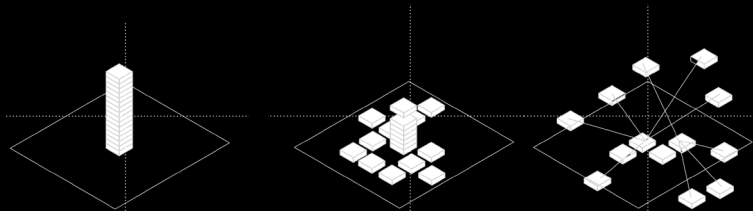


The Global Skyscraper

This architectural prototype proposes the existence of a possible global structure, a new digital urbanism. It is a conceptual interpretation of the consequences of the Informational Revolution and its technological achievements. As such it questions the fundamental principles of architectural space and the way it is achieved by shifting the attention from tangible to non-tangible. It transforms the model of the vertical skyscraper by turning back attention to ground level and distributing each of the floors in different locations around the globe. Every floor becomes a hotspot for the Global Skyscraper travelling across latitude and longitude and using the world wide web as a structure. Instead of a tangible solid space, it is a dynamic, interactive, user-generated augmented space in constant process. Spaces for display and usage are constantly transforming, connecting and interacting with the users, thus creating a space just as responsive as a computer program or smartphone application.

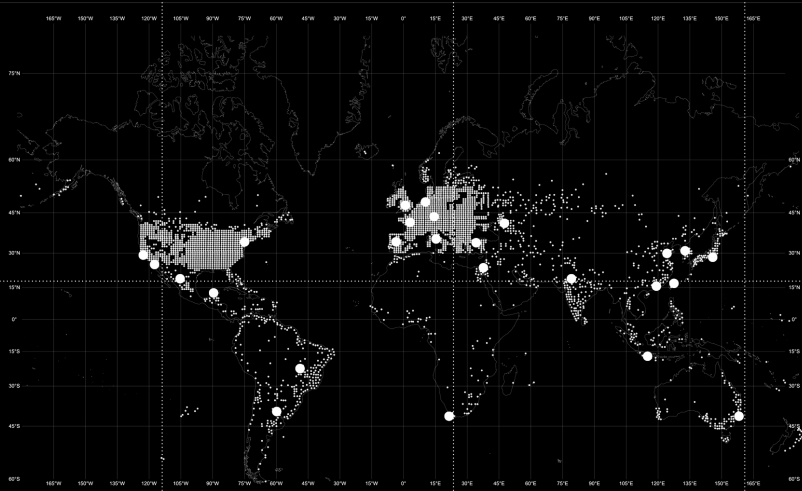


1. The classic model of the skyscraper as a vertical structure. It is based on solid physical connectivity from bottom to top.

2. Instead the Global Skyscraper proposes a return to the ground floor. If the "Industrial City" requires an answer to density, the "Digital City" demands an answer to the openness of internet.

3. Therefore the Global Skyscraper is based on a scattered system of mutually interacting ground floors. It is a digital structure moving as a dynamic data field on top of them. A system of distributed connected sites.

Every place in the world with internet connectivity can be a segment of the project. Every point in this system is an input and output of information. As a starting point the Global Skyscraper is established in the public spaces in some of the biggest cities in the world.



Event 01	Event 02	Event 03	Event 04	Event 05	Event 06	Event 07	Event 08
Source: Expo 01 Brazil Connected: London Capetown Rome Singapore	Source: Tennis Australia Connected: Beijing Singapore Istanbul Tokyo	Source: Escher Leeuwarden ECoC 2018 Netherlands Connected: London Capetown Rome	Source: Festival India Connected: Beijing New York Seoul Cairo	Source: Van Gogh Amsterdam Connected: London Los Angeles Buenos Aires Singapore	Source: Lecture MArch USA Connected: London Paris Rome Madrid	Source: Football Russia Connected: Amsterdam Capetown Istanbul Cairo	Source: Marine Science Lab Brazil Connected: Amsterdam Sydney Beijing Singapore

The Global Skyscraper

The Global Skyscraper is an ephemeral structure formed by the interaction of four layers. The four layers are formed by devices installed on each public space and all are all dynamic fields. In order to function as one building they are all superimposed on each other, thus acting together simultaneously. Following the freedom given by that principle this structure has no physical constraints and it becomes just as adaptive and connective as a computer program.

Layer 01 : Vision

1. Augmented Reality

The visual and functional layer is a field of augmented reality used in real time and urban scale. Each digital structure "floor" is formed by an event held on some of the sites around the world. The augmented spaces grow bigger as more people enter and vice versa. Carried by nothing but the columns of live feed chat between the different events, the Global Skyscraper becomes an architecture driven entirely by communication and interest. Storeys of the Global Skyscraper are arranged according to your areas of interest.

The augmented data is stored in local urban units known as "urban servers". They are used to store the data and are inserted in a double room space. This build up space contains the server and a public toilet which can be used by the users of the building.

They are all installed underground, making the presence of this "invisible building" completely unpredictable and surprising. They enhance the existing context without the need to transform its physical presence.

1. The building interior and exterior and its contents is visible through AR devices

2. The information necessary is stored in urban units- "Urban Servers"

Layer 02 : Climate

2. Microclimatic Layer

In order to create comfortable conditions for the usage of the digital spaces of the visual layer a microclimate must be established on the site. The layer is formed from a system of smart pillars which resemble street lamps. They are all organised in a grid system based digital grid of the augmented reality. In this way the two systems can be easily adjusted and the climate current which is blown from the pillars can be oriented according to the occupied spaces.

The pillars comprise of three vertical tubes all with a different diameter. The widest has openings in the bottom and is used as outlet for hot air when heating is needed and inlet when cooling is needed. The second follows the reverse principle so that based on the rules of convection a flow of cool or warm air can be generated.

As the digital structures transform, adapt and move around the site, in order for the currents to follow the occupied spaces, cylinders of the pillars can rotate their outlets and inlets.

3. The air inlets and outlets are evenly distributed on the site and connected underground.

4. Hot air is released from the lower outlets and cold from the higher ones creating an air circulation

Layer 03 : Privacy

4. Anti Sound Layer

In order to give a state of privacy within the public space occupied by the Global Skyscraper a noise canceling field is constantly generated. It uses the principle of active noise control in order to eliminate some of the constant noises which pollute the site. The desire to generate a completely quiet space is impossible but a steady and constant decrease of the regular site noise would lead the creation of anti-sound invisible walls which would give a sense of privacy within the borders of the digital spaces.

What we do in order to achieve this is by pre-recording some of the constant sound waves of the site. In the periphery of each site of the Global Scraper there is a microphone and a speaker at a small offset from one another. In this way when there is noise arriving from a particular direction the speaker reacts and releases counterwave. Thus we decrease the noise once a person uses the temporary spaces.

5. Active-noise control system - two same sound waves with opposite phase can cancel each other

6. In the periphery there are microphones and in the center there are speakers that produce opposite sound to the surrounding

Layer 04 : Shelter

3. Air Pressure Layer

In order to provide rain protection for the Global Scraper without affecting the urban fabric, and creating physical roof, air pressure system is installed. The air pressure layer allows to block the rain, in case of such, through suction in air in the provided smart pillars. The third and smallest in diameter cylindrical pipe in the pillar is used for this purpose. It is the only to have an opening on the top. Air is taken from the foundation of the pillars and turbulated through the top resulting in an invisible layer of air pushing away the falling rain.

The system responds the change of the augmented layer. As the rain can fall in different directions and needs to be pushed within a safe zone, the cap of the pillars is designed to give control over the direction in which the air pressured cloud is blown. Thus the shape of the air dome can be controlled and thus can reveal the used spaces when there is rain

7. A pipe with a rotor takes air from the bottom and bursts it through the top creating air mass that repels the rain

8. Fixed to tall pillars in the central axis of the park when there is rain they can act together as a roof of air.

