**The Frame of Reference**

The first major question regards the growing role that science and technology should have in engaging with important questions relating to architecture and society. The future of metropolitan areas rests primarily on the ties that city-planning and architecture will be able to interweave organically with science. This affirmation implies a change in the very nature of city-planning, one that will make it move towards a science of complexities and interrelations: towards an authentic ecology of space.

Robotics, miniaturization, and the diffusion of communication and transport networks all create opportunity for "reparations" of historical dimensions. In high-density areas or in highly-industrialized areas – many of which have now fallen into disuse and rendered vacant – vegetation and nature can now be re-introduced. New ideas of multi-functional infrastructure could render technological systems that draw upon discoveries in the environmental sciences valuable in cleaning and restoring city space. At the same time, they can direct energy away from indiscriminate growth and more towards the recuperation, densification, and re-use of enormous areas that have been abandoned or that are trapped within an existing city.

A state of hybridization between the natural and artificial drives many sectors of architectural work today. New research is increasingly tending towards the creation of a reactive panorama, one that is complex, animated, and alive through the combination of technological and environmental elements. In this process of hybridization, the role of Information Technology (IT) as a catalyst is key for at least three reasons. First, the IT community is formulating a comprehensive model of both city and urban landscaping that makes buildings and cities increasingly assume the “multitasking” q­­­ualities of computers. That is, they have mixed uses, flux is superimposed, and they have open cycles that operate twenty-four hours a day for production, free time, and home residence. Second, IT produces “mathematic models” with which to examine the chemical, physical, and biological world, and the geological complexity of nature. These simulations allow for new relational structures. In this process, technology provides the essential tools needed to create, project, and construct the plans and structures conceived with complex systemic methods. Third, IT endows the architecture of reactive systems in such a way as to simulate natural behavior. It not only conjures the rules of formation in "land-form architecture" but also proposes environments that are effectively capable of external interaction, and which are in continuous evolution. In this way, technology enters directly into the very fibers of new structures and capitalizes on electronic interconnections to create environments that transform and offer variances of real situations. In this same book series, the last two books published – Cesare Griffa’s *Smart Creatures* and Elisabetta Bonafede’s *Plasma Work*s – offer numerous such examples.

From this list of reasons, one question emerges regarding IT’s “constructive" role in this new context. Antonino Di Raimo rightly placed the concept of IT at the very start of his text, but why is IT the primary substance of architecture in this historical period? The great change that has taken place in recent years regards the very understanding of space. Implicitly, the paradigm of the industrial world is tied to Newtonian physics and predicts that objects “positioned” in a three-dimensional space exist upon which the laws of classical physics are in force. But the ideas of architects of the new generation overturn these concepts. No *space* exists in which objects and architecture meet, but rather *relations* that together distort and create the concepts of space and object. But the two are hardly dissociated as container and contained; rather, they mold and interweave together.

In this conception space does not exist. It is not a given but simply a variation of the concept of IT, and it belongs to the sphere of representation and is tied to conventional contextual and biological meanings. Architects are no longer thinking of molding a thing that “is” but see themselves as capable of actually creating time and space through telecommunication systems, the internet, virtual reality, and from their ability to create hybrid technological and real systems and to incorporate IT into matter itself. IT is not only an element to be manipulated in this new idea of space and time, but it becomes vital “fluid.” It inserts itself into the cycles of buildings and becoming the nourishment that makes them live, flower, decay, and regenerate. Interactive IT systems are thus not relegated only to the “mechanical” behaviors of the building but are tied to its “vital” behaviors which, in turn, are tied to bioclimatic dimensions – particularly in their sustainability – and to a larger complex network of systems and relations.