ALIGNING NATURAL AND ARTIFICIAL WORLDS TO BUILD THE CITIES OF THE FUTURE

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Over the past two decades, the anthropocene view has emerged which theorises that the major changes in the Earth's conditions stem from human activity. This seemingly philosophical concept is key to how we should set our priorities in the coming years, whether as designers, businessmen or citizens. Working in this context means changing the way we look at the relationship between the natural and artificial world: they are opposites, but increasingly interconnected elements.

Once this change has been recognised, we should start thinking about the tools needed to reverse this dangerous trend of environmental degradation that is affecting our planet - or, at least, to tackle the consequences. From a designer's point of view, the first set of tools to make the artificial and natural world work together are calculations. Designers today have explored the possibility of a living architecture that can "feel and respond" on many levels, from personal property to entire neighbourhoods. The digital revolution and the "Internet of Things" result in the possibility of "animating the artificial". Sensors, actuators and artificial intelligence are able to infuse new life into the environment.

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Making buildings more responsive gives us the ability to adapt them to the needs of the users. For example, we often heat and cool our buildings in a standardised way, ignoring the presence and preferences of individuals and wasting a significant amount of energy to heat and light empty or partially occupied buildings. Sensors can instead be used to control how warm and illuminated a given space is. This living system not only promotes comfort, it also entails considerable energy savings.

By "animating the artificial" through calculation, architecture can cover us with a third skin, an infinitely reconfigurable space that adapts to human needs, rather than the other way around.

A second set of strategies animates the artificial world through the direct incorporation of natural elements into design. We can find new ways to connect the historic urban-rural divide and create buildings as spaces where humanity coexists with other life forms. The New York High Line, an elevated greenway built on a converted rail track that opened in June 2009, was one of the first projects to capture this new ambition in urban planning. The French designer, Patrick Blanc, on the other hand, incorporates nature into enclosed spaces, inventing "green walls" or "vertical gardens" that now adorn buildings around the world. Sometimes, such green interventions can be aided by new technologies, as in the case of urban farming, where advances in hydroponic and aeroponic farming techniques make it easier to grow vegetables in confined spaces. Cities will never replace rural areas as the world's main source of food, but a much higher percentage of crops can be grown in urban areas to keep the carbon footprint linked to food distribution at a lower level.

In addition, plants could become an integral part of architecture from a structural point of view. For example, the German firm, Baubotanik, is inspired by the centuries-old practice of shaping trees into fences and bridges. By manipulating plant growth through pruning, bending and other techniques, walls and pavilions can be created with trees. Given that materials used in the construction sector are responsible for a substantial share of global energy consumption and pollution, the use of organic waste in construction – primarily wood, but also food waste such as ground coffee or orange peel – could be a valid contribution to our fight against climate change.

These strategies are motivated by a certain awareness: we can no longer afford a strict divide between the artificial and natural world. The two worlds will either save or destroy each other and both designers and companies will play a key role in deciding which future will come about. In the words of Buckminster Fuller, what is at stake is the possibility of being "architects of the future, not its victims".