SMART CITIES CONCLUSIONS

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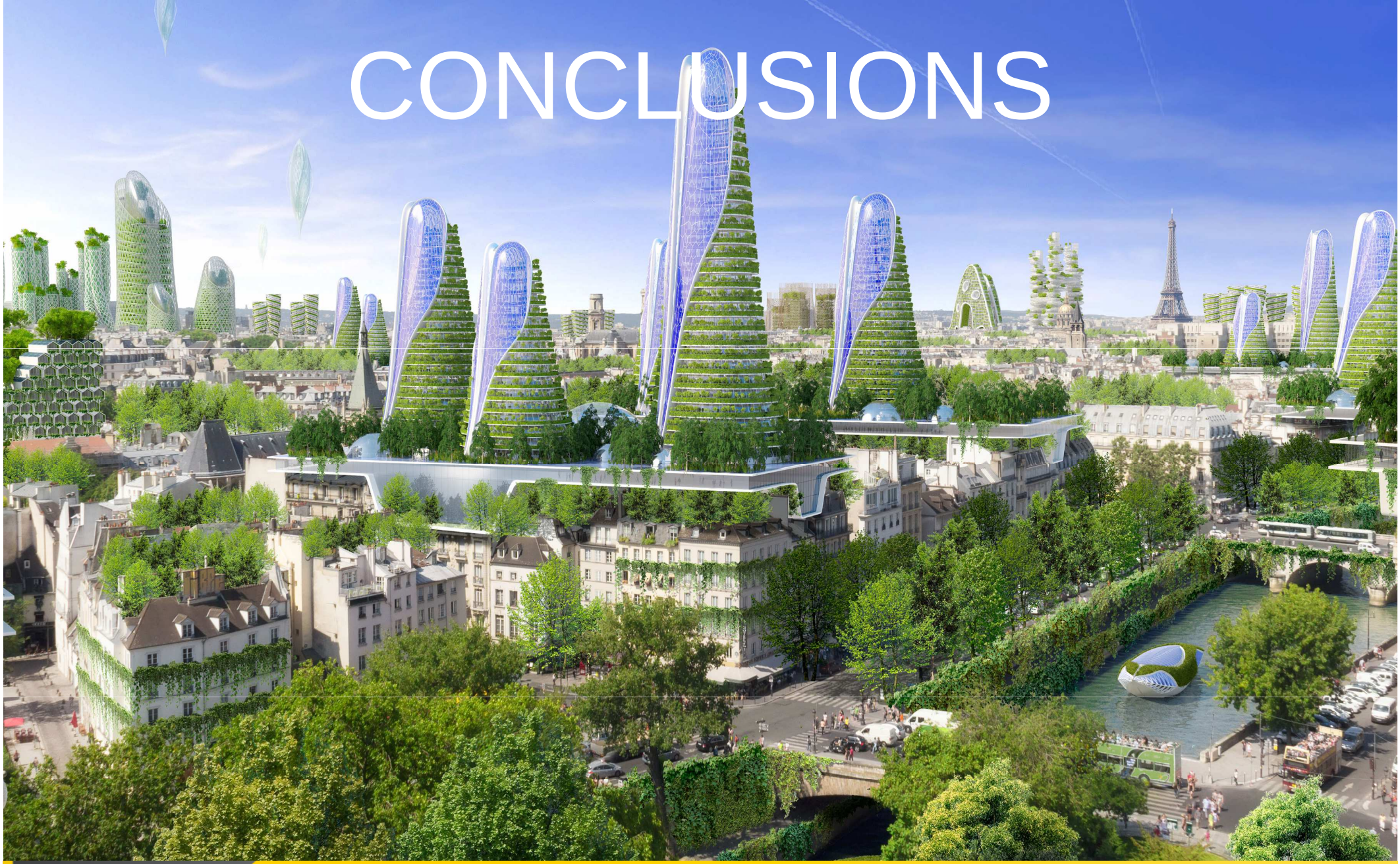
CONCLUSIONS



Changes are slow to come

It's important to see the whole picture

The perfect city doesn't exist

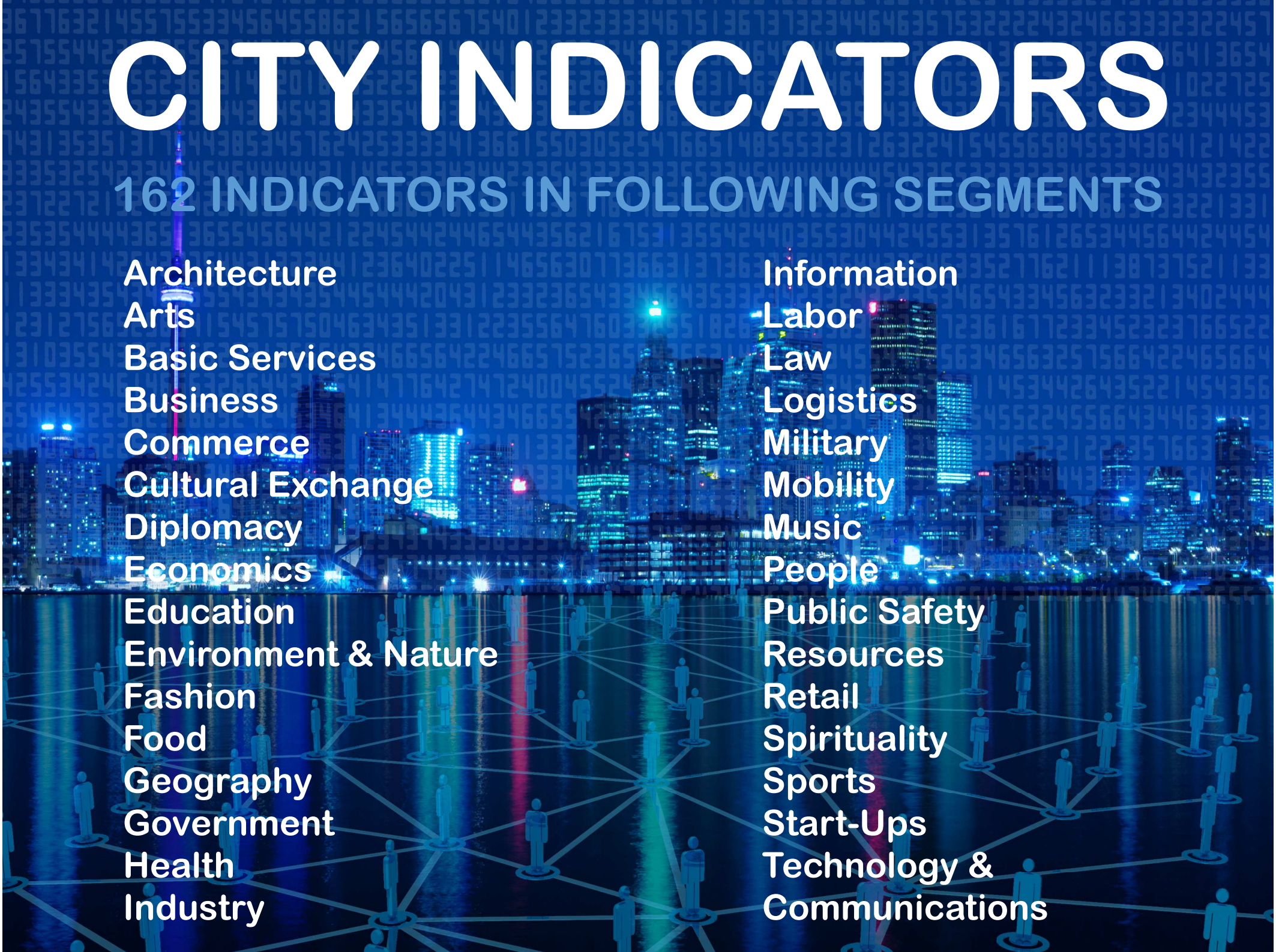
Cities don't operate in a vacuum

Being good in one dimension isn't enough

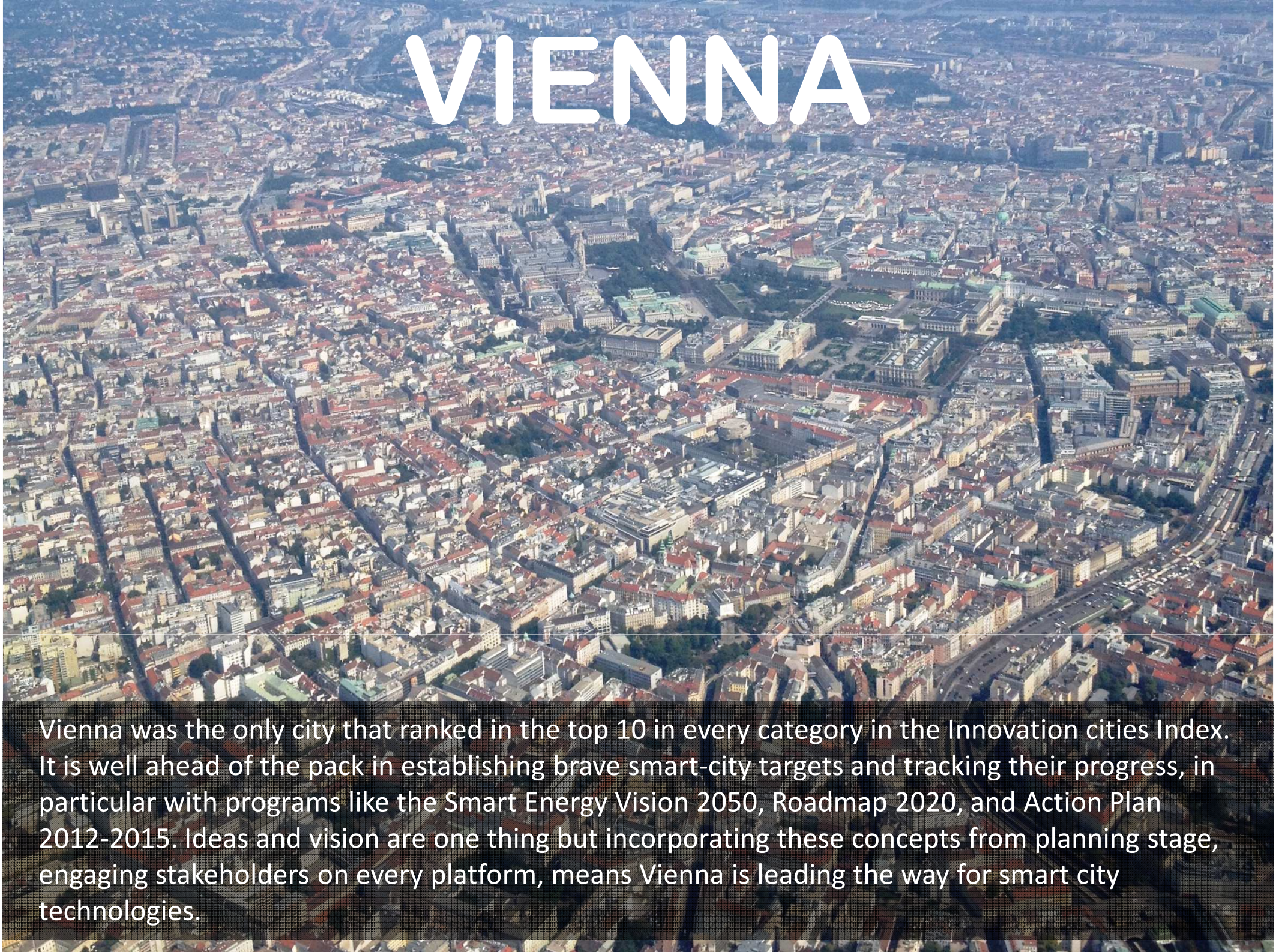
There is no single model of success

Cities don't always have the reputation they deserve


VISION
TO BUILD SOMETHING NEW, RECOGNIZABLE & WHAT WAS NOT POSSIBLE TWENTY YEARS AGO, WE NEED TO HAVE ABSOLUTLY CRAZY IDEAS AND VISION WITH HORIZON OF FIFTY YEARS AHEAD. WE NEED TO FREE OURSELF TO HAVE REALLY BIG DREAMS.


CITY INDICATORS
162 INDICATORS IN FOLLOWING SEGMENTS
Architecture
Arts
Basic Services
Business
Commerce
Cultural Exchange
Diplomacy
Economics
Education
Environment & Nature
Fashion
Food
Geography
Government
Health
Industry
Information
Labor
Law
Logistics
Military
Mobility
Music
People
Public Safety
Resources
Retail
Spirituality
Sports
Start-Ups
Technology &
Communications

VIENNA



Vienna was the only city that ranked in the top 10 in every category in the Innovation cities Index. It is well ahead of the pack in establishing brave smart-city targets and tracking their progress, in particular with programs like the Smart Energy Vision 2050, Roadmap 2020, and Action Plan 2012-2015. Ideas and vision are one thing but incorporating these concepts from planning stage, engaging stakeholders on every platform, means Vienna is leading the way for smart city technologies.

TORONTO

The highest rated smart city in North America, Toronto scores quite well across the board. The big names in Technology recognize this too - IBM recently opened a Business Analytics Solutions Center in the city and Toronto is also an active member of C40 megacities. There are also private sector initiatives like Smart Commute Toronto which have been launched to help the city's transport efficiency.

PARIS

Another European city representing connectivity to counterparts. Paris was highly rated in several categories including innovation, green cities in Europe, and digital governance. Paris was already on the world map for its highly successful bike sharing program, Velib, and it is following up this success with a similar scheme for Electric Vehicles (EVs).

NEW YORK

New York scored higher than most other cities in the ranking in all of the categories. New York partnered with IBM in 2009 to launch the IBM Business Analytics Solution Center to address "the growing demand for the complex capabilities needed to build smarter cities and help clients optimize all manner of business processes and business decisions."[2] This has resulted in helping the city prevent fires and protect first responders as well as identify questionable tax refund claims—a move that is expected to save the city about $100 million over a five-year period.

STOCKHOLM

Home to the HQ of Ericsson, pioneers of the ‘Networked Society’, Stockholm scores highly on the Innovation Cities Index for obvious reasons; it has a long track record of focused initiatives to drive the progress of ICT infrastructure. The city has a large service sector which accounts for roughly 85 percent of all jobs[3], and in combination with the near total absence of heavy industry, makes Stockholm one of the world’s cleanest metro areas. Stockholm was also the first city in the world to introduce 4G/LTE mobile services.

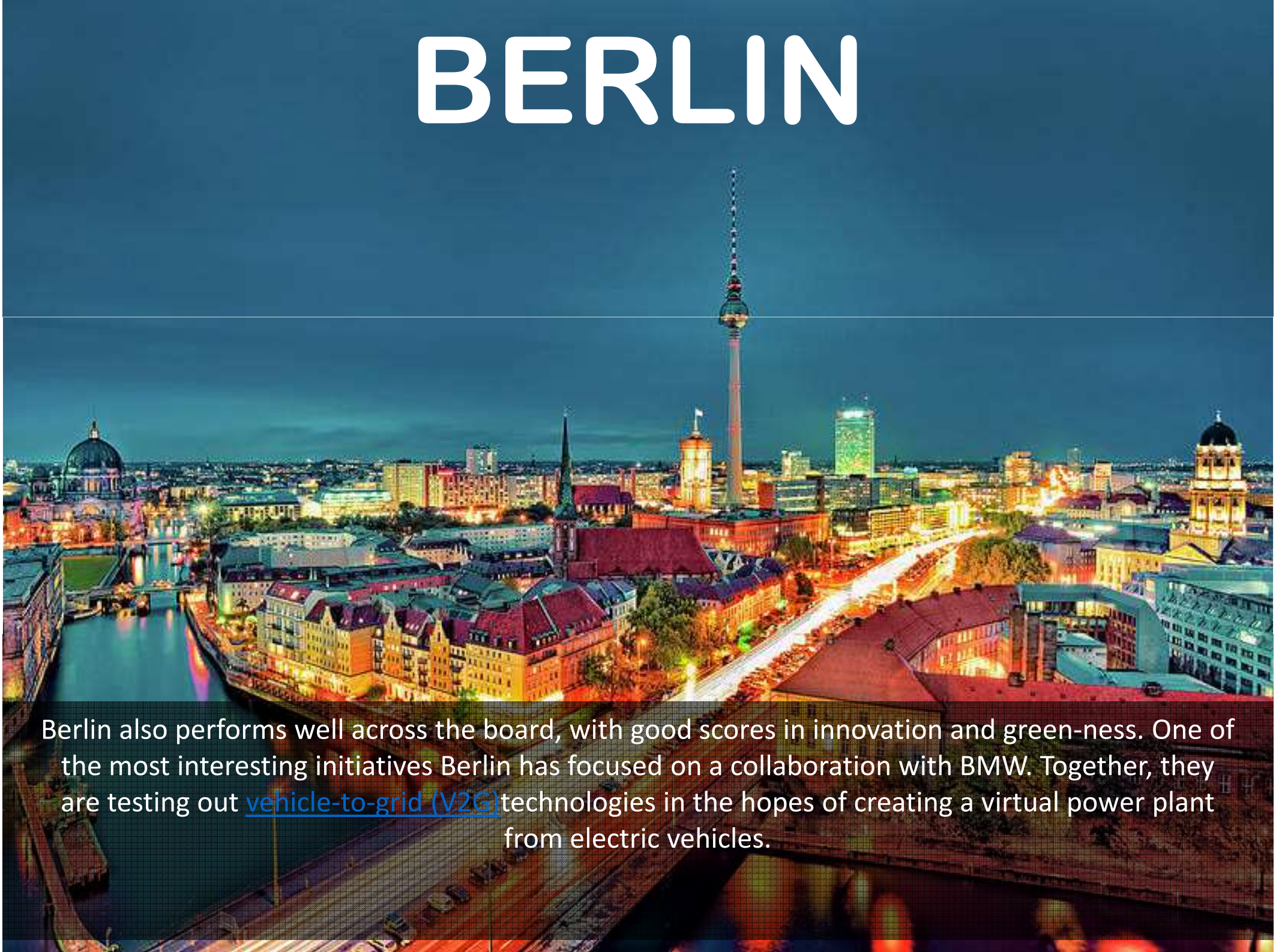
LONDON

The UK capital also scored relatively high across the board. London has been well-recognized for some of its sustainability innovations i.e. congestion tax and its robust transport system. The city is home to Smart Cities research center housed at Imperial College, which focuses on initiatives in hope of making the city more efficient and innovative. And most conveniently for its citizens London has also announced a partnership with O2 to launch the largest free Wi-Fi network in Europe.

TOKYO

Tokyo is the first Asian city on this list, scoring well in both the innovation and digital city categories. In 2011, the city announced plans to create a smart town in the suburbs. In partnership with Panasonic, Accenture, and Tokyo Gas, the eco-burb will contain homes that integrate solar panels, storage batteries, and energy efficient appliances all connected to a smart grid. Tokyo is also focused on promoting smart mobility solutions.

BERLIN



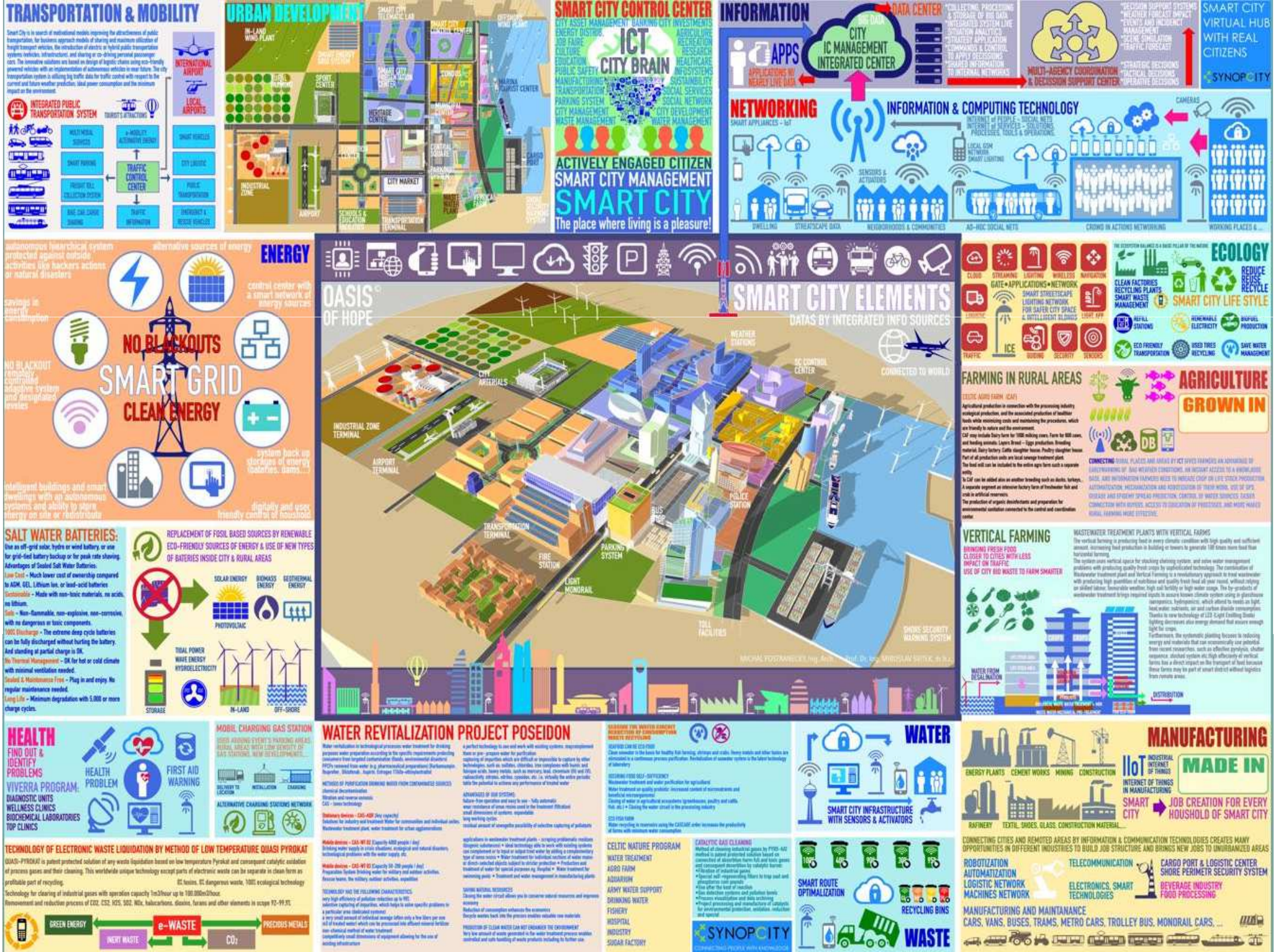
Berlin also performs well across the board, with good scores in innovation and green-ness. One of the most interesting initiatives Berlin has focused on a collaboration with BMW. Together, they are testing out vehicle-to-grid (V2G)technologies in the hopes of creating a virtual power plant from electric vehicles.

HONG KONG

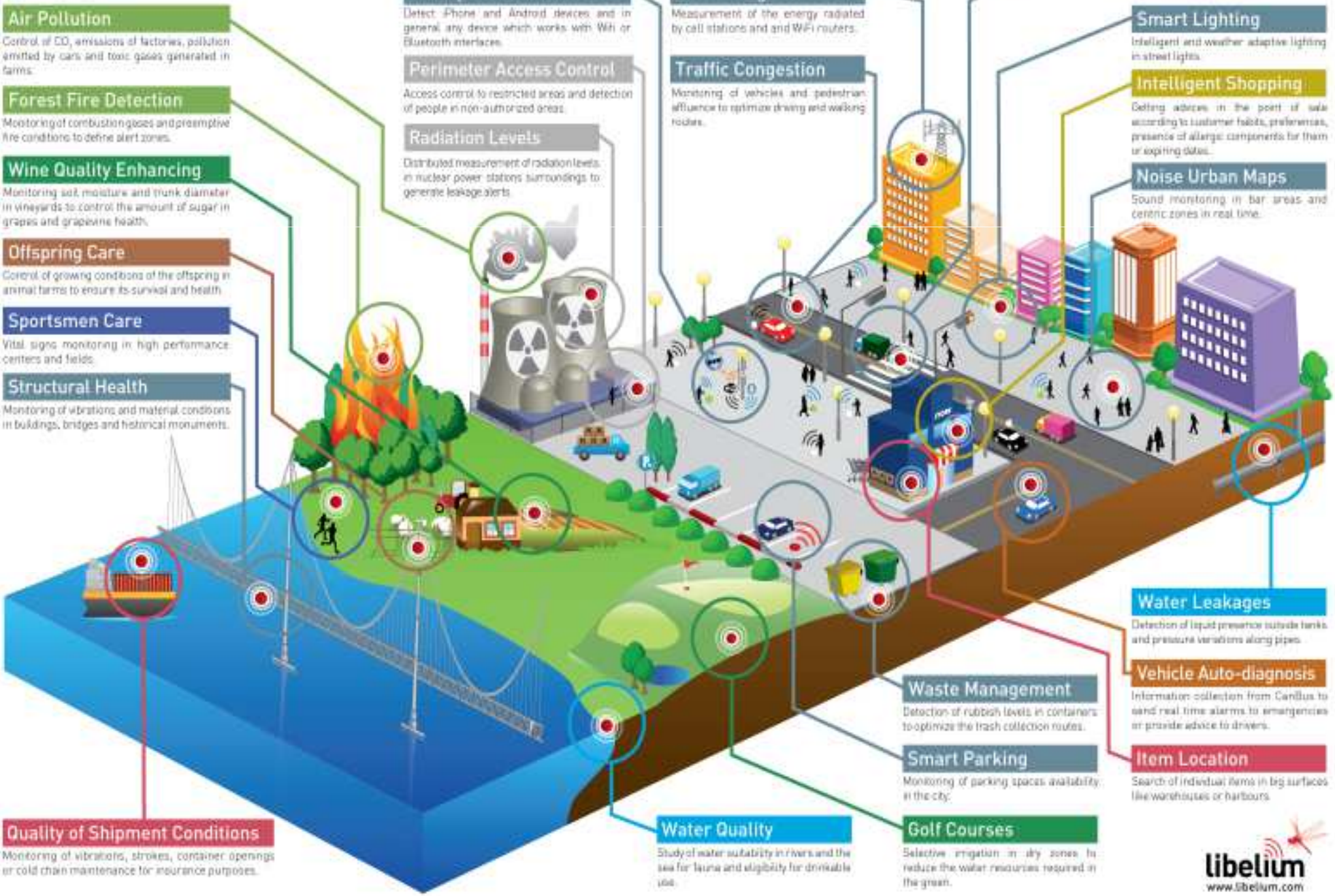
Hong Kong scored quite well in key areas, Hong Kong is experimenting with Radio Frequency Identification (RFID) technology in its airport, as well as throughout the agriculture supply chain. The city has also been a leader in the adoption of smart cards, which are already used by millions of residents for services like public transit, library access, building access, shopping, and car parks.

BARCELONA

Barcelona was recently ranked the number two smart city in Spain in the IDC report. The city is a pioneer in smart city and low-carbon solutions. It was among the first in the world to introduce a solar thermal ordinance about a decade ago. It recently launched the LIVE EV project to promote the adoption of EVs and charging infrastructure, and the city also recently announced a major partnership to develop a living lab for smart-city innovation.


TRANSPORTATION & MOBILITY
INTEGRATED PUBLIC TRANSPORTATION SYSTEM
TRAFFIC CONTROL CENTER
INTERNATIONAL AIRPORT
LOCAL AIRPORTS
URBAN DEVELOPMENT
IN-LAND WIND PLANT
SPORT CENTER
HERITAGE CENTER
MARINA TOURIST CENTER
CITY MARKET
INDUSTRIAL ZONE
AIRPORT
SCHOOLS & EDUCATION FACILITIES
TRANSPORTATION TERMINAL
CARGO PORT
SMART CONTROL & MONITORING SYSTEM
SMART CITY CONTROL CENTER
CITY ASSET MANAGEMENT
ENERGY DISTRIBUTION
JOB FAIRE
CULTURE
EDUCATION
PUBLIC SAFETY
MANUFACTURING
TRANSPORTATION
PARKING SYSTEM
CITY MANAGEMENT
WASTE MANAGEMENT
BANKING
CITY INVESTMENTS
AGRICULTURE
RECREATION
RESEARCH
HEALTHCARE
INFOSYSTEMS
SUSTAINABILITY
SOCIAL SERVICES
SOCIAL NETWORK
CITY DEVELOPMENT
WATER MANAGEMENT
ICT
CITY BRAIN
ACTIVELY ENGAGED CITIZEN
SMART CITY MANAGEMENT
SMART CITY
The place where living is a pleasure!
INFORMATION
DATA CENTER
APPS
CITY IC MANAGEMENT INTEGRATED CENTER
MULTI-AGENCY COORDINATION & DECISSION SUPPORT CENTER
SMART CITY VIRTUAL HUB WITH REAL CITIZENS
SYNOPCITY
NETWORKING
INFORMATION & COMPUTING TECHNOLOGY
SMART APPLIANCES - IoT
SENSORS & ACTUATORS
CAMERAS
DWELLING
STREETSCAPE DATA
NEIGHBORHOODS & COMMUNITIES
AD-HOC SOCIAL NETS
CROWD IN ACTIONS NETWORKING
WORKING PLACES &
ENERGY
NO BLACKOUTS
SMART GRID
CLEAN ENERGY
alternative sources of energy
control center with a smart network of energy sources
system back up storages of energy (batteries, cams...)
digitally and user friendly control of household
SALT WATER BATTERIES:
REPLACEMENT OF FOSIL BASED SOURCES BY RENEWABLE ECO-FRIENDLY SOURCES OF ENERGY & USE OF NEW TYPES OF BATERIES INSIDE CITY & RURAL AREAS
SOLAR ENERGY
BIOMASS ENERGY
GEOTHERMAL ENERGY
PHOTOVOLTAIC
TIDAL POWER
WAVE ENERGY
HYDROELECTRICITY
STORAGE
IN-LAND
OFF-SHORE
OASIS OF HOPE
SMART CITY ELEMENTS
DATAS BY INTEGRATED INFO SOURCES
WEATHER STATIONS
SC CONTROL CENTER
CONNECTED TO WORLD
CITY APPERTAILS
INDUSTRIAL ZONE TERMINAL
AIRPORT TERMINAL
POLICE STATION
BUS STOP
TRANSPORTATION TERMINAL
FIRE STATION
PARKING SYSTEM
LIGHT MONORAIL
TOLL FACILITIES
SHORE SECURITY WARNING SYSTEM
CLOUD
STREAMING
LIGHTING
WIRELESS
NAVIGATION
GATE • APPLICATIONS • NETWORK
SMART STREETSCAPE LIGHTING NETWORK FOR SAFER CITY SPACE
TRAFFIC
ICE
BUILDING
SECURITY
SENSORS
ECOLOGY
REDUCE
REUSE
RECYCLE
CLEAN FACTORIES
RECYCLING PLANTS
SMART WASTE MANAGEMENT
SMART CITY LIFE STYLE
REFILL STATIONS
RENEWABLE ELECTRICITY
BIOFUEL PRODUCTION
ECO FRIENDLY TRANSPORTATION
USED TIRES RECYCLING
SAVE WATER MANAGEMENT
FARMING IN RURAL AREAS
CELTIC AGRO FARM (CAF)
AGRICULTURE
GROWN IN
VERTICAL FARMING
BRINGING FRESH FOOD CLOSER TO CITIES WITH LESS IMPACT ON TRAFFIC
USE OF CITY BIO WASTE TO FARM SMARTER
WASTEWATER TREATMENT PLANTS WITH VERTICAL FARMS
WATER FROM DESALINATION
DISTRIBUTION
HEALTH
FIND OUT & IDENTIFY PROBLEMS
VIVERRA PROGRAM:
DIAGNOSTIC UNITS
WELLNESS CLINICS
BIOCHEMICAL LABORATORIES
TOP CLINICS
HEALTH PROBLEM
FIRST AID WARNING
MOBIL CHARGING GAS STATION
DELIVERY TO LOCATION
INSTALLATION
CHARGING
ALTERNATIVE CHARGING STATIONS NETWORK
TECHNOLOGY OF ELECTRONIC WASTE LIQUIDATION BY METHOD OF LOW TEMPERATURE QUASI PYROKAT
GREEN ENERGY
e-WASTE
PRECIOUS METALS
INERT WASTE
CO2
WATER REVITALIZATION PROJECT POSEIDON
METHODS OF PURIFICATION DRINKING WATER FROM CONTAMINATED SOURCES
ADVANTAGES OF OUR SYSTEMS:
SAVING NATURAL RESOURCES
PRODUCTION OF CLEAN WATER CAN NOT ENDANGER THE ENVIRONMENT
CELTIC NATURE PROGRAM
WATER TREATMENT
AGRO FARM
AQUARIUM
ARMY WATER SUPPORT
DRINKING WATER
FISHERY
HOSPITAL
INDUSTRY
SUGAR FACTORY
CATALYTIC GAS CLEANING
SYNOPCITY
WATER
SMART CITY INFRASTRUCTURE WITH SENSORS & ACTIVATORS
SMART ROUTE OPTIMALIZATION
RECYCLING BINS
WASTE
MANUFACTURING
ENERGY PLANTS
CEMENT WORKS
MINING
CONSTRUCTION
IIoT
INDUSTRIAL INTERNET OF THINGS
INTERNET OF THINGS IN MANUFACTURING
MADE IN
SMART CITY
JOB CREATION FOR EVERY HOUSHOLD OF SMART CITY
RAFINERY
TEXTIL, SHOES, GLASS, CONSTRUCTION MATERIAL...
CONNECTING CITIES AND REMOTED AREAS BY INFORMATION & COMMUNICATION TECHNOLOGIES CREATES MANY OPPORTUNITIES IN DIFFERENT INDUSTRIES TO BUILD JOB STRUCTURE AND BRINGS NEW JOBS TO UNURBANIZED AREAS
ROBOTIZATION
AUTOMATIZATION
LOGISTIC NETWORK
MACHINES NETWORK
TELECOMMUNICATION
ELECTRONICS, SMART TECHNOLOGIES
CARGO PORT & LOGISTIC CENTER
SHORE PERIMETR SECURITY SYSTEM
BEVERAGE INDUSTRY
FOOD PROCESSING
MANUFACTURING AND MAINTANANCE
CARS, VANS, BUSES, TRAMS, METRO CARS, TROLLEY BUS, MONORAIL CARS, ...

Libelium Smart World



Air Pollution
Control of CO2 emissions of factories, pollution emitted by cars and toxic gases generated in farms.

Forest Fire Detection
Monitoring of combustion gases and preemptive fire conditions to define alert zones.

Wine Quality Enhancing
Monitoring soil moisture and trunk diameter in vineyards to control the amount of sugar in grapes and grapevine health.

Offspring Care
Control of growing conditions of the offspring in animal farms to ensure its survival and health.

Sportsmen Care
Vital signs monitoring in high performance centers and fields.

Structural Health
Monitoring of vibrations and material conditions in buildings, bridges and historical monuments.

Quality of Shipment Conditions
Monitoring of vibrations, strokes, container openings or cold chain maintenance for insurance purposes.

Smartphones Detection
Detect iPhone and Android devices and in general any device which works with Wifi or Bluetooth interfaces.

Perimeter Access Control
Access control to restricted areas and detection of people in non-authorized areas.

Radiation Levels
Distributed measurement of radiation levels in nuclear power stations surroundings to generate leakage alerts.

Electromagnetic Levels
Measurement of the energy radiated by cell stations and and Wi-Fi routers.

Traffic Congestion
Monitoring of vehicles and pedestrian affluence to optimize driving and walking routes.

Smart Roads
Warning messages and diversions according to climate conditions and unexpected events like accidents or traffic jams.

Smart Lighting
Intelligent and weather adaptive lighting in street lights.

Intelligent Shopping
Getting advices in the point of sale according to customer habits, preferences, presence of allergic components for them or expiring dates.

Noise Urban Maps
Sound monitoring in bar areas and ceremonial zones in real time.

Water Leakages
Detection of liquid presence outside tanks and pressure variations along pipes.

Vehicle Auto-diagnosis
Information collection from CanBus to send real time alarms to emergencies or provide advice to drivers.

Waste Management
Detection of rubbish levels in containers to optimize the trash collection routes.

Smart Parking
Monitoring of parking spaces availability in the city.

Item Location
Search of individual items in big surfaces like warehouses or harbours.

Water Quality
Study of water suitability in rivers and the sea for fauna and eligibility for drinkable use.

Golf Courses
Selective irrigation in dry zones to reduce the water resources required in the green.

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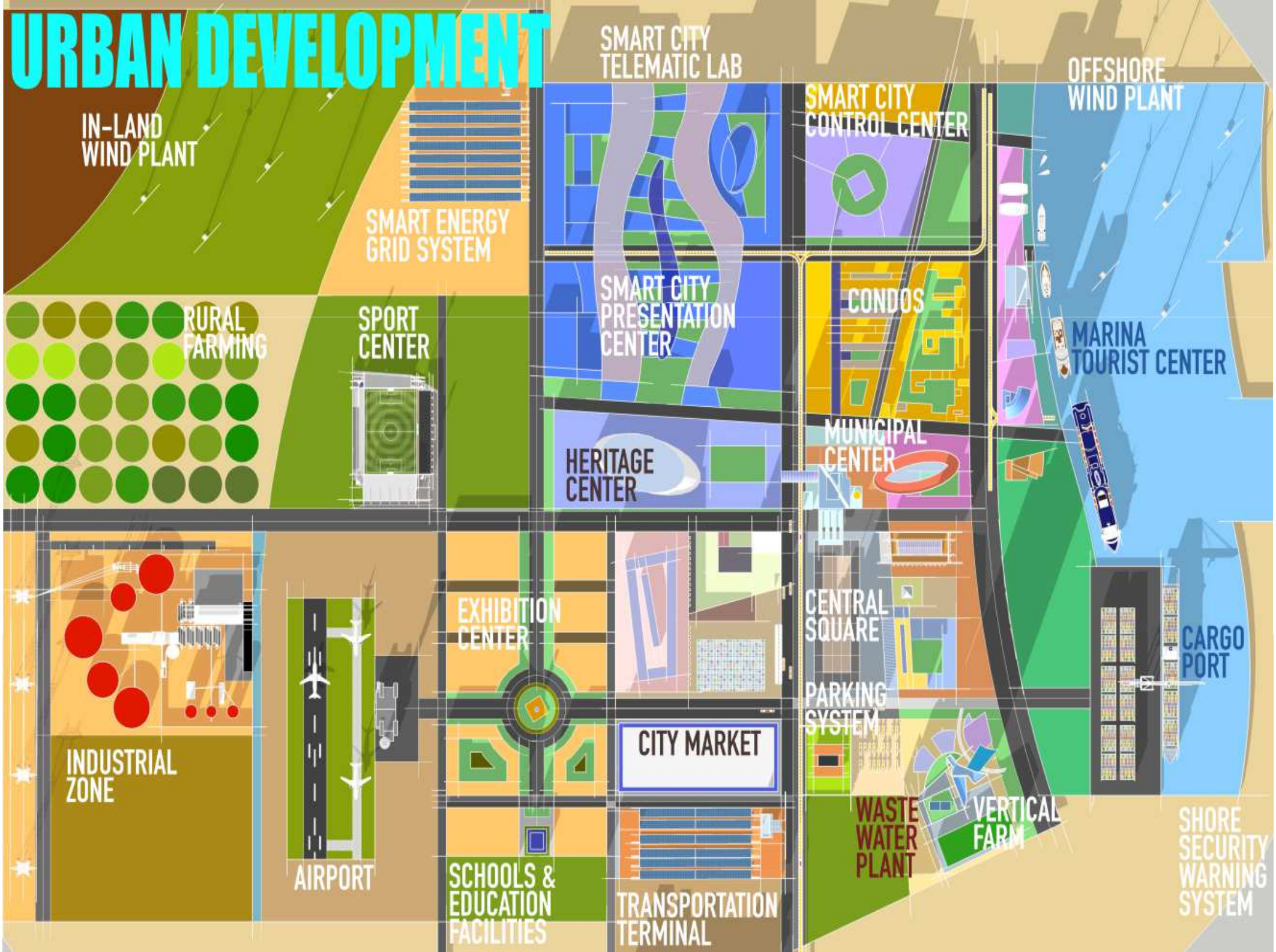
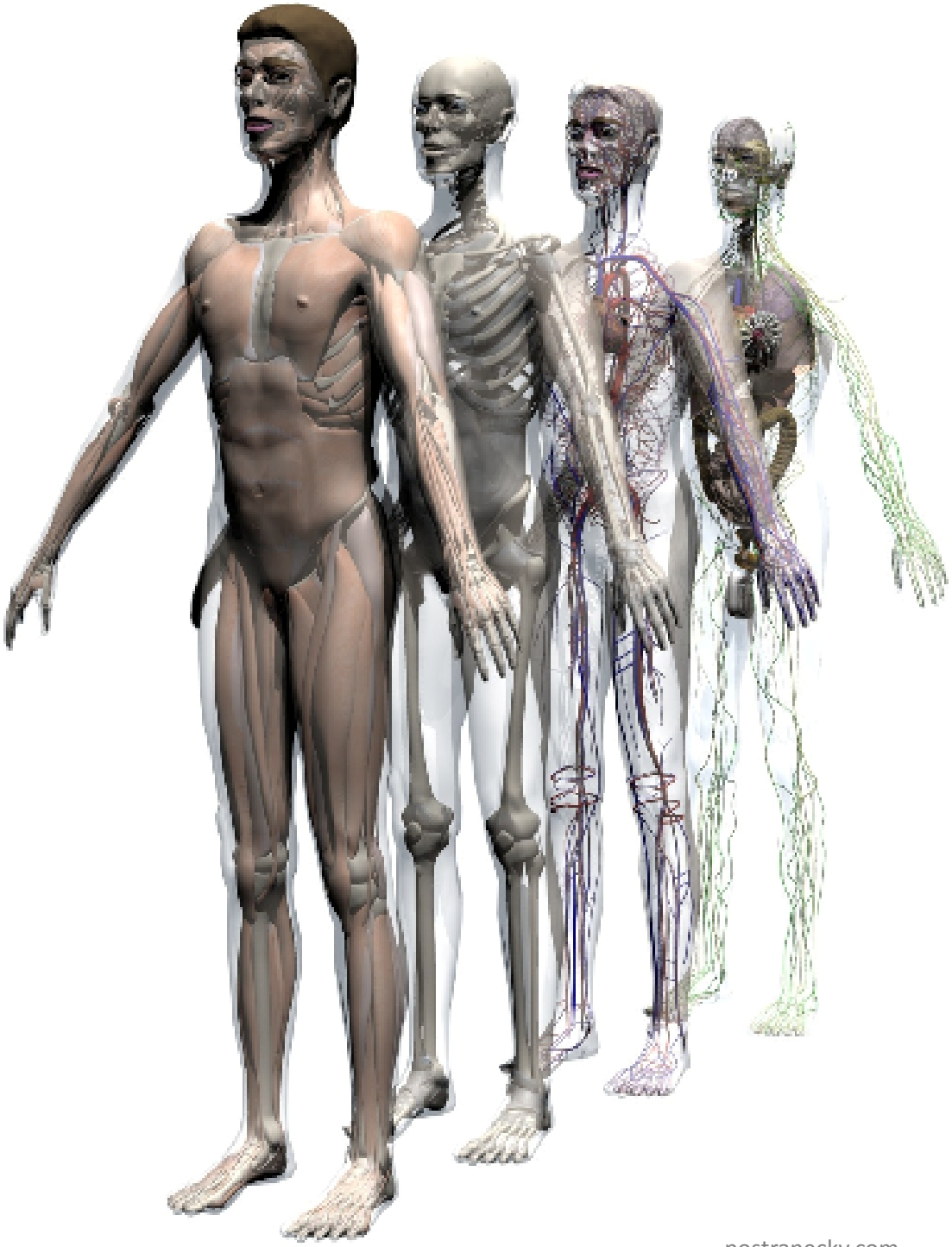
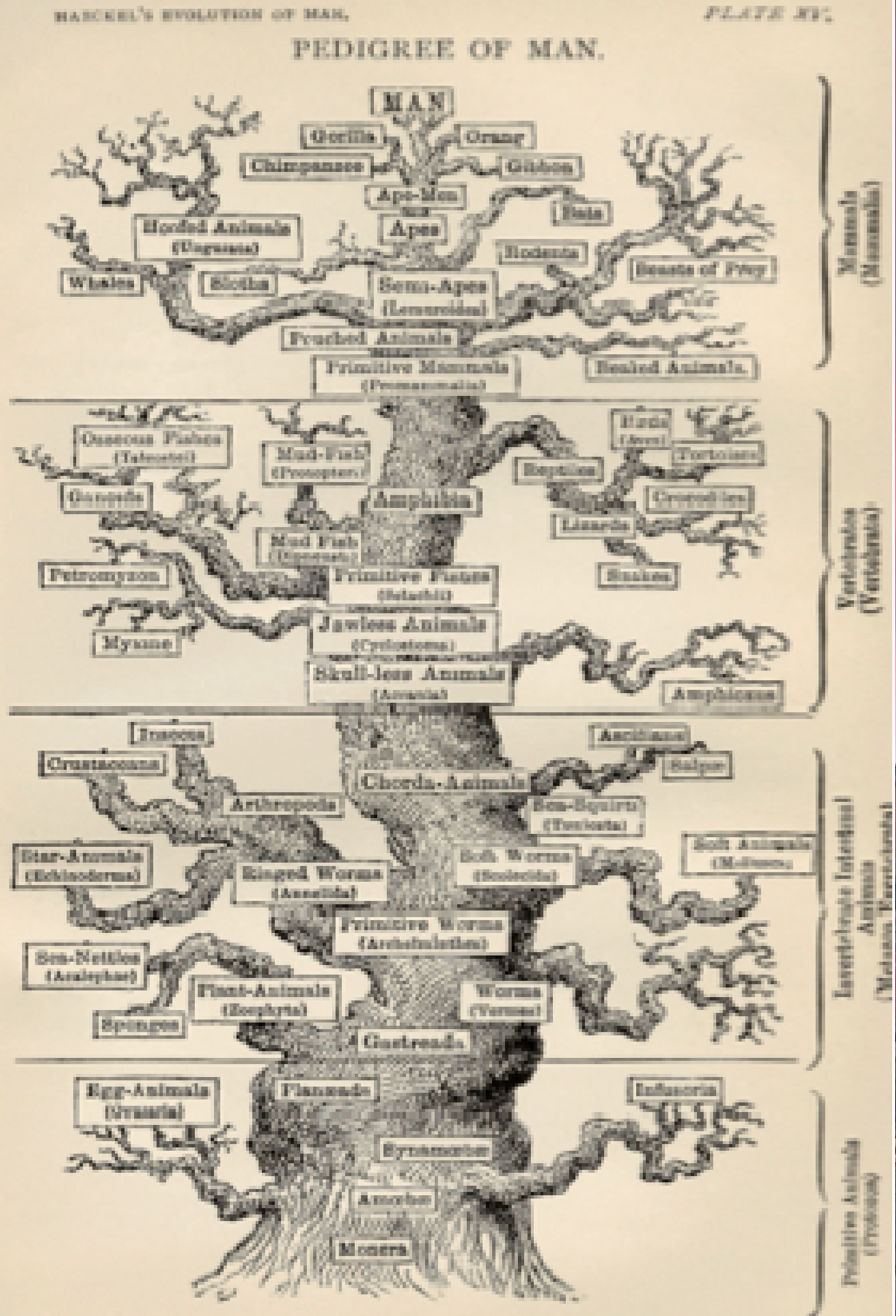
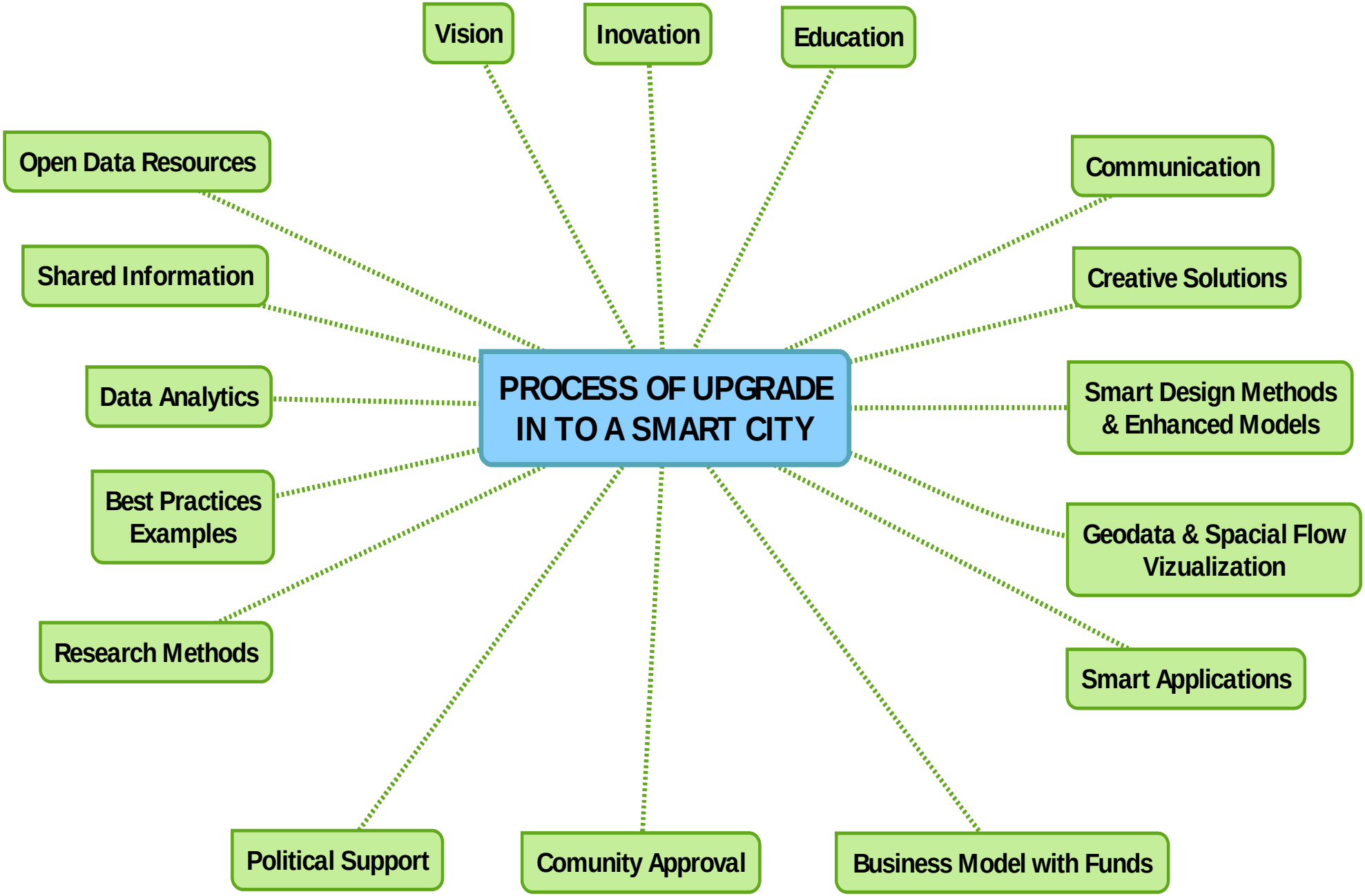
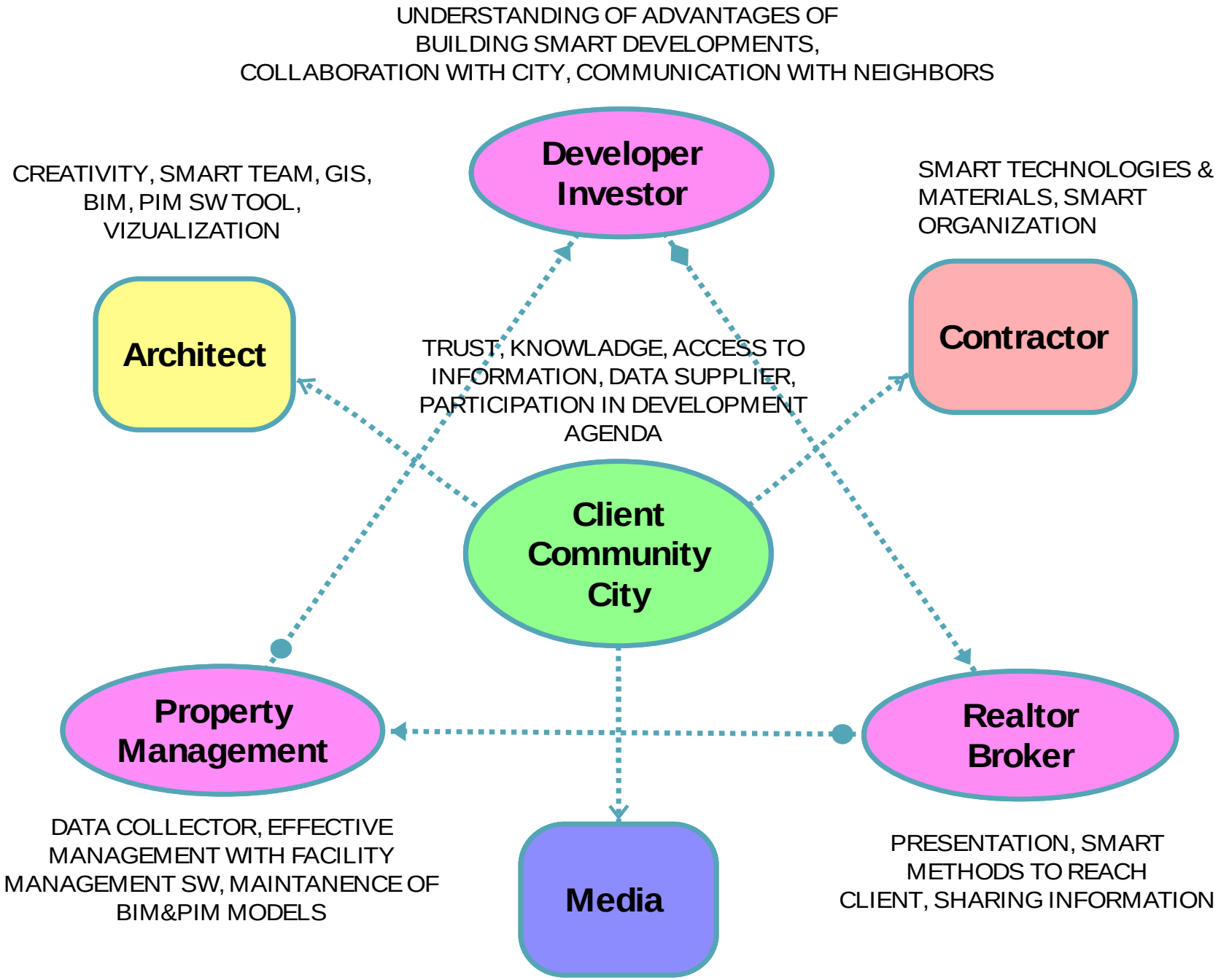

URBAN DEVELOPMENT
IN-LAND WIND PLANT
SMART ENERGY GRID SYSTEM
SMART CITY TELEMATIC LAB
SMART CITY CONTROL CENTER
OFFSHORE WIND PLANT
SMART CITY PRESENTATION CENTER
CONDOS
MARINA TOURIST CENTER
RURAL FARMING
SPORT CENTER
HERITAGE CENTER
MUNICIPAL CENTER
EXHIBITION CENTER
CENTRAL SQUARE
CARGO PORT
PARKING SYSTEM
INDUSTRIAL ZONE
CITY MARKET
AIRPORT
WASTE WATER PLANT
VERTICAL FARM
SHORE SECURITY WARNING SYSTEM
SCHOOLS & EDUCATION FACILITIES
TRANSPORTATION TERMINAL




HAECKEL'S EVOLUTION OF MAN.
PLATE XV.
PEDIGREE OF MAN.
MAN
Gorilla
Orang
Chimpanzee
Gibbon
Ape-Men
Bats
Hoofed Animals (Ungulata)
Apes
Rodents
Beasts of Prey
Whales
Sloths
Semi-Apes (Lemuroidea)
Pouched Animals
Primitive Mammals
Beaked Animals
Mammals (Mammalia)
Osseous Fishes (Teleostei)
Mud-Fish
Reptiles
Tortoises
Ganoids
Amphibia
Crocodiles
Lizards
Mud Fish
Petromyzon
Primitive Fishes
Snakes
Jawless Animals (Cyclostoma)
Myxine
Skull-less Animals
Amphioxus
Vertebrates (Vertebrata)
Insects
Ascidians
Crustaceans
Salpae
Chorda-Animals
Arthropoda
Star-Animals (Echinoderma)
Soft Animals
Ringed Worms (Annelida)
Soft Worms
Primitive Worms
Sea-Nettles (Acalephae)
Plant-Animals (Zoophyta)
Worms (Vermes)
Sponges
Gastraeada
Egg-Animals
Planaeada
Infusoria
Synamoebae
Amoebae
Monera
Primitive Animals (Protozoa)


PROCESS OF UPGRADE IN TO A SMART CITY
Vision
Inovation
Education
Open Data Resources
Communication
Shared Information
Creative Solutions
Data Analytics
Smart Design Methods & Enhanced Models
Best Practices Examples
Geodata & Spacial Flow Vizualization
Research Methods
Smart Applications
Political Support
Comunity Approval
Business Model with Funds


UNDERSTANDING OF ADVANTAGES OF
BUILDING SMART DEVELOPMENTS,
COLLABORATION WITH CITY, COMMUNICATION WITH NEIGHBORS
Developer
Investor
CREATIVITY, SMART TEAM, GIS,
BIM, PIM SW TOOL,
VIZUALIZATION
SMART TECHNOLOGIES &
MATERIALS, SMART
ORGANIZATION
Architect
Contractor
TRUST, KNOWLADGE, ACCESS TO
INFORMATION, DATA SUPPLIER,
PARTICIPATION IN DEVELOPMENT
AGENDA
Client
Community
City
Property
Management
Realtor
Broker
DATA COLLECTOR, EFFECTIVE
MANAGEMENT WITH FACILITY
MANAGEMENT SW, MAINTANENCE OF
BIM&PIM MODELS
Media
PRESENTATION, SMART
METHODS TO REACH
CLIENT, SHARING INFORMATION
NEW TYPE OF MEDIA & COMMUNICATION, SOCIAL
NETWORKING APPROVAL OPPORTUNITIES


SYNOPCITY
SOCIAL NETWORK FOR SMART CITIES
YOUR NEW COMMUNICATION TOOL!

FOUR PILLARS OF SYNOPCITY

COMMUNITY OF SYNOPCITY IS CREATED BY MEMBERS OF FOUR GROUPS

"A" ACADEMICS"

is a group of theoretical 'papers' contributors, like scientists, researches, inventors, visionary, designers from all disciplines, and other professionals, or just speakers at conferences related to SYNOPCITY or Smart City topics..

A

"V" VENDORS

are all contributors who are proposing to other Members products, solutions or services.
This category is further sectionalized by disciplines.

V

"M" MUNICIPALITIES

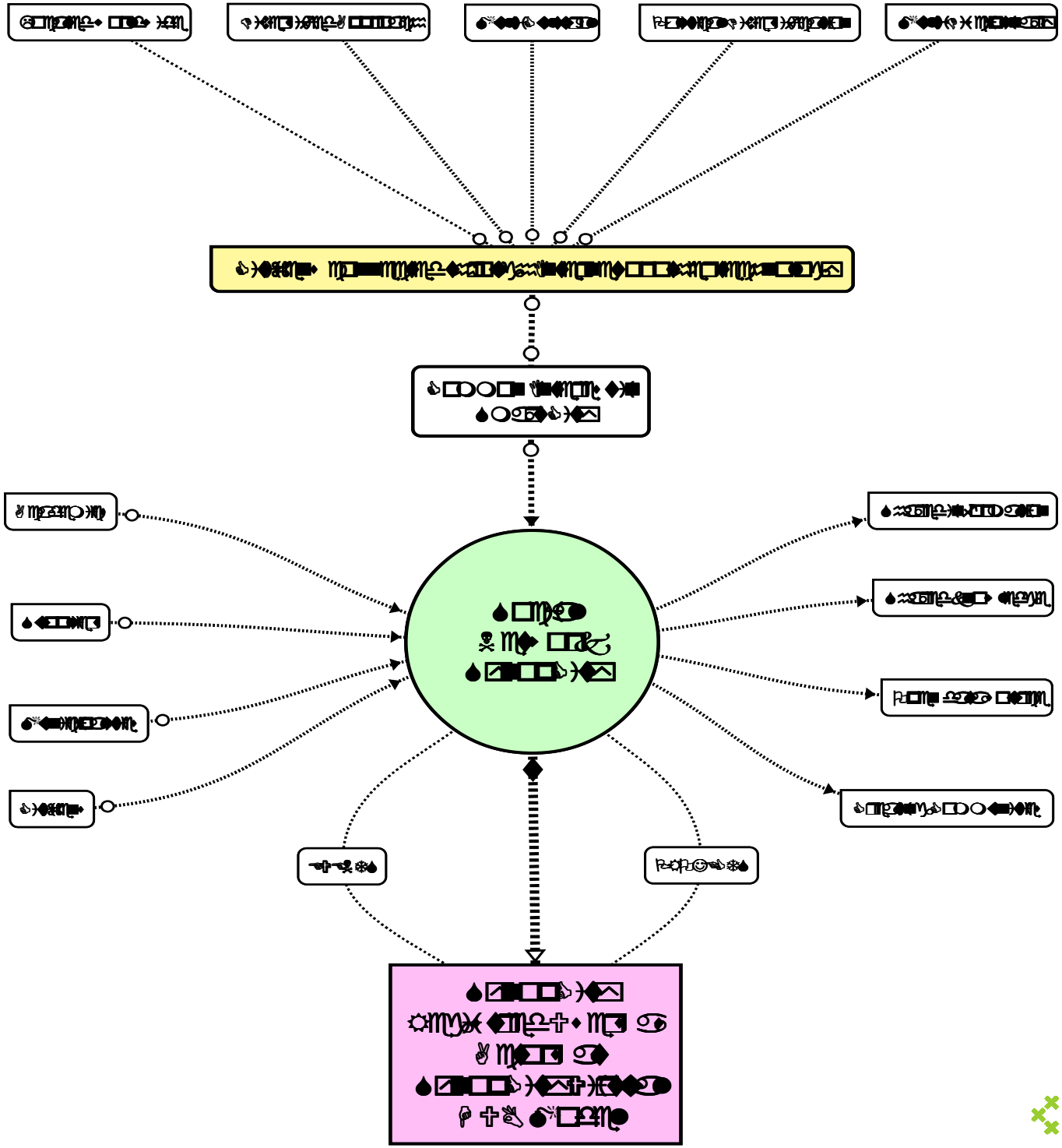
are all Members who are representing cities and neighborhoods, or working for, or related to any kind of governmental agencies.

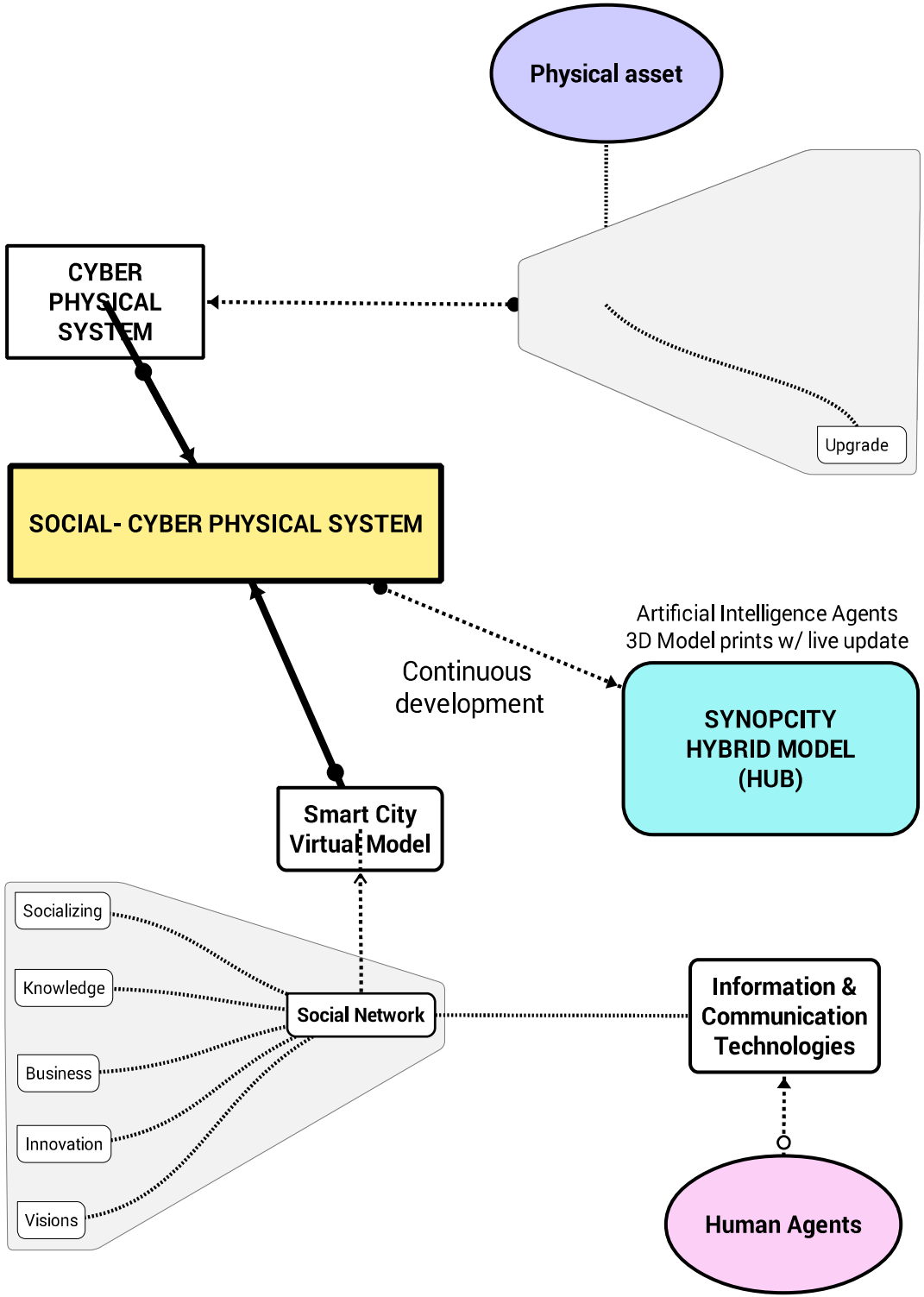
M

"C" CITIZENS

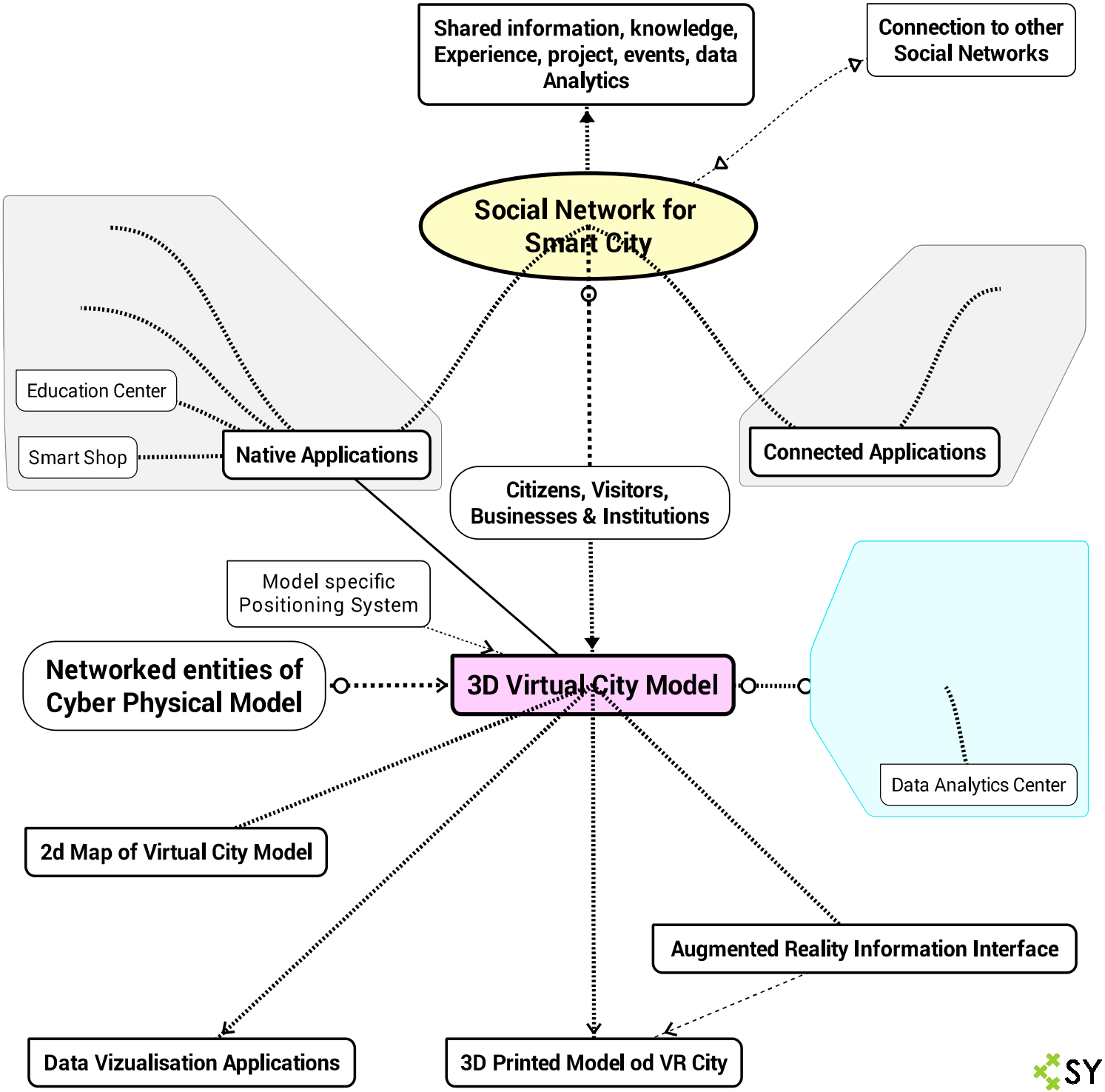
(or also Clients) are all Members representing public.Members of all Pillars are free to place any type of content on SYNOPCITY in an approved format.

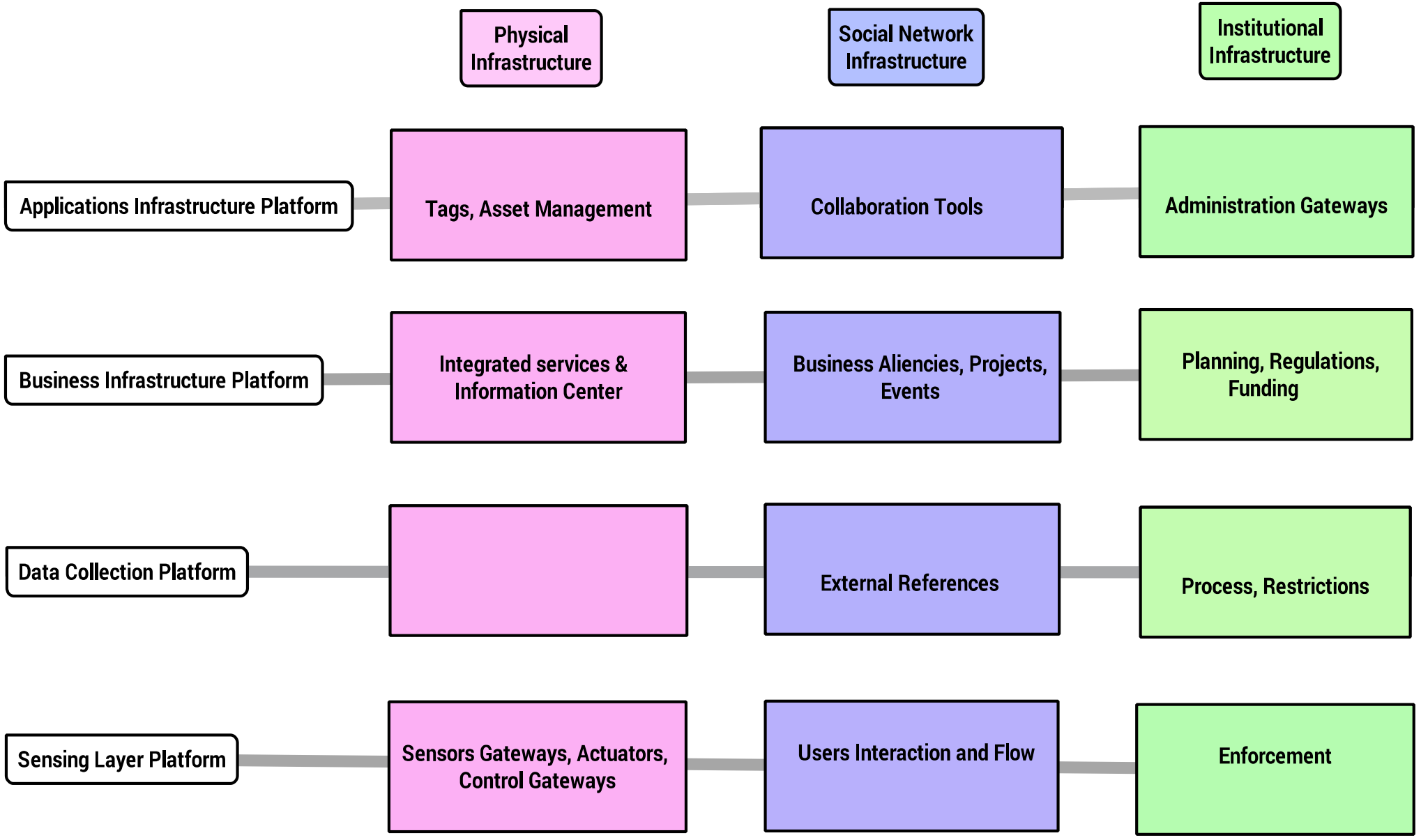
C

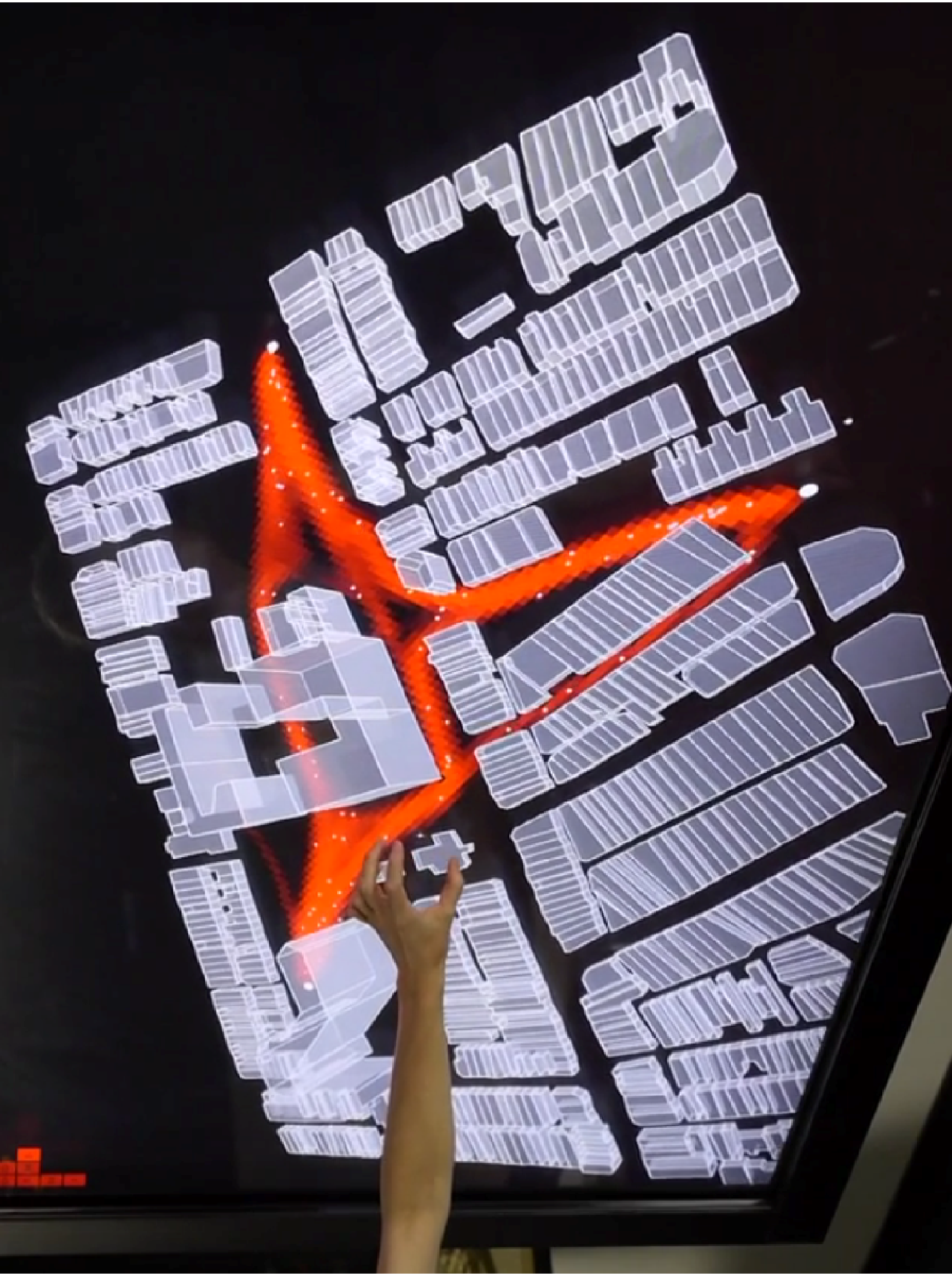


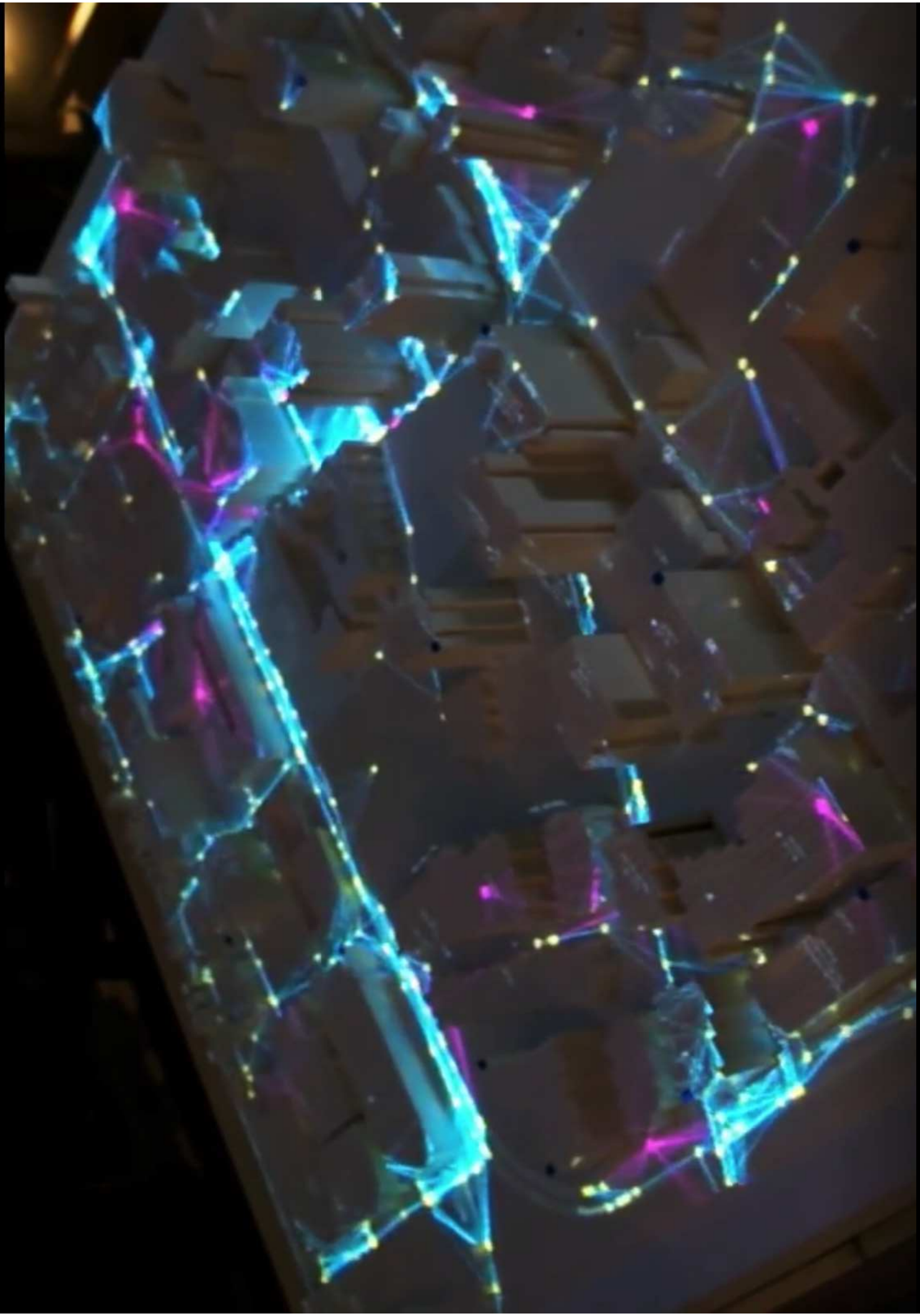

Physical asset
CYBER PHYSICAL SYSTEM
Upgrade
SOCIAL- CYBER PHYSICAL SYSTEM
Artificial Intelligence Agents
3D Model prints w/ live update
Continuous development
SYNOPCITY HYBRID MODEL (HUB)
Smart City Virtual Model
Socializing
Knowledge
Business
Innovation
Visions
Social Network
Information & Communication Technologies
Human Agents

SYNOPCITY


Shared information, knowledge, Experience, project, events, data Analytics
Connection to other Social Networks
Social Network for Smart City
Education Center
Smart Shop
Native Applications
Connected Applications
Citizens, Visitors, Businesses & Institutions
Model specific Positioning System
Networked entities of Cyber Physical Model
3D Virtual City Model
Data Analytics Center
2d Map of Virtual City Model
Augmented Reality Information Interface
Data Vizualisation Applications
3D Printed Model od VR City

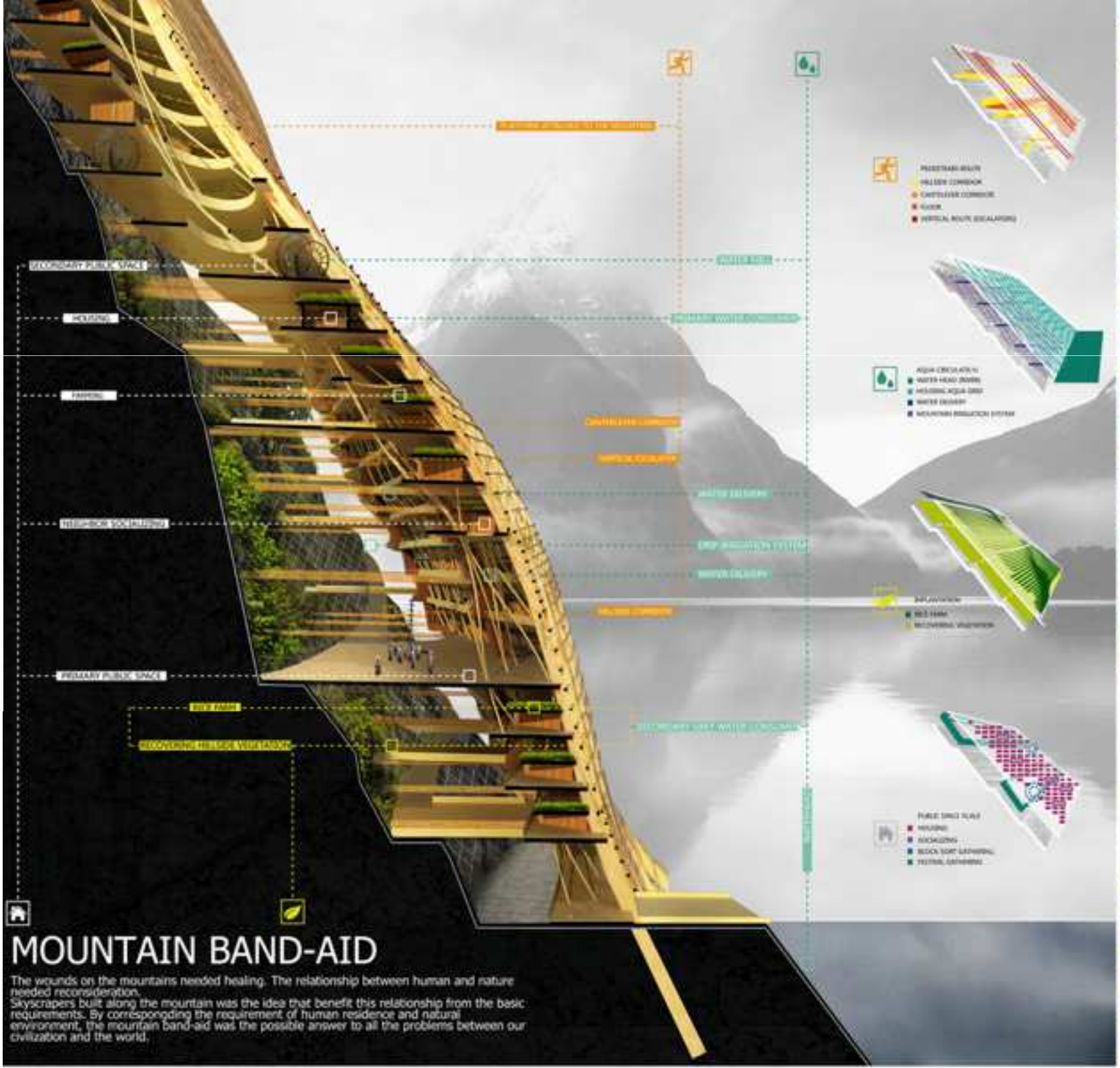

Physical Infrastructure
Social Network Infrastructure
Institutional Infrastructure
Applications Infrastructure Platform
Tags, Asset Management
Collaboration Tools
Administration Gateways
Business Infrastructure Platform
Integrated services & Information Center
Business Aliencies, Projects, Events
Planning, Regulations, Funding
Data Collection Platform
External References
Process, Restrictions
Sensing Layer Platform
Sensors Gateways, Actuators, Control Gateways
Users Interaction and Flow
Enforcement





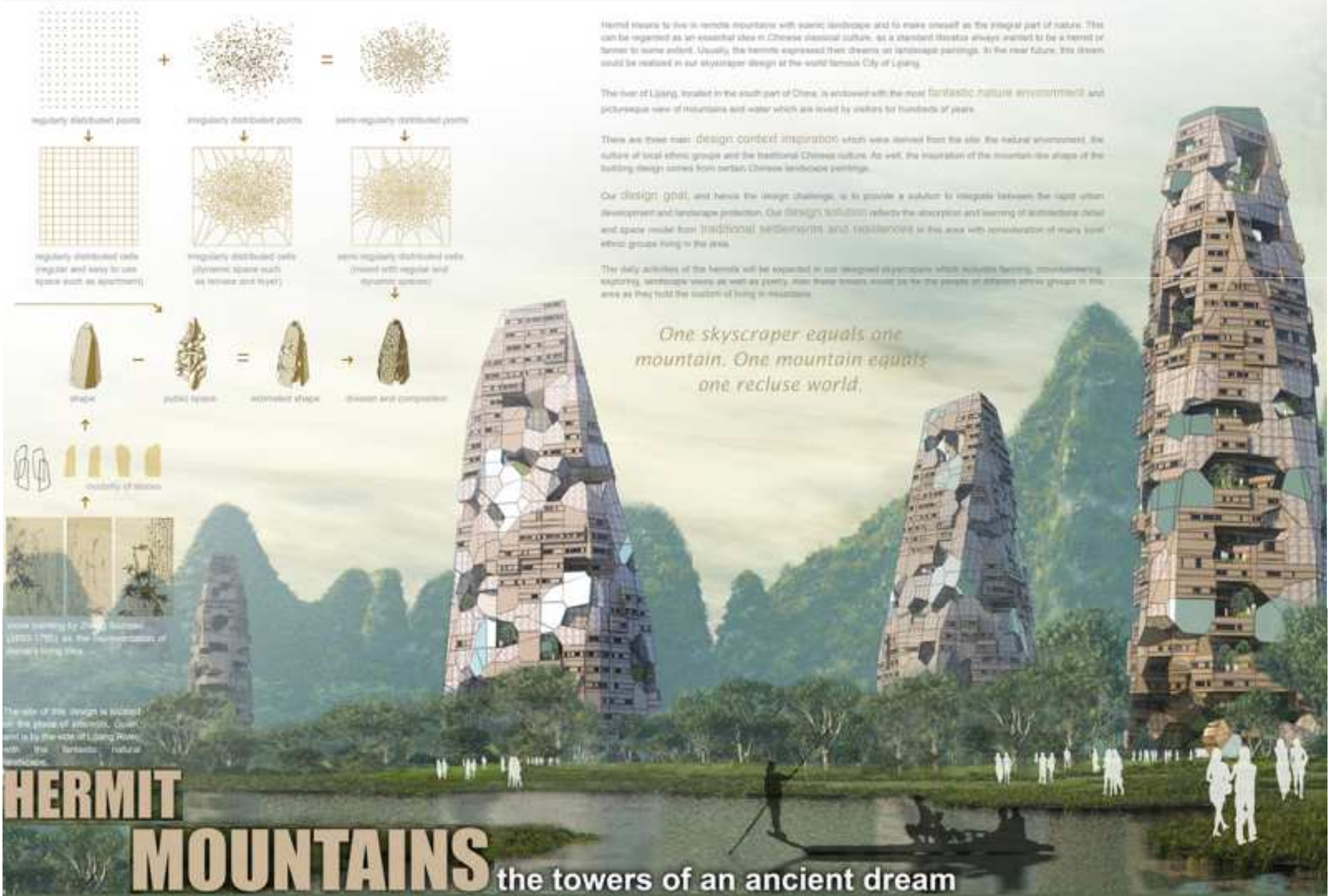

Kings Place, N1 9GU
Jazz here from 7pm today
Network Rail
TheObserver
King's Cross
300m
Taxi – AVAILABLE


LET’S DREAM!



MOUNTAIN BAND-AID

The wounds on the mountains needed healing. The relationship between human and nature needed reconsideration.
Skyscrapers built along the mountain was the idea that benefit this relationship from the basic requirements. By corresponding the requirement of human residence and natural environment, the mountain band-aid was the possible answer to all the problems between our civilization and the world.



Hermit means to live in remote mountains with scenic landscape and to make oneself as the integral part of nature. This can be regarded as an essential idea in Chinese classical culture, as a standard literatus always wanted to be a hermit or farmer to some extent. Usually, the hermits expressed their dreams on landscape paintings. In the near future, this dream could be realized in our skyscraper design at the world famous City of Lijiang.

The river of Lijiang, located in the south part of China, is endowed with the most fantastic nature environment and picturesque view of mountains and water which are loved by visitors for hundreds of years.

There are three main design context inspiration which were derived from the site, the natural environment, the culture of local ethnic groups and the traditional Chinese culture. As well, the incarnation of the mountain-like shape of the building design comes from certain Chinese landscape paintings.

Our design goal, and hence the design challenge, is to provide a solution to integrate between the rapid urban development and landscape protection. Our design's solution reflects the absorption and learning of architectural detail and space model from traditional settlements and residences in this area with consideration of many local ethnic groups living in the area.

The daily activities of the hermits will be expected in our designed skyscrapers which includes farming, mountaineering, exploring, landscape views as well as poetry. Also these towers would be for the people of different ethnic groups in this area as they hold the custom of living in mountains.

One skyscraper equals one mountain. One mountain equals one recluse world.

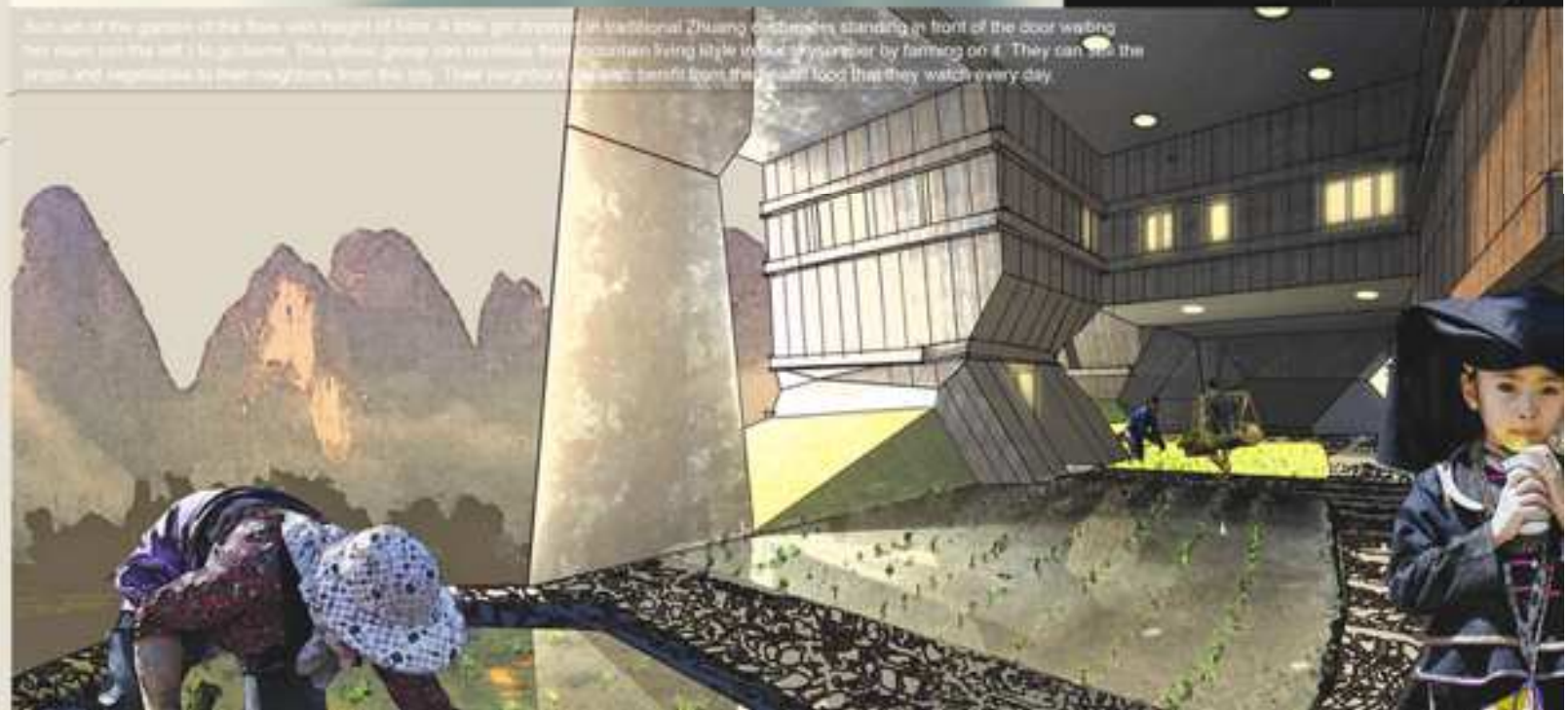
Top floor terraces of two different skyscrapers. The peak of the skyscraper, the destinations of the mountaineers. People can enjoy the most amazing landscape after the great exercise experience.

floor plan at elevation 135m
1:600

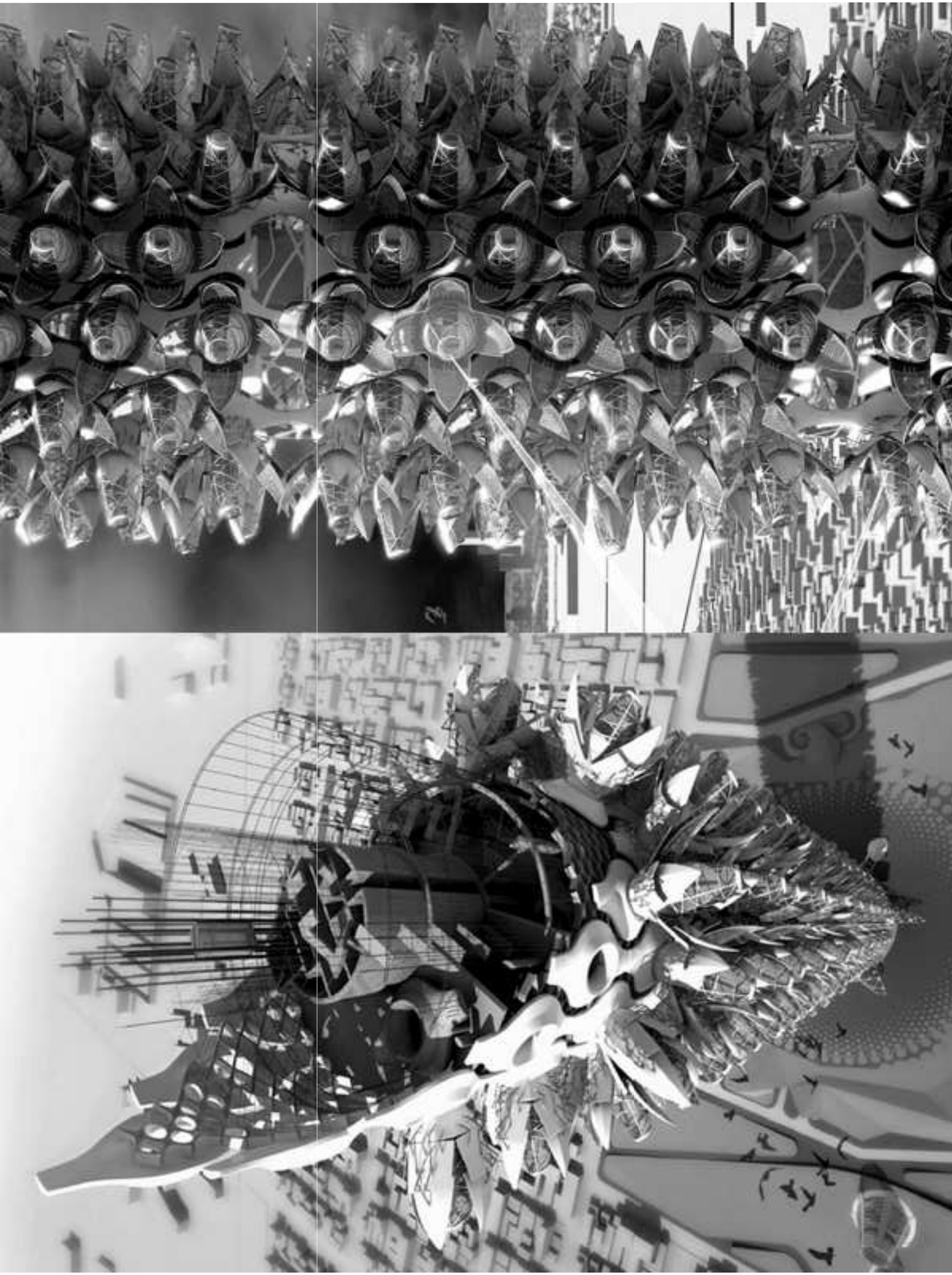
floor plan at elevation 95m
1:600

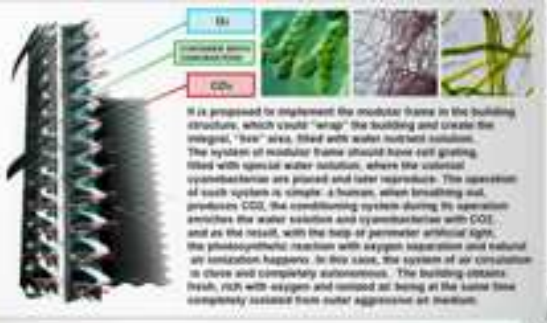
floor plan at elevation 54m
1:600

the mountains, the river and the skyscrapers



And all of the guests of the five-star height of view. A little girl dressed in traditional Zhuang costumes standing in front of the door waiting her mum and the staff to go home. The whole group can experience these mountain living style without staying over by farming on it. They can see the people and neighbours to their way home from the city. These neighbours are each benefit from the beautiful food that they watch every day.

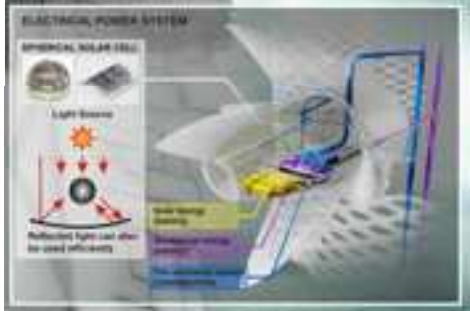


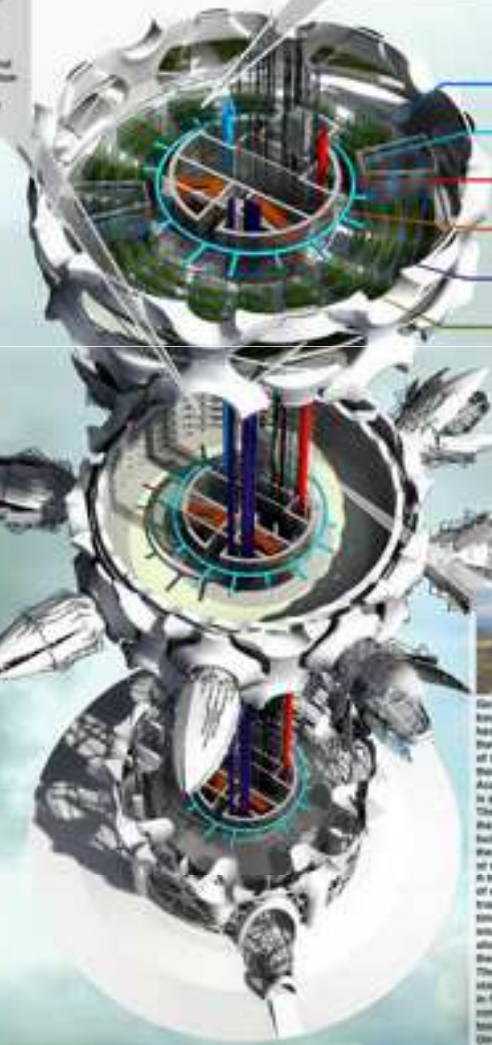


It is proposed to implement the modular frame in the building structure, which could "wrap" the building and create the integral, "bee" area, filled with water nutrient solution.
The system of modular frame should have cell grating, filled with special water solution, where the colonial cyanobacterias are placed and later reproduce. The operation of such system is simple: a human, when breathing out, produces CO2, the conditioning system during its operation enriches the water solution and cyanobacterias with CO2, and as the result, with the help of perimeter artificial light, the photosynthetic reaction with oxygen separation and natural air ionization happens. In this case, the system of air circulation is close and completely autonomous. The building obtains fresh, rich with oxygen and ionized air being at the same time completely isolated from outer aggressive air medium.

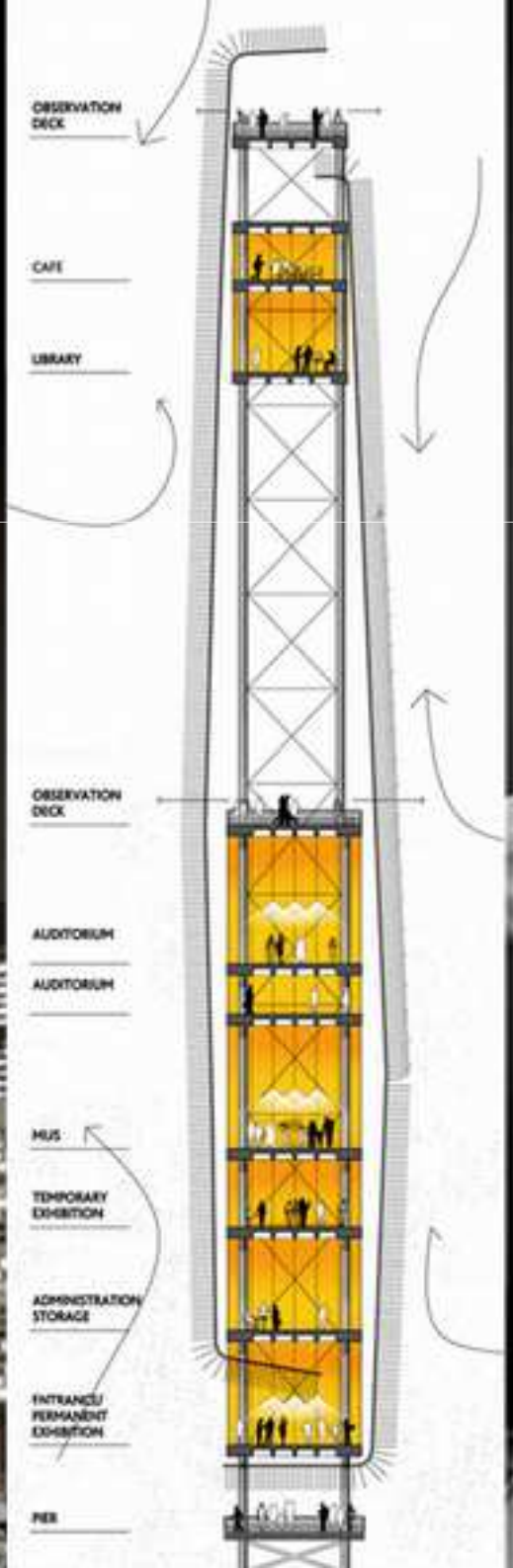
Hydroponics - a method of growing plants without soil. Depletion and contamination of land in areas adjacent to Mexico City, lead to lower quality food, and water shortages are already acute in some areas of Mexico. Another significant problem is the problem of pesticides that rot in the underground water as well as depletion and irrigation - land. For example, approximately 80% of all fruits and vegetables in Israel are grown hydroponic method.

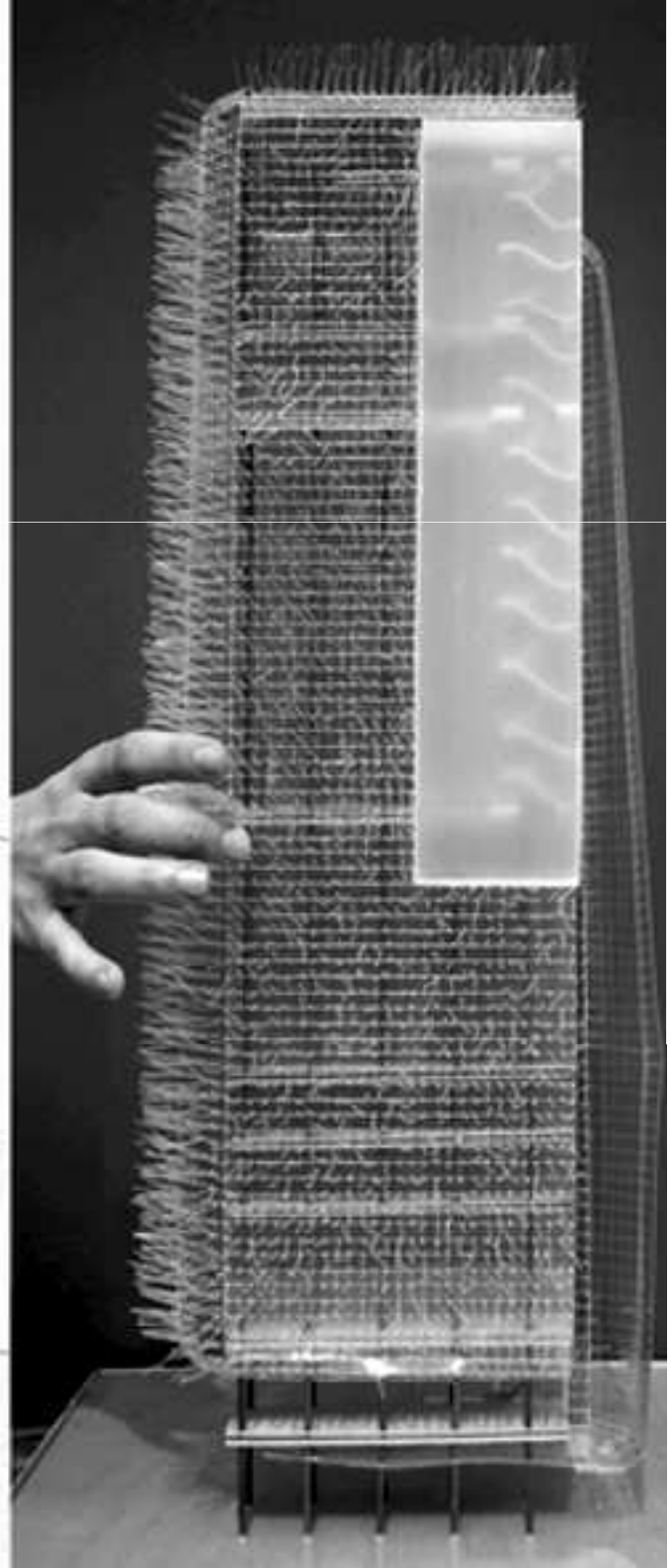
But with the deterioration of living standards and the growth of environmental problems of energy-saving habitations are becoming evasive. Need to introduce technologies that can protect a person from outside negative influences, whether it be noise, heat or electromagnetic pollution.





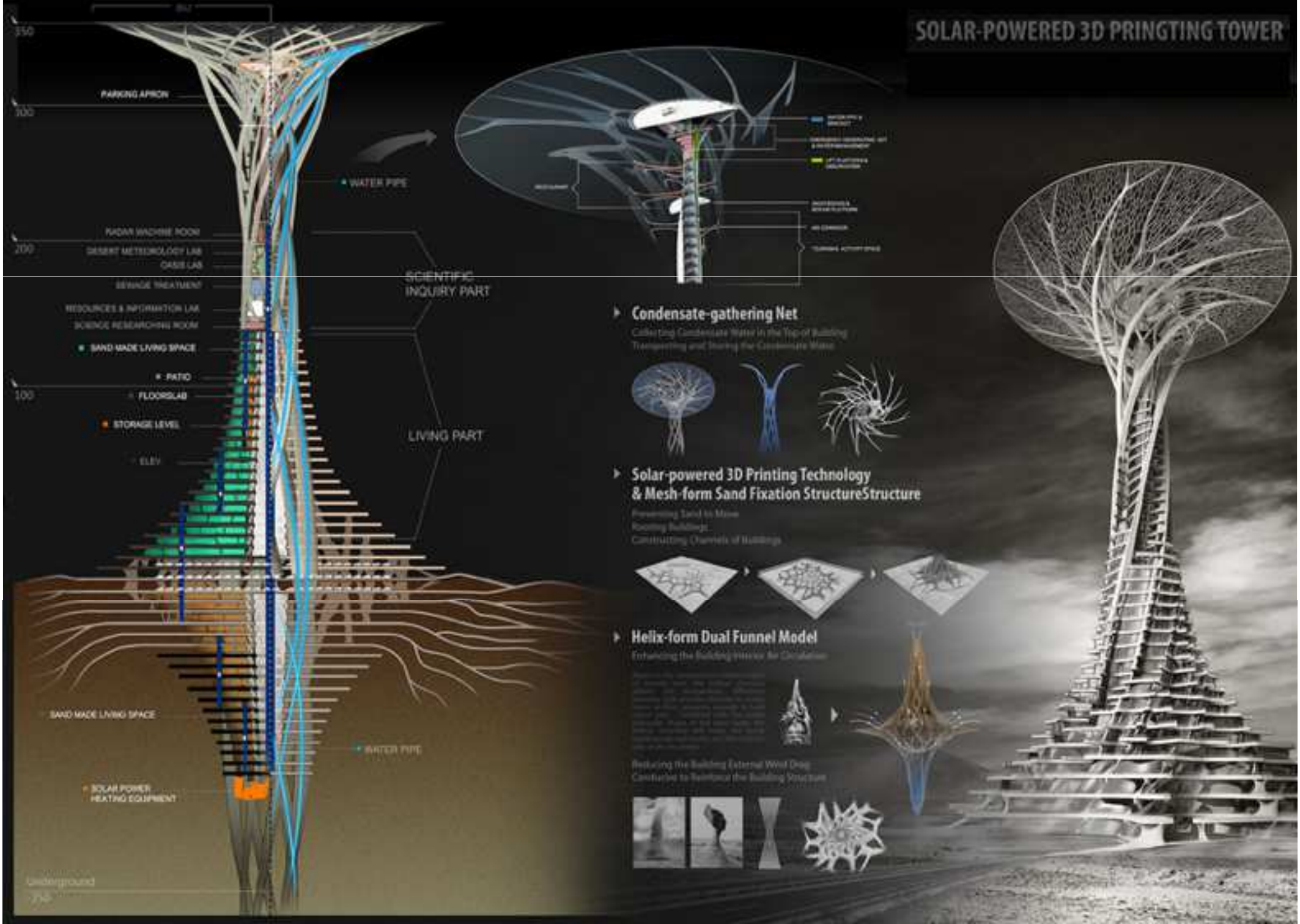
Geothermal energy - the direction of energy based on the production of electricity and heat by the thermal energy contained in the bowels of the earth. In volcanic areas of circulating water is overheated above the boiling point at relatively shallow depths. Access to the underground thermal waters is possible through deep drilling.
The idea is in the gradual implementation of the alternative energy sources into a building's structure, and with this creating the autonomous energy unit in the system of megapolis.
A building may produce the necessary quantity of energy, not depending on general transmission system of a city. At the same time, such "energy units" should be united into single energy frame, which will allow to redistribute the produced energy the most rationally.
The capacity of such autonomous geothermal station may be about 200-300 MW, which in future will allow to create the wide communication network between similar buildings in the city structure.
One such multi-storey house will be able to supply 2-4 neighbouring areas with energy. Thus, the more buildings of this type, the more the "energy covering" of the city.


OBSERVATION DECK
CAFE
LIBRARY
OBSERVATION DECK
AUDITORIUM
AUDITORIUM
MUS
TEMPORARY EXHIBITION
ADMINISTRATION STORAGE
ENTRANCE PERMANENT EXHIBITION
PIER




SOLAR-POWERED 3D PRINGTING TOWE

SOLAR-POWERED 3D PRINGTING TOWER



Condensate-gathering Net

Collecting Condensate Water in the Top of Building
Transporting and Storing the Condensate Water

Solar-powered 3D Printing Technology & Mesh-form Sand Fixation StructureStructure

Preventing Sand to Move
Roofing Buildings
Constructing Channels of Buildings

Helix-form Dual Funnel Model

Enhancing the Building Interior Air Circulation

Reducing the Building External Wind Drag
Contribute to Reinforce the Building Structure


THE END