



**Fraunhofer**

*Research and solutions for a sustainable world.*



# **Joint Research Project** **Morgenstadt / City of the Future**

**November 2013**

# WHY...»Morgenstadt / City of the Future: City Insights«?

## Systems Innovations for the City of Tomorrow

The Fraunhofer Morgenstadt Initiative wants to make an active contribution to shape sustainable urban systems worldwide. Members of the Initiative share three important convictions:

- **Cities are the key to a sustainable future**

For creating a livable future on our planet, we have to create CO<sub>2</sub>-neutral and intelligent cities that are energy- and resource efficient and provide high quality living for everyone.

- **Technical, organizational and financial innovations are key to creating sustainable cities.**

Solutions for clean, efficient and livable cities emerge, where innovative technologies are combined with creative solutions for organization / management and sound business models.

- **Innovations need interdisciplinary collaboration**

A collaboration that aims at creating sustainable innovations has to be routed in processes that allow out-of-the-box thinking and enable active work at the interfaces of sectors and disciplines.



# WHAT... happened in Phase I of »m:ci«?

## Understanding the city of today

- **Main question: How does the system "Sustainable City" work?**

Acquisition, description and operationalization of transformation process in trend-setting urban developments of industries and cities

- **Results**

- **Best-Practice-Catalog** (Screening over 280 Good-Practices, Study, City Rankings etc.)
- **Detail City Reports** for six leading cities (Best Practices, success factors, indicators strategies, aims, measures, actors)
- **Morgenstadt R&D Platform** (Online-Plattform, >50 project ideas)
- **City System Model** / Instrument for city evaluation (Sustainability Indicators, Key action fields, impact factors)





# WHICH... are the goals for »m:ci« – Phase II?

## The city of tomorrow is made of innovations

- **Goal 1: Identification of potential projects and realization of innovative solutions for urban systems**

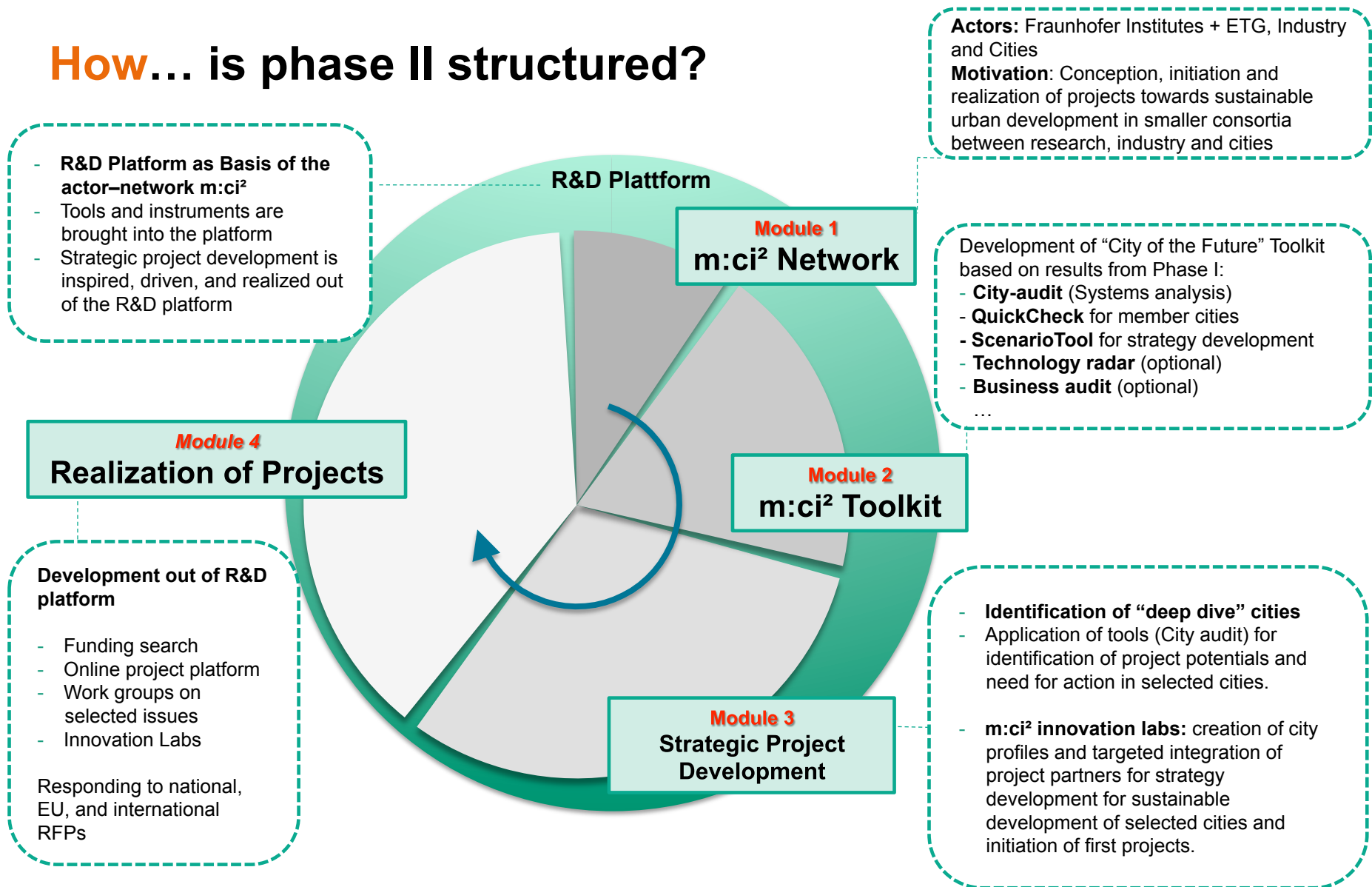
Conception, initiation and implementation of innovative urban development projects in various consortia of research, industries and cities

- **Goal 2: Long-term collaboration with selected cities for systemic transitions towards sustainability**

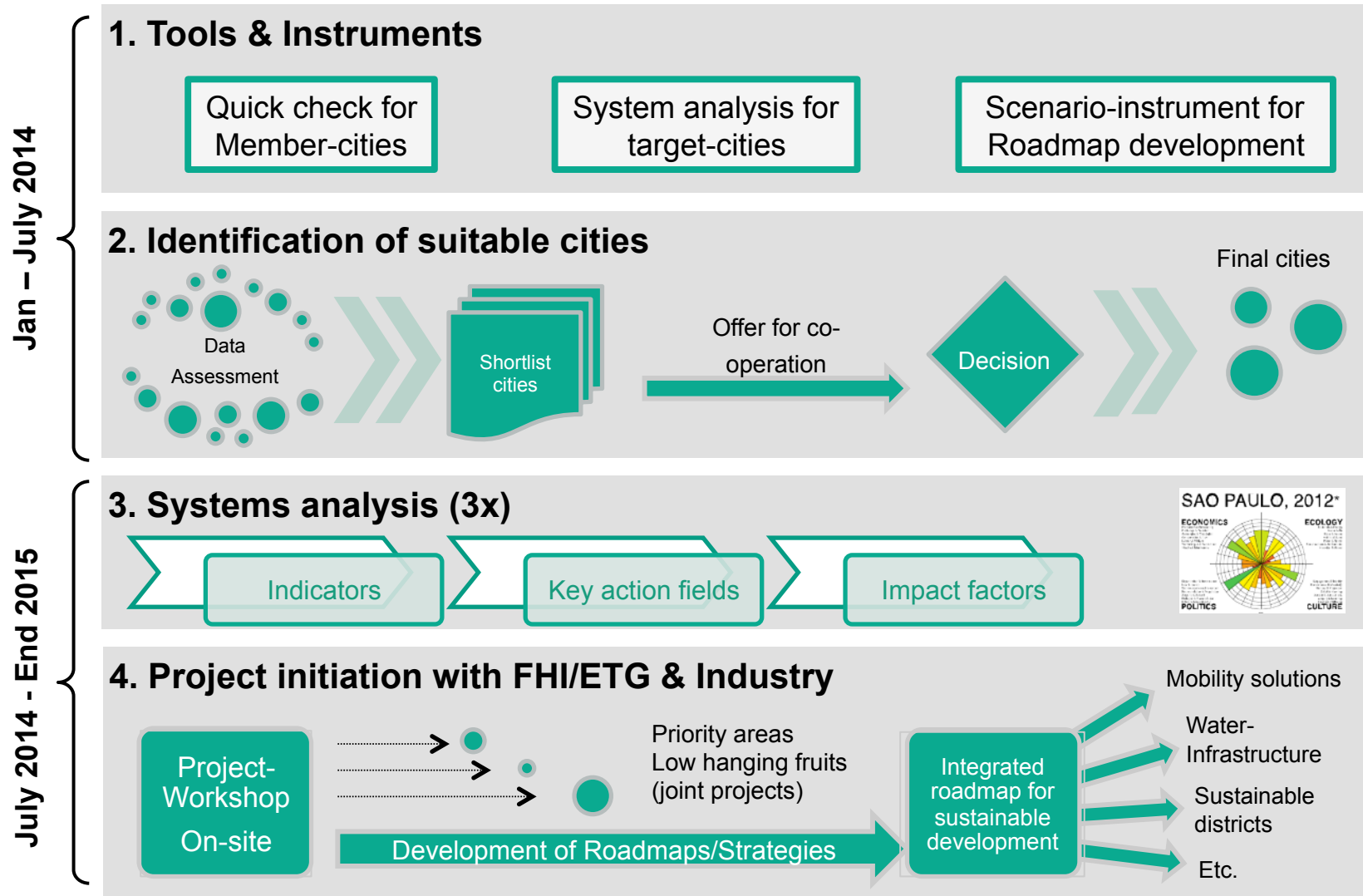
- **Step 1** – Completion of City Insights-Toolbox for systems analysis of cities & identification of demand
- **Step 2** Identification, selection and collaboration with at least three potential cities (in D and international)
- **Step 3** – System analysis & development of integrated Roadmaps & Strategies for selected cities
- **Step 4** – Deepening of innovation groups and conception of projects for examination & evaluation.



# How... is phase II structured?



# WHAT ... steps are taken in detail?



# HOW ... do we accomplish the goals?

## Expected Results

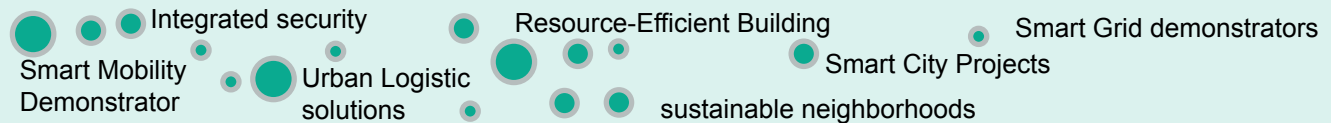


**Fraunhofer/ETG**

**Industry**

**Cities**

10 – 15 Projects  
across multiple  
fields



### System Analysis

*(Requirements, Potentials, Structures, Impact factors)*

### Roadmap / Strategy

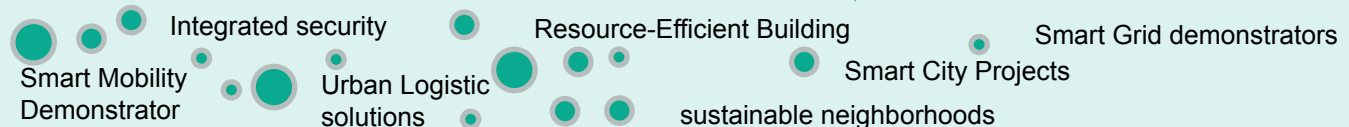
*(Actions and projects recommendation for sustainable development)*

City 1  
e.g.,  
Berlin

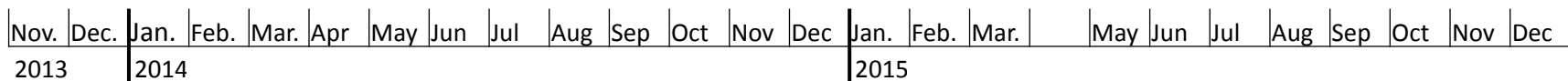
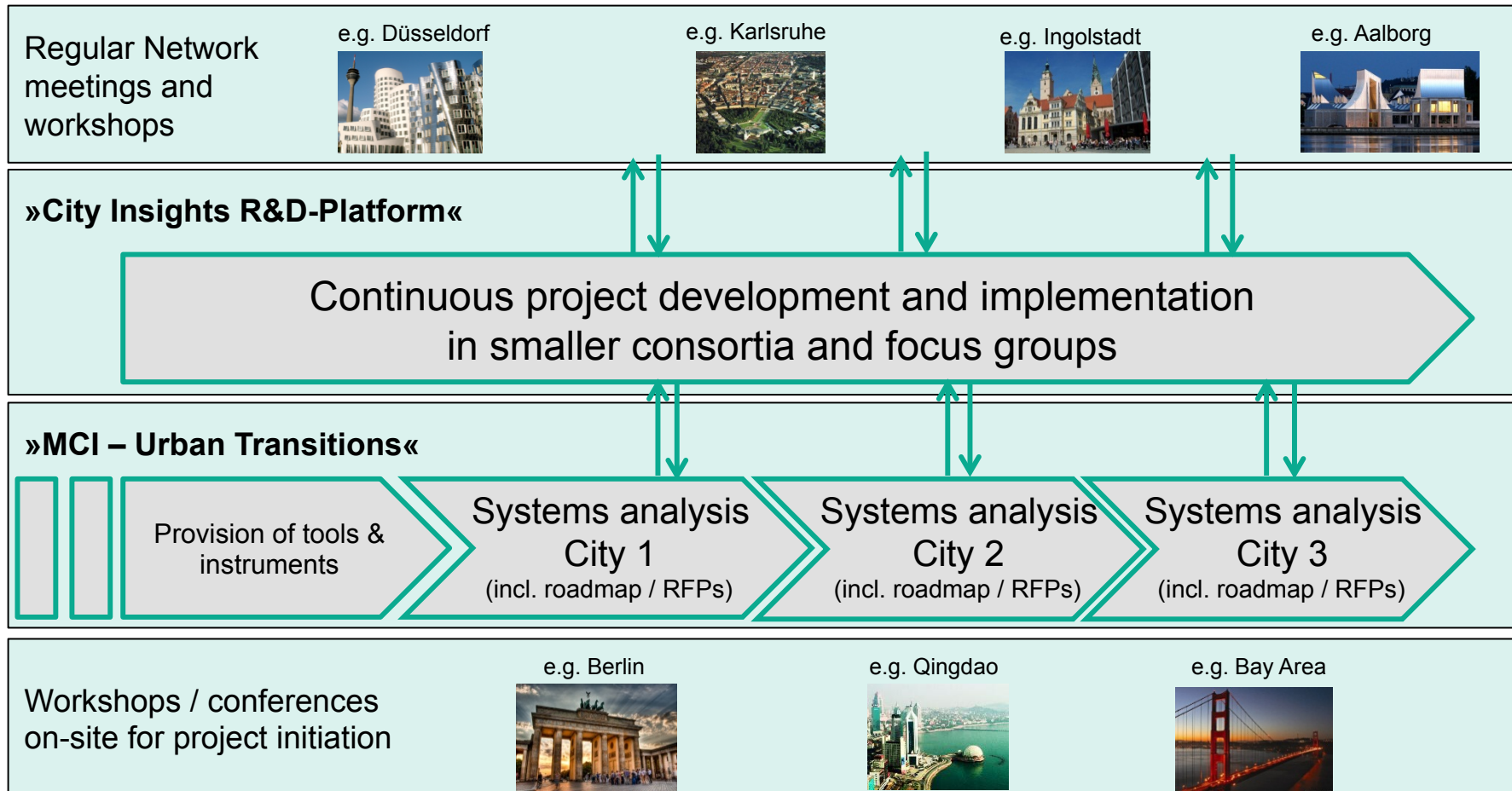
City 2  
e.g.,  
Qingdao

City 3  
e.g., SF  
Bay Area

5 – 10 Projects  
out of the system  
analysis



# Program: Morgenstadt Network

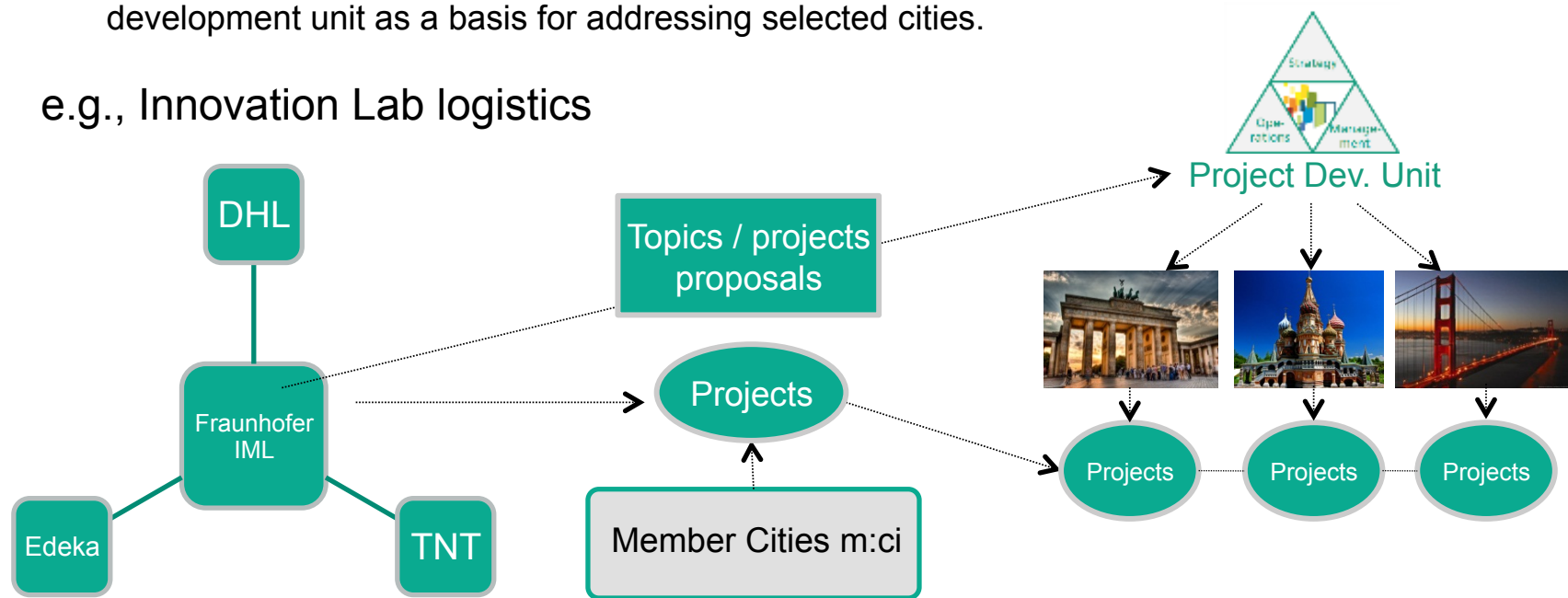




# Formation of thematic work groups & innovation labs

- Around Fraunhofer institutes & ETG, special work groups with partners will be brought into innovate (e.g. *urban energy systems, sustainable business models, urban ecosystem management, innovative mobility concepts, etc.*)
- The work groups concentrate on sector-specific innovations related to the topic of sustainable urban development.
- Work groups set up their own research questions & project proposals. Together with interested cities they implement joint projects. Several “innovation labs” will be held together. Joint R&D/ implementation proposals are the aim.
- Topics and potential projects of the work groups are brought together within a project development unit as a basis for addressing selected cities.

e.g., Innovation Lab logistics



# At one glance



September 2010

Industry | City | Research Cooperation

Initiation by Fraunhofer IAO and other Fraunhofer institutes

Fraunhofer-Initiative Morgenstadt

Building collaborative research project with industrial partners and cities

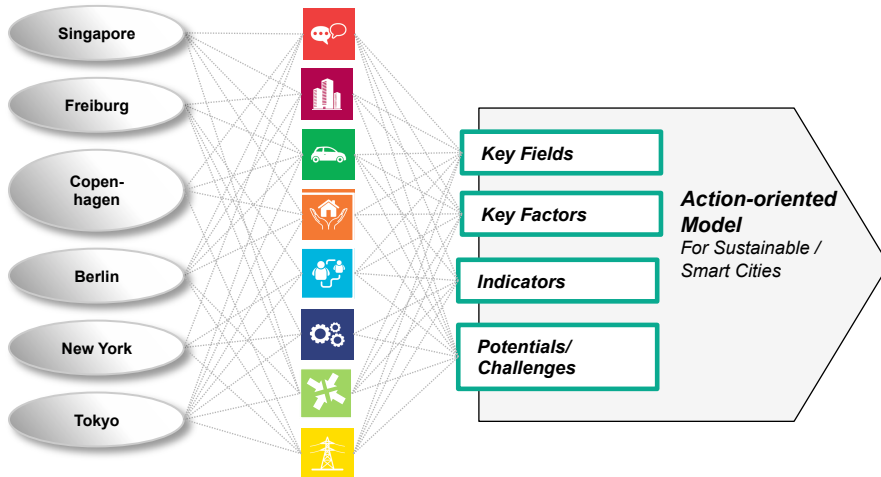
Morgenstadt: City Insights, Phase I (m:ci)

Best Practice

Systems Analyses

Results from Phase I

Urban Fields



m:ci Network

Industry Partners, Fraunhofer Institute/ETG, Cities, Regions

January 2014  
Phase II

Morgenstadt: City Insights, Phase II (m:ci²)

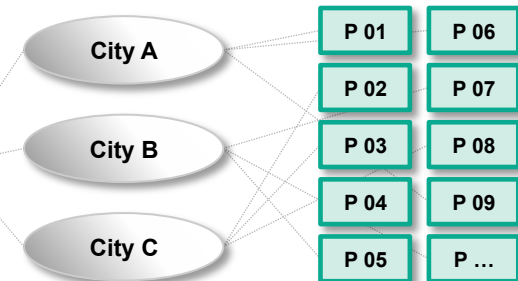
Module 2: Tools and Instruments

Upgrading from results of Phase I

- City-Audit
- QuickCheck for Member-cities
- Technology radar
- ScenarioTool
- ...

Module 3: Strategic Project Development

Identification of Project Cities

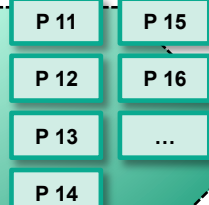


Module 1: m:ci² Network

R&D Plattform

Innovation Labs

Funding Search/ Online-Platform / work groups



# WHO... Participates in this cooperative project?

## Top-level research combined with technology management

Relevant fields of research and association:



### Governance & Management

- Fraunhofer IAO, ETG



### Energy

- Fraunhofer IWES



### Mobility & Transport

- Fraunhofer IAO



### Information & Communications

- Fraunhofer FOKUS
- Fraunhofer IAO



### Water

- Fraunhofer IGB
- Fraunhofer ISI



### Production & Logistics

- Fraunhofer IML
- Fraunhofer IPA
- ETG



### Buildings

- Fraunhofer IBP



### Security

- Fraunhofer EMI

# HOW... do partners benefit from »m:ci«?

## Sustainable urban development as market improvement.

- **Combination of networks**

At current the “Morgenstadt: City Insights” NETWORK is comprised of 21 industry partners, 11 German cities and 12 Fraunhofer-Institutes + ETG.

- **Utilization by the Partners:**

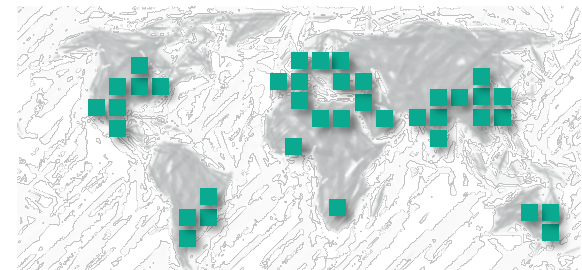
- Development of strategic recommendations for project partners
- Insights on strategy development of the cities
- Intention for promotional programs
- Support of partners in project acquisitions
- Decisive participation for national future city platform of the local government
- Positioning the Fraunhofer as an interface for industries to implement the projects





## How... is Morgenstadt / City of the Future financed? More than the sum of its parts

- The joint research project is financed by the partners. Participation fee for the joint research project is hierarchized by character of participants:
- **Conditions:**
  - **Industries** – 50.000€/year (SMEs: 25.000€/annum), Minimum investment is two years. 10% reduction on 3+ years contract
  - **Cities** –15.000 € / year for basic membership
  - **Fraunhofer** – 10.000€/annum for membership, minimum duration is 2 years



# m:ci<sup>2</sup> Network: Phase 1 Industry Partners



# Scaling up the network

## Ongoing discussions at present

- AECOM
- Airbnb
- ALSTOM Transport Deutschland GmbH
- Apple
- Atos
- Autodesk
- Black & Veatch Corporation (BV)
- Bombardier
- Cargo Tube
- Cassidian
- Clear Edge Fuel
- Cisco
- Dell
- Descarte
- E.ON
- ESRI
- Facebook
- Ford
- GM
- Google
- Intergraph
- KfW Bank
- MAN
- Microsoft
- Münchner Rück
- Pöyry
- Ramboll
- SAP
- Schneider Electric
- Shell
- Sherwood Design Engineers
- Thales
- TRANSVER
- Vodafone DE
- Santiago de Chile
- Istanbul
- Wien
- Stuttgart
- Köln
- Nürnberg
- Bottrop
- San Francisco

Network Members can request veto against direct competitors

# Scaling up the network

Current discussions for research collaboration and support of the m:ci<sup>2</sup> Network



World Business Council for Sustainable Development



**DGNB®**

Deutsche Gesellschaft für Nachhaltiges Bauen e.V.  
German Sustainable Building Council



Local Governments for Sustainability



FORUM NACHHALTIGE GELDANLAGEN



# WHAT... are the benefits of a membership?

## Interdisciplinary Synergies and Potentials.

### + Benefits for industry partners

- Learn how products/services relate to “cities of the future” and how to maximize market position
- Access selected international city markets with a comprehensive and systemic approach
- Co-create roadmaps and urban development strategies in selected cities
- Influence scope and content of smart/ sustainable city projects in early project development stages

### + Benefits for city partners

- Learn about leading-edge technologies and applicable solutions from industry, research, and other cities
- Identify strategic partners and form collaborations for the implementation of specific projects
- Conduct a sustainability benchmarking quick check
- Promote city brand and attract international attention

## Join us!

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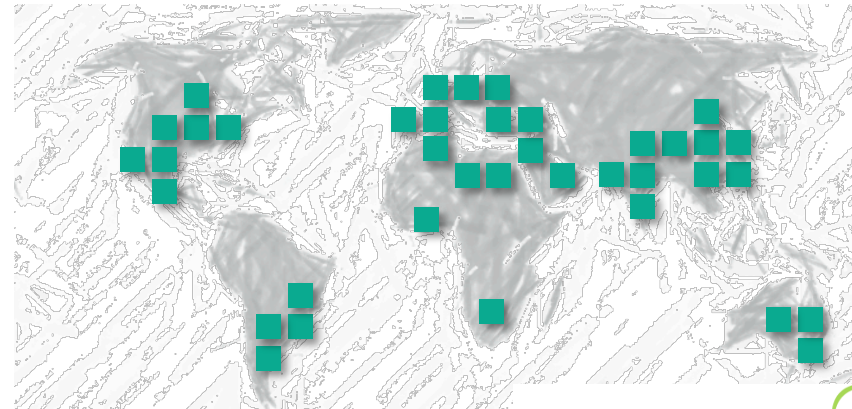
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[www.morgenstadt.de/en.html](http://www.morgenstadt.de/en.html)

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**Fraunhofer**

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Transformations  
Group, Inc.



City of the Future

*...research and solutions for a sustainable world*