

URBAN MUTATIONS The city is ours!

14 June 2016 to 5 March 2017

at the Cité des sciences et de l'industrie

Press kit

June 2016



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Opening hours
Everyday except Monday, 10 am to 6 pm,
and until 7pm on Sunday

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cite-sciences.fr

Rates

€9, reduced: €7 (over 65, "familles nombreuses"
teachers, students, under 25).

Supplement: €3 for *Urban Mutations*
€3€ for *Darwin, the original*
€3 for the planetarium.

→ Free for ages 6 and under, jobseekers, welfare
beneficiaries, visitors with disabilities and their escorts.

#MutationsUrbaines

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INTRODUCTION

An exceptional exhibition on the transformation of cities in the world today

This summer, at the Cité des sciences et de l'industrie, visitors will rediscover a familiar setting: our cities. *Urban Mutations*, from 14 June 2016 to 5 March 2017, is the occasion to examine and reassess the changes our cities are undergoing and what role we as city residents have to play. Visitors are invited to travel the world and actively participate in the debate and enrich the exhibition contents with their contributions.

For a city is characterised by the people who live there. It is a place for these people to live together. By 2008 half of all people in the world were living in cities. And the world's urban population hasn't stopped growing since, continuing the progressive and profound urbanisation of the planet that has been going on since ancient times. This phenomenon has far-reaching implications for our cities and hence for our lives. There are many initiatives and innovations – industrial, municipal or grassroots – that could help us meet this challenge. The aim of this exhibition at the Cité des sciences et de l'industrie is to present a selection of them for the first time to the general public.

“Our planet is faced with global challenges: not least among them urbanisation. The Cité des sciences et de l'industrie is giving visitors the keys to an understanding of the factors transforming our cities. Everyone has a role to play in this development. This is what our exhibition will allow the public to explore only a few months before the opening of the UN conference Habitat III in Quito.”

Bruno Maquart, president of Universcience.

Urban Mutations,

is a 1,000 sq m exhibition in three parts for audiences ages 10 and up. It will travel to the London Museum in July 2017 and will then be duplicated for Science Centre Singapore.



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A NEW LOOK AT THE CITY A SUBJECT FOR REFLECTION AND PARTICIPATION

Why and how do cities change? What effect do these changes have on our lives?

The aim of this exhibition is to answer these questions by addressing the symbolic, **technological, and human aspects of urban developments**. Visitors stroll through the 1,000 sq m exhibition area as they would through the streets of a city. **In three main sections – *Cities under pressure, Urban Earth and Urban Futures***– the exhibition delivers a multifaceted portrait of cities today and the challenges they'll face in the future.

Big Data, congestion, slums, or the greening of urban spaces are just a few of **the many problems and challenges for which solutions are emerging around the world**.

The exhibition also gives everyone the means to have an active and informed role in the **transformations of our cities tomorrow**, based on an understanding of demography, new technologies, the environment and other issues. Challenges to the urban eco-system prove to be engines of industrial, political and civic initiatives and innovations.

Urban Mutations was designed to have the feel of a stroll through the city, an open city with few partitions or borders. The urban space is present through its signs and symbols. Visitors are invited to move freely throughout the three sections of 1,000 sq m exhibition space.

CITIES UNDER PRESSURE

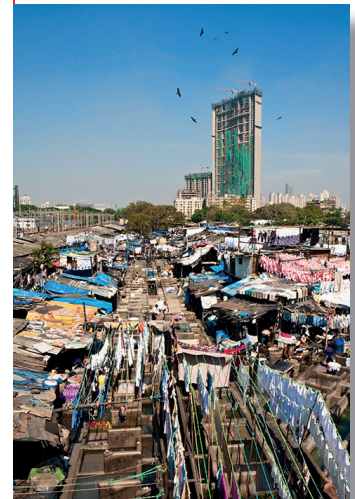
The city is a complex system resulting from multiple interactions and undergoing many pressures. A great many parameters must be taken into account: environment, land, communication, etc. The urban population is constantly growing, especially in Asia and Africa, as cities attract by their jobs, wealth, cultural offerings and social diversity.

To materialise this expansion, **six population clocks display in real time the number of urban inhabitants on each continent, underscoring in the process the differences between them**.

This first section of the exhibition dwells on some key issues in our cities today:

- Digital technology: Is it a choice or an obligation? How do social network influence our way of living and occupying urban spaces? How are data centres, which keep track of all our digital activities, integrated into the cityscape?
- The question of population density is materialised using models; the issue of traffic congestion is tackled in a hybrid exhibit that invites visitors to rearrange the districts of a fictional city and see in real time the effects on traffic; a city's ecological footprint is explored through a game.

The density of the design of the exhibition here evinces the complexity of cities. Visitors here are **both onlookers and contributors: they can put on the Oculus Rift helmet, for example, to see Hong Kong from the top of a skyscraper or share their own practices in the city in five polling exhibits**. Every visitor's responses will be compared to those given by others to yield an overall picture of how they see the city.



Mumbai, @ Nstanev / Fotolia



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URBAN GROWTH

Three elements illustrate the expansion of the world's urban population.

The Great Attractor

Dynamic mapping of a region demonstrates the increasing appeal of some cities at the expense of others. Jobs, wealth, culture, and diversity: what is the impact of these factors from one city to another?

Mutations: before/now

Pairs of photos show how cities have changed. When cities shrink as a result of a dwindling or ageing population and deindustrialization the cityscape changes. But we also see changes in transportation, pedestrian streets, etc.

"Migrants: views of the city"

A film on the appeal of cities as a factor of international or local migration: an immigrant in Rio de Janeiro tells his story.

GETTING AROUND

Children in the city

Audio installation about the mobility of children and how it has decreased over generations. As cities change over time, what is the impact on the movements of children? Pedestrian mobility has been limited in the 20th century by the increased use of individual cars.

Take the example of Ed.

In 2007, 8-year-old Ed Thomas was allowed to walk by himself 300 meters to the end of his street; his mother Vicky, at the same age in 1979, was allowed to go to the pool by herself, 800 meters from her home; his grandfather Jack, aged 8 in 1950, could go by himself to the woods more than 1.5 km from his home.

And what if we redesigned the city?

(Hybrid multimedia element, model, computer programme, video projection)

Could cities be designed differently? Traffic, pollution, fatigue, fragmented space: reducing the need for cars is a major issue in big cities around the world. How can we rethink urban space to diminish traffic intensity?

In a game featuring models of different types of districts (mixed-use, dense, business, shopping...), visitors rearrange districts and see the effect on traffic and transit flows. What's the best way of reducing traffic-related CO₂ emissions?

DIGITAL USES

Digital technology is now part and parcel of our lives and cities.

Meet you on the square!

Through two audio-visual presentations, visitors see the full measure of this phenomenon.

What role does digital technology play in global events, be they protest movements or festive gatherings? In what way do these new uses change the practice of public space?

One film shows documentary pictures of rallies held in Tahir Square in Egypt, Taksim Square in Turkey, Ukraine and Hong Kong, as well as non-political gatherings such as flash mobs and art events. Another is a projection of tweets sent during these gatherings.



Digital urban footprints

Models and mappings of digital footprints left by volunteers, showing their movements during a period of 2 weeks.

All digital data leaves traces and the everyday movement of people today is one of the factors leading to an explosion in the quantity of such data. Stored by telephone providers, banks, various public services and internet actors, they are regarded as “fuels” and have an important commercial potential.

Accumulated, they represent what is called “big data”. And so the traces left by mobile phones, wittingly or unwittingly, provide us with a new picture of the movement of city residents.

The pulse of the city

In an interactive audio element and a dynamic representation, visitors can choose to “listen to” collective activity in Paris at a given date and time. Each type of exchange (text, phone call, data) has a corresponding sound so that the combined activity passing through a network’s antennas is converted into a unique melody.

You’re on camera!

A multimedia element that puts visitors in the role of both the watcher and the watched.

Without our knowledge, data is being collected all the time by security cameras throughout the city. We now have software to cross-reference different types of information automatically and even recognise the identity of possible offenders. At the same time, people are devising tools for getting around this surveillance: collaborative editable *OpenStreetMaps*, infrared caps that “blind” cameras, etc. One visible and one hidden camera film the visitor at the monitoring station. The visitor can then direct the camera, look for the hidden cameras or watch a video presenting intelligent video analytics. Are such systems frightening or reassuring?

INHABITED SPACES, DENSITY AND HOUSING

Experience the density (touchable models)

A comparison of density in business and residential districts in Rio de Janeiro and London from data provided by the London School of Economics. Do density statistics reflect the experience of residents?

Higher, more dense?

A game of classification of housing according to density. Do towers, advocated for decades by urban planners, really afford high density? What types of housing do actually provide greater density?

Street patterns

What if we tidied up the city? An art installation by Armelle Caron completes the topic of “Cities under pressure” with touchable city plans from his series “Everything Tidy”.

Roof topping in Hong Kong (immersive installation)

Using an Oculus Rift helmet, visitors find themselves on top of a Hong Kong skyscraper.

The poorly housed: views of the city

A film presents the views of those of those who don’t benefit from the city’s housing offers: the homeless, or those living in transitional or substandard housing. How visible are they in our cities? What place do they have? What is their experience of the city?

The Cité des sciences et de l’industrie will be presenting an exhibition on Big Data in 2017.



Armelle Caron

Born in 1978, Armelle Caron lives and works in Seta. She earned degrees in art from Lancashire University in Great Britain (in 2001) and from the Cole supérieur d’art in Avignon (in 2004). During that time she also travelled extensively and did numerous art residencies. Her artwork takes an unusual look at the cities she’s visited. The works featured in the exhibition are from her series “Everything Tidy”.

Informal (Iconographies)

Other forms of informal structures are developing. Slums and shantytowns are a reality today for many people. Nearly a billion people live in informal structures of this type and the number is expected to rise to 2 billion by 2050: that amounts to 50% of the urban population.

Urban composition

Animated model by Lorenzo Papace. The city is a composite entity made up of different types of urban spaces: business centres, gentrified districts, gated communities, informal housing, scattered housing, periurban areas, etc.

ENVIRONMENT AND INFRASTRUCTURES**The real limits of cities**

What are the real limits of the city? Cities consume, produce, and emit. A city's ecological footprint extends beyond its geographic boundaries, so much so that these boundaries are not the "real" or only limits of the city.

This question is explored by visitors in the game *A city's needs*

My street saves (interactive display)

70% of CO₂ emissions come from energy-guzzling cities. How can this footprint be reduced? Is pooling energy a solution. More and more initiatives are being developed to reduce energy use by pooling resources. In this way, the heat generated by a bakery, for example, could serve to heat adjoining homes.

Over-under (model)

There's more to a city than what meets the eye. There are many networks running underground or in the air that cannot be seen. A model shows visitors what's hidden beneath the city surface: water supply pipelines, transportation and communication networks, etc. How are these networks organised?

Data Centres in the city (interactive display)

The physical infrastructure needed for the nearly invisible Internet traffic is massive. Storing personal data requires new, ever more powerful storage centres. These data centres are often integrated into the urban landscape, sometimes without consulting local residents. In Paris alone, there are a dozen huge data centres. Such facilities take up a lot of space and energy and generate a lot of heat, which, if not reused, contributes to the greenhouse effect.

This game invites visitors to move their hand over a map of the greater Paris area in order to locate the data centres by feeling the heat they generate.

The need to adapt (audio presentation)

It's important to anticipate the capacity of urban infrastructures to adapt to the changing development of our cities as to unpredictable environmental circumstances.

Lorenzo Papace

Lorenzo Papace was born in 1986 in Lyon. He's an author, music composer, photographer and film director. He studied mechanics and electricity, fine arts, interior and graphic design. He started learning piano at the age of 4 and in 2008 he created the band Ödland and devoted himself to music. The music he composes and plays is lively and spontaneous; it integrates references to the past but in a modern spirit. The same spirit and tendencies inform his photography and video works.



URBAN EARTH

Urban Earth is an immersive presentation that takes visitors on a planetary journey to explore the challenges of urbanisation. A system of data visualisation and data sonification projected on an 8 by 3.5 metre hemispheric screen shows our urban earth through data from around the world.

The 130,000 pieces of data delivered to the audience in 12 minutes provide as accurate a panorama as possible of the transformations that we are undergoing today. The earth is urbanising. This global phenomenon can be seen in the extension of urban areas, demographic shifts, CO2 emissions, population movements, expanding areas of influence of megacities, urban activities in the day and at night, peak travel times, etc. Other data, satellite and digital (big data), complement the tools of geographers.

The audiovisual presentation is divided into 4 sequences:

GLOBAL URBANISATION

The city is a place where people are born, live and die. Urban space is designed to facilitate and concentrate these activities. The history of cities can be traced back to Antiquity. Today the majority of people on Earth live in cities. In 2016, 1,600 cities had a population of over 300,000. By 2030, the population will increase in most of the world's cities but it will decrease in some. .

DIVERSITY OF URBANISED TERRITORIES

Urban areas grow out, up and down. They exhibit great diversity (in area, density, maximum height, etc.). In 2016, urban areas still covered only 3% of the Earth's land surface.

CITIES, POLLUTION & THE ENVIRONMENT

70% of greenhouse gas emissions come from cities where human activities are concentrated. There are a great many sources of pollution in cities. Particulate pollution, in particular, is a major cause of health problems.

CITIES, WEALTH & SOCIETIES

The different data that can be used to measure wealth give a glimpse of the unequal distribution of wealth on a global scale, as the 150 wealthiest cities in the world are concentrated in the North.

Total duration: 12 min – French sign language version available

Urban Earth was designed using tools for data visualisation that convert data into animated graphics with one-tenth of pixel accuracy. These new forms of audiovisual presentation developed for museums and exhibition venues make use of state-of-the-art technology, graphics and motion design, documentary and all types of video installations.

Urban Earth is by Pascal Goblot, documentary director who's received many awards for his video and film work in France and abroad (CNC, Scam, Mam de la Ville de Paris, Reina Sofia Museo...). It was made in association with Camille Beurton and Julien Guillot from Agence BiG and Alex Ly.

Conception: Escalenta.



URBAN FUTURES

Pride of place to new initiatives in the 3rd section of the exhibition

Fragmented and vulnerable, our cities are faced with particularly complicated challenges. But these very challenges are also engines of **transformation, which have prompted industrial, environmental, political and civic urban initiatives and innovations.** Economic crises or energy issues can turn into an occasion to rethink our environment.

There is nothing certain or predetermined about the world's urban future. The civilizational change it will entail could open up innumerable possibilities of improving our living conditions. But our urban future could be terrifying if people accept systems of confinement and self-imposed isolation in their own separate and selective network. Urban futures takes up the question of change and the dynamics that trigger it. Individuals can be active in the process of change. What is their leeway and how much of an impact can an individual have? In what way do cities in transition, zero-carbon cities, or smart cities participate in the future of urban areas and their inhabitants?

A survey of experiments around the world. Industrialists, urban planners, politicians, economists, and residents are all rethinking their cities.

Initiatives addressing today's urban issues are being devised and tested. There's a growing focus on innovations for cities that are connected, greener, easier to use, more eco-friendly, safer and smarter. At the same time, open public data is changing the relationship of people to their city and will no doubt lead to new modes of governance.

Like the Givebox, installed on the esplanade of the Cité des sciences et de l'industrie since 14 March 2016, the **model of a vertical farm, Skygreen in Singapore, the Biobus in Bristol, and the collaborative OpenStreetMap** are among the initiatives and innovations presented in this section of the exhibition. Together they manifest the diversity of approaches, the originality of new projects, and current trends informed by different objectives.

To facilitate the city

Making the city more accessible and easier to use for all. Examples include sensors embedded in the pavement, the *SkyCycle* designed by Norman Foster for London, coworking spaces, small private water supply networks in Maputo, *slow cities*, and more.

To secure the city

Here examples include an LED tree, community toilets in slums in India, the use of digital wallets in Côte d'Ivoire and Congo, the Ecocycle bike parking system in Japan.

To aerate the city

Discover a piezoelectric pavement where electricity is powered by footsteps of passersby; **Park(ing) Day**, a day set aside in cities around the world to turn metered parking spots into green spaces and more; **an elevated garden on an abandoned railway track in Seoul**; landscaped walls in Milan; **ecodistricts** and the **guerrilla gardening** movement aimed at taking back the city's vacant lots to turn them into green spaces.



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To share the city

A few examples illustrate this trend: the *Givebox*, installed on the esplanade of the Cité des sciences et de l'industrie; the *OpenStreetMap*, a collaborative editable mapping project; *housing first*, a project to provide the homeless with permanent housing; the *Incredible Edible movement for self-sufficient* production of healthy food for all; or the construction by architect Alejandro Aravena of participative, self-managed social housing.

To autonomise the city

Examples of initiatives and innovations to make cities less dependent and more self-sufficient, thereby maintaining an ecological balance and strengthening the social bonds between the urban area and the rural surroundings: model of a vertical farm, dedicated-farming towers, a *biobus* powered by human excrement, *CSA* (community supported agriculture), a model of an eco-district in Turkey heated by pistachio shells (a plentiful local resource), and lastly San Francisco's project to achieve zero waste by 2020.

CITIES OF TODAY, CITIES OF TOMORROW?

Some cities are threatened by an impending crisis or already in an emergency situation, as is the case for Detroit; others have significant technological and financial means. All are both players in and witnesses to current trends.

Log 2.0 of testimonies from residents

An **audiovisual look** at 4 remarkable cities in the U.S.A., Denmark, South Korea and Columbia completes the panorama of global initiatives and innovations.

- **Diana in Detroit – the residents are reinventing their city**

In 2013, the city of Detroit officially declared bankruptcy. Because of the decline of automobile production, this single-industry city was especially hard hit by the economic crisis. Problems of real estate, health, environment, and food accumulated progressively and its population dropped from 1.8 million in 1950 to 714,000 in 2010. The city's residents have developed innovative alternative solutions to these cultural, social and economic difficulties, devising in the process new urban models: urban survival farming gradually turned into organised urban farming; creation of wireless mesh networks, which are local, decentralised internet networks. With its D.I.Y. approach, Detroit has become an example of urban resilience in the manner of other shrinking cities, such as Leipzig in Germany that has also had to develop innovative strategies in response to its difficulties.

- **Andres in Medellin – a model of social diversity**

In the 1990s Medellin was ravaged by drug trafficking and considered a very dangerous city. Since Medellin has become a model of social urbanism and was named "Most Innovative City in the World" in April 2014.

A series of urban projects have changed the social landscape of the city and improved living conditions in its poor neighbourhoods. These projects, supported by the city government, focused on improving accessibility and mobility, implementing participative budgeting, offering a better education, and taking back public spaces.

To integrate the formerly isolated underprivileged districts in the mountains into the urban fabric, a cable car line was put into operation in 2004 and another in 2008.

On the slopes of the Santo Domingo district, one of the hardest hit by the violence in the 1980s, the opening of a cable car line was accompanied by the building of the famous Biblioteca España, thereby ending the neighbourhood's cultural isolation.



Panama, @ Lucaar / Fotolia

- Ole à Copenhague - la ville écologique

The Danish capital is hoping to become the world's first carbon-neutral city by 2025. After the Kyoto protocol in 1997, the city adopted a "climate plan" and has been actively implementing a policy to reduce greenhouse gas emissions that includes intermodal transport, bike paths, renewable energy sources, green spaces, domestic and industrial waste recovery, green housing, centralised city heating and air-conditioning, organic urban farming, and wastewater treatment. It has become a city with clean air where residents participate in implementing solutions that suit their lifestyles, travel needs, and energy uses. This city that managed to reduce its carbon emissions by 24% between 2005 and 2012 was twice named "the world's most liveable city" (Monocle magazine, 2008 and 2013). And the tandem Copenhagen-Malmö is aiming to become the world's first carbon-neutral cross-border region by 2030.

- Jeon and Youjin in Songdo – the secured city

Could smart cities be an appropriate response to the global urban population explosion? Many existing cities are developing "smart" projects while new cities are being created on this model. As an example of both a connected city and a new city, Songdo has given its planners the opportunity to address two types of challenges at once.

IT'S HERE

All throughout the exhibition, visitors have explored cities around the world. **It's here!** focuses on the city of Paris. A multimedia cartographic tool allows visitors to find out about innovative projects being conducted in the French capital and where they are located. I.



Songdo, @ Aoman/gettyimages

To end our journey of exploration, visitors can draw their own personalised city map, scan it and share it with others. Also, at an interactive kiosk, they can put any questions they may have to scientific experts in urbanism, who will answer them directly by email.



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GLOSSARY

Big Data: technology built by Internet giants to deal with the challenge of data growth. The term refers to data sets too massive to be handled by traditional data management and processing tools

Infrared caps: caps with an infrared projector that flashes a blinding light at surveillance cameras and makes identification impossible.

Business centre: place offering businesses and entrepreneurs fully equipped offices for short-term use.

Gated communities: high-security closed residential areas.

Gentrification: trend of wealthier residents moving into poorer neighbourhoods.

Informal housing: group of more than 10 housing units built without authorisation on public or private property, without conforming to legal or urban planning regulations.

Intermodality: the use of several modes of transport in a journey.

Urban sprawl: the phenomenon of uncontrolled construction of scattered housing in rural and peri-urban areas.

Openstreetmap: collaborative mapping tool to create and provide open source geographic data.

Peri-urban: the term is applied to areas beyond a city's immediate outskirts and suburbs, sites of new urbanisation characterised by housing developments and individual constructions.

Shrinking Cities: cities exhibiting social, economic and demographic degrowth, as part of the phenomenon of urban decline.

Slow Cities: cities whose goal is to promote a better quality of life at a slower pace.

Smart Cities: modern cities equipped with wired infrastructures intended to enhance the comfort of inhabitants in an eco-friendly way.

SCIENTIFIC COMMITTEE

The exhibition benefitted from the curatorship of
Marie-Christine Hergault, curator and project head
Sophie Manoff, associate curator

with the support of a **multidisciplinary science committee:**

Thierry Paquot, philosopher, science advisor

Sabine Barles, professor in urban planning and development, Université Paris 1 Panthéon-Sorbonne

Marc Barthelemy, physicist, Institut de Physique théorique (CEA) and Centre d'analyse et de Mathématiques sociales (EHESS)

Anne Charreyron-Perchet, urban planner, Ministry of the Environment, Energy and the Ocean

Anne Grenier, urban planner, Sustainable Cities and Regions, Ademe

Karim Hendili, coordinator of Unesco's World Heritage Cities programme

Françoise-Hélène Jourda, architect, JAP

Michel Lussault, geographer, professor of urban studies, Université de Lyon (École normale supérieure de Lyon)

Jean-Marc Offner, urban planner, CEO of l'Agence d'urbanisme Bordeaux Aquitaine

Vincent Renard, economist, CNRS research director

A FOCUS ON EXHIBITION DESIGN

Many of the challenges of our time may seem frightening, so the project developed here involves taking a step back and reframing the discourse around a dialectic between the visible and the invisible, technology and its uses, infrastructure and landscape, in short, between the hard and the soft to borrow terms from IT language that have now become common in urban planning. Every resident in an urban area has the right to know “how things work” in order to be able to discuss “how things could be done differently”.

This is the movement that characterises the two principal stages of the exhibition’s scenography, a movement between two layers. The first layer is a kind of 3D motherboard dedicated to revealing the invisible grids that structure the urban machine (technical and digital networks in face of pressures, issues of efficiency, saturation, and obsolescence) into which different thematic units are plugged (the systems-components) with the exhibition contents. The second layer is presented in the form of a landscape of interactive uses. Here the grid is immaterial like the hyper-wired city, comparable to a climate in which every individual is an active particle, participating in several forms of crystallisation of views, desires or oppositions, participating in short in urban conversations.

AWP Office of Territorial Reconfiguration (Marc Armengaud, Matthias Armengaud, Alessandra Cianchetta) with Nez Haut.

Contact: press@awp.fr

www.awp.fr

IN CONNECTION WITH THE URBAN MUTATIONS EXHIBITION

PHOTO CONTEST: WINDOWS ON THE CITY

Urban Mutations is the occasion of the photo contest *Windows on the city* open to professional and amateur photographers alike. The winning photos (two chosen by the public on the internet and four by a jury) will be on view in November and December 2016. In the meantime, visitors will have the opportunity to view a regularly changing selection of entries throughout the exhibition period. Find out more at cite-sciences.fr

RESSOURCES SUR UNIVERSCIENCE.TV

A selection of videos on urban mutations, a dozen video interviews and reports on public space, smart buildings, biodiversity, roof gardens, buses in the future and more are available online at Universcience scientific WebTV.

SCIENTIFIC WORKSHOP: OUR ENDANGERED COASTS

Participants are invited to experiment with an augmented reality sandbox to simulate what happens when ocean levels rise. Using an educational approach, they learn about the social, economic and urban consequences such a rise.

45 minutes; ages 12 and up; on weekends and during school holidays

RESIDENCIES AND WORKSHOPS

Several lab residency sessions and workshops are scheduled in connection with the issues raised by the exhibition.

Students and young professionals meet in the Serre for 3-month residencies or 10-day workshops. Specialists in biodiversity, agronomy, energy, regional planning, health and so on, they'll be working together on the topic of "the digital city, urban farming and bio high tech". Residents will also be presenting the progress of their work to the public, answering questions and conversing with them. These public sessions will allow residents to confront their ideas with reality and prompt visitors to take an active part in an experimental research project.

Next workshop: 12 to 22 July 2016 / 25 to 30 participants

Next lab residency: 6 September to 25 November 2016 / 5 to 10 participants

In partnership with the "Atelier international expérimental pour la Cité bio-numérique" and the school of architecture of Yeungnam University, South Korea.

A CYCLE OF CONFERENCES ON THE CITIES OF TOMORROW AND UTOPIAS

Cities will have to adapt in order to meet seemingly contradictory needs in housing, heating, air-conditioning, food and transportation for the majority of the planet's population of 9 billion while at the same time effecting an energy transition. What could the city of tomorrow look like?

31 May at 7 pm	Paris 2050: Fertile Cities	with Vincent Callebaut, Sandrine Berroir.
7 June at 7 pm	Living on the Seas: Floating Cities	with Jacques Rougerie, Idriss Aberkane
14 June at 7 pm	Towards a Biodigital City,	with Claire Bailly, Jean Magerand, Thierry Paquot.

SCIENCE CENTRE SINGAPORE

Science Centre Singapore, a non-formal educational institution and leading regional Science Centre, along with its group of attractions, brings out the wonders of science, technology, engineering and mathematics through its unique blend of exhibitions, educational programmes and events. A custodian of creativity and innovation, Science Centre Singapore has captured the evolution of scientific developments for nearly four decades.

The Centre and its partners have played a pivotal role in transforming the way students and the public interact with and learn about science, technology, engineering and mathematics. Since 1977, the Centre has welcomed over 30 million visitors and inspired them with more than 1,000 exhibits spread across 14 exhibition galleries and outdoor exhibition spaces.

The Centre's group of attractions include Omni-Theatre, Snow City and KidsSTOP™. The Omni-Theatre is an immersive dual-technology edutainment destination fitted with Southeast Asia's largest seamless dome screen and featuring the latest and brightest 8k digital fulldome system in the world. Snow City is Singapore's only permanent indoor snow centre offering an Arctic inspired experience at Singapore's first ice gallery and snow chamber. KidsSTOP™ - Where every child gets to Imagine, Experience, Discover and Dream - is Singapore's first children's science centre offering an enriching experience through purposeful play for children aged 18 months to 8 years.

For more information, please visit www.science.edu.sg



SUEZ

The resourceful city

Suez brings its support to this exhibition at the Cité de sciences et de l'industrie as part of the group's drive to increase the public's understanding of the extensive changes that our cities are undergoing. High population growth, increasing urbanisation and the shortage of natural resources make securing, optimising and renewing resources indispensable for our future.

Suez proposes an integrated view of the city and brings its expertise to all those involved in building a resourceful, attractive and pleasant city to live it. And so it made perfect sense for the company to lend its support to the Urban Mutations exhibition.

- **Circularity:** Cities have the capacity to generate resources that are essential to their future.

In Bordeaux, for example, energy recovery produces enough electricity to supply 70,000 inhabitants, thereby reducing the volume of waste by 98%.

- **Resilience:** Cities have to adapt to limit the effects of climate-related phenomena.

In Barcelona, for example, a solution to manage the rainwater in real time serves to control the risk of flooding.

- **Cooperation:** Cities design and co-construct new services with their residents, like in Saint-Étienne where an open digital platform is used to collect, analyse, store and deliver urban data.

Suez supplies drinking water to 92 million people, delivers wastewater treatment services to 65 million, collects waste from nearly 50 million, recovers 14 million tonnes of waste a year and produces 5,138 GWh of local renewable energy.

With 80,990 employees, Suez is present on all five continents as a key player in the circular economy for sustainable resource management.



ORANGE**Digital technology, a lever for urban mutations**

Everywhere in the world, the digital revolution has become a powerful vehicle of change and a formidable opportunity. The exponential increase in data and digital tools along with changes in uses are transforming our daily lives. New services are appearing every day.

The aim of achieving digital literacy for all informs the strategy at Orange and our vision for the future. 5,000 employees at Orange devote their time to research and innovation to forge a digital future that is humane and responsible.

We try to meet our customers' expectations and help them achieve their dreams by co-constructing solutions accessible to all.

Orange supports communities in an effort to enhance the quality of life with its offerings of financial, health, and transport service and contributes to the growth of businesses and the development of smart sustainable cities.

As a major telecommunications operator present in 28 countries, Orange is proud to provide support for this pioneering exhibition and to contribute to this exploration of the city. The company previously partnered with Universcience on the Hello Tomorrow exhibition in June 2011 and on the Housing for Tomorrow exhibition in 2012. Now we invite the public to take a fresh look at the urban environment and the experiments that will be changing our lives.

For years Orange has supported culture by assisting institutions in their endeavours to highlight heritage and connect with their audience.

The company implements projects that combine culture and technological innovation, using digital technology for the benefit of culture and to promote new uses.

About Orange

Orange is one of the world's leading telecommunications operators with sales of 40 billion euros in 2015 and 155,000 employees worldwide as of 31 March 2016, including 96,000 employees in France. Present in 28 countries, the company has a total customer base of 252 million customers worldwide as of 31 March 2016, including 191 million mobile customers and 18 million fixed broadband customers. Orange is also a leading provider of global IT and telecommunication services to multinational companies, under the brand Orange Business Services. In March 2015, Orange presented its new strategic plan to 2020: "Essentials2020", which places customer experience at the heart of its strategy with the aim of allowing them to benefit fully from the digital universe and the power of its new generation networks. Orange is listed on Euronext Paris (symbol ORA) and on the New York Stock Exchange (symbol ORAN).

For more information (on the internet and your mobile): www.orange.com, www.orange-business.com, www.livetv.orange.com or follow us on Twitter : @presseorange.

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ADEME

Cities and sustainable development are inseparable

The majority of the world's population now lives and/or work in cities. For the French Environment and Energy Management Agency (Ademe), the city and issues sustainable development are inextricably connected. Buildings, energy, travel and congestion, air and noise pollution, green spaces, contaminated soil, transport of consumer goods, waste and sewage disposal, economic development, social diversity or social inequality, culture and democracy—all these are essential questions in our cities. There are many players involved in finding solutions to these issues, along with new visions and innovative projects. The exhibition Urban Mutations explores all these dimensions. As an agency active in implementing public policies in the fields of the environment, energy and sustainable development, it was only natural that Ademe partner with Universcience in the making of this exhibition.

Ademe is a public agency under the joint authority of the Ministry of the Environment and Energy and the Ministry of Public Education and Research. The agency brings its expertise to bear on its work with public authorities, local governments, businesses and the general public, providing them with advice and support for their eco-friendly projects. Ademe also assists in financing projects, from research to implementation, in the following areas: waste management, soil conservation, energy efficiency, renewable sources of energy, air quality and noise control.

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