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## Peripheral centralities: an integrated approach

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### Abstract

There is a profound ongoing change in urban settlements and this particular phenomenon can be observed principally in the relationships between central and peripheral areas.

The peripheral areas constitute the context in which the future of urban settlements can be properly tested, where the future quality of life of individuals and of communities can be prefigured. The criteria of safety, sustainability, and welfare, which will be covered in the context of peripheral areas, will become continually more important. The sense of identity and belonging, which is stronger in the central parts, is weak or lacking in the peripheral ones.

A sort of spreading centrality should be aimed at, by applying an integrated approach, with an adaptation to the specifics and without losing the required uniformity.

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### 1. Introduction

Over the last few decades awareness has been growing that the urban dimension, even more so than that of single buildings, is fundamental for pursuing the considerable goal of sustainability. This has brought to light the need to revamp the approach to the built environment, establishing a systemic and holistic perspective as the basis, in the consciousness that excessive specialism may be ineffective, if not outright damaging<sup>1</sup>.

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The importance of interaction between buildings and their (natural and artificial) surroundings, and the role of open spaces, were highlighted with a particular eye to energy efficiency, and thanks to studies and experimentation based on the multi-scale analysis and solutions (i.e. those financed by Call H2020 EeB-05-2015 “Innovative design tools for refurbishing of buildings at district level”). This aspect of sustainability is fundamental for controlling the depletion of environmental resources, and cannot be shut away in a technical and specialized sphere, because it is conditioned by socio-economic aspects and, at the same time, depends on cultural behavioural factors. Therefore, there is a need to be sensitive towards the multi-scale nature of the phenomena, all of which should be borne in mind methodologically, with regard to knowledge, the project itself and its management. Furthermore, sustainable urban regeneration dictates the need for transversal contributions from various disciplines, integrated through the involvement of consumers, citizens, administrators and economic operators. In addition to this, the district-scale allows a wider overall vision, without eluding reality, and provides an opportunity to tackle the social aspects as a dimension of sustainability; this requires the local authorities to take on their responsibility.

This paper is the result of converging lines of thought shaped in diverse academic fields (Architectural Design; Architectural Technology; Urban Design), but which, in fact, refer to the same operational reality. We aim to contribute to defining a common and integrated methodology for an approach to knowledge and town-planning, and the practical application of which is ascribable to innovation in planning tools, operational procedures and management activity. Regarding the topic of peripheral areas, we singled out an element that characterises a large part of the contemporary city, using it as a testing ground for prefiguring its future, with a reference to the quality of life of the individual and the community over the coming decades.

The relationships between the peripheral and central areas (which in Europe are often linked to the connotation of heritage<sup>2,3</sup>, are rather complex and often reflect a social conflict and economic forces. Processes of urban regeneration geared towards sustainability cannot ignore the continuous and growing evolution of these relationships, those are fundamental in the structuring of the city-system.

The paper draws its assumptions from the actual concept of urban periphery, as a relatively recent phenomenon in the forms those have been assumed in the contemporary world, which derive from the consequences of industrialization on social transformations and the evolutionary dynamics of urban phenomena. Subsequently, considerations extend to the evolution of the central and peripheral parts of the city and their reciprocal relationship, which today is increasingly ambiguous and conflicting. There is a discussion of trans-scalar methodology to attribute new orientations to the plan and the project, such as the *città in estensione* (lit. *city in extension*)<sup>4</sup>, which, by exploiting the opportunities on offer from technological innovation, might contribute to resolving the problems of peripheral areas and may improve the quality of those living there.

## 2. Peripheral areas: a “modern” phenomenon with a key role in urban metabolism

The sustainable regeneration of contemporary peripheral districts in the Mediterranean region could well obtain useful indications from several settlements model that survived from antiquity up to the industrial revolution. Particularly, with the conscious and avowed juxtaposition between *urbs* (city) and *rus* (country) as was the case in Roman dominions at the time of the Empire, the town and cultivated countryside constituted a distinct but they were complementary poles of a clearly identifiable symbiosis, against a background of uncontaminated nature. Several important studies view the centre-periphery relationship in the archaeological environment as an open-ended question in the construction of a unitary vision of human evolution on a global level<sup>5,6</sup>, where the issue is being interwoven with economic studies associated with historical periods preceding capitalism<sup>7</sup>. However, it is indicative that the phrase *urban peripheral areas* only became widespread in the second half of the 20<sup>th</sup> century, mainly deriving from the construction of satellite townships around industrial cities at the end of the 19<sup>th</sup> century in the western world<sup>8</sup>.

The centre-peripheral area relationship has taken on new meanings with the advent of the ecological perspective. Grafting itself on to a theoretical renewal triggered by a sociological approach launched in the first part of the century, this perspective found the seeds for its development in the analogies between city and living organisms (*urban metabolism*) and the big city’s conditioning of the human mind. The distinction in social class, which had always existed, started to manifest itself in the identification of diverse parts of the urban space, to the point of suggesting a model with concentric circles, such as the one proposed by Burgess<sup>9</sup>, in which the centre (centre of

business and principal services) is clearly distinct from the more or less distant peripheral areas. This model varies, when compared to the real city, having maintained for some time its theoretical position as the key to understanding the human phenomenon, conditioned by the cultural, social and racial distinctions among the masses of immigrants characterizing the USA in the early 20<sup>th</sup> century, who often ended up with jobs that gave rise to the well-known stereo-types (Irish policemen, Chinese laundries, Belgian janitors etc.)

This sort of sectorialization lost sway over time, becoming simplistic in the face of ever more complex and articulated social relations, so that subsequently the conception of urban metabolism gradually started to evolve, distancing itself from urban transformations seen as the fruit of eminently social factors. The contemporary approach, oriented by an ecological perspective, defines urban metabolism as «the sum total of the technical and socio-economic processes that occur in cities, resulting in growth, production of energy, and elimination of waste»<sup>10</sup>. Thus, interest shifted from the individual to the mass flow, with the aim of seeking sustainable equilibrium, both to combat environmental pollution and energy consumption, and to tackle the demographic pressure of much greater migratory phenomena than those in the past; these have manifested themselves in peripheral areas in the western world, not only in terms of cities but also entire regions.

However, the social dimension continues to be decidedly relevant in interpreting urban phenomena and should be borne well in mind when tackling the theme of regeneration of peripheral areas, several fundamental concepts having been recovered that present analogies with natural sciences (e.g. urban resilience), which can no longer be happily classified by scientific category and taxonomy as simple metaphors; all this serves to broaden relationships between disciplines that use the same terms, in an attempt to understand phenomena that may be related to ideal theoretical models emerging from different points of view: « [...]. Our search is not about the metaphorical similarities but for shared biosocial vocabularies and measures. Our interest is in the observed spatial patterns and processes of a particular ecosystem – unique, distinctive, and theoretically similar»<sup>11</sup>.

### 3. The centre and peripheral areas: elements of comparison

The comparison between the centre and the peripheral areas, which is today dominating the way technicians, experts and the general public view the urban phenomenon, can be linked to the *World-System Theory* by Immanuel Wallerstein<sup>12,13</sup>. He drew inspiration from previous theories regarding economic sociology that had stressed the consequences of social imbalances and sharp work divisions<sup>14,15</sup>. Wallerstein defines the *semi-peripheral area* as a sort of buffer zone between the core, with its concentration of work and control of production, and the periphery, a place in which the production of industrial capital is concentrated and which is tightly controlled and dependent on the core area. The semi-peripheral area is the connective in which both work and production are concentrated in a blend that does not attain the quality levels attained in the core area. In particular, on the basis of an analysis of the larger cities and their domains, it is possible to comprehend systems of human settlement, from the level of the world system and from the levels of large cities and metropolises. These can be classified as follows:

- *Core urban area*: concentration of services and land values due to the central location and as a result of distances and conditions of accessibility<sup>16,17,18,19,20</sup> and in function of the overall quality of the competitive factors<sup>21,22,23</sup>;
- *Semi-peripheral area*: the presence of production-units of goods and services dependent on the core area<sup>24</sup>;
- *Peripheral area a)*: possessing autonomous functions but dependent on the first two areas.
- *Peripheral area b)*: totally dependent on other areas and lacking essential services, and in which citizens' unrest is possible, coupled with the social marginalization and phenomena of revolt<sup>25</sup>;
- *Ultra-peripheral zones*: abandoned out-of-town areas; shabby areas characterized by the absence of human resources<sup>26</sup>;
- Former rural areas, no type of production, presence of phenomena of social marginalization and illegality in contexts of micro-spatial dimensions<sup>27</sup>;
- Activated rural areas, certified organic production, traditional farming production in which it is possible to introduce innovation<sup>28,29</sup>;
- Natural landscapes – ecosystem management<sup>30</sup>.

Ranging from the mega-scale of world systems to the micro-scale of the various parts of the large city/metropolis, these systems can be linked to a theoretical multi-scale model in which the spatial components that

characterize the centre-peripheral area relationship can be considered contiguous; this is not only because of the urban and metropolitan functions (that are to be considered complementary), but, above all, because of the behaviour of social players and the reasons that drive them to choose a place to live, work or, by moving continually, regenerate themselves. The distinctions between core, peripheral and semi-peripheral areas can be reinterpreted in an ecological key, by considering the relations with flows and processes. In light of this, there is the possibility to consider the cause-effect relationship of technological innovation on society, in an awareness of the integrating role of social and technological innovation, as a driving force of the regeneration of peripheral areas.

In short, the contraposition between centre and peripheral areas derives from an inseparable mix of factors of diverse nature. Most of the differences between central and peripheral areas can be understood in the light of the varying relationships between the parts of these cities with the passing of time. The central areas, due to the consequences of dynamic evolution, are where successive stratifications co-exist in the present time, whereas the peripheral areas are almost “out of their time”; their urban fabric and buildings are virtually in the same form that was allotted when they were built.

A linear vision of time and a simplified interpretation of urban phenomena have led to awarding the centre with the exclusivity of several identitary values (origins rooted in the past; stratification of identity elements; links with the non-material heritage); these are difficult to be identified in the peripheral areas, although it is actually hard to find any parts of the built environment completely lacking similar values, especially in the Mediterranean and European contexts. Even though this contraposition has by now shown its limitations, both theoretical and operational, it continues to permeate the approach to the urban phenomenon and to condition choices and behaviour; this is due to the fact that it is totally vindicated by the objective differences between the central areas (often of a pre-industrial lay-out) and the peripheral areas, the fruit of more recent dispersive processes; these differences regard morphology, lay-out and density of the urban context; building solidity and architectural quality; interaction of activities and coexistence of public and private dimensions; forms of use and mobility.

With the thorough reworking of post-modernism, only in the last few decades of the 20<sup>th</sup> century, as part of the general crisis of ideologies and also the certainties in the discipline of architecture, did knowledge actually start to crumble and determine the increasing conditions of uncertainty in the relationship with the dialectic and antithetical dimensions that connote the contemporary city. In the wake of an announced crisis of a cognitive approach based on the dialectic of opposites, a notable series of new trends and alliances ensued, often opposed and in conflict, which, totally defined a fragmentary theoretical scenario, which could only be described in a discontinuous manner and for restricted environments.

On the first hand, there are those, including Jurgen Habermas<sup>31</sup>, who took a stand for the continuation of modernity, avoiding absolute and collectivist excesses; on the other hand, the most experimental philosophers, such as Jean-François Lyotard<sup>32</sup> or Gianni Vattimo<sup>33</sup>, in their attempt to overcome the intransigence of modern ideology, extracted from the logic of the *pensiero* debole (lit. *weak thinking*)<sup>34</sup>, fragmented knowledge, with the prospect of defining a cognitive, mobile, dynamic, discontinuous, relativized mosaic. All this was done in the awareness of the existence of a new planetary culture produced and imposed by mass communication. This line of thought then measured itself against another direction of neo-avant-garde research inspired by the philosophy of Jacques Derrida<sup>35,36</sup>, who created havoc in the metaphysical potentiality as expressed by the philosophers of modernity.

With reference to the settlement phenomena, post-modern thinking has contributed considerably to subtracting validity from the historical contradictions that opposed the city to the country, the centre to peripheral areas, the monument to the street lay-out; these privileged tools, both for knowledge and for the project, corresponded, on a smaller scale, to the classic dualisms of form-function, place-project, building typology-urban morphology.

It seems that the hybrid idea of *città diffusa*, the dispersed city, or the sprawling city or, even better, the scattered city, could substitute the city/countryside, centre/peripheral area dialectic, with the subsequent search for centrality in each single place; therefore, all places are central and all participate in the act of opening up and distancing, which is linked to the notion of countryside. Today, the contemporary metropolises can be viewed as a series of cities erected one above the other, infinite building conglomerates, the identity of which no longer lies in the architectural quality of the buildings themselves, but tends to find its identity in the infrastructural landscape and in *non-places*. These anonymous and morphologically indeterminate environmental entities consist of those atopic spaces that the futurists had already individuated as protagonists of the 20<sup>th</sup> century city.

At the same time the atopic nature of settlement systems seems to have reduced the significance of the contraposition of centre and peripheral area. In the same way, the lay-out of buildings has also altered its identity, changing into indistinct and proliferating material. The metropolis, a place of great complexity, but also, and above all, a location of *non-places* (it being hybrid, indistinct, indeterminate and scattered), becomes a physical metaphor for the coexistence of several idioms and themes in contemporary culture.

The post-modern re-birth and the parallel maturation of an environmental culture have contributed to shaping the basis for the contemporary approach to the city, which has acknowledged the limitations of the contraposition between the centre and peripheral areas as a presupposition for the clear separation, at the levels of strategy, programming, design, management, that dominated the last century; in the Italian scenario, for example, the choice to separate centres with an age-old structure from choices dictated by the General Regulatory Plan, is symptomatic.

#### 4. Theoretical presuppositions for urban regeneration: a scattered centrality

From the moment that urban settlements lost their morphological unity and compactness of buildings, the concept of typology also changed its meaning, shifting towards processes of gradual dispersion of their centrality. In post-modern culture, the typology has been understood as a logical statement regarding the form and also as a-posteriori knowledge of a positivist type, assuming a de-totalized, fragmentary, and to an extent, casual character. Typology presents itself as a marginalized cognitive category of architecture, a category at the limits, we might say borderline, and that is why it may be the most appropriate for interpreting certain elements of the sprawling city, beginning at the limits of its limitlessness. In fact, it appears to us as not only multi-ethnic, but also multi-architectural, i.e. not resolvable with absolute categories; the city no longer assigns its recognition to the architecture of its buildings, but tends to identify with the infrastructural landscape and with that system of entities called non-places. On the basis of these considerations Laura Thermes, with the term *trans-typology*, indicated a new cognitive category adequate for reading a city's transformative processes and those of contemporary architecture<sup>37</sup>.

One of the most recognizable situations in the landscape of the dispersive city, regards the forms of open spaces, which, taken all together, seem to reflect the entire compositional grammar of urban dispersion, constituting a privileged field of application for decisive design experimentation. It is not by chance that contemporary architectural culture is becoming more and more interested in heterogeneous and discontinuous contexts in peripheral areas and in the dispersed city. Here there are countless open spaces lacking a clear formal and symbolic identity, which cannot be interpreted in accordance with traditional categories of urban morphology; they demand the creation of new descriptive instruments as a preliminary operation for every redevelopment intervention: recognizable descriptive tools, when referring to the relationship between peripheral areas and the contemporary city, in "a procedure that sees three successive, distinct but inseparable moments, which can be synthesized into three infinitives: to write, to design, to rewrite"<sup>38</sup>.

The present day is marked by planetary and depersonalising, economic, social, cultural and political interdependence. Vittorio Gregotti, in contemplating the connotation that *designing urban space* has assumed today, discusses the idea of the shaping of the post-metropolis; in his opinion, "precisely because of its extension, it could result in the end of the notion of periphery in terms of a single, recognizable centre, in favour of a poly-centrism capable of new equilibriums"<sup>39</sup>.

Polycentrism and equilibrium among the countless cities present and coexisting in the *post-metropolis* tend to generate identity and recognisability on the part of the various peripheral areas, via the enhancement of the significant presence of anthropological landscape, on the condition that these same peripheral areas are "adopted as precious material for the design of the urban component"<sup>40</sup>.

Franco Purini wondered why contemporary architecture had not worked out a theoretical reference framework to interpret these *non-places*; not only diffuse spaces without a clear morphological peculiarity, but also structures such as airports and supermarket, landfills and motorway tollbooths, infrastructure for the road network, power stations, factories etc. <sup>41</sup>, forms of built environment already pointed out by Marc Augé as land to be investigated and explored<sup>42</sup>. Yet there is a need to focus precisely on these indistinct and shapeless areas of *atopia*, and direct the modifying action of the project as an agent of cohesion in the landscape of the spreading contemporary city; this is clearly shown in the visionary literary interpretations of Michel Boutor, Alain Robbe-Grillet, and Claude Simon, in film sequences by François Truffaut, Jean-Luc Godard, Éric Rohmer and, above all, Wim Wenders, but also

through the penetrating photographic eye of Gabriele Basilico, Luigi Ghirri and Mimmo Jodice. This list of writers, poets and directors once again shows how, in other fields of art, there is a greater and renewed sensitivity in knowing how to grasp the particular poetry of the void that is present, albeit concealed, in the vastness of the *terrains vagues*<sup>43</sup>.

Focusing attention on the open spaces in peripheral areas constitutes an interesting design perspective for urban generation, starting from an attempt to create a new identity for these places, giving a new meaning to *abitare in estensione* (lit. *living in extension*)<sup>44</sup>. On the one hand, one can take action by intervening in the actual refurbishment of the open space, with the aim of providing a reference area for public life. On the other hand, one might intervene with minimal gestures and slight shifts of connotation. This would reflect the logic of metamorphosis of the actual open space, the intention being to trigger a sensation of familiarity and urban civility for whosoever might be using it or living it, in accordance with a line of logic that has been defined, in several cases, as *rammendo urbano* (lit. urban repairs)<sup>45</sup>. The numerous design project experiences that are characterized by a new way of conceiving transformation of urban and suburban landscape can occasionally be linked to a principle of settlement via horizontal development, as in certain projects by OMA-Rem Koolhaas (from the emblematic one for the competition for the Parc de la Villette, in Paris in the 1980s to Melùn Senart); then there is that one by Bernard Tschumi for a business-garden of over 200 hectares, in Chartres, and what is known as Nemausus housing in Nîmes, by Jean Nouvel. These projects aim to create a spread of buildings in great open spaces, the architectural qualities of which appear difficult to control. In other cases, a vertical building concentration prevails, which provides the maximum amount of ground space and reinforces the character of an open structure, as is the case with certain examples (with a strong manifesto character) such as the project for the Atlanpole in Nantes.

Another design-project theme, with a greatly innovative character, might be the one represented by Gibellina Nuova, an emblematic expression and metaphor of all the contradictions inherent in a relationship between centre and peripheral areas. The new Gibellina is, in fact, a *città di nuova fondazione* (lit. *city of new foundation*), estranged and estranging, a paradoxical expression of a city built with characteristics alien to the local culture. It was conceived unconsciously as a peripheral area of itself, but a long period of time had to pass before the residents found a true sense of living there. This is a peripheral area in the broad sense, but also, thanks to a new urban aesthetic bestowed on it by many widely-scattered art and architecture interventions, the location *par excellence* of contemporary cultural centrality<sup>46</sup>.

A recurring design strategy in the approach to peripheral areas is based on the archetype of the fenced area or its contemporary variation, on the local scale, of principles of primary anthropization, as in projects by Busquets for a new city-centre on the outskirts of Grenoble, or the head-quarters of Fiat by Gabetti and Isola at Candiolo; all this in an attempt to characterize the place with a delimitation, imprinting on the project the quasi-role of founding deed.

Whatever logic is adopted regarding the extension, concentration and large architectural fenced areas, what emerges in these architectural design-projects for redevelopment of the spreading city, is the fundamental theme of public space; this is the real or symbolic domain of the settled community, the only one retaining the possibility of becoming the driving force of transformation and reform of terrain defaced and bordering on devastation.

The discipline of town-planning comes on to the scene at the same time as the contemporary goal of peripheral (in the sense of spreading) centrality, with an awareness that peripheral areas do not merely require transport, but also requires services and attractive, quality neighbourhoods, the result of policies integrated between services and new, updated infrastructure. In this way, peripheral areas may be considered as scenarios of tension animating the whole region. There is no lack of cases of success in urban regeneration in peripheral, marginal or run-down environments. One of the most famous cases is that of Bilbao, which emerged as a result of strategic planning, fostered by a public-private agency particularly effective in tackling problems of deindustrialized, polluted zones and a rapidly falling local population<sup>47</sup>. For this reason, it is opportune to frame the approach to peripheral areas within a broader picture, in which it is possible to single out transversal fields of research:

- Core urban area: alleviating the negative effects of metropolitan concentration via urban re-signification<sup>48,49</sup>;
- Semi-peripheral area: introducing components of innovation and research based on new technology<sup>49</sup>, implementing policies of depollution for brownfield sites, with urban metabolism as a point of reference<sup>50,51</sup>;
- Autonomous peripheral areas: fostering identity/creative policies<sup>52</sup> with the support of new ICT technology, in order to involve all human resources spontaneously activated for the changes<sup>53</sup>;

- Dependent peripheral areas: urban regeneration projects based on inclusion for social innovation, encouraging the spontaneous emergence of activities that respond to the typologies as laid down in Human Smart Cities<sup>54</sup> and interventions to create green infrastructure based around participatory approaches<sup>55</sup>;
- Abandoned ultra-peripheral areas and terrain: to be tackled with projects of a territorial and/or re-founding matrix<sup>56,57</sup>;
- Former rural areas: encouraging intervention to create urban kitchen-gardens and urban parks centred around organization by the local people<sup>58</sup>;
- Activated rural areas: new link-up policies of complementarity with the city, sustainable systems of production, new technologically advanced organization of traditional agriculture, integrated for tourism in a relational manner<sup>59,60,61</sup>;
- Natural landscapes: identification of new roles for the open spaces and re-definition of their value in terms of eco-systems and landscaping<sup>62</sup>.

The most opportune way to harness all the project activities together is to utilize all the participatory technology and practices activated from the initial preparation through to the phases of final stock-taking. An example of an attempt to launch processes of urban regeneration in a run-down peripheral area of a metropolitan city was provided by the pilot project *Parterre*, carried out in Palermo from 2010 to 2012, thanks to a EU initiative, *Parterre Electronic Participation Tool for Spatial Planning and Territorial Development*, as part of the programme *ICT Policy Support Programme Competitiveness and Innovation framework (CIP)*.

The preparatory actions<sup>63</sup> were important in order to launch the participation process at the level of the entire neighbourhood of Brancaccio (about 70,000 inhabitants). One of the lessons learnt regarded the adoption of electronic tools for civic participation on the part of municipal government institutions.

An essential premise for this model of *agorà* is for the participation of active local people, to be included formally in the city's governing regulations. The *Parterre* project deals with application of the Living Lab model (understood as the basis for integration between technological and social innovation) to Municipal Development Plans and *Valutazione Ambientale Strategica (VAS)* (lit. *Strategic Environmental Assessment*).

The *Parterre* action model, tried out in various European cities, entails the use of two ICT instruments, in a tool kit to be given to public administrations throughout Europe, consisting of:

- Electronic Town Meeting, via the direct involvement of local citizens to define the urban agenda preliminary to the creation of the development plan and as a basis for VAS;
- Demos-Plan, utilized during the publication of the Plan's recommendations, in order to handle any conflict deriving from the planning choices via punctual on-line consultation of the projected plan.

The *Parterre* consortium was constituted from a public/private partnership, which possessed a balanced blend from universities, public bodies, small and medium-sized businesses and non-governmental associations, which covered almost the entire breadth of Europe; it was designed to provide a wide range of skills as regards commercial marketing of ICT, technological topics, modality of government and scientific research linked to territorial planning, environmental evaluation, Living Labs<sup>64,65</sup>, together with concrete experiences of e-Participation in public events<sup>66</sup>. In Palermo, on February 18, 2012, the first *Electronic Town Meeting* in the Mezzogiorno was organized within the framework of a series of activities of the main Palermitan cultural associations, mobilized for the recuperation of Palazzo Mareddolce and Parco Mareddolce, and the urban regeneration of the Brancaccio district. The project was chosen as *editor's choice* by the European Commission<sup>67</sup>. The *Parterre* project activated and consented the implementation of participatory planning processes with the aid of tools of technological telecommunications; these helped launch activities of "social listening", with their own funding, carried out in Palermo city-hall. A total of five Electronic Town Meetings with local citizens were held, discussing themes of cost, garbage, mobility, administrative de-centralization and the city's new development plan. The methodology used was repeated in the Netkite project, which consented the exportation of the Palermo ETM experiences and those of Living Labs to Tunisia, Egypt, Palestine and Jordan<sup>68</sup>.

Another ICT utilization experience for peripheral European areas is the *Periphèria* project<sup>69</sup>, co-financed by the European Commission as a part of the CIP ICT PSP 2007-2013 programme, which applied the Living Lab model to regulating urban transformations with the direct involvement of municipal administrations<sup>70</sup>. The project consented experimentation of five *Arenas*, understood as innovative spheres for social games, in which processes of co-design

and integration of services of public interest are freely developed. In such an intelligent city people are the driving forces of innovation. The pilot projects of Periphèria<sup>71</sup> were:

- Athens: a Square for Democracy;
- Malmö: a Neighbourhood for Everyone;
- Bremen: Sustainable Mobility in the Streets;
- Palmela: a side door to the City Hall;
- Genoa: safely enjoying City Parks;
- Milan: a Campus Lab for the City.

The objective of Periphèria was to utilize a network of concrete experiences in diverse European cities, which had already launched *smart cities* policies, thanks to the utilization of digital platforms and integrated public services for the promotion of green life-styles. Citizens themselves can be the creators of a new smart city, in which technology also becomes an instrument for innovation in the existing public infrastructure. A city can be defined as smart if:

- It manages to learn how to organize, by itself, its own smartness;
- It manages to acknowledge its own human resource capital;
- It can mobilize social, economic and cultural resources from virtual space to real space and vice versa;
- It can respect its citizens not only because they know how to utilize innovative technology, but, above all, because each of them is potentially capable of implementing change autonomously, resulting in a city that allows plenty of freedom of choice for its own future.

## 5. Green Urbanism, between centre and peripheral area

The word “urbanism” is properly intended as a process; this is quite different from “urban areas”, which, on the contrary, refer to something produced specifically by Man. It is important to outline this difference, because – as the technological disciplines have often clarified – one cannot separate the sustainability of the product from the quality of the entire process. Since Architectural Technology clarifies the processes of formation, transformation, conservation, maintenance and demolition of the built environment, this discipline is essential in order to avoid so-called *Greenwashing*, which is a sort of falsely-sustainable process that produces unsustainable products.

There is currently a commonly-shared awareness that it is not sufficient to pursue environmental sustainability in a single building; it is essential to apply oneself to a broader field of action, which, in other words, with regard to the local area, implies including aspects such as the behaviour of the local people<sup>72</sup> and the urban morphology<sup>73</sup>. Therefore, the relationships between the central and peripheral areas may also be examined in greater depth as regards the different ways in which they face up to the dual ecological challenge: on the one hand, a contained use of non-renewable resources and, on the other, management of waste and gas emissions. The above-mentioned concept of urban metabolism suggests it is essential to position this issue opportunely within the dynamic and sequential logic of flows and processes, the whole as part of a systemic overview.

Back in the 1980s, in the wake of the building boom of the previous decades, in Europe the huge issue of the *project in the existing city* raised its head<sup>74</sup>; regardless of the scale of interpretation and intervention and the specific characteristics of the built heritage and in an attempt to apply a holistic conception of the city, an urgent synthesis of material aspects (buildings and public spaces) and non-material aspects (forms of use and identification of significance) was pursued, via a process-based logic, geared towards *continuous improvement* of the architectural and socio-economic outcomes of the recovery operation<sup>75</sup>. Thus, both the centre and the peripheral areas lead us back to the theme of intervention on buildings; this differs substantially from new expansion and construction for two reasons; firstly, there is intrinsically lesser environmental impact, since there is no increase in the amount of ground utilized and previously existing technological units are mainly used (especially structural elements, in foundations and in elevation), thus restricting the use of new building materials, which, in conventional building-sites, ruin non-renewable natural resources. Secondly, interventions on existing buildings present a superior level of constraints in achieving satisfactory performance regarding energy and environment, because of the definitive and not easily remediable conditions with regard to orientation, exposition to prevailing winds, building typology, town lay-out and population density. Therefore, generally speaking, the interventions on the built environment produce buildings and settlements featuring lower *embodied energy* (dependent on the technical complexity of the productive

process and the influencing factor of transport) and higher *operating energy* (which is necessarily used in built areas, in particular to illuminate them and obtain conditions of thermal well-being).

Knowledge of the relationships between the built environment and its environmental context, an indispensable condition for sustainable interventions, is rarely available in a complete form in the individual design-projects. There is a cognitive gap (deriving from the trend towards specialized sectorializations, which are impervious to that overview of the whole that should give substance to the bio-climatic approach) that could be tackled with a change of cultural paradigm and with a joint effort on the part of administrators, citizens, technicians and clients. The criteria for sustainability in support of *Green Urbanism* should be coherent and synergetic as regards open spaces, constructions and zones of belonging; it could be applied directly by local administrations, in the case of public buildings and spaces, and in the case of private clients, through the sharing of regulations, guide-lines and other various incentives.

Since the peripheral settlements are the fruit of oft-uncontrolled processes of expansion, they often comprise unutilized interstitial zones that are blighted under the environmental profile, in which the goals of significance and attribution of identity need to be sustained by ecologically-aware design choices. These might pursue the following objectives.

- To limit waterproofing with drainable paving; to deal with rain water using *rain gardens*, which include systems of surface, linear and punctual infiltration (trenches, ditches, grassy surfaces alternating with sand, and gravel); this should also benefit the cooling of the circulating air, thanks to processes potentially sparking off evapo-transpiration and systems of accumulation for re-use; to check the albedo of the buildings' fittings and open spaces, in order to combat the accumulations of heat.
- To avoid obstructing summer winds and breezes; to accommodate them instead, in order to generate favourable conditions of natural ventilation; to provide for protective elements for shelter from winter winds.
- To bear in mind the principles of solar design-projects, so as to exploit the direct and indirect benefits; to use screens wherever necessary and to use panels to exploit solar energy.
- To utilize vegetation as an instrument of bio-climatic control, also in building-integrated forms (roof or vertical gardens).

In general, although there is not really any methodological difference in applying to central or peripheral areas (including ancient town-plans) the analytic criteria of environmental aspects (linked to the four *roots* of the world, according to the pre-socratic view: earth, water, air, fire) a clear differentiation is deemed essential in investigative and intervention methodology geared towards the built environment, and not only because of the need to pass on the significance of heritage, which is usually more notable in the centre than in peripheral areas. On the construction scale, all reasoning should take into account the state of edifices built in the second half of the 20<sup>th</sup> century, the fruit of standardization and absence of checks (and, in some cases, the result of speculative construction); for these reasons it is hailed as a *qualitative emergency* of no easy solution.

With reference to the concepts of *embodied energy* and *operating energy*, the building typologies and construction systems common to peripheral areas clearly lean towards the latter type of energy. Again, with reference to energy factors, the redevelopment of the recent building heritage is more easily adaptable to a *deep retrofit*, rather than a *shallow retrofit* (which is preferable in the case of historical buildings); apart from the potentially greater efficiency that can be achieved, there are fewer obstacles in the utilization of active systems for the employment of renewable energy (especially photo-voltaic, but also mini-wind energy and geo-thermic) in less densely built-up peripheral areas.

In most peripheral areas, environmental issues are emphasized by the interlinks with the social dimension and the prevailing economic conditions; *fuel poverty* presents itself as a new aspect of conditions of more widespread misery, delineating a picture of people and communities existing in a state of increasing vulnerability. This has repercussions on the conditions of the built environment, the physical form that embodies the whole series of socio-economic factors that characterise the life and the structure of a community<sup>76</sup>; the physical conditions of the built area, understood as both buildings and open spaces, are, at the same time, both cause and effect of human behaviour, as synthesized in the famous aphorism by Winston Churchill «we shape our buildings, thereafter they shape us»<sup>77</sup>.

Whatever the logic of intervention, chosen from time to time for the redevelopment of peripheral areas (of intensification or rarefaction of the building concentration, attribution of identity and meaning; individuation of new centralities), it is fundamental, in the long term, to guarantee continuity for the actions undertaken. For this there is a

need, from the very beginning of the processes, to include the fundamental *Quality Management Principles* (ISO-9000), with the aim of guaranteeing levels of environmental, social and economic sustainability that can be checked and improved. This can be deciphered as the application of a performance-based approach on the urban scale, as already pointed out by Kenneth Lynch with his five “*dimensions of performance*” (*vitality, sense, fit, access, and control*) with the two “*meta-criteria*” (*efficiency and justice*)<sup>78</sup>. For this reason, rather than ambitious, but isolated and discontinuous interventions, modest and inclusive actions are preferable, being capillary and continuous; they recover paths opened up in the 1980s with experiences such as the *Laboratory of Neighbourhood*, which, after initial experimentation in historical centres, has singled out an indispensable function in the actual peripheral areas attempting to link up the administrators and citizens, via a quasi-amateur facet of the activities of professionals<sup>79,80</sup>.

## 6. Conclusions

Although the centre/periphery coupling has evolved whilst encompassing vaguer operative and theoretical boundaries than in the past, it remains a paradigm generating various analytic approaches and scenarios of action, project and multi-disciplinary programming in the physical and socio-economic sphere. This has motivated the proposal to up-date the centre/semi-periphery/periphery model, which has already been studied by western urban geography with a more wide-ranging structuring, taking into account the most recurrent metropolitan spatial situations. Literature and the concrete experiences mentioned in this paper, selected from the many available on this topic, highlight the fact that it is not possible to describe the centre/periphery model without considering the multi-scale nature (ranging from the macro-scale of world systems to that of the components for settlement in the metropolis) and the architectural interventions.

A close link between Urban Planning, Architectural Design and Architectural Technology is indispensable in support of a line of research based on the need to create a new model for interventions, in which two lines of action are integrated; the first constitutes the conscious and responsible use of available and utilizable technology in the various contexts requiring intervention and the second aims to involve local residents, without whom no positive change is possible. Technology and participation are transversal as regards all policies and practices that indicate solutions and modes of intervention as regards plan and project, targeting beauty and social justice in eco-sustainable fashion; all this in the awareness that models of analysis and intervention that resolve the problems of imbalance and marginalization on all levels and in all possible contexts, do not exist.

Current and future scenarios place the peripheral areas at the *centre* of attention and deconstruct the traditional relationship with the *centre* of the city. The year 2017 will mark the tenth anniversary of a momentous shift on the global scale; for the first time the urban population overtook the rural and one might assume that it amassed precisely in the peripheral areas of big cities. Peripheral areas, understood as geographical, urban, cultural and existential realities, as indicated by Papa Bergoglio<sup>81</sup>, offer a challenge, but also an important hermeneutic opportunity: to renew our viewpoint, by broadening our understanding of our contemporary condition.

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