

Tiziana Ferrante, <https://orcid.org/0000-0002-0625-4453>

tiziana.ferrante@uniroma1.it

Department of Planning, Design, and Technology of Architecture, Sapienza University of Rome, Italy

The content of this Special Issue draws upon the scientific debate initiated during the “Beyond all Limits: International Conference on Sustainability in Architecture, Planning, and Design”, held in May 2022 at Vanvitelli University, Naples. The discussion focused on the latest international approaches to sustainability, as applied to the fields of planning, architecture, and design, and interpreted through the principles of the New European Bauhaus (NEB).

Hence, focusing on novel design, operational and cultural strategies, aligned with the three pillars of the New European Bauhaus (NEB)-Sustainability – Aesthetics, Inclusion and a human-centred vision – can provide insights into rethinking the very meaning of sustainability, which is increasingly invoked while being at risk of becoming a mere slogan or rhetorical device. In the current context, the ecological transition and its social and cultural implications need to bridge the widening gap between institutional declarations and the everyday practices of citizens. This requires moving beyond a purely technical view of sustainability that lacks its ethical and social dimensions. The trajectory initiated with the “Beyond all Limits” Conference and continued in this Special Issue of *TECHNE* aims to investigate underexplored themes of sustainability, viewed as a cultural, social, and political act capable of renewing-through the experimental dimension of design disciplines-not only the forms of the built environment but also the deeper meaning of our contemporary living.

## **Planning, architecture, and design towards an ecological and inclusive transition**

The cultural dimension of sustainability into urban transformation processes and the built environment. The vision is to promote sustainable, inclusive, and innovative cities, architectures, and artefacts to improve the quality of life of European citizens (European Commission, 2021). By invoking well established concepts, the NEB places environmental and economic sustainability at the centre, alongside human well-being and social equity (Raworth, 2017). It promotes self-balancing systems that do not exploit people or resources, and it fosters urban development that is not only ecologically sustainable but also capable of mitigating social inequalities.

Design disciplines are evolving towards increasingly integrated and dynamic approaches capable of addressing both emerging and existing problems. Urban planning, architecture, and design play a crucial role in this scenario, promoting innovative solutions to global and local challenges, and experimenting with evolutionary processes characterised by stakeholder en-

gagement and co-creation (Manzini, 2015). These approaches, applied at different scales, act as levers to integrate the multiple aspects of sustainability, encouraging the active involvement of institutions and local communities as true protagonists of change who contribute operationally to defining new models of sustainable urban development (Gehl, 2011).

Numerous studies have analysed the modalities of social stakeholder engagement in the planning, design, implementation, and management phases of urban regeneration or energy re-qualification interventions within larger scale European initiatives, such as the promotion of Positive Energy Districts (PEDs) in Europe. In these initiatives, the active involvement of citizen associations, local entities and non-profit organisations, as well as service companies, from the early decision-making phases has proven essential in defining the objectives of the interventions with greater incisiveness, identifying the actual needs of the communities, optimising available energy and economic resources, and structuring virtuous models of ecological transition (Ferrante *et al.*, 2023). Therefore, the contemporary city, along with its architectural content and low impact artefacts, must be increasingly conceived as a “social product”, a result of interactions, conflicts, and co-construction processes (Harvey 2013) to make the principles of sustainability, equity, and inclusion concrete.

## **Urban planning and regeneration: pathways to an equitable and sustainable future**

In a global context grappling with the intricate balance between increasing urbanisation, the constraints imposed by natural resources, and environmental justice, the challenge lies in experimenting with integrated urban planning strategies oriented towards sustainable models. These models must simultaneously address the climate crisis, social inequalities, and energy poverty (Pratt, 2023). Urban regeneration practices are situated within this dynamic and adaptive perspective, aiming to transform and revitalise urban spaces by responding to the emerging needs of the community, and fostering a balance between innovation and heritage preservation. Urban regeneration is configured as a complex system of relations involving financial, human, environmental, material, and energy resources, promoting their rational and efficient use through multidisciplinary approaches at various scales (Figueiredo *et al.*, 2022).

The inclusion of communities in decision-making processes is a key element for regenerating degraded urban areas. In this regard, the active participation of citizens in the design and management of public spaces, conducted through various forms (co-creation, collaborative governance, shared management, informal practices), can contribute not only to the acceptance

of urban transformations but also to the creation of more equitable and sustainable environments. However, this necessitates an appropriate and profound transformation of the approach to “designing cities and for cities”, which must increasingly confront socio-demographic and climatic changes, energy issues, land consumption problems, and significant social tensions already present in large urbanised areas. Such transformations are essential to foster a continuum between the built environment and communities.

**Architecture, sustainability, and innovation: envisioning an integrated cultural and ecological design paradigm**

Within the framework of the New European Bauhaus, architecture is considered a privileged tool for fostering dialogue between the past and the future. It draws out the beauty and cultural resources of the territory, while simultaneously experimenting with flexible and progressively adaptable measures to address climate change in a realistic and action-oriented perspective.

In an era marked by the increasing and inescapable pervasiveness of digital technologies and artificial intelligence, design processes are undergoing profound and structural transformations. Indeed, there is the potential to enhance performance response (functional, energetic, structural, etc.) and manage high levels of complexity. The shift from a linear and sequential approach to a systemic one opens up new possibilities for the conception of solutions that respond not only to technical and functional needs but also to criteria of environmental and social sustainability and historical-cultural value (Ferrante and Romagnoli, 2023), now recognised as intrinsically interconnected dimensions.

In this scenario of digitalisation, advanced simulation models offer the opportunity to design places, spaces, and architectures that respond to the needs of plural communities, fostering social cohesion and prefiguring a more equitable and conscious use of available resources. Associated with this design complexity, architecture will be increasingly called upon to explore forms of conceptual and operational hybridisation and contamination that require deep interaction between multiple and transdisciplinary knowledge. This outlines a new ecology of architectural design, which integrates heterogeneous competencies and reflects the inevitable and constitutive interrelation between the technological, environmental, social, and cultural dimensions of “doing architecture”.

This approach finds its fruitful application in interventions for the conservation and reuse of existing heritage, where the integration of various disciplines allows to simultaneously address spatial, technological, and environmental aspects, without ne-

glecting the important action of highlighting the importance of local identities. In such experiments, architecture becomes a crucial tool for building a deep and sustainable relationship between humans, the environment, and culture, promoting a dialogue that not only respects and preserves the past but also renews it in harmony with contemporary needs and challenges.

**Collaborative design at the intersection of innovation and sustainability**

Design is fully embedded within this profound paradigm shift, adopting a collaborative approach that places values such as inclusion, beauty, and sustainability-across its environmental, social, and economic dimensions-at the forefront. By designing artefacts, products, and services connected to urban environments and social contexts, design effectively addresses contemporary needs, balancing innovation with tradition and tackling both global and local challenges in an integrated manner.

Its experimental nature, enriched by the use of digital technologies, has transformed design into a powerful tool for co-creation, capable of engaging end-users and fostering the development of collaborative networks among local enterprises. Design thus stimulates a circular economy, enhancing the cultural and natural heritage of local territories. Where new forms of enterprise and economic development emerge, design becomes a driving force for change, making collaboration among designers, artisans, small and medium enterprises, and local administrations essential for creating sustainable and inclusive urban systems. No longer conceived as a separate or elitist element, design now serves the community, identifying increasingly specialised trajectories-such as strategic design, design thinking, universal design, and visual design-to achieve tangible impacts on cities with social and environmental effects. Exemplifying this are low-tech urban furniture projects, industrially produced with sustainable materials, which are often proposed and managed (from the bottom up) by groups of young designers. These projects create meeting points that foster intergenerational mixing without segregation, engaging neighbourhood residents and using tools of urban ergonomics (Bonino and Mancini, 2021) with the aim of bringing urban design back to a human-centred scale.

Based on this analysis, multidisciplinary and collaborative approaches employed across design disciplines-from urban planning to architecture and design-prove indispensable in addressing the complex challenges posed by environmental and social sustainability. The integration of ethical principles, the transfer of procedural best practices, and the involvement of all relevant social stakeholders are crucial for ensuring interventions that respond not only to immediate needs but also generate responsible and enduring transformations for cities and territories.

Looking ahead, it is legitimate to ask what possible, probable, and preferable scenarios may arise, with the awareness that the path outlined by the New European Bauhaus demands constant and adaptive commitment to the interconnectedness that is increasingly needed today.

## REFERENCES

- Bonino, M. and Mancini, M. (2021), "Reconnecting Human Body and Urban Space: Reading Tools and Design Practices", *World Architecture*, vol. 369, pp. 78-85.
- European Commission (2021), *New European Bauhaus: Shaping a greener and fairer way of life*, Publications Office of the European Union.
- Ferrante, T. and Romagnoli, F. (2023), "Support or automation in decision-making: the role of artificial intelligence for the project", *Techne*, Vol. 25, pp. 68-77, available at: [10.36253/techne-13713](https://doi.org/10.36253/techne-13713)
- Ferrante, T., Romagnoli, F. and Villani, T. (2023), "Sustainable Urban Development. Organizing information content for the transition to Positive Energy Districts", *AGATHÓN International Journal of Architecture, Art and Design*, n. 13, pp. 191-204, available at: <https://doi.org/10.19229/2464-9309/13162023>.
- Figueiredo, Y. D. S., Prim, M. A. and Dandolini, G. A. (2022), "Urban regeneration in the light of social innovation: A systematic integrative literature review", *Land Use Policy*, Vol. 113, available at: <https://doi.org/10.1016/j.landusepol.2021.105873>.
- Gehl, J. (2011), *Life between Buildings: Using Public Space*, Island Press, Washington DC.
- Harvey, D. (2013), *Rebel Cities: From the Right to the City to the Urban Revolution*, Verso Books, New York, NY.
- Manzini, E. (2015), *Design, When Everybody Designs: An Introduction to Design for Social Innovation*, MIT Press, Cambridge, MA.
- Pratt, B. (2023), "Equitable Urban Planning for Climate Change", *Journal of Planning Literature*, Vol. 38, n.1, pp. 59-69, available at: <https://doi.org/10.1177/08854122221138125>.
- Raworth, K. (2017), *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*, Random House, London.