



© Fisher Photostudio - Fotolia

City Lab Benefits

Political	Environmental	Social	Economic
<ul style="list-style-type: none">▪ Contribution to the definition of the political agenda▪ Stakeholder engagement enhanced▪ Contribution to the definition of a smart city strategy▪ Augmented cross-sectoral collaboration within the city administration departments▪ Transversal and regional cooperation promoted▪ Integration in the innovation network▪ City image at the international level strengthened	<ul style="list-style-type: none">▪ Augmented resilience of the city to fight against climate change and other threats▪ Better access to international funding through strategically defined sustainability project plans▪ Reduction of carbon footprint through implementation of sustainable and innovation project defined in the roadmap	<ul style="list-style-type: none">▪ Citizen participation enhanced through the smart governance process applied▪ Co- creational and inclusive approach to warranty the social impact of the projects▪ Social inclusion for successful project implementation increased▪ Innovative strategies for addressing city social challenges identified	<ul style="list-style-type: none">▪ Funding opportunities for urban innovation detected▪ Expert advice on the city's most promising activity sectors▪ Further financing possibilities for the smart city identified▪ Funding legibility through the definition of a smart city roadmap increased

City Lab References

The Morgenstadt City Lab approach has already been successfully applied in the five European cities Prague (Czech Republic), Berlin (Germany), Lisbon (Portugal), Tbilisi (Georgia) and Sabadell (Spain). Together with local stakeholders from industry, municipality and research innovative projects at the interface of multiple urban sectors have been integrated into municipal urban development strategies and are now in the process of implementation.

Integrated solutions

Urban Leadership

- Strategy and Planning
- Organization and structure

Social Economic Strategies

- Regulations
- Information and Education
- Urban Planning
- Image and Brand
- R&D Tactics
- Business Tactics
- Incentives

Points of Action

- Energy
- ICT
- Water/ Wastewater
- Transport and Mobility
- Buildings
- Waste management
- esilience

Morgenstadt Innovation Network

The City Lab Process is based on the joint research within the Fraunhofer “Morgenstadt Network”, which is a platform of 15 leading cities and 24 industry partners (urban technologies) run by the German Fraunhofer-Society. The success formula for the Morgenstadt innovation network is a good balance between joint R&D activities in smaller consortia and regular network activities with all network members. Since 2014 members of the innovation network have initiated 35 demonstrators and four first-of-its-kind sustainable city development projects. Together, Morgenstadt partners leveraged public funding worth over 80 Mio. Euro in 2014 and 2015.

Fraunhofer Institutes (Phase III)



- Fraunhofer Institute for Industrial Engineering IAO (Project management)
- Fraunhofer Institute for Building Physics IBP
- Fraunhofer Institute for Factory Operation and Automation IFF
- Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB
- Fraunhofer Institute for Material Flow and Logistics IML
- Fraunhofer Center for International Management and Knowledge Economy IMW
- Fraunhofer Institute for Open Communication Systems FOKUS
- Fraunhofer Institute for Manufacturing Engineering and Automation IPA
- Fraunhofer Institute for Solar Energy Systems ISE
- Fraunhofer Institute for Systems and Innovation Research ISI
- Fraunhofer Institute for Wind Energy and Energy System Technology IWES

Fraunhofer Institute for Industrial Engineering IAO

Nobelstrasse 12
70569 Stuttgart
Germany

Contact

Marielisa Padilla
Phone +49 711 970-2160
marielisa.padilla@iao.fraunhofer.de

www.morgenstadt.de

MORGENSTADT: CITY INSIGHTS

MORGENSTADT CITY LABS

ACCELERATING THE SUSTAINABLE DEVELOPMENT OF CITIES

Fotolia © ref/istock



© ave_mario - Fotolia



© JFL Photography - Fotolia

Co-creating the city

Cities have to cope with increasingly complex challenges which need to be tackled with multi-sectoral strategies and solutions. In order to support cities to become more environmentally friendly, prosperous, livable and resilient, Fraunhofer has developed the Morgenstadt City Lab Framework focusing on the interplay of ground-breaking technologies, efficient business models and innovative governance approaches for sustainable urban development. Digitization offers new opportunities but requires re-thinking of urban systems towards interconnected systems based on urban data. These developments hold great potential for sustainable and resilient urban future, but only if they are aligned with the city’s long-term development goals, business strategies, and in particular with the varying demands of the city’s users.

The City Lab has helped us to push innovation and to get the right smart city stakeholders on board...

Adam Pajgrt, Prague City Lab manger

In the face of the increasing complexity of urban development challenges, a new urban planning paradigm championing the co-creation approach has gained relevance. This paradigm has been adopted as guiding principle for the Morgenstadt City Lab Framework, because it has been proven that an early involvement of relevant urban stakeholders such as technology providers, financing institutions and end users into the project planning process helps the city amplify its innovation potential and stream-line future-oriented development.

Comprehensive City Lab Approach

The City Lab Framework builds on three dimensions of the urban system that need to be addressed to ensure sustainable urban development:

Urban leadership in strategy and planning as well as organisation and structure

Socio-economic strategies in such fields as legal regulations, information and education, urban planning, R&D and business tactics

Technologies & Infrastructures such as energy, ICT, urban water and waste management, mobility and logistics, buildings, resilience and security are essential sectors for sustainable urban development

City Lab Methodology

The aim is to analyse the city’s sustainability performance in order to create a holistic urban development roadmap that outlines a range of locally anchored projects across multiple sectors meant to catalyse future-proof urban development.

Data Assessment

The City Lab Framework builds on a standardized data assessment tool that helps to evaluate the status quo and to identify key challenges and opportunities for future urban development. A mixture of quantitative benchmarks and qualitative data ensures that an objective performance profile of the city can be generated, at the same time taking into account the city’s individual characteristics. The assessment tool includes three levels of analysis:

1. Performance Indicators

The first level of analysis aims at benchmarking the current state of the city. This level includes 100 quantitative indicators to assess social, economic and environmental factors.

2. Action Fields

The second level of analysis encompasses the qualitative analysis of the action fields reflecting on how the city addresses its sustainability challenges in the key urban sectors.

3. Impact Factors

The third level of analysis aims at identifying the restrictive and supportive drivers and pressures on the current state in the city within the focus sectors defined during the preparatory phase.

It is based upon interviews with local stakeholders from the municipality itself, local businesses, research institutions, NGOs and civil society organizations.

Roadmap Development

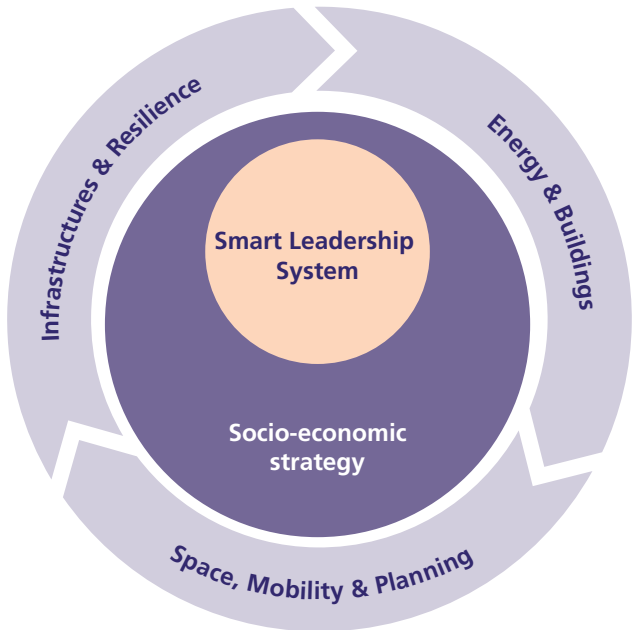
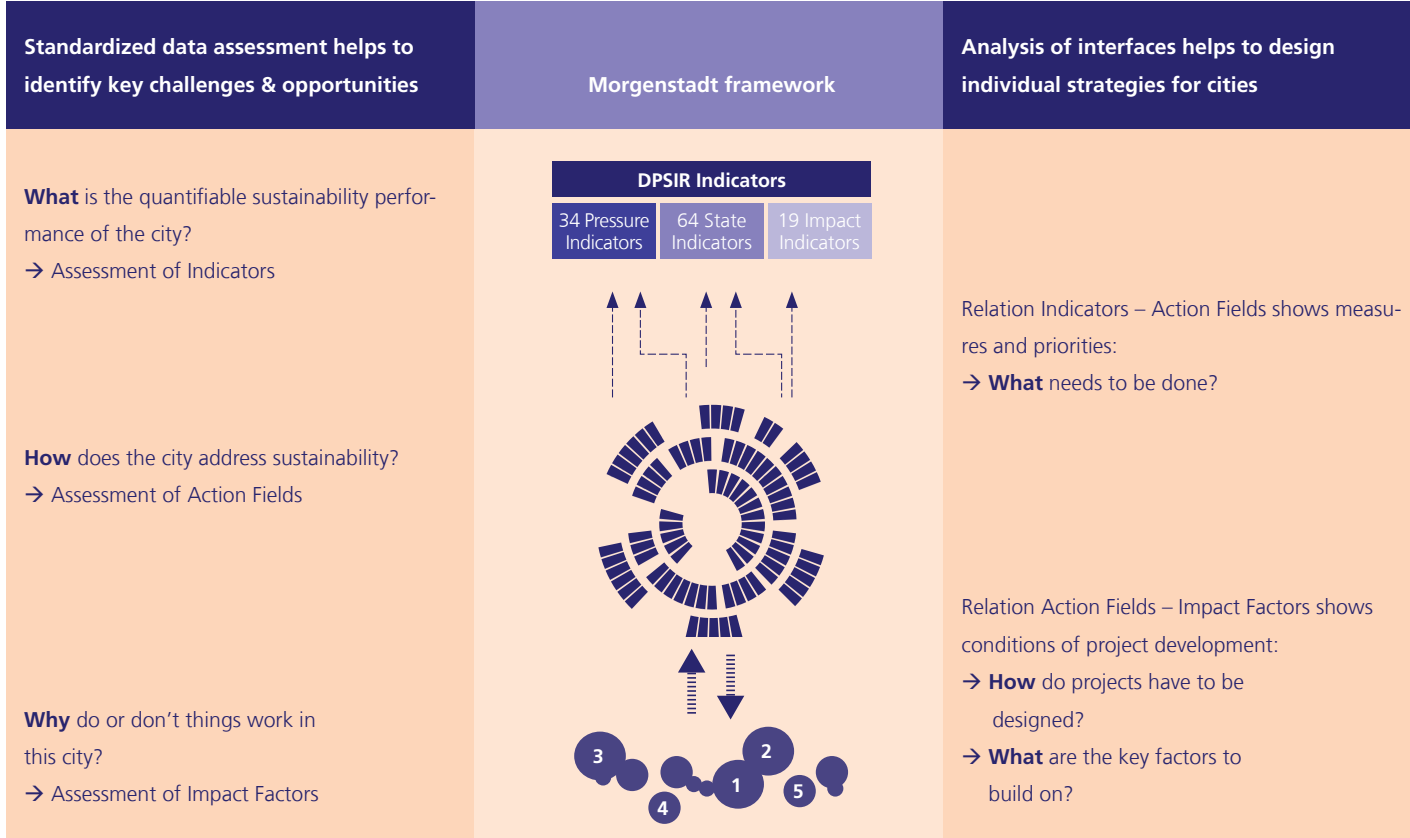
Based on the assessment results, innovative projects are designed in a co-creation process with local stake-holders, which ensures the development of demand-driven, user-friendly and locally-attuned projects. In order to ensure success at both the implementation and operation stages, the projects will be underpinned with viable business models and alternative financing strategies. To maximise the impact and achieve maximum synergy, the proposed projects will be integrated into the city’s urban development plans and strategies.

Results

- Individual sustainability profile that shows current strengths and challenges of the city;
- A detailed analysis of c. 3 specific sectors
- An action oriented Roadmap including a set of integrated state-of-the-art projects to boost local innovation and sustainable development
- 3-5 system-wide projects ready for immediate implementation
- Activation of key stakeholders for project implementation and operation push

Smart City Finance

- Cost-benefit & risk analysis of selected projects
- Identification of public funding and development of financial instruments and programs.
- Design of Investments strategies and plans



City Lab process diagram

