research needs to be “translated” into the language of cities and businesses. To make scientific findings easily understandable and applicable, RRA has decided to publish a handbook for practitioners instead of academic papers.

Continuous capacity development

Adopting a resilience and urban flow perspective requires a deep understanding of the concepts. Continuous learning through workshops, study trips and research is necessary to build capacity.

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INNOVATIVE

CITY-

BUSINESS COLLABORATION

Houston, USA – Energy Efficiency
in Buildings Platform





ABSTRACT

A private sector-led initiative under the auspices of the WBCSD Energy Efficiency in Buildings 2.0 project (EEB2.0) worked with the city of Houston to define practical strategies to reduce energy consumption in buildings.

In October 2014, they brought together a diverse group of local stakeholders, thought leaders and experts from the private and public sector, including the Mayor's Office of Sustainability, in a three-day Energy Efficiency in Buildings Laboratory (EEB Lab). The EEB Lab followed an inclusive and participatory process to generate input from a wide range of stakeholders along the entire building value chain to understand the key barriers and identify market-specific actions to overcome these barriers. The city played an important convening and leadership role.

The EEB Lab resulted in the setting up of the new "Energy Efficiency in Buildings – Houston" coordination platform. In its initial phase, the platform is led by WBCSD and its local partner US BCSD and managed locally, with the active support of the city of Houston. This platform focuses on four themes:

- 1 raising awareness of the multiple benefits of energy efficiency in buildings;
 - 2 financing EEB solutions;
 - 3 building capacity to deliver EEB solutions; and
 - 4 increasing real estate market competitiveness with EEB solutions.
- Joint private and public sector ownership based on mutual interest and the willingness to support the city of Houston's ambitious CO₂ emissions reductions provide the basis for continuous engagement.

The platform is led by the WBCSD and its local partner US BCSD, and managed locally by the Houston Advanced Research Center (HARC), with members including key leaders from the Gulf Coast Green Building Council, the City Energy Project and Keeping Pace in Texas.

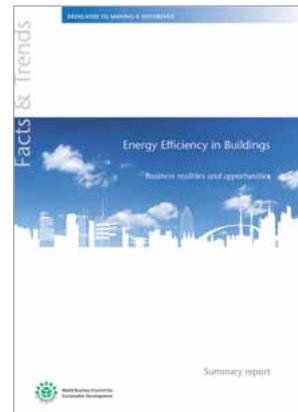
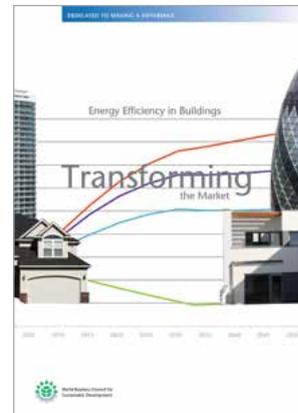
CONTEXT

The EEB2.0 project

The WBCSD created the Energy Efficiency in Buildings (EEB) project in 2006 to address this key area for action on energy security and man-made contributions to climate concerns. The first EEB project identified how to overcome barriers to energy efficiency in buildings, publishing *Transforming the Market* in 2009 with recommendations and a roadmap. It showed that transformation requires action across the building industry, from developers and building owners to policy-makers.

The second EEB project (EEB 2.0), launched in 2013, began to implement the recommendations and to stimulate change. Its goal is to unlock financially viable investments in energy efficiency in buildings that are not being realized because of financial, regulatory, organizational and other non-technical barriers. To reach this objective, the project sets out to identify the value of energy efficiency to stakeholders in the value chain, including the co-benefits beyond pure energy and financial savings. Through local market engagement, the project aims to implement action plans in seven markets to overcome existing market barriers (Poland, Houston, Bangalore, Jaipur, Rio de Janeiro, Benelux and Indonesia/Malaysia/Singapore).

The cornerstone of each local market engagement is the EEB Laboratory (EEB Lab), which aims to get a clear understanding of the market situation and recommend actions with the help of a panel of experts. The EEB Lab is followed by the implementation of recommended actions by local partners.

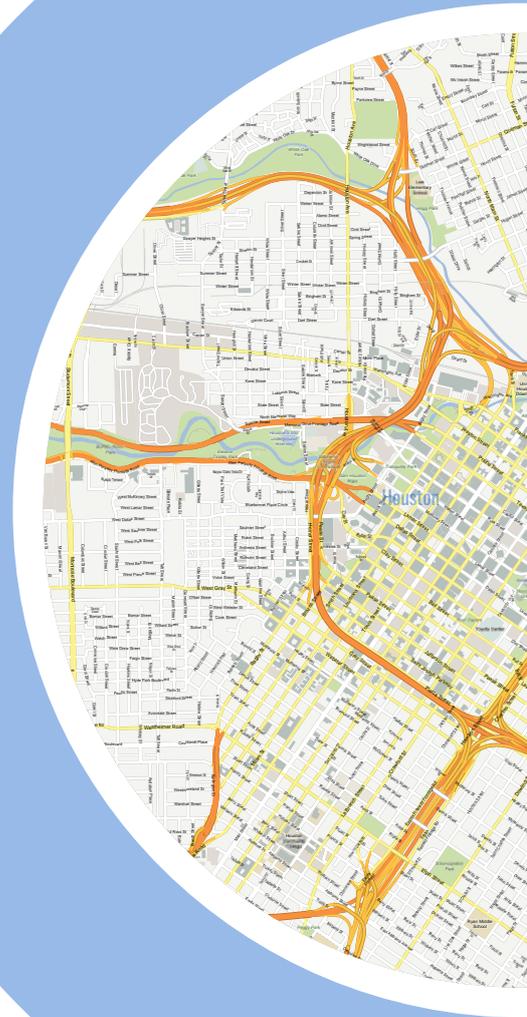


WHY HOUSTON?

Houston had a population of 2.1 million in 2013, in an area of 600 square miles. The hot, humid climate, with average daily temperatures ranging from 53°F (12°C) to 85°F (29°C) creates high demand for space conditioning for much of the year. It is a relatively prosperous city with a gross metropolitan product on a par with the GDPs of Austria or Poland. Its significant industrial and commercial presence includes the headquarters of 23 Fortune 500 companies. A building boom in 2013/14 saw the city approve US\$ 7 billion in new construction, a 39% increase over the previous 12 months.

The WBCSD team and local partner US BCSD used a comprehensive ranking of several key factors to select Houston. It is an excellent location for the EEB Lab because it has a large, growing and dynamic real estate market and a strong public sector commitment to improving perceptions and awareness of energy efficiency. Houston offers the challenge of a substantial physical footprint and its climate. It has several high-density commercial areas and a dispersed residential population. The city benefits from regional private sector leadership in energy-efficient buildings, universities and research institutions providing expertise in energy and efficiency. Finally, the project's WBCSD and US BCSD members and partners have a business presence in Houston.

The city's leaders have positioned Houston at the forefront of energy efficiency. Former Mayor Bill White aimed to transform Houston from the "energy capital" of the world to the "energy conservation capital" of the world. Current Mayor Annise Parker made a commitment at the United Nations Climate Change Summit in 2014 to cut CO₂ emissions by 80% from 2005 levels by 2050. Emissions have already fallen by 32% since 2007. The city has launched the largest LED street light conversion in the country (165,000) and more than 2.3 million smart meters have been installed. In 2013, the American Council for an Energy Efficient Economy ranked Houston 13th out of America's 34 largest cities. The city ranked 10th in the US for Energy Star certified buildings in 2014 and transactions of these properties were 50% higher than in the previous year.



2.1
million

POPULATION

Houston had a population of 2.1 million in 2013, in an area of 600 square miles.

10TH
US CITY

CERTIFIED BUILDINGS

The city ranked 10th in the US for Energy Star certified buildings in 2014



12°-29°C

TEMPERATURES

The hot, humid climate, with average daily temperatures ranging from 53°F (12°C) to 85°F (29°C) creates high demand for space conditioning for much of the year.

OBJECTIVES

Emissions reductions from energy efficiency in buildings will contribute to meeting Mayor Parker's commitment to cut CO₂ emissions by 80% from 2005 levels by 2050. The EEB Lab set out to define strategies that will reduce energy consumption in buildings by 30%. An achievable 30% energy savings in the commercial sector alone would translate into nearly 20,000 new jobs for regional energy-efficiency contractors, the supply chain and the service sector over a five-year period. It could avoid the need to invest in 10 midsize power plants and free over half a billion dollars for other spending.

The specific objectives for the Houston EEB Lab were to:

- Demonstrate the benefits of energy-efficient buildings to convince and commit stakeholders to invest in energy efficiency;
- Deliver a tangible energy efficiency in buildings action plan for Houston;
- Launch a self-sustaining stakeholder network with knowledgeable and skilled people who can connect with government organizations and drive a progressive agenda for energy efficiency in buildings.

US\$7
billion

CONSTRUCTION

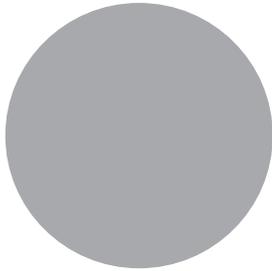
A building boom in 2013/14 saw the city approve US\$ 7 billion in new construction, a 39% increase over the previous 12 months.

PARTICIPANTS IN THE COLLABORATION

CITY

The City of Houston was involved from the early stages of market engagement. A representative of the Mayor's Office of Sustainability participated in the kick-off meeting to help scope the EEB Lab and initiate planning. She also participated in the EEB Lab as a member of the Technical Committee and in the follow-up meetings. The City of Houston's Sustainability Director gave a keynote speech at the high-level plenary and a member of the Houston-Galveston Area Council participated in a panel discussion reacting to the EEB Lab's key findings.





BUSINESS

The EEB 2.0 project members are multinational companies who are active in all areas of buildings and energy efficiency (see box).

The companies engaged in the Houston Lab were United Technologies and Schneider Electric (project leaders), AGC, Lafarge and Siemens (members of the EEB 2.0 project) and Shell (member of US BCSD).

Local companies participating were: Hines, Thompson & Knight LLP, Gensler, Equilibrium capital, ALC, Architend and NRG. Business associations were Keeping PACE in Texas, SPEER – South-central Partnership for Energy Efficiency as a Resource, Urban Land Institute (ULI) – Houston chapter (a real estate association).

EEB 2.0 project members

- Lafarge (co-chair)
- United Technologies (co-chair)
- AGC
- AkzoNobel
- ARCADIS
- ArcelorMittal
- GDF SUEZ
- Infosys
- Schneider Electric
- SGS
- Siemens
- Skanska

OTHER STAKEHOLDERS

The EEB lab also included the following partners:

Academia

Rice University and Klein Independent School District

Research institute

Houston Advanced Research Center

Utility

CenterPoint (electric and natural gas utility)

Non-profit

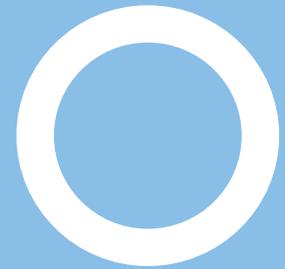
Environmental Defense Fund (EDF)

Institute for Market Transformation (IMT)



CITY HOUSTON

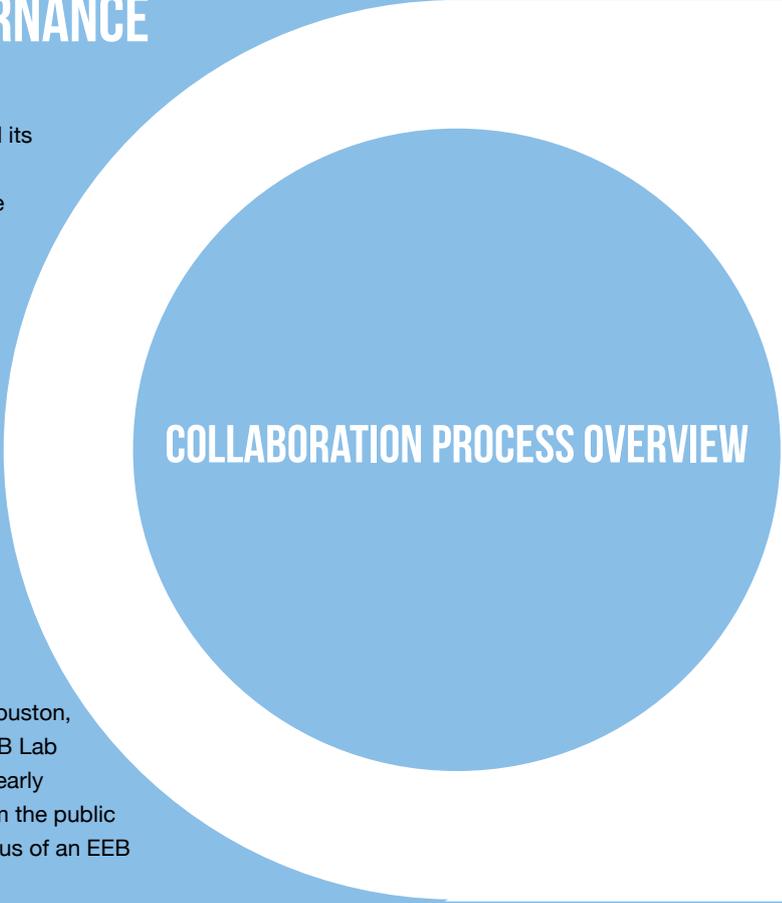
PROCESS AND GOVERNANCE



COLLABORATION GOVERNANCE

The EEB Lab was hosted by the WBCSD and its partner organization, the US BCSD. United Technologies and Schneider Electric were the project leaders.

The EEB lab initiative was also joined by the City Energy Project (led by NRDC and IMT), which is supporting the City of Houston and nine other cities to cut energy waste in large buildings and make them healthier environments and more profitable investments through energy efficiency.



COLLABORATION PROCESS OVERVIEW

Planning

A kick-off meeting with EEB companies and partner organizations, including the City of Houston, took place in May 2014 to help scope the EEB Lab and initiate planning for a three-day event in early October. This meeting confirmed interest from the public and private sectors for Houston to be the focus of an EEB Lab.

A Steering Committee was created after the May kick-off meeting to guide the Lab. It consisted of members from EEB companies and partner organizations (Rice University; Thompson & Knight LLP; HARC; Institute for Market Transformation; Urban Land Institute-Houston, US BCSD and WBCSD teams). The Steering Committee identified relevant stakeholders, experts and thought leaders who constituted the Lab's Technical Committee.

The Technical Committee consisted of experts from approximately 30 organizations, including the Houston Mayor's Office of Sustainability. This group of experts was responsible for analyzing market barriers and providing recommendations to overcome these barriers during the EEB Lab.

The Lab commissioned a Houston Market Review from the Shell Center for Sustainability at Rice University to present the current state of energy efficiency in the Houston real estate market. One week before the EEB Lab, a webinar was held to present the results of the market review and discuss the practicalities of the EEB Lab.

The EEB Lab – 8-10 October 2014

On day one, the Technical Committee interviewed 46 building market stakeholders (see table 2) and analyzed their contributions to identify common themes. This work fed into roundtable discussions on day two (see details in Outcomes). The final day brought together all participants and other invited guests in a high-level plenary session to discuss conclusions and seek commitment from participants to take action on the opportunities for improvement identified during the Lab.

TABLE 1: ORGANIZATIONS REPRESENTED ON THE EEB LAB TECHNICAL COMMITTEE

WBCSD members:

Lafarge
Schneider Electric
Shell
Siemens
United Technologies – Research Center, Automated Logic and Carrier

Laboratory partners:

Architend
Equilibrium Capital (Cal)
Gensler
Hines
Houston Advanced Research Center (HARC)
Houston – Mayor's Office of Sustainability
Keeping PACE
Klein ISD
NRG
Rice University – Shell Center for Sustainability
SPEER
Thompson & Knight
Urban Land Institute
USGBC – Gulf Coast Chapter
Natural Resources Defense Council and Institute for Market Transformation as part of the City Energy Project
C40 Cities
WBCSD and US BCSD

Figure 1: The EEB Lab process

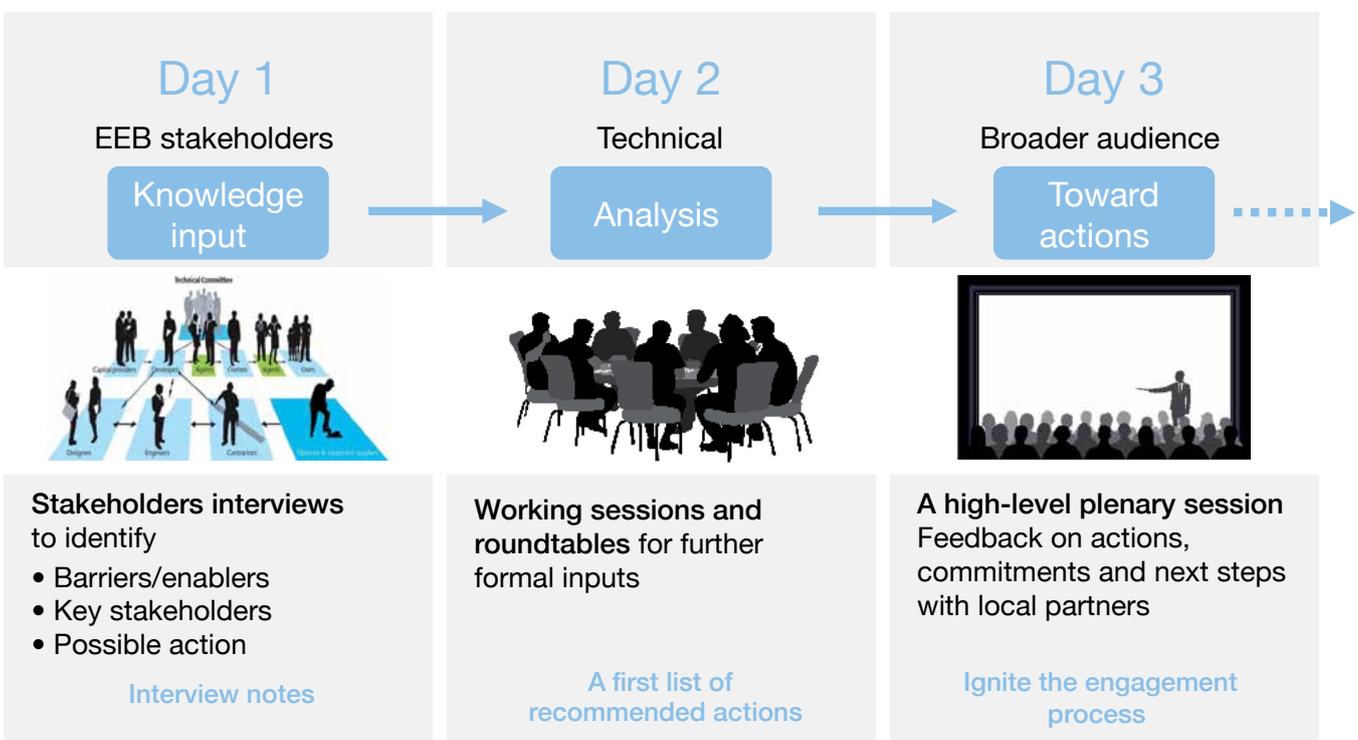




Table 2: Organizations interviewed

Architects, design consulting	Developers	Real estate advisors	Construction/ material/ component providers	NGOs
Archi+Designers	Kensinger Donnelly	Avison Young	Tellepsen Construction	USGBC
Gensler	New Hope Housing	ERM	Services	HARC
Way Holding	Hines	Baker Katz	Schneider Electric	Academia
Engineering	Trammell Crow	Moody -Rambin	HTS Engineering	Rice
Ascentergy	Metro National			
Consultants	Cousins Properties	Banks, capital and finance providers	Facility managers	Owner occupiers
Levinson Alcosar	Buckhead Investment	Cadence Bank	Houston Independent	Shell
Associates	Partners	Pecan Street	School District	City of Houston
TEAM Solutions	McCord Development	Energy Corridor	Crimson Services	
STG Design	Nexos Resource	Management District	CBRE	
	Partners			

Follow up and implementation of actions

WBCSD member companies, together with HARC, Thompson & Knight; IMT and the City of Houston, met in December 2014 and February 2015 to initiate the actions identified by the EEB Lab. The report of the EEB Lab was published during the US BCSD Council Meeting on 4 March 2015 and the new platform entitled Energy Efficiency in Buildings – Houston was also launched (see Outcomes).



OUTCOMES

OUTPUTS

Following the Lab, a group of stakeholders from the original technical committee came together to form a new energy-efficiency platform called Energy Efficiency in Buildings – Houston. The platform will be the base from which four action groups will work to move Houston forward as it increases energy-efficiency investment opportunities across the city. Each group includes a diversity of energy-efficiency market participants representing building owners, building operators, equipment vendors, building tenants, the public sector and energy-efficiency consultants. The groups have the following commitments:

1 Raising awareness of the multiple benefits of energy-efficient buildings

Developers, managers and occupants of class A office space in Houston have accepted high environmental standards as a requirement for upscale properties. But they do not totally understand the full benefits, which include increased worker productivity and reduced absenteeism, as well as higher rental rates. The entire community also benefits from improved air quality, lower water consumption and lower energy costs. The EEB Lab found that tenants are particularly uninformed and therefore tend not to demand energy-efficient buildings.

The challenge is to spread the message further and penetrate the B and C class segments. The EEB-Houston platform aims to tackle this gap by publicizing best practices, developing roadmaps for different commercial building sectors and creating a library of information and case studies on developing cost-effective energy-efficiency programs. The action group will involve property owner associations to get through to hard-to-reach real estate professionals, helping them understand how to build a business case and where to go for energy-efficiency services.

2 Financing EEB solutions

It is always going to be hard to find money for improvements that are hidden away and not always appreciated by prospective tenants. And without the help of special incentives, building owners who do consider energy efficiency can find that payback periods do not meet their criteria or just do not offer as good a risk/return prospect as alternative investments. There is also the problem of split incentives—tenants get the bonus of lower energy bills, not the owner who made the investment. But it seems that the biggest barrier in B and C class properties is lack of information on financing opportunities and how to develop a business case to convince the bank.

Building class definitions

Class A

Most prestigious buildings competing for premier office users with rents above average for the area. Buildings have high-quality standard finishes, state of the art systems, exceptional accessibility and a definite market presence.

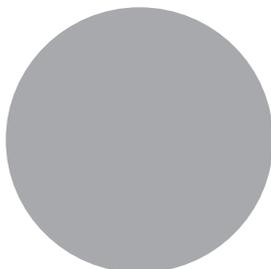
Class B

Buildings competing for a wide range of users with rents in the average range for the area. Building finishes are fair to good for the area and systems are adequate, but the building does not compete with class A at the same price.

Class C

Buildings competing for tenants requiring functional space at rents below the average for the area.

Workshops bringing together energy-efficiency solution providers and financiers will address that lack of knowledge, highlighting the information financiers need to approve energy-efficiency loans. Business case development and financing tools and templates will support these workshops. But ultimately, financing innovations are needed to bridge the gap and stimulate the market. The EEB-Houston platform will explore new financing options, including broader utility-structured financing and incentives and options such as PACE (Property Assessed Clean Energy) and MEETS (Metered Energy Efficiency Transaction Structure).



3 Building capacity to deliver EEB solutions

The Lab found that even if building owners have the desire and the finances to make the necessary investments, not all building managers are as savvy as companies such as Hines. Operators are pulled in different directions in reaction to tenant complaints and staffing is often inadequate. The result is that many buildings in Houston waste energy because they are not properly managed. Sound building management practices are needed to operate a building at maximum long-term efficiency and minimize total life-cycle costs. And that depends on having good data about a building's performance.



Houston's Green Office Challenge already provides useful information and EEB-Houston will support this program. It aims to go further by promoting best practices in strategic management, operations and energy data management to the target B class (and lower) markets. The group will develop case studies and guide books for building operators to optimize building operations and maintenance practices and to convince building owners of the benefits of an energy-efficiency project. It will also recommend relevant training organizations.

4 Increasing real estate market competitiveness through innovative EEB policy solutions

Efficient markets need good data and sound standards. There is little or no transparency in energy use in the Houston market, while the LEED certification scheme is complex and expensive for B and C class operators. Houston has strong building energy codes but they do not apply to state buildings. Additionally, the lack of commonality among cities in Texas makes it difficult for project developers, builders and equipment vendors. And while Houston was the first in the country in 1999 when it passed the Energy Efficiency Resource Standard (EERS) for utilities, the goals and the funding available are not enough to transform the market.

The EEB-Houston platform aims to work with city and state leaders to put this right, starting with a requirement for state buildings to meet the highest state or city codes. This should be developed with more private sector involvement. The EEB-Houston platform wants an ordinance requiring benchmarking and building performance transparency, similar to Chicago and Austin, and tougher goals, with more funding, in the EERS.

These improvements should create a stronger market for energy efficiency, but they will not make things happen on their own. To accelerate transformation, the group will encourage smaller organizations to use free tools such as Energy Star and will encourage more and better training for designers, vendors and installers.

LONG-TERM IMPACTS

As the Lab took place in October 2014, the long-term impacts are not yet known. It is anticipated that the action groups will enable the city to meet its ambitious energy targets and will meet the EEB target of a 30% reduction in building energy consumption.

PERFORMANCE AGAINST OBJECTIVES

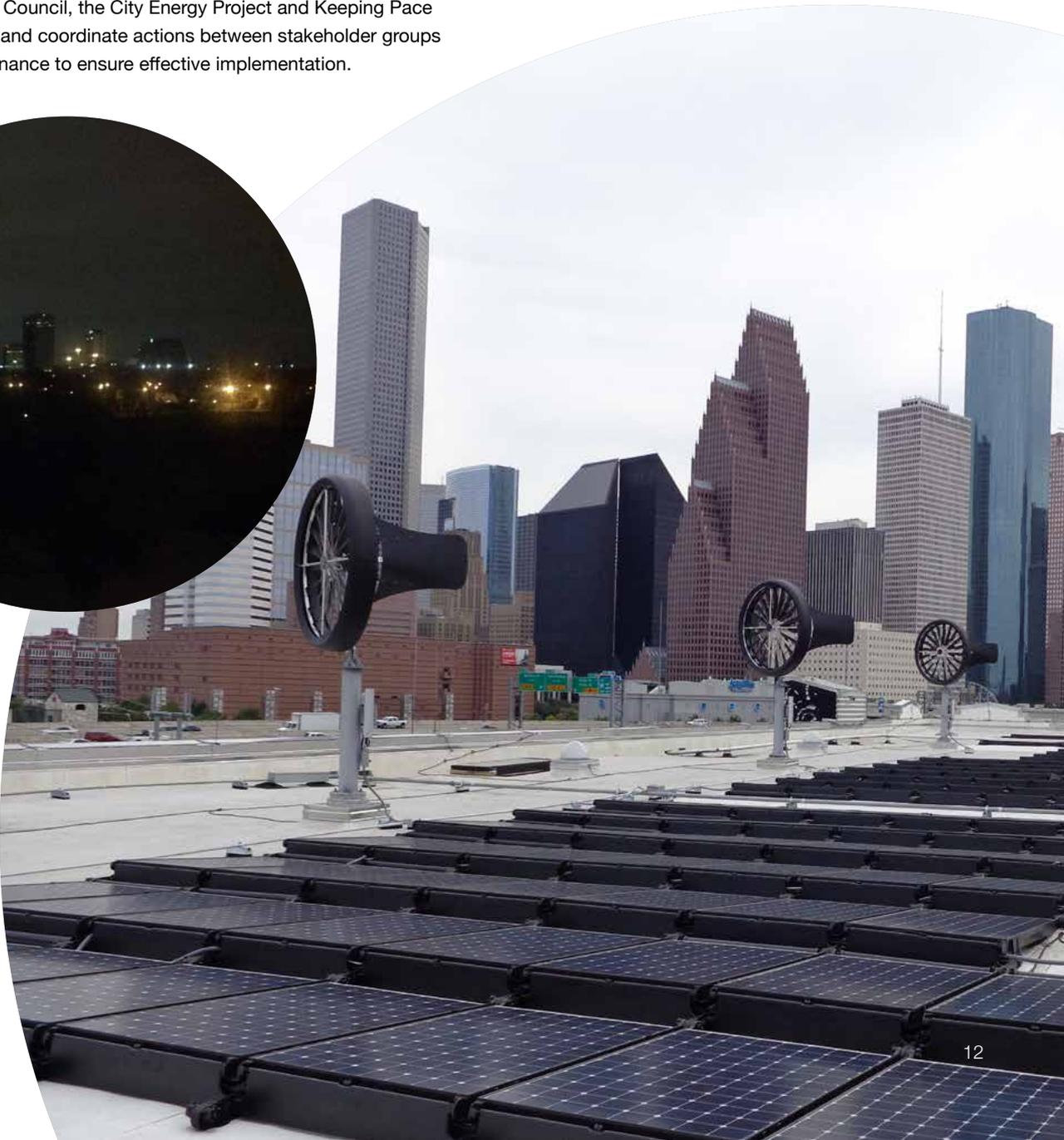
The Lab achieved its objectives of bringing together key stakeholders to identify and implement practical strategies to transform energy efficiency in Houston buildings.

FUTURE COLLABORATION

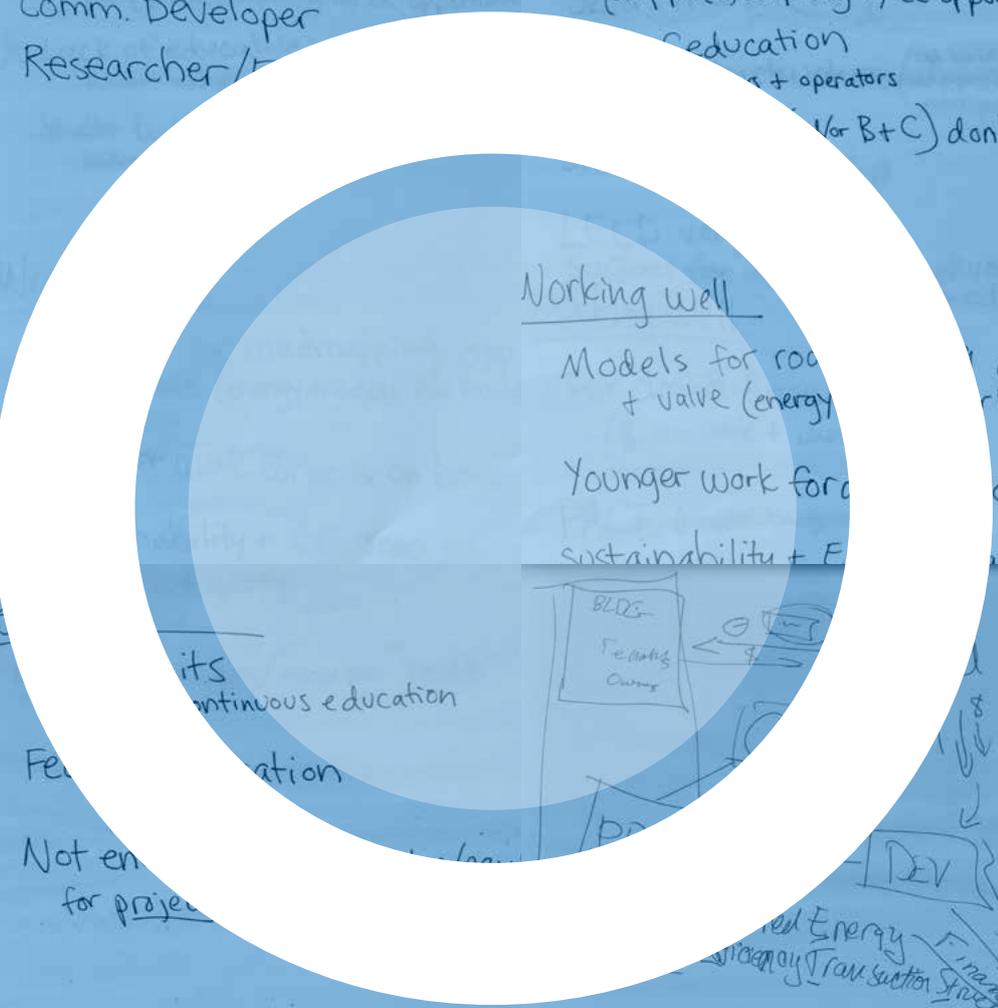
To oversee the implementation of the action plan, a new Energy Efficiency in Buildings – Houston platform has been established. Led by the WBCSD and the US BCSD, and managed locally by the Houston Advanced Research Center (HARC), a coalition of public and private sector volunteers will build and sustain the momentum. Key leaders from the Gulf Coast Green Building Council, the City Energy Project and Keeping Pace in Texas will convene and coordinate actions between stakeholder groups while providing governance to ensure effective implementation.

Leading by example with energy data transparency

The City is helping to build capacity by disclosing data and providing training. It also demonstrates the benefits of benchmarking and disclosure and shows how competition between departments is cutting energy waste. Voluntary programs such as the Houston Green Office Challenge (HGOC) and Lights Out Houston are good models. HGOC does provide for private disclosure, although this is limited.



ANALYSIS



Working well
Energy efficiency models
PUC Bonus structure based on verified savings

SAVE
Sensible
Process to Value of Energy
Disclosure

PACE

For class A financing is not an (\$ available + cheap)

PUC Bonus structure based on verified savings

PACE

The EEB 2.0 project developed a market engagement model. Its cornerstone, the EEB Lab, is innovative and successful in fostering solution-oriented local dialogue and collaborative work.

First, before the Lab, the project makes sure it has solid foundations to achieve its goals of removing market barriers. This means setting up a Technical Committee, the key group taking the actions forward after the EEB Lab (taking ownership of the actions). This panel of experts has complementary expertise and knowledge (policy, finance, technical, business) and with a good view of the EEB market.

The three-day format of the EEB Lab formally initiates the market engagement and is the heart of the initiative. The project does not bring any pre-conceived ideas on barriers. The Lab begins by hearing from the market what works well and what the barriers are (with the Technical Committee doing more than 40 interviews on day one).

On day two, the Technical Committee analyzes the findings to achieve agreement on the barriers. This guarantees the right focus of actions. The interviews target building market stakeholders, including investors, property owners, policy-makers, building occupiers, building sector professionals and real estate professionals, gathering the differing views of each stakeholder category.

It is the role of the Technical Committee to analyze these perspectives and reach a consensus on the barriers. It then develops recommendations for action to remove these barriers.

The closing plenary on day three reports back on the findings and discusses them with the audience (interviewees and other guests) to build the necessary momentum for the implementation of the recommended actions.

This approach is being applied in seven markets and the project aims to deploy and scale up this engagement process.

SUCCESS FACTORS AND LESSONS LEARNED

Private-led initiative based on the involvement of key local public and private stakeholders

The support and involvement of local partners is a key success factor for the EEB Lab. The partners are identified for their core area of work in energy efficiency (such as the Green Building Council) or for their bridging capacity (like the US BCSD). Local partners take the action plans forward after the EEB Lab. They are at the heart of market engagement and their support and involvement are essential throughout the process. It is important to show the strategic value of such initiatives to local colleagues from national and multinational companies to ensure their continuous support during the EEB Lab and after.

The involvement of the city is also crucial in relation to building codes, transparency and data gathering, as well as leading by example (such as voluntary programs like the Houston Green Office Challenge and Lights Out Houston).

Holistic approach

The EEB Lab adopts a holistic approach, looking at core market issues (awareness and multiple benefits of EEB; financing; workforce capacity; verifying value and return on investments; policy and regulation). To best address these topics, the EEB Lab gathers experts who can share their views on the challenges and potential solutions.

Adaptation of the process locally

It is important to adapt the model to the local markets. This is why each market engagement starts with a kick-off meeting (a few months before the EEB Lab) to scope the EEB Lab and make sure it addresses the key topics with the right stakeholders and is adapted to local specificities.

Neutral convener

It is helpful to have a neutral convener such as the WBCSD to offer unbiased dialogue, build trust and facilitate the discussions to identify market barriers.

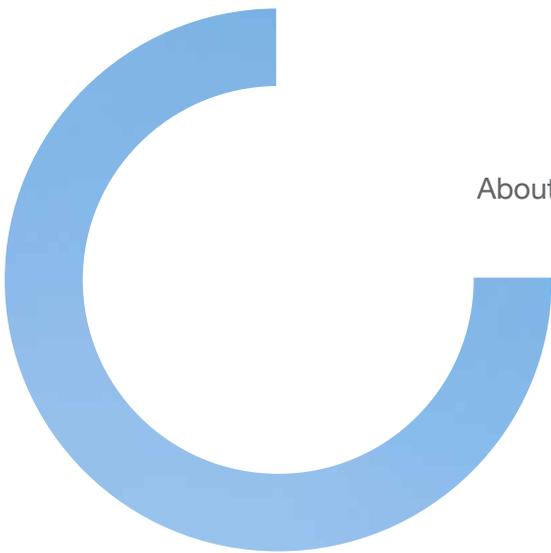
Action-oriented EEB Lab: leveraging existing initiatives and championing best practices

The EEB Lab builds on existing initiatives and aims to showcase best practices. It aims to provide practical recommendations for action and define who will be taking the action forward. The EEB Lab is only the start of the market engagement—it is not a one-off workshop. It is important to use the platform to keep the momentum after the Lab and implement actions.

Read the full report of the [EEB Laboratory Houston: Accelerating investment in Houston's energy-efficient buildings](#).

Author

Delphine Garin (WBCSD) and Roger Cowe (Consultant)



About the WBCSD

The World Business Council for Sustainable Development (WBCSD), a CEO-led organization of some 200 forward-thinking global companies, is committed to galvanizing the global business community to create a sustainable future for business, society and the environment. Together with its members, the council applies its respected thought leadership and effective advocacy to generate constructive solutions and take shared action. Leveraging its strong relationships with stakeholders as the leading advocate for business, the council helps drive debate and policy change in favor of sustainable development solutions.

The WBCSD provides a forum for its member companies - who represent all business sectors, all continents and combined revenue of more than \$8.5 trillion, 19 million employees – to share best practices on sustainable development issues and to develop innovative tools that change the status quo. The council also benefits from a network of 70 national and regional business councils and partner organizations, a majority of which are based in developing countries.

About ICLEI

ICLEI - Local Governments for Sustainability is the world's leading network of over 1,000 cities, towns and metropolises committed to building a sustainable future. By helping our Members to make their cities sustainable, low-carbon, resilient, biodiverse, resource-efficient, healthy and happy, with a green economy and smart infrastructure, we impact over 20% of the world's urban population.



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INNOVATIVE

CITY-

BUSINESS COLLABORATION

Finland – RAKLI procurement clinics





ABSTRACT

The Finnish Association of Building Owners and Construction Clients (RAKLI) launched the procurement clinic method in 2007 to enable open dialogue on procurement and urban development challenges between public sector clients and potential solution providers, contractors and investors.

Consisting of a series of facilitated and interactive workshops, procurement clinics are inclusive consultation processes that encourage a wide range of stakeholder inputs. Procurement clinics reduce risks, spur innovation and improve outcomes as they make tendering processes more open and transparent, and generate private sector input for urban infrastructure development.

To date, 22 procurement clinics have been conducted to discuss questions such as how to structure the procurement process for a ring rail line in the Helsinki metropolitan area and how to develop a district energy system in Espoo.

CONTEXT

Public procurement practitioners operate in an environment characterized by a high level of uncertainty and bureaucracy. Large infrastructure projects and urban development-related procurement processes are complex as they often involve non-standard goods or services and require public procurers to have in-depth knowledge of the current and future market. In addition, procurement processes are governed by a myriad of strict rules and regulations restricting the potential of engaging in pre-procurement discussions. As a result, contracts are often awarded based on minimized risk and the lowest price available instead of optimized solutions.

To provide public procurers with an opportunity to discuss projects, share information and engage with potential tenderers before the actual tendering, the Finnish Association of Building Owners and Construction Clients (RAKLI) launched the procurement clinic method in 2007. Procurement clinics use a series of interactive workshops to facilitate open market dialogue. Along with focusing on specific procurement challenges, the format is used to generate private sector input to improve general urban infrastructure development.

OBJECTIVES

RAKLI's procurement clinic method was established to facilitate procurement and urban development processes in the built environment. Procurement clinics aim to reduce risks and spur innovation by creating market-based solutions through early dialogues between public sector clients and potential solution providers, contractors and investors.

INITIATOR: RAKLI

Established in 1977, RAKLI, the Finnish Association of Building Owners and Construction Clients, is a membership-based non-profit organization that connects public and private property and construction professionals. Its 220 members include Finland's most prominent residential and commercial property owners, infrastructure owners including road, railroad, airport, harbor, telecom and energy operators, property investors, cities and municipalities, construction clients and service providers. RAKLI's goal is to ensure that buildings and infrastructure serve the needs of their users and that the built environment is functional and attractive.

RAKLI operates in three sectors: residential properties, public and commercial properties, and urban development and infrastructure. Each of them has its own executive committee and management team made up of elected members. Their work is supported by a team of 15 employees. The association represents its members' interests on various national platforms. In addition to organizing and facilitating procurement clinics, RAKLI offers R&D and education services and legal advice.



Head
Legal form
Founded in

Laurikainen Jyrki
Non-profit
1977



PUBLIC SECTOR AND NON-GOVERNMENTAL CLIENTS

Procurement clinics are requested by cities, national agencies, associations or other clients facing a particular procurement or urban development challenge.

CITIES

To date, procurement clinics have been commissioned by the cities of Helsinki, Espoo, Vantaa, Lahti, Varkaus, Turku, Tampere, Riihimäki and Naantali. While all of the cities are located in the southern part of Finland, they differ substantially in terms of area and population. The Greater Helsinki metropolitan area—Helsinki, Espoo and Vantaa—encompasses a total population of around 1.1 million inhabitants. In contrast, Riihimäki, Varkaus and Naantali each have a population of less than 30,000.

Reflecting the diversity of clinics, the municipal departments involved include those charged with city planning, real estate development, environmental protection, social services and health care provision.

GOVERNMENT AGENCIES

While most of the procurement clinics are commissioned by cities, some are initiated or co-initiated by government agencies. The Finnish Traffic Agency, for example, worked with the cities of Helsinki and Vantaa on two clinics on railway development. Other agencies that have collaborated with RAKLI include the Housing Finance and Development Centre of Finland (ARA), VTT Technical Research Centre of Finland and the Finnish Innovation Fund (Sitra).

ASSOCIATIONS

National and regional associations related to the built environment, energy and sustainable urban development have partnered with RAKLI on several occasions. For example, both the Green Building Council Finland and Green Net Finland, a clean technology business network, have co-organized and facilitated clinics with RAKLI.



City	Population	Area
Helsinki	622,000	715.49 km ²
Espoo	265,000	528.14 km ²
Tampere	223,000	689.59 km ²
Vantaa	211,000	240.34 km ²
Turku	184,000	306.37 km ²
Lahti	104,000	154.58 km ²
Riihimäki	29,000	125.56 km ²
Varkaus	22,000	524.49 km ²
Naantali	19,000	688.01 km ²

PRIVATE SECTOR PARTICIPANTS

BUSINESS

Companies operating in the built environment constitute the clinics' main participants. The businesses involved range from architectural and engineering firms to project management consultants, construction companies, facility management and service providers, energy companies and investors.

INPUT FROM ACADEMIA AND CIVIL SOCIETY

Depending on the clinic at hand, other stakeholders may act as co-organizers of the clinics or may contribute their knowledge to the city-business dialogues. In general, any interested stakeholder group may be involved in RAKLI's procurement clinics.

Representatives from universities and research institutes often contribute by providing background information and participating in the discussions. Non-governmental organization involvement has occurred on several occasions. Actors have been as varied as a refugee aid organization, WWF and the Finnish scout organization. Civil society may be represented by neighborhood associations, community groups or local leaders. In addition, the church has been identified as an important organization in representing the interests of the community.

THEMATIC SCOPE

In line with RAKLI's thematic focus, the majority of clinics deal with challenges pertaining to the built environment. Procurement clinics discuss residential and commercial real estate projects, traffic, energy and other infrastructure-related cases.

Initially launched to facilitate and improve public procurement practices, only around one-third of all clinics are still used to prepare actual tenders. Instead, two-thirds of the clinics are charged with analyzing urban development challenges and opportunities and are therefore often referred to as concept clinics. While procurement-related issues are still considered, they are usually limited to creating, presenting and evaluating alternatives.



PROCESS OVERVIEW

For a case to be accepted by RAKLI, it is important that it be of widespread interest and generally support good public procurement and sustainable urban development.

Since 2007, only minor changes have been made to the format of the procurement clinic method. In general, clinics follow a structured process that takes between three to six months to complete, encompassing the following stages:

- 1 Preparation phase:** The client meets with a facilitator from RAKLI to define the objectives of the clinic and determine the timeframe, process and logistics. They identify relevant stakeholder groups, which usually leads to a list of up to 100 organizations and 1,000 individuals. The client then sends out an open invitation to them and all other interested parties.
- 2 Opening seminar:** Between 50 and 150 public and private sector representatives and stakeholders participate in the opening seminar. The challenge, the case(s) and the process are introduced and discussed. Participants are asked to fill out a questionnaire on the clinic. The answers are evaluated and used to shape the remainder of the clinic. Following the seminar, interested parties register for the closed workshops. The resulting 8-25 main participants then continue finalizing the plans for the clinic.
- 3 Workshops:** Two to five half-day workshops are held per case. To set the scene for the public-private market dialogues, several 5- to 20-minute presentations are delivered. These are followed by workshop rounds that are based on workshop-specific questionnaires. Ideas are exchanged and suggestions are made on how to address the procurement challenge. The workshops serve as a platform to discuss the goals and interests of both the client and the participants. If the clinic is to be followed by an actual tendering process, procurement documents and detailed terms may be prepared in the workshops.

4 **Output seminar:** The output seminar is open to the public. It is used to disseminate, discuss and analyze the outcomes of the workshops and to showcase the solutions developed. Participants are asked to fill out a questionnaire to evaluate the outcomes and present any additional ideas and questions. Following the output seminar, a final report is published online.

RAKLI sets up a contract for each of the main participants taking part in the closed workshops. The contract specifies the objective of the temporary collaboration and timeline of the procurement clinic, and codifies the participation fee. Any modification to the original plan is based on consensus.



FINANCING

Procurement clinics cost between € 10,000 and € 50,000 per case. The costs are borne by the clients and the main participants, with about half being carried by the client. If several municipal and state agencies are involved, up to 70% may be covered by the public sector. Additional funding may be provided by the Finnish Funding Agency for Technology and Innovation (TEKES). The remaining amount is divided between the 8 to 25 main participants, resulting in fees ranging from € 500 to € 2,500.

TRANSPARENCY AND ACCOUNTABILITY

There are several measures in place to guarantee that the procurement clinic process is transparent. For example, participation in the opening and closing seminars is open to all interested parties. RAKLI and its client(s) use various channels to disseminate information and ensure that all relevant actors are able to contribute to the two meetings. Afterwards, a report containing the main outcomes of the workshops is published on RAKLI's website. Further documents and presentation material are usually made public as well.

Despite the fact that the roundtable workshops take place behind closed doors, universities are allowed to participate for free. Moreover, NGOs and civil society are often involved in framing the challenge and presenting their point of view.

There is no formal mandate for decision-making, and the recommendations made during the clinics are in no way binding. In fact, it is important to note that while contract notices may be prepared during the workshops, procurement takes place outside the clinics. Instead, the seminars and workshops function as neutral meeting points for early market engagement, with the overarching goal of facilitating procurement practices and enhancing urban development.

PROJECTS AND OUTCOMES

Since RAKLI's first clinic in 2007, the association has conducted a total of 22 procurement clinics and now organizes an average of six clinics per year. In several cases, clinics have been used to generate input for final contract notices and have directly been followed by actual procurement (see example 3). Other clinics have eventually led to procurement (see example 1). Concept clinics have mainly resulted in improved concept development and urban planning (see example 2).

1 Development of a ring rail line

RAKLI's first procurement clinic in 2007 aimed to facilitate the planning process for an 18-kilometer railway system connecting the Helsinki-Vantaa Airport to the Helsinki commuter rail network. Commissioned by the Finnish Railway Administration¹ and the City of Vantaa, the complex project involved merging two commuter tracks and constructing numerous tunnels and stations. Through a series of workshops, the public entities were able to openly discuss the implementation of the multi-million euro project with the appropriate industry actors. This exchange of information led to the generation of novel options to deal with limited capacity, helping make the project as cost-efficient as possible while maintaining a high standard of quality. Furthermore, participants discussed appropriate structures for risk transfer and corrected initial errors in the project proposals. The clients benefitted from the know-how and expertise of the industry representatives and the private sector learned more about the planned project and shaped its development. Construction began in 2009. When the Ring Rail connection services start in late 2015, they will bring huge benefits to citizens and tourism, making the city more accessible and decreasing traffic-related congestion.



¹ In 2010, the Finnish Railway Administration and the Finnish Road Administration were merged into the Finnish Traffic Agency.

2 Local area energy systems clinics

In 2011 and 2012, RAKLI carried out two local area energy system clinics. On behalf of the City of Espoo, RAKLI launched a clinic in October 2011 to study the potential of district heating and cooling energy. Over a period of 10 months, four workshops were held. Energy companies, real estate owners and engineering companies engaged in open market dialogues with city representatives and presented their views on a myriad of energy-related aspects. The City of Espoo received industry input on regulatory requirements, technical specifications, financing issues, etc. Moreover, the business representatives provided recommendations on how to link district heating and cooling technology with the local real estate and business sectors. The City of Espoo has used the outcomes to plan and implement the development of its Finnoo district.

In September 2012, RAKLI organized a clinic for the City of Helsinki to analyze the potential of solar energy and electricity generation for its Östersundom area. Both clinics saw wide-ranging private and academic involvement, as well as the participation of and input from the Finnish Ministry of the Environment.

The success of the clinics and the relevance of the topic have led to two subsequent clinics, one focusing on the development of near-zero energy buildings and another one on innovative small and medium-sized enterprises in cooperation with the clean technology business network Green Net Finland.



3 Outsourcing of municipal engineering services

Due to spending cuts, the city of Varkaus approached RAKLI in 2008 to deliver a purchasing process for the outsourcing of its municipal engineering services to the private sector. Affected services encompassed the management of public infrastructure, such as streets and water pipes, and the provision of energy. Five workshops were arranged to engage with potential service providers and co-define criteria for competitive bidding and prepare long-term service agreements for the outsourcing procedure. The workshops were directly succeeded by an actual procurement process. Along with a new operating model for Varkaus, the procurement clinic generated a large amount of in-depth knowledge on the implementation of outsourcing projects that has proven valuable for other Finnish cities.





LONG-TERM IMPACTS

RAKLI's procurement clinic method has yielded a number of long-term impacts. In general, the various clinics have led to procurement and urban development projects that are more competitive, innovative and sustainable. Compared to conventional public procurement processes, they have also proven to be more transparent as well as more time- and cost-effective.

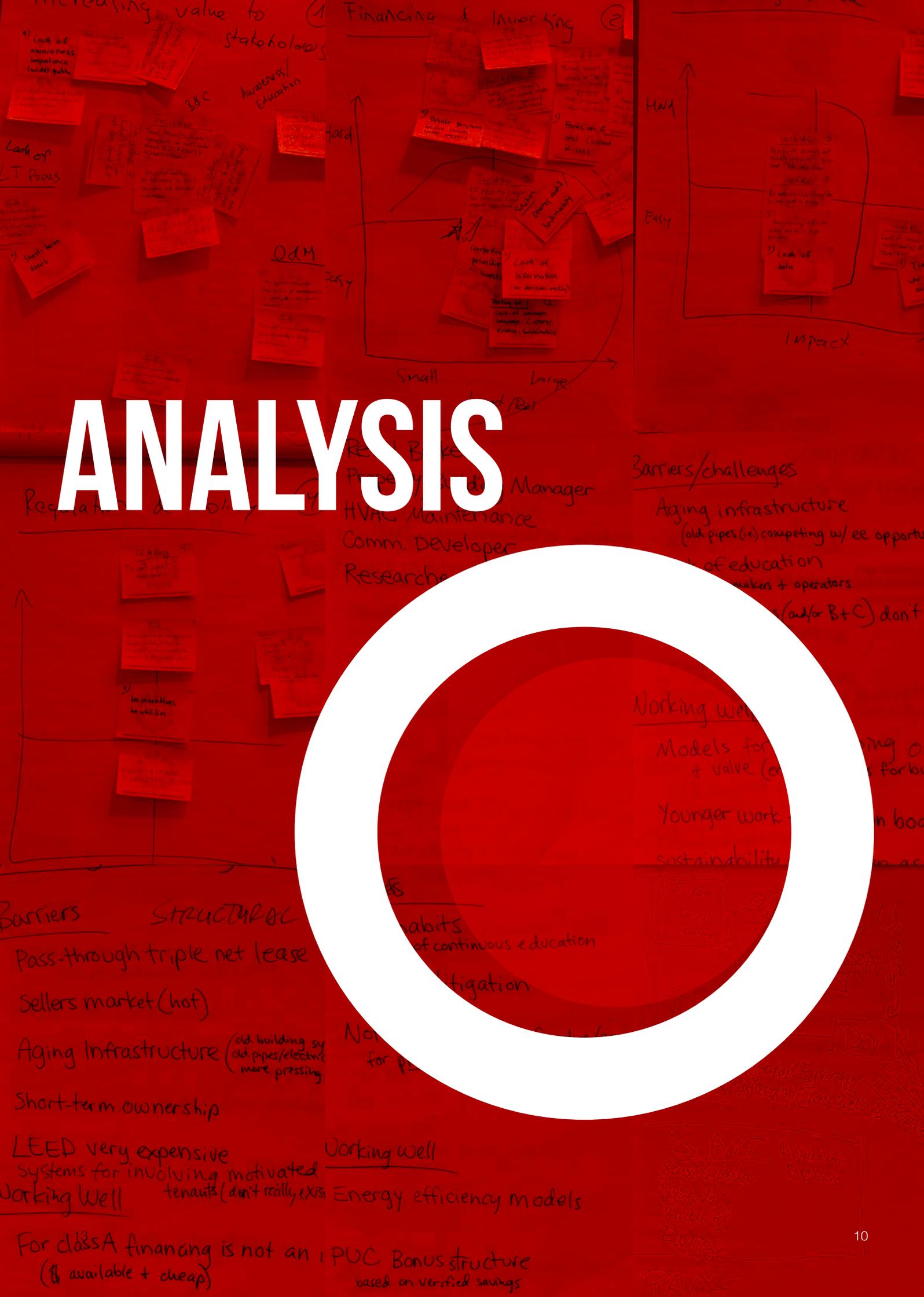
On an individual level, they have enabled the transfer of knowledge and the generation of mutual understanding between public procurers and relevant private actors. This has led to wider collaboration networks that would otherwise not have formed. The provision of information as well as the clarification of details, and in some cases the discussion of alternative solutions, have supported the shaping of the projects.

Due to the clinics' focus on addressing general procurement and urban development challenges, some of RAKLI's clinics have affected nationwide procurement practices and building standards, particularly in cases where national agencies have acted as collaborators or initiators. Others have triggered the execution of similar clinics (see example 2) or the adoption of their outcomes (see example 3) in other municipalities.

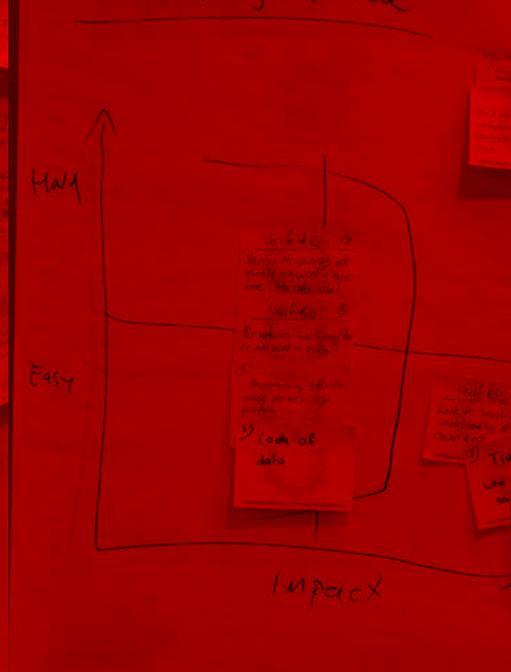
FUTURE PLANS

Since 2007, RAKLI has gained in-depth knowledge of and has closely observed developments in the market. This has spurred the generation of new topics, some of which go beyond the association's traditional thematic scope. As a result, two upcoming procurement clinics will deal with the information and communications technology-powered emergence of knowledge work and the disruptive hybridization of physical retail, logistics and e-commerce. The clinics will discuss their impacts on the built environment in Finland, related services and investments, and the country's labor market. More traditional clinics that will be conducted in 2015 include one on the establishment of new social housing and one on the establishment of a roadmap for neighborhood development.

ANALYSIS



Increasing value to stakeholders
Lack of awareness importance (wide public)
Lack of LT focus
Short-term focus
38c Awareness/Education
D&M



Regulation
HVAAC Maintenance
Comm. Developer
Researcher
Manager
Researcher
Incentives to utilities
To get utility approval

Barriers/challenges
Aging infrastructure (old pipes (in) competing w/ ee opportunity)
Lack of education
Owners + operators
(and/or B+C) don't
Working well
Models for + valve (e)
Younger work sustainability

Barriers
Pass-through triple net lease
Sellers market (hot)
Aging Infrastructure (old building systems old pipes/electrical more pressing)
Short-term ownership
LEED very expensive systems for involving motivated tenants (don't really exist)

Working well
Energy efficiency models
PUC Bonus structure based on verified savings
Habitats of continuous education
Investigation
Not for P

Working well
Energy efficiency models
PUC Bonus structure based on verified savings
SAVE
Sustainable
Energy
PACE
Financial Disclosure

For class A financing is not an issue (\$ available + cheap)

PUC Bonus structure based on verified savings

INNOVATION

RAKLI's procurement clinic format offers an innovative alternative to conventional procurement schemes. Public procurement projects and tenders are traditionally prepared in isolation from industry experts, often resulting in very technical and complex contract notices that are based on outdated knowledge of private sector solutions. By providing a platform for early market engagement, public procurers and potential solution providers are able to openly discuss procurement procedures and develop market-based tenders.

General urban development is enhanced through concept clinics. By bringing together representatives from various sectors, clients benefit from a wide range of industry expertise, which in turn enables a comprehensive, integrated approach to urban planning. Procurement and urban development challenges are addressed using a novel systematic approach. The structured procedure ensures that procurement clinics are time and cost-effective while simultaneously maximizing city-business interaction.

Compared to conventional processes, the clinic method represents a more transparent approach to procurement. This is due to RAKLI's open information policy and its unbiased role as facilitator. It also reaches a wider audience and attracts more industry actors through its public opening and closing seminars, thus making it a more inclusive and participatory endeavor.

SUCCESS FACTORS AND LESSONS LEARNED

Relevant and interesting cases

Cases that are relevant to the private sector are crucial to the success of RAKLI's procurement clinics. Participants need to be interested and motivated to engage in the intense workshops with the public sector and the other business actors.

Open invitation

RAKLI's open and non-committal introduction seminars allow clients to interact with and receive input from companies that they might not have met otherwise. This ensures comprehensive market engagement.

Neutral facilitator

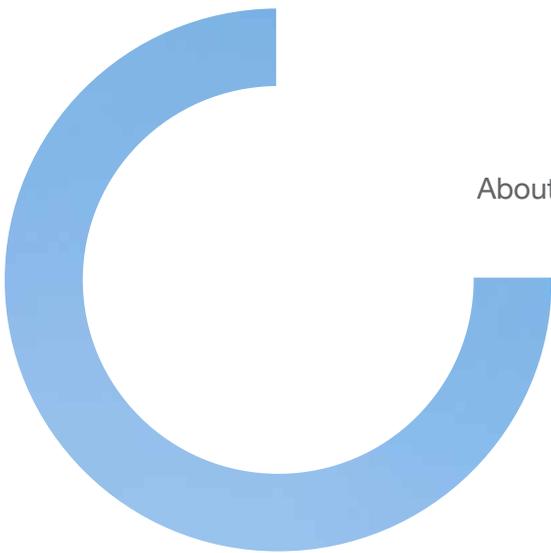
The association's role as an unbiased facilitator is important to enabling open information exchange between the actors. In fact, RAKLI once attempted to export the clinic method to another field using a consultancy as facilitator. Other consulting companies competing in the field, however, did not accept this and the intended clinic could not be started.

Fast and structured process

RAKLI's systematic procedure allows for a time- and cost-effective approach to solving complex procurement and urban development challenges. Time and capacity savings are particularly great where procurement clinics are used to inform and prepare final contract notices.

Authors

Olga Horn, Felicitas Schuldes, Roman Serdar Mendle (ICLEI World Secretariat)



About the WBCSD

The World Business Council for Sustainable Development (WBCSD), a CEO-led organization of some 200 forward-thinking global companies, is committed to galvanizing the global business community to create a sustainable future for business, society and the environment. Together with its members, the council applies its respected thought leadership and effective advocacy to generate constructive solutions and take shared action. Leveraging its strong relationships with stakeholders as the leading advocate for business, the council helps drive debate and policy change in favor of sustainable development solutions.

The WBCSD provides a forum for its member companies - who represent all business sectors, all continents and combined revenue of more than \$8.5 trillion, 19 million employees – to share best practices on sustainable development issues and to develop innovative tools that change the status quo. The council also benefits from a network of 70 national and regional business councils and partner organizations, a majority of which are based in developing countries.

About ICLEI

ICLEI - Local Governments for Sustainability is the world's leading network of over 1,000 cities, towns and metropolises committed to building a sustainable future. By helping our Members to make their cities sustainable, low-carbon, resilient, biodiverse, resource-efficient, healthy and happy, with a green economy and smart infrastructure, we impact over 20% of the world's urban population.



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INNOVATIVE

CITY-

BUSINESS COLLABORATION

Bottrop, Germany – InnovationCity Ruhr





ABSTRACT

As the winner of the industry-initiated InnovationCity Ruhr contest in 2010, the city of Bottrop, Germany, has been supported by the regional private sector in transforming seven of its districts into a living laboratory for climate-friendly urban redevelopment.

By 2020, Bottrop aims to reduce CO₂ emissions by half while simultaneously increasing overall quality of life through the implementation of around 370 projects. These include measures such as energy-efficient retrofitting of existing commercial and residential buildings, installing cogeneration systems and creating additional green spaces.

The joint company Innovation City Management (ICM) was established in 2011 to drive the initiative and serve as an interface between the private and public sectors, academia and Bottrop's citizens. Chaired by Bottrop's lord mayor and comprised of 35 representatives from ICM, Bottrop's municipality and the private sector, ICM's project table meets bi-weekly to oversee the initiative's progress, discuss new projects and address challenges. It receives private sector and academic input through an industry advisory board and a science advisory board.

Political leadership combined with an engaged citizenry and a private sector interested in promoting innovative and green economic development provide the necessary support to operationalize the ambitious InnovationCity Ruhr undertaking.

REGIONAL CONTEXT: RUHR METROPOLITAN AREA

With a population of 5.1 million and an area of 4,400 km², the Ruhr metropolitan area is Germany's largest urban agglomeration, encompassing 11 cities, including Bottrop. Formerly the country's industrial heartland, it has a long tradition of coal mining and heavy industry, making it the backbone of Germany's strong economy. Major industrial companies such as RWE, Thyssen-Krupp and Evonik Industries were established in the Ruhr area and expanded rapidly, attracting millions of workers from surrounding regions. However, due to the declining competitiveness of coal exploitation, the Ruhr area experienced a heavy economic downturn in the 1970s. Coupled with higher environmental standards and policies, this led to a deindustrialization process. The Ruhr area has since undergone fundamental structural changes, transitioning from an industrial to a service-based economy.

OBJECTIVE: POST-INDUSTRIAL REDEVELOPMENT FOR SUSTAINABILITY

Aware of the significant adaptation challenges posed by the post-industrial redevelopment process, the Ruhr metropolitan area's public and private stakeholders actively work towards transforming the region in line with the three pillars of sustainable development—environment, economy and society. More specifically, they seek to redevelop the area into a livable and climate-friendly region while safeguarding the industrial location and promoting a green economy. In line with the regional objectives, Bottrop has set the ambitious goal of reducing its CO₂ emissions by 50% by 2020 while simultaneously enhancing the overall quality of life of its citizens.

RUHR INITIATIVE GROUP: BUSINESSES INITIATING CHANGE

The Ruhr Initiative Group (Initiativkreis Ruhr) has played an important role in supporting the revitalization process since its establishment in 1989. It is a non-profit consortium of around 70 leading companies, including RWE, Siemens, Evonik Industries and Bayer MaterialScience. The association's main goal is to support the structural change of the Ruhr area in order to enhance the region's competitiveness and future viability. As an agent of change, the Ruhr Initiative Group focuses on the implementation of projects within the realms of education, energy, logistics and culture.

In 2010, the Ruhr Initiative Group launched a competition called *InnovationCity Ruhr*. Over a period of 10 years, the winning city would be turned into a model city for climate-friendly urban redevelopment and sustainable economic development for the entire Ruhr metropolitan area. With 16 competing cities and five finalists, the Ruhr Initiative Group's final decision fell on the city of Bottrop.



Head

Klaus Engel
(Evonik Industries AG)

Legal form

Non-profit

Founded in

1989



InnovationCity Ruhr: BOTTROP

Bottrop is a midsize city with a population of around 120,000 inhabitants. Economically and culturally, it is a typical part of the Ruhr area. In 2018, Bottrop's last remaining coal mine will be closed, putting an end to the coal business in the entire region. Given this background, the city of Bottrop started to advance the post-industrial redevelopment process relatively early. A sub-division for environmental protection was established in the 1980s, which triggered new activities in the field of energy, most notably through municipal energy management for public buildings. In 1997, the city administration launched its first Local Climate Concept. This was replaced by an Integrated Climate Protection Concept in 2011. In the same year, Bottrop joined the Covenant of Mayors, thus further emphasizing its commitment to reducing the city's climate change impact.

Bernd Tischler, Bottrop's lord mayor since 2009, has played a decisive role in taking up the revitalization challenge. With a background in urban planning and his previous role as Bottrop's first environmental officer, Mr. Tischler has continuously pushed the city's environmental and energy agendas forward and was the initiator, main operator and lead behind Bottrop's successful application to the InnovationCity Ruhr competition.



bottrop.

Lord mayor

Land area

Local economy

Bernd Tischler (since 2009)

1,200 km² (2012)

**Services, logistics, industry
and mining**

**120
thousand**

POPULATION

Bottrop is a midsize city with a population of around 120,000 inhabitants.

€ 330
million

MUNICIPAL BUDGET

(2013)



-50%
CO₂

EMISSIONS

Bottrop has set the ambitious goal of reducing its CO₂ emissions by 50% by 2020



The main departments involved are the Department of Environment and Green Spaces and the Department for Civil Engineering and Urban Renewal. The Urban Planning Authority and the Office for Economic Development are further important entities.

In Bottrop's winning InnovationCity Ruhr competition application, the city proposed to transform seven districts encompassing 70,000 inhabitants and 14,000 buildings into a pilot area for climate-friendly urban development. To achieve this, its comprehensive proposal included many individual projects covering areas and measures such as retrofitting, energy, transport, industry and green spaces.

14,000
buildings

TRANSFORM

seven districts encompassing 70,000 inhabitants and 14,000 buildings into a pilot area for climate-friendly urban development.

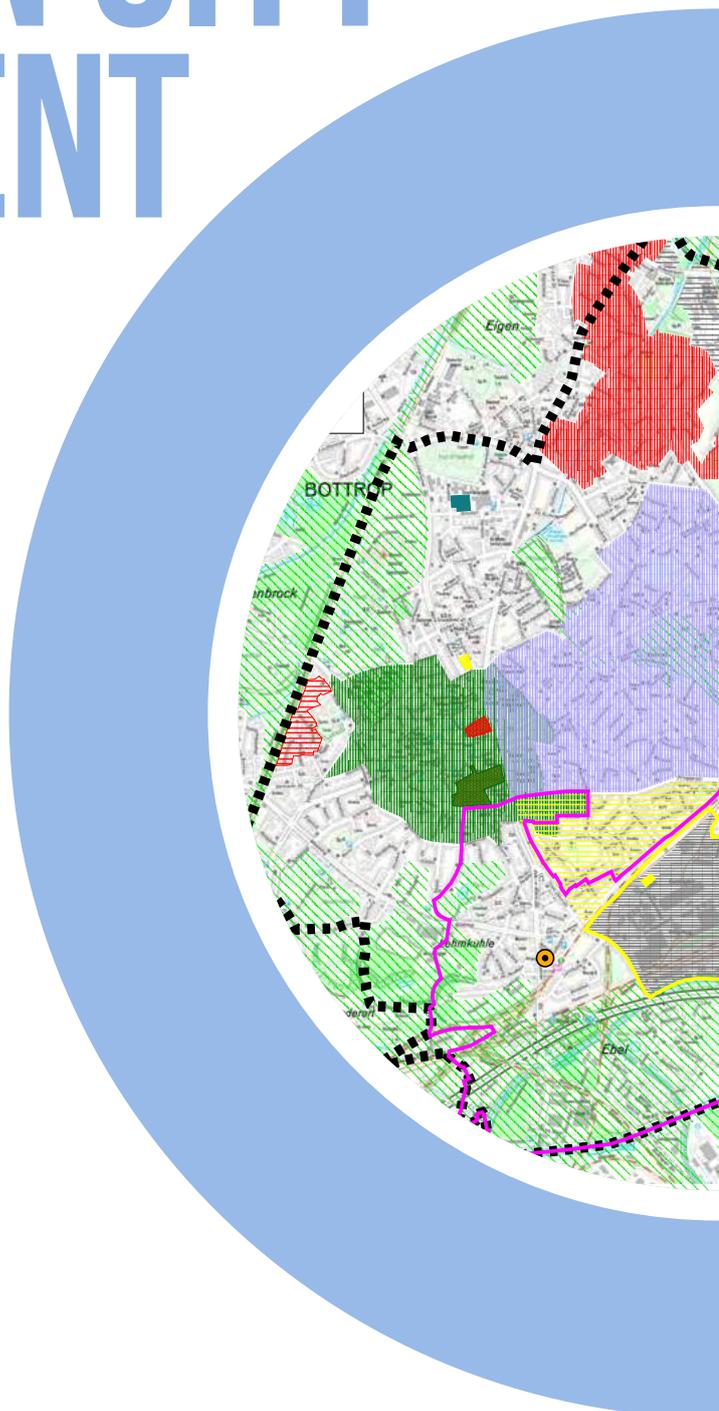
PUBLIC-PRIVATE COORDINATION: INNOVATION CITY MANAGEMENT

To manage and coordinate the 10-year-long project, the limited liability company Innovation City Management (ICM) was founded in 2011. ICM's five shareholders come from the public and private sphere: The Ruhr Initiative Group, the city of Bottrop, a local energy company, a real estate company and an industry and public sector consultancy. Similarly, the ICM team consists of the company's own employees as well as individuals from the private sector and Bottrop's administration. It thus combines urban planning experience with public administration knowledge and project management expertise.

ICM is the central steering body of the InnovationCity Ruhr project. Its many roles include project management, external communication and the provision of a connecting interface. ICM initiates, monitors and supports individual projects. To provide the services and solutions needed to implement the individual projects, ICM has organized networks of local craftsmen, architects and energy consultants. Additionally, it communicates with the public and engages them in the process. Through its Centre for Information and Consultation, it also provides households and businesses with individualized energy consulting services. Most importantly, however, ICM acts as a hub for exchange and a facilitator between the intervening stakeholders and actors from the various institutional spheres.



Director	Burkhard Drescher (since October 2011)
Legal form	Limited liability
Founded in	2011
Employees	25
Shareholders	Ruhr Initiative Group (61%) City of Bottrop (10%) BETREM Emscherbrennstoffe (10%) RAG Montan Immobilien (10%) agiplan (9%)



STATE-LEVEL SUPPORT, ADVISORY BOARDS AND CITIZEN ENGAGEMENT



Interministerial Working Group

Shortly after the selection of Bottrop as model city, an Interministerial Working Group was established to ensure support through public funding programs from the state-level ministries in North-Rhine Westphalia. Along with representatives from the State Chancellery and the Ministry of Economy and Transport, the Ministry of Environment and the Ministry of Innovation are also involved in the working group. The working group is moderated by the State Chancellery and meets four times a year.

Industry Advisory Board

Since the project's inception, the Ruhr Initiative Group has supported Model City Bottrop with its industry expertise through an Industry Advisory Board. In addition to the 70 member companies, some 35 other companies are part of the board through their partnership agreements with ICM. About 40 representatives attend the quarterly meetings.

Science Advisory Board

The participation of academia is facilitated by an interdisciplinary Science Advisory Board, which was established by ICM in 2013. The board is chaired by the Wuppertal Institute for Environment, Energy and Climate and consists of around 25 members from internationally renowned research centers such as the Fraunhofer Institute and regional universities including the University of Applied Sciences Ruhr-West. It meets quarterly with ICM and North Rhine-Westphalia's Ministry for Innovation, Science and Research to provide support in assessing and consulting on projects as well as identifying knowledge gaps and areas that require further research.

Citizen engagement

Citizen involvement has been crucial in bringing the InnovationCity Ruhr project to Bottrop. More than 22,000 signatures were gathered and included in the application document. Since then, citizens have been involved in shaping the low-carbon redevelopment process through forums, workshops and other engagement processes.



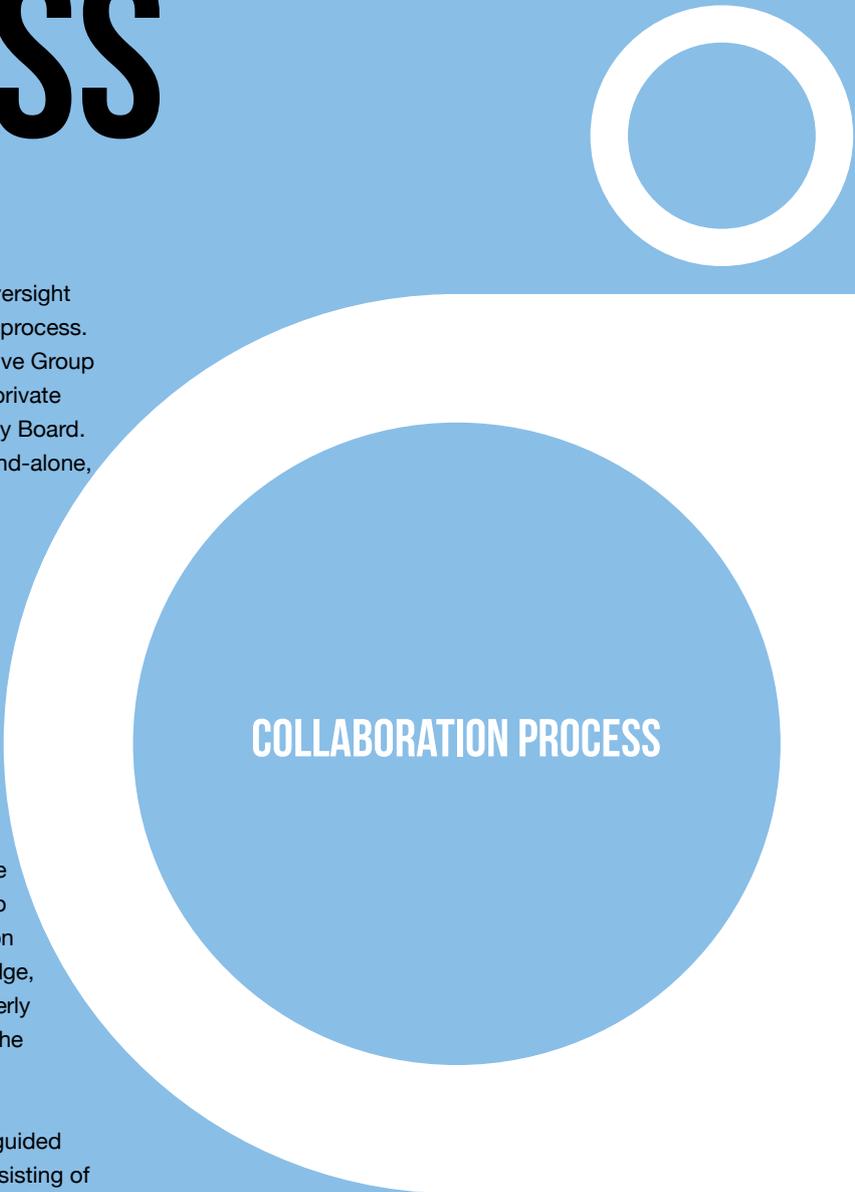
CITY BOTTRUP

COLLABORATION PROCESS

Innovation City Management is the central oversight and coordination body of the redevelopment process. As the main ICM shareholder, the Ruhr Initiative Group provides financial support to ICM as well as private sector expertise through the Industry Advisory Board. Despite this affiliation, ICM operates as a stand-alone, independent entity.

As a primary instrument for decision-making, guidance and coordination between the various actors and projects, ICM established a project table that convenes every two weeks. It is chaired by Bottrop's lord mayor and is comprised of 35 representatives from ICM, Bottrop's municipality and the private sector. During the project table meetings, all InnovationCity Ruhr projects and proposals are reviewed, new ideas are generated and the overall project implementation is discussed. To ensure sound decision-making that is based on the latest scientific and private sector knowledge, the project table receives input from the quarterly meetings of the Industry Advisory Board and the Science Advisory Board (see figure 1, page 8).

Since early 2014, ICM's work has also been guided by Bottrop's comprehensive master plan consisting of a detailed analysis of the pilot area, individual project proposals, and a road map and time frame to turn InnovationCity Ruhr into reality.



COLLABORATION PROCESS

While ICM and the project table coordinate and track progress, most of the individual projects are carried out by its partners. For large-scale projects requiring substantial financial resources and state-of-the-art technology, one of the regional companies may take the lead. Smaller activities, such as the modernization of individual buildings, are typically carried out by local craftsmen, architects and energy advisers. In order to ensure high standards, ICM set up partner networks encompassing the local solution providers..

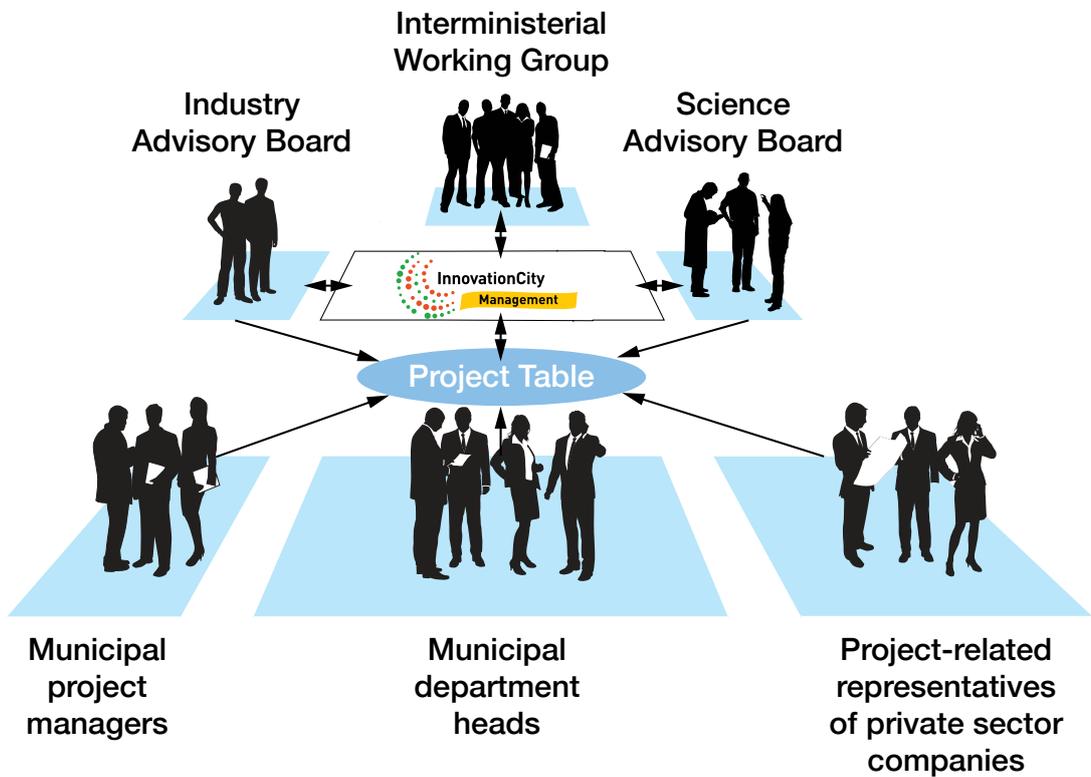
Transparency and accountability

The InnovationCity Ruhr project’s transparency and accountability are ensured by the multi-stakeholder structure and number of individuals involved in the project. Communication and the exchange of information between the various actors are facilitated by ICM. Despite its affiliation with the industry-led Ruhr Initiative Group, ICM acts as an autonomous and independent entity. This is further enhanced by the fact that five of the 25 employees are also part of Bottrop’s administration. The community is kept well-informed through advertising campaigns, targeted events such as InnovationCity Day, and ICM’s Centre for Information and Consultation.

The bi-weekly project table meetings ensure that all actors have the same level of information, thus enhancing transparency. Each project is discussed and approved by the project table before it can be initiated. The final decision regarding the suitability of a project remains with the lord mayor. This mechanism ensures that only those projects that are able to contribute to the overall objective of the initiative, that are in line with Bottrop’s master plan and that act in the interest of the public are initiated.



Figure 1: Cooperation structure of InnovationCity Ruhr: Bottrop



SCOPE OF COLLABORATION

The pilot area consists of seven districts located in the center of Bottrop. It encompasses an area of almost 2.5 hectares, 70,000 inhabitants and 14,474 buildings, and represents all facets of the Ruhr agglomeration: living and working, business and industry are closely interlinked and co-exist in a confined space.

The individual projects are divided into the following five fields of action, which are understood as open and guiding categories.

Living

About 10,200 buildings in the pilot area are residential buildings, thus bearing a huge potential for efficiency gains through energy-related modernization.

Working

Along with the refurbishment of commercial and industrial buildings, private sector efforts to increase energy efficiency and create synergies fall under this category.

Energy

The energy field of action encompasses projects aimed at increasing the use of renewable energies while simultaneously enhancing efficiency and shifting towards decentralized energy production and storage.

Mobility

Mobility-related measures seek to reduce CO₂ emissions as well as the air and noise pollution caused by the traffic sector. This is mainly done through the promotion of climate-friendly vehicles and a reduction in Bottrop's inner-city traffic volume.

City

Projects within the city field of action encompass urban development measures, the creation of open and green spaces, and water management.

Activation is a sixth field of action that is not so much concerned with specific measures as with the comprehensive involvement of all stakeholders concerned. Through ICM's Centre for Information and Consultation, for example, building owners are able to receive a three-stage, low-cost consultation. The existence of ICM's partner networks ensures that the work carried out is of high quality.



FINANCING



To implement such a comprehensive undertaking, large amounts of funding are required. Each individual project has its own financial model depending on its size, scope and focus. In the realm of retrofitting, for example, the costs may be covered by a combination of private investment by homeowners and financial support by a national incentive program. High-tech projects such as energy-plus buildings are often paid for by the regional companies leading the projects.

So far approximately 240 million euros have been invested, most of which has come from the private sector. The State of North-Rhine Westphalia, national ministries as well as the European Union constitute other important sources of funding.

ICM's start-up funding has been provided by the Ruhr Initiative Group. The non-profit consortium will continue to support ICM until 2017. Today, the company is mainly financed through its partnership agreements with the private sector, which are based on company turnover. In addition, the company generates its own stream of revenue through its consulting services and refines its rental costs through its year-round *Marketplace Climate Protection* exhibition area showcasing the newest climate change solutions.



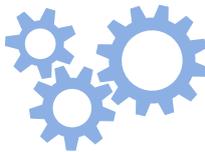
PROJECTS AND OUTCOMES

Since 2010, more than 200 individual projects have been initiated and an additional 170 will be implemented in the run up to 2020. Concrete outputs include the modernization of 978 buildings by 2013. This translates into a refurbishment ratio of 7.82%—an impressive achievement compared to the average German rate of 0.9%. The following examples portray the diversity of measures taken in terms of scope and stakeholder involvement.



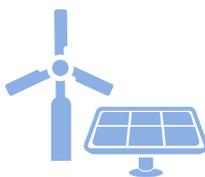
Energy-plus buildings

The three Zukunftshäuser+ (future home plus) projects are Bottrop's flagship projects in the realm of energy-related modernization. Supported by industry partners, three types of existing buildings—detached houses, apartment houses and commercial premises—were retrofitted to become energy-plus buildings, meaning that they produce more energy than they actually consume. Moreover, a newly constructed residential building has become North-Rhine Westphalia's first energy-plus house in the social housing sector, providing a home for six families.



Energy self-sufficient commercial building

Through the installation of more than 1,500 square meters of photovoltaic panels, the local metal processing company Technoboxx has developed into an energy self-sufficient company. Operating under the motto "sun welds steel", the company produces 60,000 kWh/year. Since this amount exceeds its yearly requirements, Technoboxx plans to install an energy storage system. CO₂ emissions are further reduced by a heating and water heating system powered by renewable raw material pellet technology.



100 cogeneration systems in Bottrop

Within the framework of the EU-funded project "100 Cogeneration Systems in Bottrop", 100 combined heat and power systems were installed in residential and commercial buildings that constitute a representative cross-section of buildings in Germany. The systems are being closely monitored in their daily use in order to optimize their operation. Cogeneration systems can increase the efficiency of energy production by 90%.



Sustainable routing of trucks

A sustainable route concept was established that optimizes the accessibility of commercial and industrial areas for heavy-goods traffic. Based on the data collected on road restrictions and route suitability, the trucks are safely and quickly directed by their navigation systems along environmentally compatible routes to the business locations. Delays caused by unavoidable detours and difficult traffic conditions have been eliminated as a result of the project.



Rainwater management

Instead of using valuable potable water to clean Bottrop's streets and public spaces, the city has shifted to rainwater. It is collected from the roofs of Bottrop's waste management depot and cleaning authority buildings and used to fill municipal road sweepers.

Bottrop's master plan—a 1,300-page document commissioned by ICM—constitutes another important outcome of the collaboration and a key guiding document. Over a period of 18 months, a comprehensive analysis of the social and infrastructural elements of the pilot area was undertaken. Along with outlining the districts' potential for climate-friendly redevelopment, it provides a detailed account of each project. It thus provides the foundation for technical and process-related innovation as well as a roadmap and timetable for the coming years. Moreover, an innovation handbook was published on the basis of the master plan. It provides guidelines and best practices from the InnovationCity Ruhr approach to demonstrate its replicability and make the model accessible to other cities.

FUTURE AND ADDITIONAL COLLABORATION

Since the project's start in 2010, the planning and implementation of InnovationCity Ruhr has been an evolving process. As a result, additional projects and collaboration activities continue to emerge on a rolling basis, particularly between ICM and its partner network of local and regional solution providers. Moreover, collaboration between the private sector and academia will be strengthened in 2015 by connecting the Industry Advisory Board and the Science Advisory Board.

ICM offers its expertise to other towns and cities in the form of management services to support the replication of the InnovationCity Ruhr model in other cities. Several studies and research projects are currently being undertaken to examine how other regions can benefit from Bottrop's approach. One concrete spin-off project is the energy-efficient modernization of a district in Mülheim-Heißen initiated by Ruhr's regional economic development agency. Similarly to Bottrop's ambitious goal, Mülheim-Heißen seeks to halve its CO₂ emissions by 2030.



CURRENT STATE OF PROGRESS

A mid-term review of InnovationCity Ruhr is currently being undertaken and is expected to be published during the second half of 2015. Despite the lack of concrete numbers, however, the project can already be deemed successful. In fact, Model City Bottrop has gained national and international recognition for its comprehensive city-business approach to low-carbon city redevelopment. It has won numerous awards, including the German Sustainability Award 2013. In 2014, Bottrop became the first local government to be awarded a prize by the German CSR Forum. The InnovationCity Ruhr project demonstrates how the challenges of deindustrialization and climate change can be addressed and, in fact, turned into opportunities benefitting the environment, society and the local and regional economy.

Environment

There are still five years left to see if the ambitious target of a 50% reduction in CO₂ emissions can be achieved. However, 200 individual projects have already been initiated, some of which have even been completed, and an additional 170 will be added over the next few years. Moreover, the initiative's progress and performance are continuously being tracked and evaluated. This ensures that corrective measures can be taken and necessary alterations can be made in a timely manner in order not to compromise the success of InnovationCity Ruhr.

Society

Measuring and quantifying the project's impact on overall quality of life is complex. Therefore, the Wuppertal Institute has been commissioned to develop suitable metrics. While these are not in place yet, several individual projects have already yielded tangible results. For example, the promotion of electric vehicles and the creation of additional green space constitute two specific measures reducing traffic-related pollution and providing recreational public areas and thus contributing to the goal. Overall, continuous community engagement efforts have ensured that the seven pilot districts are turned into an area in which Bottrop's citizens want to live.

Economy

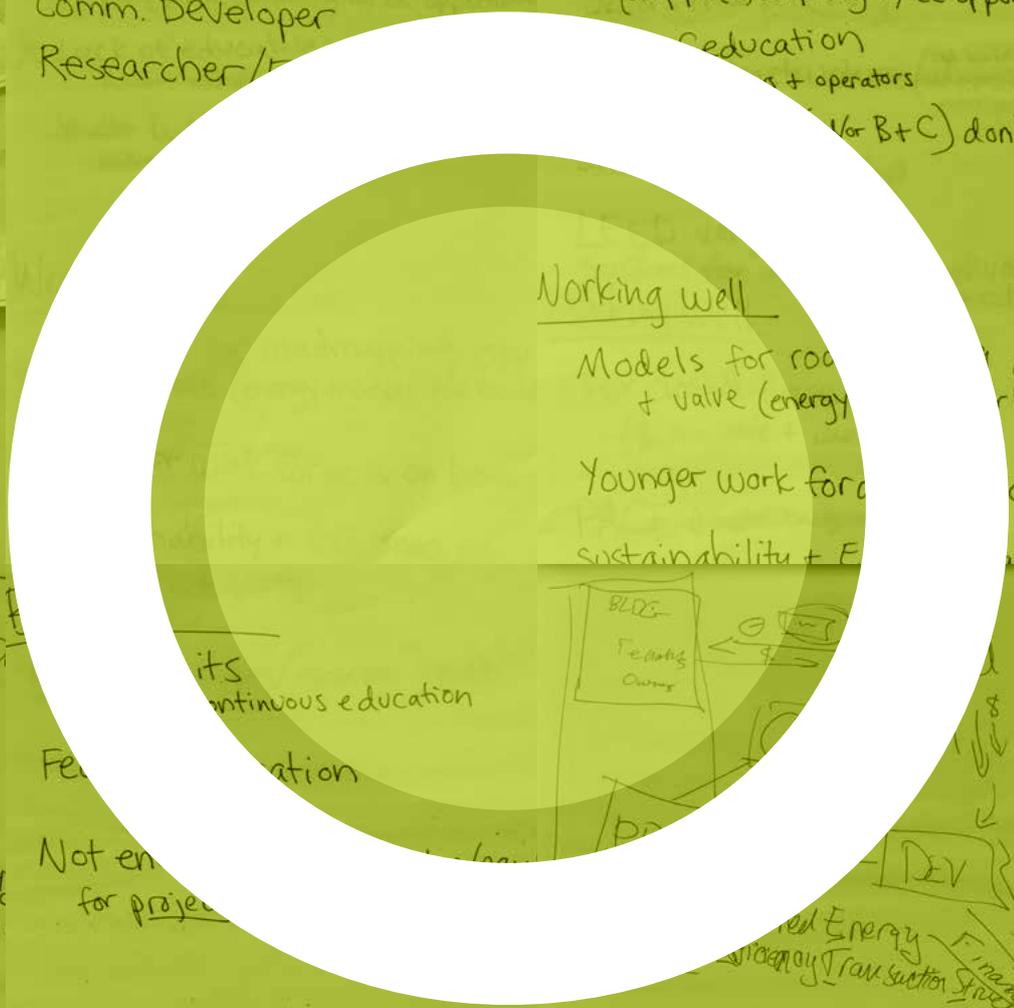
New opportunities for local businesses and regional companies have been created. Local energy professionals, architects, designers and craftsmen provide consulting services and technical skills such as the preparation of expert reports, thermographic analyses, installation of photovoltaic systems and planning of building renovations. To plan and execute large-scale projects such as the linking and optimization of industrial and residential energy systems, expertise and resources are drawn from the region's leading companies and research institutes.



Regional redevelopment

The overall objective of creating a replicable model transferrable across the entire Ruhr metropolitan area has been advanced most notably by the creation of a master plan and innovation handbook. By providing concrete project examples as well as good practices and guidelines, both documents ensure that the knowledge and experience gathered in Bottrop can be accessed by other cities as well. Indeed, other areas in the region have already taken up and implemented similar projects.

ANALYSIS



The InnovationCity Ruhr project is a unique institutionalized project management and multi-stakeholder collaboration process unprecedented in scope, size and structure. Initiated by the region's leading companies and brought forward by Bottrop's political leadership, collaboration between the private and the public sector has been close from the beginning. In addition, civil society and research institutes play a significant role in bringing local knowledge and scientific expertise to the table.

Dialogue and cooperation between the various stakeholders are enabled mainly through ICM and the project table with its advisory boards. These institutions facilitate communication and provide a goal-oriented platform for exchange.

Model City Bottrop is therefore not only a living laboratory for low-carbon redevelopment; it is also a novel approach to multi-stakeholder engagement and particularly cooperation between the private and the public sector.

SUCCESS FACTORS

The creation of a shared vision and objective has been most important in establishing and maintaining the collaboration. Addressing climate and structural change is important to all stakeholders involved. After all, political will combined with an engaged citizenry provided the rationale for bringing the InnovationCity Ruhr project to Bottrop. Moreover, the Ruhr metropolitan area is home to a significant number of businesses that have an interest in promoting innovative and green economic development in the region.

The establishment of ICM and the project table has been crucial to enabling and facilitating the collaboration. As an autonomous entity, it serves as a platform for exchange and a central focal point for its partner networks and different stakeholder groups. Moreover, ICM acts as a mediator in case of conflicts or disagreements.

In addition, continuing support from the regional, national and European Union level emphasizes the importance of this unique city-business collaboration.

CHALLENGES ENCOUNTERED

While ICM has proven to be crucial to the InnovationCity Ruhr process, its establishment at first led to uncertainty and confusion. With only vaguely defined roles and unclear task profiles, a certain skepticism emerged among parts of the community and public authorities. The private sector remained reluctant to commit to projects. After a change in management, clear organizational structures were established. As a result, internal processes became more efficient and external communication and interaction with stakeholder groups more professional. These improvements built confidence in the newly established organization, which in turn triggered private sector commitment.

Since the inception of the project, several other structural changes have taken place in an effort to improve the InnovationCity Ruhr process and

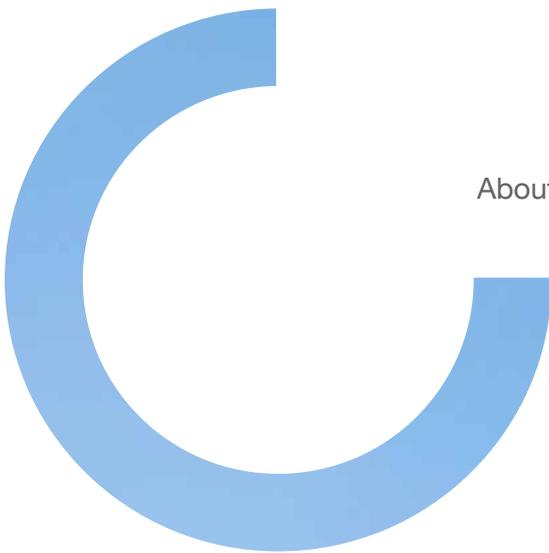
enhance stakeholder collaboration. The addition of the Science Advisory Board is but one example. Throughout the process, different concepts and measures have been tried and tested, some of which were adopted and some of which were dropped. It is this constant assessment of needs and willingness to change that enable the parties involved, particularly ICM, to overcome challenges.

LESSONS LEARNED

- It has been crucial to establish a **shared vision** combining public and private interests and providing a rationale for and benefits of collaboration.
- A **project office** that serves as a focal point for interaction and a facilitator for engagement has proven of utmost importance to driving the collaboration and project forward.
- The legitimacy of the city-business collaboration has been achieved by **institutionalizing** their interaction through structured and facilitated mechanisms.
- Building **interdisciplinary alliances** and **networks of partners** has been important to sharing knowledge and creating synergies.
- A **detailed plan** and **timeline** have helped to guide the collaboration and make sure that goals can be tracked.
- Continuous **evaluation** of and **adjustments** to the process and collaboration have ensured that challenges are addressed as soon as they arise.

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About the WBCSD

The World Business Council for Sustainable Development (WBCSD), a CEO-led organization of some 200 forward-thinking global companies, is committed to galvanizing the global business community to create a sustainable future for business, society and the environment. Together with its members, the council applies its respected thought leadership and effective advocacy to generate constructive solutions and take shared action. Leveraging its strong relationships with stakeholders as the leading advocate for business, the council helps drive debate and policy change in favor of sustainable development solutions.

The WBCSD provides a forum for its member companies - who represent all business sectors, all continents and combined revenue of more than \$8.5 trillion, 19 million employees – to share best practices on sustainable development issues and to develop innovative tools that change the status quo. The council also benefits from a network of 70 national and regional business councils and partner organizations, a majority of which are based in developing countries.

About ICLEI

ICLEI - Local Governments for Sustainability is the world's leading network of over 1,000 cities, towns and metropolises committed to building a sustainable future. By helping our Members to make their cities sustainable, low-carbon, resilient, biodiverse, resource-efficient, healthy and happy, with a green economy and smart infrastructure, we impact over 20% of the world's urban population.



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