



**KA-AU KNOWLEDGE ALLIANCE
FOR ADVANCED URBANISM**
VOLUME 3
**RESPONSIVE CITIES SYMPOSIUM/
URBANISM IN THE EXPERIENCE AGE**



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RESPONSIVE CITIES

URBANISM IN THE EXPERIENCE AGE

DELIVERABLE 2.1 SYMPOSIUM REPORT

RESPONSIVE CITIES// URBANISM IN THE EXPERIENCE AGE

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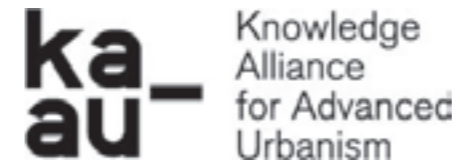
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The Responsive Cities Symposium was organized by:



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FOREWORD // KNOWLEDGE ALLIANCE FOR ADVANCED URBANISM

THE PROJECT

The increasing availability of data creates new opportunities not only for the monitoring and management of cities, but also for changing the way we describe, understand and design them, challenging many fundamental assumptions of urban design and planning professions. In order to promote the innovative education and training that emerging technologies require, higher educational institutions together with industrial partners have created the Knowledge Alliance for Advanced Urbanism (KA-AU). KA-AU develops courses, symposia and an educational and training platform, offering participants an innovative education on planning and design. The group understands “Advanced Urbanism” as the sensitive integration of ICTs in cities,

taking into consideration cultural heritage, environmental and social issues. “Advanced Urbanism” is about designing and planning processes, instead of just concrete artefacts, linking citizens, businesses and governments in a sustainable urban culture. “Advanced Urbanism” requires changing traditional design and planning practices towards a more open, collaborative and interdisciplinary approach.

KA-AU is co-funded by the Erasmus+ Programme of the European Union.

THE REPORT - Deliverable 2.1

This report outlines the main findings of the Responsive Cities Symposium, organized by IAAC, in cooperation with the KA-AU partners. The Responsive Cities Symposium was part of the KA-AU program WP2, Task 2.2.

ka
au- Knowledge
Alliance
for Advanced
Urbanism



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ABOUT THE ORGANISER



ABOUT IAAC

IAAC is a center for research, education, production and outreach, with the mission of envisioning the future habitat of our society and building it in the present.

IAAC follows the digital revolution at all scales (from bits to geography, from micro-controllers to cities, from materials to the territory) to expand the boundaries of architecture and design and meet the challenges faced by humanity. IAAC is an experimental and experiential center where one learns by doing, through a test methodology that promotes real solutions.

IAAC is open, independent and radical; inspired by the values of Barcelona, the capital of architecture and design, where urbanism was invented and where a local high quality and innovation-oriented research is connected to an international network of excellence in technology, architecture and society fields.

SYMPOSIUM FRAMEWORK

The Responsive Cities Symposium was organized by the Institute for Advanced Architecture of Catalonia (IAAC).

All the KA-AU partners actively participated in the Symposium organisation, as well as contributing to the content and discussion in the ADVANCED URBANISM-LEARN panel, held during the second symposium day.



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RESPONSIVE CITIES
SYMPOSIUM

The Responsive Cities Symposium took place on the 16th and 17th of September 2016 at the CaixaForum Barcelona. This venue is one of the most important cultural facilities in the city of Barcelona, hosting many international exhibitions and events.

The symposium was attended by over 300 people coming from the fields of Architecture, Engineering, Urban Planning, Urban Governance, Education and more.

In order to increase the Symposium reach and impact, a Call for Papers and Posters was organized and promoted on the main Architecture and Urban Planning web platforms. Submissions were received from the European Union, America, Asia, Oceania and Africa, and more than 90% of the accepted submitters also participated in the

Symposium in person, further increasing the visibility of the KA-AU activities, also beyond European borders.

SYMPOSIUM STRUCTURE

The Responsive Cities Symposium took place over two days. The first day was dedicated to international speakers, invited to discuss the future of our cities in relation to three main topics:

1. CITIZEN PARTICIPATION IN THE RESPONSIVE CITY - the speakers discussed new methods for citizen involvement in urban design and development;
2. DYNAMIC ECOSYSTEMS IN THE RESPONSIVE CITY - the discussion was centred on energy flows, ecosystems, adaptation and responsiveness in our urban areas;



3. DIGITAL AND SOCIAL DATA IN THE RESPONSIVE CITY - speakers explored the integration of real time data flows in city dynamics.

During the second day call for papers and posters submitters discussed the responsive city in relation to the following topics: DESIGN, SHARE, ADAPT, EXPERIENCE. Moreover professors from local universities were invited to discuss Urban Planning education in Barcelona in the BARCELONA - LEARN panel. KA-AU partners also discussed education focussing on the topic of Advanced Urbanism in the ADVANCED URBANISM - LEARN panel. Finally young architects discussed the city of the future in the DISCUSSING THE RESPONSIVE CITY session.

Both in the first and the second day, at the end of each panel, time was dedicated to the discussion between moderators and panelists, in order to generate a fruitful debate towards the creation of new points of view and concepts on the future of urban planning.

This report presents the outcomes of the first lectures of day one and of the KA-AU panel ADVANCED URBANISM - LEARN.

Papers presented during the second day are available on the KA-AU website in the RESPONSIVE CITIES CONFERENCE PROCEEDINGS file. Moreover on the KA-AU website the links to the videos of the entire symposium are published.

Visit it at: www.ka-au.net

PROGRAM

SEPTEMBER, 16TH 2016

DAY 1 - KEYNOTE SPEAKERS

9:00–9:30-WELCOMEANDINTRODUCTION
Mathilde Marengo / IAAC
Chiara Farinea / KAAU
Areti Markopoulou / Responsive Cities Symposium

Lydia Kallipoliti – EcoRedux; Rensselaer Polytechnic Institute / Ecosystemic City
Maïta Fernández-Armesto – UN Habitat / Adaptive City
Areti Markopoulou - IAAC, Advanced Architecture Group / Responsive City

9:30–11:30-CITIZENPARTICIPATIONINTHE RESPONSIVE CITY

Round Table Discussion

Moderators: Judit Carrera – CCCB & Mathilde Marengo – IAAC, Advanced Architecture Group

14:00 – 15:00 - Lunch break

Speakers:

15:00–17:00-DIGITALANDSOCIALDATAINTHE RESPONSIVE CITY

Albert Cañigueral – OuiShare / Collaborative City

Moderators: Ramon Prat - ACTAR & Aldo Sollazzo-IAAC,AdvancedArchitectureGroup

Janet Sanz Cid - Ayuntamiento de Barcelona / Common City

Speakers:

Mariina Hallikainen – Colossal Order / Gaming City

Mar Santamaria – 300000kms / Data City

Saskia Sassen - Columbia University / Open City

Manuel Gausa - UNIGE / Resili(g)ent City

Round Table Discussion

Ethel Baraona Pohl – dpr-barcelona / Adhocratic City

-

Daniele Quercia – Bell Labs Cambridge / Sensory City

11:30 – 12:00 - Coffee Break

Tomas Diez - IAAC, Fab City Research Laboratory / Fab City

-

Round Table Discussion

12:00–14:00-DYNAMICECOSYSTEMSINTHE RESPONSIVE CITY

-

Moderators: Maite Bravo – IAAC, Urban Sciences Lab & Chiara Farinea –IAAC, Advanced Architecture Group

17:00–17:15-CLOSINGSESSION–Salvador Rueda - Barcelona Superblock

Speakers:

-

Philippe Rahm – EPFL / Energy City

17:20–17:30-CLOSINGCOMMENTS–Areti Markopoulou

PROGRAM

SEPTEMBER, 17TH 2016

DAY 2 - PANEL DISCUSSIONS

09:30 – 09:40 - INTRODUCTION – Mathilde Marengo	Alessandro Seravalli - GeoSmartLab/Sis.Tersl	Norma Deseke - BeAnother Lab	Andreu Ulied – MCRIT
-	-	-	Vassili Beillas – TECHNILUM
09:40 – 10:35 - DESIGN - designing intelligence physical and digital merge new interfaces	11:35 – 12:00 - Coffee Break	14:00 – 15:00 - LUNCH	Judith Skyes – USP
Moderators: Giovanna Carnevali – Strelka KB	-	-	-
Moscow & Alexandre Dubor – IAAC, Advanced Architecture Group	12:00 – 12:55 - ADAPT - resilience programmable landscape dynamic ecologies	15:00 – 15:55 - BARCELONA LEARN – new educational models making research innovation	17:00 – 17:25 - Coffee Break
-	Moderators: Vicente Guallart – IAAC, Project for the Self Sufficient City & Silvia Brandi – IAAC	Moderator: Maite Bravo - IAAC, Urban Sciences Lab	-
Discussants:	-	-	17:30 – 18:25 - DISCUSSING THE RESPONSIVE CITY
Rosalea Monacella / Craig Douglas – RMIT	Discussants:	Ariadna Perich - ETSAB, Escola Tècnica Superior d'Arquitectura de Barcelona	Moderators: Maria Kuptsova - IAAC Advanced Architecture Group & Jordi Vivaldi Piera - IAAC, Urban Sciences Lab
Justyna Anna Karakiewicz - University of Melbourne	Eugenio Tisselli – Motorhueso	Amadeu Santacana - ETSAV, Vallès School of Architecture	-
Davina Jackson - University of London	Zhao Deli - China Academy of Art School of Architecture and Art - Zai-Zao Architecture	Jaime Font Furest - La Salle, Universitat Ramon Llull	Discussants:
Iacopo Neri - Politecnico di Milano	Dennis Dollens - Studio Exodesic	Felipe Pich-Aguilera - UIC, Universitat Internacional de Catalunya	Wendy W Fok - Parsons School of Design Strategies
Ben Hooker - ArtCenter College of Design	Lorena Perona Ribés - Diputació Barcelona	Areti Markopoulou - IAAC, Institute for Advanced Architecture of Catalonia	Christina Matika - Aristotle University of Thessaloniki
Alper Derinbogaz - Salon Architects	Giulia Boller – University of Trento	-	Shima Roshanzamir / Morteza Farhadian
-	Maider Llaguno-Munitxa / Biayna Bogosian - ETHZ / USC	16:00 – 16:55 - ADVANCED URBANISM - LEARN – new educational models making research innovation	Dehkordi - University of Applied Arts Vienna
10:40 – 11:35 - SHARE - open innovation citizen participation ethical cities sharing economies	-	Moderators: Marité Guevara – MCRIT & Luis Falcon – InAtlas	Christina Kalampouka / Evangelia Mori - National Technical University of Athens
Moderators: David Bravo – CCCB & Cecilia Tham – MOB, Makers of Barcelona	13:00 – 13:55 - EXPERIENCE - gaming hyper cities augmented reality	-	Nicola Dario Baldassarre / Salvatore Dentamaro – Collettivo Arcipelago
-	Moderators: Angelos Chronis – IAAC, Innochain	Discussants:	Mora Kestelman - Sociedad Central de Arquitectos, Buenos Aires
Discussants:	-	Chiara Farinea / Mathilde Marengo – IAAC	-
Sergio Tirado – RMIT	Discussants:	Raffaella Fagnoni / Nicola Canessa – UNIGE	18:30 – 18:50 - CLOSING SESSION – Carlo Ratti
David Calas – Urban Sync	Jussi Holopainen – RMIT	Jacques Brion / Elodie Nourrigat – ENSAM	- Senseable City
Laura Ferrarello / Suramy Kedia - Royal College of Art	Emily Royall – MIT	Claudia Roselló / Àfrica Sabé - Santa & Cole	-
Fabio Galicia / Daniel Szemerey - University College London	Teodora Constantinescu - Hasselt University	Andrea Caridi - DARTS	18:50 – 19:00
Nonthavit Jitsupa - Keio University Graduate School of Media Design	Jose Sanchez - University of Southern California		CLOSING COMMENTS – Areti Markopoulou, Chair Responsive City
	Temitope Olujobi / Amber Bartosh - Syracuse University		

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MAIN FINDINGS & RESULTS

This section presents the symposium concept and key issues of the lectures of day one, as well as the main topics treated in the ADVANCED URBANISM-LEARN panel of day two.

At the end of the section a short CV of the keynote speakers is presented.

CONCEPT

Over the last decades a new generation of cities and new city-planning paradigms have emerged. Urban development leaders and governments throughout the world have begun to consider innovative systems, driven by information and communication technologies, to be critical drivers with which to face today's urban challenges. Cities have started to invest in technology through the implementation of new transport management systems, water and contamination monitoring systems, smart

energy grids and energy efficient buildings, to name a few.

The intelligent systems and devices have formed a new hidden layer, enhancing performances, but basically remaining separate from the city's materiality and spatiality. This hidden layer took the name of Smart City, the expression of the Information Age, a period dominated by the accumulation of information, its organization, and transmission through centralized monitoring systems or desktop computers.

The Information Age saw the role of architects and urbanists in generating visions for the city's future start to fade and the Smart City was theorized, described and developed by IT companies, who dominated the knowledge and access in technological advancements.

Today's advances create a scenario where technology has started to be embedded



in our everyday life in such ways that it is becoming part of our bodies and surrounding environment, hence overcoming the desktop era. Architecture transforms into an evolutionary organism, able to react in real time to various data, finally questioning the solid principles of durability, stability or longevity. Wearable and virtual reality technologies allow us to relate to each other and with the environment at augmented levels. New softwares and hardwares expand the possibilities of the internet of things, connecting object and users in spatial experiences: spaces are interacting with our body and neuro data, and building skins are becoming hyper connected interfaces. At the same time, DIY and open source cultures push towards the democratization of technologies and production means, bringing them closer to users, allowing them to actively participate through an experiential peer-to-

peer learning and making process.

These epochal changes bring us to question, imagine and try to describe what is coming after the Information Age, when technology is not just a catalyst, but the foundation for social interaction. The day that internet connection will truly be democratized for every person on the planet, and technology will be deeply embedded and integrated into objects, human bodies and space, the debate for technology per se will end, finally opening the way to deeper social, spatial and learning synergies.



ALBERT CANIGUAL
COLLABORATIVE CITY
PANEL: CITIZENS PARTICIPATION IN THE RESPONSIVE CITY

Living better with sharing

People gather in cities with different needs of services or interests while city resources, especially nowadays considering the crisis, remain flat, if not decreasing.

It is time to be smart: to find a smart way to reduce this gap.

The concept of Smart City has failed to achieve its purpose as it did not consider the unexploited potential of citizens, blindly deploying technocratic systems from top to bottom on behalf of both the municipality and big corporations. The power of the new city relies on a low cost of coordination. With apps like Whatsapp or FixMyStreet, massive participatory operations in the realms of mobility, economics, politics and urban life can emerge directly from residents: actively

shaping their habitat according to their needs.

Experiencing the failure of the Smart City

Mere technology needs to be re-thought as a tool for citizens to collaborate among themselves, or together with the municipality and, in this vision, four new interpretations of the city have to potential to emerge.

The Fab City is a project led by the Institute for Advanced Architecture of Catalonia, the Fab Lab of Barcelona and MIT's Centre for Bits and Atoms that aims to solve larger scale urban problems through makerspace-based innovation and open sharing, promoting local production for global enrichment.

The Shareable City is an environment that enables residents to share, efficiently and

safely, all kinds of assets, from spaces to utilities, in order to create stronger and healthier connected communities.

The Co-City is based on the idea of the city as a commons. It defines citizens according to duties and rights, creating a network between urban authorities, local communities, civil societies, businesses and knowledge institutions, allowing them to work together.

The Contributive City promotes a constellation of specific urban roles, acting and working together, based on the particular skills of every single resident in the city environment.

These four approaches, although they are still imperfect and rough, when considered together, put forward a scenario where we can reach great solutions for our cities in this digital era.

how can cities positively exploit citizens' potential?



JANET SANZ CID
COMMON CITY
PANEL: CITIZENS PARTICIPATION IN THE RESPONSIVE CITY

Barcelona calls for us to fight against inequality

Ecology and the challenge against climate change are the elements we want the municipality to work on, side by side with its citizens, because what makes a city smart are its people, not sensors. Therefore, we consider neighbourhoods as the main nodes to bring change in the city. We have been guaranteeing everybody the right to a home, expanding the social housing stock. Besides this, we encourage the use of public transport, developing a new bus system, and connecting nine cities from the metropolitan area thanks to a new tramway, in Avinguda Diagonal, allowing for a more sustainable mobility. Again, with the Superblock project,

we managed to bring life back to the streets, supporting spaces for neighbourhood activities, as well as natural and green areas. Finally, and not any less importantly, the energy consumption issue requires us to generate more and more power from renewable energy sources. To achieve such a result, we are proposing that all make a commitment, both from private and public sectors, along with the citizens, to reduce our energy usage, and to make sure that nobody is left without access to energy.

Barcelona needs a balanced tourism

The city welcomes 30 million tourists per year. Tourist accommodations have increased by 20% in the last three years and 50% of them

are concentrated only in the 17% of the city area, creating phenomena of overcrowding in specific areas. In the last four years, the number of residents in the Gothic quarter has decreased by 45%. This has created a gentrification issue and the consequent expulsion from the more central areas of the city.

We, the city council, have been working to solve this issue. First, we need to establish a special plan for tourist accommodation, as a reaction to the current illegal system. Producing policies together with citizens,

we defend urban planning as a tool to make the right to the city possible, building an egalitarian city, promoting the quality of life of its residents. We have to protect people's right to decide in everyday life, because this is the base for a common city.

how can we establish the common city?



MARIINA HALLIKAINEN
GAMING CITY
PANEL: CITIZENS PARTICIPATION IN THE RESPONSIVE CITY

Gaming platforms as tools for town planning in the real world

Colossal Order is a nineteen-person game developer company based in Tampere, Finland, which focuses its research on simulation, basically reproducing events and processes of the real world into a gaming platform, with the modest addition of fun! “City: Skylines” is our main game, with 2 million copies sold worldwide, and it brings the entire city development under player’s control. Making the game entertaining and engaging was actually a challenge for us as we discovered that people are actually interested in their own habitats, trying to reproduce familiar environments to bring a positive

contribution. Actually, town planning, in its complexity, is a lengthy process and people complain about not being involved enough. Therefore, gamification could be a solution to allow citizen engagement. We encourage municipalities to include citizens in their planning processes through shareable gaming platforms.

Gaming platforms can actually provide ideas and suggestions for the development of a city.

Pilot projects in Hämeenlinna (Finland) and Stockholm (Sweden) have proved that citizen participation is possible through videogames, and the results are unforeseen and helpful for the city builder to a better understanding

of the site. Currently, these 2 platforms are developed for the gaming industry, so they are first and foremost fun, and realism comes second with several simplifications that take place, but the process is just at the beginning. These two cases studies, in fact, open the discussion on how to create tools for the community to be part of the city’s development and we, at Colossal Order, are sure that in the future citizens are going to be the ones actually creating habitats.

**is an approach through gaming
 a possible tool for citizen
 inclusion and participation?**



SASKIA SAASEN
OPEN CITY
PANEL: CITIZENS PARTICIPATION IN THE RESPONSIVE CITY

Entering the inners of technology

What are we really talking about when it gets to technologies? Technology itself has a dual nature. It can both provide tools for a positive contribution as well as the opposite, according to its use. However, the digital phenomenon presumes and orders the space we live in, it routinize our habitat when we need to recognize creativity, to exit the loop by inventing new possibilities, new languages to understand the city. Constantly we are guided by the technical capabilities rather than following the real questions that shape our life. In fact, digitization as a variable can be completely derivative: a glorified version of the ancient myth of progress. Nevertheless, it can be transformative and constitutive as well, producing new opportunities, new ways to do the familiar. We need to consider

the technological evolution like an activism movement able to change deeply and concretely our landscape. With the power that we have nowadays, a video uploaded to amnesty international by the mother of a child tortured in Mexico becomes instantly a worldwide case, an environmental issue, a threat to humanity. The understanding of being part of a larger network is probably the most powerful goal that we can achieve with the complex apps environment surrounding us.

What is urbanization and who are the actors in play?

Smart city as a collection of smart building is the example of municipal tissue's de-urbanization by the imposition of a rigid technological system. Often, when city's

leaders wonder about urban growth the first approach is to call big firms, formerly discovering technologies and applications rather than start from issues to build technological solutions. What happens is that when we introduce corporation-controlled system we exclude part of the city's actors from the equation. In the United States, low-wage workers struggle every day to achieve a modest life style never being the target of the technological progress. Our cities need more innovation toward low-income neighbourhoods developing applications

that enable their life. In fact, some of the larger ecologies of meanings become extreme in cities, where patterns of different ideas and worlds survive for centuries standing still in front of the fall of firms, corporations and companies. The neighbourhoods are the organisms of our urban environment and if the city does not mobilize the intelligences of their residents, it may have smart machines but it will not be smart in its totality.

what are we talking about when it gets to technology?



CITIZENS PARTICIPATION IN THE RESPONSIVE CITY, PANEL DISCUSSION



ADAPTIVE CITY
MAITA FERNANDEZ ARMESTO
PANEL: DYNAMIC ECOSYSTEM IN THE RESPONSIVE CITY

Looking for adaptive cities

UN-habitat promotes socially and environmentally sustainable cities with the goal of providing adequate shelter for all. Global population is growing exponentially every year and cities are the centres of mass production and consumption of goods, opportunities and diseases. People living in slums, in fact, have no access to water, education or shelter, and growing cities, in this respect, are the main challenge we are dealing with. Decision-makers at all levels need to understand the power of the city as a catalyst for territorial development, directly influencing local and national scales. In short, UN habitat aims to change the manner in which cities are developing: harnessing the positive power of urbanization in an equitable, inclusive, safe, resilient and sustainable system.

A triangular approach to the city

Recently, at UN Habitat, we realized the necessity of a change in paradigms for a sustainable urban development in the XXI century, and we started defining a new urban agenda: a three-layer approach based on roles and regulations, urban design, and financial plans.

Rules and regulations have the power to shape the form and character of a city. In order to create an integrated policy system, regulative law is the only way to address the challenge of the urbanization and to enable local governments to regenerate and implement transformative agendas, becoming sustainable and resilient. Concerning urban design, the city calls for a design code to realize urban green extensions rather than vertical super densifications,

allowing to enhance public open spaces and control urban grow.

In conclusion, municipal finances, project leaders and capital investments must be reparametrized in a new and more prosperous and equitable system for the residents, stating that the idea of requiring unavoidably a sponsor to fund development is over.

Professionals around the world are considering and designing new perspectives for more transversal and interdisciplinary city's approaches since, in the end, we are all habitat dwellers.

can we define a new transversal approach to the city and its future development?



RESPONSIVE CITY
ARETI MARKOPOULOU
PANEL: DYNAMIC ECOSYSTEM IN THE RESPONSIVE CITY

How to design for the responsive city?

Today we have the knowledge and means to realize whatever we imagine, witnessing advancements in production technology not only in the architectural field but, in biology, ecology, virtual engineering as well. In fact, a radical shift is in action. The architectural debate is moving from the form or aesthetical effect to the performing aspect. In a way, architecture is breaking free from the limitation of studies and it is time to discuss, speculate and envision what could be the future of intelligent responsiveness and adaptation in design. Smart materials like nitinol wires, silicon based systems, hydrogel capsules, biomaterials and graphene already can change their properties naturally, breathing buildings and systems to life in

reaction to environmental, climatic, energetic and residents inputs without the plug of technological systems. Furthermore, a shift in logics always corresponds to a change in the vocabulary and so a need for new urban infrastructures has emerged with Wi-Fi technologies, sensors, fibre optics. However, we can also notice alternative infrastructure that do not belong to municipalities, administrations or institutions but openly collect and map data so that everybody can start having a better understanding of how cities are working in distributed different landscapes. Again, imagine how design can be augmented by virtual reality, not just in the preview phase. The overlapping of real and virtual data enables us to experience the environment in a completely original

manner, giving and receiving information in a continuous loop of interactions.

Can the city think?

The information society brings a digital revolution dealing with collectivism, connectivity, and endless proximity. Can the machine think? Can the building think? Can they evolve? We started talking about internet of cities and internet of buildings. If smart cities have become corporate, a scenario of selling and buying technologies, we need not to forget that the implementation of information and communication technologies in urban planning had been fundamental for the plan itself. From approximate data, now, we have tools to collect information real-time, proposing accurate and dynamic mapping of

our environment for the design process. How do we materialize design in order to shape form, inform new programs and respond to changes? As we introduce the idea of Internet of buildings, we need to understand responsiveness as a new organic paradigm. Innovative technologies and information in the experience era are mutating the way we inhabit our environment, we are moving to a form of habitat in which architecture is not merely sheltering but becoming evolutionary, technologically integrated and even personalized by the users of these spaces. I believe that the next architectural design style will not draw final or static solutions but answers that envision behaviours, design behaviours and mute spaces, following the principles not only of construction but of biology, ecology and other disciplines as well.

how can we make the city responsive through design?



ENERGY CITY
PHILIPPE RAHM
PANEL: DYNAMIC ECOSYSTEM IN THE RESPONSIVE CITY

Designing for climate

What could be a strategy for urban design today?

In the developing of Jade Eco Park, Taichung (Taiwan), we exploited the climate issue as the main reference for the project. The result was a three-layer masterplan based on heat, humidity and pollution variables. This was not developed in a modernist vision of best and worst weather, but with a fluid approach of gradation of different areas. Thus, based on a CFD map, 15 thousands new trees were planted for shading, screening, pollution and noise absorption purpose.

The road structure was a consequence of climate as well. We traced the paths according not to time or slope but mainly to climate perceptions. The results are dry paths for sport activities with gradients and

benches for training, cool paths and clean paths, less noisy and more comfortable.

Moreover, an additional electrical system of devices was spread in the park. A network of sensors, distant 50 m one to the other, detect ceaselessly the parameters of temperature of the air, sun light, humidity, pollution and wind speed. This data, then, is sent to climate electrical devices that mediate with the environment using convection, evaporations, radiation, blowing process to cool down temperature and is open to the users via app for a complete map of the area. Finally, I think that the best approach is, first, to control the climate, then, to shape the form and install the functions." disclose the struggle to reconcile the utopian ideas of replicating earth in its totality with adversarial and raw material reality.

how parametric fluid maps change the way we practice architecture?

can we use climate as a reference for design?



LYDIA KALLIPOLITI
ECOSYSTEMIC CITY
PANEL: DYNAMIC ECOSYSTEM IN THE RESPONSIVE CITY

The rise of closed worlds

We live in offices. We spend our life in atmospherically sealed enclosures that define collective, internally rational and self-referential spaces eternally processing inputs and outputs. Since the pilot project of NASA living pod in 1960, man has been treated as a diagram of input and output with his habitat. He is the process's result of his own waste, but, despite the rigor of mathematical formulas, the contained ecosystems in which he lives are unpredictable in their evolution: sudden ruptures always occur and there is no healing system. In closed worlds nature is sampled and systematized through technological

mediation; Walt Disney, in his Epcot project in 1966, was considering dweller's happiness as a variable just as waste or pollution management. So, it does not matter if from the military purpose of colonizing outer spaces or from self-sufficiency's desires, impossibly controlled enclosure's ideas have become institutionalized through a series of bureaucratic mechanisms (and eventually labelled as eco-friendly or green) while they disclose the struggle to reconcile the utopian ideas of replicating earth in its totality with adversarial and raw material reality.

Sustainability is a new form of capital

Our indoor environments are politically charged spaces that reflect social ideas, economic agendas and cultural specific standard of taste and judgement. Because data and measurements in controlled enclosures offer trustworthy mediums on how to develop sustainability criteria, they have become pervasive and they have persisted either in the challenging settlement of our overpopulated and dense cities. Architectural processes have been redeemed by the sustainable design practices, minimizing energy loss at the cost of air and light. The manipulation of organic

and ecological processes contained within artificial enclosures have become a metaphor for enforcing bio-standardized life, recalling the power of data and cultural capital. Is the idea of self-sufficiency compulsive and hysteric in the will to generate ceaselessly new life out of all cycle production's wastes? So, what degree resource-conservation strategies are sustainable form of practice?

is the idea of self sufficiency compulsive?



DYNAMIC ECOSYSTEM IN THE RESPONSIVE CITY, PANEL DISCUSSION



MAR SANTAMARIA
DATA CITY

PANEL: DIGITAL AND SOCIAL DATA IN THE RESPONSIVE CITY

City's call for new representation

300000km/s is an architecture and planning group based in Barcelona defining new approaches to the city as a multiple scales system, from neighbourhoods to the larger dimension, and producing data on several topics, relevant at the global scale. We focus our research from how innovation and economics work in the city, to more tangible and intangible aspects, as poverty or gentrification. In fact, we try to draw urban phenomena: graphic representations, or cartographies, to understand and influence stakeholders related to city functions and drive them to right decisions.

Indeed, cities are living at two velocities. If Barcelona, for example, is not growing anymore, in other part of the world we have slums cities, where reality goes faster than

urban planning. In front of two considerations, we need to upgrade urban planning tools and adapt the vision of urban settlements to raising contemporary issues such as overpopulation or over densification. It is possible to work on either citizens or technology but how can we set urban planning to retrieve its fundamental role as a driver for a longterm vision of territory management? If we take into consideration Cerda's plan for Barcelona, the idea was to envision a city able to grow with intelligent infrastructure and the actual urbanity was so strong that it showed resilience, capacity and flexibility that the city is still nowadays experiencing. The reason behind this was the systematic structure of the project, based on data ranging from city's sections, to pedestrian flows, and from transport, to streetlights.

Working with data is not a new approach.

How can data become information?

The current situation provides a great amount of data, more accessibility to data and better ways to manage, visualize and report this information. This is a crucial shift and it brings us new scenarios to design city. With data, we can add a new layer, while planning the city: the behaviours. We can compare forms and morphologies to human relations and emotions. Moving from blocks to tweet we can manage the inner tangible and intangible aspects of the city. Studying the city according to demography and work

places, we understand the flow of residents throughout the day and we start wondering to whom the city belongs. Considering demography as a dynamic feature, we understand residents and tourist as fluid, they may not be the same but they are and must be permanent presences as they have significant impacts on public spaces. Houses, industries and offices mix around town and they reflect the actual economic representation of the urban settlement. The city has a metabolism, changing every day at every hour and only with the fluid information of data we are able to study it and enjoy it.

how can data help us represent urban methabolism?



MANUEL GAUSA
RESILI(G)ENT CITY
PANEL: DIGITAL AND SOCIAL DATA IN THE RESPONSIVE CITY

The greatest revolution of information

Interacting with and interactive information between people, space, complexities is the big revolution of our era and this new knowledge of thinking. The last few decades have confirmed the consequences of this crucial shift: from mobility and delocalization, to communication and the internet of things, the capacity to process complex and great amount of data is now a fact. We convey every day the expressions of our trading and sharing environment as simultaneous, dynamic, multicultural, variable, complex, indisciplined, nonlinear, complex and interactively differential. This global and holistic capacity of this information structure that was not possible for the modernist and even post-modernist architecture is probably

the greatest revolution of our time. Forms now are processes and performances. In the last twenty years, urbanist theory has tried to answer to this system with different approaches building the framework for a comprehensive knowledge. We need to apply logics instead of models, sharing questions and studies to approach urbanism with the idea of projection and interactivity. Gradually we understand the complexity of the city and we develop interphases for citizens to express their potential in its environment.

Resilience as an attitude to design

Considering the map of vulnerable areas in the world, the advanced approach has the main role of understanding that all the systems are

very complex and potential problems. In this framework, new methods must be conceived. Resilience is the addition of intelligent cities and resilient landscapes. Leaving the idea of smart city as a mere system of sensors, we can define intelligence according to five parameters: processing capacity (analytical and conceptual), adaptive capacity (evolutionary, flexible and reversible), operational capacity (creative, directive and proactive), transversal capacity (connectivity and strategy) and relational capacity (emotional, emphatic and interactive). It seems, for resilience we can

establish a match as anticipation, adaptation, resistance, integration and recuperation are its features. If as architects we need to qualify our habitat, we can directly link these topics with the mapping, socializing and organizing possibilities to address city's issues. Exploiting resilience we are able to work in a dynamic way with the city: anticipating process, adapting it to new models while preserving the landing with the integration of innovative networks and emotional designs.

can we anticipate, adapt, integrate and operate cities?



ETHEL BARAONA POHL
ADHOCRATIC CITY
PANEL: DIGITAL AND SOCIAL DATA IN THE RESPONSIVE CITY

Adhocracy in contemporary city

Adhocracy is the system of flexible and informal organization and management in place of rigid bureaucracy. The first edition of adhocracy was based on the use of digital tools. In 2012 for Istanbul we were witnessing the rise of the digital technology applied to architecture design and to the city as well. Three years later, we have understood that it was more an attitude that the mere use of the tool. Our conclusion, for the exposition in Athens, was that the world is changing so fast that we have no word to describe it and we are constantly trying to reinvent our dictionary, in this eternal search for meaning. The internet for example, has exponentially grow from its first network in the seventies and now we are interacting new manners, we are all becoming cyborgs with the smartphone as the sixth sense. All this concerns us, while it is difficult

to simplify, to describe in few words. Our cities are mashup, buildings fused with technology mixed with the active citizen participation. At the same, this infinite network is incorrect as it could give us just some partial information or wrong directions. When we think about public space, multiple images come to our mind, from the radical utopias, to the terroristic attack and the bottom up protests in North Africa. I reject the word occupy, because we cannot occupy what is already ours, we are simply reusing a public space already belonging to us. We own, or we are supposed to own, spaces in cities. However, what is the urban environment nowadays? With augmented realities we can travel and discovery many places of the world just sitting in the couch. We can also inhabit the digital. We are chasing virtual pokémons in real environment, talking with real gamers in virtual network.

Awareness to shape our environment

The main point for us is to have a critical approach to the city. Most of the time we take for granted several rules that govern our environment and we have lost our curiosity, our ability to make questions constantly. We treat other persons as robots, so how can we restart the whole interaction and learn from the beginning technology? As we take for granted intangible flows while walking, the project from La Jetée (Giuditta Vendrame and Paolo Patelli) plays with the idea of rules and freedom in city making people question

their behavior thanks to ludic activities. Moreover, the Campus in Camps project from Alessandro Petti and Sandi Hilal questions the temporality of refugee camp and the memory of knowledge about the tent. Finally, only by questioning and critically understanding, we can start transforming our cities

how do we re-learn our urban environment?



TOMAS DIEZ
FAB CITY
PANEL: DIGITAL AND SOCIAL DATA IN THE RESPONSIVE CITY

FabCities for global improvement

More than 200 years since the Industrial Revolution, global urbanisation keeps accelerating. United Nations projections indicate that 75% of the human population will be living in cities by 2050. We are losing livelihoods through both offshoring and automation, and this in turn leads to the demise of dynamic hubs of practical and cultural knowledge, where things are made. Extreme industrialisation and globalisation have turned cities into the most voracious consumers of materials. We need to reimagine the cities and how they operate. The Fab City is an international initiative started by IAAC, MIT's CBA, the Barcelona City Council and the Fab Foundation to develop locally productive

and globally connected self-sufficient cities. The project comprises an international think tank of civic leaders, makers, urbanists and innovators working on changing the paradigm of the current industrial economy where the city operates on a linear model of importing products and producing waste, to a spiral innovation ecosystem in which materials flow inside cities and information on how things are made circulates globally.

Innovation to be shared

We need to reinvent our cities and their relationship to people and nature by re-localising production so that cities are generative rather than extractive, restorative rather than destructive. FabCity is a new

urban model of transforming and shaping cities that shifts how they source and use materials from 'Products In Trash Out' (PITO) to 'Data In Data Out' (DIDO). This means that more production occurs inside the city, along with recycling materials and meeting local needs through local inventiveness. A city's imports and exports would mostly be found in the form of data (information, knowledge, design, code). These data then is shared among the Fab Lab network that, going from inner Boston to rural India, in April 2016 counted 1000 labs all over the world. Fab Lab

and makerspace based innovations could be a source for solutions to connect to real problems in cities, opening opportunities for businesses, research and education through projects. With its inherent zero waste and carbon reduction goals, linked to education, innovation, skills development and the creation of employment opportunities and livelihoods through the relocalisation of manufacturing, the FAB City approach can contribute to achieving a range of city objectives.

how to solve issue locally to influence the globality?



DIGITAL AND SOCIAL DATA IN THE RESPONSIVE CITY, PANEL DISCUSSION



CARLO RATTI
SENSABLE CITY
CLOSING SESSION, DAY 2

Technology is the answer, but what is the question?

What is it possible to do with technology in the city, now that architects have hybrid physical-digital new realities to play with?

When the Carlo Ratti Associati design firm was asked to design the Pavilion for Milano Expo 2015, The Future Food District (FFD), that was a real supermarket, was realized.

The project was inspired by Mr. Palomar from Italo Calvino's book of the same name, who enters a fromagerie in Paris and thinks that he's in a museum, because he can know all the stories behind the products.

The idea was to move the world of internet, where information of any kind are always available, into the concrete reality of a

supermarket. The action of go buying something was turned into a learning experience. In the near future we will be able to discover everything there is to know about the product we are looking at.

The most exiting thing is that the computer disappears from the background of our life. The only things is the direct interaction with things.

Can technology be applied to the unexpected?

Self driving tractors were designed for New Holland Pavilion at Milano Expo to show how can advanced robotic technologies re-shape agriculture. Self driving cars - an hybrid system between public and private

transportation - are going to change our life very soon. A collaboration with Uber, which is actually testing the first self driving cars in Pittsburg, will allow to analyze uncountable collected data about sharing rides.

In the same way, these self driving tractors could change the way we could "print" at the agricultural scale, while turning the cultivation system back from monoculture to something which is more similar to what nature does.

Tracking the trash

What happens when we throw away things because we don't need them anymore? As it happens in the hospitals, where the blood is tracked to be followed, in the same way 3000 objects were tagged so that they could give back their location once became trash. It was noticed that they did long -sometimes crazy- travels.

Again, here the topic is information: how to use all the informations we can get to do transform the world from what it currently is to what it should be?

How could technology change the way we interface with the space outside?



KA-AU PARTNERS
PANEL: ADVANCED URBANISM - LEARN
MODERATORS: LUIS FALCON - INATLAS; MARITE GUEVARA - MCRIT

Elodie Nourrigat - ENSAM

When dealing with new technology we transform all the information and particularities into data, levelling everything to the exact same value. We are losing the question of specificity: a concept that advanced urbanism must refer to.

Nicola Canessa - UNIGE

We are experiencing a change in paradigm. Our educational approaches are shifting from teaching students, to learning with students and teaching the city. This has mutated many different aspects of city life. For example, if in the before citizens voted for mayors to write laws, now mayors are asking residents for help, understanding their real problems and to collecting information through social networks in a bottom up process.

Andrea Caridi - DARTS

With discussions and round tables we are able to put city administrators and professionals together, making them talk and addressing the real problems of cities side by side with the citizens.

Chiara Farinea - IAAC

With Active Public Space and the Poblenou project, students at IAAC had the opportunity to prototype solutions addressing real problems of the neighbourhood, producing for the city, and allowing the city, in turn, to learn more about them.

Mathilde Marengo - IAAC

For us at IAAC it is fundamental not to pretend to know everything. In our teaching-learning environment, we are all learning together. In the APS installation this inclination

how can we actively learn? what is the future of education?

was evident: workshop participants were learning how to fabricate elements to be embedded in an urban area, constantly having the feedback of the inhabitants they were producing for, and learning by doing systemically.

Raffaella Fagnoni - UNIGE

Re-Cycle at UNIGE is a new life approach to material, products and people in the architectural practice. One of the first goals of the research is to build a comprehensive framework of knowledge around the theme of recycling, a body of information and cultures able to develop and propose new ways and schemes of rules to intervene in the built environment.

Africa Sabe - Santa & Cole

Being a company that designs products

for cities, be they modern, smart, or even responsive, we have to actively learn by doing, every day, talking with citizens, dealing with cultures, exploiting past and future experiences. For us, erasing all the boundaries between schools, students and businesses is the new way to make cities, planning and understanding them.

Vassili Beillas - TECHNILUM

EXtimity is an answer to the cities actual evolution, a way to outperform traditional lighting. Based on adaptable technical modules, eXtimity creates "Light spaces". Places that are transforming and shaping the nocturnal environment, while being dedicated to well-being of users. The user finds there all the connectivity needed, but can also become an actor and designer of this environment.



ADVANCED URBANISM - LEARN, PANEL DISCUSSION



SASKIA SASSEN
COLUMBIA UNIVERSITY
OPEN CITY

Saskia Sassen is a Dutch-American sociologist noted for her analyses of globalization and international human migration. She is Robert S. Lynd Professor of Sociology at Columbia University and Centennial visiting Professor at the London School of Economics.



CARLO RATTI
CARLO RATTI ASSOCIATI
SENSEABLE CITY

Carlo F. Ratti is an Italian architect, engineer, inventor, educator and activist founder of Carlo Ratti Associati and professor at the Massachusetts Institute of Technology where he directs the MIT Senseable City Lab



PHILIPPE RAHM
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ENERGY CITY

Professor at Ecole Polytechnique Fédérale de Lausanne - Switzerland and architect, principal in the office of Philippe Rahm architects, based in Paris, France.

SPEAKER BIOS



MAR SANTAMARIA
300.000KM/S
DATA CITY

Mar Santamaria-Varas and Pablo Martinez-Diez are co-founders of the design studio 300.000 Km/s, specialised in Data Analysis and Visualisation applied to Urban Design. Their essays have appeared in Wired, CityLab, Mas Context, A+U, Springer and Landscape Frontiers among other reference publications.



ARETI MARKOPOULOU
IAAC
RESPONSIVE CITY

Areti Markopoulou is a Greek architect, educator and urban technologist working on the intersection between architecture and digital technologies. She is IAAC Academic Director & Digital Matter Research Studio Lead Professor.



MAÍTA FERNÁNDEZ
UN HABITAT
ADAPTIVE CITY

Maíta is the Senior Coordinator of the City Resilience Profiling Programme. She is in charge of the Program Planning, Coordination and Supervision, and also Institutional Coordination, Fund Raising and Representation.



MARIINA HALLIKAINEN
COLOSSAL ORDER
GAMING CITY

Mariina Hallikainen is CEO of Colossal Order, a Finnish video game development company known for its business simulation game series Cities in Motion and for its city builder Cities: Skylines.



LYDIA KILLIPOLITI
ECOREDUX
ECOSYSTEMIC CITY

Dr. Lydia Kallipoliti is an architect, engineer and theorist, currently an Assistant Professor of Architecture at Syracuse University and an Assistant Professor Adjunct at the Cooper Union.



ALBERT CANIGÜERAL
OUISHARE
COLLABORATIVE CITY

Albert Cañigüeral is the founding blogger of www.consumocolaborativo.com, which has become the reference media in the Spanish-speaking world on the trend of collaborative consumption.



ETHEL BARAONA POHL
DPR / BCN
ADHOCRATIC CITY

Critic, writer and curator. Her [net]work is a real hub linking several publications and actors on architecture and theory. Editor at Quaderns and contributing editor for different blogs and magazines, she has written articles for Domus and MAS Context among others.

SPEAKER BIOS



TOMAS DIEZ
IAAC
FAB CITY

Tomas Diez is the director of Fab Lab Barcelona at the Institute for Advanced Architecture of Catalonia, the Fab Academy global coordinator, and the European project manager of the Fab Foundation



JANET SANZ CID
BARCELONA CITY COUNCIL
COMMON CITY

Deputy Mayor for Ecology; Urban and Mobility Councillor in Nou Barris district



DANIELE QUERCIA
BELL LABS
SENSORY CITY

Daniele Quercia is a computer scientist and is currently building (and hiring for) the Social Dynamics team at Bell Labs Cambridge UK. His research area is urban computing.



MANUEL GAUSA
UNIGE
RESILI(G)ENT CITY

Manuel Gausa is an architect and critic based in Barcelona. As a teacher, he taught at ETSAB (Barcelona School of Architecture), and since 2008 he is a professor at the School of Architecture of Genoa. He has received several awards, highlighting the Medal of the Academie d'Architecture in France in 2000.

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CONCLUSIONS AND RECOMMENDATIONS

The Responsive Cities Symposium raised many central questions regarding Advanced Urbanism and for the future of our cities, among which:

- how is our city and its design changing with respect to the potentials of advanced technology?
- how do we design physical space to promote human interaction?
- in what way do users, and could users experience space?

The symposium organizers approach did not just focus on the mere application of technology to optimise urban processes, but rather the interest was to generate a debate on what kind of new spaces and experiences the application of technology has the potential to generate, keeping human interaction as the core issue for future urban development.

The considerable interest generated by the symposium's topic is demonstrated by the high participation: more than 300 people assisted. These included both students and professionals coming from the fields of Architecture, Engineering, Urban Planning,

City Governance, Education and Sciences.

The event had also an important impact on social media, with, just on Twitter, 2,435,060 impressions of #ResponsiveCities, these included in 55,682 different accounts and 838 tweets.

On Facebook the posts regarding the symposium reached more than 2500 people.

Key factors for the symposium's success were the topics treated, the high level of the invited speakers, and the organization of the call for papers and posters, that brought people from Asia, Africa, America and Oceania to Barcelona, enhancing the symposium visibility.

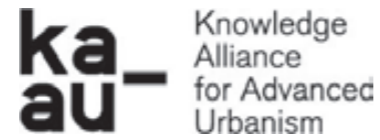
Reccomendations for the organization of future smposia include the interest in an initial analysis of the state of the art regarding ongoing symposia on similar topics, in order to navoid the repetition of topics already treated in other events, and to carefully balance the schedule between keynote presentations and open discussions, as Responsive Cities attendees expressed their appreciation for the panel discussions closing each session.





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CREDITS



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