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Digital Technologies Landscape Design Urban Curatorship

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In the current framework of digital technologies for architecture and urban design, the following essay questions the figure of the designer as promoter of environmental contents in order to trigger spatial inclusion and awareness to enhance resilience and livability in contemporary cities. The curator is a facilitator of complex processes of transformation and regeneration who rises territorial issues carefully selecting narratives (data) and geographies (places) as common playground for the improvement of the urban performance. The design strategy proposed under these conditions, interprets the city as a spatial agenda that interweaves sources, resources and agents for a more proficient use of the available space, especially the one not conceptualized or leftover. The project becomes then a chronography of the different tempi of the places, allowing multiple scenarios of use and conversion of chosen locations coupled with physical operation of landscape design and territorial transformation.

Why curatorship

The choice to propose the word "curatorship" as a keyword for the renewal of the professional figure of the architect in current times comes after a reflection on the political and economic situation in which the capitalistic system and the urbanized world has slowly fallen in the last couple of years, following a remarkable state of crisis of the major financial structures and the inefficiency of the related legislative body.

A new type of flexibility, lightness and openness seems to be needed in order to reconnect available resources with their users, distributing goods according to necessity and the possibility of reusing and returning the energy employed in the transformation processes.

On this basis, the investment in innovation research and digital technologies has recently become a common practice for many operators in the second and the third sector, due to the possibility of increasing growth and development exploiting intellectual and immaterial resources like data and the internet for the improvement of the performance of the production.

Even in cities such instruments have caused a shift of paradigm in the way planners and designers can approach the physical space and its configuration. If we think at the increasing interest that local administrations have shown for the design of smart cities, or for projects for the digitalization of their major urban services, this proves a reduced capacity of the urban stakeholders to economically support physical transformations of the built environment.

The architect as a creative producer of knowledge and interpreter of the city is involved in the redefinition of the boundaries of his disciplines as content selector and operator, discerning themes and strategies to disclose the resources hidden within the territory and the topography of our cities exploiting digital techniques of description and communication. According to Raoul Bunschoten, the figure of the curator introduces a different perspective on the mission of the architect, redirecting his skills of spatial manipulator and organizer toward the design of complex urban processes (2011, p. 603). The architect presents in fact two types of expertise, the ability in reading the morphology of urban conglomerations and buildings and the capacity to envisage their image and their change over the time. Curatorship means a disciplinary encounter between a different way of communicating a space in the light of the care for our habitat, expressing our interest for our environmental fostering spatial awareness and knowledge. Cedric Price anticipates this condition in the text The Invisible Sandwich, arguing that «making the potential of this invisible dictionary of possibilities work for one involves the rejection of the role of architecture as a mere improver, a formal enricher of the environment as it at present exists» (2006, p.12). Architecture embodies here the shape of complex processes of actions between users and agents within the space, moving away from the traditional focus on the sole making of buildings.

The attempt of the architect-curator is transversal and inclusive, longing to the search for resources, intellectual as well as material, building spatial strategies of supply and distribution according to a collaborative and interdependent approach to all the other disciplines. The curator is in charge of investment and fundraising ventures which emerge to raise concerns and questions for the benefit of the urban environment and its inhabitants. His figure becomes similar to the one of a doctor who works for the wellbeing of his patients, both physically and psychologically. His mission involves awareness and improvement of the built environment as well as the ability to convey spatial concepts and agenda toward users and stakeholders, building consensus through cooperation and exchange.

A protocol for multiple behaviors

Information technologies and landscape design present interesting relationships in the methodological approach to the project, notably in the necessity to analyze and develop complex systems to give an answer to the needs of various users, overlapped criticalities, mutable requirements from the territory and the various ecosystems involved. The issues related to contemporary cities are often demands of difficult interpretation and management, which are not necessarily referable to local or political borders, however strongly linked to the physicality of the inhabited environment.

A design approach that aims to embrace such conditions, should refer to the construction of a protocol as a conceptual structure within which the architect-curator can survey and organize the behavior of multiple actors and variables in a flexible and open way. The protocol is a sequence of actions related to a certain number of agents who enact their behaviors along a timeline. The use of protocols as design guidance for spatial envisage and configuration allows a smooth interchange between the three worlds conceptualized by Gregory Bateson: the protocol intends to interlock the world of the mathematical models (Pleroma), with the world of the evolution (External world), through the Internal world of ideas and concept, the world of thoughts.

Examples of protocols exploited in urban and architectural projects as a means to open the design process to generic users and stakeholders can be found in the work of the British firm Chora for the energy master-plan of the Chinese city of Xiamen, or the recent project proposed by Ecologic Studio for the installation H.O.R.T.U.S. Cybergarden, using social media and algae plantations (Bullivant, 2012). But it is probably in the tradition of the American representatives of the Landscape and Ecological Urbanism movement that this type of "systemic thinking" is particularly promoted and applied to urban projects. Interesting are the paradigms proposed by James Corner and his group Field Operation, in his project Fresh Kills for the re-claim of the garbage dump of Staten Island, New York (Waldheim, 2006), or his collaboration with Diller and Scofidio for the world renown High Line, in New York. The paradigms contained in Alan Berger Dross Scape: Wasting Land in Urban America (2006) also offer valid models of protocols for the activation of processes of ecological and social regeneration in critical areas.

The strategic integration of systemic design and the virtual world of data and information can use digital technologies to implement the activation of processes of spatial reclaim. A state of connivance should be established between the interface, the project and the users, for the user to feel interested and involved in the activation of the project itself. The design of the interface could reflect on time as a major variable for the development of the operation. The diffusion of information and scenarios of usage along a timeline can frame a parallel between places and people's agenda integrating one with the other, in order to make the public space an effective space for people's expression and amusement. Finally a connection with the physical environment should be sought by the interface as if the virtual ambience of digital information was having a tactile resonance on the built environment.

Connivance

Current information and communication technologies amplify the possibility of usage and diffusion of protocols for the city through digital interfaces and locative media. It is then for the architect-curator to carefully choose the elements he wants to include in the protocol for those applications, in order to harmonically conduct the users toward the discovery of a specific quality of the landscape, a hidden ambition of the geography or a captivating history embodied into the topography of our cities. In this way, the application should recreate a sense of connivance toward two possible directions: connivance between users and interfaces (the user becomes "addicted" to the use of the interface), and between the virtual application and the material world of architectural elements (data are extrapolated from the reality by sensing tools which are embodied in the landscape, and whose allocation needs to be chosen and designed).

Chronograhpy

The colonization in cities of available spaces[1] often happens according to the ability of people to conceptualize and recognize the places they are about to occupy. Also, the appropriation of a space which is public or semi-public is concentrated in specific times of the day, following a tight schedule of events and engage-

1 For a definition of the "available space" see also Raffaele Pé, (2011). Organized Networks and the image of the European archipelago. Towards a new geopolitical scenario and its relevance in the perception of the built environment, Venice, IUAV.

ments that each person carefully annotates on his agenda.
The opportunity given by social media and information technologies helps the users in coinciding their agenda with the one of the designed landscape, getting them to know its inner rhythms, triggered ecological and social processes, the emergence of bottom-up events of spatial transformation, and the possibility for new stakeholders to settle in unexpected locations. The project of digital technologies and landscape design draws a chronography of the city and its inhabitants to prime novel ways and times for enclosure and affection related to a public space.

Tactile resonance

Digital data are immaterial information which can have a relevant effect on physical environments if referred to the use of material landscapes and spaces. Accessibility and usage of a place can enact the fruition of the space by different fluxes of users over the time, for different purposes. On the long term, such fluxes configure the space according to preferred trajectories that intercept various types of resources, following the needs of the same users.
The awareness and the management of the development of certain migrations and movements within the city can be a useful design instrument for the transformation of certain social and environmental behaviors. Coupling the digital project with a material extent that needs to be shaped and developed (the landscape) can be an effective strategy for the regeneration of critical neglected areas. This would allow a degree of adaptability and decidability of the plan to the major operators, without imposing a hierarchical nor evolutionary framework, according to a collaborative approach.

Design strategies for smarter urbanism: Milan Green&Smart

The following case study is a draft project conceived for the municipality of Milan in collaboration with Politecnico di Milano DAStU, the Green City Italia foundation[2] and the landscape and architectural practice LAND. The proposal aims to give to the city of Milan a framework for the development of smarter strategies of urban regeneration exploiting digital technologies and monitoring systems embodied within the green landscape of the built environment.
The proposal is based on a dual approach which sees integrated virtual and physical operations as complementary entities for the design of smart and sustainable strategies of urban reclaim. The interdependency established between the two elements of the composition intends to express the inclusive nature of the two models for the fulfillment of the purposes of regeneration of urban criticalities, following a method which is both interactive and open.

Green Smart Plan

The project consists in the realization of a green network of parks and open public spaces identified around metropolitan area of Milan, including neglected areas, presenting particular environmental and urban criticalities. The network will have its focus on a number of nodes, called Smart City Points, where a remarkable concentration of services, information, and logistic facilities will represent the starting points to spread good practice in the design of the urban landscape and the public realm. The system will be implemented and actuated exploiting locative media and digital technologies to generate processes of environmental improvement, and betterment in urban accessibility and usability.
Green Smart Plan (Image 1) will interconnect green radial corridors that link the consolidated historical centre of the city with its periphery and its agricultural land, a ring of parks, old waterways and squares around the centre, and the Smart City Points, through an extensive apparatus of paths and routes for sustainable and ecological mobility (bike sharing, green public transports, pedestrian pathways and cycle lanes). Digital

2 The contents related to the Green Smart Plan have been designed by Andreas Kipar and Anna Arioli for Green City Italia.

technologies and sensing systems will be embedded within the green network to ease the spatial performance and the accessibility to critical locations.

A weave of soft and hard Infrastructures

The main objective of the construction of the network will be the consolidation of the public space within the city of Milan, interpreted as a collective meeting space of exchange and wellbeing, a place where urban permeability and porosity can be fostered, and a location from which the city itself can be re-thought and regenerated.

Such system will be characterized by:

- High availability of spatial information and awareness (the contribution of the technology)
- Predominance of natural elements especially within the built environment (the landscape)
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- The actual interconnection of all these spaces, will be created by joints and nodes of a double and integrated nature:
- Real and physical (hard infrastructure) – the designed landscape, with pedestrian routes and cycle lanes, green systems of various scale and quality, parks with public services with technical tools for the production of renewable energy (solar panels, wind fans), bike sharing points, areas to stop by and recognize the complexity of the city and its environment.
- Virtual and informational (soft infrastructure) – sensing and monitoring systems for selected parameters and indicators, fixed or movable, for the public administration to actuate governance processes for the regeneration and the transformation of the city, smart phone and tablet application conceived as an open source platform for the user to express preferences and behaviors and to access services and information related to the city and facilities offered by the project.

Smart Key Interface

The Smart Key interface will be designed to make user friendly and customable all the features presented by the Green Smart Plan that the users can benefit from. A certain level of interactivity will be allowed for the users to report preferences and interests related to their actual use of the public realm. Information and data collected and diffused by the application will be available for free for all the stakeholders involved to actuate the Green Smart Plan, following desires and ambitions which belong to the urban community. The plan will represent a set of geo-referenced guidelines of possible spatial configurations, that will assume various shapes and trajectories, adapting their structure according to the feeds received by the users and the stakeholders.

The application will provide a series of key services and information, fundamental to disclose the potentialities gathered within the city and the Green Smart Plan:

- Interactive mapping of the Green Smart Plan (green corridors, green ring and smart city points), containing all the information related to the available services, paths and nodes of mobility. Each user will be able to freely integrate the plan expressing routes preferences and appreciation of the chosen locations.
- Data and information related to the environmental quality of the places, the condition of peculiarity and the possible criticalities of neglected areas, exploiting the network of sensors applied to each smart City Point.
- Historical and cultural information for tourism and the navigation on the territory, through monuments and systems of naturalistic attractions dispersed in the urban region of Milan.
- Data regarding accessibility and possibility of appropriation in space and time (chronography) of parks, routes, natural enclaves, waterways, urban allotments etc.
- Leisure opportunities, including cultural events, permanent or temporary, artistic expressions related to the public spaces of encounter and exchange.

- Digital keys to access bike sharing and green public transports, wi-fi spots, public services.
- Possibility of sharing information produced by the users and the sensing network for analytic and promotional purposes, both for free or on a fee charge, on the basis of public/private interest.

The user who downloads the application will be able to:
- Interact with the designed landscape, accessing it with more awareness of the sources and the resources offered by the Green Smart Plan, with the possibility of participating in decision making and urban transformation processes.
- Provide precious information on emerging pattern of urban reclaim, new contents and preferences, immediately relevant an open process of governance of the city, and to verify and revise the project in its development.

The opportunity given to the users to share information and comments on the plan and on its elements, will allow a constant revision and variation of the designed structure, according to the ambitions of each contributors, for the benefit of a more hospitable habitat, both natural and artificial.

Discussion and conclusions

The hidden potential and the success of a place is always related to the ability for its landscape to express and communicate its qualities through various channels, according to its specific characteristics: what constitutes its context, which resources are exploitable and available, how flexible and how integrated with a greater structure or system the landscape is.
The interweave of digital technologies and landscape design can generate a type of project whose communicability is remarkably intensified and augmented. The spread of information and data about a place, the immaterial effect of the use of locative media embodied within the landscape can increase the opportunity of building spatial awareness and appreciation among its users.
The landscape is here interpreted as a bi-dimensional thick texture of relationships between agents operating in colliding complex systems (Allen, 1999), an open field which is flexible enough to receive and locate long processes of spatial transformation and regeneration. The openness of the landscape, its constant dynamism, and the reversible nature of its elements are the fundamental premises for its performance as preeminent physical means for urban reclaim. Also the landscape is able to trigger processes of ecologic metabolism and regeneration for the benefit of multiple ecosystems. The architect-curator should be highly aware of this capacity when approaching a new project of territorial valorization.
Finally, a project interested in intercepting the virtual world of the internet and sensed data, starting from the material condition of architecture and the landscape, needs to embrace the idea that every plan designed a priori, should be in some way adaptive and editable, in order to absorb changes and transformations supported by the landscape. A plan generated simply analyzing the reality from the point of view of its perceptible characteristics, will always be less objective and inclusive than a project that tends to incorporate participated opinions, preferences and shared beliefs. The project should allow digital technologies and sensing systems to accomplish the plan, providing information derived from generic users and stakeholders (under the supervision of the curator/public administrator) that can modify and implement the development of its topographic pattern as well as its geometric structure.

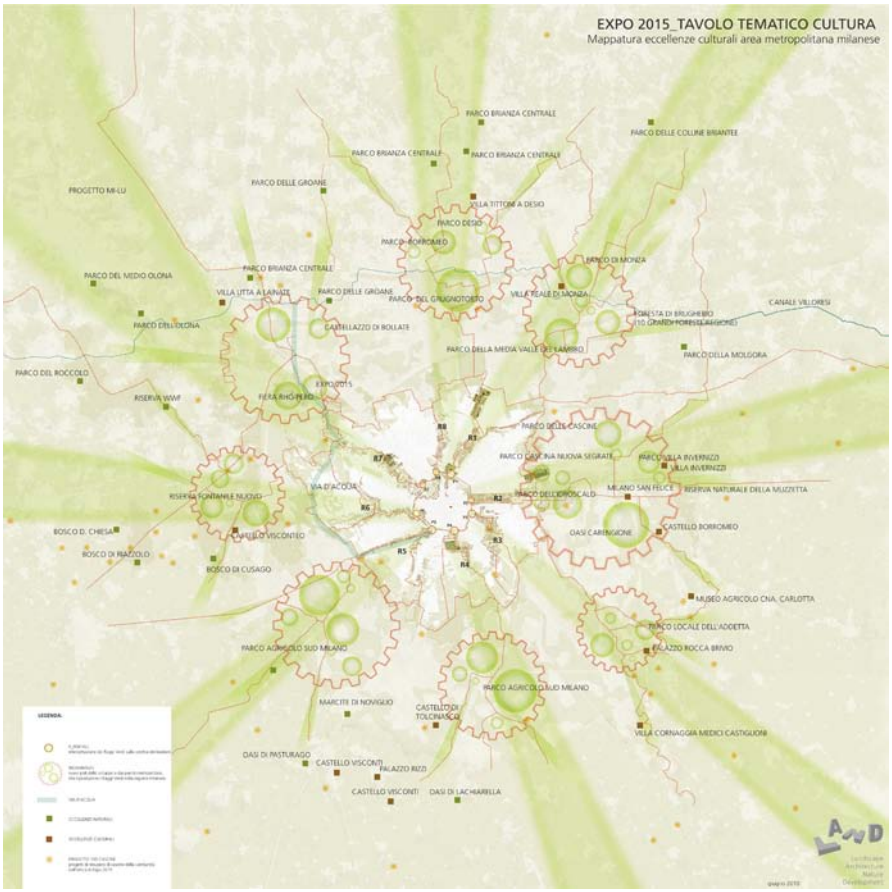

Figure 1 | Milano Green Smart Plan, Raggi Verdi and Ingranaggi. An landscape and urban project which will be the starting reference for development of Milan Green&Smart

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