

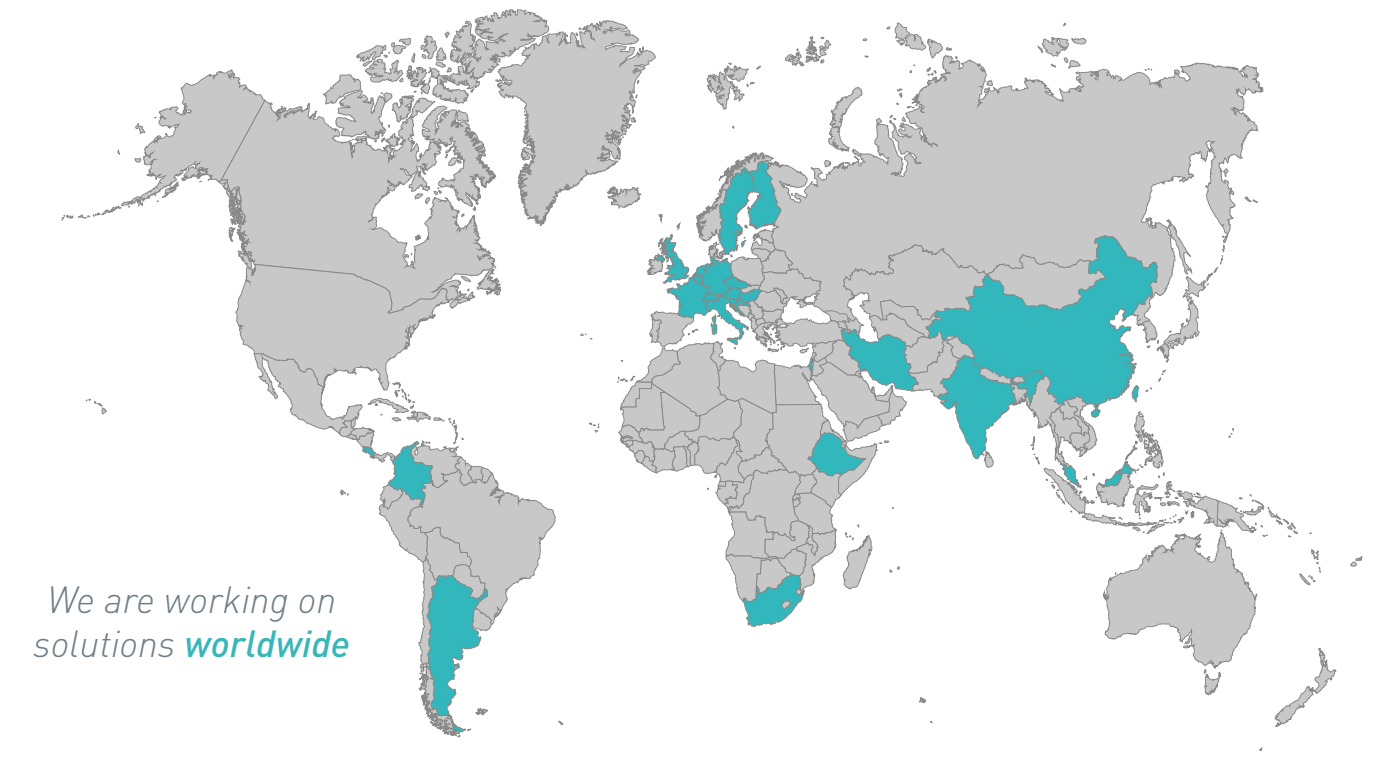


smart resilient **cities**

THE BEST WAY
TO PREDICT
THE FUTURE
IS TO
SHAPE IT.

smart resilient **cities**

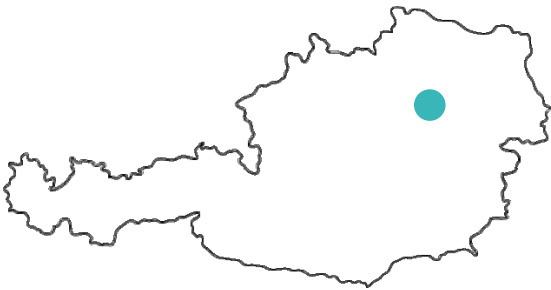
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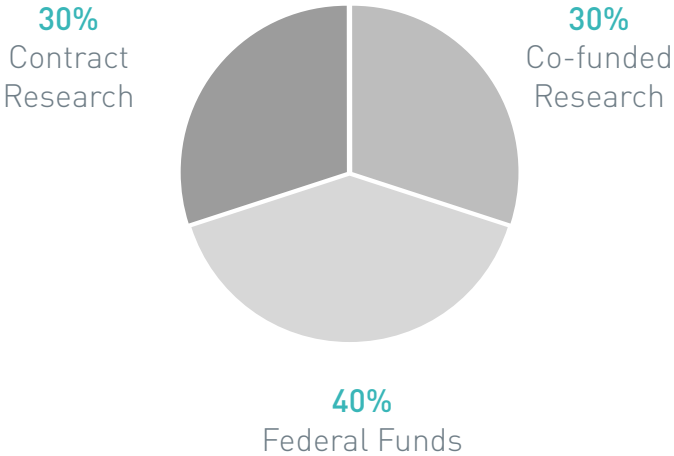
Ownership Structure



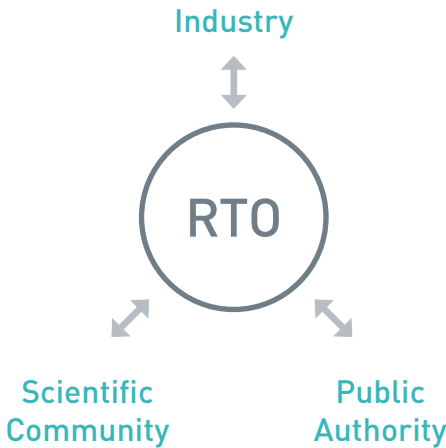
The AIT is Austria's largest non-university research organisation.



Funding



Research and Technology Organisation



AIT Austrian Institute of Technology

The AIT is Austria's largest research & technology organisation dealing with the challenges of the future - including smart and resilient urban development.

1,300
Employees



WE ARE

An independent Urban Know-How Partner

In the era of massive global urbanisation the AIT is developing integrated strategies and implementation plans for a sustainable development of cities and regions worldwide.

Having extensive Know-How and realisation experience AIT offers governmental as well as private businesses science-based solutions and capacity building to plan, realise and manage sustainable and smart habitats of tomorrow.

OUR MISSION

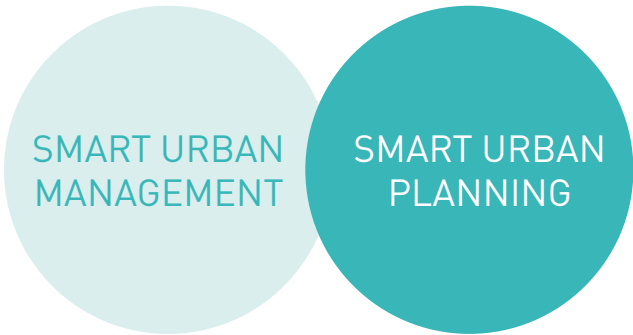
In the era of digitisation and climate change we are pioneering new ways to plan and realise the sustainable, smart and resilient habitats of tomorrow.

OUR APPROACH

Our approach is our differentiator. We combine innovative processes with the latest digital planning tools using big data and Artificial Intelligence (AI). Transcending the boundaries of traditional disciplines and enhancing our services with scientific innovations, we formulate and answer questions today about the urban tasks and challenges of tomorrow.

Our extensive experience enables us to craft unconventional solutions in a collaborative way to meet the specific needs of private businesses and public institutions worldwide.

smart & resilient cities for us



Building a smart city is not about implementing technology and ICT solutions.

Building a smart city is about revolutionising urban management and urban planning to create comprehensive solutions which relate to the spatial dimension.

Powered by: BIG DATA; ARTIFICIAL INTELLIGENCE

we do



AIT RESEARCH &
CONSULTING

RESPONSIVE CITIES
& REGIONS

- Transformational Process
- Implementation Roadmaps
- Policy & Project Monitoring

SMART SPATIAL PLANNING

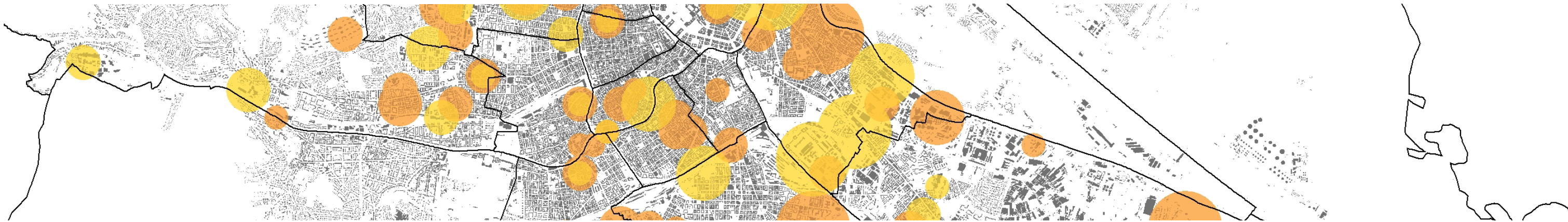
- Data informed Planning
- Artificial Intelligence Decision-making
- Stakeholder participation

ENERGY CONSCIOUS
CITIES & REGIONS

- Decarbonisation Pathways & Energy Concepts

RESILIENT
URBAN SYSTEMS

- Climate caused multi-hazard Analysis & Mitigation Planning



FIELDS OF ACTIVITY

In addition to high-level research, consulting and capacity building services, we provide our clients with a global knowledge network and access to selected expert communities.



Our aim is to design - and therefore enable - transformation processes that include solution- focused strategies and comprehensive action plans.

Prior to crafting our development strategies, we decode the complexities and stressors that can hinder sustainable growth. We think further than the strategy itself: we are convinced that a robust implementation framework and accompanying projects are required to bring a sustainable development strategy to life.

We design innovative planning processes together with local stakeholders, using the latest digital planning tools to make complex problems visible, negotiable and financeable helping cities, regions, associations and private companies to find smart, cost-efficient solutions that lie off the beaten track.

To track the success of policies, strategies and projects—and thereby to secure the investments made in them—we design smart monitoring systems based on tailored key performance indicators (KPIs).



Working in collaboration with our clients, we identify and unlock smart city potential by developing tailored strategies that are combined with implementation roadmaps and pilot projects. A major success factor of our projects is our deep understanding of how strategies are embedded in and linked to urban planning and management.

We don't just talk about urban challenges: we work with you to implement solutions.



SMART SPATIAL PLANNING

*The urban future isn't on its way:
we're applying it now.*

What we do

We develop and apply cutting-edge tools, while using big data and AI for smart urban planning and management. We believe that today's complexities call for highly informed planning and decision-making.

In our work, we help cities and private businesses to: build data-informed scenarios for their strategic planning; use AI to design new districts; visualise urban complexities; and identify which data and tools are needed to reap the potential of digitalisation.

OUR SERVICES

Big data-informed strategic urban and regional planning

We help cities and regions to design highly informed strategic urban plans based on big data forecasts and scenarios and thereby to achieve the highest cost benefits and sustainability performances.

Rapid urban prototyping

We use artificial intelligence to rapidly design districts or building entities that integrate a multitude of aspects, ranging from traffic to climate and energy. Using this approach, highly optimised prototypes can be created in a much shorter timeframe and from a deeper information base than traditional planning practice would allow.

Smart city'apps

We develop customised apps that offer new solutions for urban management. From air quality management to citizen participation.

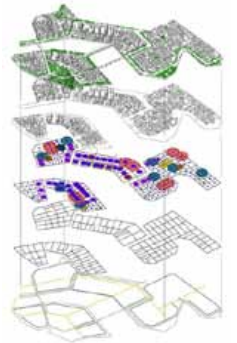
Prototype Model
with economic, climate,
energy and mobility
performance.

Built Environment

Social Infrastructure

Accessibility

Technical Infrastructure



Urban ICT strategies and city management centres

By developing urban ICT strategies, our team helps cities to analyse existing data and identify meaningful use cases. We design city management centres where the essence of urban data is collected and the city can be planned and managed in real time.

Urban big data exploration and advanced spatial prediction

We mine cities for information in order to visualise and plan their future. The results obtained range from the identification of movement patterns for planning to the identification of spatial qualities to predict people's behaviour.



*We translate conceptual goals
of energy transformation into action.*

We help authorities, private businesses and energy providers to develop their energy futures at national, regional and urban levels.

We combine a strong knowledge of urban energy planning with a deep technological understanding. In taking this approach, we employ cutting-edge energy modelling applications in combination with 3D city information models and Augmented Reality applications to visualise and discuss results with professionals and the broader public.

Urban & Regional Energy Transformation

We design, assess and visualise possible decarbonisation pathways, energy transition plans and low-carbon action plans by demonstrating the right mix of technologies, the necessary infrastructure investments, and by spelling out the legal and spatial consequences.

Innovative Urban & Regional Energy Concepts

We design innovative energy concepts and cost-efficient energy retrofiting scenarios for entire districts and building entities.

AIT URBAN ACADEMY

Smart Capacity Building

Based on our four fields of activity the AIT Urban Academy offers professionals and decision makers the latest innovations in smart urban development and management.

The Urban Academy integrates deep insights, innovative planning processes, the latest urban trends and cutting-edge tools to facilitate smart and resilient planning and operations for cities and regions.

Your benefit

Participation in the Urban Academy will upgrade your skills in the application of the most advanced and integrative methodologies and AI-based tools—skills you can bring to your daily work and studies. Our experienced experts have designed courses that link practice and theory in truly insightful ways.

Training courses and summer school

The Urban Academy's home is the Austrian capital, Vienna. Training courses on smart urban development and smart city implementation are offered on a regular basis.

Tailored capacity building

Our expert team will tailor training courses to suit your needs related to the topic of smart and resilient urban development and management. Our many satisfied graduates work at ministries, planning associations, local authorities and NGOs located throughout the world—ranging from China to Iran and Brazil.

Upcoming courses

Find your course on our homepage or get in touch with us for a tailored programme for your organisation.



SELECTED REFERENCES

*Driving urban innovation
with **YOU***

The diversity of our projects demonstrates our expertise and ability to think and act comprehensively - always aiming to achieve the highest results.

Smart City Vienna



Smart City Strategy

- Strategic Energy Technology (SET) Plan forms one of the main pillars that the Smart City Vienna strategy is based on. The Strategic Energy Technology (SET) Plan is the key document on EU level concerning this topic.
- A special advantage of the Smart City Vienna project is it's focus on spatial urban development while linking it with increased energy efficiency and enhanced climate protection.

Within the Smart City Vienna project, the city wanted to take the opportunity to position itself as a leader in research and technology in Europe. Three forums built the main framework within the stakeholder process, producing a smart development path towards energy efficiency and climate protection closely linked with the preparation of the Urban Development Plans. Further, the identification and supervision of demonstration projects to be submitted nationally and internationally were key goals within this project.



RUGGEDISED



Smart City Light House Projects

- Improving the quality of life of citizens, by offering them a clean, safe, attractive, inclusive and affordable living environment.
- Reducing the environmental impacts of activities by achieving a significant reduction of CO2 emissions and a major increase in the investment and usage of renewable energy sources.
- Creating a stimulating environment for sustainable economic development by Generating more sustainable jobs and inspiring community involvement in smart solutions.

RUGGEDISED is a smart city project funded under the European Union's Horizon 2020 research and innovation programme. It brings together three lighthouse cities: Rotterdam, Glasgow and Umeå and three follower cities Brno, Gdansk and Parma to test, implement and accelerate the smart city model across Europe. Working in partnership with businesses and research centres these six cities demonstrate how to combine ICT, e-mobility and energy solutions to design smart, resilient cities for all.



SynCity



Rapid prototyping of new Ethiopian cities

- A method for the semi-automatic generation of “new city” layouts.
- A system for assisting developing countries that are experiencing rapidly rising levels of urbanisation.
- An integrative digital master plan that links to various simulations of environmental aspects (e.g. water flow) and human behaviour (e.g. pedestrian movement).
- The used and developed tools are part of a collection of components for Grasshopper/Rhino3D.

Ethiopia’s unanticipated levels of urbanisation call for new, qualitative urban planning solutions. The project objective was to develop a source code that takes all dimensions of planning new cities into consideration — from functional distribution to traffic organisation. The developed model has been used with great success in the planning of three new towns in Ethiopia.

Emerging City Lab Addis Ababa (ECL-AA)

Bauhaus-Universität Weimar

Reinhard König, reinhard.koenig@ait.ac.at

Rapid Urban Prototyping



Integrative digital Masterplans - Rapid prototyping of a new district

- Development of an adaptive master plan model that allowed rapid prototyping of urban design variants for a new urban district.
- An integrated digital urban master, which includes various simulations — for traffic, solar radiation, microclimate, energy demand, economic potential etc.
- The urban planning tool was developed for worldwide use.
- The developed tools are part of a collection of components for Grasshopper/Rhino3D.

An adaptive AI-led master plan was developed to guide the creation of comprehensive urban planning and design variants for a new district. The resulting planning tool assisted designers in this and other complex urban planning processes.

Reinhard König, reinhard.koenig@ait.ac.at

TRANSFORM



Transformation agenda for low carbon cities

- Project website: <http://urbantransform.eu/>
- Transformation agendas were elaborated for the six TRANSFORM cities.
- Organisation of “Smart Urban Labs” and development of a “Roadmap for Making Implementation Plans”.
- “TRANSFORM Virtual Handbook”: <http://www.transformyourcity.eu/>

The TRANSFORM project was set up and conducted by a consortium of six leading European cities (Amsterdam, Copenhagen, Genoa, Hamburg, Lyon, Vienna) and several utility companies, commercial partners and knowledge partners. The focus of this collaborative programme was on accelerating the urban transition process towards low carbon city development and implementation. TRANSFORM enabled both quantitative and qualitative support for the integration of current urban energy strategies, and defined alternatives and the most effective implementation pathways for cities looking to make a low carbon transition.



SUSTAINABLE NANCHANG



Low Carbon City Action Plan

- Development of an integrated Low Carbon City Action Plan, focusing on actions and measures to be implemented over an eight-year period.
- Local decision makers and experts have been equipped with a clearly structured sequence of steps and actions, thus enabling the achievement of low carbon goals.
- The Low Carbon Action Plan for Nanchang provides an impulse for making a gradual shift from implementation of multiple, isolated low carbon solutions to an integrated approach.
- The plan development process consisted of a range of participative steps, enabling the integration of local know-how while at the same time considering local framework conditions.

In Chinese cities, urbanisation, industrialisation and changing lifestyles are driving greater levels of energy consumption from buildings, industries and transportation, all of which is leading to increased CO₂ emissions. The National Development and Reform Commission designated eight cities and five provinces in China to pioneer the comprehensive planning and implementation of low carbon measures. The specific aims of the measures were to decrease the CO₂ intensity of economic development, increase the energy efficiency of urban systems, and improve the quality of life in growing urban regions.

PACINAS



Cost-effectiveness of Austria's National Adaptation Strategy against climate change impact

- Comprehensive study of climate adaptation costs on national, regional and urban level.
- Adaptation in cities focuses mainly on spatial planning, facility management of public buildings, road maintenance and damage repair, water management and wastewater management, and parks and urban green areas.
- Adaptation mainly refers on flood protection (e.g. un-paving of surfaces, soil drainage and flood retention basin construction) and urban heat exposure mitigation (e.g. step-by-step implementation of urban green area concepts, networking of green areas, balancing green area deficits, and promoting green roofs and facades).

This project analysed the consequences of major Austrian climate adaptation measures on public budgets. Within the project, case study assessments at the federal, provincial, and municipal governance levels were combined with a macroeconomic assessment.



Climate-Sensitive Urban Planning



Planning and guidelining for Aspern Seestadt

- The district layout, resulting from a design competition, was elaborated further, based on the project's climate findings.
- A guideline on climate-sensitive planning was developed for the district's realisation process.
- A smart street network and southwest/southeast-facing building orientation has reduced full sun exposure time and extended shade periods. The allocation of open spaces within the overall block structure was adjusted to improve the district's air ventilation, resulting in major cooling effects.
- The installation of permeable surfaces will enable enhanced evaporation, while a tree-planting scheme will improve local cooling capacity and mitigate urban heat island effects.

The project objective was to develop sets of information on climate sensitivity to aid the planning process of aspern seestadt. Enhanced information will enable urban improvements in terms of the street network layout, open-space distribution and blue and green infrastructure, which in turn will mitigate the effects of climate change.



NETWORKS & CLIENTS

Clients & Enterprises



The extend of our expertise is expressed in the variety of our clients.

Cities



Our clients benefit of our extensive, international network.

Cooperation Partners



Networks





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