

Human Smarties:

The human communities of the future.

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Abstract — The project concerns on the enhancement of the territory, from architecture to energy/infrastructures. Part of the project includes the involvement of urban people, according to the reinterpretation of the concept of social and work-life cycles of citizenship, energy and its saving, info on city (safety and comfort).

This is the era of the standards of quality of life and productivity, with specific indicators that define the concept of Smart City through the social assets, economy, environment, governance, mobility and housing

Keywords: *Smart cities; Smart Communities; Welfare City Design; ethical and sustainable future; social innovation; open Think Tank.*

I. INTRODUCTION

Password: SMART CITIES. Future as new social eco/urban paradigm and re-conversion of spaces and habits, through new standards of quality of life and productivity, spreading a renewed territorial shared-minded.

Human communities in networked cities will be connected from an inclusive society to personal creative participation in the social fabric pursuant to a dynamic and qualitative growth.

Human beings, not users.

II. TERRITORIAL STRATEGIES AND STEPS

We have organized the connotative questions of energy, pollution and infrastructures of a modern country onto the following tables, according to the parameterization of its indicators, directing the global communities on the big challenges of Kyoto Protocol and European Climate Change Programme, a shareable international strategy on climate change and reduction of CO₂ and methane emissions.

TABLE I. The big issues of a modern city

Modern City	The big issues		
	Energy	Pollution	Infrastructure
	New ways of lighting	New materials	new information systems

Modern City	The big issues		
	Energy	Pollution	Infrastructure
			governments-citizenship
	New ways to produce energy (nanotechnologies: organic solar cell, hydrogen ecological through nanostructured electrodes and ethyl alcohol. Renewable) and power engineering	New technologies and methods for cycle pollution absorption / release O ₂	controlled emission vehicles and public transport
	New technologies and eco-save (nanotechnology: insulating fibers. Home automation)	new technologies and methods for pollution absorption (nanotechnologies)	work-life cycles of citizenship (home automation)
			emergency Management, security
			new ways to supply food / water

We intend to involve directly the governance/citizens on Cerveteri, Italy, into this strategic plan of a new WELFARE CITY DESIGN, definitely the focus of the cities of the future.

TABLE II. The configuration of a modern city

Modern City	Configuration		
	The Big Issues	Architecture	Communities
	[Energy] [Pollution] [Infrastructure]	Eco-design and durability	Social aggregation and Activities

Here the Welfare:

1. Sustainable architecture. Design is at the center of the new cities, the heart of the automatism, aggregation and activities, then quality of life and productivity, offering a new point of view at a microscopic and macroscopic level. From houses contaminated with gardening design, new ways to supply energy with organic

solar cell and ecological hydrogen through nanostructured electrodes and ethyl alcohol, moreover renewable and new ways to save energy such as insulating fibers.

2. The challenge of big data¹ as a lifestyle, economizing energy and automating processes.²
3. Each implementation and project must consider its inner specific contemporary poetry and beauty, an end in itself.

I. Step 1: Canada-Italy Innovation Award 2015

In Canada-Italy Award 2015³ will be presented ROME LIKEs TORONTO.

We started from the Municipality of Cerveteri, a few dozen miles from Rome, because it represents a typical Italian model and follows the great touristic expectations: beach, cultural and archaeological places, urban area and center, rural area with its surrounding hills. We also remind that the main tourist destinations, according to the Italian National Observatory of Tourism - Unioncamere data, are for the Italians the seaside resorts, for foreigners the art cities. Cerveteri, having a much lower population than Rome, in addition allows a more selective analysis in order to create new urban models and infrastructures, better dialogue governance/citizens.

In future we'll define also an Italian industrial model.

Case histories

- Paredes, Portugal, is fully managed city by an operating urban system. With a significant investment in partnership with major companies of computer science, the buildings will be equipped with a million hi-tech sensors, devices that monitor parameters such as traffic or consumption of water and energy, accidents, emergencies.
- Yokohama, Smart City since 2010, implemented plans to revolutionize urban mobility, efficient smart grid able to optimize fuel consumption and reduce energy costs, the construction of buildings with maximum energy

efficiency and management from using renewable resources⁴.

- “All cities struggle to manage water, power, transport, waste and pollution, and urban populations are said to be growing at the rate of 10,000 people an hour. So the future lies with ‘smart’ cities that can use new technology to generate and process data, connecting infrastructure and people into an intelligent urban system. By increasing efficiency and harnessing and managing every available resource, from solar energy to local entrepreneurs, smart cities can be the springboards to a bright, innovative future. With 75 per cent of the world’s 9.6 billion people forecast to live in cities by 2050, tackling the problems of global urbanisation is becoming a growth industry. In the United Kingdom, more than 32,000 enterprises are already working in a sector worth £16bn. By 2020, the sector could be worth more than £250bn a year globally. The keyword here is collaboration: people, like systems, work best when connected. So if cities around the world took the best ideas on board, the smartest city of all might look something like this: a 300m skyscraper, an endless city in height, a dynamic city within a city ..”⁵.

- Canadian examples regarding to the “Internet of Things”: application on home automation⁶, IBM analysis⁷, application on big data where everyone becomes antenna on a specific network⁸.

This SMART CITY strategy on Cerveteri, is connected with Figure 2, a sustainable model and a genuine ecosystem:

1. Monitoring devices rationalise parameters of the city and optimize consumptions. These sensors can also give a rapid response in case of accidents, fire, theft to the authorities. Systems will have the following features: lighting control,

⁴ [The Yokohama Smart City Project \(YSCP\)](#)

⁵ “Business life”, British Airways magazine, December 2014

⁶ [IoT startup sensorsuite set to shake up building automation, August 26, 2013](#)

⁷ [Analyzing the future of cities: Resources for innovative cities, Analyst reports](#)

⁸ [Rise of the smart city: how urban life is about to change, big time, May 5, 2014](#)

¹ [How big data can help us to save energy, August 14, 2014](#)

² [Smart Power: Why More Bytes Will Mean Fewer—and Cleaner—Electrons, March 26, 2013](#)

³ [Canada-Italy Innovation Award 2015](#)

advanced mobility transport, analysis of the roads (pits) and traffic, urban security system, automatic reporting of weather conditions.

Located in [1.2.3.4.5.]

Return on investment: saving more than 49% of energy consumption.

2. Creation of four wifi spots with relative totems and proprietary software WELFARE, digital services for citizens/tourists: e.g. public transport and connections, phone numbers and emergency, business/tourist experience planner, analysis systems and communication with citizens, various tool such as air quality, weather forecast.

Located in [1.3.4.].

Return on investment: creating smart ICT infrastructure/big data on the territory, connecting local demand and streaming. Improving security/management system for a new dialogue citizenship/governance.

3. Green mobility, the BIG GREEN: bike sharing system following the model of Toronto⁹, with automated auto-sustainable stations. Each pedal assisted bike will be equipped with a 4-5 inches mini-panel that will run WELFARE software.

Located in: [2.3.4.].

Return on investment: affiliation and p/usage¹⁰.

4. Interactive project for cultural institutions such as museums and Necropolis, to promote the peculiarity of the territory, from tourism to its tangible production. It intends to virtualize new experiences on the Necropolis and the museum collections for tourists, curious and also children, through the utilization of augmented reality, 3D animations, educational projects and more. Through the use of Galileo positioning system, GNSS, launched by ESA, the European Space Agency, here adapted for indoor environments, testing within the eCult observatory network new potential uses, where technology meets cultural heritage. It allows an active cooperation between heritage/cultural institutions and technology developers and horizons (e.g. Holograms, Google Glass, ..).

Located in: [3.].

Return on investment: sell to visitors an interactive catalog that includes extra content with educational projects in 3D, e.g. we built a prototype on dinosaurs for children; sell through the appropriate eShop books, any merchandise, souvenirs, ..

5. Two contemporary architectures, harmoniously merged in historical context, the rebirth of an ancient civilization. [2.3.]

6. System of photovoltaic bike lanes connecting the BIG GREEN stations.

Located in: [2.3.4.].

Return on investment: every 100 meters of the cycle route will provide electricity to three houses¹¹; we consider half of the calculation, due to the design of the structure.

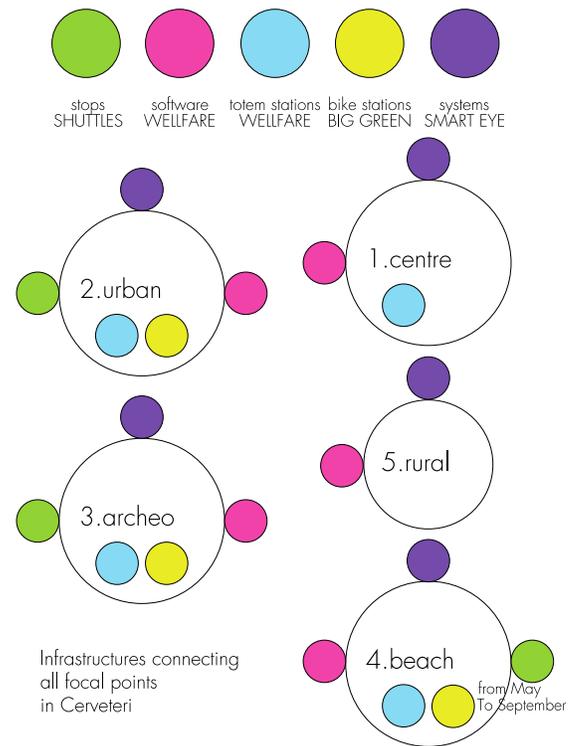


Figure 1. Macroareas and initiatives.

To prototype:

- Five Pedal assisted bikes, any station
- Three-five Eco-shuttles

⁹ [Bike Share Toronto, the model](#)

¹⁰ [Bike Share Toronto, model and guideline](#)

¹¹ Predictions of the Research Institute TNO, Netherlands

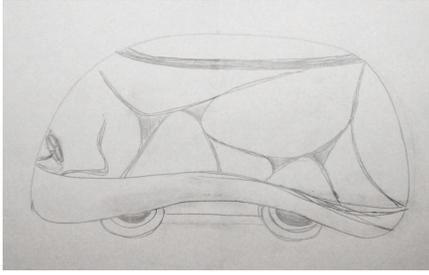


Figure 2. Samples of transparent futuristic shuttles.

Architectural intervention:

- 1 *Viale Manzoni* [2.]
 - Sculpture similar to a wind harp, but digital: each piece will give coloured light and sound a particular note in a harmonious daytime symphony.
- 2 *Necropolis* [3.]
 - Improvement of road signs with legal standards.
 - Piazzale Mario Moretti: Gardens of Neptune, fountain and water game in art Murano glass, that will remind and invite to the sea.
- 3 *Photovoltaic bike lane.*

On the model of Rossio Square in Lisbon: waves with half darker parts in solar cells coated with special and anti-slip tempered glass, to remember a great nation of sailors. Bikeside will be illuminated by photo luminescent paint¹².

Synergistic governance-citizens actions.

1. *Volunteering.*

Organized groups to protect and serve urban decorum and public good.

2. *Monitoring and discussing citizens expectations.*

Structured network of discussion and targeted surveys on proprietary software WELLFARE, keeping a constant and efficient communication citizens/governance in real-time, e.g. the facilitation "Voz ao Cidadão"¹³.

3. *Urban regeneration.*

At the heart of social issue there is definitely the big question of how to validate educating processes of citizenship to cohabitation coexistence and respect the rules, the point to

which we redevelop new urban and rural social fabric models. When bureaucracy and the administration become totalizing and paralyzing, we may encounter the Eraclitean mess, in its absolute sense: the public administration may not pursue its own mission of serving the citizens, becoming an immobile abomination without logics.

Urban regeneration focuses on the Temporary Use and Re-use of critical spaces, one of the effects of the great European economic depression of 2009, crisis that have caused a high excess demand of property mainly in big urban centres. Some aggregative district renewal and social schemes in EU: Meanwhitespace¹⁴, Coopolis, Stipo, where cooperation in private sector creates new expectations and economic potential. On the other hand collaborating with governance by monitoring the processes, 90% of companies wants to remain on this facilitated places, where economics of sharing, employment, research, culture, active dialogue are stimulated into structured networks. The Age of Reason.

"Meanwhile Space was the first project, formally reported in 'Meanwhile Business Use Case', that transformed unused and local territories in active spaces for creative, cultural and community purposes, as a stimulus for urban regeneration of cities and municipality. Each district with its relative socio-economic keystones into the development of the human communities of the future:



urban humans, not users

Figure 3. Our civic model.

¹² [In Olanda una pista ciclabile ispirata alla Notte stellata di Van Gogh](#)

¹³ [Voz ao Cidadão, community](#)

¹⁴ [Meanwhile Space, the community](#)

4. Physical activity and aggregation

Building new models for people and community.

- Games in which participants of the local community track their physical activity and contribute to the city Healthy Index.
- Engagement of amateur sports and friends.

II. Step II: Open think tank in Africa

By promoting open ideas and models for African integrated growth, such as projects of smart and sustainable cities in Camerun through the channels of Embassy and Italian business consultants, we contextualize: pré fabrication sustainable/off grid¹⁵ housing models, agricultural rural tourism model¹⁶.

Zero emissions and independent solutions.

The objective of the bioclimatic approach to Lisbon metropolitan area is the development of buildings adapted to their specific location and its own climate and micro-climate cycles with the minimum heat energy hydrological atmospheric dissipation. To consider in their strategy: the high inertia of walls facing North and Northwest with perennial trees along those facades and small glazed areas; thermal comfort inside the building. The innovation in energy efficiency and sustainability of a settlement is applied to the thermal comfort of buildings, following the EU directives, together with specific bioclimatic premises of the Portuguese territory and other sustainability evaluation methodologies.

Agricultural sustainability and rural tourism.

Merumalia, wine resort and organic farm, follows these standards:

- qualifies the regional food and wine offer and culture;
- introduces technological innovation, according to EU, through Renewable Alternatives Energy such as biomass, thermic solar, photovoltaic and geothermal, reducing CO₂ emissions;
- optimizes the agricultural processes thanks to a short distribution chain, and agritourism farm (including hospitality, sales and tasting)

¹⁵ [Tactical Urbanisms for Africa](#)

¹⁶ [Wine Resort and Organic Farm](#)

III. Step III: Global contamination on Smart Cities

Open research, strategic projects and processes on Smart Cities and social innovation, turning into an ecological ecosystem, involved connecting design and new patents, philosophy and study.

IV. Step IV: Via degli Etruschi

Replicate the second step and build a "Via degli Etruschi", an ecological monorail¹⁷ linking hypothetical stations belonging to the Etruscan territory: automated, driverless, electric and zero emission.

V. Step V: Ecological model transport

Creating an industrialization plan, in cooperation with existing urban transport sector and private industry, a regenerated R&D co-participated department.

III. CONCLUSIONS

Balancing ethical and aesthetic needs, utilitarian functions, as rules and practices, in symbiosis with the right to beauty, natural nourishment of the human soul, are harmonized. Aesthetics of quantity, standardized and alienating, where the society eliminates the concept of horror and empathy, the binder of living together away from "cold spots", is not in opposition but in equilibrium with the cultural expression of Beauty, an individual Renaissance into an organic eternal permanence.

Nature retakes its abandoned urban territories, signs of contemporary decadence. The state of ruin feeds vegetation, in this dimension symbolically predetermined ancient glories in decline has been supplanted by harmonious new visions.

We declare our collective personal loving attention towards life and Earth, learning our healthy transformation through concrete examples.

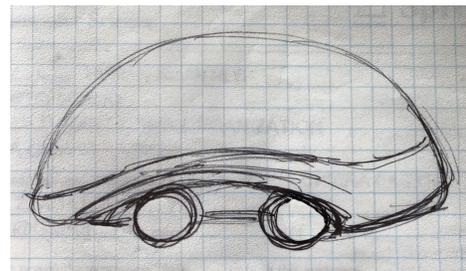


Figure 4. Car sketch.

REFERENCES

- [1] Prof. Álvaro Duarte de Oliveira Alfamicro: Urban Living Labs for Smart Cities, Smart Cities Workshop BUDAPEST SEPTEMBER (22ND 2011)
- [2] Zoja L., "Giustizia e Bellezza", Bollati Boringhieri editore, 2007

¹⁷ [SATU, Monocarril em Paço de Arcos](#)