

Illusions, delusions, confusions?**Navigating the Future of Contemporary Cities**

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Abstract: Contemporary cities, as the ever-changing nodes of dynamic global networks, transform their character, performances and aesthetic in order to face increasing challenges and to respond to the upcoming ecological, technological and social imperatives. Although generating a number of problems, they also provide various solutions which should preferably lead toward sustainable and resilient development. This process is continuously debated and upgraded, but it does not always create a wishful environment of higher efficiency, equity and wellbeing for all inhabitants. Instead, many cities have to deal with a combustible concoction of increased insecurity, fears, threats and overall anxiety, which has a severe destabilising effect on the fragile systems of needs, values and priorities.

However, urban space has always had a unique role in every phase of socio-technical change, providing an immersive stage for the various levels and tools of action and interpretation. Materialised through architecture, urban planning and design, their impact reflects in new spatial concepts, hosting directly or indirectly every wave of technological (r)evolution, as well as its benefits and repercussions for both the society and the environment. Considering the complexity of ongoing global processes, which accelerate the pace of urban changes, the paper focuses on the relationship between the detected problems and the innovative responses implemented in urban space. The emerging typologies and their anticipated/achieved impacts will be discussed, targeting the issues of poverty, crime, migration, ecological and climate (un)awareness, as well as the needs of sensitive groups (determined by age, gender, ethnicity etc.). These small and large scale transformations and modifications, often with questionable and colliding effects, are frequently supported by 'green' rhetoric, although their actual sustainability and resilience might be overshadowed by influential political and financial drivers. Therefore, the content of numerous lists ranking the competitive advantages of each city displays both the contemporary urban priorities and the recent (im)balance of power, testifying about the paradigm shifts which should facilitate our efforts in mitigating the consequences of climate extremes, natural disasters or socio-economic turbulences.

Keywords: contemporary city, transformation, innovativeness, typology, urban space

1. Introduction

Cities have always represented a stimulating environment for a highly concentrated networking and inventiveness, acting as the multi-scalar nodes of communication and transmission of ideas, experiences and knowledge. Simultaneously, the urban way of living has generated a number of problems which threaten our wellbeing, depicting the ambiguity of urbanisation and its clashing values. On our way toward a dominantly urban world, we are facing a set of challenges triggered by the uncontrolled sprawl and population increase, degraded environmental conditions, social tensions and inequality, but in spite of destabilising factors, cities remain the focal points which constantly attract and excite. Their potent mixture of opportunities and experiences stimulates economic and cultural production and exchange, sparks innovations, as well as the gradual or radical changes of social systems, technological frameworks and environmental standards (Stupar, 2024).

Urban space simultaneously reflects and influences the needs, values and norms of a society, acting as an aim and a tool. Therefore, both architecture and urban planning continuously modify and upgrade the existing spatial concepts and typologies in order to respond to dynamic social changes and technological advancement. Currently, the contemporary cities follow the anticipated image provided by Hubbard (2006), who describes them as postmodern, hybrid, creative and dynamic settings, with virtual/digital elements and the various levels of activities and perception. However, each city tends to upgrade its own features and functionality in order to boost its ranking and competitive advantages on the global level. The urban attractiveness and positive recognisability are nowadays formally based on the globally adopted imperatives of sustainability and urban resilience, following the recommendations of the COP21, UN SDG, EU Urban Agenda or Habitat III. However, they often remain only declarative statements or an excuse for intended transformations, additionally complicated by a dissonance between various levels of political and economic power (Dogan, Stupar, 2017).

Due to this complex situation, the innovation on multiple levels has been recognised as an important element of further development and urban competitiveness, incorporated into both the manifestation of urban surrounding and its ability to create innovations. Therefore, it is not surprising that many new solutions are focused on urban

systems (efficiency, accessibility, connectivity), urban society and space (environmental awareness, flexibility), influencing the new life styles and habits. They have to support real-life urban transition toward sustainability and resilience, beyond usual political and professional rhetoric.

The changes of urban reality, fuelled by inventive and creative ideas, could be detected on multiple levels, through the influx of new strategies, policies, (in)formal processes and movements, spatial concepts and typologies, technological achievements and emerging urban phenomena. Their impact on cities and urban society could be directly or indirectly manifested, and - while waiting on the proper verification of historical distance - these modifications could cause serious controversies.

Highlighting the link between contemporary cities, recent (innovative) spatial interventions and their social implications, the selected cases will be used as a manifestation of the ongoing dichotomies between different levels of interpretation. Conceived as both the attractive urban features and a step toward the next phase of environmental advancement, these projects have reached a questionable level of sustainability and/or resilience, while their contribution to the general wellbeing of cities and their citizens has to be confirmed in/by the future.

2 Innovation(s): Between the necessity and the attractiveness

The role of innovations in urban life and development has been frequently emphasised, especially during the last few decades, when efficient and timely reactions to accumulating urban problems have become a necessity. At the same time, the areas dedicated to and for innovations have gained a new level of significance in urban transformations. Cities and their innovation districts have been ranked, analysed and evaluated from different angles (Simmie, 2001), while their position has become a reflection of aspirations and preferred attractiveness. For example, Innovation Cities™ Program & Index provides a list of cities ranked according to 162 indicators related to architecture, services, mobility, culture, finances, business, education, technological development, governance, media, general health and wellbeing, while their position indicates their economic growth, urban dynamic and the level of income and employment, attracting new investments (2thinknow, 2023).

Numerous international projects have been also focused on the solutions targeting various aspects of urban life and environment (for ex. Innovations for the Improvement of the Urban Environment, 1993-96, by the European Foundation for the Improvement of Living and Working Conditions) or smart cities (project Fireball, 2010-12). Meanwhile, the synergy of sustainable urban future and innovativeness has been included in the document Rio+20 (World Bank Group, 2012) and the EU launched the Innovating cities (2014), an initiative which promotes an integral vision of innovative urban planning and design, highlighting the role of public participation in governance, decision making and strategic urban development (European Commission, 2024).

The importance of urban focus has been emphasised in other international programs and research projects which have addressed the issues of sustainability through urban innovations (e.g. Horizon, Missions etc.). Establishing their methodologies on the mantra of co-creation, co-development and co-implementation, they tackle a wide spectrum of problems related to planning, management, investments and entrepreneurship, supporting the environmental transition toward climate responsible, smart and resilient cities. Consequently, the Missions (2021-27) involve one hundred cities which will be transformed into innovative nodes and role models through two types of partnership - the Partnership on driving urban transitions for a sustainable future - DUT and the Partnership on people-centric sustainable built environment - Built4People. Many EU funds have been also directed toward the implementation of new ideas in cities, while the European Commission introduced the iCapital Award for the best examples of initiatives and implementations oriented toward innovative urban eco-systems and communities (winners since 2014 include Barcelona, Amsterdam, Paris, Athens, Nantes, Leuven, Dortmund, Aix-Marseille Provence Metropole and Lisbon - European Commission, 2024).

The cities also recognise the need to attract the new elite, involved into the creative, media and R&D sectors. Therefore, the anticipated urban transformations tend to prioritise their preferred values and needs on the level of socio-cultural, spatial, political and environmental features (Bontje et al. 2016). However, a boost of novel, creative and out-of-the-box solutions is especially important for the marginalised groups and their living environment, which is often exposed to the dramatical effects of global and local turbulences and climate shifts, combined with poverty, crime, insufficient governmental, professional and financial support. In this case, the global imperatives have to be adjusted to the actual, site- and community- specific circumstances, while the application of integral and inclusive approach should be based on available resources and tools.

The pace of socio-technical change and general awareness might be slow, but some of the urban innovations detected by the UN Habitat in 2009 have gradually become a common feature or, at least, a preferred development aim in many cities (UN Habitat, 2009). Therefore, the use of renewable energy sources, the increased share of green spaces, improved infrastructural systems and eco-efficiency, as well as the sustainability

of transportation/mobility, could be noticed around the world, while the problems of informal settlements and the anticipated carbon-neutrality still represent a huge (and growing) challenge.

3 The drivers of sustainable transition: society, nature, technology

On a bumpy road to the future, cities need to merge multiple levels, scales and perspectives of action in order to solve very complex environmental and social problems. Both formal/institutional and informal approaches have their role in the process of sustainable transition, while inventive ideas originate from or are applied to society, technology and space.

The problems of poverty, crime, pollution, safety, migrations, environmental (un)awareness, tolerance or the needs of various groups (defined by age, gender, ethnicity, income etc.) are often tackled by the initiatives/projects of social change. The well known example of Curitiba has been dealing with the local socio-economic limitations for over 40 years, connecting the social, spatial and technological innovations in a quest for a higher environmental awareness. The city has initiated a number of interventions targeting the preservation of natural resources, the expansion of green areas or the sustainable transformation of ex-industrial areas. Simultaneously, it has become famous for the Cambio Lixio/Cambio Verde program, different forms of ecologically based mobility, a flexible public transportation network and activities supporting knowledge economy and the accessibility of new technologies (Prefeitura Municipal de Curitiba, 2024). The city of Amsterdam follows the similar path of environmental awakening, launching a set of goals which should lead to 100% circularity until 2050 (City of Amsterdam, 2024). Along this development trajectory, the carbon footprint would be reduced, as well as the level of resources used by city, while the social equity has been considered as a condition for the implementation of sustainable economy.

The urban society is also a highly changeable category, and this feature has been addressed by numerous strategies fostering accessibility, inclusiveness and tolerance for all, regardless of gender, age or (dis)ability. The promising example of this practice could be found in the case of Superilles in Barcelona, which opened the public space of super-blocks for community interaction, play and relaxation. Decreasing the number of vehicles and their speed, while respecting the needs and the safety of citizens (especially women, children and young people), the urban space has been redesigned and functionally improved (Ajuntament de Barcelona, 2024). The similar approach was implemented in Vienna, in Aspern Die Seestadt, where safety and accessibility for all have been used as a design imperative (Aspern Die Seestadt, 2004).

The (pro)active interlinking of social needs, technological innovations and spatial transformations has been a frequent element in many recent projects, through both architectural and urban design fostering adaptability and flexibility of spaces, their sustainability and resilience in the world of fast changes. The interplay between natural and built environment is another element of contemporary (re)design and identity, used by various nature-based and nature-inspired approaches, applied on the level of materials, buildings or settlements (e.g. biophilia, biomorphism, biomimicry). Their growing possibilities are tested in numerous experiments and prototypes, but their wider application still needs to be intensified. The continuity of this process which connects art, technology, architecture and people could be best followed in the work of the ecoLogic Studio. They combine the elements of low and high technology, enabling an interaction between climate, micro algae, visitors/observers and surrounding space (projects STEM, 2006; Urban Algae Canopy, 2015; Photo.Synth.Etica, 2018, etc.). Their proposals, displayed both in interior and exterior space, are based on the principle of photosynthesis, which plays a crucial role in the production of oxygen and biomass. Simultaneously providing sun protection and carbon-dioxide absorption, it also promotes carbon neutrality, supported by playful attractiveness and usability (ecoLogic Studio, 2024).

Another level of urban upgrading has been developed as a simultaneous existence of material and digital realm, where technology acts as a support, a tool or an activator of spatial changes, their functionality and perception. The processes of detection, collection and processing of information, as well as their accessibility, evaluation and transmission, have been constantly updated and innovated, especially in the field of urban efficiency, environmental and energy transition, social inclusivity and sectoral interaction (Stupar & Mihajlov, 2016). The role of Artificial Intelligence (AI) becomes a new topic of professional discussions, although its current application is mostly focused (and limited) on the level of spatial design, as well as on the specific planning and monitoring phases of urban development, ensuring their synchronisation with the imperatives of climate adaptation and mitigation, anticipated sustainability and resilience. The AI support is also recognised as a suitable participation channel during the processes related to the upgrading of urban systems, spaces and communities. The growing number of cities has decided to create their digital twins in order to improve planning process and decision making (e.g. Zurich, Helsinki, Turin), while many cities use numerous softwares related to important urban issues or the comprehensive problems of urban systems (pollution, location optimisation, recycling, mobility etc.). Nowadays, technology has been embraced by everyday urban life and various users, including the marginalised,

less privileged ones. Many applications support the visually and/or physically impaired, while some provide temporary benefits for the homeless - for ex. through the digital announcements of available shelters during cold days (Clear Channel, 2018)

However, this sphere of urban upgrading generates many unsolved problems, especially related to data privacy protection. The example of the initial project for the Quayside area in Toronto (2017-19), launched by the Sidewalk Labs and designed by Snøhetta and Heatherwick Studio, clearly reveals these fears. Cancelled in 2020, this high-tech utopia, with both smart and environmentally friendly elements, was replaced by a new development concept (2022), fully driven by green logic and conceived by several architectural firms (WATERFRONToronto, 2024). Shifting the focus from advanced technology to the wellbeing of community, the latest project iteration emphasises a link to nature, although it is debatable to which extent this area will be inclusive and integrative.

4 Sustaining urban novelty?

Although the official transformational mantras mostly align with the principles of overall sustainability, resilience and efficiency of cities, they could be used as environmentally justified cover for a number of centralised interventions which have ulterior motives. Depending on a project scale and its agenda, the ambiguity of anticipated and/or actual effects could stir heated discussions and social discord, but also attract public attention and, consequently, increase the level of environmental awareness. However, a difficult question remains - where is the fine, sustainable line between necessity and extravagance, progressive and oppressive, inclusive and exclusive?

NEOM, Saudi Arabia

The example of the new city NEOM represents a radical example of the carbon-neutral urban vision on multiple levels. The implementation of this complex project shifts the usual perspective of sustainability to a specific context, scale and (re)interpretation, generated from the national 2030 Vision (2016). Emphasising the importance of people, nature and future models of sustainability in protecting the global wellbeing, this vision has traced a path to an ambitious concept of urban conglomerate, composed of ten new regions. Based on renewable energy sources and empowered by advanced technology and innovative design, NEOM is supposed to attract a new intellectual and business elite. One of its segments - the LINE, should accommodate around nine million people in an environment based on a 5-minute walking accessibility, AI support for indoor climate regulation and a number of other innovative features to be enjoyed by (preferred) inhabitants. The involvement of famous architectural offices (e.g. Zaha Hadid Architects, BIG, Morphosis, 10 Design, LAVA etc.) has added another level of recognisability and attention to the whole idea (NEOM, 2024). Although NEOM is not the first example of a 'new city' which symbolically marks the introduction of a new ideological paradigm while expressing the power of ruling elite, it also opens another level of interpretation for the already existing urban concepts (i.e. linear and vertical city). However, the scale of this spatio-social experiment, as well as the methods of its implementation, could cause a number of negative environmental effects. The justified concerns cannot be simply erased by the ongoing media promotion of eco-innovativeness, while the additional level of criticism addresses the issues of green washing, violation of human rights and privacy, actual living comfort, affordability and terrorist threats - totally opposing the very essence of the announced sustainable transition.

Medellin, Columbia

Far away from the glittering images of newly conceived cities, the contemporary urban world has to face the consequences of overpopulation, poverty, crime and inequality. This complex problem demands the implementation of comprehensive strategies which would eventually cause general growth, wellbeing and the attractiveness of neglected communities and their neighbourhoods. This front of action has been tested in many cities and megacities (e.g. Rio de Janeiro, Bogota, Caracas) aiming at the problems of informal settlements, the efficiency and quality of their urban systems, as well as their social, institutional and spatial implications. However, the case of Medellin and its innovative recovery from an overwhelming degradation, has been especially praised by the professional audience due to its innovativeness and the accomplished results improving the local life. Through continuous dialog and public participation, combined with institutional actions, the spaces of strategically selected favelas were improved in a sustainable manner, becoming physically and symbolically more accessible to inhabitants. The combined urban interventions created a number of new public spaces, inventive infrastructural elements (metro cable, escalators etc.) and the attractive and recognisable buildings for public use (libraries, communal centres etc.). Upgrading the existing spaces and modifying their previous typologies, the new nodes of economic, cultural and social development were established, stimulating interaction and a sense of belonging while reinforcing a different development trajectory of these areas (MUI,

2024). The positive impetus increased the quality of life and urban space, attracting the new types of users (e.g. digital nomads), services and sources of income. However, this trend has also generated challenges for the achieved sustainability. Besides social changes and increased prices, a number of problems was detected during the process of transformation since many families had to be displaced out of the targeted areas. As a result, they had to change the mode of life (from family to multifamily housing, different cultural patterns) while facing the lack of necessary infrastructure, services and working places. These problems triggered another vicious circle of violence and frustration which annulled the overall merits of the whole urban transformation. Obviously, even the sustainably conceived processes of urban transition have their winners and losers, questioning the level of general applicability and a sufficient depth of actions.

Copenhagen, Denmark

Although Copenhagen represents a city with a high level of environmental awareness caused by its climate-sensitive features, it could also serve as an ambiguous example of sustainable transition. Many initiatives conducted over the last years have been undertaken with the idea to establish a generally acceptable balance of various elements leading toward social tolerance and integration, environmentally acceptable mobility and overall efficiency. However, the projects which represent a synthesis of functionality, climate resilience and innovative form usually receive the most attention (both local and global), contributing to the green agenda in a multiple ways. The example of CopenHill, opened in 2019, manifests this approach combining (usually) colliding activities - waste management centre (waste-to-energy plant) and public recreational facilities, including skiing and climbing. However, the project for Lynetteholm, an artificial island announced in 2018, has triggered serious concerns. Described as a climate-proof intervention which would use soil from various construction projects, it should contribute to the blue and green infrastructure of Copenhagen and ensure flood protection. The design concept is based on nature-based solutions creating the third (protective) city ring, improving the quality of life, but also providing residential and service activities for 35000 people. According to authors, the development of Lynetteholm is based on the UN SDGs and in line with the development visions and imperatives of the city (Arkitema, 2024). In spite of the highlighted principle of inclusivity, the project was strongly opposed by environmentalists, neighbouring countries and the Coalition Clean Baltic due to the lack of process transparency and possible consequences for the Baltic sea and the city itself. In the case of Copenhagen, the sea level rise is reality and this problem could be solved by less controversial and more environmentally-friendly solutions. However, due to the expected financial benefits of intensive construction, this transformation might misuse its climate-responsible label in order to legitimise another mega-project of questionable sustainability.

Non-places

The proper direction to the sustainable transition is often blurred and confusing, full of dilemmas and compromises. Cities, therefore, have to search for spatial, social and technological solutions able to overcome aggravating problems, provide better life conditions for all, and achieve a sufficient positive recognisability on the global scene. Oscillating between the catastrophic and the optimistic scenarios, the contemporary society often has to create solutions which transcend usual urban limits. They offer the visions of specific non-places, indicating the duality of our presence and future - both spectacular and dystopian. Consequently, the example of the floating neighbourhood Oceanix Busan (BIG), allegedly designed to resist the fifth category of hurricanes and tsunamis, should follow the proclaimed SDGs through the application of self-sustaining and self-repairing materials (e.g. Biorock), infrastructural, energy and food self-sufficiency and the zero-waste principle (Oceanix, 2024). Composed of three interconnected platforms dedicated to research, living and lodging, it would be able to rise with sea levels and extend its surface through modularity, consequently housing 10-100 thousand people. The idea is also supported by the UN Human Settlements Programme, as well as the aquatic experts from various Korean and international institutions and alliances. However, the floating concept does not represent novelty, and the idea of similar future-proof settlements has been already embedded in the projects in Dubai (bio-desalination factory based on AI and bio-engineering), Rotterdam (a floating office by Powerhouse Company) or in the Maldives (floating city).

Dystopian trends also affect many war- and climate-refugees, forced to move from their homes to various (non)places in search for safety. As a result, a new set of solutions has been generated within the framework of so-called emergent and agile architecture, often designed in a visually attractive manner and by famous architects, focusing the public attention to important problems. Therefore, it is not surprising that one of the projects for refugee shelters comes from Zaha Hadid Architects. Supported by the Education Above All foundation (EAA), a prototype of adaptive and sustainable tent is created, based on modularity and flexibility. The modules, which could be used as temporary shelters, educational or medical units, are foldable, light and climate-proof, while their elements could be recycled or reused (Zaha Hadid Architects, 2015).

Even though architecture and urban design could often stir a lot of discussions and ethical dilemmas, their positive impact cannot be denied, as well as a possibility for the positive promotion of global needs, values or threats. They could - eventually - rectify many of our unsustainable actions while ensuring a benevolent environmental transition.

Conclusion

Through numerous urban interventions, the cities of the 21st century have to react to intensified challenges. Meanwhile, the speed of technological advancement, the rigidity of physical frameworks and the multiplying interests of various stakeholders often cause tensions. Driven by global environmental agendas, urban transformations often occur out of necessity, but the resonant eco-labels sometimes serve only as a formal cover for particularistic interests or unethical aims. Although officially proclaimed benefits should rely on integral approach and inclusive premisses, the scale of projects frequently plays a decisive role in actual outcomes. Consequently, the expensive undertakings, targeting larger areas, tend to trigger socio-economic imbalance and segregation due to preferred exclusivity and the anticipated financial gain of investors. This tendency clashes with the imperatives of sustainable transition, but the possible attractiveness and recognisability of projects, accompanied by their formally proclaimed environmental agendas, could indirectly influence the increase of environmental awareness - through media promotion of both positive and negative experiences, or the comprehensive evaluation of achieved results.

In 2015 the Global Agenda Council on the Future of Cities and the World Economic Forum identified a new set of innovations occurring around the globe as an announcement for the urban future to come (World Economic Forum, 2015). Dealing with resources (their activation, management and co-sharing), mobility, social infrastructure and networking, these creative actions might serve as a signpost for the new levels of introspection in the age of change and shifted paradigms. Therefore, it is not surprising that the projects selected for the 2023 edition of the UIA Guidebook for the 2030 Agenda correspond with the UN SDGs, especially the one which highlights the importance of global partnership for sustainable development - goal 17 (UIA, 2023). In the world of fast changing values, the proposed spaces should serve as an inviting stage for addressing and initiating another reset of the outdated modes of urban life.

Navigating through the tempestuous time of increased instability is not an easy task since the universal recipe does not exist. Somewhere between trial and error, invention and tradition, expectations and reality, the upcoming generation of socio-spatial solutions might provide more efficient methods of urban transition which would ensure a continuous resilience and environmental balance of our habitats. Therefore, maybe the approach of the Future design movement (Saijo, 2020), applied since 2015 in some Japanese cities, could enable an efficient clarification of numerous contemporary illusions and delusions. Representing a specific mode of risk management, this method employs the notion of futurability projected into imaginary generations to come. Inspired by the principle of seventh-generation decision-making, used by the indigenous communities in the US, this method takes into consideration both the present condition of a problem and its implications in/to the future, evaluating its effects on someone born seven generations from now. By 'projecting' ourselves into a distant future, we could be able to establish a stronger connection with our descendants, anticipating intensive transformations which demand our stronger personal involvement, effort and devotion to their wellbeing.

Are we there yet?

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