

ERA-NET Cofund Smart Cities and Communities Funded Projects and Results



INTRODUCTION

In 2015, seventeen projects were awarded in the ERA-NET Cofund Smart Cities and Communities (ENSCC) call with the focus on innovation and implementation of integrated low-carbon energy and transport systems on an urban scale. These seventeen projects have since then been working hard to achieve their aims and have contributed to sustainable solutions for cities and their citizens.

This catalogue aims to give an overview of the projects, all finalizing in 2018 and 2019, and their results. For the input to the catalogue, interviews have been conducted with researchers from all projects which have made it possible to get a deeper insight into what they have established and why. These interviews provide a glimpse of the processes that have led to the outcomes and an increased understanding of the systems and models discussed in this catalogue. The full interviews, together with reports, policy briefs and videos produced by the projects, can be found on the JPI Urban Europe web: jpi-urbaneurope.eu.

This catalogue is part of the JPI Urban Europe Projects Catalogues series issued annually since 2016.

The ERA-NET Cofund Smart Cities and Communities Funded Projects and Results Catalogue was issued by IQS, Sweden, March 2019.
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THE ERA-NET COFUND SMART CITIES AND COMMUNITIES CALL

The ERA-NET COFUND Smart Cities and Communities Call (ENSCC) was established by the Joint Programming Initiative (JPI) Urban Europe and the Smart Cities Member States Initiative (SC MSI). It was introduced in order to initiate a transnational joint call for RDI proposals addressing new solutions in the urban field as well as demonstrating the feasibility of their implementation. These solutions should aim at optimal energy and resource efficiency, preferably through the integration of technologies (energy, mobility, ICT) across the board, but also via the development and use of new business models and new methodologies in urban governance, and in explicitly aiming towards social cohesion, liveability, and sustainability.

The projects submitted in the ENSCC call aimed to cover new and innovative approaches, promote interdisciplinary research and collaboration and encourage the involvement of stakeholders, thus bridging gaps between research disciplines, citizens and decision makers, cities and transport/energy planners, and producers and consumers.

With the backdrop of European cities facing grand challenges such as demographic transformations, resource depletion and climate change, unequal social participation, congested transport networks, and difficult trade-offs in land use decisions, the ENSCC call was initiated in order to find appropriate policy strategies to these problems. Such policy actions need to be supported by dedicated co-ordination of Research and Innovation on the challenges and opportunities of urban environments in Europe.

It was a two-stage call that opened in December 2014 with a deadline for pre-proposals in March 2015 and deadline for full proposals in September 2015. The call focused on innovation and implementation of integrated low-carbon energy and transport systems on an urban scale, with a mandatory demand to include innovation and implementation activities, which entailed higher entry barriers for potential project partners compared to the two previous JPI Urban Europe pilot calls.

A total amount of public funding of 26 M€ was provided by national and regional funding agencies from 12 European countries (Austria, Belgium, Cyprus, Finland, the Netherlands, Norway, Portugal, Romania, Spain, Sweden, Switzerland and Turkey), including substantial support from Horizon 2020.



Submitted proposals: **79**



Total budget: **26.0 M€**



Funded projects: **17**



Call opened:
December 2014

THE JPI URBAN EUROPE ERA-NET COFUND CALLS

Through the ERA-NET Cofunds, the European Commission provides top-up funding and enable the connection of the JPI Urban Europe programme to various societal challenges of H2020. Also, they generate added value through initiating cooperation with EU policies and activities, in the case of the ENSCC call such as the European Innovation Partnership Smart Cities and Communities or structural funds. The ERA-NET Cofunds also facilitate the widening of participation of EU Member States or Associated States and support international cooperation. In the ENSCC call, 17 projects were granted approval with a total budget of €21.9 million including €5.5 million in European Commission top-up funding.

The ENSCC call was JPI Urban Europe's first ERA-NET Cofund call. Since 2016, JPI Urban Europe has launched another two cofund calls, namely ERA-NET Cofund Smart Urban Futures that opened in 2016 and ERA-NET Cofund Sustainable Urbanisation Global Initiatives call that opened in 2017. The last call was launched in collaboration with Belmont Forum.

CALL TOPICS

The ENSCC call focused on the innovation and implementation of integrated low-carbon energy and transport systems on an urban scale. Projects in the four topics complement each other: the first topic, *Smart Integrated Urban Energy and Transport Systems* focused on developing smart systems, while the second, *Smart Tools and Services for Integrated Urban Energy and Transport Systems* focused on developing the proper tools to manage these systems. The third topic, *Smart and Big Data*, integrally linked to the first two while the fourth, *Smart Governance and Smart Citizens*, tied them all together.

1. SMART INTEGRATED URBAN ENERGY AND TRANSPORT SYSTEMS

Project proposals within the first topic examined energy consumption related to its ecological footprint and methods which could change behaviour to reduce this footprint. Along with this, the received proposals looked at how to better integrate the energy systems found within European urban areas.

2. SMART TOOLS AND SERVICES FOR INTEGRATED URBAN ENERGY AND TRANSPORT SYSTEMS

Proposals within the second topic focused on new tools for the measurement of energy consumption. Additionally, some looked at evaluating smart systems, and some proposed to investigate the scale at which integration would best serve the needs of urban dwellers.

3. SMART AND BIG DATA

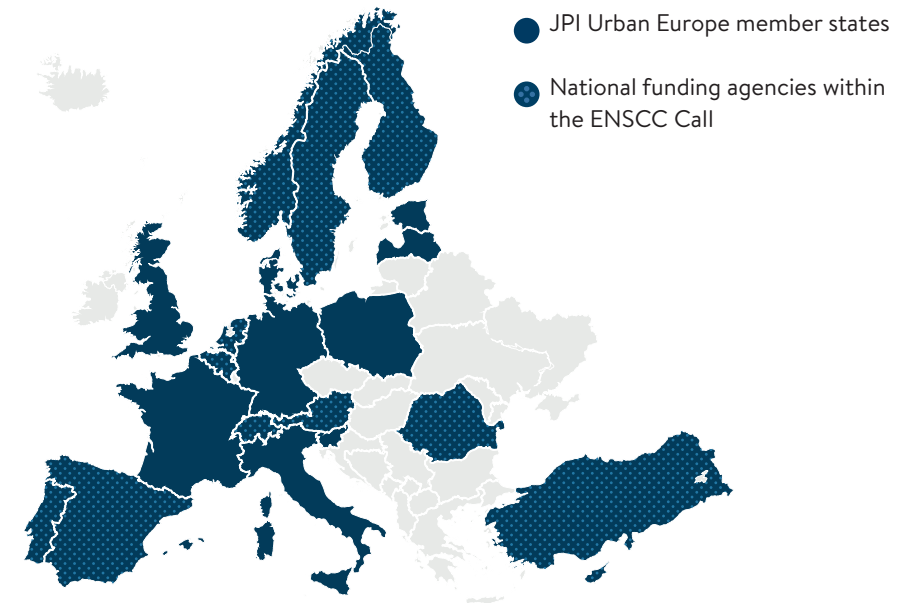
Proposals sought to take advantage of open source data to create new facilities for those looking to tackle urban problems such as energy and transport integration. Also, they sought to use data such as social media in useful ways, for instance by creating and designing transport infrastructure by taking into account open source data in the planning process.

4. SMART GOVERNANCE AND SMART CITIZENS

Project proposals aimed to integrate key urban stakeholders into the planning and policy process when it came to designing energy and transportation infrastructure. For example, they sought to involve citizens in efforts to minimise construction disruption in their urban areas. Within this topic were also projects seeking to research living labs and how they can be adjusted for the benefit of research quality.

MEMBER COUNTRIES AND NATIONAL FUNDING AGENCIES

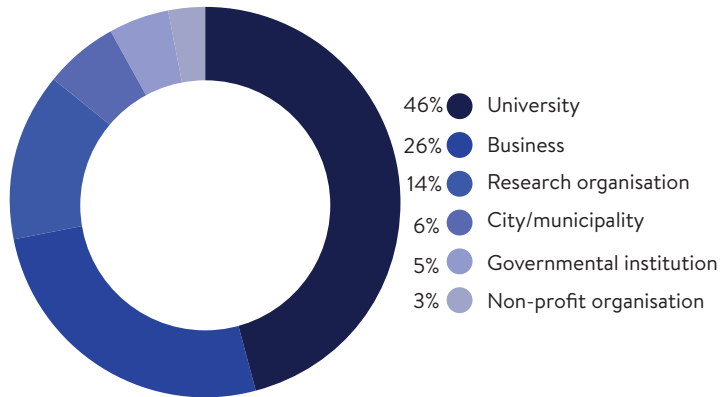
In total, 14 funding agencies from 12 countries participated in the ENSCC call (Switzerland is not formally a member of JPI Urban Europe) with Austria (FFG) and the Netherlands (NWO) running the Call Secretariat.



Austria	FFG	Romania	UEFISCDI
Belgium	Innoviris	Spain	CDTI
Cyprus	RPF	Sweden	Formas,
Finland	Business Finland		SWEA,
Netherlands	NWO		Vinnova
Norway	RCN	Switzerland	DETEC
Portugal	FCT	Turkey	TÜBITAK

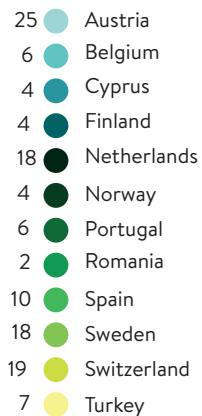
PROJECTS OVERVIEW

The awarded projects are all supported by consortia that include a mix of researchers from universities and institutes, representatives from city authorities, business and NGO's. Compared to the pilot calls issued previous to the ENSCC call, the involvement of cities and business is higher with a percentage of six percent formal partners from cities and 26 percent from business.



Project partners per type of organisation

A total of 123 project partners participated in the funded projects with a majority from Austria, the Netherlands, Sweden and Switzerland.



Project partners per country (incl. supporting partners)

PORTFOLIO MANAGEMENT

JPI Urban Europe actively manage a project portfolio, analysing how projects funded in the different calls relate to the thematic priorities of the JPI Urban Europe's Strategic Research and Innovation Agenda (SRIA 2015), the dilemmas of the SRIA 2.0 (2019), as well as international and European policy agendas, including the Urban Agenda for the EU and the Sustainable development goals (SDGs).

Sorting projects according to the SRIA thematic priorities has been a strategy to create connections between projects funded in different calls and to establish a sense of community. Articulating the projects relevance to the SDG's and the Urban Agenda for the EU partnerships is in line with the vision of JPI Urban Europe to provide research based knowledge that is relevant and useful to policy makers and practitioners in cities as well as on a European and international scale.

All projects naturally relate to the Sustainable Development Goal 11 "Make cities and human settlements inclusive, safe, resilient and sustainable" and the three targets 11.2 (access to safe, affordable, accessible and sustainable transport systems for all), 11.3 (inclusive and sustainable urbanisation and capacity for participatory, integrated and sustainable human settlement planning and management) and 11.6 (reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management).

JPI Urban Europe has in 2018 established working relationships with the current Agenda for the EU partnerships. The ENSCC projects are mostly relevant to the partnerships 10.2 Air Quality, 10.8 Energy Transition, 10.10 Urban Mobility, 10.11 Digital Transition and the interrelated topic 12.5 Innovative Approaches, including Smart Cities.

Project	EU Urban Agenda Partnership relevance	Agenda 2030 SDG 11	Thematic priority in SRIA 2015	Urban Living Lab
BREATHE	10.10, 10.2, 10.7	11.2	3	
CIVIC	10.10, 10.2, 10.6	11.6	3	
CODALoop	10.8, 10.11, 12.5	11.6, 11.b	3	●
DESENT	10.8, 10.10, 10.11	11.2, 11.6	3	
IntegrCiTy	10.8, 10.11, 12.5	11.6	5	
IP-SUNTAN	10.10	11.2	5	
me ²	10.8, 10.11, 12.5	11.6, 11b	5	●
PARENT	10.8, 12.6	11.6	3	
Smart Commuting	10.10, 10.11, 12.5	11.2	4	
Smart Urban Isle	10.8	11.b	3	
SmartCityHospitality	10.7, 10.9, 12.1, 12.3, 12.5	11.6, 11.3	5	
SmarterLabs	10.10, 12.1, 12.5, 12.4	11.2, 11.3	4	●
SMART-FI	10.11, 10.10, 10.8, 12.5, 12.6, 12.10	11.6, 11.2	5	●
SmartGov	10.11, 12.1, 12.4, 12.5	11.3	5	●
SPACERGY	10.8	11.b	3	
SURECITY	10.8, 10.2, 10.10, 10.9, 12.5	11.6, 11.2	3	
TRANS-FORM	10.10, 12.5	11.2	4	

Project	Call Topic 1	Call Topic 2	Call Topic 3	Call Topic 4
BREATHE		●		
CIVIC				●
CODALoop			●	
DESENT	●			
IntegrCiTy		●		
IP-SUNTAN		●		
me ²				●
PARENT		●		
Smart Commuting		●		
Smart Urban Isle	●			
SmartCityHospitality				●
SmarterLabs				●
SMART-FI		●		
SmartGov			●	
SPACERGY				●
SURECITY		●		
TRANS-FORM			●	

ABOUT THE PROJECTS

Though diverse in their scope and research, similarities in the outcomes have been identified among the projects as they are coming to an end. One common aspect is the projects ambitions to reduce cities' energy footprints through behavioural changes, both among the citizens and the decision makers. To deal with this issue, the projects have shifted the focus from informing about energy usage on a society level to focus on how to incentivise changes in both individual and collective behaviour. Through, for example phone applications that visualise energy consumption and smart systems installed in private homes, citizens can see their own energy usage patterns and make instant alterations for energy reductions.

Another key aspect has been to make use of existing data in cities. Many cities are not aware of the amount of data they have, or, they don't know how to make it useful. Hence, several projects within this call has come up with models that build on basic information already available such as platforms that make use of social media or mobility patterns, something that eases implementation but also helps residents feel more involved in their city's policy making.

Finally, something that has been common throughout many of the projects, is synergy. Policy issues such as climate change, energy use, air quality, construction and transport that are normally handled separately have been linked. This because "silo-like" approaches prevent energy utilities and city planners from identifying opportunities of synergy among the networks. By showing how the interactions between these areas have a positive effect on policy making, stakeholder collaboration can increase and ease decision making processes within cities.

In the following chapter, the ENSCC projects are listed according to the thematic priorities in the JPI Urban Europe Strategic Research and Innovation Agenda 2015.

SRIA 2015

Thematic Priority 1: Vibrant Urban Economies

No ENSCC projects in this group

Thematic Priority 2: Welfare and Finance

No ENSCC projects in this group

Thematic Priority 3: Urban Environmental Resilience

BREATHE

CIVIC

CODALoop

SURECITY

DECENT

PARENT

Smart Urban Isle

SPACERGY

Thematic Priority 4: Accessibility and Connectivity

ME²

SmarterLabs

IP-SUNTAN

Smart Commuting

TRANS-FORM

Thematic Priority 5: Governance and Participation

SmartGov

SMART-FI

SmartCityHospitality

IntegrCiTy



"Actually the specific parts of what we're doing is not new, what is new is the synergy. We're not trying to reinvent the wheel, we're trying to get all the wheels to turn at the same time."

- Jamal Shahin, PARENT



"There is a societal need to reduce energy footprints of individuals and cities. Current research can be limited as it focuses on reducing consumption by efficiency measures but it never challenges the need of energy, do we need all the energy we use to live a good life?"

- Beatriz Pineda Revilla, CODALoop

"When it comes to issues such as climate change, traffic congestion and population growth, technology offers us pathways to the solutions needed."

- Malena Donato, SMART-FI



"It is not possible to predict the future, but we can accurately predict trends in different scenarios."

- Nicolas Pardo-Garcia, SURECITY



"A key innovative aspect of this project is that we challenge policy makers to link policy issues in the fields of climate change, energy use, air quality, land use, transport, construction, and urban planning, by showing how the interactions between them affect optimal policy"

- Steven Poelhekke, BREATHE



"Cities can end up investing less to produce the exact same amount of energy"

- Massimiliano Capezzali, IntegrCiTy



"We need to change people's mobility behaviours. The increasing congestion levels, concerns over environmental impact and dilemmas over limited space are all tied to the overconsumption of mobility, and mobility-related goods."

- Erik Verhoef, IP-SUNTAN



"Today, a significant number of the actors involved tend to work in isolated systems. We wanted to change this by adding in the perspectives of all stakeholders. By making them interact more already in the planning process, barriers can be avoided which allow decreases in transport use and increases in efficiency"

- Lovisa Westblom, CIVIC



BREATHE

Urban form, location choice and transport solutions for low-carbon cities.

ABOUT

This project analyses the interactions between urban form, economic welfare, energy use by and emissions from households and firms. Increasing urban density and increasing city size tend to reduce households' average energy consumption. However, increasing population density also tends to reduce local air quality. BREATHE focused on this trade-off, as well as urban policies to stimulate the transition towards low carbon cities using data from four very different European cities – Amsterdam in the Netherlands, Istanbul in Turkey, Gothenburg in Sweden and Barcelona in Spain. BREATHE engaged policy makers and companies from the four cities to develop a spatial-economic equilibrium model that can be used for policy simulations.

ADDED VALUE

Urban environmental and energy policies often are considered in relative isolation by local governments. Frequently their design is not integrated with, for instance, transport policies and urban planning. A key innovative aspect of this project is to challenge policy makers and (other) implementation partners to link policy issues in the fields of climate change, energy use, air quality, land use, transport, construction, and urban planning, by showing how the interactions between them affect optimal policy. BREATHE supports policy makers in the formulation of urban policies that factor in this interrelatedness, and their combined effect on economic welfare.

RESULTS

BREATHE used a choice experiment to measure stated preferences of a large sample of potential home-buyers for specific characteristics of homes and neighbourhoods. In this experiment, specific attention was paid to variables related to air quality, noise, commuting, urban density, and road pricing policies. The choice experiment measured willingness to pay higher housing costs for each of these variables separately. The results are subsequently combined with a revealed preference study. In this second study, we follow the same subjects in

their search for a house on a real estate listings website in order to determine whether or not search behaviour matches stated preferences. In addition to validating the stated preference results, this second study also identifies other determinants of housing choices.

WHAT'S NEXT

Results of the experiment and observational data will be used as input to train a computational model. In turn, the model will be used to produce policy simulations salient to policy makers in four European cities. These include the imposition of a district-based congestion tax to enter the inner city as well as a scenario supposing the widespread use of electric vehicles. The model predicts resulting changes in congestion and air quality, as well as changes in the geography of urban functions such as housing and commercial land use.

FACTS

Duration: 2016-2019

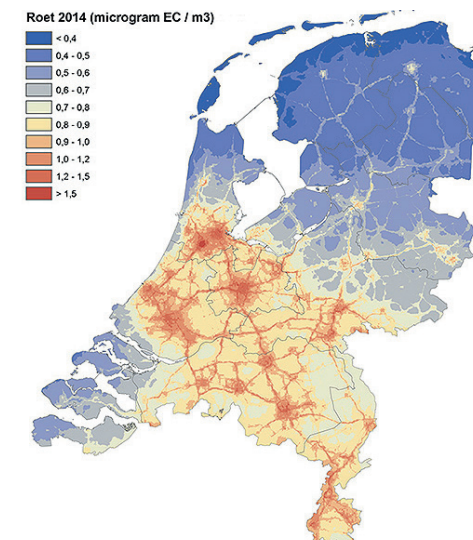
Web: sbe.vu.nl/nl/afdelingen-en-instituten/spatial-economics/research/projects/breathe/index.aspx

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Budget: 606.718 EUR

Partners: Sabanci University, Universitat Autònoma de Barcelona, VU University Amsterdam, University of Gothenburg



CIVIC

Construction in vicinities: innovative co-creation.

ABOUT

Actors involved in construction sites tend to work in isolated systems (silos). The CIVIC project's goal is to coordinate planning between public partners of construction projects and private construction contractors and developers on the necessary measures for mobility, liveability and road safety in a city. The CIVIC project integrates the perspectives and objectives of all involved stakeholders. Using a common generic tool, actors' interact more with each other already in the planning stage. Barriers can be avoided which can lead to decreases in transport use and increases in efficiency.

ADDED VALUE

Construction is required to create more attractive, sustainable and economically viable cities. This includes the expansion of infrastructure, development of new residential areas and renovation of buildings. However, construction-related transport has negative impacts for people that live, work and/or travel in the vicinity of construction sites. This project encourages all parties involved in construction processes to rethink and widen their perspectives in order to enhance sustainability. Further, the CIVIC approach makes it easier for cities and authorities to set higher requirements for construction logistics. For example, land allocation permits can be contingent on a coordination plan integrating involved actors.

RESULTS

CIVIC has developed the Smart Governance Concept, a seven step process providing guidelines and tools for optimizing construction logistics by overcoming barriers within construction projects. This includes a strategy to mobilise joint action to create the shared sense of ownership needed to improve current governance models. During the project it became clear that in order to actualize CIVIC's visions, knowledge about construction logistics must be improved. Hence, the Logistics Game was developed. The game is a playful and informative way to aid understanding of the importance of collaboration between different stakeholders for successful construction logistics that decrease transport around

construction sites. The game is a simple way to gather stakeholders and raise awareness of how different parties can look at building logistics.

WHAT'S NEXT?

CIVIC has been positively received by public and private stakeholders, underscoring the need for increased cooperation and knowledge sharing to reach the shared vision of an attractive, sustainable city. As a means to implement the Smart Governance Concept in cities, the project MIMIC has been initialized. MIMIC is part of the JPI Urban Europe call Making Cities Work and has the aim to increase understanding among authorities of how construction logistics affect the environment, urban traffic flows and mobility. With MIMIC, the CIVIC project will be able to work more with providing stakeholders with a supportive platform for urban development decision processes.

FACTS

Duration: 2016–2018

Web: civic-project.eu

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Amsterdam University of Applied
Sciences

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Budget: 929.213 EUR

Partners: Amsterdam University of Applied Sciences, Vrije Universiteit Brussel, Austrian Institute of Technology, Lindholmen Science Park, Linköping University, Chalmers University of Technology, CommuniThings, BERNARD Ingenieure, Deudekom and Cargohopper



CODALOOP

Community data-loops for energy-efficient urban lifestyles.

ABOUT

There is tremendous urgency to reduce urban households' energy footprint. Despite targeted policies and technological innovations, household energy consumption is still increasing in European cities. This shows the need for policies that target the reduction of energy demand at its source, and not only the reduction of energy consumption by means of energy efficiency measures. CODALoop seeks to break the vicious cycle of energy consumption by tackling the cognitive processes and social norms that determine households' daily practices of energy demand for mobility, leisure and dwelling. With experimental and diverse methodologies of field-studies and action-oriented research, CODALoop studies the feedback loops between individuals' perceptions, social practices and policy making. The project combines information from cognitive and social sciences to design real-life experiments in different urban communities in Amsterdam, Graz, Leibniz and Istanbul and provides: a) a deeper understanding of the cognitive processes and social norms that determine households' energy-practices by analysing how discursive and communicative processes at the community level lead to learning and behavioural change; b) a tested prototype of an interactive web-based platform for sharing data about individual and community energy consumption choices; c) concrete recommendations on how to move from 'efficiency' oriented policy making to 'reduction' oriented policy making

ADDED VALUE

CODALoop contributes to a paradigm shift within the field of energy consumption research and policy by 1) focusing not only on increasing household energy efficiency but also on reducing energy demand; 2) exploring the role that the community level, instead of only the individual level, can have in reshaping households' energy needs; and 3) addressing the holistic notion of 'energy decent lifestyles' instead of only focusing on one lifestyle dimension, the dwelling.

RESULTS

The project delivers indications on: 1) the interventions that raise awareness of energy consumption and enable discursive processes at the community level to challenge current energy needs; 2) different meaning of data and information in the context of cognitive processes and social practices and how they contribute to activate learning about the needs and possibilities of behavioral change; 3) concrete policy recommendations on how to move from energy 'efficiency' oriented policy making to energy 'demand reduction' oriented policy making, paying special attention to the intertwining of small-scale face-to-face and digital (platforms) spaces where a new culture of 'energy decent lifestyles' can be nurtured. With its international consortium, CODALoop combines cutting edge cognitive modelling (Graz), data analysis (Istanbul) and action-oriented

participatory research (Amsterdam) providing a rich and diverse methodology to design real-life experiments (e.g. storytelling, meetings with energy experts, workshops, energy quizzes, documentary screenings, etc.).

WHAT'S NEXT?

CODALoop challenges current technological and efficiency-oriented understandings and does of how to reduce energy use in cities. It opens up a discussion that explores the possibility and desirability of moving towards an energy demand reduction paradigm and offers the first building blocks for future research and policy to advance in this direction.

FACTS

Duration: 2016–2019

Web: jpi-urbaneurope.eu/codaloop

Contact: Prof ir Luca Bertolini,
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Budget: 962.947 EUR

Partners: University of Amsterdam (AISSR), Yildiz Technical University, Graz University of Technology, Delft University of Technology, PlusOneMinusOne, Planbureau voor de Leefomgeving (PBL), Amsterdam Economic Board/ Amsterdam Smart City, Nudge, District Municipality of Kadikoy, Yurtici Kargo, Energie Steiermark AG, StadtLABOR, City of Graz/ Stadtbaudirektion, HORN Consult

SURECITY

Holistic simulation and optimization for smart cities.

ABOUT

SURECITY helps local authorities, companies and citizens analyse and develop sustainable environmental and energy strategies and support transitions towards urban decarbonization. A software platform bridges different scientific models to design medium- and long- term holistic and optimal local energy and emission abatement strategies in neighbourhoods and cities. End users of this information such as politicians, citizens and companies can use the platform to assess the social, technological and economic impacts of measures in all major economic sectors.

ADDED VALUE

There are different benefits for different stakeholder groups, municipalities can better allocate resources using the platform. Citizens can see how energy is used in their city and municipal plans to develop energy systems to achieve sustainability goals. Finally, businesses can identify relevant areas of growth.

RESULTS

SURECITY developed an energy model in TIMES-MARKAL (a model generator) which creates visualisations of a city's energy and environmental information. These visualisations and the model are available through the project's cloud-based platform. The platform is being tested in Malmö in Sweden, Judenburg in Austria, and Almada in Portugal, all with distinctly different prerequisites. Firstly, the project identified indicators reflecting the needs and requirements of each city. The analysis had to consider the needs of the local commercial, residential, municipal, transport, and industrial sectors as well as infrastructure and institutions for public lighting, waste & water management and energy. Although the project uses a complex model, it is designed to be calibrated by cities with a limited amount of information. A user can follow a link from the platform's website to download the necessary software to connect to the cloud, where they can upload their data (population data, buildings data, energy consumption etc) to the platform. After

this, the information automatically generates a model and visualisations for the user showing the energy flows in a city and predictions of future energy flows and consumption patterns and environmental impact such as CO2 emissions. For example, it is possible to see maps of energy consumption by sector in each area of the city.

The innovative aspect of the project was to use MARKAL/ TIMES to create a model from scratch which generates complex simulations showing how energy flow would develop. In particular, the model factors in sustainability goals such as local CO2 emission targets.

WHAT'S NEXT?

SURECITY are not only focused on seeing how things are now but also on making accurate trend forecasts. In fact, the model can predict energy changes up to the year 2050.

FACTS

Duration: 2016–2019

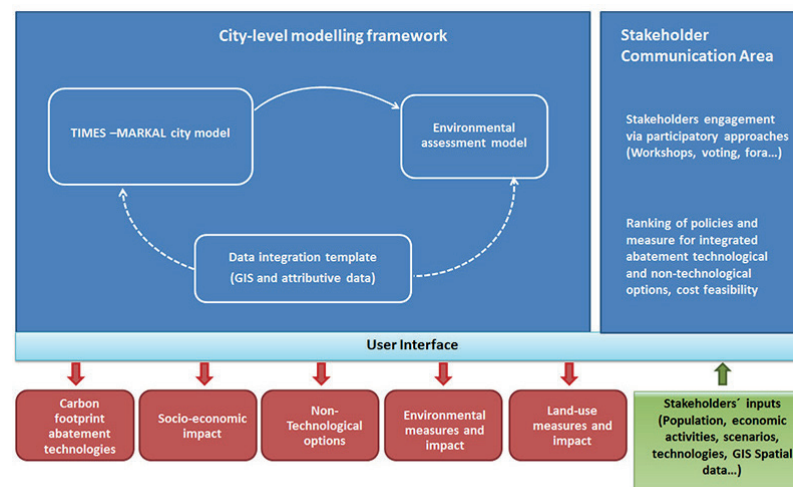
Web: jpi-urbaneurope.eu

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Budget: 1.319.491 EUR

Partners: AIT Austrian Institute of Technology, City of Malmö, Luleå University of Technology, IVL Swedish Environmental Research Institute, 3Drivers, Styrian Energy Agency, City of Judenburg, Municipality of Almada



DESENT

Smart decision support system for urban energy and transportation.

ABOUT

The success of smart city development depends on integrated solutions for energy, transport, service and governance with the full involvement of multiple stakeholders such as governments, enterprises and citizens. DESENT provides a smart decision support tool for urban energy and transport by developing innovative approaches and utilising cutting-edge technologies through co-creation. The consortium which integrates top universities, research institutes, enterprises and private companies, tackled the various challenges by developing and implementing innovative solutions in demo cities.

ADDED VALUE

DESENT supports smart decision making for policy makers and personal services for citizens. The developed model is used to provide urban planners with detailed information regarding energy demand based on location, housing type and time. Additionally, it informs citizens who have electric cars and solar panels on their energy patterns.

RESULTS

The project has had successes in two key areas. Firstly, from a research perspective, the project has shown a link between people who are positive towards the idea of using electrically powered transport and those willing to use solar panels in their homes. The project also illuminated the connection between people who want to switch to electrically powered transport and inclinations towards car-sharing options, depending on life events such as having children. From a practical perspective, the project has led to the creation of an integrated activity model and two other pieces of software, one for the prediction of energy consumption and another for visualising where energy consumption takes place. One of the products is a prototyped framework tested in a smartphone application which shows individuals their energy consumption at home. However, the project has focused more on the aggregate level of energy use than on an individual level. This is in part due to the difficulty of acquiring smart meter data. Nevertheless, the

application can still give a prediction of individuals energy usage if they provide inputs such as the type of house they live in, how long they spend at home and what kind of car they have. The application in combination with GPS data can also provide a reasonable picture of energy consumption for transport. Additionally, there is a tool in the application which allows users to see what savings they can make if they change their behaviour. This is the projects way of experimenting with gamification to see how best to incentivise people to change their behaviour.

WHAT'S NEXT?

For the model to be useful, it's important to integrate all the information and approaches from all the different partners, notwithstanding the fact that all cities have different needs and focuses. Further research could collect more data allowing for deeper analysis and more scope for creating high-resolution predictive models.

FACTS

Duration: 2016–2019

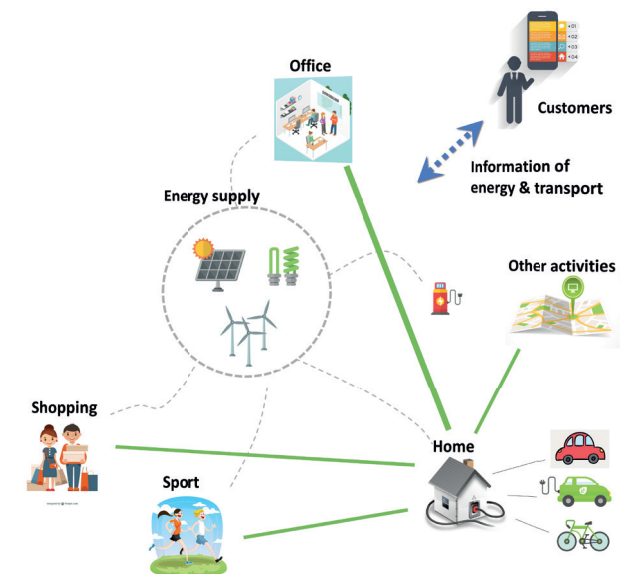
Web: jpi-urbaneurope.eu/desent

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Budget: 1.352.380 EUR

Partners: Eindhoven University of Technology, 4ward Energy Research GmbH, Weizer Energie-Innovations- Zentrum GmbH, Reiterer & Scherling GmbH, City of Weiz, City of Helmond, SINTEF Energy Research, City of Steinkjer



PARENT

Helping communities reduce their energy consumption.

ABOUT

The PARENT project deals with three different concerns from a practical and research perspective: environmental sustainability, technology and its role in society, and how participation plays a part in the first two. The project aims to increase engagement of individuals in the responsible management of their own electricity usage and improve understanding of how to stimulate behavioural change in the area of energy consumption in households. It developed an online platform for participatory energy management, fuelled by novel analytics, visualisation and incentivisation techniques. Offline participation was also central to the project's goals.

ADDED VALUE

Normally, people receive their energy bills at the end of the year making it difficult to see the connection between reducing their energy consumption and reducing their bill. PARENT gave participants real-time electricity consumption monitors which allowed them to compare themselves to similar households in their community, increasing the possibility to alter energy usage instantly.

RESULTS

The three pilot cities of Brussels, Amsterdam and Bergen have very different energy needs and therefore allowed the project to test different scenarios. For example, in Brussels there are several stakeholders interested in the behavioural changes necessary to address climate change. Two different but equally strong motivations were identified within the community, the first was the desire to do something genuinely helpful to reduce climate change and the second was to reduce household energy consumption. These human elements were considered alongside the technical challenges when setting up the platform. Monitors installed in households in the three pilot cities tracked individual household's electricity consumption twenty-four hours a day. The data was then gathered by the monitors and uploaded online to the PARENT platform which allowed households to see how their energy consumption compared to other participants. This data not only tells individuals how much energy is being used but also when it is

being used. Additionally, the platform includes energy and environmental-related challenges that participants can engage in. While the comparison data focuses primarily on information provision and community awareness, the challenges provide a gamification technique aimed at nudging participants to action. Not only do the challenges encourage game-like competition, they also feature a collaborative aspect. The challenge leaderboard shows the most popular challenges accepted, and the number of total actions taken by the entire pilot group is highlighted in order to show that, together, the many small actions add up.

WHAT'S NEXT?

The project is expected to grow in the cities where it is active. Moreover, the large amount of anonymised energy consumption data collected could be extremely useful for other actors such as energy regulators and energy grid operators.

The PARENT platform can be replicated in other cities, however, to keep pace with technological advancements, the PARENT platform should be opened up to other data monitors to give the platform more flexibility in meeting demands. With further development, the platform can point us to our most energy intensive or energy inefficient devices making an energy efficient behaviour even easier.

FACTS

Duration: 2016–2019

Web: parent-project.eu

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Budget: 1.627.387 EUR

Partners: Vrije Universiteit Brussel, University of Bergen, Resourcefully, Utrecht University, Blue Planet Academy & Consulting, Commune de Forest, Commune de Watermael-Boitsfort, Municipality of Bergen, City of Amsterdam

SMART URBAN ISLE

Smart bioclimatic low-carbon urban areas as innovative energy isles in the sustainable city.

ABOUT

Smart Urban Isle (SUI) supports urban energy savings. Based on a three cornerstone procedure, the project developed an innovative concept for city planning, wherein cities are arranged and grow through small integrated areas. Smart urban islands are urban areas with bioclimatic buildings and mini networks and the project are used within Smart Urban Isle (SUI) as an innovative basic energy unit in the smart city.

ADDED VALUE

The smart urban islands create synergies between various building functions and achieve significant energy savings through the associated increase in efficiency. The aim is to produce, distribute and store required energy locally as well as provide maximum comfort for the residents of the area.

RESULTS

A Smart Urban Isle (SUI), is not a fixed unit of measurement but rather a tailor-made energy-measurement system which leads to more efficiency. It could be several buildings together or it could be one large building such as a hospital or a theatre. A SUI is highly flexible; the area can be determined according to local needs and practicalities. The shape and size of a SUI depends on the planners; for example, the neighbourhood could be articulated as an SUI to balance energy usage in that neighbourhood. Alternatively, the energy system can be balanced for one heavy consumer. The project's methodology included three principle components: bioclimatic analysis, energy-balance analysis, and the development of a management tool, all three helping to determine the scale of a particular SUI. The first two components involved a range of variables, from how to promote cross ventilation in buildings to examining the balance between consumers and producers of energy in a given area. The management tool helps users move beyond existing technologies to develop a new concept based on the actual view of the final user. The data about an individual's activity for example walking or running is collected alongside data about the environment such as temperature

and humidity which will eventually be presented back to citizens through an application. This application can help users better understand their energy needs and consequently help them make more informed decisions about their consumption habits.

WHAT'S NEXT?

The tool is up and running and the SUI methodology is open access. Eventually, the project expects to export the SUI methodology to other cities and countries.

FACTS

Duration: 2016–2018

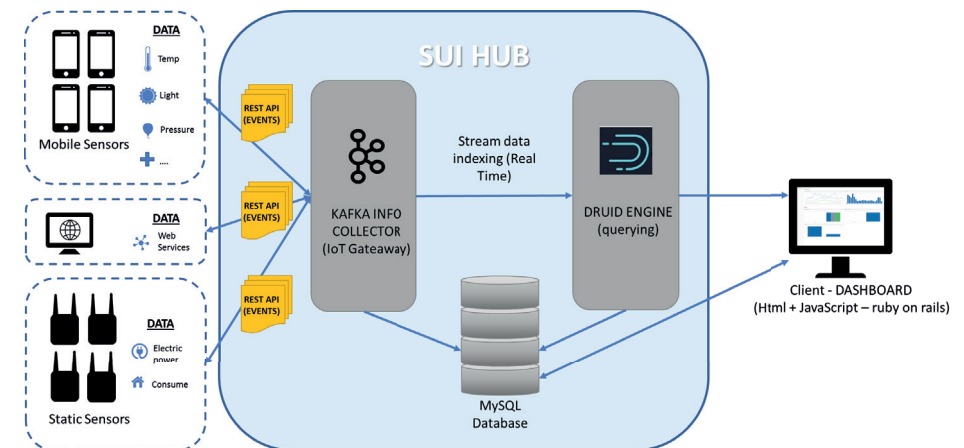
Web: jpi-urbaneurope.eu/smart-urban-isle

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Budget: 1.449.188 EUR

Partners: Consultoría de Automatización y Robótica S.A. (CARSA), Technical University Iasi, ZHAW Zurich University of Applied Sciences, Europäisches Zentrum für Erneuerbare Energie Güssing, Delft University of Technology, SC SQnP SRL, Cyprus University of Technology, Anergdy AG, Middle East Technical University



SPACERGY

Space-Energy patterns for smart energy infrastructures, community reciprocities & related governance.

ABOUT

SPACERGY studies 'Energy Sensitive Cities', to achieve inclusive, shared visions, collaboration and informed acting by planners and decision makers, in joint coalitions with users and other stakeholders. The project builds knowledge regarding reciprocities and beneficial interactions of spatial aspects of urban developments, energy and mobility infrastructure in four cities. Based on in-depth modelling and action research produced together with stakeholders, the project provided guidelines to support informed decision making throughout Europe.

ADDED VALUE

The project helps planners, designers and decision makers facilitate the transitions to a more efficient, liveable and thus sustainable urban environment.

RESULTS

SPACERGY employed a living lab approach for three urban districts in Zurich in Switzerland, Bergen in Norway and Almere in the Netherlands. These labs were places for experimenting and the three districts had the common aspect of being under (re)development and subjects to a complex process of urban re-densification which provided a chance to actually implement the guidelines. One of the main issues was to understand what energy transitions mean for each spatial and cultural context and with these insights create instruments to help communities with efficient use and exchange of energy. Through workshops and the creation of scenarios, an assessment framework was developed. The framework DEIM (District Energy Integration Model) assesses district energy demand and production by looking at characteristics of the urban morphologies, uses and energy systems, for the evaluation of the building and mobility related energy performance. For example, from a mobility point of view, DEIM was

used to analyse the relations between walkability and energy demand for mobility. The DEIM's consider local and cultural aspects in each district and provide tools that can incorporate expertise from local partners.

As the three living labs are in different development phases, they have different ways of using the guidelines. For example, in Almere the guidelines support the design of the area, while in Zurich the design process was already initiated. Nonetheless, a combination of the developed tools can be used for different goals and targets prioritized in a community and thus be contextualized to be effective in each context.

WHAT'S NEXT?

The project has helped cities work in specific contexts and guide future choices in planning and design and better understand how they can impact the energy demand of mobility. First requests for follow-up use of (parts of) DEIM have been expressed by the municipalities.

FACTS

Duration: 2016–2019

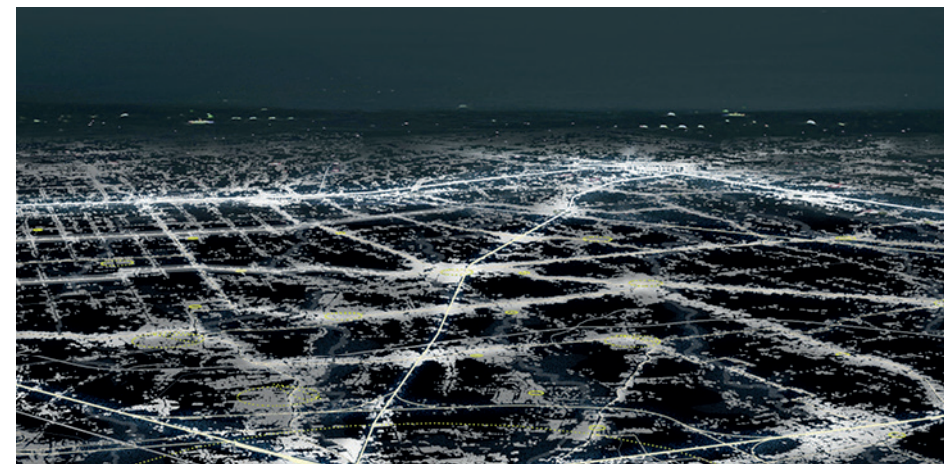
Web: jpi-urbaneurope.eu/spacergy

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Budget: 1.108.624 EUR

Partners: Delft University of Technology, Bergen University College, ETH Zurich, Municipality of Zurich, Municipality of Almere, Municipality of Bergen, The Public Road Administration of Norway, Municipality of Brescia, AMS Institute



ME²

Integrated smart city mobility and energy platform.

ABOUT

Creating awareness of energy consumption patterns is the first step in improving them. Through usage of smart grid technology, awareness of household and electric vehicle consumption can be put in context with solar panel generation. me² (mobility + electricity = synergy) is a platform that connects citizens of local communities, helping them to be more aware of their energy consumption, incentivising changes in their individual and collective behaviour and helping them to save electricity costs while being engaged with a local community. The me² platform, which was piloted and demonstrated in Lisbon and Amsterdam, can be employed by actors, such as utilities, EV (electric vehicle) fleet operators or municipalities, enabling them to affect user behaviour in order to make the electric grid more efficient and reliable.

ADDED VALUE

The combination of data technologies in a community allows the integration of mobility with electricity to balance the grid, reduce electricity costs, and enable a feeling of local belonging. me² enables urban demand-side management, i.e. aims to modify consumer demand for energy such as using less energy during peak hours in urban communities.

RESULTS

The project applies smart grids, electric mobility, business models and policy incentives to the development of an innovative service concept. One of the main results of the project is the me² integrated energy monitoring platform, which is the front end of the project's Smart City Aggregator (SCA) system. The SCA connects EV batteries and households' equipment with smart meters to achieve greater efficiency and flexibility at an electricity grid level or the back end. The front end includes a community website, an app and an intelligent back end. The consumers have direct access to their energy information. The app is available for iOS and Android. Users can share their results (if for example they

have acquired green points) and other users can "like" what they are doing. In addition to the developed platform, the results from the pilot studies showed positive results. In Lisbon, more than half of the pilot participants achieved over 10 percent smoothed load curve through increased awareness and direct, gamified peak-shaving incentives. In Amsterdam, participants reduced their EV charging during peak hours by more than 30 percent in a community challenge.

WHAT'S NEXT?

At the end of the project period, a policy report was written to reflect on European legislation and its outlook for aggregators like me². Strategies such as dynamic pricing for smart charging are not yet a regulatory option. However, through cooperation with incumbent distribution system operators, for instance in the form of a licensable platform, Smart City Aggregators could add value to data and hardware facilities.

FACTS

Duration: 2016–2018

Web: iese.heig-vd.ch/projets/integrcity

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Budget: 862.880 EUR

Partners: Amsterdam University of Applied Sciences, UCP Católica Lisbon School of Business & Economics, Lisboa E-NOVA, Agência Municipal De Energia-Ambiente De Lisboa, MOOSMOAR Energies, Virtual Power Solutions, MediaPrimer



SMARTERLABS

Improving anticipation and social inclusion in Living Labs for smart city governance.

ABOUT

Urban mobility solutions that ‘work’ in the particular reality of a Living Lab may not be adopted at a larger scale. Urban infrastructure is interwoven with the daily lives of citizens and therefore difficult to change, and large groups may not have access to ICT based solutions. The SmarterLabs project develops a novel approach that anticipates such problems in upscaling better and tests the approach through smart mobility living lab experiments in the four cities Bellinzona, Brussels, Graz and Maastricht. The ‘Smart City Living Lab’ brings together citizens, policymakers, businesses and researchers to test smart, ICT based solutions to urban dilemmas and problems in real-life contexts.

ADDED VALUE

These guidelines will help practitioners in any city reflect on which constraints may play a role in their city and hence, work more proactively. The guidelines can be widely used to maximize the impact of any city’s Living Lab.

RESULTS

SmarterLabs delivered a set of guidelines on how to anticipate upscaling of Living Labs experiments. The guidelines consist of ten typical constraints that living labs face and ten ways to anticipate them. The project defined and tested these guidelines through action research projects in the four cities and a workshop in three other cities. The action research consisted of interventions connected to an ongoing innovation project that had the ambition to scale up a new practice. Locally specific constraints to upscaling were identified through retrospective analysis. The intervention consisted of a series of activities that better anticipated these constraints. For example, in Bellinzona, the project developed an app for citizens encouraging alternative transportation modes to the car. In Brussels, citizens in different neighbourhoods measured air pollution via a device and by discussed results. In Maastricht the project used a new visualization tool allowing

stakeholders to declare their mobility vision for the city for the coming 20 years. These visions were then visualized in a virtual reality tool which helped stakeholders learn from each other and together bring forward the best solution.

WHAT'S NEXT?

The guidelines are translated in six languages and disseminated to benefit Living Lab practitioners in different parts of Europe.

FACTS

Duration: 2016–2019

Web: smarterlabs.uni-graz.at/en/

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Budget: 1.141.927 EUR

Partners: Maastricht University, University of Graz – RCE Graz-Styria, University of Applied Sciences and Arts of Southern Switzerland, Vrije Universiteit Brussel, Cosmopolis Centre for Urban Research, BRAL Brusselse Raad voor het Leefmilieu, City of Maastricht, Maastricht Bereikbaar, Grontmij, City of Graz, Pro Velo Ticino, City of Bellinzona



IP-SUNTAN

Innovative policies for sustainable urban transportation.

ABOUT

This project develops and investigates smart solutions for urban transport problems. Innovative technologies, such as ICT and GPS, are used and smart ways to stimulate people to change behaviour or adopt technologies are developed and evaluated. The project considers road transport and public transport, and analysed a broad range of tools including electronic fare cards, real-time public transport information, automated tracking of vehicles, and data from innovative pricing and rewarding experiments. The project brings together research groups, local authorities and case studies from Amsterdam, Rotterdam, Stockholm, Gothenburg and Vienna.

ADDED VALUE

IP-SUNTAN aspires to change individual mobility behaviour. By reducing the consumption of mobility services the project will contribute to decreasing congestion levels and dilemmas over limited space and limiting emissions of local and global pollutants.

RESULTS

The project is based on the idea of implementing road pricing in order to internalise the societal cost of transport. One of IP-SUNTAN's innovative answers to this issue is Tradable Peak Permits wherein citizens are rewarded for avoiding peak travel times. This shifts focus from reward to trade. The individuals using the system are given permits that allow them to use the road a certain number of times per week. For instance, in a five-day working week, an individual gets four peak permits meaning the users only must avoid one trip in the peak hours per week. However, if they use an alternative mode of transportation two days a week, they end up having a spare permit. This spare permit can then be sold to someone in more need of it, which strengthens the incentive to save up as many permits as feasible. In many ways, this is more acceptable than road pricing because it means that instead of paying four days a week, citizens can save money if they choose to

alter their behaviour a little. This system leads to balance at the aggregated level. Additionally, the study delivers new and more robust insights into the potential of pricing instruments in spurring behavioural change in urban mobility; how this depends on the technical design including the differentiation of pricing and therewith the type of behavioural changes it seeks to stimulate, as well as the availability of alternatives. Societal acceptability is an important aspect, which is on the one hand hard to predict through its dependence on many factors, while at the same time this dependence gives room for optimizing policies from this viewpoint. The technological advances enable full exploitation of such findings through an intelligent design of smart pricing measures. The study highlighted how experiments can really help in gaining insights into these important

matters, in turn helping governments to design policies that better meet the triplet of criteria: effectiveness, efficiency, and acceptability.

WHAT'S NEXT

This project has examined virtual mobility behaviour instead of real mobility behaviour. The next step is to move from the virtual to the real. IP-SUNTAN is optimistic about implementing innovative pricing instruments to affect mobility behaviour which includes a market for tradable peak permits having already tested the two pillars required to make tradable peak permits possible. The first pillar is the responsiveness of people to reward mechanisms. The second is the feasibility of creating a simple enough market where people could technically work in their self-interest.

FACTS

Duration: 2016–2019

Web: sbe.vu.nl/ip-suntan

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Budget: 811.053 EUR

Partners: VU University Amsterdam, KTH Royal Institute of Technology, Vienna University of Economics and Business, Amsterdam Zuidas, Verkeersonderneming Rotterdam, Stockholm Public Transport Agency, City of Stockholm, Transportation Administration, Stockholm Regional Office, Vienna City Administration (MA18)

SMART COMMUTING

Exploring new ways of combining work and life on the move with intelligent and sustainable transport system services.

ABOUT

The Smart Commuting project started in 2016 to study new ways of combining work and life on the move with intelligent and sustainable transport system services by enabling smarter travel chains. Smart Commuting first investigates the needs and mobility behaviour of commuters and then helps develop sustainable mobility services to meet these needs. The aim of the project was to make commuting easier, flexible and efficient and to investigate how new types of mobility concepts could support people and cities as a whole. The cases in the project were large travel-to-work areas in Austria, Finland and Switzerland.

ADDED VALUE

The Smart Commuting project explored new ways of combining work and life with new intelligent transport system services and developed new mobility services to support sustainable commuting and multi-locational work.

RESULTS

As an implementation focused project, the main results are the successful development, deployment and scaling of the mobility related services of the company partners. While the company partners developed the service concepts, the different research partners helped these companies to keep the services relevant and efficient to ensure the overall sustainability of the concepts. For example, the company partners in Finland launched a new on-demand mobility service and a new service concept for real estates and employers wanting to support electric car charging. This gave researchers a unique opportunity to assess the sustainability (societal, ecological, and economic) of the services. Other mobility related services were also generated and the potential of these services is still to be seen. The Smart Commuting project also examined stakeholder needs, motivation and connection with each other, and the framework conditions in each country. Another research result was the analysis of the current and future needs

of mobile workers. The Smart Commuting project gathered statistics on mobile workers and typical aspects affecting their everyday mobility, for instance how many children they have, the number of cars, motorcycles and e-bikes in the household and type of living environment. The survey results revealed the typical time commuters spend travelling, the distance between the home and workplace place, how they use the transport system and what affects their modal choice in work-related travel. These results provide new knowledge for city and regional planning about what to take into account when introducing new mobility services and solutions to the existing transport system.

WHAT'S NEXT?

Ten general recommendations for decision-makers have been generated to increase the knowledge transfer and advance a culture that supports cooperation between different stakeholders. The recommendations are: 1) better evaluation and awareness of the potential of on-demand services, 2) developing and implementing new last mile solutions for commuters, 3) solving the last mile of goods in deliveries, 4) developing platforms and open APIs for Mobility-as-a-Service, 5) electrifying transport, 6) supporting the use of shared vehicles, 7) developing attractive mobility hubs for supporting multimodality, 8) increasing the user-centric planning of services, 9) activating employers and employees, and 10) challenging the current car-based mobility paradigm.

FACTS

Duration: 2016–2018

Web: smartcommuting.eu

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Budget: 1.966.488 EUR

Partners: Aalto University, AIT Austrian Institute of Technology, tbw research GesmbH, ZHAW Zurich University of Applied Sciences, Virta Ltd. (Liikennevirta Oy), AC2SG Software Oy, Tuup Oy, ISTmobil GmbH, Growth Corridor Finland, Office for Mobility of the Canton of Basel-Stadt

TRANS-FORM

Smart transfers through unravelling urban form and travel flow dynamics

ABOUT

Smart cities and communities rely on efficient, reliable and robust transport systems. The TRANS-FORM project contributes to a better understanding of how people move in different levels of the public transport network and offers new techniques to adjust public transport services to respond to actual demand levels. Three case studies in the Netherlands, Sweden and Switzerland measured how passengers transfer within terminals and urban and regional networks, in order to develop methods for predicting passenger flows, quantify the reliability of passenger experience and evaluate strategies for improved coordination between travel modes, especially in case of disruptions.

ADDED VALUE

The TRANS-FORM project developed a tool where model inputs and outputs of the different prediction models for the regional, urban and hub network level are integrated. This enables the prediction of passenger movements between different levels of the public transport system. The outcomes will help improve coordination between travel modes, in particular in cases of disruptions.

RESULTS

The TRANS-FORM project developed, implemented and tested real-time traffic management strategies to support proactive and adaptive operations. The project created a tool which integrates new concepts and methods of behavioural modelling, passenger flow forecasting and network state predictions into real-time operations. New empirical knowledge and modelling foundations were developed using a multi-level approach for monitoring, mapping, analysing and managing dynamics of interchanging travel flows. Additionally, analysis of pedestrian and public transport passenger flows at the hub, urban and regional levels was facilitated by data secured from the three cases. Passenger flow predictions for the three distinctive network levels are performed by different models. For example, the hub-level model represents the dynamics, movement and activities

of passengers in transportation hubs. Using this model, the project has introduced a framework suitable to simulate, evaluate and generate pedestrian management strategies. BusMezzo, a multi-agent and multi-modal simulation model, is used to represent the dynamics of public transport systems at the urban level. This model includes transit services, passengers and management policies. A regional model comprised of the railway infrastructure and train traffic model includes origins and destinations of passengers, lines and stations, and train movement, and is able to evaluate re-scheduling decisions for all trains. In TRANS-FORM an integration tool is developed, so that models for each of the three levels can use information from the others. For example, the pedestrian travel times within a transportation hub, generated by the hub model, are used by the urban model to evaluate passenger dynamics more accurately. Similarly, the hub model uses information from the models of the other two levels to generate precise passenger arrivals. An updated train timetable in response to a train disruption feeds into the urban model, to better predict arrival times and passenger flows for urban trams and buses. Passenger flows can be predicted for the integrated public transport network. The propagation of disruption impacts from one level to another level can now be quantified. By testing control strategies on the regional, urban and hub network level, it is possible to evaluate how disruption impacts can be mitigated for passengers.

WHAT'S NEXT?

The integrated modelling tool developed in the TRANS-FORM project will be made publicly available. Further development can produce methods for automated disruption detection and for a more advanced prediction of passenger delays and their propagation patterns using smart card data.

FACTS

Duration: 2016-2019

Web: trans-form-project.org

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Budget: 1.295.855 EUR

Partners: Delft University of Technology, Linköping University, École Polytechnique Fédérale de Lausanne, Blekinge Institute of Technology, IBM Research GmbH, ETRA

SMARTGOV

Advanced decision support for smart governance.

ABOUT

'Smart Cities' provide new ways of designing and managing public services, infrastructure, sustainable mobility, economic development and social inclusion. However, two-way communication between citizens and urban policymakers is lacking. This is partly the result of underutilisation of citizens' social media feeds and useful open data sets. The SmartGov project creates new support tools that effectively incorporate linked open data and social media into Fuzzy Cognitive Maps (FCMs). FCMs are useful modelling and visualization tools for discussing policy scenarios. The developed tools are tested and implemented in four European cities.

ADDED VALUE

The benefits for cities can be seen in two ways. The first is improved environmental sustainability through reduction of car usage. Additionally, it illustrates how smart city governance can be executed and how to increase citizen engagement and two-way communication.

RESULTS

By combining data from open sources and social media channels, information that previously has been used separately, SmartGov has established a new framework. Through combination of these data and usage of Fuzzy Cognitive Maps (FCM), stakeholders can visualise and analyse the future impact of policy decisions. Two pilots have been conducted, one Quart de Poblet in Spain and one in Limassol in Cyprus. The two pilots were focused on mobility with the aim to engage citizens and incorporate their perspectives. In Quart de Poblet, the municipality recognized a problem with traffic around schools causing safety and environmental issues. The municipality used SmartGov's framework to minimize the number of cars around schools. Limassol used the framework on the issue of garbage collection and route suitability. By identifying factors influencing the collection process, such as parked vehicles and manoeuvrability, and interacting

within a FCM, the city could determine optimal routes for garbage collection vehicles. SmartGov's framework is comprised of two pieces of software that communicate with each other – a social media tool that collects, filters and categorizes social media posts and a FCM tool which works as a decision-making engine. FCMs are a sustainable tool improving efficiency and allowing custom support to each stakeholder's specific needs. Further, they strengthen the two-way communication between a city and its residents by including citizens opinions in the data on which decisions are based. By identifying relevant experts that provide their knowledge, each FCM becomes an internal, mental model of the problem a certain stakeholder wishes to solve.

As expert inputs increase, FCMs become increasingly better tailored to each actors' specific needs, making them useful for all types of stakeholders wanting to streamline their decision-making processes.

WHAT'S NEXT?

SmartGov has already received positive reactions from citizens in the pilot cities. Not only are they feeling more useful and relevant in the development of their city, but they also seem optimistic in future use of the tool on other city-wide problems.

FACTS

Duration: 2016–2019

Web: smartgov-project.eu

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Budget: 1.232.120 EUR

Partners: Danube University Krems, Delft University of Technology, Active Solution AG, Interfusion Services Ltd, Cyprus University of Technology, Kenus Informática, Limassol Municipality, City of Quart de Poblet

SMART-FI

Exploiting aggregated open data from smart cities in the future internet society.

ABOUT

The SMART-FI project unlocks the potential of open data and allows citizens and developers to deploy and interoperate services, in an easy and standard way, by exploiting aggregated open data from smart cities. SMART-FI had five core objectives: 1) to analyse and aggregate open data from cities, 2) to use this to create predictive recommendations, 3) to generate methodologies for the creation and deployment of new interoperable services, 4) to contribute to the FIWARE <https://www.fiware.org/> platform (the European Union Open innovation platform for the smart digital future), and 5) to create a roadmap for city authorities which motivates them to implement or create new services within their cities.

ADDED VALUE

SMART-FI takes free open data and makes it worth something. Today, cities have a large volume of open data which is being shared but making useful use of such data sometimes remains uncertain. Data must be made comparable, something SMART-FI does by taking disparate data from different sources and homogenises it, to make sense of the data to create services for serving citizens.

RESULTS

The project has tested its feasibility on real smart city scenarios in three pilot cities: Malaga, Spain (urban transportation), Malatya, Turkey (government services) and Karlshamn, Sweden (urban transportation and household energy). The project validated its results based on the exploitation of the data they expose, aligned with the FIWARE platform with the aim to make it scalable to other cities.

One of the outcomes of the project is a transit solution using open data provided by the city. For example, open data from Malaga is used to help make transport predictions for the city's inhabitants at an individual level. The mobile application CityGO was developed for users to plan their transport itineraries according to their preferences and usual habits. The open data is used in the CityGO app

which recommends optimal individual transport options, also factoring in real-time weather conditions. The difference from similar applications such as Google maps is that the CityGO app can be parameterised to any particular city. A complementary tool of CityGO is CityDash, a web-based dashboard for the municipal control centre, which allows the city to visualize all the data coming from the city sensor network. Further, it helps traffic operators manage local traffic and transport.

WHAT'S NEXT?

The CityGO app (city-go.eu) is already helping citizens to use public transport and this solution can be deployed to a wider geographical area. Additionally, the app is being offered to new cities.

FACTS

Duration: 2016–2019

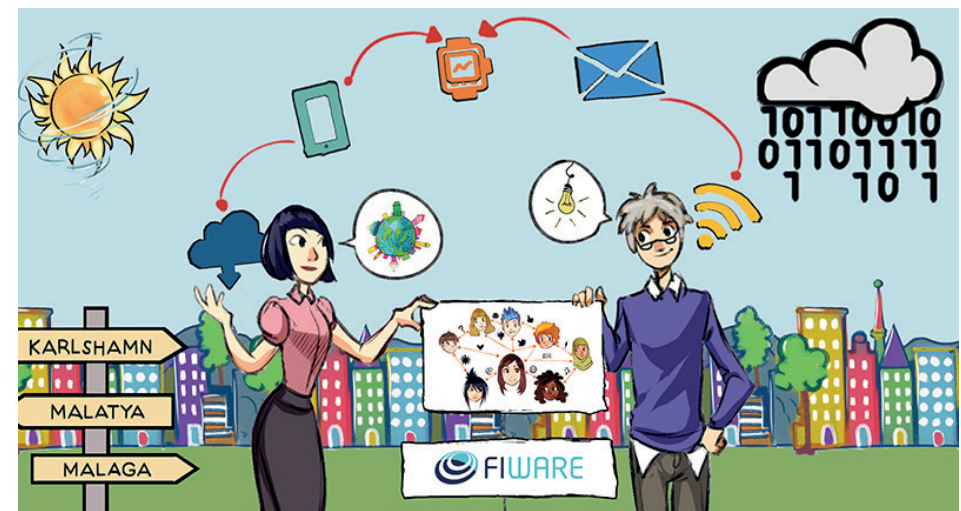
Web: smart-fi.eu

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Budget: 811.211 EUR

Partners: ATOS Spain SA, University of Málaga, Technische Universität Wien, Sampas Bilisim ve İletişim Sistemleri A.S, NetPort Science Park AB, Karlshamn Municipality, Malatya Metropolitan Municipality, Municipality of Málaga



SMART CITY HOSPITALITY

Implementing low carbon social urban tourism solutions and creating citizen empowerment through smart city hospitality.

ABOUT

Tourism generates incomes for cities and creates local employment and business development opportunities. However, it can also lead to overcrowding, pollution, noise and numerous other problems. This project develops Smart City Hospitality (SCITHOS) guidelines and tools for cities that help them find solutions to these problems and actively involve the public. Ultimately, this could change city tourism into something that benefits tourists, residents and the environment.

ADDED VALUE

The SCITHOS framework combines current thinking on sustainable development with knowledge regarding city hospitality and resilience. The framework places the discussion of city tourism in a systems perspective to create a more holistic discussion of the role and impacts of tourism in a city.

RESULTS

The project combines hospitality principles, simulation tools, apps and serious gaming techniques to support stakeholders in generating deep reflections about barriers to sustainable urban tourism, and the need for transition or adaptation strategies. There are many relevant stakeholders for the project; tourism organisations management, policy makers, urban planners, resident groups, industry, politicians, transport companies and NGOs and there are a variety of results useful for the different groups.

For example, perceived negative effects of tourism may in fact reflect urban development in general. The opposite may also be true; benefits credited to tourism may in fact be explained by other policies. For example, the city of Valencia was nearly bankrupt ten years ago but is now prosperous due to reinvention, a revival often mistakenly understood as a result of increased tourism. Consequently, the debate on tourism can be a proxy to discuss the underlying debate in a city.

One of the more visible results is the SCITHOS game, which consists of a combination of a physical board game and a digital dashboard that provides dynamic feedback on decisions taken in the game. The game has the explicit goal of getting people to talk to each other. Participants are forced to take decisions together and negotiate based on input gathered in the project's research phase. The discussions and reflections help stakeholders appreciate the true complexity of sustainable tourism development. The aim is not for all stakeholders to agree to new policy measures, but rather to help them understand and respect other perspectives. Stakeholders are stimulated to engage with and learn from each other.

WHAT'S NEXT?

The game has received positive feedback and the project's gaming team have tested the game in several parts of Europe. The final results of the project and a 2.0 game version will be presented in September 2019 in Vienna.

FACTS

Duration: 2016–2019

Web: scithos.eu

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Budget: 956.194 EUR

Partners: NHTV Breda University of Applied Sciences, Worldline Iberia, MODUL University Vienna Privatuniversität, Western Norway Research Institute, Göteborg & Co, Amsterdam Economic Board, Visit Belgrade, City of Darmstadt, City of Stavanger and Region Stavanger, Valencia Tourism



INTEGR CITY

Decision-support environment for planning and integrating multi-energy networks and low-carbon resources in cities.

ABOUT

This project is a reaction to the way energy supply networks are managed in cities where natural gas, electricity and heating/cooling are almost always planned and operated separately from each other. This “silo” approach prevents energy utilities and city planners from identifying opportunities for synergy to increase the reliability and robustness of the energy supply. This includes the planning of capital intensive infrastructure investments that anticipate future energy demand while avoiding overcapacity. IntegrCiTy’s overall aim is to foster energy network interoperability in existing or future urban infrastructures by developing a dedicated decision-support tool applied and tested/validated in three Swiss and Swedish cities.

ADDED VALUE

Contrarily to energy systems operating in a silo like approach, an integrated approach leads to more robust, economical and sustainable energy networks.

RESULTS

One of the main outcomes of this project is the IntegrCiTy tool, a decision support tool designed for engineers involved in the planning of urban areas. The tool allows the engineer to take a proposed scenario and test it in a simulation. The simulation takes all energy vectors into consideration; this scenario is then validated by the co-simulation process to show whether the design can be practically implemented. Using the tool, engineers can create different versions of a plan and observe the differences in the energy balance and the emissions produced. Policy makers can see the quantifiable attributes of the given scenario. The process is collaborative and interactive; the users can refine the simulations. When creating the database, the necessity of a common language was emphasized. Hence, the project expanded City GML (a data language designed to describe the features found in a city). Previously, City GML has mainly focused on buildings,

but in IntegrCiTy’s version, it also takes into account energy technologies and energy networks.

WHAT’S NEXT?

Although tested, the tool is not ready for implementation in real urban settings, not because of any flaw with the tool, but because cities are not quite at the point where older energy networks will be switched to newer hybrid ones, which, depending on the city, could be anywhere from two to seven years. However, there is great potential in the IntegreCiTy tool, as the use of new systems such as solar panels and the like is increasing rapidly showing there will be a need for a tool which finds synergies in energy systems.

FACTS

Duration: 2016–2019

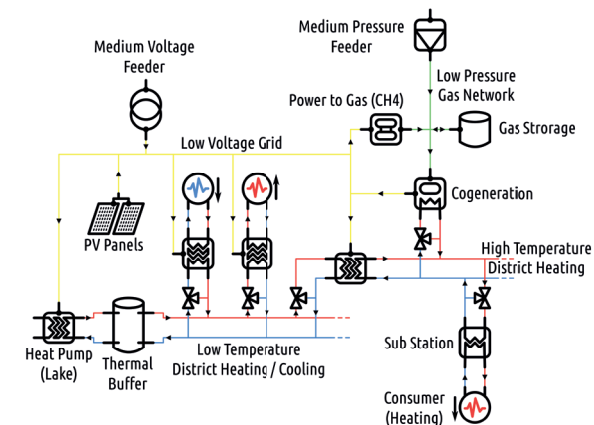
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Budget: 1.484.776 EUR

Partners: École Polytechnique Fédérale de Lausanne (EPFL), AEE INTEC, AIT Austrian Institute of Technology, City of Vevey, HES-SO Valais-Wallis, KTH Royal Institute of Technology, Centre de Recherches Energétiques et Municipales (CREM), Romande Energie SA, Hoval Austria, Europe Power Solution AB, Office Cantonal de l’Energie (Canton de Genève), Veolia Sverige AB, Services Industriels de Genève (SIG), Holdigaz SA, Riksbyggen, ElectriCity, City of Stockholm



JPI Urban Europe aims to establish as a hub for urban research and innovation in Europe. The programme enables researchers and urban stakeholders from the business world, the public sector and civil society to join forces with other stakeholders across national borders to participate in joint research and innovation activities and transnational knowledge exchange.

Our task is to connect public authorities, civil society, scientists, innovators, business and industry to provide a new environment for research and innovation. We offer experimental zones and long-term research infrastructures in a broad sense. Our mission is to develop knowledge, tools and platforms for dialogue on urban transitions.

The programme has since its inception in 2010, issued seven calls and funded a total number of 84 projects. The seventeen projects funded in the ENSCC (ERA-NET Cofund Smart Cities and Communities) call, launched in 2015, were finalized in 2018 and 2019. This catalogue provides an overview of these seventeen projects and their results.

This catalogue is part of the JPI Urban Europe Projects Catalogues series issued annually since 2016.

