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Towards
the Implementation
of the Science
of the City

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Università degli Studi di Napoli Federico II

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EDITORIAL

Luigi Fusco Girard

In October 2016 the process of international consultation on the *New Urban Agenda HABITAT III* for the next 20 years, organised by the United Nations (UN-Habitat), will conclude at Quito (Ecuador). An explicit reference to the above process is in the *2030 Agenda for Sustainable Development*, paragraph 34, in terms of achieving the sustainable development as essential strategy for improving the *quality of life* of people. The following annexed document is *The City We Need* (CWN), the UN-Habitat WUC *Manifesto*, already discussed within several Urban Thinkers Campuses, in various cities all over the world, which finally will take a definitive shape by next April, in order to be presented at Quito (in the light of necessary modifications/integrations). Which observations may be proposed to this text?

The aim of the CWN document is defining and promoting a "new paradigm" of urban development. This paradigm may be interpreted as the research of a "human scale" in the urbanisation process, as the research of conditions able to guarantee a better level of wellbeing for every inhabitant. The concept of "wellbeing", structurally multidimensional, dynamic and complex, is focused on the human being. It is possible to identify various components combining with each other according to variable "weights": health, level of education, employment, income, availability of adequate housing, availability of social relations, availability of adequate services, quality of the environment, safety, opportunity of contributing to making choices of collective interest.

The above "components" of wellbeing are perceived by citizens in relation to a plurality of "needs", whose satisfaction affects the "quality of life". Any urban transformation (or regeneration) should produce an improvement of the wellbeing conditions, that is a better satisfaction of the above needs, in all the different areas and sites.

Consistently with the recent reaffirmation by the United Nations in the Rio + 20 Outcomes Document *Future We Want* (2013), that «the Human Well-Being is the ultimate goal of Sustainable Development», we can read, in the introduction to the CWN text (*Towards a New Paradigm*), that «well-planned cities afford all residents the opportunity to lead safe, healthy and productive lives».

In order to express the new Urban Paradigm through the series of new "principles", CWN Document recognizes "culture as key to human dignity". The final post (the *Road Map*) reports that it is necessary to pursue solutions based on the principle of assuring everybody of "equal rights to the city", in terms of accessibility to housing, land, basic services. In other words, within the text the instance of "human dignity" and the related instance of "human rights" are connected.

Actually, we perceive that a new paradigm in the way of conceiving the development is emerging. This paradigm may be defined briefly as "humanistic and ecological paradigm". It is already incorporated (but not explicitly) within the 2030 Agenda, approved by the United Nations General Assembly in September 2015, then confirmed in Paris last December (Cop21). So we believe that the above "humanistic and ecological paradigm" should be more clearly specified in the CWN Document, in order to give it clearer direction

and connotation. Nowadays there is a risk related to increasing conditions of dehumanization, and loss of co-evolutive capacity towards ecosystems, concentrated just in the city. Which other considerations?

A second observation refers to the mixture of principles and operative tools in the list of "principles" for the "new urban paradigm". For instance, the principle *number 2* refers to the necessity of good urban planning. But it cannot be put on the same level as the principles of inclusion, subsidiarity, regenerative capacity, identity, economic prosperity, health, safety, because "good planning" is instrumental to the concrete pursuing of the above principles. On the other hand, the principle of social justice is never cited, though it is evocated several times, as a reminder for taking into account living conditions of low-income social groups. Neither the principle of synergy/relational nature is cited (a principle which should address the new urban dynamic and its management) nor the principles of resilience and democratic transparency.

A third observation concerns the principle of economic prosperity, which would require also a clearer reference to the forms of "circular economy", as foundations of various symbiosis, such as it occurs in the economy of natural systems, with all the consequent implications in terms of reuse, recovery, recycle, regeneration of resources, and thus in terms of city productivity. This principle of circularization is already in the *2030 Agenda*, in particular among the targets of the strategic objective *number 12*. What above refers not only to the industrial economy or the agricultural business, or to waste management, but to the whole urban economy (included the capacity of regeneration of financial resources at local level, coming from surplus values produced by planning choices).

A fourth observation refers to the role of cultural heritage. Only a hint is made in the introduction, about the risks to be avoided for not loosing urban identity.

Cultural heritage deserves a greater attention and it should be explicitly inserted among the "principles" connoting the new *Urban Paradigm* (which evoke a reference just to "culture"). It is an absolutely restrictive choice, nowadays incomprehensible, since cultural heritage is more and more recognised as contributing also to social inclusion, local economy, improvement of the quality of life, and not only to local identity.

In fact, cultural heritage and landscape play a key role in pursuing this new *humanistic and ecological paradigm*. Another observation refers to the "urban laboratories" (by which the CWN Document concludes), for monitoring and evaluating progress and concrete pursuing of the general principles above mentioned and for informing people and decision-makers about variations of wellbeing. Above all these "observators" have the task of identifying the most appropriate system of indicators for expressing the conditions/variations of wellbeing, in order to be used not only for monitoring *ex-post*, but also for evaluating *ex-ante* different options of planning structure, on the basis of consequent impacts.

These indicators must be clearly and univocally identified and be interpretable through comparison tools, easily communicable and understandable for everybody, in the perspective of *Citizen Science* approach.

Then, this condition evokes the necessity of a new and more rigorous research on the *Science of Cities*, to improve their comprehensive "productivity". Scientific research plays a critical role in transforming the CWN principles into concrete actions and local policies, through the production of new knowledge, necessary for improving the project/plan, evaluation and decision-making processes, and monitoring strategies.

This conclusion should require an increasingly focused and incisive commitment of Universities/Research centres, overcoming the "vertical silos" logic and adopting more trans-disciplinary and systemic approaches.

In that way, the gap between the knowledge elaborated by Universities and the actual action of public decision-makers (mayors, urban managers, etc.) would reduce, starting finally to give a real shape to the *humanistic and ecological model/paradigm* of urban development.

In this perspective, an international meeting has been organised in Naples by the University Research Centre Calza Bini on the theme *The Science of the City*, with participation of distinguished scholars, on the following topics: *The City of People*, coordinated by Saskia Sassen; *The City of Diversity*, coordinated by Allen Scott; *The City of Wealth* coordinated by Kingsley Haynes; *The City of Health* coordinated by Peter Nijkamp; *The City of Visions* coordinated by Tomaz Dentinho; *The City of Wellbeing* coordinated by Hans Westlund; *The City of Culture* coordinated by Joao Romao; *The City of Architecture* coordinated by Joe Ravetz; *The City of Technology* coordinated by Karima Kourtit; *The City of Education* coordinated by Michael Turner; *The City of Innovation* coordinated byJanet Hohlhase; *The City of Business* coordinated by Roberto Camagni; *The City of Sustainability* coordinated by Daniel Czamanski; *The City of Landscapes* coordinated byGert-Jan Burgers; *The City of Progress* coordinated by Fabio Mazzola; *The City of Games* coordinated by Henk Scholten; *The City of Mobility* coordinated by Juan Carlos Martin; *The City of Networks* coordinated by Waldemar Ratajczak; *The City of Resilience* coordinated by Oto Hudec; *The City of Complexity* coordinated by Miruna Mazurencu; *The City of Planning* coordinated by Peter Batey; *The City of the Future* coordinated by Peter Taylor.

Taking into account the above reflections, this number of BDC journal, *Towards the implementation of the Science of the City*, collects some research contributions and some selected papers presented at the 3rd edition of the International Conference *Inhabiting the Future. Living together*, held in Naples, from 1 to 2 October 2015.

The paper of Fusco Girard, Gravagnuolo, Nocca, Angrisano, and Bosone, *Towards an Economic Impact Assessment framework for Historic Urban Landscape conservation and regeneration projects*, recognizes that Historic Urban Landscape (HUL) approach identifies the landscape as a "living heritage" that reflects changes in society and contributes to local well-being. Investments in HUL conservation can improve overall urban productivity, generating multidimensional benefits and contributing to the achievement of Sustainable Development Goals. The aim of this paper is to demonstrate how investments in HUL conservation/regeneration can enhance the economic performance of cities and regions. A set of 17 case studies of HUL regeneration has been analysed to select relevant indicators for the assessment of the multidimensional impacts of culture-led regeneration projects. Indicators have been grouped into six categories of impacts that could be used in a multicriteria analysis framework for the impact assessment of HUL conservation and regeneration projects.

According to the evaluation perspective, Alessio D'Auria in his paper, *An integrated assessment model for the Strategic Plan of the Buffer Zone of Unesco Site "Pompeii, Herculaneum and Oplonti"*, points out the case-study of the UNESCO site "Pompeii, Herculaneum and Oplonti" and its *buffer zone*, listed in World Heritage List since 1997 for its exceptional cultural, artistic and scientific status. In 2014 the Italian Ministry of Cultural Assets has prepared a new version of the site management plan, to ensure a more effective protection of values recognized therein. The update also provided for the extension of the

buffer zone to a vast, complex and densely populated area. For this area a strategic development plan has been drafting, whose objectives are in apparent contradiction with those ones of the management plan. It is therefore proposed, an integrated assessment model characterized by a formative approach to plan choices, able to reset the conflicts between conservation and development issues.

Michela Bassanelli in her contribution, *Interior | Esterior: The threshold as a new place of domesticity*, suggests some considerations on the transformation of domestic space in relation to the practices and behaviors of the contemporary inhabitant. The essay aims to define, through the analysis of some meaningful case studies related to the domestic sphere, the nature of this particular space, which we call "threshold" where connections, that are created between the people are reflected in the fluidity and loss of precise physical boundaries between inside and outside. The threshold, defined in this short essay, becomes a zone, not only a place of passage, but space of exchange and encounter between interior and exterior, that has an intrinsic idea of space.

Francesco Primari in *Antiurban ideology in Adolf Loos's work* intends to investigate the crisis of the political dimension of living, examining the "serious apocalypse" in Vienna at the beginning of 20th century. The study takes in consideration the houses of Adolf Loos, in their antinomical duplicity of language between the exterior of the façade and the *intérieur* of the domestic space: in fact they represent the irreconcilability of the public sphere with man's private one of the metropolis. Their stylistic aphasia must be made to react with the parallel desire of a form of the residential buildings of the Socialist Democratic Vienna. Therefore it will be necessary to compare the decentralized political topography of Loos's residential structures, as well as the rural and ideologically anti-urban character of his *Siedlungen*, with a monumental idea of residential architecture represented by the ideal Ring of the worker *Hofe* of Red Wien's.

Alessandra Battisti and Silvia Cimini, in their paper *The regeneration of historical small town centers: A methodology for participate action*, investigate a refurbishment model for non-monumental historical districts, which fulfils the general criteria of cultural, environmental and economic valorisation, through an integrated design that combines principles of innovation and conservation, minimum intervention and energy efficiency. The refurbishment of historical villages calls for a participate action in order to deeply value the cultural heritage standing behind the historic significance of the built environment, through the development of integrated bottom-up approaches for the formulation of multi-sectoral area-based local development strategies.

Claudia Chirianni in her paper, *Spatial segregation in contemporary western society*, starting from the reflection of the economist Schelling, that developed a simulation model of segregation where he proved that this could emerge as a collective phenomenon of discriminatory choices made by individuals. This model and its subsequent developments brings to light two key issues: 1) segregation is a local phenomenon rather than global; 2) what prevents segregation from happening on a massive scale is that smaller scale segregation happens first. This tendency to self-segregation is recognizable in our cities, both in the community of migrant populations and in the original residents, often resulting in this case in various forms of residential associationism. The author can therefore say that, within certain limits, segregation reinforces the idea of community opposing to the phenomenon of social disintegration that characterizes large urban centers.

In her paper *The city as a sequence of interiors: An ecological approach to the design of public spaces*, Cristina F. Colombo faces the international debate on the ethical approach to architecture, starting with a theoretical foreword on ecologies in urban interior spaces, then it outlines some of the key moments of experimentation and study, to understand how designers, planners and critics are addressing these topics. What emerges is the importance of improving the quality of public spaces and implementing inclusive policies, aimed at promoting an effective social cohesion and fostering a more sustainable development. Planners must, therefore, be primarily concerned with individuals and their dwelling spaces, proving to be more attentive to the needs of complex communities.

De Santis, Bellini, Macchi, and Otti in their contribution *Cohousing network: From city living towards widespread living* reflect about the topic of "cohousing" that could nowadays be defined also as "widespread living/network living", a reinterpretation of urban settlement features diffused in a large part of the Italian territory, characterized by a network of small local communities. From this point on the research project, settled by the agreement between Publicasa s.p.a., the 11 associated Municipalities composing the L.O.D.E. of Empolese-Valdelsa area and the Tuscan Government, sets its goals in the constitution of a network of innovative housing services, with an integrated management, introducing cohousing models and social mediation features in a public sphere. The principal purpose of the research project is to give the Municipalities the possibility to satisfy the request of that part of population excluded from the current social housing layout, using tools to support the design process and achieve urban renovation.

Mara Capone and Emanuela Lanzara in the paper *Parametric architecture: New representation tools to design sustainable surfaces*, identify a useful method testing the design of parametric surfaces through computation of technological solutions that improve the feasibility, maintainability and durability of results. Currently, this process is strongly favoured by the development of computational tools based on user friendly visual scripting approach. These tools help the self-construction of the building product and allow checking the process from designing to manufacturing. Therefore, they demonstrate how the geometry can be used as an analytical and planning tool, useful to integrate new forms and new materials in search of sustainable solutions and integrated approaches.

Roberto Ruggiero with the paper *Energy, environmental and social regeneration of (Ex) IACP districts* analyses the perspective of new demand for social housing, which pushes the search for innovative and sustainable forms of collective living, the space "in addition to accommodation" can take on a strategic importance in the definition of new housing models based on energy efficiency and sharing spaces, functions and services. IACP 2.0 is a research carried on the School of Architecture and Design "Eduardo Vittoria" of Ascoli Piceno which aims to define a catalog of strategies and design solutions dedicated to the redevelopment in a functional, energetic, environmental and social sense of common areas (indoor and outdoor) of the (ex) IACP district.

Orfina Fatigato in her paper *The Grands Ensembles: A singular plural heritage*, reflects on the future of the *grands ensembles*, that is one of the most important issue in France, and, it has been a central issue of the debate on housing during the last three decades. The term was initially used to identify the morphological system, characterized by big buildings for housing, then it began to indicate low cost housing for the lower classes and low quality architecture. So many efforts made since the 90s to imagine the possible development of

the *grands ensembles* have influenced only partially the architectural debate. The necessity of architecture is in these cases is still to be demonstrated in specific contexts.

Berizzi, Olivadese, and Marino in *Guidelines for housing innovation of new buildings and adaptive reuse* identify the need of guidelines for the innovation of housing models in Italy through the analysis and comparison of approaches, regulatory systems, and international case studies. If, on one hand, the rules prevent experimentation and quality of dwellings in new constructions, on the other, in case of reuse, regulation prevents any intervention on the existing heritage. The paper describes the results of the research Habito and provides some guidelines for future studies on the topic of reuse.

The contribution of Alessandro Gaiani and Andrea Chiarelli, *Temporary living: places and transition of the social need*, underlines that in the last few years the phenomena of the cities shrinkage produced dismissed areas and buildings. Today, there is an increasing demand for affordable properties: the crisis in the construction industry created an oversupply of properties, about half a million of unsold houses in Italy, currently left to decay. At the same time the economic crisis has produced new poverty ranges, and there is a progressive aging of the Italian population, causing an increase in the request for health and social care services. It becomes necessary to leave the "old" systems and to identify new development models: the reclaiming of unused spaces through a temporary architecture become the possible strategies to find answers to the new social needs.

Silvia Gron and Giulia La Delfa in their paper *Historical, consumed and fragile sites: hypothesis of living. Space reading, house planning and urban regeneration proposals*, make an urban and architectural analysis of some mature historical areas, the Panier (Marseille) and the Fener-Balat (Istanbul), expressly chosen for their cultural and social stratification, followed by an observation of preservation politics at different levels, from national and locals directions to the European and UNESCO ones. A new method of analysis, aimed to the project, has been suggested; starting from the use of houses internal spaces and from their transformation potentiality, and respecting cultural and social values.

Emilia Rosmini, Maura Percoco, and Maria Argenti in their contribution *Squat, transform, inhabit. Student housing in Rome and international best cases*, analyse how the lack of low-cost housing and support services limits the right to the education of more and more students. In the city of Rome, the private rental market is one of the most expensive in the country, is often illegal, and absorbs much of the housing demand of students. As a result, the occupation of collective of students in abandoned buildings appears as a good solution through experimental practices of co-habitation, to define new rules for the right to study, and also support the right for all to the free access to the city. The article recognizes in the protection and enhancement of such spontaneous processes an engine for defining reproducible architectural forms of supportive, rather than shared, living. Finally, they describe two significant Europeans studies cases where the architectural conversion of the built heritage formalizes principles and values enshrined in the Roman occupations.

The Manifesto *The Future We Want. The City We Need. Towards a New Urban Paradigm* introduces the different papers and open new reflections.

The Future We Want. The City We Need
Towards a New Urban Paradigm

Introduction

Cities are either helpful or unhelpful in achieving sustainable development. As we declared in the 2012 Manifesto for Cities and further reiterate here: "the battle for a more sustainable future will be won or lost in cities." How we plan, build, and manage our cities now will determine the outcome of our efforts to achieve a sustainable and harmonious development tomorrow. Well- planned cities afford all residents the opportunity to lead safe, healthy, and productive lives. Well-designed cities present nations with major opportunities to promote social inclusion, resilience, and prosperity.

The world is at a crossroads. In the next few decades, urban dwellers will not only double in number, accounting for nearly three-quarters of world's population. More than 60 percent of the built environment needed to accommodate these new urban dwellers has yet to be built.

So what will our cities be like? Past and current trends provide some important lessons for what to avoid:

- Lack of national urban policies uncoordinated with regional and local regulatory frameworks that neglect investment in basic infrastructure, protection of the public realm, and tenure security.
- Poor planning and "short-termism" that result in slums and informal settlements lacking public goods and services; irresponsible land use and construction yielding spontaneous urban sprawl vulnerable to natural and human-made disasters: flooding with each storm surge and crumbling under the force of earthquakes or fires.
- Disregard of urban-rural linkages and the destruction of ecosystem services upon which all humanity depends.
- Poorly regulated real estate markets that create speculative bubbles and financial crises.
- Mismanagement by all actors and tiers of government leading to inefficient and wasteful public services.
- Loss of urban identity caused by the destruction of cultural heritage, local bio-diversity, and public space.
- Lack of effective participation and engagement, especially of youth, leading to social tension and unrest.
- Absence of effective implementation and financing mechanisms for executing needed policies and programs.

The cities we want should be engines of economic development and lie at the core of a new urban era where people can find freedom, innovation, prosperity, and resilience. Public, private, and civil society organizations offer thousands of important solutions both small and large. Primary among them are improvements in public services including mass transit, waste, water, and energy supply and management; and better housing for low income groups or slum upgrading programs including community stand pipes, basic sewerage disposal, community health centers, or cable cars to provide transportation to and from inaccessible areas. These efforts undoubtedly improve the lives of the people they touch. But, in the end, these approaches do not address basic structural problems nor do they offer answers appropriately scaled for tomorrow's challenges. To do so requires rethinking the very organization of a city and envisioning its future. For this reason we need to forge a new urban paradigm for the city we need.

While the city we need must recognize local contexts, cultures, and customs, stripped to its barebones, it is founded on two key qualities: the respect of public and private uses of land, and a well-coordinated system of systems. If a city is to function properly, it needs to coordinate very diverse agendas related land use, energy, water, waste, mobility, health and education, economic development, and the promotion of cultural vitality and social inclusion.

Consider it as a spatial entity: If it occupies its space well, it is liveable and sustainable. If it runs rampant over the landscape, it is inefficient and destroys the environment on which it depends. Consider its complex and interlocking systems: engineering arrangements, social and cultural organizations, economic structures and environmental components. If like a tree where different parts work in harmony, they heighten possibilities for prosperity. But if like a machine run amuck, they malfunction and heighten human frailty.

To make sure we have the city we need in the 21st century, our new urban paradigm will have to be guided by a set of principles preliminarily articulated in the Manifesto for Cities and further refined here. We will have to translate these principles into policy action areas tailored to local conditions.

The City We Need: Principles for a New Urban Paradigm
The city we need is socially inclusive. It provides spaces for all segments and age groups of the population to partake in social and cultural expressions. It eliminates all physical and spatial forms of segregation and exclusion.

The city we need is well planned, walkable, and transit-friendly. Schools are within walking or biking distance from homes. Offices are located no farther than a few transit stops away from homes. Shopping for daily necessities is within walking distance of residential buildings and located near transit stops. Open space for recreation is near schools, work, and home.

The city we need is a regenerative city. It is designed to be resilient by being energy efficient, low-carbon, and increasingly reliant on renewable energy sources. It replenishes the resources it consumes and recycles and reuses waste. It uses water, land, and energy in a coordinated manner and in harmony with its surrounding hinterland in support of urban and peri-urban agriculture.

The city we need is economically vibrant and inclusive. It encourages and fosters local economic development from the smallest entrepreneur to the largest corporations. It provides a one-stop shop for streamlined licensing and other administrative services. It recognizes and protects the specific needs of the informal sector of the economy in its economic development policies and strategies.

The city we need has a singular identity and sense of place. It recognizes culture as key to human dignity and to sustainability. It involves cultural actors to unlock the creative potential of all citizens. It strengthens the bonds between city and its surrounding hinterland.

The city we need is a safe city. The city is welcoming night and day, inviting all people to use the streets, parks, and transit without fear. Public officials, the police, the fire department, and health, welfare, transit, and environmental services, and neighbourhood residents and community groups communicate frequently and speak with one voice.

The city we need is a healthy city. The city's parks and gardens are havens of peace and tranquillity and arboreal local flora and fauna and biodiversity. All public and private entities providing public services (water, waste, energy, transport) work together with the city's residents and have public and environmental health as a common performance indicator.

The city we need is affordable and equitable. Land, infrastructure, housing, and basic services are planned with low income groups in mind. Public services are planned together with the communities they serve and consciously include the needs of women, youth, and vulnerable populations.

The city we need is managed at the metropolitan level. It coordinates sectoral policies and actions (economy, mobility, biodiversity, energy, water, and waste) within a comprehensive and coherent local framework. Communities and neighbourhoods are active participants in metropolitan decision making. Roles and responsibilities between all stakeholders, while respecting the principle of subsidiarity, are clearly defined with resources allocated strategically, justly, and around a common agenda. In sum, the city we need is socially inclusive, well-planned, regenerative and resilient, and prosperous.

The Policy and Legislative Framework We Need:
A Roadmap for a New Urban Paradigm
To achieve the 21st century city we need, we must encourage nations, regions, cities, and the Habitat Partners to work together to craft their respective policy and legislative frameworks that:

−   Calls for each nation to adopt its own national urban policy, one that also drives and coordinates regional and local urban policy that embodies the key principles of a new urban paradigm: cities planned to be just and inclusive, resilient and regenerative, and prosperous.
−   Asks public and private decision-makers to move from sectoral interventions to those that address the city as whole and are at the scale of the problems. These interventions should: embrace the compact and mixed-use city; assert that public space is a highly effective method for improving a city's functioning, identity, and sense of place. Places marginalized groups, including women, as primary beneficiaries of the called-for solutions based on the principle of equal rights to the city in terms of access to housing, land, and basic services.
−   Assumes that solutions will involve all actors of society - public, private, and non-governmental in a participatory manner.
−   Puts democratic and transparent controls on public goods such as the public domain, urban services, and land management.
−   Sets regularly reviewed and revised legislated targets and an associated roadmap for cities working in close collaboration with private sector and civil society stakeholders to ensure implementation of policy measures.
−   Establishes urban observatories open to the public to monitor and measure progress by mutually agreed to indicators and to inform decision-makers on the state of urban sprawl, urban biodiversity, affordability and access to housing, public services, urban mobility, urban safety, etc.