Abstract
In the smart city era, eating and producing energy for one’s own needs are intrinsic aspects of housing that, the city has to face in a systemic way in relation to the resources of its territory for the economic, environmental and social wellness of its community. The revival of the importance of short supply chains, both in the agrifood and in the pure energy fields, calls into play the internal balance of the built landscape and redefines the hierarchies in the organization of the production platform, stimulating a reflection on renewed themes of design in the urban metropolitan scope.

The role of urban design in the transition from city to smart city is to set up suitable places in order to use efficiently local resources. In this process (with the perspective of environmental sustainability), smart technologies will be used such as tools to coordinate and manage complex issues. Food and Energy are two of these themes, that cities must welcome and design a place for.

Last decades saw urban design dealing with the theme of environmental sustainability. From the beginning of Nineties, Architecture too was engaged to answer to worldwide transdisciplinary request of coping to the diffused environmental degradation. In specific some attentions
dei rifiuti, la gestione dei trasporti e delle energie naturali, la gestione e difesa degli elementi naturali.

Da questa stagione di studi, dai documenti ufficiali (direttive EU, leggi, Guidelines) e dai progetti pilota, sono desumibili alcuni criteri progettuali: compattezza, multifunzionalità, inserimento di elementi naturali nel progetto (acqua, verde), uso di tecnologie bioclimatiche (per l’impiego efficiente delle risorse ambientali locali) e mobilità. Se singolarmente non sono argomenti nuovi, il fine della sostenibilità ambientale, l’approccio sistemico ai fattori e la simultaneità, (Bonomi, Masiero, 2014) mettono sotto una nuova luce gli argomenti configurandoli come nuovi temi di progetto.

Oggi l’impegno verso la sostenibilità non si è certamente esaurito, anzi di recente si è addizionato al tema della smart city, in cui l’intelligenza dovrebbe essere in grado di migliorare la vita nelle città, attraverso l’applicazione delle tecnologie digitali, in primis. La questione dell’attitudine smart, ridotta e banalizzata attorno all’implementazione di tecnologie digitali nel progetto urbano e di architettura, non riesce a rendere la complessità dei temi ambientali, economici e sociali che sono invece implicati nella definizione dei nuovi orizzonti di senso dell’abitare contemporaneo. Smart associato a city non si esaurisce in una dimensione tecnologica ma tende a un salto culturale – quello verso la smart community – in cui l’innovazione tecnica accompagna un nuovo modello sociale non più rigido e verticale, ma flessibile e denotato da relazioni orizzontali\(^1\).

Così la sfida di oggi è dare una risposta in termini di progetto urbano alle istanze di sostenibilità ambientale, facendo uso anche delle tecnologie intelligenti per connettere in un unico schema di funzionamento tutte le attività pertinenti alla città.

Nelle occasioni di confronto sui temi della smart city sembrano ricorrere: da un lato progetti di nuovi centri di produzione energetica che utilizzino le

**were requested: soil preservation, waste reduction, pollution prevention, transportation and energy management, natural elements management and their protection.**

After this season of studies, from official documents (i.e. EU Directives, Guidelines) and from pilot projects, it is possible to identify some design criteria to work on: compactness, functional mix, design with natural elements (water and green), use of bioclimatic technology (for an efficient use of local resource) and mobility. These issues are not new themes if we consider them singly but if we are working with environmental sustainability aim, with a systemic approach and a simultaneous vision (Bonomi, Masiero, 2014), they look like new subjects for smart city challenge.

Certainly today the commitment towards sustainability has not ceased; rather, recently, it has joined the topic of smart city. In this new situation, smartness should be able to improve city life, primarily through the application of digital technologies. If the smart attitude, is reduced and trivialized such as the implementation of digital technologies in urban design or in buildings, it doesn’t succeed in returning the complexity of environmental, economic and social issues. The management of this complexity, instead, defines a new sense for contemporary urban housing. Smart + City is a couple that expresses a cultural leap towards a smart community in which technical innovation accompanies a social model not yet rigid and vertical, but flexible and characterised through horizontal relationships\(^1\).

So today’s challenge is to give an answer to sustainability issues through urban design project, by using smart technologies to connect all city activities in a unique diagram of operation.

In the debate on the smart city, two positions seem to occur: on one hand projects of new
energy production which use resources in a systemic way and on the other places of collection and distribution of food production of high quality and short chain. Given the general interest, the paper proposes a reflection on the use of food and energy factor to enter the mechanism of production of the territory and redirect actions in a smart way. In particular, making a system with the actors of the food and energy network would be a first step to build synergies that function as a garrison of the territory and may increase its enhancement.

We report here the synthesis of a reflection pertaining to a possible theme of innovative project dedicated to the areas of production and exchange of energy and food in protected areas around Turin (Melis, Roccella, 2014). These are activities that take up space and can be adjusted according to autonomous flows but, in a smart city, they can even match and contribute to the design of a new generative script that reconnects a city to its land that sustains and feeds it.

In accordance with the principle of the disappearance of the model of pure molecular capitalism (Bonomi, cit.) it is noted that Persino nei territori dell’eccellenza produttiva agroalimentare piemontese...
talism in Italy (Bonomi, 2014) we see that even in Piedmont, in the areas of excellent agrifood production, the settlement pattern that resulted from this economic approach, based on sprawl, entered in crisis when the creative density of territory has given way to the changes put in place by the sudden arrival of external capital flows that modify the territorial assets. It is the case of major hypermarket chains that, contending for the primacy of the most accessible location, have effectively consumed precious periurban areas, thus extending the margin of the city rather than helping to reshape it, as instead it would be happened by reusing abandoned industrial structures. This is what happened in Turin metropolitan area, in recent times, even in areas adjacent to protected areas, at the expense of pre-existing agribusiness, thus compromising the precious but fragile balance between the built and rural areas. At the same time, the emergence of new power plants from biomass is a pretext to rediscuss the networking of resources, capitals and the collective creativity, towards new forms of green economy and new territorial structures.

The energy theme has always been shaping...

E Novecento, o al diradarsi del tessuto delle città con l’avvento dei sistemi per il trasporto dell’energia, o ai simboli legati all’energia che costellano il panorama urbano (Ciorra, 2013), situazioni in cui i manufatti hanno assunto un ruolo didascalico sul rapporto società/energia. A metà del secolo passato si è visto perdere l’interesse sociale al tema dell’energia, divenuto un fattore scontato nella vita della città, e con esso anche l’interesse architettonico per le infrastrutture energetiche. Salvo poi, con l’impianti dell’attenzione alla sostenibilità ambientale come detto in apertura, invertire nuovamente la tendenza. Ciò però non ha condotto a replicare le modalità del passato perché le nuove fonti di approvvigionamento (energie rinnovabili) e i nuovi sistemi di gestione della produzione e della distribuzione (smart grid, distretti energetici) (Cumo, 2011) hanno portato a rompere almeno tre aspetti dell’immaginario collettivo ad esse legato: le grandi dimensioni, l’invalicabilità dei confini della struttura e la collocazione indifferente alla specificità del territorio. Le infrastrutture energetiche di nuova concezione hanno ridotto la scala architettonica per adattarsi.

Barbara Melis, Graziella Roccella

TERRITORI DEL CIBO E DELL’ENERGIA. Gestione efficiente delle risorse nella smart city: nuovi temi di progetto

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finally the localisation, often indifferent to the specificity of landscape.

In fact new conception small energy plants are often buildings a few hundreds of cubic meters large, commonly have only one or two floors, and are inserted in urban space without fences. Their dimensions make them suitable for local renewable energy sources, such as small amounts of biomass, fact that underlines the specificity of the Regions. Lastly they are often integrated into mixed uses spaces, sometimes used for leisure or educational activities by citizens (Melis, Mutani, 2013).

These new spaces for energy supply accord well with the latest trends in food management that foster the local dimension, tend to shorten the distribution chain and strive to reduce waste. In this perspective the matching energy / food makes the closure of matter cycles possible through the energy exploitation of the organic waste, besides to sharing spaces, with a consequent reduction of soil consumption.

Alongside tools of energy governance and besides the flourish of food planning policies, recently investigated by the urban planning Italian scene, urban design can come back to deal with the design of the edge of the smart city and has to deal with the new logic of matching between demand and offer in the energy and agribusiness fields, involving the construction of exchange hubs, accessible to the public. The case of the protected areas of the metropolitan area of Turin, such as La Mandria Park (Barzan, Grella, Roccella, 2013), shows that interventions in these areas provided with a consolidated agricultural vocation, would have an important impact on a large number of subjects. This network of stakeholders could spread the identity values of food&energy-scape by preventing further use of land, in addition to meeting local needs.
In those that we could described as ENERGY & FOOD HUBS, the production and exchange of two key elements for the development of the social life in the smart city, would help to transit the vitality of the production platform of geo-communities - made not only of farms but also of agribusiness - in the operation of redesign of the urban spaces in the fields of the production, processing and distribution of energy and food. It comes to conceive new centers of production and exchange of food and energy, where the manufacturers confer their products, whose wastes are used for energy production and where the citizen can go and purchase and simultaneously monitor in real time sustainable uses.

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Mappa delle attività agricole ed energetiche del Parco La Mandria (elaborazione degli autori) / Maps of agribusiness and energy plants in La Mandria Park (author's elaboration)

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FOOD&ENERGY-SCAPE. Efficient Management of Resources in the Smart-City: New Themes for Urban Design
delle informazioni e autoregolabile, un modello progettuale che genera nuovi modi di fruire il territorio invece di consumarlo e incoraggia varietà di forma, che produce inclusione sociale ed è in grado di far dialogare la piattaforma produttiva del distretto territoriale di riferimento con la domanda della città metropolitana, coniugando smart city e smart land.

Note

1 Sull’innovazione sociale si veda Murray, Caulier-Grice, Mulgan, 2010.
2 Si citano ad esempio: Soon-In Yang, Energy FARMacy, progetto presentato alla Mostra Energy, MAXXI 2013; Rural Hub, incubatore di nuovi modelli di sviluppo economico per imprese rurali, Napoli, www.ruralhub.it; Officine Corsare, FHTC (Food Hub TO Connect), progetto vincitore del Bando MIUR Smart Cities and Communities and Social Innovation, 2012

Notes

1 For the matter of social innovation look at Murray, Caulier-Grice, Mulgan, 2010.
2 E.g.: Soon-In Yang, Energy FARMacy, project exposed at Energy Exhibition, MAXXI 2013; Rural Hub, incubator of new models of economic development for rural business, Napoli, www.ruralhub.it; Officine Corsare, FHTC (Food Hub TO Connect), winning project of the call by MIUR Smart Cities and Communities and Social Innovation, 2012

Bibliografia / Reference

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