

THE INGENUITY OF HUMANKIND IN COMPLEX TIMES

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This magazine issue is published amid an epochal systemic crisis. Perhaps we can imagine this crisis as a biological response that our living planet is giving to the ecological and social emergency humanity brought upon itself. However, we seem to be all in agreement that this crisis foreshadows a transitional phase, in which the scientific community this magazine is addressed to has to portray a prominent and proactive role.

This statement is supported and confirmed by the themes and contributions presented during the annual Ar.Tec. Congresses, and is validated by the essays published in the previous five volumes of TEMA, which refer to these Congresses. As mentioned in the association's first convention, in Rome in 2004, the necessity to support the life of the planet is a concept more and more prominent in the relationship between Architecture and Technique. The protection of nature and its resources, for future generations and social and individual life, entails the development of a profound knowledge of controversial environmental issues on one side and, on the other side, the ability to carry out the consequent actions throughout individual and collective decisions.

The technical, entrepreneurial, and design dimensions intertwine with cultural transformation, education, and learning, outlining a path of local and sustainable development. In these dimensions, a person must be considered as part of a collectivity (organism) that lives and operates in a specific territory (biosphere).

The innovative methodological aspects of this path consist of perfecting a design method, based on systemic vision and interdisciplinarity, and realized through the management of its complexities. All the different phases of the process must be corroborated, and the relevant results, which are verified through the participation

of all involved parts, shall be integrated. Construction experts cannot deal solely with material structures anymore; they must explore and find connections with those sciences that study social structures. The challenge for social scientists, natural scientists, and all others is to build ecologically sustainable communities, designed to ensure that their technologies and social institutions do not undermine the world's innate capacity to sustain life.

Humankind's activities have always been intertwined with those of the surrounding natural realm, creating a complex and dense network of relations, in a constant dynamic equilibrium of actions and feedbacks; this equilibrium allowed life on our planet to be preserved and to evolve. Life is not only intended in a biological meaning, but also in a social and economic sense, and it refers to the entire ecosystem. Humankind's construction activity is strongly integrated with the ecosystem and is therefore responsible for the self-regulation process that sustains life.

In the current situation, the focus of the most recent Ar.Tec. Congress "Forma Urbana e Individualità Architettura. Ingegno e Costruzione nell'Epoca della Complessità" appears even more relevant. In a historical time frame where town-planning design turns to tools such as equalization to reduce ground usage, it seems extremely interesting to reconsider the responsibility of building engineers and architects in the relationship between ethic, landscape, and aesthetic. Responsibility cannot be measured solely in terms of safety, durability, and efficiency of constructions, but also in terms of mutations in the perceptive quality of the *Ambitus*, which is permanently affected and modified by the single buildings, by the ultimate "form" we perceive of them, and, first and foremost, by the "individuality" of the relationships they generate.

Hence, for example, the need to thoroughly evaluate an intervention cost-benefit, to put construction as a creative act at the center of an interpretation, which includes the analysis of its connection with the external context's resilience, or even the possibility to make drastic decisions such as demolition for rebuilding.

In the contemporary world dominated by velocity, digitalization, and the fast transformation of knowledge, the ambitious call to ingenuity can appear outdated and contradictory. However, if our time is dominated by complexity and uncertainty, referring to the primary human ability, i.e., ingenuity, means taking back technical and architectural matters to their essence. Highlighting ingenuity means recalling the fundamentals of Building Technology and reaffirming the central role of design in the time of complexity, in order to strengthen the ability to face contemporary challenges and opportunities. For example, we need to focus on the emerging needs of a society in perpetual transformation and combine environment, safety, inclusivity, and, now more than ever, social justice. In fact, one of the milestones in the general appraisal on environment and development is affirming the principles of freedom, equality, and the right of appropriate living conditions for all. Another general appraisal in this day and age concerns the interpretation of the concept of "home" as a refuge, safe zone, office, classroom, meeting room, multi-generational space, garden, conversation space, gym, and so on. Will this recent experience be the pivot of a turning point in the redefinition of the concept of "home"?

In our country, it is also essential to recognize, care for, and give value to the enormous and widespread ar-

tistic, architectural, and cultural heritage. While referring to minor architecture, landscape organization, and the connection between tradition and innovation, we could repossess the principle of "Tradition to Innovation", which implies observing the future from a vantage point of view "the Shoulders of Giants of the past". In this sense, the building engineer or the architect should advocate for the most innovative techniques, such as Big data analytics, in order to process the existing with tools that are appropriate for the present and the future, and that can make the design more innovative, conscious, congenial and effective.

We are faced with the challenge and the opportunity to contribute in a transition from an undifferentiated economic growth to a regenerative and qualitative growth, from excessive mass tourism to the revitalization of sustainable local communities; from energy-intensive industrial agriculture to regenerative agriculture that respects biodiversity. The challenge and opportunity are to contribute to the restoring of the world's ecosystems so that viruses dangerous to humans are confined again to other animal species, where they do not harm. We have the knowledge and the technologies to seize the opportunities and favor these transitions. Will we also have the ability to transform them into the political will?

This editorial is inspired by the topic of Congresso Colloqui.AT.e2019, by the preface of Book of Papers from Emilia Garda, Caterina Mele, Paolo Piantanida <http://2019.artecweb.org/it/atti/> and by the principles divulged by Fritjof Capra <https://www.fritjofcapra.net/>