

# UNIVERCITY ACTION LAB

e - magazine



ISSUE 3

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# GREETINGS FROM THE UCITYLAB CONSORTIUM

The UCITYLAB Project consortium greets this sunny spring season 2020 with a new issue of its biannual magazine, dedicated to highlighting our project's outputs and further exploring university-city engagement landscape in Europe. We are delighted to announce that since our last publication in September the UCITYLAB consortium has developed and shared the Network Roadmap, which will help you establish fruitful relationships with your local stakeholders, be it universities or city authorities. Additionally, a complete Case Study Collection, highlighting the examples of notable university-city engagement initiatives across Europe has been finalised. Both outputs can be found on [our website](#). The project partners have continuously been working with their urban stakeholders to improve their regional networks. You can also visit the Pilot Implementation section of our website to get an overview on how our partners are performing.

In this issue of the UCITYLAB e-zine, we bring you a collection of articles developed from the good practice case study reports, featuring examples of university-city collaboration from Spain, Portugal, Netherlands, Slovenia and France. Our selection of articles does not

only give insights into the nature of the collaborations, but also provides a sneak peek into the type of activities and impact of the efforts made so far. In this issue, we cover initiatives ranging from collaborations for sensor-based smart city (p.18) to battling senior citizens loneliness (p.20), to helping degraded industrial regions to prosper (p.14). We also showcase the attempt to develop innovative solutions in the field of Intelligent Transport Systems (p.16), the creation of a smart-zero emissions neighbourhood (p.12) and the implementation of an open lab with a powerful pragmatic vocation (p.22), as well as the creation of a network for territorial development (p.8). All of them preceded by an overview on the development of pilot-tests across Europe (p.6).

While our selection of articles represents only a fraction of our case study collection, we trust they will give you new perspectives into understanding the current landscape of university-city collaboration.

Last but not least, we hope you and your loved ones are safe and healthy, trying to stay home as much as possible during this notorious COVID-19 pandemic.

We hope you enjoy your reading,

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## OUR GOAL

UCITYLAB project  
aims to link European  
universities with urban  
stakeholders to address  
societal challenges

## OUR OBJECTIVES



### **TO STRENGTHEN**

the links between European HEIs and their urban stakeholders



### **TO FOSTER**

development of relevant skills among students via experiential learning



### **TO PROMOTE**

adoption of city engagement practices among European HEIs



# UCITYLAB CHALLENGE PILOT IN ACTION: OUR PATHWAYS

Building a connected ecosystem and exercising the partnerships through student action is the cornerstone of UCITYLAB. From the conception of the project, we envisioned our partner universities not only develop the UCITYLAB networks with their city stakeholders and design joint actions roadmap, but actively involve their student talent pool – future researchers, practitioner and leaders – in addressing the pressing city issues through a multidisciplinary, practical, challenge-based programme, spanning across 2 academic semesters. Our partner universities have been taking different pathways to implement the pilot-test of the project:

## THE PORTO BUSINESS SCHOOL – INTEGRATION INTO A MASTER'S COURSE

The Porto Business School (PBS) is set up as an association of 39 large business organizations and the University of Porto with the mission to improve the quality of management through advanced education at postgraduate level, custom programs for organizations, start-up acceleration projects, corporate partnerships, applied research and consultancy. The school seeks to be a global network of agents of change throughout life, preparing individuals and organisations so they can prosper in an increasingly fast-changing world and move business innovation forward.

The UCITYLAB pilot-test is being integrated into an existing PBS programme – Executive Master's of Business Administration (EMBA), particularly within the Corporate Entrepreneurship Course and the final Capstone Project. The program encourages multidisciplinary student teams and their instructors collaborate with companies developing solutions that address desirability, meaning understanding the citizen, feasibility, using available

technologies, and viability, matching these solutions with a business strategy of corporations.

The project aims at strengthening the links between Porto Business School and the city through the identification and tackling of urban challenges. Multidisciplinary student teams will work closely with public and private organizations in creating novel solutions to pressing problems and bridge the gap between science (HEI and research centres) and society (citizens and industry), with innovative business models. During the project, the goal is to prototype new business models that showcase a deep understanding of real societal urban needs and that use both a human-centric and a triple-bottom-line approach.

## AUTONOMOUS UNIVERSITY OF BARCELONA – AIRING A CO-CREATION PLATFORM

Autonomous University of Barcelona (UAB) is a comprehensive university, actively driving, among other priorities, concepts of co-creation among local stakeholders and practicing living lab methodologies in Barcelona. To organise the network and implement UCITYLAB project events and pilot-test of the course, the Autonomous University of Barcelona has developed a "one-stop-shop" - the [Covadonga Urban Lab](#).

With this proposal, where the university is linked from its broadest meaning to the city and the territory, the pilot platform aims to build a new space for collective experimentation, co-creation and innovation. As an urban laboratory, the Lab is an open space for the citizens and the different urban and social agents who want to imagine, create, test and implement solutions to the main social, urban and environmental challenges facing the Covadonga district and the city of Sabadell.



The urban lab covers 1 district, where 30 entities, 5 universities and 12 faculties establish connections to address 4 notable lines of challenges within the district: knowledge and culture, sports and health, circular economy, inclusivity. The pilot project is developed in relation to two groups: Local Interest Group, which provides local knowledge and challenges; and Academic Group, which brings the expertise and creativity to respond to these challenges.

Throughout the year 2020, the implementation of the Covadonga Urban Lab pilot project will be carried out through different activities and events, opening the possibility for all those interested stakeholders to participate and work on the challenges.

## INNOVATION AND DEVELOPMENT INSTITUTE OF UNIVERSITY OF LJUBLJANA (IRI UL) - BRINGING QUALITATIVE RESEARCH INTO SERVICE AND PRODUCT DESIGN

IRI UL was established by the University of Ljubljana together with a number of prominent Slovenian companies as an intermediary organization and a service for knowledge and technology transfer. It is a non-profit research institute with a mission to foster a continuous and reciprocal cooperation between the higher education environment and Slovenian industry.

To undertake UCITYLAB challenge programme pilot-test, IRI-UL partnered with the Department of Ethnology and Cultural Anthropology, Faculty of Arts. The Pilot is embedded within the second cycle curriculum and spans in two stages over two semesters in the study year 2019/2020, with two groups of students with diverse social sciences and humanities backgrounds. The general aim of the Pilot Programme is to incorporate anthropological expertise, research methodology, and theory into the

development processes of diverse solutions to urban challenges. However, sustainability challenges require a multidisciplinary approach that incorporates the social dimension into the context of developing sustainable, people-friendly, and smart cities.

The programme is designed and delivered in cooperation with external stakeholder organisations of the UCITYLAB Network: the student teams work with professionals from company Voyego, developing and implementing Mobility as a Service solutions, as well as with municipality representatives, NGOs, and research organisations. The theoretical and methodological part of the course equip the students with broader insights into the role of anthropology, ethnography, and people-centred design approaches in tackling interdisciplinary challenges in urban environments. Lectures are supported by thematic workshops, including teaming up the UCITYLAB students with students from other Faculties (e.g. Faculty of Electrical Engineering), thus bringing in an additional interdisciplinary dimension. Working in smaller teams, the students conduct ethnographic, qualitative research – engaging residents, local community organisations, and other relevant research participants. They experiment with designing research-based development ideas through co-creation with external stakeholders and research participants.

While our partner universities might diversify their routes to embedding the pilot-test of the UCITYLAB project into their activities, it is important to mention that the methodology for UCITYLAB Challenge Programme has been proposed and described in the [UCITYLAB Challenge Toolkit](#), accessible on our website. Stay tuned for more updates about the pilot-test implementation and UCITYLAB outputs. ■

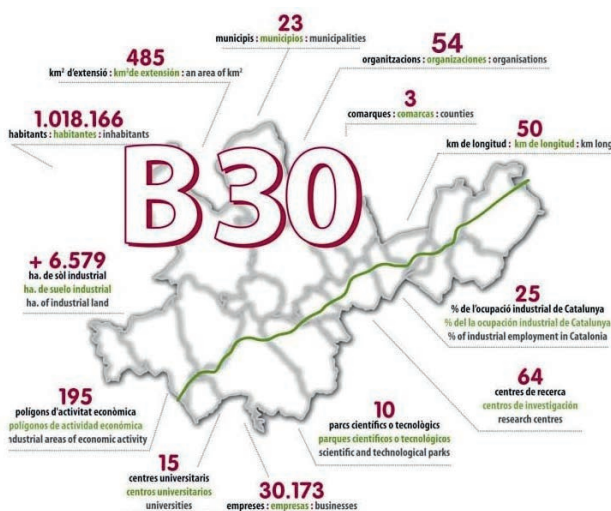
# HUBB30: AN INCLUSIVE NETWORK FOR TERRITORIAL DEVELOPMENT

"Hub b30" is an open innovation network created to promote the collaboration, economic development and social cohesion of the territory in which the Autonomous University of Barcelona (UAB) is located.

The B30 territory is made up of 23 municipalities in a valley that is crossed by the AP7 (B30) highway that connects the different municipalities, with an area of 485km<sup>2</sup> and has more than one million inhabitants. Its uniqueness lies in the fact that it represents the main industrial agglomeration of Catalonia and Spain with almost 30,000 companies (providing occupation for almost 400,000 workers (1) located within its area.

In this sense, approximately 50 kilometers of the highway axis called B30 structure a territory of a great demographic, economic and social relevance.

In this territory a series of very singular circumstances



come together that explains why it is internationally known as an innovative region (2). Not only does it have a high intensity of companies, but also a high presence of scientific-technical institutions. It hosts one of the most advanced light laboratories in the world, the Alba Synchrotron, as well as two major public universities: the UAB and the UPC. These capacities include research centers of the CSIC and IRTA; the UAB Research Park and the ESADE Creapolis business school. The possibilities of contribution of territory B30 to a socioeconomic development of Catalonia based on the knowledge economy are extraordinary precisely because of the potential for transfer of knowledge and technology that it integrates.

In this context, the strategy of the Universitat Autònoma de Barcelona is to play a role as a node of metropolitan knowledge. The consolidation of this paper depends, among other things, on the ability of the University to functionally integrate into the territory of which it is a part. But linking the university with the rest of the actors is not an easy task in the context of the metropolitan area of Barcelona, characteristic of its variable geographies and changing boundaries in a reality that adopts urban models in the form of a network (3).

Born from the municipal partnership ÀmbitB30, initiative Hub b30 helps UAB to be linked locally and understands the logic of the various actors in the territory that hosts it. The systematic interaction it maintains, likewise, helps to determine the role of the university in the territorial network of centers and sub-centers to which it belongs.

The Hub b30 contributes to the UAB understanding the

logic of the various actors in the B30 territory, to which it is linked, and to determine the role of the university in a complex network of companies, entities, centers and subcentres.

Born in 2018, the Hub B30 is conceived as a co-creation and co-creation ecosystem inspired by the 4 propellers, where companies, research and innovation agents, local administrations and citizens of the B30 have their place. It offers contacts, experts, resources and services to public and private organizations to help them detect and solve challenges in an efficient, innovative and competitive manner. It promotes access to knowledge about markets, financing, technology and patents; to equipment and scientific-technical infrastructures; to advisors in innovation and entrepreneurship; to research staff; and specialized training among others.

One of the first activities organized to promote interaction and collaboration among local stakeholder and boost knowledge transfer to the territory are the Hubb30 Innovation Brunches. These events are opportunities for networking between researchers, companies, entities and users and articulate collaborations around specific topics that combine technologies and diverse sectors.

In each of the announcements, a practical case of collaboration between diverse agents is presented to the public and in order to demonstrate successful examples of technological, social, product, process, marketing and business model innovations.

To date, the following twelve Innovation Brunches have been celebrated:

- Sensory at the Health Service
- Intelligent mobility solutions
- Smart Waste Management: Industrial Symbiosis
- New Packaging solutions for fresh foods
- Digitization and Exploitation of Data in the Public Sector
- Neuromarketing for Commerce
- Product Innovation in Cosmetics
- Big Data for the Healthcare Sector
- Smart Food
- Microbial Resistance
- Circular Water
- Gamification and Heritage

# hub b30.

On each one of the topics, the UAB Research Park has produced an associated technological surveillance report that integrates a vision of trends and innovation around the thematic, as well as a related patent analysis. The various reports produced so far are available and can be consulted at the following URL: <https://hubb30.cat/en/innovation-brunchs>. The 12 Technological Surveillance Reports of the Hub b30 Innovation Brunch can also be found at <https://hubb30.cat/en/innovation-brunchs>.

As in these sessions, the most disruptive technologies, trends and experts in the field are exposed, they generate a lot of interest among the business, social RDI and social fabric of the B30 territory. Consequently, they contribute to generating interactions that in the medium-longer term could become consolidated cooperation in research and innovation projects. The available data (4) confirm positive feedback from the participants that make up the quadruple propeller of field B30. They indicate that 68% of participants appreciate their satisfaction and efficiency between 3 and 4 points out of a total of 4.

The logic of Innovation Brunch is "top-down", in the sense that the proposed topics take into account the characteristics of the territory and its opportunities for research, development and innovation from a strategic viewpoint. Since 2019 however and in order to complement the action of Hubb30 with a "bottom-up" logic, different events were organized "on demand" by and with the agents of the territory, the Innovation Mornings. The objective of this second typology of events is to work on problems, challenges and solutions utilizing Design thinking methodologies. This line of work has been initiated this year with the following two themes:



- Mental Health and Employment
- Business training needs

In essence, the Hub30 initiative is still young, but step by step recognition is being obtained both locally and supralocal and international level. Probably one of the most interesting success indicators of a hub is the quality and volume of the actors that have adhered to it or participated in the diverse activities. Having reached the interest of RDI agents and local administrations for Hub b30, the company/industry membership phase is now underway.

Since the Hubb30 was initially created and impulsed by the Universitat Autònoma de Barcelona, the UAB Research Park, Eurecat and the B30 Area Association to promote innovation, further key RDI actors in the territory also decided to adhere to the HUB (UPC, Sincrotró Alba, ESADE Creapolis ) and the key local administrations (County Council, Innovation Agency of Catalonia ACCIÓ ). In 2020 it is expected to continue growing and to gain more diversity and efficiency with the adherence of the representatives of companies and industry of the territory B30 to the HUB. ■

#### Sources:

- *Associació Àmbit B30 (2015) Estratègies per a una millora en la competitivitat de la indústria a l'àmbit B30.*
- *AMB (2018) Estratègia territorial de l'Àmbit B30 per al desenvolupament econòmic inclusiu i sostenible.*
- *Arcos(2019) Universidad, territorio y desarrollo local. Un análisis de la Universidad Autónoma de Barcelona.*
- *PRUAB (2019) Internal Document Elaboration.*

Provided by: Konstantinos Kourkoutas, Roser Salvat Jofresa and Hafsa el Briyak Ereddam.





# MATOSINHOS LIVING LAB: CREATING A SMART NEIGHBOURHOOD

**M**atosinhos is a coastal city in the district of Porto. The living lab is located in a central area of the city surrounding the City Hall, where the main public services are centred, composed by several points with distinct physical, economic and social characteristics. It is an initiative of Municipality of Matosinhos, CEiiA (Centre of Engineering and Product Development), Porto Polytechnic, Metro do Porto, Efacec, among others. The overall objective of is to create a smart neighbourhood, as a low carbon space, resilient, accessible, participated and connected. It aims at testing technological solutions for low-carbon, energy efficient and reducing pollutant emissions. It acts in areas such as mobility and transport, buildings, environmental innovation and the promotion of circular economy, to decarbonize the city.

It is a project of co-creation and open innovation of products, services, software, hardware and low-carbon urban interventions, where municipalities, knowledge centres, companies, entrepreneurs and citizens interact.

*Matosinho's Living Lab aims at creating a smart, zero-carbon emissions, resilient, accesible, participatory and connectedd neighbourhood*

Real context tests are performed for challenges like parking management, bike sharing, electrification of the fleet, traffic monitoring.

## A CITIZEN-ENGAGEMENT EXPERIENCE

Matosinhos is preparing to become a living experience of what may be the cities of the future regarding the carbon intensity of daily activities. The citizens will be engaged in the creation and experimentation of cleaner and more intelligent technologies. The project also aims to promote entrepreneurship and the development of low-carbon business solutions.

In this sense, the role of the University was to develop a methodology to assess the impacts on the citizens. Indeed, the Polytechnics of Porto has created a technological tool to monitor social impact on two levels: customer perception of the use of the technologies offered by the living lab and the appropriation of the concept of "citizen centre" by them. This tool will be based on the use of the OLAP (Online Analytical Processing) cube, analysing the 3 perspectives presented of the BSC (Balanced ScoreCard): customers' perspective, learning perspective and economic-financial perspective.

## MATOSINHOS LIVING LAB GOES BEYOND THE DECARBONIZATION OF THE CITY

Besides decarbonizing the city, the project's goals include decreasing energy consumption, providing a test-bed for solutions that can be scaled to the whole city, to other cities and eventually to other countries, having a more comfortable and sustainable mobility, and promoting the use of renewable energies.

Several activities are being performed in order to



achieve those goals, namely:

- Development, testing and experimentation of innovative and integrated technological solutions, in real context, intersecting mobility, energy, buildings and connectivity
- Promotion of strong user involvement, with the co-creation of solution
- Evaluation of social adoption of these solutions
- Measurement and evaluation of carbon emissions in real time powered by mobi.me (CEiiA's mobility management platform)
- Intelligent traffic monitoring in Matosinhos using radars and sensors
- Placement in buses stops of real-time information monitors, managed by mobi.me, displaying the time, the atmospheric temperature and the waiting time for the incoming buses

Therefore, the project, apart from reducing the carbon emissions, intends to provide more quality in public spaces, more energetic efficiency, better life quality inside public building, improvement of road safety, increasing connectivity between citizen and all agents, and promotion entrepreneurship and new businesses creation related to low carbon solutions (development of new products and services). How? With auto sustainable lamps that measure carbon emissions, with pavement that reduces vehicle speed without drivers' intervention, with a bike sharing system connected to the public transport system with a

real time measurement of CO2 emissions spared, with an autonomous robot to support urban cleaning, among other activities and tools. ■

## MAIN PARTNERS



Provided by: Catarina Reis, Vanessa Oliveira, António Emídio

Images and logo credits: Câmara Municipal de Matosinhos & CEIIA



# RUARDI: A CREATIVE PATH TO KNOWLEDGE

Degraded industrial regions – such as Zasavje in Slovenia with its former coal mines – are faced with social, economic and environmental challenges, such as unemployment, pollution and brain drain. To prosper, these areas need fresh ideas, bold visions and industrial restructuring, developed in partnership with local industry, community and citizens. The RUARDI project was a university-industry collaboration project involving an interdisciplinary student research team. It was conducted over a period of five months in 2015 and implemented within the Creative Path to Knowledge programme of the Public Scholarship, Development, Disability, and Maintenance Fund of the Republic of Slovenia.

RUARDI established cross-disciplinary and multi-stakeholder cooperation between different Faculties and research institutes of the University of Ljubljana, the city of Zagorje ob Savi (Slovenia), its local industry representatives (company Aereform), and local communities. The key aim was to conduct an interdisciplinary study which would provide recommendations for enlargement, optimization and integration of the existing city airport into the local industrial environment, community and everyday life of citizens. The long-term vision was to establish an aeronautic entrepreneurial hub for high-tech innovation and multiplication of regional social-economic development.

## SMALL RESEARCH PROJECTS THAT BRING VALUABLE EXPERIENCE

The Creative Path to Knowledge programme, supported by the Slovenian Ministry of Education, Science and Sports and the European Social Fund, enhances cooperation

between higher education institutions and industry, businesses, or other non-academic organisations in short-term research & development projects. The participating students thus get the opportunity to work on real-life challenges, gaining practical experience, additional knowledge, as well as competences and skills that are increasingly important for entering the job market.

The current programme (2016-2020) value is 10.625.000,00 EUR and aims to involve at least 2700 undergraduate and graduate students, as well as 1400 non-academic experts. The programme co-finances projects that are carried out in groups of 4 to 8 students co-mentored by academic and industry/non-academic mentors, and encourages the exchange of knowledge, experience and good practices. The projects can last from 3 to 5 months. University and non-academic partners have to apply for funding – if successful, the academic mentors recruit a team of students to work on the project.

## REVITALISING A DEGRADED URBAN AREA

Zasavje is one of the most affected Slovenian regions – in the time of economic crisis, the unemployment rate in the region has grown considerably. Traditional industrial sectors are labour intensive and characterized by high levels of manual work and low levels of automation. In the past years, the production was globally moving to areas with cheaper labour force. These events have further aggravated the economic situation in Zasavje, causing serious economic problems, i.e. low standard of living, low income, dependence on the social welfare system, long-term unemployment etc. These kinds of areas can benefit by introducing positive visions and by enhancing new solutions and development strategies incorporating local



heritage and involving their citizens as co-creators.

Air mobility and aeronautic industry can present key integrators and drivers having positive effects on the development of environment, region, local community and entrepreneurship. The RUARDI project aimed to provide a holistic solution of expanding and integrating the existing city airport into the local community's everyday life. Three non-academic mentors from industry and research (Aereform and IRI UL), four academic mentors (University of Ljubljana), and eight students from four different Faculties within the University of Ljubljana (Faculty of civil engineering, Faculty of architecture, Faculty of social sciences and Faculty of mathematics and physics) commenced work on the RUARDI project in January 2015.

The core of the project was the students' research and development of solutions. Among other activities, the project team had to identify the relevant stakeholders and actors within the local community, develop the concept and mapping, conduct research and analysis, evaluate results and provide development recommendations, disseminate results and participate in multi-stakeholder meetings. During this process, the students acquired new competences and an elaborate vision of the airfield, while the collaboration between industry and university partners supported the exchange of knowledge and best practices.

The interdisciplinary study resulted in a detailed, 153 pages long study report, written by the participating students and their academic and industry mentors, and has provided concrete recommendations that were later included in the city's development strategy.

## DEVELOPING SKILLS AND COMPETENCES

The learning outcomes were assessed for each student individually by the involved academic mentors, based on the activities undertaken by the student within the project and their performance. The individual assessments had to be included in the final project report, required by the funding programme. One of the most important outcomes of the collaborative project were the skills and competences developed by the involved students, including creative thinking; solving practical challenges with the solutions being feasible technically, socially, as well as financially; communication across disciplines and stakeholder groups; ability to set, formulate and implement a research process that has clear objectives and performance indicators; as well as organizational competences of working in an interdisciplinary team. ■

*Provided by: Jure Vetršek, Sašo Knez and Sara Arko.*



# ITS FACTORY: INNOVATIVE SOLUTIONS IN INTELLIGENT TRANSPORT SYSTEMS

ITS Factory is a public-private collaborative platform that aims to maximise synergies to develop innovative solutions in the field of Intelligent Transport Systems (ITS). Reflecting the complexity of modern urban challenges, the ecosystem facilitates communication between the public sector, academia and businesses.

The development of solutions through the ITS structure creates a two-way exchange, from which developers and researchers gain access to the available data from public sources, and the region benefits from the production of the latest concepts in urban mobility. For the student community, this collaborative environment creates an opportunity to gain exposure to the iterative process that informs technological creativity, and to become more aware of the social component that is attached to the development of solutions for the modern urban environment.

Modern mobility solutions, and the application of technology, relies heavily in the collection, storage and distribution of data. There is an increasing awareness of the potential for open data to unlock unlimited solutions to deliver the promise of smart communities and sustainable urban ecosystems. The main objective of the initiative is to generate a collaborative community specialized in the delivery of intelligent transport solutions. By attracting as many stakeholders as possible, ITS Factory aims to make Tampere an international pole in the field of mobility innovation.

## COLLABORATIVE NETWORK

Together with the constantly expanding network of private actors, there are several institutions within public governance and education that participate in a more permanent role to provide infrastructure, data, and financial support. The different partners are allowed to develop their own ideas and execute specific projects within the realm of ITS. Some of the core activities include:

- ITS Factory development
- Commercialization and marketing activities
- acilitation for developers
- Testing facilities
- Interaction with end-user

The integration of ITS Factory within the Business Tampere structure allowed for a more streamlined co-creation process, resulting in the following impacts from this collaboration:

- Commercialization of products and services
- Creation of new research and development opportunities
- Development of industry standards for the creation, exchange and management of data
- Access to innovative transport solutions for the City of Tampere, the Tampere Region, and the citizenship
- Associated societal impacts, including a more efficient transport network, reduction in emissions, optimization of costs, road safety, accessibility and public health



In order to reach the highest levels of innovation and co-production, ITS Factory aimed to create an ecosystem in which all stakeholders felt free to engage in research, collaboration and development of concepts. The flexibility of the creative model allows for extensive adaptability to the needs of developers and researchers. Due to the wide range of projects that can be integrated in the ITS ecosystem, the structure offers the possibility to benefit from the platform, including access to public data and real-life testing, to any type of venture. This perspective on stakeholder engagement, as well as the model developed, can be a valuable reference point for similar initiatives in the future. ■

*Provided by: Fernando Fernández, Institut Mines-Télécom Business School*

*ITS Factory Community  
seeks solutions for mobility  
challenges through close co-  
operation of the public and  
private sectors*

## MAIN PARTNERS





# SMARTSANTANDER: A UNIQUE CITY-SCALE PLATFORM

Santander was chosen to become Europe's test bed for a sensor-based smart city. The Spanish city is embedded with more than 12,000 sensors to help the government operate as efficiently as possible.

The gathering of data collected by the sensors will lead to significant improvements in how city infrastructure is used and to a better understanding of urban issues. This unique experimental facility will be sufficiently large, open and flexible to enable its scaling-up around the world.

The University of Cantabria has coordinated the technical deployment of the infrastructure and services, being responsible for technically guiding the digital transformation.

On the one hand, the research community gets benefit from deploying such a unique infrastructure which allows true field experiments while, on the other hand, different applications serving citizens' needs will be deployed – typical applications and services for a smart city, including experimental advanced research on IoT (Internet of Things) technologies and realistic assessment of users' acceptability tests.

Since 2010, 12,500 sensors have been measuring the amount of trash in containers, the number of parking spaces available, and the size of crowds on the sidewalks. Besides, sensors were also installed in vehicles, such as police cars and taxicabs, measuring air pollution levels and traffic conditions.

The data from these sensors flows to banks of computers that analyse the real-time information and give

city officials the big picture, allowing them to adjust the amount of energy they use, the number of trash pickups needed in a given week or the amount of water to sprinkle on the lawns of city parks.

To attract the widest interest and demonstrate the usefulness of the SmartSantander platform, a key aspect is the inclusion of a wide set of applications. Application areas have been selected based on their high potential impact on the citizens as well as to exhibit the diversity, dynamics and scale that are essential in advanced protocol solutions and will be able to be evaluated through the platform. Thus, the platform will be attractive for all the stakeholders, e.g. industries, communities of users, etc. that are willing to use the experimental facility for deploying and assessing new services and applications, and Internet researchers to validate their cutting-edge technologies, including protocols, algorithms, radio interfaces, etc.

## A SCALABLE, HETEROGENEOUS AND TRUSTABLE LARGE-SCALE REAL-WORLD EXPERIMENTAL FACILITY

The main goals of the SmartSantander are to be a test bed for a sensor-based smart city, to lead to a better understanding of urban issues, to fuel the use of the Experimentation Facility among the scientific community, end users and service providers in order to reduce the technical and societal barriers that prevent the IoT concept to become an everyday reality, to develop new applications by users of various types, to validate approaches to the architectural model of the IOT, to evaluate social acceptance of IoT technologies and services and to develop a data market place, according to the Digital Single Market principles.



Some of the activities performed are environmental monitoring, outdoor parking management and driver guidance, parks and gardens precision irrigation, augmented reality, participatory sensing and joint R&D (university & industry cooperation). The ultimate impact is to improve the city efficiency using the real data driven from the sensors. ■

*Provided by: Catarina Reis and Laura Rodríguez de Lope.*

## MAIN PARTNERS



## AWARDS AND RECOGNITIONS

*Computerworld & Cio Iberoamericano 2012*

*ENERTIC 2015*

*Future Internet Award*

*Gobierno Abierto*

*Google Ciudad Digital*

*Impuls@ TIC*

*Innovación +Sostenibilidad+Red*

*Innovation Hub 2017: Premio a la Innovación Transformadora*

*Premio "Ciudad de la Ciencia y la Innovación"*

*Premio Ciudadanos 2015*

*RFID & Wireless IoT tomorrow' 2017: Modelo innovador en la aplicación de la tecnología a los servicios urbanos*

*Smart Cities 2013*



# URBAN VITALITY RESEARCH PROGRAMME AND HET AMSTELHUIS LIVING LAB

The dismal statistics indicates that almost half of Amsterdam adults feel lonely. The data collected by the municipal health service GGD states that it comes down to 300 thousand lonely people in the Dutch capital, 80 thousand of whom feel extremely lonely. The tendency has stricken the elderly population as well. To alleviate the problem, the Urban Vitality Programme, one of the Research programmes of Amsterdam University of Applied Sciences (AUAS) has joined forces with Het AMSTELhuis, a residential facility for senior citizens, and launched 'The AMSTELhuis' Living Lab project in 2015. The project made social inclusion of elderly people, along with their activities and nutrition, a cornerstone of the Urban Vitality Programme and het Amstelhuis' cooperative efforts.

## AMSTERDAM: COMBATTING LONELINESS AND BECOMING AN AGE-FRIENDLY CITY

Amsterdam is perceived to be one of the most inspiring and inclusive cities in Europe. Every year, it welcomes more and more expats from all over the world. Yet, the ever-rising population does not promote better socialization. Loneliness is getting recognized as a public health threat, and the city invests 1 million euros per year for tackling the issue of loneliness among its citizens. Apart from that, in 2015, Amsterdam joined the WHO Global Network for Age-friendly Cities and Communities to advance the well-being of elderly citizens through a number of programmes. With the AMSTELhuis project as a part of the Urban Vitality Programme, AUAS shares, a common ambition to organize the space for elderly citizens so that they can live an independent life that is meaningful and enriched with a variety of informal social activities.

## URBAN VITALITY: IMPROVING SENIOR CITIZENS' WELL-BEING

The activities carried out in the AMSTELhuis within the Urban Vitality research programme are majorly framed into students' projects. The ongoing projects and research programmes are centred around three main themes: vitality, healthy nutrition and social inclusion.

Exercise Therapy students give weekly lessons in fall prevention. Prior that, a study on fall prediction was performed. The purpose of both activities is to predict falls, what will allow for a quicker action of the support staff in the future and make elderly people feel more confident in terms of their postural stability.

Healthy nutrition for the seniors is a frequent subject in research and advice. As part of the AUAS Food Lab, Nutrition & Dietetics students carry out research on the subject as well. Together with the residents' club of the Amstelhuis, the Food Lab organises tasting events when residents can try sustainable vegetarian food. What is more, the Food Lab runs a project on marketing the Amstelhuis restaurant and making it more attractive for elderly people living in the neighbourhood.

For supporting Amstelhuis residents' well-being, it is important they have a solid social network of co-residents, family and friends. The research done by Occupational Therapy students shows that some new residents find it difficult to connect with others when moving into the Amstelhuis. Students and researchers are trying to see what assistance is needed to help and strengthen the social network of new residents upon their arrival and further on.



The projects are being carried out with the support from the AMSTELhuis administration and supervised by the university researchers who guide and collaborate with their students in interdisciplinary teams.

## LIVING LAB: WHY A SUCCESS?

Efficient collaboration of the AUAS and the AMSTELhuis is ensured by several factors. First, both vision and ambition are shared and supported by the management, employees of the AMSTELhuis along with the researchers and students from AUAS. All involved parties have a common understanding that the AMSTELhuis residents, their comfort and safety are of primary concern. As confided by Ellen Budde, senior project manager of the AMSTELhuis Living Lab, a significantly important component of the programme success is related to the willingness to learn together and speak to one another respecting each

other's views, as well as to practice new behaviour expressed by all involved stakeholders, including residents themselves, their families, carers, etc. Undoubtedly, clear leadership and steering mechanisms bring more structure to the management processes. And the crowning element of the programme success is, undeniably, the applicability of the research results that improve the well-being of the AMSTELhuis residents. ■

*Provided by: Alina Meloyan and Hacer Tercanli.*



# UAB OPEN LABS: A DESIGN PROCESS

The design process of an open, collaborative and innovation lab is not just a methodological issue. On the contrary, the design process in itself can set a relevant precedent for future collaborative practices in the lab. The stakeholders that will be involved, the kind of relationships established among them, or the topics opened to public debate may have an impact on how the labs will function in the future. In the following article, we expose how the design process of UAB Open Labs, that took place from January to December 2018, was carried out.

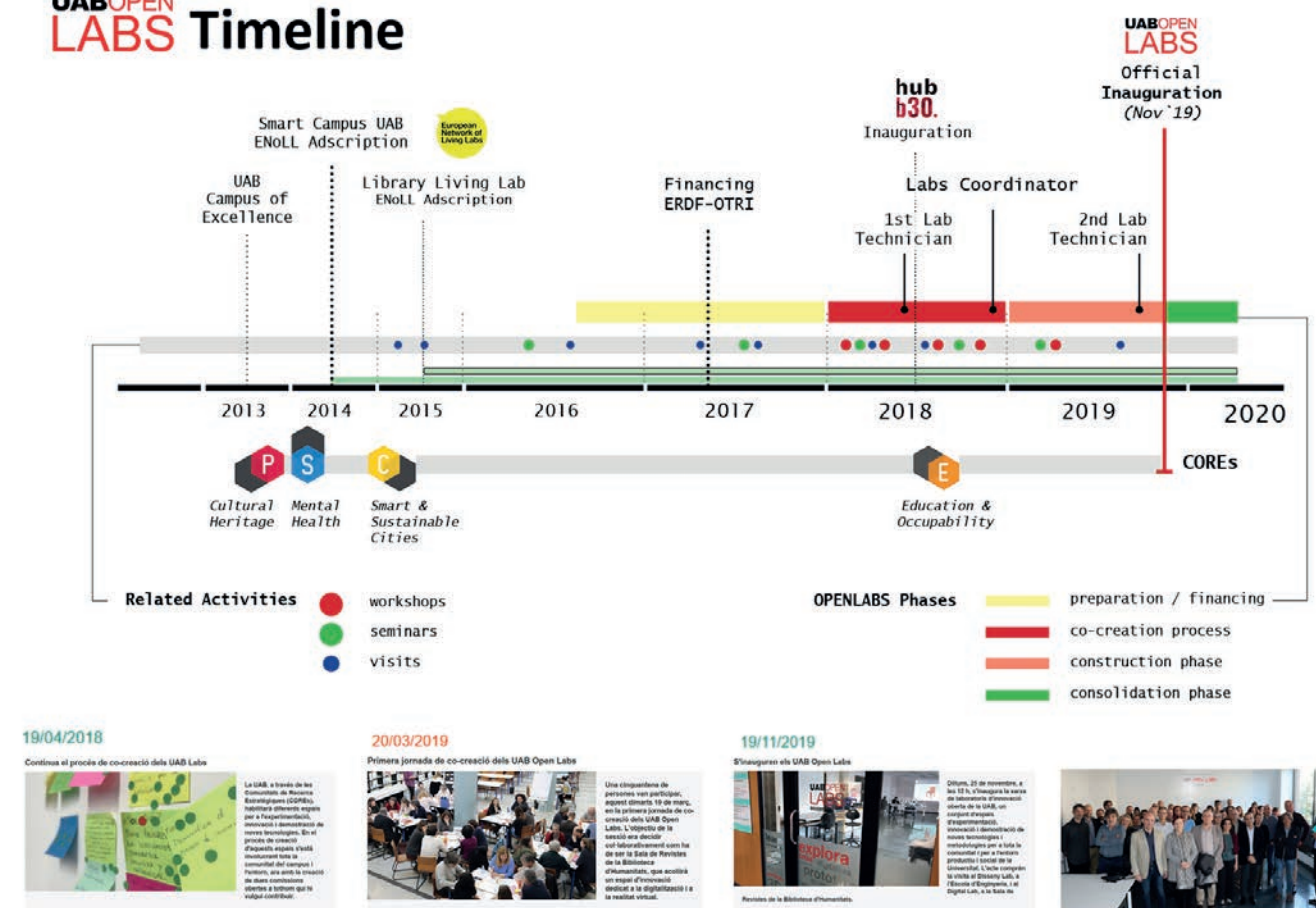
## MULTI-STAKEHOLDER PARTICIPATIVE APPROACH

The UAB Open Labs follow the trail of predecessor innovation spaces/labs such as makerspaces / fab labs and living labs and adopts their main aim: providing an open space for designing, prototyping and testing collaboratively. Therefore, participation and collaboration lay in the core of the UAB Open Labs fundamental principles. Precisely for that reason the design process of the UAB Open Labs was conceived and carried out in line with these principles, deploying a multi-stakeholder participatory approach and by implicating the final user in the design from the early beginning of the process. As described in a previous article, since 2013 the UAB had already setup four thematic strategic research communities (COREs) that had activated and engaged a great part of the academic community and thus could serve as the base for the co-creation process. The existence of these communities provided two identifiable advantages: i) a recognition and identification of needs and capacities of faculties and research groups based on the functioning of the COREs the previous years ii) an acquainted community that could be invited, engaged and make participant in this new endeavour that they would ultimately be the beneficiaries of.

A third factor to take into consideration was the existence of the UAB Smart Campus Living Lab (member of EnoLL since 2014) that had been functioning for some years already on an experimental basis. The creation of the Open Labs was ideated precisely as a pragmatic step for the further development of the Smart Campus Living Lab, where they the Open Labs would serve as the operating branch of the Campus Living Lab, reinforcing its stature and capacities, and increasing its potential impact as an innovation and technology transfer tool while at the same time helping to impulse even further the collaboration potential within the COREs and the university community as a whole.

The first step in any participatory process is answering who should be invited to participate. In this regard, it should be noted that UAB Open Labs have some relevant differences with other labs that should be taken into account when answering this question. Unlike other open labs, UAB Open Labs are located inside a university campus; not in a neighbourhood nor in any other “real life” setting, so the community at stake was very specific and of high educational level. Nonetheless, UAB Open Labs are not located inside the academic traditional closed labs scheme and proposed to go beyond that. These characteristics make UAB Open Labs a particular case situated in between universities and cities. In other words, UAB Open Labs are bringing academic labs and open labs together; establishing a new mixed space between them and defining a new way of doing things in an academic setting. This peculiarity determined which actors could get involved in its design process. In any open lab the Quadruple Helix principle establishes that companies, public administration, academia and citizens should be brought together to seek solutions for the urban challenges that concern them. Nevertheless, UAB Open Labs set up

## UAB OPEN LABS Timeline



a quite more complex scenario, where any stakeholder linked to the university can become a possible user, as well as anyone outside university borders.

Therefore, the whole university community together with near local and regional administrations, citizens and other universities were called to participate in the design process; enabling multiple and diverse actors (students, professors, researchers, librarians, neighbours, etc.) to work together. After this wide call, at the end of the design process, approximately 137 people were involved, most of them from the UAB community but also relevant external participants. As the attendance data shows, the entangled map of stakeholders was a challenge itself, adding complexity to the process, but at the same time presented a great opportunity to work with and for the special diversity and talent present within the campus community.

## CO-CREATION AND COLLABORATIVE METHODOLOGIES

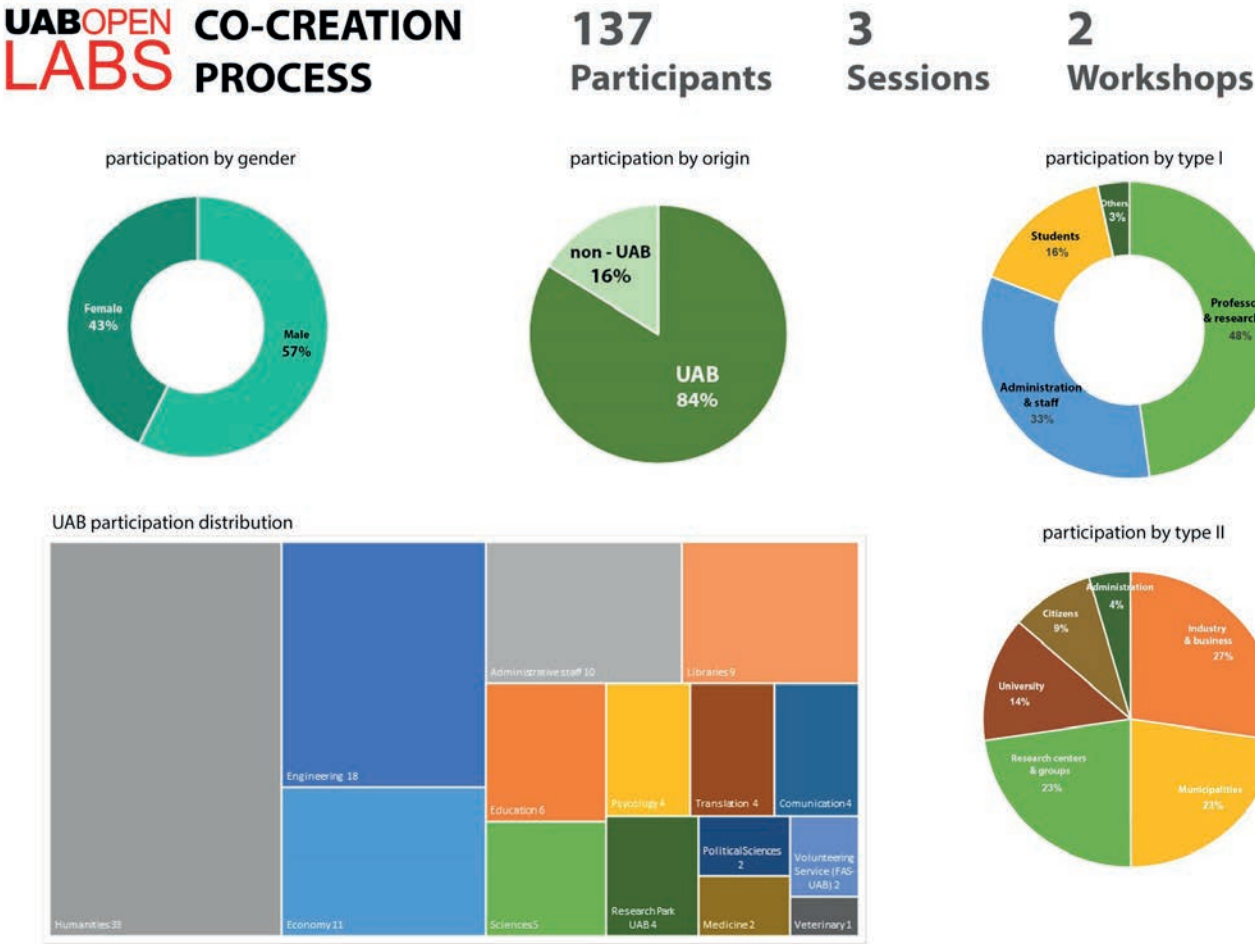
As was exposed in previous paragraphs, in line with Open Lab's approach and aims, the design process was based on participative methodologies. It was conducted throughout three different stages, which had different aims and targets.

- The first stage (January – March 2018) consisted

of three co-design sessions, where the whole net of stakeholders were invited to participate. Each workshop had a concept that guided the objectives and participative techniques: “sympathy”, “inspiration” and “prototyping”. That is, during these workshops, stakeholders shared their interests and got to know each other. Moreover, the workshops allowed to collect suggestions to define the functions, aims, governance and spaces of the labs. Additionally, during this phase specialized visits to relevant Labs in the territory were realised with the academic community.

- After these workshops, in the subsequent phase (May – December 2018) two commissions / working – action groups were created in order to bring the ideas and suggestions collected to reality. These commissions aimed to define clearly the characteristics of the future labs and advance with operational steps to make them reality. The First Commission worked on the regulations, governance, community and virtual platform; and the Second Commission oversaw the infrastructures, tools and machines, spaces and furniture. Both Commissions met periodically to plan and draw all the labs characteristics. Although the call was also open to the whole community, the Commissions were formed by stakeholders





more closely related with the UAB Open Labs organization. The loss of participation during a co-design long process is one of the main challenges that this kind of experiences must face. Even so, it should be noted that a massive participation may hinder the decision-making process.

- Finally, once the design was almost closed, two last co-creation meetings were celebrated to draw the physic composition of the labs (furniture, lights and other features). Both meetings took place in the space where the labs will be located, which facilitated the ideation exercise. In this case, the attendants were almost entirely from the university community.

TOWARDS A CONCEPTUALIZATION OF THE UAB OPEN LABS MODEL

One of the singularities of the UAB Open Labs is precisely the starting point that we have just described: to a large extent, these Labs have been configured as a result

of a participatory process of co-creation that was opened to the entire university community and which also involved other agents of the territory, both public and private. So, these labs, which are open spaces for co-design and co-creation, have been themselves co-designed and co-created; it is, itself, a singularity.

To what extent the future practices performed at the UAB Open Labs will be influenced by this singularity, or how the governance of the Labs will be impacted by the transversality and horizontality with which, from the beginning, the Labs were conceptualized, are just some of the many questions that still remain to be answered.

In fact, the first two physical spaces of the UAB Open Labs (Design Lab and Digital Lab) were inaugurated in November 2019 but the Lab model in itself is supposed to remain open, to accommodate non-traditional or singular ideas of value that could be incorporated. However, it is possible to identify two more characteristics that, together

with the singularity mentioned earlier, are drawing a singular model of an Open Lab which will be more clearly defined during the functioning of the Labs from now on:

The first characteristic is that the UAB Open Labs have re-appropriated some conceptualizations that initially came from makerspaces and other manufacturing / tech community spaces. The Labs are conceptualized as open spaces for testing and prototyping, where innovation is fostered through co-creation and co-design practices which turn around the “ideas” and the “doing”. And, more specifically, “Doing-It-With-Others” (DIWO), since the starting point is that the potential of “making” is amplified when people meet with other people in spaces provided with helpful technologies to materialize projects but, above all, where people meet other people to collaborate, design and create together. Thus, on one hand, these spaces promote innovation based on co-creation and co-design practices (Anderson, 2012). And on the other hand, these practices turn around the concept of “doing”: manipulating, testing, experimenting and prototyping. In this sense, the prototype forms the base of the maker culture, as it is “doing” and “manipulating” how different attempts are given to answer the questions that people ask themselves (Corsín, 2014). The construction of significance around the object, then, goes beyond its consideration as a simple “good” or “product” (Dougherty, 2012), since the object’s creation process in itself has agency and value.

The second characteristic is that, conceptually, the UAB Open Labs model falls close to the description that Lhoste and Barbier (2016) placed on FabLabs when they analyzed them from the point of view of Oldenburg’s “third spaces” (1997): “a singular form of collective and distributed open innovation”, a new form of social organization in which the socio-technical practices performed are related to cooperation, collaborative generation of knowledge and collective innovation. As in the Labs studied by these authors, the UAB Open Labs accordingly try to generate symbolic open spaces that favor sociability, sharing and collaboration. For that reason, the physical locations of the LABs were chosen based on criteria such as visibility, proximity to flows and accessibility.

CONTRIBUTIONS OF THE MODEL

As it was mentioned in the beginning, the point of departure for the UAB Open Labs was the thematic research communities (COREs) that had already been articulated within the university community and the

context of the Smart Campus Living Lab. While the thematic communities (COREs) ensured that a wide co-designand a co-creation participatory process could take place ,the Smart Campus Living Lab provided the base requirements and an operative frame for the Open Labs, as well as a testbed for the produced solutions. And, as we also stated, there is a clear transition from DIY (Do-It-Yourself) to DIWO (Do-It-With-Others) in the configuration and launching of the UAB Open Labs. Perhaps, as could be understood from the text of Lhoste and Barbier, one of the contributions of Open Labs to innovation could be found just in these two aspects: i) how the Lab has been put in place and ii) how these conditions related to participation, collaboration and collective encounter, have been maintained. If so, the conceptual model of UAB Open Labs could notably contribute to achieve new comprehension of how Open Labs could contribute to social innovation and related processes, especially with relation to academic environments and communities. ■

Article written in collaboration with the research group Barcelona Science and Technology Studies Group (STS-b).

WEBS  
[Open Labs](#)  
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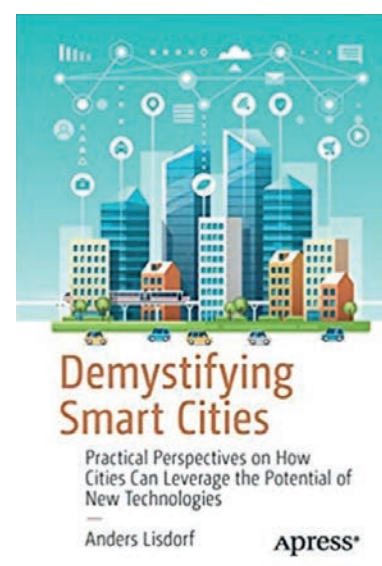
REFERENCES

- Anderson, C. (2012). *Makers: The New Industrial Revolution*. London: Random House Business Books.
- Corsín (2014). *Introduction: The prototype: more than many and less than one*. *Journal of Cultural Economy* 7 (4), 381-398
- Dougherty, D. (2012). *The maker movement*. *Innovations*, 7(3), 11–14.
- Lhoste, É. & Barbier, M. (2016). *FabLabs: L'institutionnalisation de Tiers-Lieux du «soft hacking»*. *Revue d'anthropologie des connaissances*, vol. 10, 1(1), 43-69.
- Oldenburg, R. (1997). *The great good place: cafés, coffee shops, community centers, beauty parlors, general stores, bars, hangouts, and how they get you through the day*. New York, Marlowe & Company.

Provided by: Konstantinos Kourkoutas, Miquel Domenech, Oskar Hernández and Mireia Faucha.

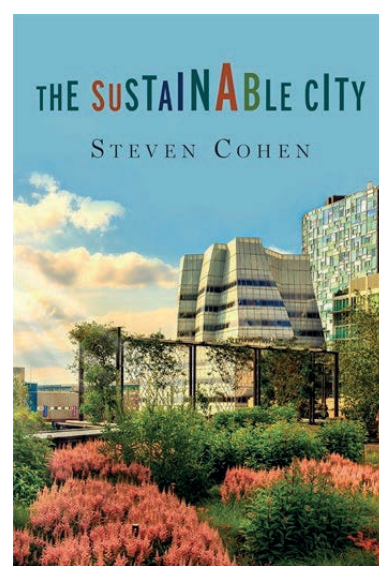


## SELECTED BOOKS



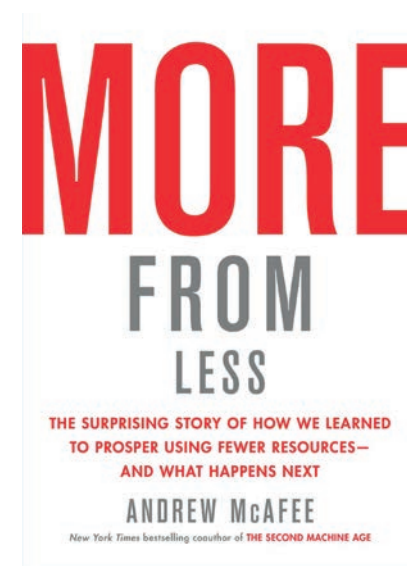
In *Demystifying Smart Cities: Practical Perspectives on How Cities Can Leverage the Potential of New Technologies*, the real-world implementations of successful Smart City technology in places like New York, Amsterdam, Copenhagen, and more are analyzed, and insights are gained from recorded attempts in similar urban centers that have not reached their full Smart City potential.

[Access the book](#)



*The Sustainable City* provides a broad and engaging overview of the urban systems of the twenty-first century, surveying policies and projects already under way in cities around the world and pointing to more ways progress can be made. Providing recommendations and insights with immediacy and relevance, this book has invaluable lessons for anyone seeking to link public policy to promoting a sustainable lifestyle.

[Access the book](#)



In *More from Less*, the author Andrew McAfee argues that to solve our ecological problems we don't need to make radical changes. Instead, we need to do more of what we're already doing: growing technologically sophisticated market-based economies around the world.

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## SELECTED REPORTS



*The Future of the Cities* highlights drivers shaping the urban future, identifying both the key challenges cities will have to address and the strengths they can capitalise on to proactively build their desired futures. The main aim of this report is to raise open questions and steer discussions on what the future of cities can, and should be, both within the science and policymaker communities.

[Access the report](#)



The Defence Science and Technology Laboratory has published a new report examining global trends in city development and predicting how cities are likely to evolve. The analysts looked at a broad range of factors, including the influence of technology (including so-called "smart cities"), climate and demographic changes, economic integration and infrastructure developments.

[Access the report](#)



The 2019 US Cities Sustainable Development Report is SDSN's third city-level report ranking 105 US cities on progress towards the UN's Sustainable Development Goals for 2030 (SDGs). The results show that there will be significant work to do across the board if the SDGs are to be achieved by 2030, as cities on average scored only 48.9%.

[Access the report](#)



An aerial photograph of a complex highway interchange with multiple lanes and overpasses. A large, semi-transparent white circle is overlaid on the center of the image, containing the website address.

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