

# TeMA

Journal of  
Land Use, Mobility and Environment

The three issues of the 12th volume will think again the debate on the definition and implementation of methods, tools and best practices connected to the evolution of the main scientific topics examined in depth in previous TeMA Journal volumes.

Tema is the Journal of Land use, Mobility and Environment and offers papers with a unified approach to planning and mobility. TeMA Journal has also received the Sparc Europe Seal of Open Access Journals released by Scholarly Publishing and Academic Resources Coalition (SPARC Europe) and the Directory of Open Access Journals (DOAJ).



THE TIMES THEY ARE A-CHANGIN'

# TeMA

Journal of  
Land Use, Mobility and Environment

## THE TIMES THEY ARE a – CHANGIN'

1 (2019)

**Published by**

Laboratory of Land Use Mobility and Environment  
DICEA - Department of Civil, Architectural and Environmental Engineering  
University of Naples "Federico II"

TeMA is realized by CAB - Center for Libraries at "Federico II" University of Naples using Open Journal System

Editor-in-chief: Rocco Papa  
print ISSN 1970-9889 | on line ISSN 1970-9870  
Licence: Cancelleria del Tribunale di Napoli, n° 6 of 29/01/2008

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Cover Image by Giuseppe Mazzeo, Cascata dos Jardins da Água, Lisbon, Portugal

TeMA. Journal of Land Use, Mobility and Environment offers researches, applications and contributions with a unified approach to planning and mobility and publishes original inter-disciplinary papers on the interaction of transport, land use and environment. Domains include: engineering, planning, modeling, behavior, economics, geography, regional science, sociology, architecture and design, network science and complex systems.

The Italian *National Agency for the Evaluation of Universities and Research Institutes* (ANVUR) classified TeMA as scientific journal in the Area 08. TeMA has also received the *Sparc Europe Seal for Open Access Journals* released by *Scholarly Publishing and Academic Resources Coalition* (SPARC Europe) and the *Directory of Open Access Journals* (DOAJ). TeMA is published under a Creative Commons Attribution 3.0 License and is blind peer reviewed at least by two referees selected among high-profile scientists. TeMA has been published since 2007 and is indexed in the main bibliographical databases and it is present in the catalogues of hundreds of academic and research libraries worldwide.

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# TeMA

Journal of  
Land Use, Mobility and Environment

TeMA 1(2019) 97-119  
print ISSN 1970-9889, e- ISSN 1970-9870  
doi: <http://dx.doi.org/10.6092/1970-9870/6064>

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## REVIEWS PAGES

### THE TIMES THEY ARE A-CHANGIN' 1(2019)

Starting from the relationship between urban planning and mobility management, TeMA has gradually expanded the view of the covered topics, always remaining in the groove of rigorous scientific in-depth analysis. During the last two years a particular attention has been paid on the Smart Cities theme and on the different meanings that come with it. The last section of the journal is formed by the Review Pages. They have different aims: to inform on the problems, trends and evolutionary processes; to investigate on the paths by highlighting the advanced relationships among apparently distant disciplinary fields; to explore the interaction's areas, experiences and potential applications; to underline interactions, disciplinary developments but also, if present, defeats and setbacks.

Inside the journal the Review Pages have the task of stimulating as much as possible the circulation of ideas and the discovery of new points of view. For this reason the section is founded on a series of basic's references, required for the identification of new and more advanced interactions. These references are the research, the planning acts, the actions and the applications, analysed and investigated both for their ability to give a systematic response to questions concerning the urban and territorial planning, and for their attention to aspects such as the environmental sustainability and the innovation in the practices. For this purpose the Review Pages are formed by five sections (Web Resources; Books; Laws; Urban Practices; News and Events), each of which examines a specific aspect of the broader information storage of interest for TeMA.

#### 01\_WEB RESOURCES

The web report offers the readers web pages which are directly connected with the issue theme.

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#### 02\_BOOKS

The books review suggests brand new publications related with the theme of the journal number.

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#### 03\_LAWS

The law section proposes a critical synthesis of the normative aspect of the issue theme.

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#### 04\_UBAN PRACTICES

Urban practices describes the most innovative application in practice of the journal theme.

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#### 05\_NEWS AND EVENTS

News and events section keeps the readers up-to-date on congresses, events and exhibition related to the journal theme.

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Journal of  
Land Use, Mobility and Environment

TeMA 1 (2019) 97-119  
print ISSN 1970-9889, e- ISSN 1970-9870  
doi: <http://dx.doi.org/10.6092/1970-9870/6064>

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## 评述页：

### 提高城市系统对自然及人为变化顺应能力的方法、 工具和最佳实践

TeMA 从城市规划和流动性管理之间的关系入手，将涉及的论题逐步展开，并始终保持科学严谨的态度进行深入分析。在过去两年中，智能城市（Smart Cities）课题和随之而来的不同含义一直受到特别关注。

学报的最后部分是评述页（Review Pages）。这些评述页具有不同的目的：表明问题、趋势和演进过程；通过突出貌似不相关的学科领域之间的深度关系对途径进行调查；探索交互作用的领域、经验和潜在应用；强调交互作用、学科发展、同时还包括失败和挫折（如果存在的话）。

评述页在学报中的任务是，尽可能地促进观点的不断传播并激发新视角。因此，该部分主要是一些基本参考文献，这些是鉴别新的和更加深入的交互作用所必需的。这些参考文献包括研究、规划法规、行动和应用，它们均已经过分析和探讨，能够对与城市和国土规划有关的问题作出有系统的响应，同时还对诸如环境可持续性和在实践中创新等方面有所注重。因，评述页由五个部分组成（网络资源、书籍、法律、城市实务、新闻和事件），每个部分负责核查 TeMA 所关心的海量信息存储的一个具体方面。

#### 01\_WEB RESOURCES

网站报告为读者提供与主题直接相关的网页。

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#### 02\_BOOKS

书评推荐与期刊该期主题相关的最新出版著作。

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#### 03\_LAWS

法律部分提供主题相关标准方面的大量综述。

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#### 04\_URBAN PRACTICES

城市的实践描述了期刊主题在实践中最具创新性的应用。

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#### 05\_NEWS AND EVENTS

新闻与活动部分让读者了解与期刊主题相关的会议、活动及展览。

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## REVIEW PAGES: WEB RESOURCES

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In this number

### SOIL USE AND CLIMATE CHANGE

During the Sustainable Development Summit 2015, Heads of State adopted a document called “Agenda 2030” (ONU, 2015), which set the objectives to be pursued by the Member States for sustainable development, in order to mitigate the effects of climate change.

The document recognizes the close link between human well-being and the health of natural systems and its objectives identify several areas of action in this perspective: fighting against hunger, eliminating inequalities, protecting natural resources and claiming sustainable production and consumption patterns.

Human health depends on the ecosystem conditions, which are compromised by human activity (the main cause of climate change). The roles played by air and water to mitigate the effects of climate change are quite known (Reali & Toffol, 2017) but the awareness of the role that soil can play is less widespread.

In fact, soil constitutes the second carbon tank after the oceans (Zucaro & Morosini, 2018) and, as such, it carries out a real CO<sub>2</sub> storage action, contributing to the mitigation of climate change and favoring adaptation to it, without considering that permeable soils protect against heat waves, storing large amounts of water and keeping temperatures low (European Environment Agency, 2017).

The awareness of the multiple functions of soil ensures that one of the objectives set by the Agenda 2030 is “to promote sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally” (Agenda 2030, 2015).

In this context, several European cities are trying to exploit the soil functions: for example, Madrid organized the Gomeznarrow park to include new permeable surfaces, vegetation and underground areas for water storage (European Environment Agency, 2017).

Therefore, if properly managed, soil can help reduce greenhouse gases and global temperature and contribute to flood regulation and prevention by reducing erosion.

The solutions adopted in the Belgian village of Velm (Vandaele, 2011), such as rotation crops, to reduce the countless floods that occurred above all in 2002, could be taken as a good example.





CMCC

<https://www.cmcc.it>

**The Euro-Mediterranean Center on Climate Change (CMCC)** is a non-profit research organization founded in 2005, with the financial support of the Ministry of Education, University and Research (MIUR), the Ministry of the Environment and Protection of the Territory (MATT), the Ministry of Agricultural and Forestry Policies (MIPAF) and the Ministry of Finance (MEF), and thanks to funding from the Integrative Special Research Fund (FISR) within the National Strategic Program for Research.

CMCC's mission is to carry out studies and model the climate system and its interactions with society and the environment, to ensure reliable, timely and rigorous results to stimulate sustainable growth, protect the environment and develop, in the context climate change, adaptation and mitigation policies based on scientific knowledge.

The CMCC website contains a wealth of information articulated in different sections. The home page can be divided into three parts: the left one, where users can find a significant number of links that simply direct to the section of interest and to other similar websites, such as that of the European Environment Agency. The central part, instead, is dedicated to the presentation of the latest articles uploaded on the site; on the right side, then, users can find links for the Newsletter, the box dedicated to the Events and that to the Tweets.

The most interesting sections for the topic of climate change are "Publications", "Events" and "Databases". By clicking on the section "Publications", users will display five sub-sections:

- Scientific and Refereed Papers;
- Research Papers;
- International Climate Policy Magazine;
- Strategic Plan and Reports;
- Books.

In particular, in the first sub-section it is possible to consult papers published by CMCC scientists in journals with Impact Factor identified by the Journal Citation Reports (JCR) by Thomas Reuters, scientific books and proceedings. Through the drop-down menus at the top of the page, it is also possible to make a detailed search by setting filters. Moreover, this section is rich in scientific material on climate change and land use that can be easily and quickly consulted and downloaded. Another sub-section of equal interest for the theme of climate change and land use (with the same consultation structure of the previous sub-section) is "Research Papers", which contains the research documents produced by the CMCC divisions. The texts published in this sub-section can also be found on the Social Science Research Network (SSRN) website in the Public Policy Centers - Research Papers series. From the "Events" section, users can access a full schedule of seminars, conferences and workshops. Each event is associated with a link that leads to the event details, providing information about the contents, dates and place, the organizing body and the related contacts. Finally, another interesting section is the one dedicated to the Databases, in which users can find the climatic scenario simulations conducted by several CMCC researchers. In each section consulted by the users, the news box is always kept updated, so as to make them promptly informed about all the most important initiatives regarding the issue of climate change. The website header stays fixed on the top of the page, whatever section users are consulting: this allows the reader to do a quick search by keywords through the Search box on the top right side, but also to choose the language (the site is available in Italian and English), send an email through the Webmail link and directly access the social networks of Facebook, Twitter, Instagram, LinkedIn and the YouTube channel (right beside the Search box).



CEE web for Biodiversity

[http: www.ceb.org](http://www.ceb.org)

**CEE web for Biodiversity** is a network of non-governmental organizations in the Central and Eastern European region that has been working in 20 countries for 20 years. Its mission is the conservation of biodiversity through the promotion of sustainable development. The website is divided into eight main sections:

- Home;
- About us;
- Members;
- Work Areas;
- Library;
- News & Events;
- Job Offers;
- Contacts.

By entering the "Work Areas" section, users can find the two sub-sections "Working Groups" and "Priority Areas", in turn organized by topics. For example, the "Working Groups" section is divided into four groups: NATURA 2000, Sustainable Tourism, Rural Development, Cities and Policies.

By clicking on the sub-section "Natura 2000", users can access the page created with the aim of encouraging the introduction and management of Natura 2000 in the CEE region; in fact, the group's primary aim consists in the information and experience exchange on the subject. Within the page, users can find several links that give access to various information, such as Meetings, Resources, Members, Activities, etc. By clicking, instead, on the section "Sustainable Tourism", users can access the area dedicated to tourism and biodiversity; in fact, the objective of the Working Group is precisely to make tourism sustainable in the countries of Central and Eastern Europe. In this context, the Working Group contributes to the work of NGOs for the conservation of nature, ministries and other institutions. In addition, users can consult several links in the same page to deepen their knowledge on the subject. The "Rural Development" section is dedicated to enhancing the soil role in the maintenance of valued cultural landscapes, in order to identify the threats that may compromise nature, such as land intensification and abandonment.

The second sub-section of the "Work Areas" section, called "Priority Areas", is divided into ten groups, in turn articulated into sub-groups. The groups of greater interest are certainly those dedicated to green infrastructure, sustainability, use of resources and other activities, which include projects, ideas and insights about climate change. An interesting article on the special role played by soil in the processes of mitigation and adaptation to climate change can be consulted in the area "Other Activities". From the list of titles, users can choose the article of interest and access it with the click of a mouse; scrolling the page down, then, they can freely download the pdf version of the article. As for the previous website, also in this case it is possible to do a quick search by entering keywords in the box located in the upper right corner of the page. At the bottom right side of the home page, there are links to social networks like Facebook, Twitter, LinkedIn and YouTube. This webpage is financed by the European Union, the International Fund and the Ministry of Foreign Affairs of the Republic of Korea

**State of the Planet** is a blog of the Columbia University's Earth Institute, composed of scholars spread over more than two dozen research centers and programs at Columbia University, whose goal is to spread knowledge about the functioning of the Planet and how human activities are influencing natural systems. The studies published in the blog want to raise human awareness towards a sustainable management of economic growth to protect Earth from destruction.

The website is easy to consult: in the home page are featured the latest news uploaded, while at the top of the page users can find all sections organized by topics:

- Agriculture;
- Climate;
- Earth Sciences;
- Ecology;
- Energy;
- Health;
- Sustainability;
- Urbanization;
- Water.

By clicking on the section of interest, users can access the linked website, with a large number of scientific publications about the topic of the section, ready to be consulted. At the top right side of the home page and of each section, there is a search box, through which, by inserting keywords, it is possible to make a quick search. At the bottom of the pages (always on the right side), there are several drop-down menus that allow users to do a detailed search of the articles of interest, by inserting the topic, the research center, the authors and the year. Finally, at the top right of every page, it is possible to connect to social media like Facebook, Twitter and YouTube.

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## IMAGE SOURCES

The images are from: <https://www.cosepercrescere.it/la-desertificazione/>; <https://www.cmcc.it/>; <http://www.ceeb.org/>; <https://blogs.ei.columbia.edu>

THE TIMES THEY ARE a-CHANGIN' 1(2019)

## REVIEW PAGES: BOOKS

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In this number

## URBAN PLANNING CHANGES

The urban areas around the globe face increasing transport and land-use challenges linked to growing populations and are actively looking to finding potential solutions to meet these challenges as part of their planning agendas. The social and economic growth of cities provides immense opportunities for the nations. As cities grow, businesses take advantage of larger and more skilled labour markets, and workers are given opportunities to develop and broaden their skill base. However, the rapid growth of cities also brings into focus issues with how they are structured and how they function. Most governments are responding to these challenges with significant public investments. Billions of dollars are being spent by all levels of government acknowledging the importance of urban services to the equity and competitiveness of urban areas (Zali et al., 2016). In recent decades, the researchers have concentrated their efforts on design and management solutions that can improve the environmental sustainability of urban and territorial systems (Carpentieri & Favo, 2017).

Plans, strategies, initiatives and solutions of all sorts and sizes are now being developed by hundreds in cities all over the world. Solutions abound; open knowledge, open government, and open source applications have enabled the development of an ecosystem of solutions, platforms and tools that cities can chose (Angelidou, 2017). The ICT technologies, greater availability of data and the emergence of new trends in shared consumption offer the opportunity to break the cycle of under-provision of public transport at the urban fringe. In addition, the integration of land use and transport is critical to ensuring the reach and service levels of our transport networks reflect community needs.

Reduction in car dependency and the growth of public transport use will require strong engagement with the community to ensure their needs are met. Governments should seek the support of communities to undertake reviews of long-established transport services with a view to major changes. Many existing public transport services have not been updated for decades, or worse rely on the corridors of century-old former tram networks. The transport network design and land-use planning should involve a collaborative approach among the different authorities and companies.

According to these themes, this section proposes three works that help to better understand the topics of this number: Outer Urban Public Transport. Improving accessibility in lower-density areas; Autonomous vehicle ride-sharing services; and Environmental and territorial modelling for planning and design.





Title: **Outer Urban Public Transport. Improving accessibility in lower-density areas**  
Author/editor: Energy Efficiency Unit Department  
Publisher: Infrastructure Australia  
Publication year: 2018  
ISBN code: 978-1-925352-35-1

Australia's cities are growing rapidly. Over the next 30 years, Australia will grow by over 11 million people. The 80% of this growth will be in the five largest cities: Adelaide, Brisbane, Melbourne, Perth and Sydney. Close to half the population of five largest cities live in the outer suburbs. It is critical that they have access to the services and opportunities that inner-city residents enjoy. Much of this growth will be accommodated at the fringes of cities and in low-density developments. Australia's cities are generally defined by a central core surrounded by low-density suburbs. While they began as small trade and agricultural hubs, usually based around a port, the cities have gradually expanded outwards. This growth was initially along public transport routes. However, in the post-war era, as car ownership grew sharply, the outer parts of cities expanded rapidly. This report focuses on one of the key enablers of access: public transport. It presents a new spatial analysis of our five largest cities in order to: investigate the challenges in delivering outer urban public transport; quantify the extent of public transport disadvantage; recommend a range of policy responses for the government.

This analysis assesses the quality and accessibility of public transport services in our five largest cities: Sydney, Melbourne, Brisbane, Perth and Adelaide. It revealed the extent of disadvantage in some areas compared to others, and the impact on travel patterns and liveability. Two key trends emerged:

- Public transport disadvantage in outer suburbs is significant. Access to public transport services and service frequencies are lower, while travel times and distances to major employment centres are longer in outer suburbs;
- Public transport use is lower for people living and working in the outer suburbs. Fewer people use public transport in outer suburbs than other areas, and those who do are more likely to drive to reach local services. As a result, car operating costs are higher in the outer suburbs.

The report provides seven recommendations to governments on how to improve public transport and accessibility in outer urban areas. Governments have a range of transport and land use options. While building more public transport is desirable and we recommend governments continue investing in new infrastructure, there are other actions that can improve and augment the efficiency of existing networks at a lower cost.

The first, the state and territory governments should prioritize the seamless integration of transport networks for users by coordinating service planning, timetabling, fare policy, digital tools and operations. The second, the governments should embrace new transport modes, such as on-demand services, which are well suited to low-density areas. The third, state and territory governments should implement a coordinated policy approach to encourage interchanging within an integrated transport network. The fourth, State, territory and local governments should improve the physical integration of the public transport network with private, active and emerging transport modes. The fifth, the governments should openly embrace technological innovation in transport, working with third-party operators to improve the user experience. The sixth, governments should undertake integrated land use and transport planning to examine opportunities for employment and residential densification at key sites adjacent to public transport. The last recommendation, governments should support the development and growth of suburban and outer urban employment centres to improve job accessibility.



Title: **Autonomous vehicle ride-sharing services**

Author/editor: MERGE Greenwich Consortium

Publisher: -

Publication year: 2018

ISBN code: -

The urban population increased, cities face the challenge of making sure the availability of transport keeps up with the increasing demand. New technologies, such as autonomous vehicles (AVs), and emerging business models, such as ride-sharing, are often cited as two ways to solve this mobility challenge.

This report collects a year of laborious research, testing, simulations, evaluation, analysis and much more to provide a plan for the delivery of autonomous vehicle ride-sharing services that offer citywide benefits. This contribute provides what to be important insights into the next steps required by the government, operators, tech providers and vehicle manufacturers to drive us forward to a successful future.

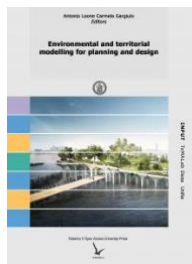
The potential benefits for citizens of new technology and services are huge such that autonomous vehicles and ride-sharing could help to solve many of the most pressing issues faced by cities including congestion, emissions and accessible transport for all. So, this research considers how such services could be commercially launched and the necessary customer service offering required to ensure the delivery of a service that can be trusted by consumers. The Mobility as a Service (MaaS) vision for urban environments sees people shifting away from using personally owned cars in favour of using multiple modes of transport. These involve shared trips, which are consumed as a service through a single, unified digital booking and payment interface acting like a 'personal travel assistant'.

The MERGE Greenwich project brought together a consortium of industry and public sector transport experts to build a sophisticated simulation of autonomous and electric vehicles providing ride-sharing services alongside current traffic patterns in a geo-fenced area.

The aim of this project was to explore how a new service could be designed and implemented to complement, rather than compete with, public transport. A complex transport model and fleet simulation were developed, based on the target year of 2025, which positioned the AV ride-sharing service in the Royal Borough of Greenwich, London. The project explored whether such a service could be viable within that time-frame and, if so, how it could be achieved. It is chosen 2025 as the year in which AV ride-sharing could, theoretically, be widely available, accepted and used in major, complex urban centres. Basing the simulation in this year allowed MERGE Greenwich to evaluate the AV ride-sharing service as if it were an integrated part of the mass transport system. The research methodology, tools and lessons learned by MERGE Greenwich can be applied to other boroughs and cities in the UK as well as overseas.

The recommendations in this report aim to highlight the key considerations for government and industry with regard to the introduction of AV ride-sharing. MERGE Greenwich simulations have illustrated that the way services are designed can significantly influence their societal and commercial impact. For this reason, the suggestion is to accelerate the collective learning in this area in order to ensure that next generation mobility services are developed and delivered in a way which helps, rather than hinders, cities.

Three distinct strategies (AV ride-sharing services) were designed to specify the input parameters. Each service aimed to achieve different objectives from operating an AV ride-sharing service. The strategies differed by fare and service level criteria, such as waiting time and detour time. The first aimed to optimise the service for mass availability and accessibility; the second prioritised customer service and convenience, at higher cost; and the third aimed to combine attributes of both. These strategies and their impact are discussed in detail later in this report.



Title: **Environmental and territorial modelling for planning and design**

Author/editor: Antonio Leone, Carmela Gargiulo

Publisher: FedOA Press (Federico II Open Access University Press)

Publication year: 2018

ISBN code: 978-88-6887-048-5

This book collects seventy-four scientific contributes presented at the tenth edition of the INPUT 2018 conference took place in the city of Viterbo, Italy. The volume is articulate in eight ordinary section (Territorial modelling: state-of-art and future development; Environment, planning and design: the role of modelling; Rural landscapes and well-being: towards a policy-making perspective; Smart planning; Maintenance, upgrading and innovation in cultural heritage; Urban and environmental planners: who is the client? The planners jobs in a new millennium; Big data and data mining; ICT & models: planning for communities;) and in three Special Section (Did we learn lessons? Following the paths of Giovanni Rabino; Ecosystem-based and performance-based approaches for spatial planning; Geodesign).

The INPUT conference is managed by an informal group of Italian academic researchers working in many fields related to the exploitation of informatics in planning. This Tenth Edition pursued multiple objectives with a holistic, boundary-less character, to face the complexity of today socio-ecological systems following a systemic approach aimed to problem solving. In particular, the Conference will aim to present the state of art of modelling approaches employed in urban and territorial planning in national and international contexts. This 10th edition was focused on Environmental and Territorial Modelling for planning and design. It has been considered a fundamental theme, especially in relation to the issue of environmental sustainability, which requires a rigorous and in-depth analysis of processes, a theme which can be satisfied by the territorial information systems and, above all, by modelling simulation of processes. In this topic, models are useful with the managerial approach, to highlight the many aspects of complex city and landscape systems. In consequence, their use must be deeply critical, not for rigid forecasts, but as an aid to the management decisions of complex systems.

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In this number

## CLIMATE CHANGE ADAPTATION: AN OVERVIEW ABOUT THE ITALIAN CONTEXT

In 2013, the European Commission adopted the EU Strategy on Adaptation to Climate Change. One of the aims of the EU Strategy is to encourage all the Member States to develop policies and “climate-proof” actions for their territories by the development of National Adaptation Strategies (European Union, 2013).

The National Adaptation Strategy is a document that usually aims at highlighting the importance of the adaptation on the national policy agenda and coordinating the adaptation process in terms of risk and vulnerability assessment, including also awareness and stakeholder involvement. However, in order to guarantee the implementation of the main “climate-proof” policies and actions defined by each National Adaptation Strategy, a further tool – named National Adaptation Plan – has been introduced. In particular, the National Adaptation Plan defines interventions to implement in order to reach the National Adaptation Strategy’s objectives.

To date the majority of EU Member States have developed their own Adaptation Strategy. However, the implementation of these strategies by specific National Adaptation Plans is still in progress. Indeed, although 25 EU countries have adopted a National Adaptation Strategy, only 15 of them have also developed a National Adaptation Plan (European Environment Agency, 2018). Italy is one of the 25 countries that have approved its own National Adaptation Strategy – named National Strategy for Adaptation to Climate Change (SNACC) – in 2015. Despite this, the corresponding National Plan for Adaptation to Climate Change (PNACC) is still being discussed since 2016.

Indeed, the SNACC provides an overview of the national issues due to future impacts of climate change and identifies the necessary adaptation actions to implement in the Italian context.

In light of this, in May 2016 the PNACC was started. The PNACC is the result of a stakeholder engagement that involved institutions, policy makers, experts and researchers in order to identify a set of interconnected activities of adaptation to climate change (CMCC, 2017). It is a support tool for national, regional and local institutions for identifying and choosing the most effective actions to implement at the national, regional and local level in the different Italian climatic areas.

Its main purpose is composed of four specific objectives:

- limiting the vulnerability of natural and socio-economic systems to the impacts of climate change;
- increasing the adaptive capacity of natural and socio-economic systems;
- improving the capacity of taking advantages of any opportunities;
- coordinating actions and interventions at different territorial levels.



The PNACC is divided into three parts. The first part contains an analysis of the current climate conditions in Italy. Starting from this analysis, the Plan also describes the future climate scenarios and provides a mapping of the Italian territory in macro-regions for homogenous climate characteristics. This articulation is integrated to the analysis of territorial characteristics in order to identify the future impacts and vulnerability for each sector that the SNACC has identified as sensitive one to climate change and the PNACC takes into account for the definition of the adaptation actions to implement. Among those sectors, there are also Urban Settlements that are identified as "hot spots" for climate change action. Indeed, due to the urbanization process over the last century, the increasing of the imperviousness degree has contributed to increase the hydrogeological risk in urban areas. Furthermore, the lack of green areas and the high building density have intensified the vulnerability due to the increase of temperature with negative effects on human health. Therefore, the Plan identifies three types of impacts related to the increase in average urban temperature and higher frequency and intensity of heat waves.

The second part of the Plan defines the adaptation actions to implement for each climate-sensitive sector. Starting from the vulnerability assessment for each macro-region and considering the Italian policy context, for each sector, a set of adaptation actions is identified. These actions are articulated into three categories, the green actions that are "nature-based" one interventions, the soft actions that include no-structural interventions and aims at improving the adaptive capacity of natural and socio-economic systems, and finally the grey actions that include all the infrastructural interventions, especially on the built environment. Furthermore, the Plan associates each action with climate impacts, objectives to which they answer, and the main climate macro-regions where they should be implemented. For example, considering the adaptation actions provided for Urban Settlements, the Plan identifies four types of impacts. While the first type includes all the possible impacts that can be mainly faced by the implementation of soft actions (for example, the promotion of scientific research on the drivers and impacts of climate change in the urban context and its risk assessment), the other three types of impacts refer to the built environment and consequently their corresponding adaptation actions belong to the category of green actions. For example, in order to reduce the impacts due to urban flooding, the Plan provides experimental interventions, both in central areas (e.g. historical centres and public spaces), and in peripheral areas that increase the amount of soil permeability and improve the efficiency of the urban drainage system.

Finally, the last part of the PNACC identifies all the tools and the actions for guaranteeing an effective population involvement and stakeholder engagement in the implementation process of the adaptation activities. Furthermore, in this part, the PNACC also defines the criteria for selecting indicators of monitoring of these actions and provides a set of possible monitoring indicators for their evaluation.

Despite the adoption of the SNACC and the PNACC, it emerges instead that the actions in this area are still not widespread in the Italian territory (Pelorosso et al., 2018). Even if the SNACC highlights the need to promote an integrated approach between risk reduction and climate change adaptation, however the policy proposal of climate change adaptation does not seem to be integrated with those related to the mitigation of hydrogeological risk that is widespread on the Italian territory and further exacerbated by climatic variability (Legambiente, 2017).

However, the PNACC represents a reference for the development of new tools, especially at regional and local level. Therefore, starting from the adoption of the SNACC some Italian regions have undertaken individual paths for responding to the opportunity to make their territories more resilient. In particular, in this issue the experiences conducted by the Lombardy Region and the Emilia-Romagna Region. While the Lombardy Region is one of the first Italian regions to develop a Regional Adaptation Plan that provides an important reference for other Italian experiences in progress (e.g. in Abruzzo Region), the Emilia-Romagna Region has recently adopted a strategy that integrates adaptation and mitigation to climate change in a univocal way.



## REGIONAL PLAN ON ADAPTATION TO CLIMATE CHANGE IN LOMBARDY REGION

In 2012 the Lombardy Region supported by the Lombardy Environment Foundation (in Italian *Fondazione Lombardia per l'Ambiente*) developed the "Linee Guida per un Piano di Adattamento ai cambiamenti climatici (PACC)". In particular, this document contained all the main information for the definition of a Regional Adaptation Plan of Lombardy. In 2013 and 2014, based on the aforementioned Guidelines, the Lombardy Region drew up the Regional Strategy for Adaptation to Climate Change (SRACC). The Strategy, elaborated in collaboration with the Lombardy Environment Foundation, not only defines the role of the regional institutional stakeholders in the adaptation process by means of specific consultation mechanisms but also illustrates the regional context and its climate profile, including data on the past and the current climate conditions and scenarios on the future climate variability, and vulnerabilities to climate change of eight regional key sectors that include "Built Environment, Environmental Protection, Transportation and Urban Planning".

Starting from these analyses, the Strategy identifies for each one of these sectors adaptation objectives and specific actions taking into account the sectoral and inter-sectoral policies and interventions already undertaken or in progress by the regional administration. Based on the Regional Strategy, in 2015 the Region started to work on the "Regional Plan on Adaptation to Climate Change" that was approved in 2016. The main aim of the Regional Adaptation Plan is to provide a tool based on a mainstreaming approach for defining, from one hand, the priority action areas for each sector in relation to the climate impacts, and, on the other one, identifying interventions that minimize risks and impacts on population, goods and natural resources and increase territorial resilience in a sustainable way. In particular, the actions are defined according to three levels of intervention:

- actions to create appropriate governance conditions for implementing the adaptation process (e.g. laws);
- actions to sustain the adaptive capacity through the dissemination of knowledge and the awareness on climate change impacts;
- actions to provide technical, green and methodological solutions of climate change adaptation.

Considering the impacts, objectives and adaptation actions that were defined in the Regional Strategy, the actions of the Regional Adaptation Plan are organized according to four classification criteria, which are:

- impact relevance;
- consistency and continuity with regional policies that are useful for the adaptation process;
- effectiveness in relation to the objectives of adaptation;
- ecological and economic sustainability (adoption of green, nature-based and ecosystem-based actions).

Furthermore, the actions were also classified according to the time horizon of implementation (shortest term, short term, medium term and long term). These actions are articulated into four macro-sectors, among which there is Environmental Protection and Water Management that includes actions related to Urban Planning. In particular, the Regional Adaptation Plan highlights the need to promote sustainable development of the region and increase its resilience, but also to integrate the interventions for the disaster risk reduction with those ones for climate change adaptation. Therefore, among the priority actions, the Lombardy Region will review the main regional tools for risk management according to the future climate scenarios. Moreover, a resilience and vulnerability index will be developed for monitoring the socio-economic dynamics of the regional territory.



## REGIONAL STRATEGY OF MITIGATION AND ADAPTATION TO CLIMATE CHANGE OF THE EMILIA-ROMAGNA REGION

In December 2018, the Emilia-Romagna Region approved the Mitigation and Adaptation Strategy for Climate Change. By means of an innovative approach, this regional strategy provides a regulative framework for the regional institutions, public administrations, and organizations for assessing the effects of climate change in the various regional key sectors.

In particular, the strategy aims at:

- enhancing the actions, Plans, and Programs of mitigation and adaptation to climate change promoted by the Emilia-Romagna Region through the identification of the actions already undertaken at the regional level for the reduction of CO<sub>2</sub> emissions and the adaptation to climate change impacts;
- contributing to the identification of further interventions and actions to implement in the most climate-sensitive sectors according to the mitigation and adaptation purposes;
- defining monitoring indicators (among those already in use by the different plans both for the SEA and for the operational programs of the Structural Funds 2014-2020);
- instituting a regional and local Observatory for monitoring the implementation of the climate change policy;
- identifying and promoting a participatory process that involves local stakeholders in order to integrate the two action fields of adaptation and mitigation into all the regional sectoral policies;
- coordinating local initiatives (that are implemented by municipalities and union of municipalities) in relation to the Covenant of Mayors.

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THE TIMES ARE a-CHANGIN' 1 (2019)

## REVIEW PAGES: URBAN PRACTICES

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In this number  
**PLANNING FOR DIGITAL  
 TRANSFORMATION AT THE  
 MUNICIPAL LEVEL: TWO CASE  
 STUDIES**

Over the past few decades, the challenges faced by local governments have become increasingly complex and interrelated. In addition to traditional land-use regulation, urban maintenance, production and management of services, today local governments must meet with new demands coming from different urban actors regarding resources sustainability (Gargiulo & Lombardi, 2016), social inclusion (Zalii et al., 2016) and economic development (Visnjic et al., 2016).

In this context, many scholars agree that in order to successfully cope with these new challenges, local governments must innovate, become smarter, and capitalize on the emerging opportunities provided by the so called "digital transformation" (Fistola, 2013; Höjer & Wangel, 2015).

Digital transformation can be defined as the application of digital technologies to processes, products, and assets to improve efficiency, enhance value, manage risk, and uncover new opportunities (Heavin and Power, 2018). Digital transformation is a central element of modern business management: firms in almost all industries have indeed conducted a number of initiatives to explore new digital technologies and to exploit their benefits (Matt et al., 2015). While digital technologies are literally transforming the private sector, public local authorities seem to be less prone to embracing such transformation and, for this reason, sometimes they have been called "the dinosaurs of the digital age" (World Economic Forum, 2017). Digital technologies however have the potential to deliver enormous benefits in the public sector, helping local governments to (Bertrand, 2019):

- better understand citizens' needs;
- provide services more effectively and efficiently;
- find new solutions to policy challenges;
- engage with external partners to develop new delivery models and
- commercialize some public services and develop fresh sources of revenue.

An important step to capitalize on the emerging opportunities offered by the digital technologies is to develop a digital transformation strategy, a roadmap defining the steps to follow for successfully embracing new technologies, adopting new approaches to collaboration and partnerships, and making a commitment to address transformation holistically. This contribution presents two relevant case studies of local government that have recently moved in this direction:

- The municipality of Barcelona (Spain) and
- The municipality of Baltimore (US).





## BARCELONA

With 1.6 million inhabitants, Barcelona is the capital and largest city of the autonomous community of Catalonia, as well as the second most populous municipality of Spain. The city has long been a leader in the smart city movement. Sometimes ranked number one (Juniper Research, 2017) – and usually in the Top 10 (Eden Strategy Institute, 2018) – it is part of an elite group of intelligent urban-planning pioneers along with such cities as Singapore, Vienna, San Francisco, and Copenhagen.

In September 2016, the Barcelona City Council embarked on an important digital transformation process, announcing that public services must be provided through digital channels from the outset, following new guidelines oriented towards citizens and the use of open standards and open software and in accordance with an ethical data strategy that puts privacy, transparency and digital rights at the forefront. To meet these priorities, the City Council launched the *Digital Transformation Plan*, a strategic document aimed at defining the roadmap that the Catalan city will follow in the forthcoming years to become a world-leader city in providing digital services to citizens, while making government more transparent, participative, and effective. The Plan is structured around seven themes and, for each of them, a detailed operational document has been elaborated between 2016 and 2019:

- *Theme 1: Digital services standards.* This document defines a set of criteria for the development and management of digital services for citizens, in an agile, open and user-centered way. The main idea behind this theme is that public services should be tailored and based on real citizen needs that may change from one citizen to another. In this context, public data are considered a fundamental aspect for better mapping, understanding and integrating citizens' demands and needs in the design and delivery of public service strategies.
- *Theme 2: Technology code of practice.* This measure includes a set of tech policies and directives mandating the use of open standards, open source and ethical data management. It helps municipal bodies in designing, building and buying technology. It's used as a cross-departmental standard in the spend controls process.
- *Theme 3: Agile methods.* This theme has the main objective to provide managers in public municipal bodies with the main principles and practices of agile methodologies. The document demonstrates how the agile life-cycle software development differs from traditional approaches and provides guidelines on how it can be implemented and integrating into existing framework developed by the city to manage public services projects.
- *Theme 4: Technological sovereignty.* This measure puts the concept of technological sovereignty in the spot and talks about data commons, digital rights and free programming. Its main aim is to rethink technology from the angle of the common good. Thus, this theme focuses on the development of digital technologies aimed at involving citizens in the process of decision making. At the same time, it is aimed at reinforcing the practice of open software and open standards, in contrast to the practice of using proprietary software and standards.

- *Theme 5: ICT Procurement Handbook.* This measure defines a new model of relation and partnership with technology suppliers, based on the Code of Technological Practices.
- *Theme 6: Innovative Public Procurement.* This document sets the guidelines for the transformation of procurement to obtain solutions that are tailored to the real needs of society, while helping companies to be more innovative. It regulates public procurement for IT services in a strictly way, as it consider public procurement as the main tools for municipal economic policy.
- *Theme 7: Government measure concerning ethical management and accountable data:* This theme is centered on the idea that Barcelona city residents leave a digital footprint in their everyday lives and this footprint is getting larger and larger, and it can be used for various purposes. It establishes how this resource should be used in a democratic, open, transparent and regulated manner.



BALTIMORE

The City of Baltimore, Maryland is the 30th-most populated and largest independent city in the United States. The city is home to over a dozen of colleges and universities and has a longstanding tradition in innovation politics. However, decades of decentralized information technology management and insufficient enterprise investment has led to a system that struggles to support city priorities and deliver service improvements for both residents and businesses. Furthermore, many of the city's IT capabilities are outdated and lack the modern-day range of capabilities offered by comparable cities. To combat this trend, in 2018, the City of Baltimore has developed this first ever *Inclusive Digital Transformation Strategic Plan*, which details a five-year roadmap to build the city's IT enterprise capability. The Plan is based on three main pillars:

- *Pillar I: Change the IT culture and improve IT services.* This pillar is aimed at developing strategies and implementing programs to create an integrated enterprise that adapts to the changing needs of its citizens and makes the city a better place to live and work. Main lines of actions under this pillar include: i) centralize various IT operations and functions, when appropriate, to reduce cost, improve efficiency and streamline operations; ii) improve training for municipal employees and increase IT staffing levels; iii) establish a structure that promotes cross-agency collaboration, strategic alignment, and continuous change for IT initiatives and iv) integrate software development to strengthen enterprise operations, service delivery, and customer experience.
- *Pillars II: Support and secure critical operation IT infrastructures.* This pillar concerns with developing strategies and implementing technologies that increases the city's ability to fully support employee and citizen's needs, improves the network's infrastructure and expands the city's use of modern and integrated systems. The pillar is structured along three main axis, as follow: i) Cloud Services: increase the use of cloud services to rapidly deploy platforms and software without the need to build physical infrastructure: ii) Data Telecommunications: increase investment in next-generation network infrastructure to connect the city with high-volume, high-velocity data communications that supports demand; iii) Enterprise Resource Planning: develop a modern and integrated system to streamline the complexities of public procurement.

- *Pillar III: Built IT partnerships and increase community engagement around technologies.* This pillar is aimed at developing strategies and implementing programs to improve the city's physical data center infrastructure and handle enterprise needs such as data integration and analytics, IoT-Enabled Smart City, and other mayoral objectives. It focuses on three main domains: i) Data and Analytics Hub: expand the city's capacity to combine data residing in different sources and provide users with the ability to access, use, and benefit from the data; ii) IoT-Enabled Smart City: deploy new technology that improves the quality of life and service delivery for all city residents, businesses and visitors; iii) Baltimore Tech Center: create a physical and virtual space for people to view and experience immersive technology environments and iv) P3 Partnerships: encourage stakeholders in the public, private, education and non-profit sectors to partner with the city and leverage their technology resources for the betterment of all city residents and businesses.

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## IMAGE SOURCES

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## REVIEW PAGES: NEWS AND EVENTS

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In this number

### PLANNING IN AN UNCERTAIN FUTURE

The world is evolving at a rapid pace. Never before we have witnessed so many changes happening in a such short period of time. Economic, social, technological and political shifts are reshaping the world very quickly and new challenges arise for nations and particularly for cities. That's why urban issues have risen high on many agendas that deal with global questions.

If the urban development is so strategic to deal with global issues, it is common to expect that urban planning, supported by the most advanced technology, assumes a central role to face with the new challenges (De Gregorio et al., 2015). Simply postponing action until there is perfect evidence will increase the risks facing urban centers, their populations, industries, and those who depend on them. Planning today therefore requires managing more than in the past the uncertainty inherent in future projections.

In the modern theories of spatial planning uncertainty is related to many different things such as data quality, theory and conceptualization, model formulation, decision making and of course error and risk issues in each of these (Antrop, 2004). Essentially, urban planning is a complex of actions that aim to steer ongoing processes that structure our environment, and so our landscapes. Basically, the actual situation or trends are considered as unsatisfactory and should be improved. Scenarios of the future development can be defined and visions for the future are formulated. Decision-making implies making choices between the possible outcomes that are proposed or expected. As a complex process dealing with a hardly predictable future, a lot of variables and stakeholders, planning implies a lot of uncertainty.

According to Mitchell (2002), adequately dealing with uncertainty is applying the precautionary principle. Synthetic forecasting models, which can be implemented and updated in real time for scenario simulations, monitoring for the verification of the repercussions of the plans and for the calibration of the models, databases suitable for comparing situations and for use in the models, seem to be the most common tools suitable for the formation of plans that are able to indicate strategies and management methods, while maintaining the indispensable flexibility that complex systems with high dynamism require.

After all, uncertainty is in itself also a guarantee of survival; it is an essential part of life and is an essential characteristic in landscape change and planning. According to Saskia Sassen, professor of sociology at Columbia University in New York: "One of the reasons that cities have outlasted all these other more powerful and organized system of power is their incompleteness that gives them a longevity because no tyrant can truly run a city, it's too diffuse – the city will always fight back".



## THE PARADIGMATIC CITY (VI): TRANSFORMING CITIES

Where: Istanbul, Turkey

When: 8-10 May 2019

<https://bau.edu.tr/icerik/13322-the-paradigmatic-city-2019>

Cities and towns have not only become the primary human living space, they also live in the collective memory. How do cities respond to the challenges that threaten their ability to become viable pillars of sustainable development? What are the characteristics of future cities? How will urban designers, architects and policy makers reconcile the old with the new, the sustainable and the smart?

The conference aims to question cities, in the past, present and future in an inter-disciplinary approach. Therefore, the cross-topics are selected as city & transformation, city & memory, city & sustainability and city & future. In particular, the cross-topic City & Future presents the following themes:

- Representation of space in the fictional narration
- Digital cities
- Smart cities
- Cities of the future / future of the cities
- Media representation
- City Branding
- Industry 4.0



## EURA – UAA CONFERENCE: CITY FUTURES IV

Where: Dublin, Ireland

When: 20-22 June 2019

<http://cityfutures2019.com/>

Taking inspiration from the UN's Sustainable Development Goals the conference topic focuses on the challenges that we are currently facing to create cities and communities that are just, inclusive, safe, resilient and sustainable, while reducing poverty and inequality. Following a decade of crisis and austerity, inequalities are becoming ever more apparent at local, regional and global scales, with our current economic models increasingly being questioned and trust in formal politics declining. Violence and extremism lead to enforced migration and the post war geopolitical map is being shaken. Urban areas are often the sites where the contrasts between wealth and poverty are most stark, where inequalities become expressed spatially, where environmental degradation is most pronounced, and where the disenfranchised and disillusioned look for solutions in entrenchment and fear of 'otherness'.

Despite such challenges, urban areas, as they have been for millennia, are often the fulcrum of hope and innovation. The Conference theme asks scholars to reflect on how we can move towards more socially just, diverse, democratic, environmentally rich cities and city region.





## 2019 URBAN RESILIENCE SUMMIT

Where: Rotterdam, Nederland

When: 8-11 July 2019

<https://www.100resilientcities.org/summit/>

In July 2019, 100 Resilient Cities – Pioneered by The Rockefeller Foundation (100RC) will bring together the network of urban resilience practitioners from cities around the world in Rotterdam to celebrate the impact of the global movement, share best-in-class practices and innovations in the field, build personal and professional relationships, and identify opportunities for partnerships and collective action. Rotterdam, a city with extensive expertise in building resilience (Errigo, 2018), is the best place to represent a new vision of the future because its core is an incubator of ideas, innovation and experimentation. As a post-industrial portside city in the process of rapid social, economic and physical transformation, Rotterdam provides an ideal setting in which to experience resilience in practice and demonstrates a spirit of openness to fostering critical cross-cultural conversations.



## OSLO URBAN ARENA

Where: Oslo, Norway

When: 12-13 September 2019

[www.oslourbanarena.com](http://www.oslourbanarena.com)

Oslo Urban Arena (OUA) is a collective of architects, planners, developers and urban activists from a multidisciplinary background with on a mission to launch a conference, debate and lecture arena every year, on urbanism and urban development from the heart of the centre of Oslo.

The conference strive to identify urban solutions connected to a variety of urban topics, pushing the conversation on urbanism forward, shooting out progressive themes and topics. In addition to an extended conference program that hosts renowned speakers, it will also contribute to the public debate on urban development by organizing exhibition spaces. Oslo Urban Arena strives to connect individuals from various backgrounds and disciplines and provides several platforms for them to socialise, exchange ideas and expertise, share experiences and knowledge in the field of urbanism and the interests attached to it.



## 9<sup>TH</sup> EUROPEAN CONFERENCE ON SUSTAINABLE CITIES & TOWNS

Where: Mannheim, Germany

When: 30th September – 2<sup>nd</sup> October 2019

<http://conferences.sustainablecities.eu/mannheim2020/>

Hosted by the City of Mannheim, and ICLEI Europe, the Conference aims to demonstrate the urgent need for local governments to assume responsibility for urban transformation and lead the way in guiding Europe

towards a secure and sustainable future. The conference invite to endorse the Basque Declaration, a document that aims to support and accelerate socio-cultural, socio-economic and technological transformation. It is targeted at city leaders in Europe, including mayors and city governments, and can also be signed by individuals. It outlines pathways to help city leaders shape the development of their own municipalities, and ultimately aims to accelerate socio-cultural, socio-economic and technological transformation. The Declaration is based on the understanding that a diversity of local initiatives is required to address social, environmental and economic challenges. It recognises the importance of things such as protecting biodiversity, decarbonising energy systems, creating more sustainable mobility systems, protecting water systems, adapting to climate change, promoting social inclusion and strengthening local economies, among other things. Although focusing on action at the local scale, the Declaration is underpinned by the idea of cooperation, sharing and replication of solutions adapted to the local context. A strong theme of the Declaration is to have a highly engaged civil society, where participation is a key ingredient in both developing and implementing local transformative actions.

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## IMAGE SOURCES

<https://cityofuncertain.com/>

## AUTHORS' PROFILES

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