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'

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3 (2019)

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The cover image is a photo of impacts on transport infrastructure of typhoon Hagibis in Japan (October, 2019)

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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Contents

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REVIEWS PAGES

THE TIMES THEY ARE A-CHANGIN' 3(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.

author: Rosa Morosini
Tema Lab – University of Naples Federico II, Italy
e-mail: rosa.morosini@unina.it

02_BOOKS
The books review suggests brand new publications related with the theme of the journal number.

author: Carmen Guida
Tema Lab - University of Naples Federico II, Italy
e-mail: carmen.guida@unina.it

03_LAWS
The law section proposes a critical synthesis of the normative aspect of the issue theme.

author: Federica Gaglione
Tema Lab - University of Naples Federico II, Italy
e-mail: federica.gaglione@unina.it

04_UBAN PRACTICES
Urban practices describes the most innovative application in practice of the journal theme.

author: Gennaro Angiello
Tema Lab - University of Naples Federico II, Italy
e-mail: gennaro.angiello@unina.it

05_NEWS AND EVENTS
News and events section keeps the readers up-to-date on congresses, events and exhibition related to the journal theme.

author: Andrea Tulisi
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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，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。

author: Rosa Morosini
那不勒斯菲里德里克第二大学民用建筑与环境工程系 TeMA 实验室 e-mail: rosa.morosini@unina.it

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。

author: Gennaro Angiello
那不勒斯菲里德里克第二大学民用建筑与环境工程系 TeMA 实验室 e-mail: gennaro.angiello@unina.it

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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01

THE TIMES THEY ARE A – CHANGIN' 3(2019)

REVIEW PAGES: WEB RESOURCES

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In this number

SOIL: A RESOURCE TO PROTECT ONLY FROM WATERPROOFING? THE EFFECTS OF POLLUTANTS

The urgency to concretely adopt new patterns of development, promoting the reduction of soil consumption and of natural resources, in particular the ones that are not capable of regeneration in a foreseeable future, has led the attention of researchers and decision-makers on soil and land resources (Mazzeo & Russo, 2016; Zucaro & Morosini, 2018). As soil formation is an extremely slow process, soil can be considered essentially as a non-renewable resource; in order to ensure several functions, it is necessary to monitor and protect the functionality and the state of health of that system.

These needs have arisen in an increasingly way from the Earth Summit in Rio de Janeiro (1992), the first global conference of Heads of State concerning environmental issues and from the sixth action program of European Commission (EU, 2011), actualized in the Soil Thematic Strategy COM (EU, 2006). In this document, it is recognized that soil degradation is driven or exacerbated by human activities such as urban and industrial sprawl, but also by inappropriate farming and forestry practices.

If on one hand it is necessary to stop waterproofing phenomena, on the other hand it is essential to focus on farming and forestry activities that, due to the use of contaminants, can result in lack of fertility, of carbon, biodiversity, of water reservoir capacity, even alternating nutrients cycles.

In this perspective, it is possible to claim that contaminant have an extremely negative impact on soil, preventing the system to perform functions and services to men and the ecosystem. Moreover, contaminants tend to accumulate in soil for long period; this causes that damages are often detected in a very advanced state and sometimes they are irreversible. As a consequence, the quality of a good soil is different according to functions' priorities and its uses.

Moreover, it is not easy to link people health to environmental conditions; it gets even harder if soil is taken into account, because of long term effects and of multiple sources of exposure to contaminants.

A solution could be to monitor pollutants whose harmful effects on human beings have been proved by scientific literature. According to this perspective, it seems appropriate that, during decision-making processes concerning territorial transformation, technicians and administrators have to consider for each soil also past, present and in-coming contamination phenomenon, of every genre and nature, since it will have a limited destination and intensity of use. The contamination history has definitely effects on soil characteristics and its resilience fails both in terms of mechanical and functional features.

EPC
https://www.environmentalpollutioncenters.org/soil/

The Environmental pollution centers (EPC) is a website designed with the objective to raise awareness on environmental issues and on their impacts on people daily activities. The website contains wealth of information related to natural resources pollution. There are several detailed sections concerning these topics. In particular, on the top right of the homepage, there are links that lead to specific pages with one simple click; they are seven: about; latest news; soil; air; food; radiation. At the end of sections' links, it is possible to make a keyword search, directly from the Search box. Each section is organized in subsections, in particular, clicking on the one dedicated to soil, it is possible to access to the introductive page where the phenomenon of soil contamination is presented. Its subsections are five:

- causes;
- types;
- contaminants;
- diseases;
- facts.

In the subsections titled "causes", a lot of information is given concerning the causes of soil pollution classifying them in those naturally present and others produced by human action. In the first case, the attention is paid to contaminants that are generated from the microbial activity and from decaying organisms; while, for the second case the contaminants are produced by men, usually linked to improper disposal of industrial or urban refuse or from farming activities (pesticide). In the following section, "types", many kinds of contaminants are reported.
The third subsection "contaminants" gives a list of examples which are very harmful contaminants for people health and there are some boxes through which it is possible to deep the knowledge referred to each element. The following and last sections, "deseases" and "facts", are mostly dedicated to illnesses and consequences of a high presence of contaminants in soils.
The section "latest news" is very interesting and it is organized in two parts: on the right, there are different boxes, including the archive, arranged per month and per year; with one simple click you can access to a huge catalogue of articles. On the left, instead, there are articles and texts' previews, organized by topic.
At the bottom of each principal section, there are some links to articles that could be helpful to deepen the topic of this specific session.
In the homepage, above the search bar tool, there are the main social media links, Facebook, Twitter and LinkedIn.

ESDAC
https://esdac.jrc.ec.europa.eu/themes/soil-contamination

European soil data centre (ESDAC) has the aim to manage relevant information concerning soil and the European polices. Through the collection of data, the project includes the drafting of future scenarios thanks to advanced modelling techniques and analyses based on the main threats identified by the Soil Thematic Strategy (erosion, decomposition of organic matter, compaction, salinization, landslides, waterproofing,

contamination and lack of soil biodiversity). A strong scientific and technical support to the United Nations Convention to Combat Desertification (UNCCD) will be provided by promoting the reform of the Committee of Science and Technology (CST) of the UNCCD and by the development of an operational Global Soil Information System (GLOSIS) for the regular assessment of global soil degradation processes. ESDAC provides a coherent approach to soil data collection and distribution for all different policy areas and initiatives relevant to the EU, while assuring high scientific quality, policy relevance and technical support as needed.

The **European Soil Data Centre (ESDAC)** is the thematic centre for soil related data in Europe. Its ambition is to be the single reference point for and to host all relevant soil data and information at European level. It contains a number of resources that are organized and presented in various ways: datasets, services/applications, maps, documents, events, projects and external links. In fact, the website is well organized in three main sections: home, about ESDAC and Atlases. In the Home section there are three further subsections: dataset highlights; applications and services; scientific-technical reports. In these subsections there are several links that allow the user not only to easily consult the available scientific materials but also other websites. On the left, there is a box with useful links. Starting from the top, in the box there is the bar tool to make the keyword search and just below there are newsletter and events.

Another interesting section is Atlases where there are covers from Atlas such as "soil Atlas of Africa"; "soil Atlas of Europe"; "global soil biodiversity Atlas" and so on. For each Atlas, in addition to the cover, there is a short description of the contents and with one simple click on the link (above the description), it is possible to connect to the informative section of each atlas.

ECOREMED
http://www.ecoremed.it

ECOREMED is a project aimed at the reclamation of contaminated sites in Campania Region where, the storage of compounds derived from oil, steel industry, steelworks and from the production of concrete-asbestos is one of the main sources of pollution. In addition, the principal cause of pollution of the Vesuvian coast is the careless management of solid waste. It is a very innovative project that could be studied to promote its dissemination in other counties, since the during the last century a relevant increase of global pollution has been recorded, because of the excessive production and use of chemical compounds deriving prof oil, recklessly released into the environment. The main objective is to promote a high-quality environment where levels of pollutants from human activities have no significant impacts or do not represent a risk for human health. In this regard, the action is planned to protect nature and biodiversity, following the specific indications on EU laws, 92/43/CEE – "Conservation of natural habitats and wild fauna and flora" (21.05.92); Decision 93/626/CEE of the Council – "Conclusion of the Convention on Biological Diversity" (25.10.93); COM (98) 42 def. – "The Communication on a Community Biodiversity Strategy" (05.02.98); COM (2001) 162 def. – "Biodiversity Action Plan for the Conservation of Natural Resources". Furthermore, the project is sustained by several partners such as Campania Region and in particular the Agricultural Department, Risorsa, which is a research society that deals with agriculture, and Arpac, the regional agency of environmental protection.

The website is organized in eight sections:

- home;
- the project;
- partners;
- download;
- dissemination;

- events;
- links;
- contacts.

Among these sections, the more interesting and user-friendly are download, dissemination, event and links. Referring to these sections, it is possible to consult and download several materials related to soil contamination issue. The download section, in particular, is made of three subsections: publications, where all works made in contaminated sites are listed, such as proceedings and Ph.D. thesis. The other two subsections are ECORMED paper and ECORMED results, where products and results obtained from the project activities can be consulted. Also, the section dissemination is made of three parts, where all the dissemination actions are presented as well as the interviews made during the project. The section "events", instead, is rich of events organized by partners: from conferences to workshops. Finally, the section links show the logos of different national and international projects. With one simple click on the logo it is possible to access quickly to the website.

Links to social network such as Facebook, Twitter, and YouTube are shown on the right side of the homepage.

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IMAGE SOURCES

The images are from: www.environmentalpollutioncenters.org/soil/; esdac.jrc.ec.europa.eu/themes/soil-contamination; www.ecoremed.it.

02

THE TIMES THEY ARE A – CHANGIN 3(2019)

REVIEW PAGES: BOOKS AND JOURNALS

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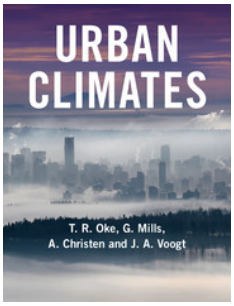
In this number

CLIMATE CHANGE: TOWARDS ENGINEERING SOLUTIONS

The DICEA, Department of Civil, Building and Environmental Engineering of University Federico II of Naples, hosted, between the 7th and the 11st October, the first edition of the Short Mediterranean Ph.D. School on Impacts of Climate Change and Sustainable Engineering Responses. It was a great opportunity to highlight how climate change and the growth of urban population are widely recognized as the major drivers of change in the 21st century (Galderisi, 2014) and that engineering responses are useful both to mitigate the impacts of these phenomena and to adapt human environments, limiting their vulnerability.

The word *climate* derives from the Greek word *klima*, which means *inclination* and does not refer to weather forecasts but to the average status of the ocean-earth-atmosphere system in a long period, at least thirty years. According to IPCC (Intergovernmental Panel on Climate Change), climate change represents one of the most challenging issues of our time, and it refers to any change in climate over time caused both by natural variability and human activities. The exponential increase of GHG (Greenhouse gases) emissions during the last century is considered the main responsible of extreme weather events (Icaza, Van der Hoeven, & Van den Dobbelsteen, 2016). Urban environments play a double role in this scenario: on one hand urban lifestyle and economy are responsible for the 70% of GHG emissions (Gargiulo & Lombardi, 2016) and for the consumption of natural resources (Zullo et al., 2015); on the other, cities are both vulnerable and exposed to the impacts of climate change, so that they require serious and effective strategies in order to prevent the potential damage to urban population. Up to few years ago, major efforts have been payed to mitigation strategies, aimed at reducing GHG emissions, while less attention has been devoted to adaptation strategies, capable of improving cities' responses to phenomena related to climate change. The focus on adaptation strategies is due to the awareness that climate change will inevitably occur, and its impacts will be particularly severe in urban areas. Moreover, scientific models predict that by the end of the century the average temperature of global surface would increase of 2°C, that would produce irreparable damages to nature, human beings and animals: the XXI century could be remembered as the century during which people would have limited climate change, preserving resources to future generations. This awareness should further encourage policy makers to invest both in mitigation and adaptation strategies, starting from urban environments. The section "Books and Journals" is focused on engineering solutions, starting with the classification of urban climates and then defining strategies to make cities more resilient, both from the planning and the architectural point of view.



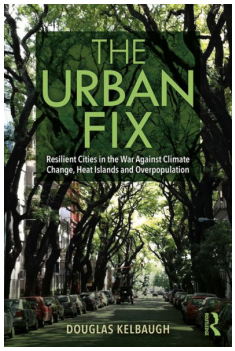
Title: **Urban Climates**
Author/Editor: T. R. Oke, G. Mills, A. Christen, J. A. Voogt
Publisher: Cambridge University Press
Publication year: 2017
ISBN code: 9781139016476 (ebk)

Urban Climates is the first full synthesis of modern scientific and applied research on urban climates. The book begins with an outline of what constitutes an urban ecosystem. It develops a comprehensive terminology for the subject using scale and surface classification as key constructs. It explains the physical principles governing the creation of distinct urban climates, such as airflow around buildings, the heat island, precipitation modification and air pollution, and it then illustrates how this knowledge can be applied to moderate the undesirable consequences of urban development and help create more sustainable and resilient cities. With urban climate science now a fully-fledged field, this timely book fulfills the need to bring together the disparate parts of climate research on cities into a coherent framework. It is an ideal resource for students and researchers in fields such as climatology, urban hydrology, air quality, environmental engineering and urban design.

Urban climatology is concerned with interactions between a city and the overlying atmosphere. While interactions are two-way, this book is mainly focused on the impact of the city on the atmosphere. Urban development so fundamentally transforms the preexisting biophysical landscape that a city creates its own climate. The book also considers the effects of weather and climate on the city. As an object of study, a city initially presents a climatologist with a gloriously elaborate set of knotty challenges. They include questions of how to handle a dauntingly wide array of surface elements of very different sizes and compositions, along with the fact that the vast majority of them are alien to the natural landscape and include pulses of energy, water, gases and particles controlled by people rather than geophysical activity. Given these challenges and the desire of the rapidly growing world to live in cities, the book begins with an outline of the idea of urban ecosystems and suggests ways to approach the study of urban climates. Chapter 2 sets out a central theme of the book: to understand and effectively communicate about urban climate systems, a set of common terms, symbols, units, and descriptions of the urban surface is required. Here the authors adopted the Oke (1984) classification of urban climate systems that is built on scales of surface organization set by the roughness elements (mainly built structures) and scales of atmospheric motion and vertical stratification to systematize discussion. Chapter 3 is an overview of techniques used to obtain valid field observations and model results. The main exchange processes governing the budgets of momentum and radiation and the balances of heat, water, and carbon in cities are outlined. This permits description and analysis of the spatial distribution and dynamics of airflow, temperature, humidity, greenhouse gases, and air pollutants in urban areas in Chapters 4 through 11. These and other cloud processes are relevant to the potential effects of cities on cloud development, precipitation, and severe weather.

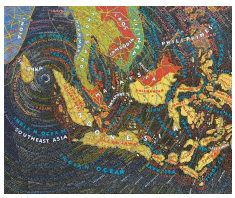
Urban air pollution has been a bane of urban living for centuries, but the mix of emissions keeps changing over history, as does the urban atmosphere into which it must be dispersed. It is useful and necessary to view things through the prism of scale. The text to this point deals with cases where micro and local effects are the prime controls on climate. On the other hand, Chapter 12 considers the role of orographic and coastal controls on urban climate, and the significance of the synoptic and macroclimatic context of a city.

In Chapter 13, the scale expands further to consider the increasing impacts of cities on global climate and how the altered state of that system in turn imposes impacts on city life. Chapter 14 introduces the fundamental climatic requirements of humans, our need for shelter and a comfortable environment to live and work, and how they set the context for the construction of appropriate buildings and urban infrastructure. In Chapter 15 we appeal to the principles outlined in the rest of the book to discuss ideas about intelligent and effective use of design elements such as construction materials, shade, shelter, water, and vegetation to create or modify urban climates at all scales. Urban Climates is thought to be a 'first' because it is a text designed to elucidate the general principles of the subject. There was an early attempt to do this in Chinese (Shuzhen and Chao, 1985), but this is the first in English.



Title: **The Urban Fix: Resilient Cities in the War Against Climate Change, Heat Islands and Overpopulation**
Author/Editor: Douglas Kelbaugh
Publisher: Taylor & Francis
Publication year: 2019
ISBN code: 9780429614453

Cities are one of the most significant contributors to global climate change. The rapid speed at which urban centers use large amounts of resources adds to the global crisis and can lead to extreme local heat. *The Urban Fix* addresses how urban design, planning and policies can counter the threats of climate change, urban heat islands and overpopulation, helping cities take full advantage of their inherent advantages and new technologies to catalyze social, cultural and physical solutions to combat the epic, unprecedented challenges humanity faces. The book fills a conspicuous void in the international dialogue on climate change and heat islands by examining both the environmental benefits in developed countries and the population benefit in developing countries. Urban heat islands can be addressed in incremental, manageable steps, such as planting trees and painting roofs white, which provide a more concrete and proactive sense of progress for policymakers and practitioners. This book is invaluable to anyone searching for a better understanding of the impact of resilient cities in the monumental and urgent fight against climate change and provides the tools to do so. The book is a collection of several studies, researches, professional and teaching practices.



Title: **Domus Ecoworld**
Editor-in-chief: Michele De Lucchi.
Print ISSN: 0012-5377

EcoWorld 2019 is the annex of Domus, an architecture and design journal, founded in 1928. Domus is listed as a Class A journal, according to the Italian Agency of Evaluation of University and research. EcoWorld 2019 tries to answer many questions related to the way architects and designers have to follow the 17 Global Goals, with the advice of Arup.
EcoWorld 2019 presents the main designing practices of current days and identifies potential policy areas, in order to meet the objectives defined by major world powers in 2015, as the evolution of those Millennium Development Goals signed in 2000, which were more focused on the poverty and needs of developing countries. Agenda 2030 has a wider range of action that previous agenda. Its 17 goals are very close to

designing practices, even thought the difficulty in defining the sustainability language makes complex its translation into practical procedures.

EcoWorld is made of four essays that explore topics related to cities and complex systems, through the identification of best practices made by Piero Pelizzaro – chief resilience officer at the Municipality of Milan – and a discussion concerning how powerful the architecture could be in "saving the world" by Richard Ingersoll – who highlights that territorial planning strategies are the more effective tools in order to provide concrete answers to climate change. Paolo Cresci and Jo Da Silva's works are on building practices and the main principles to design for man and nature, as also stated by four other international experts, interviewed by Domus. The journal also collects several architectural and design projects, selected worldwide, whose main topic is water saving and conservation.

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03

THE TIMES THEY ARE A – CHANGIN 3 (2019)

REVIEW PAGES: LAWS

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In this number

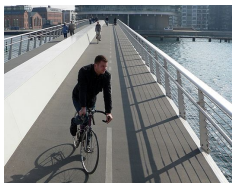
"IMPROVE THE SUSTAINABILITY OF CITIES THROUGH SOFT MOBILITY"

The World Health Organization report estimates that the population in urban areas will continue to expand by over 1.5% per year until 2030 (WHO, 2010). Rapid urbanization implies, on the one hand, the need to satisfy a greater demand for travel in terms of access to urban places and services, but, on the other, it entails negative consequences for the urban system, such as increased traffic congestion, atmospheric and acoustic pollution This phenomenon requires the implementation of measures within cities aimed at spreading alternative modes of transport to the motorized one, which is still the most used transport mode, also for short distance trips. Encouraging pedestrian and cycle travels is a priority action to minimize urban air and noise pollution.

One of the possible solutions to discourage the use of private vehicles, without compromising the economic growth of cities and the possibility of accessing the services offered, is the creation of pedestrian and cycling networks, provided that their realization is effectively supported by road users (Masoumi & Shaygan, 2016).

The benefits of shifting from car use to cycling for urban trips would include saving 150 g of CO_2 per kilometre. For example, cycling 7 km would save 1 kg of CO_2 emission – compared to the same distance travelled by car – and could be a means to contribute to the pursuit of the goals of global sustainability set by the European Union in the context of international agreements for the transport sector. In favour of sustainable urban mobility, the European Union has promoted initiatives aimed at encouraging journeys on foot and by bicycle. In particular, the European Commission Work Programme for 2018 calls for the inclusion of an EU Roadmap for Cycling to take advantage of the environmental, health and economic cycling benefits. This document recommends a paradigm shift in transport policies to the European Commission, requiring a new sustainable hierarchy that gives priority to active modes of travel (walking or cycling). It highlights the need to promote, within the planning instruments, the improvement of pedestrian and cycling access to public transport stops and the realization, at the interchange points, of safe, attractive and easily accessible parking areas for the bicycles (available to all) and possible bike-sharing services, with the aim of increasing cycling mobility in the EU Member States over the next 10 years. It also underlines the active participation of local and regional authorities in compliance with the principles of subsidiarity, given that mobility and urban transport are the responsibility of local and regional authorities. Furthermore, cycling must become a distinct funding priority in the EU Research and Innovation programme called Horizon 2020 (Mobility for Growth).

In this perspective, it is recommended that the EC (Eurostat), on the one hand, draws up national documents as well as a database of good practices and an exchange of knowledge for the provision of cycling infrastructure, in order to obtain reliable and comparable data, on the other hand, that it develops a common methodology for collecting data and adopting harmonized definitions for national and urban data on bicycle use. It also proposes to include EuroVelo (the long-distance cycle route network) in the trans-European transport network (TEN-T), thus improving cross-border connections, developing tourism opportunities and increasing urban accessibility.



Cycling mobility

To achieve the set objectives, Law n. 2 of January 11, 2018 concerning the development of bicycle mobility provides for the creation of a national cycling route network aimed at developing the use of the bicycle as a means of transport to meet both daily and leisure needs and boost the tourist activity. The Member States, together with regions, local authorities and other interested parties, must pursue these objectives in order to make cycling a fundamental component of their mobility policies (Art. 1). In addition, the law introduces the regulatory definitions of cycle route, cycle route network, greenway, cycle path and their classification (Art. 2). Art. 3, in line with the objectives and aims of Article 1, provides for the adoption of a general three-year cycling mobility plan, which must be an integral part of the general plan for transport and logistics. The Plan will be adopted by decree of the Minister of Infrastructure and Transport, after consulting the Minister of the Environment and the Protection of the Territory and the Sea and the Minister of Cultural Heritage and Tourism, having subscribed to the agreement during the State-Regions and Autonomous Provinces Conference, and will be addressed to two specific areas of intervention:

- the development of cycling mobility in urban and metropolitan areas;
- the development of cycling mobility on routes defined at regional, national and European level.

The general plan for cycling mobility can be revised annually to take into account and incorporate future updates and amendments. Art. 4 regulates the identification of cycle paths of national interest that will constitute the national cycle network called "Bicitalia", the national-level infrastructure network that must be integrated into the "EuroVelo" trans-European network system within the plan for cycling mobility. This article defines some of the features of the Bicitalia network, such as:

- total development of no less than 20,000 km, articulated on routes throughout the national territory;
- integration and interconnection with the infrastructural networks supporting the other modes of transport, as well as with the other cycle networks in the area;
- continuity and interconnection with urban cycle networks, also through the construction of pedestrian areas and limited traffic zones, as well as through the adoption of traffic mitigation measures.

The financial, public and private resources allocated to cycling mobility and the identification of the methods of financing interventions are outlined in the Plans for cycling of municipalities and metropolitan cities. In order to achieve the aims of the provision, Art. 5 also requires that the regions prepare and approve, consistently with the regional plan of transport and logistics, a regional cycling mobility plan, lasting three years, to regulate the entire regional cycling system. The regional plan must be drawn up in accordance with the urban plans for sustainable mobility and the related programmes and projects presented by the municipalities and metropolitan cities; it must also define, among other things, the regional cycle network and the cycle routes included in the network called "Bicitalia". Metropolitan cities and non-metropolitan municipalities must define

the urban plans for cycling mobility (as regulated in Art. 6), called "Biciplan", which constitutes the sector-specific plan of the Sustainable Urban Mobility Plan (SUMP). Within this document, the municipalities should also outline the objectives, strategies and actions needed to promote the bicycle use. More in detail, Art. 6 includes the contents of the urban plans for cycling mobility, which define:

- the network of priority cycling routes or cycle paths in the municipal area that connects and crosses parts of the city along the main traffic routes, with efficient and safe infrastructures;
- the secondary network of cycle paths in neighbourhoods and inhabited centres;
- the network of green cycle paths that connects the green areas and the city parks to the rural areas of the municipal area;
- interventions that aim at the realization of networks, in coherence with the previsions of the superordinate sector-specific plans;
- the connection between the networks and the interventions defined in the previous points and the identification of areas of the city where priority must be given to cycle paths, roads 30 and pedestrian areas, and limited traffic zones;
- interventions that can be carried out on the main intersections with vehicular traffic, on the most dangerous points of the road network for pedestrians and cyclists and on the crossing points of large railway or motorway infrastructures;
- the objectives to be achieved in the territory of the municipality or the metropolitan city, in the three-year period of reference, in relation to the use of the bicycle as a means of transport, to the safety of cycling mobility and the modal split;
- any actions to encourage the use of bicycles for the daily commute to school or to work;
- interventions aimed at favouring the integration of cycling mobility with urban, regional and national public transport services;
- actions aimed at improving cyclist safety;
- actions aimed at combating bicycle theft;
- any useful actions to extend the spaces reserved for bicycle parking, primarily in proximity to school buildings, and those used for public functions or located near the main modal interchange nodes; actions to spread the use of bicycle sharing services (bike sharing);
- types of freight or people transport services that can be carried out by bicycles;
- the three-year financial program for the implementation of the interventions defined by the plan within a financial framework.

The Directorate-General for Climate and Energy, with the Ministerial Decree no. 417 of December 21, 2018, "Sustainable Urban Mobility Incentive Program", finances sustainable mobility projects in the municipalities with a population of not less than 50,000 inhabitants. In particular, it encourages the realization of projects involving the construction of new cycle paths capable of responding to the demand of daily commuter flows and the development of sharing mobility in urban areas.

City of Biella
BICIPLAN 2019-2021

In Italy, for example, the Municipality of Biella approved the Urban Plan for Cycling Mobility called "BICIPLAN" with a resolution of the City Council no. 18 of March 13, 2019. Within this Plan, the Municipality of Biella has set itself the objective of improving the safety of existing road connections through planned and widespread routine

maintenance to facilitate inflows and outflows and viability of vehicles, bicycles, pedestrians/sportsmen (improving the efficiency of public infrastructure), and to reduce traffic flows with interventions on the path direction and on critical pedestrian crossings, in order to improve cycling and pedestrian safety.
The provisions of the National Road Safety Plan (aimed at reducing the social costs deriving from road accidents and at improving air quality), regulate the creation of protected and reserved routes to: connect the pedestrian and bicycle tracks on urban and extra-urban stretches (through a reduction of the width of the roadway to slow down the speed of vehicles, a widening of pavements, the insertion of barriers to save pedestrians, the construction of raised pedestrian crossings with luminous signals, the removal of architectural barriers, a reorganization of vertical and horizontal signs to secure bus stops); strengthen the cycle network, in compliance with the technical standards required by the regulations, for sustainable mobility to support and enhance the usability of urban sites, starting from the busy main roads to encourage the use of bicycle as an alternative means of transport. These documents outline the need for a significant cultural change of the part of users who live in the city, depending on their will to change habits and behaviour.
The implementation of pedestrian and cycle networks, therefore, becomes a fundamental component to make cities more accessible to all, but also a new support able to enhance the historical and cultural heritage of the cities. In fact, the positive environmental impacts of the reduction of polluting emissions and the consequent overall improvement of air quality facilitates policies of re-appropriation of historical places of aggregation that can really make a cultural and social difference only without traffic congestion.

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04

THE TIMES THEY ARE A – CHANGIN 3(2019)

REVIEW PAGES: URBAN PRACTICES

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In this number

PLANNING FOR URBAN RESILIENCE IN NORTH AMERICA: TWO CASE STUDIES

With a greater concentration of people and assets in urban areas, cities need to address an increasingly complex range of shocks and stresses to safeguard development gains and well-being. Managing disaster risk and the impacts of climate change have long been an important focus of urban resilience (Galderisi, 2014; Galderisi, Mazzeo & Pinto, 2016), but recent examples have shown how economic crises, health epidemics, and uncontrolled urbanization can also affect the ability of a city to sustain growth and provide services for its citizens, underscoring the need for a new approach to resilient urban development. In response of these concerns, in the last few decades, researchers from different disciplines have started investigating the meaning, aspects and elements of urban resilience, suggesting that resilience is a complex and multifaced concept with wide implications for planning practices (Salat and Bourdic, 2012), also arguing that achieving resilience in urban areas requires a strong partnership between local governments, research centers, the non-profit sector, businesses, and communities (Stumpp, 2013). Within this context, several initiatives involving both public and private stakeholders have been created in the last few years, aimed at fostering resilience in urban areas. A notable example in this direction is the *100 Resilient Cities* initiative, pioneered by the Rockefeller Foundation. The initiative represents one of the most remarkable effort to helping cities around the world become more resilient to the physical, social and economic challenges that are a growing part of the 21st century. The 100 Resilient Cities programme defines urban resilience as "the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience". Based on this definition, a "*City Resilience Framework*" (CRF) has been established. The framework provides an innovative model for the local authorities to develop a holistic city strategy in collaboration with adjacent municipalities, local academic institutions, private stakeholders, and communities of the city and represents the foundation for the developments of a city resilient strategy. The programme has been established in 2013, in honor of Rockefeller's 100th anniversary, and had initial funding of $100 million (although the level of funding support has grown since the programme was launched). Since then, 102 cities worldwide have joined the programme, and 68 Resilience Strategies (with nearly 3,000 concrete actions and initiatives) have been developed.

This contribution presents two relevant Resilient Strategies, developed in two North American cities, within the 100 Resilient Cities framework: i) the Toronto Resilient Strategy and ii) the Chicago Resilient Strategy. Beside pertaining to the same geographic area, the two cities have been selected because they share a great portion of physical,

social and economic challenges, including: a) aging and poorly maintained infrastructures; b) persistent social inequalities and c) lack of civic engagement in decision making.

RESILIENT CHICAGO

A Plan for Inclusive Growth and a Connected City

Whit an estimated population of 2,705,994 (2018) Chicago is the most populous city in the U.S. state of Illinois and the third most populous city in the United States. As home to more than 400 major corporations, Chicago has one of the most diversified urban economies in the United States and is considered as an international hub for finance, culture, commerce, industry, education, technology, and transportation.

Time and again, the city has proven its ability to take on challenges and achieve unprecedented accomplishments. For instance, after the Great Fire of 1871 which destroyed several square miles and left more than 100,000 homeless, Chicago residents helped the city rise from the ashes and rebuilt a stronger, smarter, and reimagined urban landscape with innovations such as the modern skyscraper. With the reversal of the Chicago River in 1900, Chicago took a critical step to protect the city's supply of clean drinking water and Lake Michigan.

Despite all of Chicago's strengths, the city still faces many challenges. A rich history of migration and immigration has undoubtedly shaped the character and vibrancy of Chicago's neighborhoods, yet discriminatory practices and policies have caused disparities that disproportionately burden the city's most vulnerable residents. Beside persistent social inequalities, another important key challenge for the city is related to its aging urban infrastructures. Indeed, Chicago relies on aging infrastructures for many of its critical services. Nearly one quarter of Chicago's water mains are more than 100 years old, and the majority of its bridges were built before 1950.

In order to face these and other relevant urban challenges, on February 2019, the city of Chicago released its Resilience Strategy with the support of the 100 Resilient Cities initiative. The strategy aim is to create "a more connected city where residents, neighborhoods, institutions, corporations, and government agencies are successfully connected in pursuit of economic opportunity, safety, security, and sustainability for all". The strategy is organized around three pillars and 12 main goals which reflect the city's vision and needs for Chicago's future:

- PILLAR I: STRONG NEIGHBORHOODS. Chicago has always been a city of neighborhoods. However, as the city changed over time, disparities between neighborhoods has drastically increased, with poorer neighborhoods suffering for lack of accessibility to essential opportunities such as health, education and employment. The main aim of this pillar is thus to ensure that every resident in every neighborhood has the access and opportunity to participate in the social and economic life of Chicago. To meet this goal, the strategies proposes a series of coordinated actions, including; i) expand Transit-Oriented Development (TOD) to bus route to connect neighborhood and provide equitable access to opportunities; ii) expand affordable housing options in gentrifying neighborhood to protect economically vulnerable residents from the risk of displacement; iii) connect local institutions with resources, and coordinate programs and policies to make them more accessible to residents; iv) sustain initiatives aimed at developing skill sets for younger generations that will make up the city's future workforce.
- PILLAR II: ROBUST INFRASTRUCTURES. Pillar II brings together actions to improve the city's infrastructures so that they can create healthier, more resilient and safe urban environment for residents and visitors. Action under this pillar include initiatives target at improving transportation infrastructures, hydraulic networks and blue and green infrastructure. In particular the strategy envisions: i) new transportation and mobility options to be prioritized in neighborhoods traditionally disconnected from

areas of economic prosperity, thereby supporting access to jobs and workforce development opportunities ii) additional investments in hydraulic infrastructures that can reduce the risk of flooding, iii) additional investments in green infrastructure aimed at improving air and water quality, mitigate the urban heat island phenomenon, reduce greenhouse gas (GHG) emission, while improving at the same time livability conditions due to increased access to green spaces.

- PILLAR III: PREPARED COMMUNITIES. This pillar emphasizes the fundamental role of the Chicago's community in building urban resilience. According to this pillar, Chicagoans must be able to access resources, avail themselves of services, and communicate with ease in times of crisis. Furthermore, residents must be equipped with the relationships, skillsets, and knowledge base to anticipate and, when necessary, overcome challenging times. Actions under this pillar are mainly target at: i) leverage technology to increase accessibility and impact of information; ii) increase social connectedness and personal resilience of city first responders to better serve residents and iii) increase social connectedness and personal resilience of city first responders to better serve residents.

TORONTO
First Resilience Strategy

Toronto is the provincial capital of Ontario and the most populous city in Canada, with a population of 2,731,571 as of 2016. The city is the anchor of the Golden Horseshoe, an urban agglomeration of 9,245,438 people surrounding the western end of Lake Ontario. It is an international centre of business, finance, arts, and culture, and is recognized as one of the most multicultural and cosmopolitan cities in the world.

For thousands of years before colonization, it was a place where many Indigenous communities would meet to trade, exchange ideas, and solve resilience challenges; today, Toronto continues to be a place for creating innovative solutions to resilience challenges.

However, Toronto has experienced a surge of growth over the past 20 years which has brought new opportunities and challenges. Among its most important challenges, social and geographical inequalities represent an issue of major concern for citizen and policy makers. Indeed, over the past 50 years, segregation in Toronto by race and income has worsened. Torontonians of different backgrounds are increasingly not living side by side and Toronto's non-White residents are disproportionately concentrated in low-income neighbourhoods. Beside issues related to spatial and social inequalities, urban mobilities also represent an important challenge for the city. Indeed, a mix of congestion, long commutes, and slow progress on transit and active transportation expansion is seriously affecting urban quality of life for Toronto's resident, with wide implication on the economy of the city and on the city's environment. These problems are particularly acute in neighbourhoods outside the city's core that are still heavily reliant on cars to get around, partly because they lack the mix of safe, reliable mobility options. Finally, a lack of diversity of those in power positions and the consequent inequity in decision-making has resulted in low levels of trust and civic engagement, both with government and within communities.

In response, the city of Toronto released its Resilience Strategy on April 2019, within the context of the 100 Resilient Cities programme. The strategy envisions a city where "residents feel empowered to help shape their communities and where government works in deep collaboration with the people it represents to advance an agenda of fairness and prosperity for everyone". The strategy is based on three main pillars and ten main goals:

- PILLAR I: PEOPLE AND NEIGHBOURHOODS. This pillar focuses on supporting residents, businesses, and communities to make Toronto's neighbourhoods more resilient.

  It includes a focus on supporting Torontonians at home and in their neighbourhoods. A coordinate mix of action are envisioned under this pillar including: i) support homeowners and renters to prepare their

homes for shocks; ii) enable wide-scale change in apartment towers to improve resilience through the improvement or retrofit of apartment towers and units; iii) enhance the capacity of neighbourhoods to prepare for and recover from shocks through grassroots action and network building; iv) prioritize the implementation and resourcing of the Toronto Poverty Reduction Strategy.

- PILLAR II: INFRASTRUCTURES AND ENVIRONMENT. This pillar addresses the environmental component of urban resilience. Its main aim is to protect natural green and blue areas while providing the city with an infrastructure system that is well-connected, modern, flexible, diverse and resilient to extreme natural hazards. Several actions will concur to the achievement of these objectives. These includes, among others: i) institutionalize an integrated, resilience approach to flooding by adopting the Flood Resilient Toronto Charter; ii) centralize resources towards a city-wide flood planning and prioritization tool; iii) review and update existing flood mitigation programs to account for resilience and iv) take action to mitigate the effects of extreme heat. This pillar also addresses the pressing issue of urban mobility. Actions under this theme are: i) create a city-wide mobility action plan through synthesis of ongoing mobility initiatives and priorities, and identification of resilience gaps; ii) move more people more efficiently within the existing rights of way by expanding demonstration projects and iii) improve integration between transportation investments and land use planning with the aim of creating walkable, mixed communities around transportation system main nodes.
- PILLAR III. LEADING A RESILENT CITY. This pillar focuses on the City of Toronto's role as the leader on resilience for residents, businesses, and partners. It includes changing how the City does business to lead a more resilient city. Action under this pillar are target toward improving trust and civic engagement by e.g. expanding corporate civic engagement initiatives and increase transparency and prioritize communications in the daily management of the city. Finally, under this pillar, the City intends to prioritize the most vulnerable people at highest risk of exclusion in decision-making.

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05

THE TIMES THEY ARE A – CHANGIN 3(2019)

REVIEW PAGES: NEWS AND EVENTS

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In this number

THE *CLOUD VOLUME* OF THE SMART CITY

In the twelfth edition of *Manifesta*, the biennial of contemporary art held in Palermo last year, there was an interesting installation by John Gerrard at Palazzo Ajutamicristo: the American artist has produced a detailed photographic survey of one of the main physical sites of Internet, the Google data center in Oklahoma; it is a huge structure composed of buildings of thousands of square meters that receive and distribute "immaterial" data produced every day in different parts of the world.

The interesting aspect of this operation lies in the ability to give body and volume to those that in the collective imagination are perceived as completely abstract and ephemeral networks that pervade our cities, providing them with a lot of services at "zero volume".

According to IDC, an international IT consultancy agency, the global data sphere is expected to grow to 163 billion zettabytes by 2025 (one ZB equals one trillion gigabytes), which is ten times more than the 16.1 ZB of data that existed just two years ago. More than a quarter of this data will be real-time and, of the latter, the real time IoT data will be more than 95%. Unthinkable numbers in 1986, when, according to Gartner, the volume of data in circulation amounted to only 281 petabytes (a petabyte is a millionth of a zettabyte).

Nonetheless, this constantly growing flow of data requires enormous collection centres to archive and process it; furthermore, due to the great success of the cloud this huge amount of data is not distributed in millions of devices in the world but increasingly preserved in large structures, which occupy huge areas, consume a huge amount of energy (Rong et al., 2016) and affect the economic strategies of territories and city.

In Norway, for example, the government is focusing heavily on the data center asset as strategy to repopulate the internal areas as well as an important growth sector for the entire country; it is expected that the construction in a small village in the north of the polar circle of one of the largest data centers in the world, will bring a significant increase of about 10/15000 employees in the entire area, thus enhancing the job opportunity of the two hundred students that each year graduate in technology at universities nearby.

Therefore, the data, considered by most as the black gold of the twenty-first century, will take on increasingly more substance and volume, becoming places, defining spaces and thus establishing a tangible dialogue with territories and cities. In the current academic context, the issue raised has not received particular interest from researchers, more focused on the potential of smart cities in terms of city services improvement (Angelidou, 2017); the conferences selected are therefore mainly focused on the theme of the smart city;

however, it would be interesting to contribute to enrich the debate on the topics proposed in the conferences with the suggestions created in this article.

THE SMART CITY EVENT

Where: Fort Lauderdale, Florida, USA
When: 11-14 February, 2020
https://www.thesmartcityevent.com/

One of the main events of this conference is the IoT Evolution's Smart City Event, focused on showing attendees how smart city innovations are changing the face of the today's modern city, improving quality of life for citizens and driving enterprise opportunity. In particular, the specific topics proposed are the following:

- 5G and smart city rollouts
- Regulatory issues and smart city rollouts
- Smart Transport and telematics
- Heterogenous networks - enabling smart city applications

THE MEETING OF THE MINDS 2020 ANNUAL SUMMIT

Where: Phoenix, USA
When: 19-21 February, 2020
https://events.meetingoftheminds.org/motm2020

Each year, more than 500 urban practitioners convene at the Meeting of the Minds Annual Summit to showcase recent successes and to discuss the ongoing challenges facing the future of smart and sustainable cities. The main idea is that a city really smart can make the living conditions of the population much more pleasant and can reduce budgetary costs by deploying smart services; therefore, the solution in today's conditions is to manage cities using information technology and communication, where millions of citizens may enjoy the maximum benefit of a project of this kind.

NORDIC SMART CITIES 2020

Where: Copenhagen, Denmark
When: 19th March, 2020
https://www.nordicsmartcities.com/

The underlying concept of this conference is that nowadays the technology offers an opportunity to change our cities for the better, but it is just an enabler, not the solution, the people must come first.
For this reason bringing citizens, politicians & city halls together to co-create outside of the box solutions to some of our biggest challenges City leaders need new ways of thinking about planning, designing & building our cities - putting the citizen & liveability at the heart of all future projects, developments & transformations. Every city or municipality is different, with different challenges and a different culture - for cities to become really smart they must embrace their unique context.

SMART CITIES CONNECT

Where: Denver, USA
When: 6-9 April, 2020
https://spring.smartcitiesconnect.org/

Smart Cities Connect Conference and Expo offers a comprehensive conference, exposition and accelerator of smart city innovation in North America. It aims to deliver premium networking and educational opportunities with a keen focus on city leaders and their priorities.

In particular the main issues of the conference will be the followings:

- Community Engagement (Policy, Funding, Commerce, Inclusion, Governance);
- Digital Transformation (Data, AI, Sensors, IoT, Cyber Security, Privacy, Blockchain);
- Smart Mobility (Transportation, Autonomous, Public Transit, Ride Share);
- Urban Infrastructure (Networks, 5G, Utilities, Energy, Grid, Lighting, Water/Waste);
- Urban Operations (Public Safety, Planning, Emergency Response, Sustainability).

REAL CORP 2020
Where: Aachen, Germany
When: 15-18 April, 2020
https://conference.corp.at/

The conference is the result of a reflection on the main trends that the cities of the world have in common in this historical moment, thus trying to stimulate a discussion on strategies and concepts for quality change management in the light of the main challenges which arise in neighborhoods, cities, urban regions and metropolitan areas. This also raises the question of who the actual actors of current urban, regional and metropolitan regional development are and what role planners can play in the corresponding scenarios. One of the raised argument is the role that the new technologies and digitization play in the development of cities, urban regions and metropolises; it will discussed in the session called "Cities and Technologies, Real Smart Cities, Intelligent Cities – High Tech and High Quality of Life: Best Practices and Concepts for the Future".

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IMAGE SOURCES

https://dribbble.com/shots/4863403-Power9-Chip-City

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