Climate
-fit.city

THE RIGHT DATA THE RIGHT WAY

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Climate-fit.city

Reliable data, collated, verified and delivered

Climate-fit.city makes it easier for cities to adapt to the changing climate. Using the most reliable scientific data available, we create the tools and services needed to help cities thrive, now and into the future.

Our work began in 2017, when a group of research centres, universities and climate service purveyors from across Europe set up a collaboration aimed at building cleaner, healthier, safer and more resilient cities through better access to climate data. Together, the Climate-fit.city partners have developed a suite of tailored solutions to support climate service use for cities.

• The knowledge to know how

Climate services are the intelligence behind climate-resilient and low-carbon strategies. Their function is to channel climate science and technology into solutions for climate change resilience and sustainable economic growth.

Urban areas are not only major contributors to climate change, they are also particularly vulnerable to its effects. The associated social, economic and infrastructural risks can be dramatically curbed through efficient design and mitigation strategies, but this requires climate-informed decision-making across all levels of governance and planning.

Although there is a vast body of publicly available climate data, it is not always presented in line with the requirements of specific regions and sectors. Often, the economic and social benefits of climate services are not clear, quantifiable or specific enough to be used easily and effectively.

• Usability, reliability, adaptability

The Climate-fit.city team works to identify and address the barriers preventing urban administrators, planners and coordinators from seizing the opportunities offered by climate services.

Working closely with city officials, we transform complex, high-calibre scientific data into a set of highly usable tools and information to address specific local challenges.

We produce high-spatial-resolution urban climate data to the scale our clients require, as well as detailed, local-scale climate-change impact information, giving them a clear insight into the best way to build sustainability and resilience.

By facilitating clear communication between the climate community and sector-specific experts, we create urban climate service communities capable of integrating climate wisdom into the very fabric of their cities.

• Facing the future with confidence

Whether our clients are urban administrations, commercial consulting companies or wider organisations such as city networks or international financing bodies, we deliver customised solutions to guide them through the adaptation process, from infrastructural planning to citizen outreach.

CONTACT INFORMATION

Want to get your city climate-fit? Reach out via www.climate-fit.city/get-in-touch

Active Mobility

The mobility of goods and people is important for urban development, but it can also compromise the social, economic and public health of cities. Despite technological advances, motorised transport continues to exacerbate problems like physical inactivity, congestion and noise pollution, while also contributing to unacceptable levels of greenhouse gas emissions in urban areas.

Paving the way

Extreme and unpredictable weather conditions can hinder the uptake of transport solutions like walking or cycling.

This is where climate services come in: through climate-wise designs, such as cycle paths sheltered from heavy winds, or strategically plotted pedestrian pathways, cities can make active mobility a far more appealing and sustainable option for urban populations.

The extra mile

Some service purveyors already offer weather information to cyclists, helping them to make informed cycling decisions. Our Active Mobility Service goes a step further, providing usable, detailed and future-conscious climate data to traffic planners.

With our guidance, planners can identify the best infrastructural measures to make active mobility more feasible and more resilient to the effects of climate change. We also calculate how these measures are likely to affect the transport practices of citizens, giving our clients realistic expectations and invaluable insight into how best to proceed.

Our standard package is a detailed service report including maps, figures, tables, and interpretation guidelines for analysis results.

Stepping it up

Bike Citizens is an app that supports cyclists in 450 cities by keeping them informed about weather conditions, the best bike routes, delays and estimated cycle speed.

With the help of our consortium partner ***Joanneum Research***, the service is now working to deliver more integrated and high-impact support to cities, creating a tool that gives government authorities instant access to complete and comprehensive information about cycle-friendly urban planning based on climate data. "It's more or less a one-stop-shop solution to improving cycling in the city," says lead director of Bike Citizens, Mihai Ghete.

With Europe's urban populations still rising, a modal shift in city transport is urgently needed. This is why EU policies on smart cities, economic growth and air quality all seek to promote active mobility in cities.

Unlocked potential

Using climate data can make all the difference to the success of an urban mobility plan. Climate-fit.city makes it easier than ever to radically increase the success of active mobility plans, using climate data.

With our reliable and made-to-measure service, no city need be left behind!

Building Energy

Buildings account for over 36% of Europe's CO_2 emissions. Cities have a big responsibility to improve the energy efficiency of their buildings and to protect citizens from the dangers of climate change.

Different strokes

Some of the impacts of climate change are particular to cities and require city-specific mitigation strategies. The urban heat island effect, for example, heavily influences the energy consumption and thermal comfort of buildings.

Precision is key

Too often, energy consumption estimates from building energy simulations are based on climate data from meteorological stations outside cities. This data can differ significantly from inner-city conditions, making it an unsuitable reference.

Our city-tailored Building Energy Service is the result of coordinated efforts between multi-sectoral consortium partners, all determined to deliver accurate and precise modelling specially designed for cities.

The urban climate service centre and Climate-fit.city partner ***VITO*** has developed a flexible and highly precise computer model called ***UrbClim*** to generate detailed urban maps at a spatial resolution ranging from 100 metres to a kilometre. Our team then adds this data to ***Meteonorm,*** a an easy-to-use and highly reliable data software tool recently upgraded in collaboration with Climate-fit.city to include urban and climate change effects.

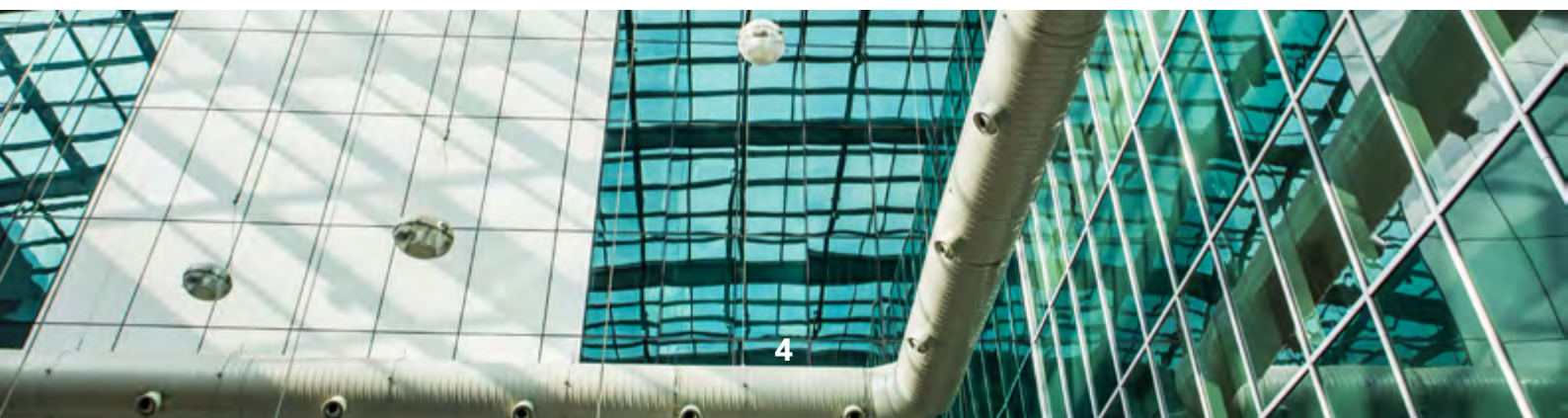
Meteonorm makes it easy for architects and building designers to access precise information about the radiation, temperature, humidity and wind speed of their city site.

The pressure is two-fold: city buildings need climate-smart solutions both for lowering their contribution to climate change, and for protecting citizens from its effects.

Tried and tested

Energy building consultancies ***PRONOO*** and ***INES Energieplanung GmbH*** have used this urban-specific data to build more accurate and reliable energy simulations for heating and cooling. "Climate-fit.city leads to an adapted design process with the long-term effect of lower energy consumption and higher comfort levels," says Urs Grossenbacher, Project Coordinator for INES.

We help our clients turn urban problems into climate solutions.



Cultural Heritage

Heritage sites are often at the heart of a city's identity – inherent to its aesthetic and an essential part of its tourist industry. Historic buildings and constructions are physical reminders of our past and act as important reference points for cultural development.

Safeguarding the future

Today's cities are tasked with **preserving their heritage sites for future generations while maintaining their tourist industries.** Tourism is heavily affected by the weather, and thus highly vulnerable to the effects of climate change: snow, intense and prolonged heatwaves, winds, droughts and rainfall – all affect the experience of visiting a city, and can limit accessibility to its most important features, sites and landmarks.

Our heritage sites are more than touristic commodities – they are intrinsic to Europe's cultural diversity and respect for history.

Preserving the past; safeguarding the future

Cities can ease the impact of climate change on the tourist industry by anticipating weather changes and adapting the flows of visitors accordingly. Climate-smart organisations can implement protection methods that will help buildings and important cultural sites to withstand the effects of climate change.

It takes a whole consortium...

Using scientifically established methodologies, our Heritage Service processes a city's existing data to produce sound and detailed insights into the current levels of heat stress and energy consumption of its heritage sites. The service team then guides our client towards the most effective ways to adapt visiting patterns, safeguard buildings, and make informed long-term investment plans.

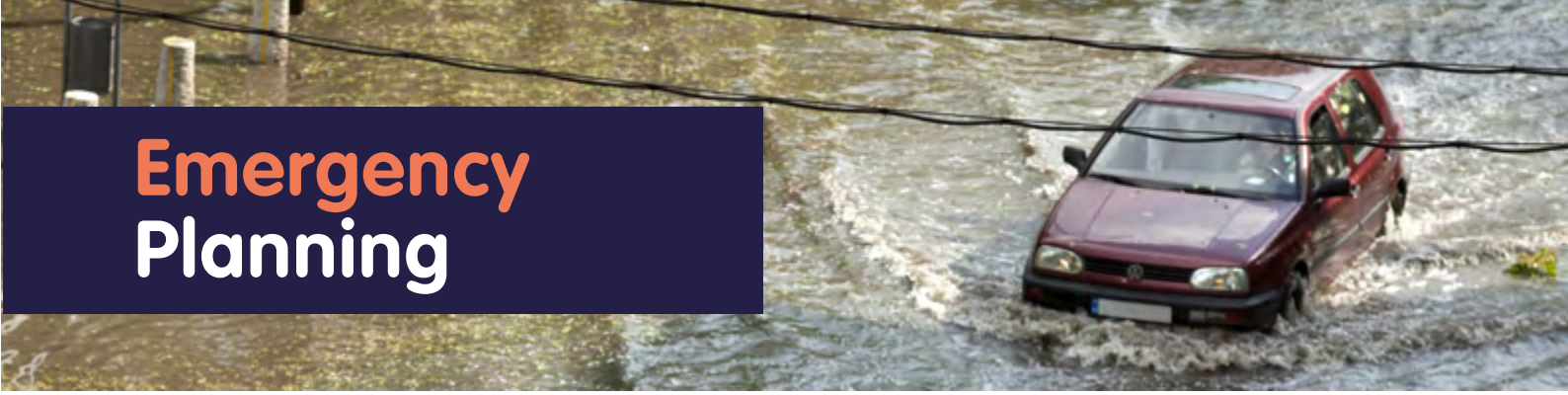
Our method is the result of a close collaboration between Climate-fit.city researchers, climate services and businesses. For our project in Rome, we use a combination of weather and air quality forecast data delivered by ***ARPA Lazio*** and a database of historical weather, heat stress, air quality and pollen indicators from ***VITO*** to produce quantitative maps and data to create a highly reliable service that is faster and more affordable than ordinary scientific service providers.

In the know

Our service is already helping the city of Rome to mitigate the effects of climate change on tourism. Using detailed historic climate data, we are working with the Special ***Superintendent of Rome*** (SSBAR) and the ***Ministry of Cultural Heritage, Activities and Tourism*** to improve the accuracy and detail of the city's forecasting service, delivering site-specific information to allow for better management of tourist flows between sites.

Together, we have created an online platform that keeps site managers, tourist organisations and emergency services informed about the occurrence patterns and impacts of extreme weather events.

Climate-fit.city: a one-stop service for protecting your city's heritage.



Emergency Planning

With large populations and built-up areas, many cities present hazard-scapes that exacerbate the mortality, health and economic risks associated with extreme weather.

The rapid spread of urban fires is part of the collective memories of city communities everywhere, but the effect of heavy rainfall can be much more severe in built-up areas. The lack of open soil, for instance, often results in city sewage systems becoming overwhelmed. This 'urban flooding' is a frequent occurrence throughout Europe, and one that urgently needs to be addressed.

The increase in extreme weather conditions such as heavy rainfall and heat stress means that city emergency planning must be revised not only to respond to recent events, but also in view of the changing climate.

Changing cities for changing times

With the climate rapidly changing, emergency planners, spatial city planners, water managers and climate adaptation planners need to coordinate using strategic planning tools that take into account future urban-specific climates.

Expert knowledge meets real experience

The Climate-fit.city Emergency Planning Service uses the most reliable climate data available to predict changes in the frequency of extreme rain storms and pluvial floods. Using a 2-D hydraulic model, we provide our clients with urban flood hazard maps, showing how each building, street or neighbourhood can be affected by possible scenarios. The maps include detailed locations and characteristics of the flooded zones, socio-economic consequences, impacts on traffic infrastructure, and associated disaster emergency planning needs.

What makes our service special is that it combines the outcome of a scientific approach, developed by renowned university ***KU Leuven***, with the practical experience and approach of the client.

In a climate-driven emergency, city planning can either exacerbate or alleviate the impact on citizens, infrastructure and the economy.

Global change and specific impacts

"City emergency planning needs revision," says Antwerp's Disaster Emergency Manager, Jeroen Vanherck, "due to the increasing frequency of extreme weather conditions as a result of climate change."

In close collaboration with the City of Antwerp, Climate-fit.city is putting its service into action. We are using the city's spatially referenced land use data, to create a tool that will be integrated into Antwerp's disaster emergency planning system to create more efficient emergency responses to flooding.

Using detailed, reliable and city-specific data, we guide cities in the transition from experience- to evidence-based climate-proof emergency planning.

Health

A growing body of research has shown that living in an urban environment can entail a health penalty, in particular for the poor and vulnerable.

Warming cities

One significant urban health problem is heat. The urban heat island effect causes temperatures to rise in cities, exacerbating negative impacts on health. With climate change already creating more frequent heat waves, social inequality and illness will only increase unless targeted heat-mitigation measures are taken.

The data shows that health outcomes can be improved by modifying the configuration of city buildings and urban systems. This means planners, governments and local management all have an important role to play in tackling the problem.

The creation of accessible, usable heat data for cities is well overdue. Understanding the complex heat-health relationship, and applying it for a particular city, would require a level of scientific expertise and high-level climate and health modelling that local governments and planners cannot be expected to possess. They need accessible, reliable and easily applicable information in order to effectively mitigate this problem. We can help.

All you need to know, in one easy-to-use package

Working together, the multi-disciplinary Climate-fit.city team processes high-level research and applies it to specific cities. Our Health Service creates tools that enable users to understand the impacts of the urban climate and climate change on the health of the various groups of people living in a city.

The urban climate service centre and Climate-fit.city partner ***VITO*** have developed a flexible and highly precise computer model called ***UrbClim***. Using this unique technology, we can provide clear, in-depth and neighbourhood-level insights into the best adaptation measures, mitigation strategies and plans for protecting people from the effects of urban heat, now and into the future.

Creating a fair and healthy Europe requires a deeper and more practical understanding of urban health.

From knowledge to action

Our service can be tailored for a variety of clients, including insurance companies, nursing and residential homes, hospitals, architects and urban planners.

Within Climate-fit.city we worked with ***Barcelona Public Health Agency*** and the research institute ***ISGLOBAL***, studying the relationships between summer temperatures and daily mortality rates, to create a spatially detailed socio-demographic overview of the effect of heat on citizens.

The project aims at developing local health policies to reduce the negative impacts of climate change.

Climate-fit.city: because no one should be penalised for living in our cities.

Urban Planning

Cities were once perceived as refuges from disasters and as buffers against environmental change. Today, the high concentration of people and artificial surfaces impervious to rain, coupled with increasingly extreme weather conditions, is fast turning cities into risk hotspots.

More than half of the world's population and the majority of its economic activity are located in urban areas. This makes cities both contributors to climate change, and particularly vulnerable to its impacts. During periods of heat, for example, many cities quickly become urban heat islands, while heavy rains can overwhelm the manmade drainage systems, resulting in urban floods.

• Tools for change

Both the ***Urban Agenda for the EU*** and the ***United Nations New Urban Agenda*** are now calling for cities to become solutions to the problems of climate change, and not its cause. Climate-smart urban planning has the ability to reduce a city's emissions, control local climatic and biophysical conditions, and build resilience to extreme weather events, but this kind of planning requires extensive data and precise modelling.

While many environmental urban planning tools already exist, most are still too inflexible and difficult for planners to use. According to recent studies, for urban planning to be effective, climate services must develop a more collaborative approach to working with planners.

• Reliability, usability, flexibility

Through a multidisciplinary and highly interactive process, the Climate-fit.city Urban Planning Service offers its clients actionable information, tailored to their needs.

Our service was developed by combining the unique urban climate model ***UrbClim***, developed by our partner ***VITO***, and an interactive web-based map tool from the geo-information company ***GISAT***.

Climate-wise urban planning can build up cities' resilience to new weather conditions, and even transform them into powerful instruments for sustainable development.

The result is an interactive urban-planning scenario modelling tool allowing users to model their own spatial scenarios and assess their impacts. In this way, planners can make informed decisions about climate conditions in their cities. No special resources are required to use our services – only internet and as much data as the city can provide. In cases where there isn't local data available, we provide mapping services to configure our urban models in terms of surface specifications.

The tool is flexible enough to be useful for both small city administrations and international organisations alike and is already being used by three very different European cities – Prague, Ostrava and Hodonin.

Climate-fit.city: we adapt to your needs, so that you can adapt to the changing world.

Stakeholder Engagement and Communication

Climate change preparedness stands or falls on good cooperation between different city departments, climate experts and key stakeholders.

• Working across departments

Climate change impacts many different aspects of lives in cities. Over the coming years, cities will need to rethink everything from their public transport systems and cycling infrastructure, to community organising and emergency responses in the face of extreme weather, to green spaces and urban planning guidelines that can tackle more severe floods.

Preparing for such a drastic change requires an integrated approach that unites the forces of a wide range of experts from across city departments. ***Arctik*** has extensive experience animating large consortia and facilitating collaboration between groups with different methodologies and ways of working. We can help bring together diverse stakeholders and keep them working towards a common goal.

• Getting urban and regional stakeholders on board

It is also important to bring on board essential stakeholders in your city and region. If you, for instance, are hoping to make at-risk communities more resilient, you might want to work together with community centres or faith organisations from the outset, while infrastructure projects might be easier to roll out if you liaise with important city contractors.

Whatever your project, we can help you map relevant stakeholders and will help you craft a strategy to keep them involved.

• Keeping citizens in the know

Finally, we know how to best keep citizens informed. Whether you simply want to communicate the outcomes of your project or design a large-scale communication campaign to help citizens be better prepared for heatwaves or floods, we can help. ***Arctik*** routinely draws up plans for citizens communication. We're also experts at the more hands-on work, from creating websites and brochures to running 360° media campaigns.

Climate-fit.city gets the right people around the table and keeps everyone in the loop.

Socio-Economic Impact Assessment

Climate services can get your city prepared for the future but how do you measure their social and economic benefits and make informed policy recommendations based on available data? We can help.

• Demonstrating social and economic return of investments in climate services

Cities that intend to integrate climate services in their activities might want to show that the human and financial resources they invest can generate a return on investment on the short, middle and long-term period. That is why we offer a flexible and customized socio-economic impact assessment framework that can be adapted to match any climate service and analyse the benefits of climate services for the public, private organizations and citizens. This allows you to make more informed decisions and justifies your investment to the stakeholders.

T6's modular methodology can be customised for different scenarios, independently from the specific field of application (health, urban planning, mobility, risk management, etc). Our approach can help you evaluate whether specific climate initiatives:

- improve public service effectiveness
- lower health-related costs in several scenarios
- reduce social inequalities
- foster more sustainable and healthy habits in citizens
- raise awareness among professionals and the general public of climate change-related issues
- stimulate collaboration and knowledge -sharing among different stakeholders

The T6 team has a long-standing experience in assessing the socio-economic impact of innovative processes. We know how to bridge the gap between research and application and can help you adapt timing and processes to the needs of your stakeholders.

We co-design our impact assessment procedure together with key stakeholders to make sure it fits all parties' needs and expectations.

• We analyse benefits to support the design of future policies

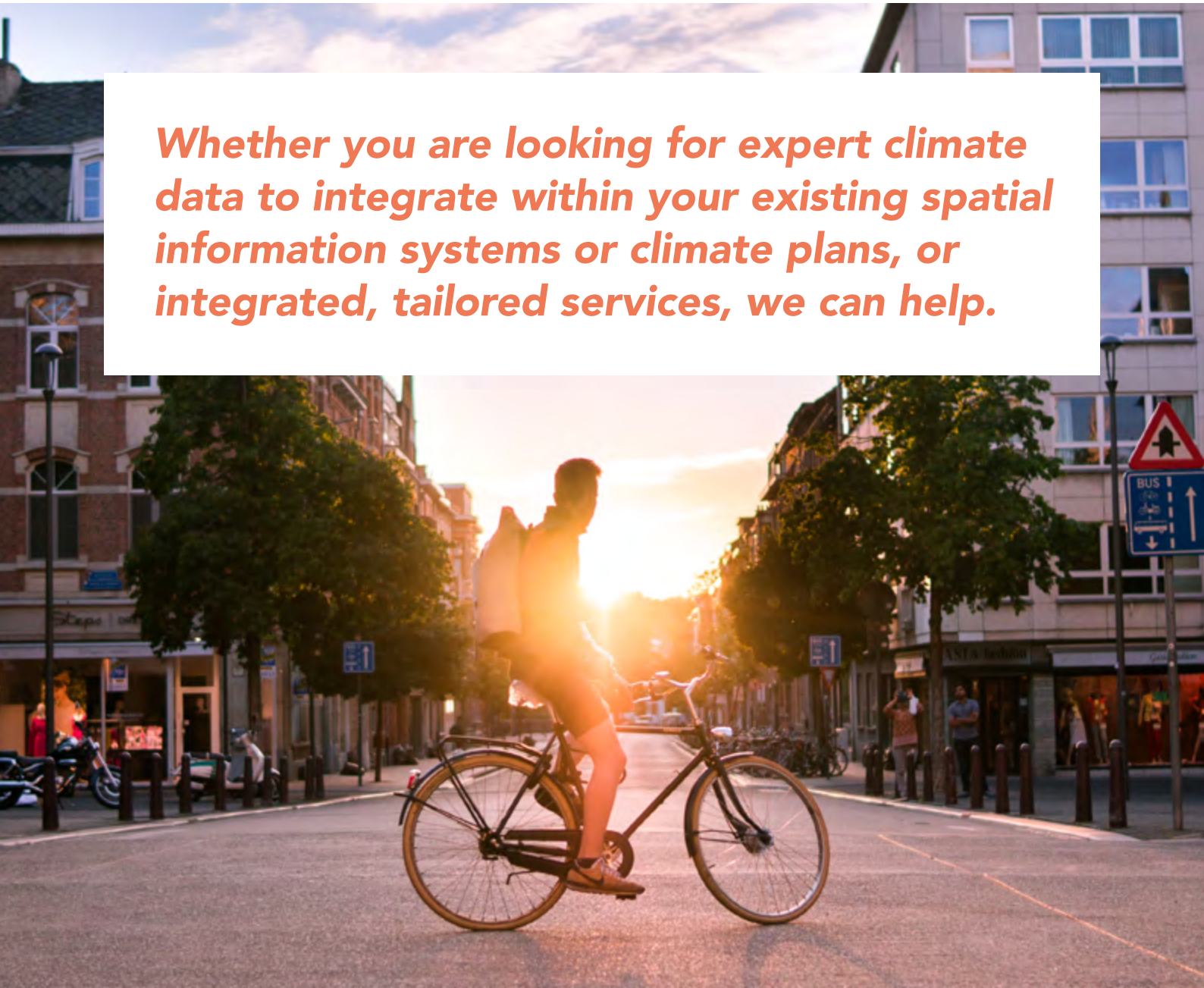
Based on the socio-economic impact assessment, we offer to identify policy recommendations for a variety of stakeholders around climate change and associated topics, such as urban planning, sustainability, environmental policies, transportation. This includes the co-design of policies together with local stakeholders as well as a benchmarking of related policies in other cities and countries.

Make more informed climate policy decisions and back up your approach with facts.

Tailored Services
The right data for your project

Our scientists cover a broad range of different fields and work together to provide integrated services that fit your specific project. Our cultural heritage experts can join forces with the mobility team to examine whether the routes to key city sites are cycling-friendly in all weathers. Our urban planners can work with the emergency services team to mitigate not just heat stress but also flood risks through climate-proof city planning. Urban planners can also team up with building energy experts to take into account more detailed information on building types and thermal comfort for your residents

Looking for a service or combination of services that is not offered in this brochure? We collaborate with an extensive network of experts, who can provide additional services on topics like snowfall, agriculture or public transport.



Whether you are looking for expert climate data to integrate within your existing spatial information systems or climate plans, or integrated, tailored services, we can help.

Climate-fit.city

Arctik

bike citizens

gisat

JOANNEUM RESEARCH LIFE

KU LEUVEN

Meteotest

T6ECOSYSTEMS

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