
Smart Cities India

German Technology - Local Strategy

Damian Wagner, Project Manger Smart Cities, Fraunhofer IAO

Metropolitan Solutions, 31 May 2016



Fraunhofer IAO and the City of the Future



Fraunhofer Gesellschaft

- 66 institutes worldwide
- More than 23,000 staff
- Annual research budget: 2 billion euros (2013)

Fraunhofer Institute for Industrial Engineering, IAO

- More than 530 staff
- Annual budget: 31.4 million euros, 33.6% generated from industry
- Urban Systems Engineering Team focusing on mobility, energy, urban development and impact assessment
- Innovation Network *Morgenstadt: City of the Future*
- Coordination of European Smart City and Communities Project *Triangulum*, further SCC projects: *Smarter Together*, *Urbec III*

Fraunhofer in India – Selected Highlights

- Project cooperation with Core Group of Automotive Research (CAR) to the tune of nearly Euro1 Million.
- MoU with ACMA , SIAM and NATRiP for the **Automotive sector**
- MoU with BML Munjal University for setting up **advanced qualification courses.**
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Digitalisation....



Cities to cope with 3 major technical transformations

Technological change in multiple sectors



Decentralized Energy Systems



Urban production & logistic systems



Ubiquitous communication



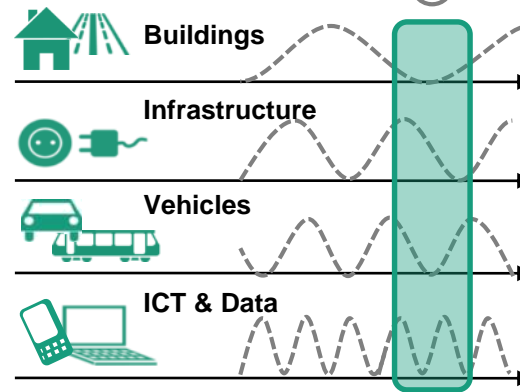
Electric Mobility, Shared mobility



Individual plus-energy houses...

Increasing rate of change

Synchronization of Innovation-cycles:



Mergence of separated sectors

Divergent Technology-management



Convergent Technology-management





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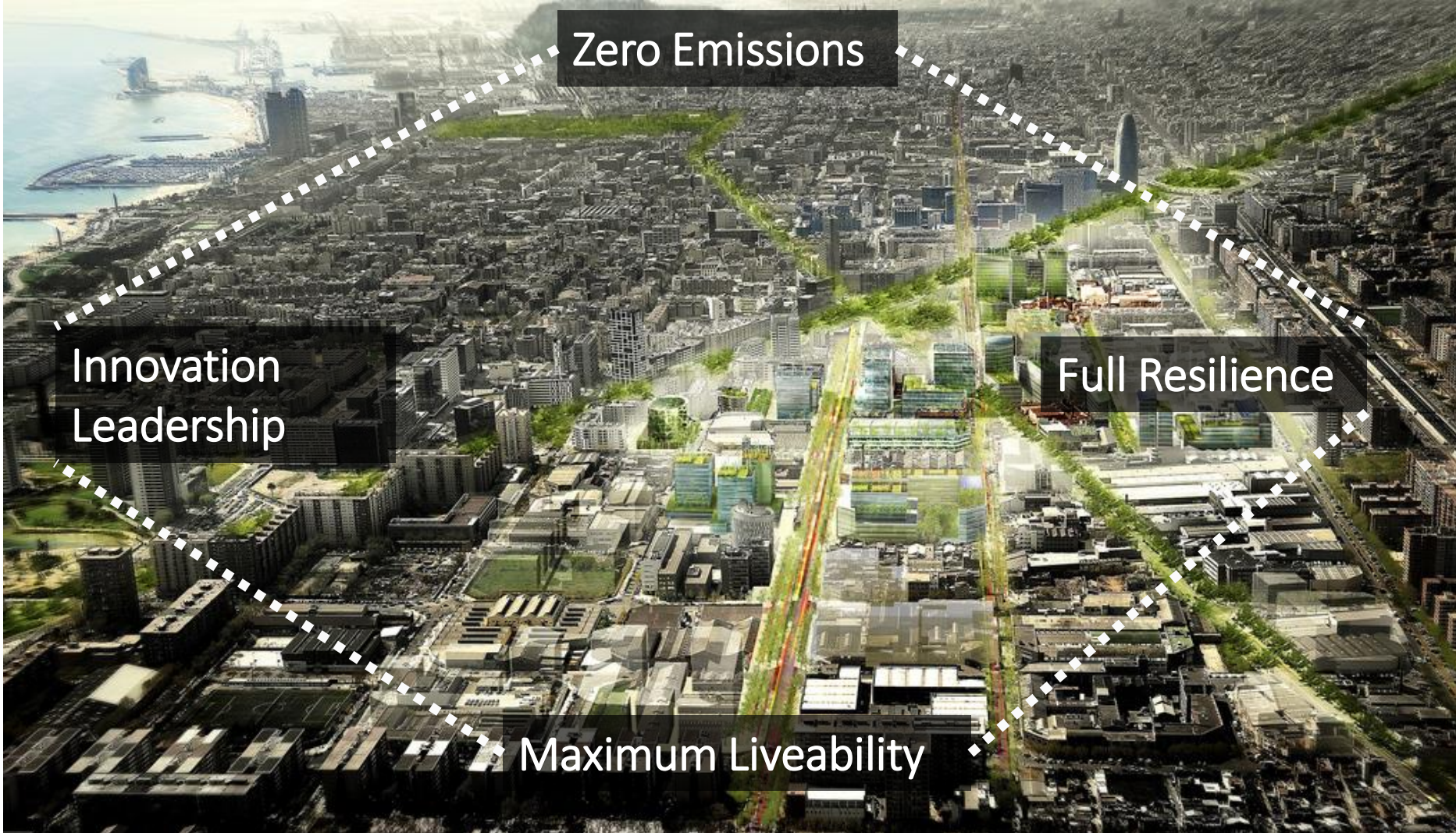
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Future Cities – Focus Sustainability & Liveability



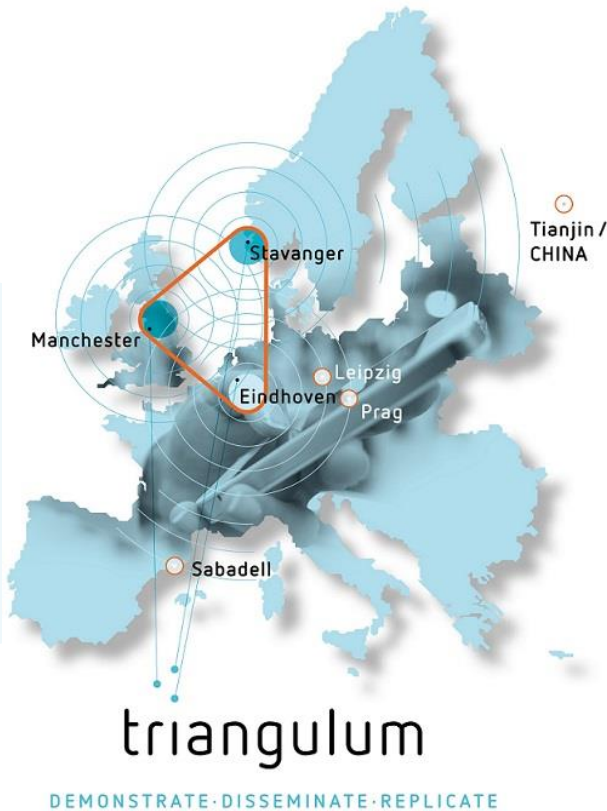
Smart & Sustainable Cities?



Technology is not the only challenge



Europe's Smart Cities Flagships: The Triangulum Project



- **Project budget: 29 Mio EUR**, Horizon 2020 funding: 25.4 Mio EUR;
- **Focus** on Energy, Mobility, ICT, Governance
- **Consortium: 22 European partners** including municipalities, research institutes and business; Coordination: Fraunhofer IAO / Steinbeis
- **3 Lighthouse Cities (demonstration project):** Manchester (GB), Eindhoven (NL), Stavanger (NOR)
- **3 Follower Cities (replication of solutions):** Prague (CZ), Sabadell (ES), Leipzig (GER)

www.triangulum-project.eu



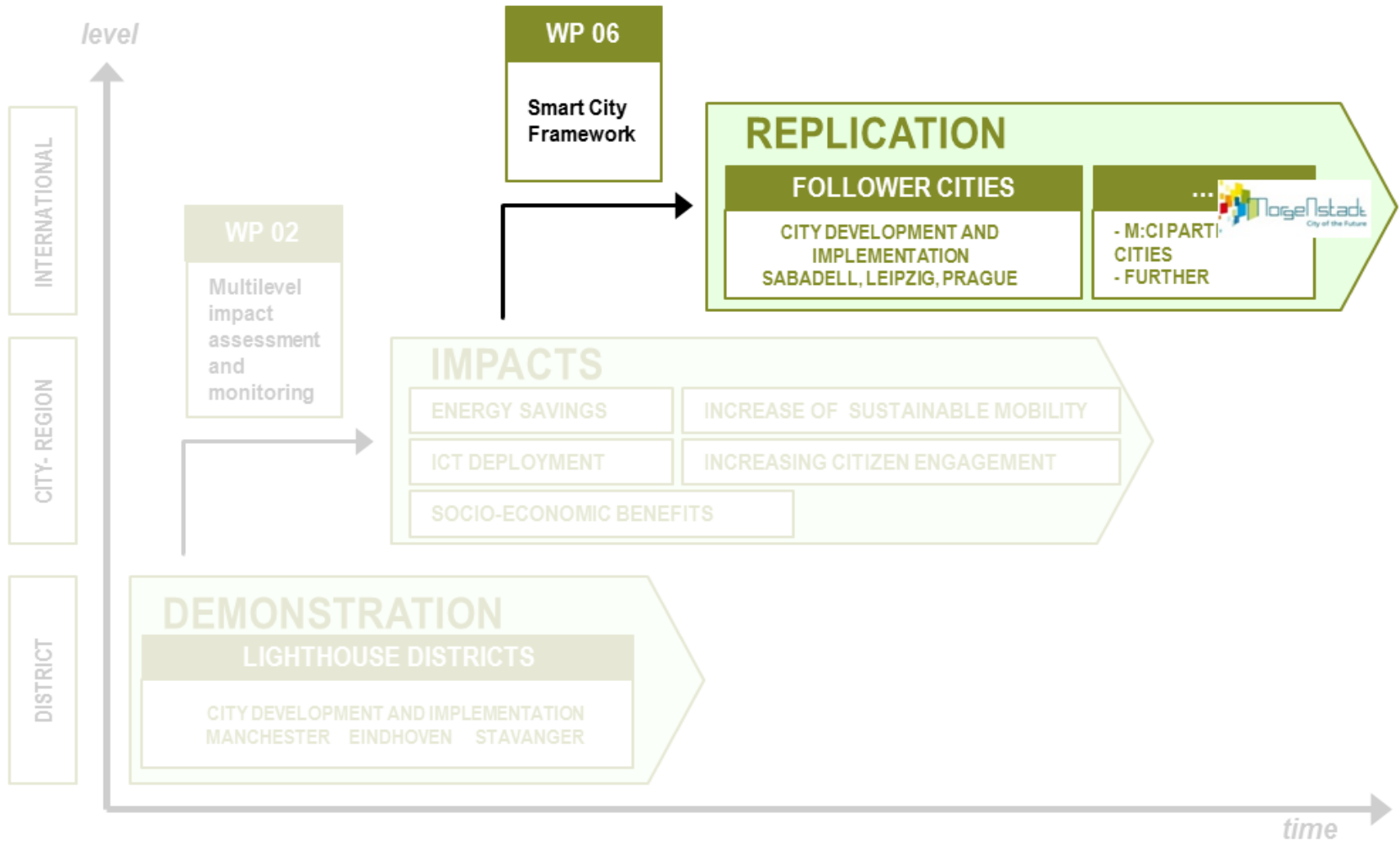
This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 645388

Eindhoven's Strijp-S: Start-Ups for Smart Cities



This project has received funding from the European Union's Horizon 2020 Research and Innovation Program under Grant Agreement No 646578

Triangulum: Demonstration and Replication



City Lab Prague



Leadership System & Governance



Vision and measurable goals for Prague 2050



Cross-sectoral management unit within Prague City Hall



Smart City Innovation Fund

Energy & Buildings



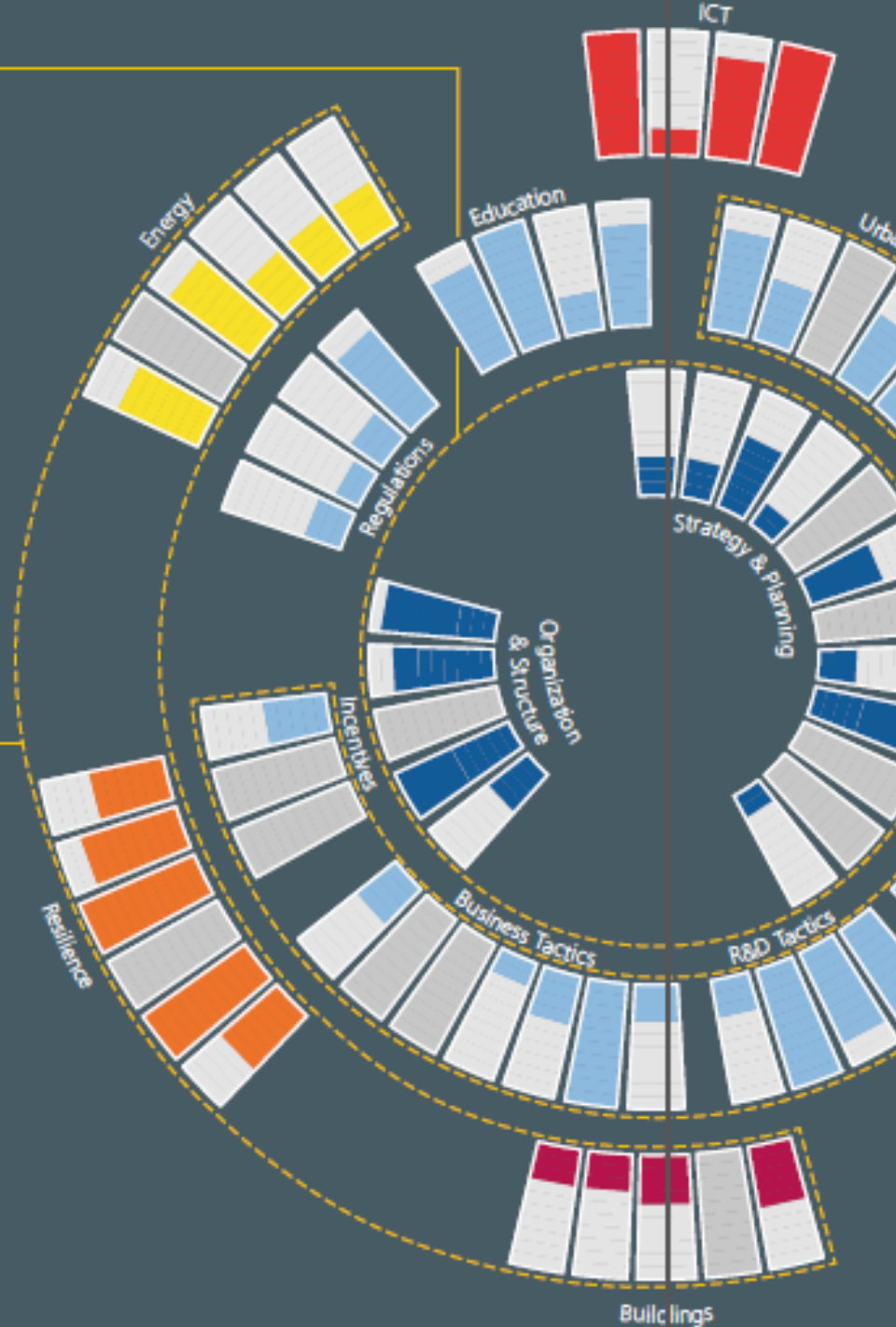
Energy atlas

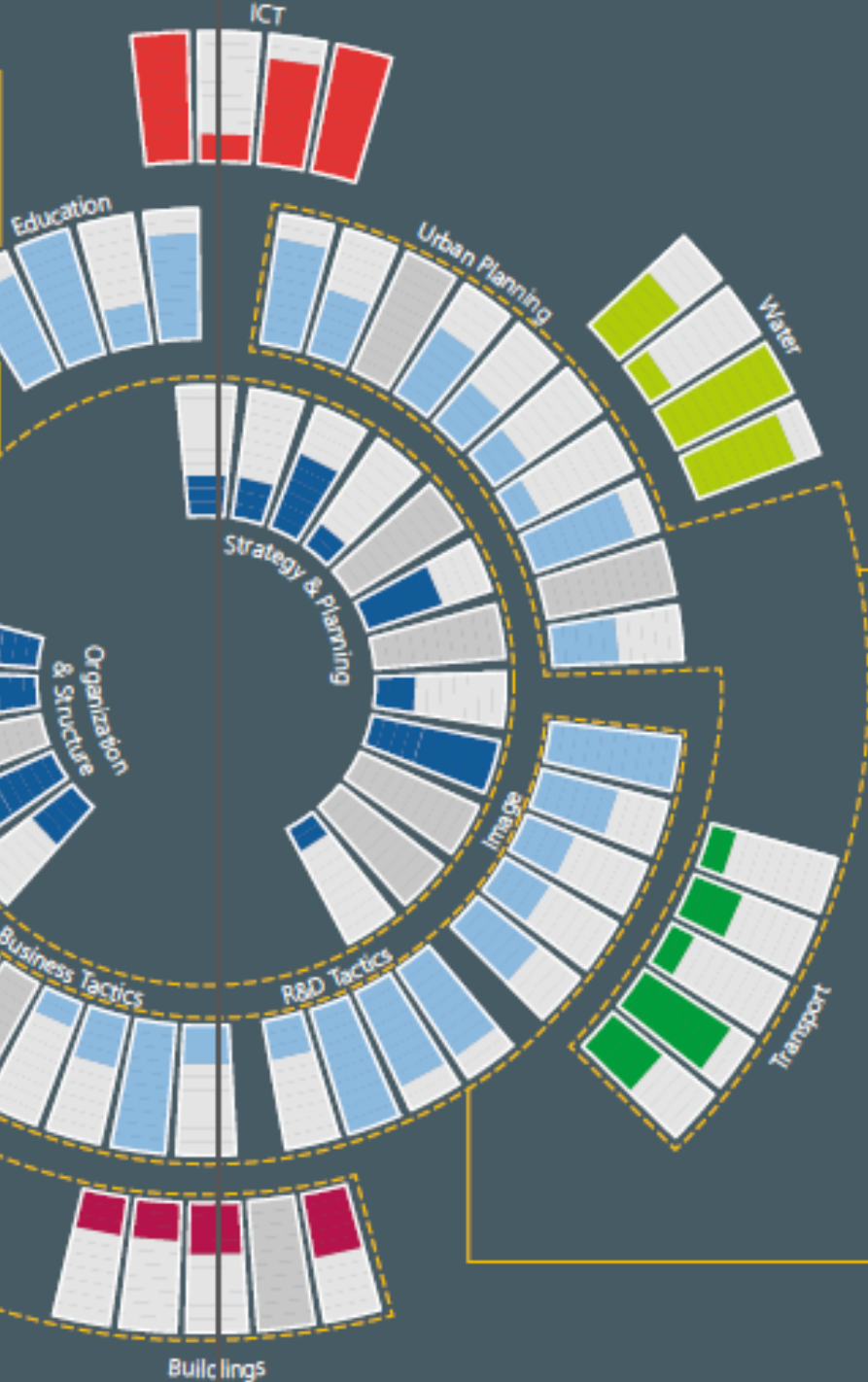


Lighthouse energetic refurbishment of public buildings



Virtual power plant





Space, Planning & Mobility



Innovation district



Network of multimodal transportation hubs



Sustainable redevelopment of Venceslav Square

Digital & Creative Prague



Smartification of the historic city centre



Smart City think tank



Open Data platform with analytics centre + new value added services

Roadmap for a Smart and Sustainable Prague

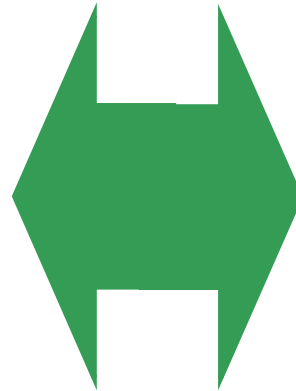


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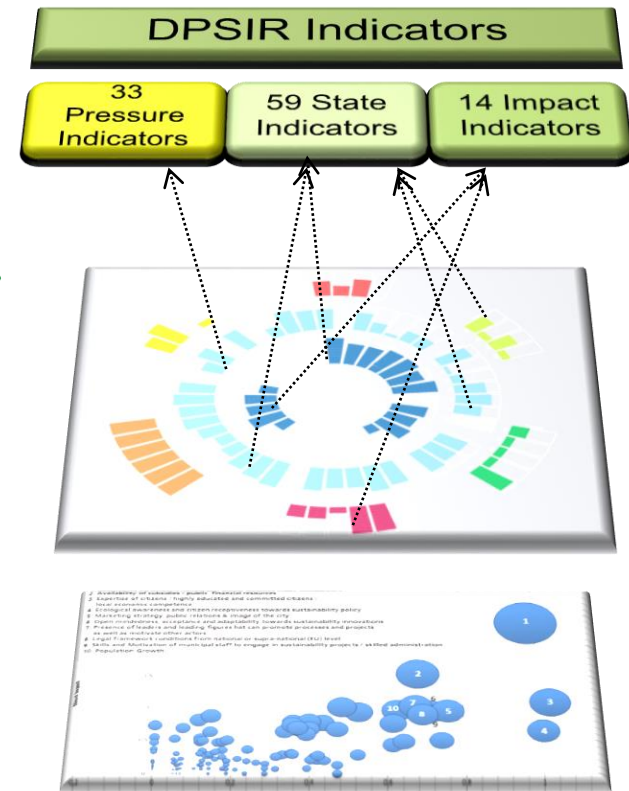
Smart & Sustainable Cities requires analysis and identification of “smart” action fields

Morgenstadt City Labs:

- Berlin (GER)
- Eindhoven (NL)
- Prague (Czech)
- Lisbon (POR)
- Manchester (UK)
- Stavanger (NOR)
- Chemnitz (GER)
- Buenos Aires (ARG)
- Tiflis (GEO)



City profiles and action fields incl. stakeholders



Fraunhofer Network »Morgenstadt: City Insights«

Global Innovation Network for Future Cities Enablers



www.morgenstadt.de

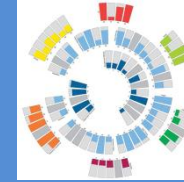


Industry expertise
and business
development



Morgenstadt City Labs (Pilots) Urban Strategies & Project Development

- City Analysis incl. KPIs (measurability)
- Stakeholder process /workshops
- Identification Action Fields (depending city)
- Smart City Roadmap & Project Proposals



Industry collaboration
and project
development



Investment Strategies & Plans

Financing & Bankability for project implementation

- Feasibility & risk analysis of selected projects
- Stakeholder Mapping
- Cost / Benefit Analysis
- Financial instruments and funding

Industry expertise and
technical training
/project consortia



Smart City Academy

Sustainable Cities Training & Capacity Building

- Module: Smart Urban Governance/ convergence
Innovative Technologies & Infrastructure, Financing
- Cities and industry partners
- Development Project Consortia

In today's „smart“ city race it takes...

...cross-cutting governance and decision making

...comprehensive and bankable strategies

... multi-stakeholder project coalitions

→ early stage business partners



We are looking forward to working with you!



Damian Wagner

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What can Fraunhofer offer a consortium?

1. Neutral and accepted intermediate to smart cities project stakeholders and authorities, being a not for profit organisation.
2. Expertise from 66 Fraunhofer Institutes focusing on all relevant urban technologies
3. Support in evangelising and coordinating Multi-stakeholder Dialogue also including business solutions
4. Smart City Academy and Training for the Government/city personnel (“capacity building”)
5. Access to consortium partners from Morgenstadt Network, European Flagship Projects and Citylabs

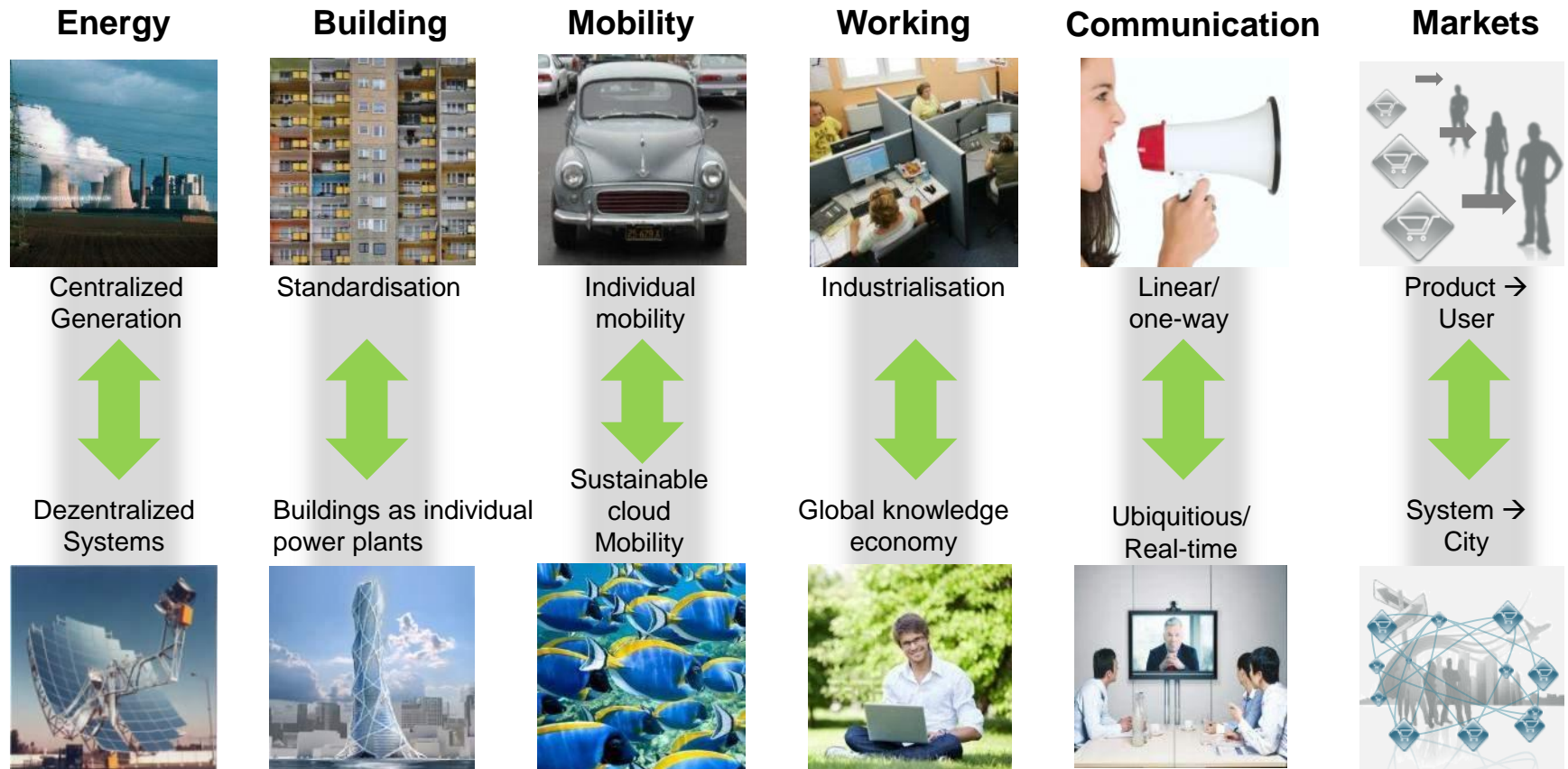
Collaboration among various stakeholders including policy makers, technology providers, urban local bodies and citizens is key to unlocking the enormous opportunity provided by the Smart Cities Initiative in India.

German Pilot: Smart City- and living lab Bangalore



In all sectors revolutionary changes are taking place

We are in the middle of a technology jump transforming all our lives.



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What can Fraunhofer offer to the consortium?

1. “Door Opener” for German Industry to the Smart Cities Project authorities, being a not for profit organisation.
2. Expertise and Learnings from implementing several City Labs and smart city projects
3. Expertise in preparing Sustainable City Profiles, Government Advisory and implementing technology and innovation
4. Support in evangelising and coordinating Multi-stakeholder Dialogue also including business solutions
5. Smart City Academy initiatives for the Government/city personnel (“capacity building”)
6. Access to consortium partners from the Zukunftsstadt initiative, European Projects

Collaboration among various stakeholders including policy makers, technology providers, urban local bodies and citizens is key to unlocking the enormous opportunity provided by the Smart Cities Initiative in India.



Smart Cities global: lessons learnt

1. Cities require individual, modular solutions but a **system-based, multi-stakeholder approach**
2. **Technology/ innovation** is a major and important element but ...
3. ...**“horizontal” governance /strategies** and capacity building is essential (“new” role of cities)
4. How is **data collected, processed, managed** and who owns it? Will cities become data providers?
5. **Bankable urban strategies** needed (micro-finance)
6. **City analysis** is a crucial requirement for decisions making and projects...