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Infrastrutture e Sviluppo Urbano: Discontinuità, Design e Pianificazione

Infrastructures and Urban Development: Discontinuities, Design and Planning

Il presente articolo si concentra sul ruolo delle infrastrutture nella formazione di un luogo. Ci affacciamo al concetto di discontinuità urbana, via per produrre e leggere paesaggi e nuovi paradigmi in termini di forma urbana. L'impatto delle infrastrutture nel paesaggio si concentra sulle recenti infrastrutture dell'area metropolitana di Lisbona. Al fine di discutere le soluzioni per l'impatto delle infrastrutture nel paesaggio saranno considerati il rapporto tra accesso facilitato, griglia e tessuto urbano e la creazione di spazi pubblici consolidati, non-consolidati e di progetto. Il documento si concentra su quattro nodi della autostrada A2, accesso principale a Lisbona da sud. Per concludere, sarà presentato un modello per affrontare le discontinuità urbane, integrando come nuovo elemento il concetto di nuova struttura urbana.

This paper focuses on the role of infrastructures in place-making. We approach the concept of urban discontinuity, ways to produce and read landscapes and new paradigms in terms of urban form. The impact of infrastructures in landscape is based on Lisbon Metropolitan Area recent infrastructures. In order to discuss solutions for the impact of infrastructures in landscape, the relation between accessibilities, urban grid and urban tissue and the production of consolidated, non-consolidated and traced public spaces will be approached. The paper focuses on four nodes on the motorway A2, the main access to Lisbon by south. To conclude, a model to deal with urban discontinuities will be presented, integrating as a new element the concept of new urban structure.

Parole chiave: accessibillità, strutture urbane, Lisbona, discontinuità urbane, spazi consolidati
Keywords: *accessibilities, urban structures, Lisbon metropolitan area, urban discontinuities, consolidated spaces*

Since the 1960's, the increasing use of private car combined with the post-fordist reorganisation of cities gave place to new patterns of occupation (Mangin, 2004). Spatial and transportation planning systems proposed different answers to mobility needs. In Portugal these phenomena occurred during the 1970's and 1980's and had a more intense expression in Lisbon and its outskirts. The development of accessibilities and urban sprawl established new patterns of urban settlements. Demographic expectations have been revised based on less growth, turning even more obvious a critical issue: there will be a significant amount of areas that experienced an urbanisation phase and that will remain unfinished. The status of these areas is not transitional and might remain for decades. Proto-urbanised spaces were caused by the emergence of infrastructures and represent a concern in terms of spatial planning and urban design. Discontinuities between large road infrastructures and built spaces gain here a special dimension. On the first part of this paper we will focus on how urban territories changed due to infrastructures; secondly, we will approach on how this issue have been dealt with in Lisbon Metropolitan Area; and thirdly, we will focus on main ideas about how to deal with discontinuities in terms of policies, plans and urban design. Based on the role of road infrastructures in urban development, we will focus on car circulation infrastructures at different scales in order to identify two things. The first one is the role in the transformation of territories at the metropolitan, but also at the local level. The second one is to acknowledge how to deal with urban discontinuities related with infrastructures.

THE ROLE OF INFRASTRUCTURES IN PLACE-MAKING

Places reveal the qualitative dimension of urban territories. The sense of place has an anthropological meaning that Marc Augé identified as changed by accessibilities that transformed our ways of leaving and our territories. Infrastructures put in cause the sense of

place in such a way that they are the reason for the emergence of non-places (Augé, 2002). Infrastructures are blamed for the urban decay of city centres and yet they are so important for urban development. They are seen as elements build to "serve" a specific territory but they also influence territories, promoting the emergence of new settlements (Page et al., 2003), stimulating the fragmentation of pre-existences and interrupting the continuum of uses, typologies and public spaces. Depending on the type of infrastructures, they have different impacts on the way spatial development occurs in the surrounding territories.

The concept of urban discontinuity

One of the impacts that are more often associated with the construction of urban infrastructures is the one of causing discontinuities in the territory. The concept of discontinuity is vast and fuzzy, considering that it has been used frequently in spatial sciences as a way to describe and analyse the change of dynamics, phenomena. It is not seen necessarily as a problem, since it can reflect diversity or rhythm, which are some of the qualities of the urban form identified by authors like Kevin Lynch, Gordon Cullen or Philippe Panerai (Lynch, 1968; Cullen, 1996; Panerai, 1980). To Marc Augé discontinuity can also have an anthropological meaning. He refers to monument as the discontinuity that creates continuity in time. But there are discontinuities that have not an intention and/ or not a meaning. Discontinuities are in this paper addressed having in mind the remained spaces between urban pre-existences and infrastructures (Silva, 2010). In Lisbon Metropolitan Area, with a pattern of occupation defined as "monocentric, dispersed growth" (Font, 2004; p. 332) discontinuities arise within a variety of uses and occupations: large infrastructures cross urban spaces with different densities, rural, forest and agricultural spaces as well as delicate ecosystems. They promote fragmentation of territorial continua and they are the reason to specialize the territory in terms of functions, densities. Unfinished spaces have impact in terms of urban legibility (Lynch, 1968)

and they contribute to reshape the concept of ugliness, as the result of unfinished social processes (Liernur, 1997; Mota, Silva, 2005). Metropolitan Lisbon is the result of a change of political regime in 1974, of migratory movements during the 1960's and 1970's and of the entrance of Portugal into the European Union in 1986. If we think about unfinished social processes, such as the ones related with de-industrialisation and emergence of the post-fordist city, we end discussing a large amount of "problematic" spaces. De-industrialisation generated discontinuous spaces without an urban core, which stimulated Thomas Sieverts to develop the concept of Zwischenstadt or In-Between City (Sieverts, 2003). Research has been trying to find new paradigms to deal with these territories. The Rühr district is one of the most known examples in Europe. Any map representing infrastructure shows how fast accessibilities have changed within the continent, reinforcing the existent ones in central areas, as well as promoting new centralities in peripheral regions.

A new way to produce and read landscape

Many authors deal with landscape in different terms from those used to read the "traditional city" (Sieverts, 2003; Secchi, 2003; Ciorra, 2000). In common they have the attempt to find new frameworks to understand new urban territories. Thomas Sieverts points the fact that form and background switch roles in the new contemporary landscapes. Bernardo Secchi proposes different ways to approach built territories, based on the debate about urban form, since the "traditional" one is scarcely applicable to our contemporaneous cities. He refers to the philosopher Tatarkiewicz and his five types of forms, suggesting that the more current way we interpret form is too strict and reflects only one of the five types of relations that can be created between elements. The re-thinking of old concepts is also present in the introductory text of Pipo Ciorra to the Italian Architecture. Among the new "ten laminations" that Ciorra oppose to the old rationalist approach we underline the concept of

landscape as a complex articulation of build and non-build spaces, the need of a new vocabulary and language to replace morpho-typological determinism and the capacity to identify the scales and instruments of urban intervention. The way of reading landscapes changed dramatically and infrastructures play an important role in this change. Making an analogy with Montaner's La Modernidad Superada, in the same way that in architecture we accept transparency and with it, the ability to assist to how buildings work (Montaner, 1997), it is no longer feasible nor possible to hide infrastructures in their confront with new urban territories because they are part of it.

New paradigms in terms of physical form

New paradigms of spatial development brought new needs in terms of spatial planning. Most settlements have different connections and motivations, depending of the historical period in which they were settled and the kind of infrastructure that generated them. The scale of infrastructures is a relevant factor that influences the emergence of new physical forms. Centrifugal and centripetal forces are caused by accessibilities, promoting new centres or reinforcing old ones in processes of (re) urbanisation. These dynamics happen in a context of planning changes, first from blue print to zoning plans (Hall, 2011) and more recently from land use plan to spatial planning (Nadin, 2007). In decades urban planning evolved from the detailed representation of physical scenarios to more abstract and variable set of rules, searching for a balance between public interest and private initiative. In this evolutionary process, in which options are kept open in almost all the domains of spatial planning, transportation systems emerge as the crucial elements that give structure to the territory. Infrastructures take part on physical form and replace the role of urban structures, as elements – such as public spaces combined with landmarks - that link and give shape to urban settlements.

Re-reading Zoning

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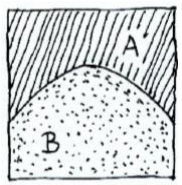
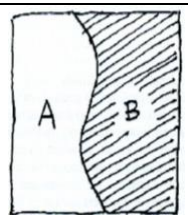
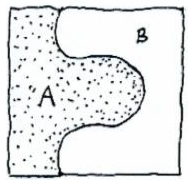
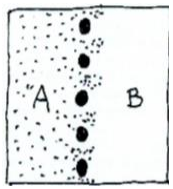
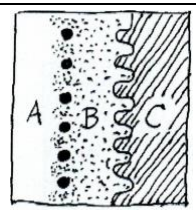
TYPES OF INTEGRATION	A - CONTRAST OF TEXTURE	B - CONTRAST IN COLOUR	C - INTER PENETRATION	D – PERMEABILITY	E - THROUGH A THIRD ELEMENT
					

Table 1 – Different Types of Integration of Elements (Source: Salingaros, 2000, in Silva, 2010)

New planning paradigms, from land use to spatial planning, generated the need of new tools to deal with the lack of integration between urban settlements, and also between these and the diversity of other occupations, including infrastructures. The way plans and projects deal with it is paradigmatic of the transition from over designed plans to flexible ones. More than a decade ago Nuno Portas stated the need of plans with a variable geometry, in which not all the spaces have the same kind of rules (Portas, 2003). In our understanding, spaces with more detailed rules should include the ones of discontinuity, as well as the ones that give structure to the territory. Another issue approached by Portas has to do with the need to design and to care particularly of public spaces. Quality connections through public space and special rules to structural spaces seem to be the key ideas to overcome the lack of integration between settlements. Establishing an analogy with Nikos Salingaros' conjunction of elements - a model that he developed for architectural contexts – (Salingaros, 2000), road infrastructures have been seen in spatial planning as lines that separate functions. For the sake of their efficiency, connections are reduced to the minimum, creating quite often physical barriers. In plans and in reality territories gain different textures or colors depending on how functions are organized: residential versus industrial, urban versus rural, dense versus disperse and so on. Geometry of accessibilities tend to acquire smooth curves (like in example A or B) or straight shapes (such as in example D and E) and they rarely promote interpenetration (example C). Although examples D and E can relate with the geometry of infrastructures they rarely promote permeability or are associated with a third element through which they could promote integration.

Zoning imposed functional segregation and infrastructures were a simple way to apply "taxonomic" planning theories. Functional segregation helps human mind's mental organisation of the territory (Sieverts, 2003). Regulatory plans are not always followed by

trends of occupation. Hierarchically different roads promote different kinds of relation with the urban spaces. Examples like Las Vegas given by Robert Venturi and Scott Denise Brown (Venturi et al., 2000) are exceptional in terms of how the power of the infrastructure can collide with the regulation forces of plans. The contrast between how precise and fast can be the definition of road infrastructures in comparison with how imprecise and slow can be the occupation of the surrounding spaces seems to be a critical issue to add to the dividing character of infrastructures.

LEARNING FROM THE LISBON METROPOLITAN AREA

Metropolitan Region is marked by a context of recent and fast demographic and construction growth and of rapid infrastructure construction. Located in an estuary, it developed through centuries on the north bank of the river. In the 1960's with the construction of a bridge, the south bank started to witness urban sprawl, mainly with residential purposes. In the 1990´s, infrastructures definitely consolidated the Metropolitan Area. Among them, a bridge, a suburban railway line and freeways were built, intensifying intra-metropolitan connections. In the 2000's new public investments were prepared: a new international airport, a high speed railway line linking the two Iberian capitals and a third bridge. These investments represented a boost to the economy, as well as they were followed by the purpose to concentrate occupation around main urban centres, allowed by new public transport lines. These expectations generated new investments. We identified in Lisbon Metropolitan Area's recent expansions three main types of public spaces: consolidated spaces; non-consolidated spaces; and traced spaces. We refer to qualities that might remain in the territory for years or decades and not a transitory process of months or few years. In mid-1990's we concluded that unfinished urbanized spaces existent in the south bank of the metropolitan area would be more than enough to all the demographic growth until

the early twenties of this century (Silva, 1996). Recent data shows that population's growth, diminished, which turns the possibility of "filling" these spaces even more unfeasible. The fact that Lisbon Metropolitan Area followed a pattern of urban sprawl, combining legal and illegal occupations, contributed to the existence of many spaces already "contaminated" by urban developments, at the moment that large infrastructures arrived.

Consolidated, non-consolidated and traced public spaces: urban tissue, urban grid and accessibilities in Lisbon Metropolitan Area

Urban sprawl generated an increase of urbanised space that evolved in different rhythms. In Lisbon Metropolitan Area some got filled in few years and others didn't move from the early stage of infrastructure. The difference between one and the others had to do with the private initiative, the characteristics of the project and at a sub-regional scale, with the construction of accessibilities. Public space is not a value in itself, depending of the conditions in which evolves including the civic aspect (Marshall, 2009). We are mainly concerned that these build environments are an important aspect to develop urban-ness. Being aware that urban-ness is not necessarily related with urban concentration, but also with collective ways of life (Sieverts, 2003), we still think that the lack of continuity between urban settlements is a critical aspect. The analysis of the public space related with built elements became from the working experience in Políticas Urbanas and Políticas Urbanas II (Portas et al., 2003; 2011). We propose to translate the different stages of consolidation of public space, according to three levels: the consolidated, the non consolidated and the traced. Three dimensions will help to distinguish them (see table below). We tried to focus in simple data, adjusted to the conceptual scale of analysis (the whole urban area), different from that applicable to the scale of the neighbourhood or of the street. The first dimension is related with the urban tissue. Despite of the different typologies of buildings, we de-

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fined urban tissue as continuous (when all the plots of land that surround public spaces are build) or discontinuous (when there are plots of land surrounding public spaces yet to be build). When the urban tissue that surrounds a public space is continuous we will consider the urban space as consolidated and when the urban space is discontinuous we will consider it non-consolidated. In the extreme situations of total absence of construction, and yet the presence of an urban grid, we called it traced spaces. The second dimension is the one of the urban grid. Considering its physical and functional borders one can classify it based on the three types of public space. Depending on how physical and functional edges are defined, urban spaces can be considered consolidated (if it is physically and functionally defined), non-consolidated (if it is only functionally defined) and traced if none of the previous conditions exist. Despite of the fact that urban tissue and urban grid play crucial roles on the identification of urban forms, we introduce here a third dimension, accessibilities, that help to explain urban spaces and namely its public spaces. In this case, we consider if they are close or distant from urban spaces and if there is a hierarchy translated on different levels. Consolidated spaces tend to be related with good accessibilities and with a hierarchical road network in opposition to traced spaces, frequently related with a non-hierarchical road network which contributes for a lack of urban structure.

TYPE OF SPACE	URBAN TISSUE	URBAN GRID	ACCESSIBILITY
CONSOLIDATED	CONTINUOUS	PHYSICALLY / FUNCTIONALLY DEFINED	CLOSE AND WITH HIERARCHY
NON-CONSOLIDATED (ghost cities)	DISCONTINUOUS	FUNCTIONALLY DEFINED	CLOSE AND WITHOUT HIERARCHY
TRACED (forgotten spaces)	ABSENT	UNDEFINED IN PHYSICAL / FUNCTIONAL TERMS	FAR AND WITHOUT HIERARCHY

Table 2 - Different Types of Public Space according to the Urban Tissue, the urban grid and accessibilities

Many of these spaces, here called discontinuities, are the remains of non-planned occupations, at least at the urban level. Even if planned at municipal level, by land use plans, at the level of urban design there was not a detailed or even an urban plan to define rules to apply to these spaces. For that reason, we tried to identify intrinsic characteristics of these places having in mind the quality of the public space. In Lisbon Metropolitan Area most of the earliest areas are occupied with consolidated spaces, while in the most recently formed areas, most of the urban public spaces are non-consolidated or traced. We will analyse what occurred around some of the nodes of A2, the main south access to the city of Lisbon.

A2 nodes

Lisbon Metropolitan Area acknowledged major changes in terms of its territorial structural elements. In the case of the south bank, one can talk about a real influence of structural elements in spatial development, since a relevant amount of proximities between functions were created illegally. In table 3 we based our analysis on the work of Page and Philips (Page, Philips, 2003) in which they consider the evolution of structural elements and their influence on territorial fragmentation. Within this analysis, the emergence of poles, barriers, structures and proximities are con-

sidered. We synthetized the evolution in three moments, corresponding to the 1930's – in which there was a lack of infrastructure access to cross the river by car or train -, the 1960´s in which the first bridge was built – and the 1990's – when the suburban railway line was built along the pre-existent freeway. It is evident the association between the diversity of poles – from the manufactories concentrated around the harbor facilities in the 1930's to the retail, manufactory and r & d from the 1990's – with the increase of barriers which also play a structural role at sub regional level and the increase of proximity, not only between manufactory and some working class housing from the 1930's, but also between housing and forest and between different housing typologies. It is in this context that discontinuities emerge. In the 1960's the construction of the freeway will establish the border between legal urban spaces on the north east side and illegal urban spaces in the south west side; between housing and industrial settlements and secondary houses and forest. The late 1990's brought an increase of highway and railway facilities increasing the diversity of offers – illegal low density settlements and legal higher density residential typologies; old working class housing new retail surfaces; old illegal residential settlements along the main roads and commercial units. The intensity of occupation varies: in cases in which the road networks has a stronger hierarchy, with freeways, connected with high ways and national roads, and these with municipal roads, the pattern of occupation tends to be more concentrated and compact; in the cases that road networks lack hierarchy the urban developments tend to be more disperse and less structured.

The impact of infrastructures followed two main patterns. The first ones to be built, like highway A2, were prior to main urban occupation. They were the reason to speculative processes, in which a large amount of illegal settlements emerged. The second generation of infrastructures that took place in the 1990's was influenced by the constraints of space ge-

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nerated by those illegal settlements. The role of accessibilities in urban development depends of the time in which they were produced as well as in terms of their location. The following sequence of aerial photographs shows four nodes from A2, in the south bank of Lisbon Metropolitan Area, from the closest to the central areas (A – Almada), the in between ones (B – Fogueteiro and C – Coina) to the most distant ones (D – Palmela). The sequence puts in evidence the ruptures caused by road infrastructures, and also the kind of discontinuities they promote, in terms of dichotomy of typologies and functions, the barrier and the edge effect. Analysing these four nodes, accessibilities play different roles, depending on several factors. In central areas, the compact city tends to get close to highway accesses despite of the fact that the immediate surroundings works as a decompression space. Still, at a larger scale, we have on the east side, the city of Almada and on the west side its local suburbia, with what in its fordist model of city including a social housing neighbourhood (Pragal) and facilities - a hospital, one university campus and one polytechnic institute. The immediate surroundings of the node works as an empty space that alleviates the urban pressure on the east urban area. The layout of this node was framed by an urban plan. The second node, Fogueteiro (top right), was during the 1960's the end of the freeway and the point from which journey continued by two national

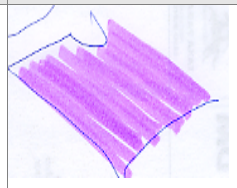
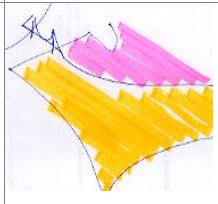
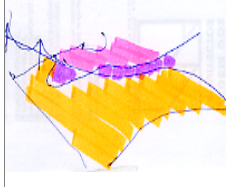
PERIOD	FRAGMENTATION	POLE	Barrier	struCturE	PROXIMITY
30'S		MANUFACTURY	RIVER	RIVER	MANUFACTURY / HOUSING
60'S		MANUFACTURY HOUSING	RIVER FREEWAY	LOCAL ROAD NETWORK	MANUFACTURY AND HOUSING HOUSING AND FOREST
90'S		HOUSING RETAIL MANUFACTURY R & D	FREEWAY SUBURBAN RAILWAY	FREEWAY SUBURBAN RAILWAY MAIN ROAD NETWORK	DIVERSITY OF HOUSING TYPOLOGIES

Table 3 – Evolution of Territorial structural elements: setubal's peninsula (Lisbon metropolitan area's south bank) in an interpretation of the concept of fragmentation caused by infrastructures, proposed by Page and Philips (2003)
(Source: Silva, 2010)

roads. They were the support for speculation and most of the territories involving them were affected by illegal fragmentation of land and abusive construction. The highway worked in the past as an edge between legal industrial and residential settlements (the north east part). The southwest side remained empty in this speculative process. In the recent years, the lack of space in the urbanized context stimulated the re urbanization of de industrialized soil (the construction of a shopping mall in the mid 1990's). This node was reinforced by the construction of a suburban railway in late 1990's. Other structural occupations are being pushed to the "illegal" side of the highway. A new freeway had a node very close to the existent one with somehow complicated geometry. Between the two nodes, a public hospital will be built in public soil that remained untouched during these decades. On one hand, we assist to an unplanned integration of the two sides of the freeway, due to new occupations. But in terms of space continuity, fragmentation increases with the superposition of nodes and infrastructures. In this case, the line that separated different parts of the city is thickening. The node C (Coina) is located in the periphery of an industrial pole. This territory in the centre of the peninsula represents the concentration of the "anti-cities" of different (6) municipalities. The concentration of construction follows the administrative limits. In one of the municipalities is concentrated the most part of the constructions, a settlement that combines small manufactories with warehouses and some larger factories and retail surfaces. At the regional level, the node of A2 has a structural role and explains the concentration of constructions. At the local level, the lack of a hierarchical road network – the connection from a A2 (an element of the main national highway network) with the territory located at south is made through "no man's land" where the main road have very bad conditions and officially part of them were included in private ownership – explains the lack of structure and hierarchy between the two sides of the highway. This node represents the

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reverse of node A (Almada): while in the first one a concentration of construction contrasts with the non-built surroundings, in node A the empty areas is residual and concentrated, being surrounded by built areas. To the future is expected a redesign of the node, creating an exit towards south. The fact that this is the area that concentrates the most of the construction will create tensions between infrastructure and built environment. The fourth and last node (E – Palmela) is clearly the outskirts of the metropolitan area – at least in terms of its internal networks. The damages caused by infrastructures seem to affect less the territory. The diversity of spaces and typologies increases significantly, while the amount of public space, when compared with previous examples is reduced to the minimum necessary to agricultural, industrial and residential functions to work in a public space with a lack of hierarchy.

In these four examples some dimensions are important to have a critical perspective in terms of the discontinuities generated by infrastructures. Dichotomy, introduced by plans or implicit in the way that territorial management has been made by local authorities, seems to be a crucial dimension when we talk about discontinuities created by infrastructures. A second dimension is related with the edge effect, which has a higher impact in contexts of more central areas, with

Figure 1 – From Center to Periphery – freeway nodes of a 2: a - almada, b - fogueteiro, c - coina, d - palmela (from top left to bttom right)
(Source: Google Earth, in Silva, 2010)

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more concentrated and compact construction and decrease as we are in presence of more peripheral spaces. A third dimension, not so disconnected from edges is the one of the barriers. This one, for its physical impact is probably from all of them the one that has a more even impact in all the four examples that we analysed. If the freeway is just a line that justifies dichotomies in urban development, the nodes are representative of decades of urbanization without urban structures.

FINAL IDEAS

We can say that the last 40 years in Lisbon Metropolitan Area were a combination of the growth dynamics that happened in central Europe after the second world war with the production transformations that gave place to the post-fordist city in the 1980's. Road infrastructures allowed urban residential sprawl as an answer to housing needs and to the re configuration of productive systems. In many cases these infrastructures generated urban spaces more than places. Discontinuities, as a result of this process, have physical, functional but also anthropological dimensions. Landscapes and their interpretation changed and infrastructures tend to play a relevant role on them. They tend to replace urban structures. The confrontation of these two worlds, the one generated by road infrastructures and the one generated by city centres are a critical dimension in terms of urban form. Some

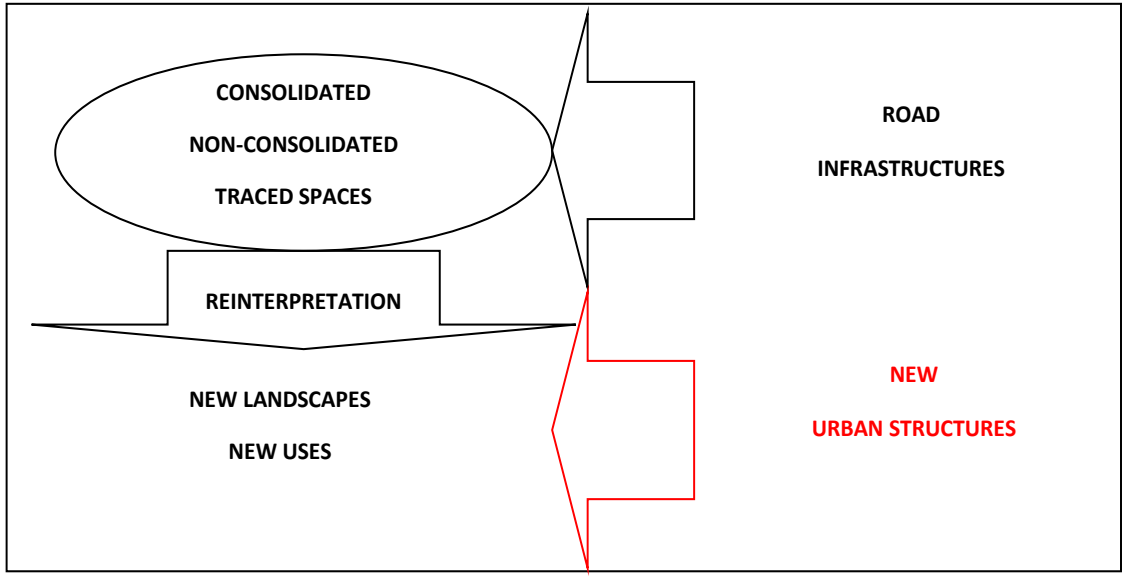

Figure 2 – A model to solve discontinuities caused by infrastructures through design and planning

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spatial planning tools are required to deal with this issue, to which, in terms of urban design, concepts imported from architecture theory related with the integration of elements can be useful.

In Lisbon Metropolitan Area, the south bank was particularly affected by the construction of accessibilities in an initial context of scarce occupation. It has an evident concentration of non-consolidated at traced spaces, which is the result of a network of accessibilities built without hierarchy, with impact on a discontinuous urban tissue, or even an absence combined sometimes with undefined public spaces – in both terms, functional and physical. The way infrastructures evolved, promoted fragmentation, at the same time that diversified poles, barriers and proximities between different types of occupation. A non-planned process that more recently was enhanced by planning tools through zoning. To conclude we will systematize the transition of paradigms. How infrastructures changed in terms of functionality is one of the most relevant aspects.

New urban structures should follow some strict rules based on the principles of having a meaning in time and space and having a strong functional component in order to make it livable. With this these principles we would like to transform urbanized spaces into places. The fact that we are dealing with discontinuities caused by road infrastructures claims for a strategy for urban spaces seen from that perspective. The creation of urban structures should compensate the peripheral condition of spaces. In fact, road infrastructures seen as a facility that avoids urban traffic is frequently selectively disconnected or even segregated (when it refers to highways), from urban centers. All the different levels of road networks generate their own economic and social environments. At the bottom of the hierarchy of road networks, we find small / medium businesses - and all kind of uses attracted by car traffic, that Álvaro Domingues described for northern Portugal (Domingues, 2009) – while at the opposite end, we find more specialized functions. That kind of development generates discontinuous worlds, which sometimes are characterized by an effective physical disconnection and other times are marked by a functional lack of integration. In both cases, local and regional centralities don't match and quite often the proximity (analyzed by Page and Philips in 2003) is characterized by "regional centrality turns the back to local periphery". When road infrastructures constitute a physical barrier, local peripheries are in double disadvantage: due to their peripheral condition, on one hand, and to the lack of connection with the outskirts of the city, on the other hand. For those reasons, several options can be taken in order to qualify these areas. The creation of non-places allowing (as opposed to what actually happens) the integration with urbanized peripheries can be a major contribution to transform them into places. The fact that road infrastructure occupation meets urbanized areas can have different advantages, namely the enhancement of the sense of place to those who use the infrastructure. The lack of consolidation of spaces is particularly crytical in terms of edges. We tried for many years to control the occupation along main roads. In some cases this was a lost battle, mainly related with illegal occupation. To use a "third element" as a tool to integrate infrastructure and urban spaces, regarding the possibilities here referred (Salingaros, 2000). And finally, another possibility is to use infrastructures intentionally in the process of urban design, breaking the dichotomy that these elements can create in the territory (residential / non-residential; legal / illegal; dense / disperse).

BIBLIOGRAFIA

Augé, Marc, (2002), *Non Luoghi,* Ed. Elèuthera, Milan

Ciorra, Pippo (2000), "Laminations – Ten Concepts" in Ciorra, Pippo, D'Anuntis, Marco, *New Italian Architecture,* (1st edition), (ed.), Milan, Skira Editore S. p. A., p. 11-15

Cullen, Gordon, (1996), *Paisagem Urbana*, Ed. 70, Lisbon

Domingues, Álvaro, (2009), *A Rua da Estrada*, Dafne Editora, Porto

Font, Antoni, ed., (2004), *L' explosió de la ciutat – Morfologies, mirades I mocions*, (1st edition), Barcelona

Hall, Peter, (2011), *Urban and Regional Planning*, (5th edition), Routledge, London and New York

Harvey, David, (1996), "Cities or Urbanization?", in *City ½ It All Comes Together in Los Angeles?*, Taylor & Francis Ltd, Oxford

Liernur, Jaime, (1997), "Toward a Disembodied Architectural Culture," in *Anybody*, Ed. Cynthia C. Davidson, pp. 196-201

Lynch, Kevin, (1968), *The Image of the city*, (5th edition), MIT Press, Massachusetts

Mangin, David, (2004), *La Ville Franchisée: Formes et structure de la ville contemporaine*, Éditions de La Villette, Paris

Marshall, Stephen, (2008), *Cities, Design & Evolution*, Routledge, London and New York

Montaner, Josep, (1997), *La Modernidad Superada – ensayos sobre arquitectura contemporánea*, ed. Gustavo Gili, Barcelona

Mota, João, Silva, Paulo, (2005), "Dealing with Ugliness," in Jung, Wolfgang, Mota, João, Silva, Paulo, Hüsen, Kristian, (ed.), *Dealing with Ugliness*, Frankfurt

Nadin, Vincent, (2007), "The emergence of the spatial planning approach", in *Planning Practice and Research,* Taylor & Francis Ltd, Oxford

Page, Scott et al., (2003), "Telecommunications and Urban Design," in City, vol. 7, nr 1, April, pp. 73 - 94, Taylor & Francis Ltd, Oxford

Panerai, Phillipe, Depaule, J., Demorgon, M., Veyrenche, M., (1980), *Élements d'Analyse Urbaine, Ed. Archives d'Architecture Moderne*, Brussels

Portas, Nuno, Domingues, Álvaro, Cabral, João, (2003), *Políticas Urbanas – Tendências, estratégias e oportunidades,* ed. Fundação Calouste Gulbenkian, Lisbon

Portas, Nuno, Domingues, Álvaro, Cabral, João, (2011), *Políticas Urbanas II – Transformações, Regulação e Projectos*, ed. Fundação Calouste Gulbenkian, Lisbon, pp. 284-291

Salingaros, Nikos, (2000), "Complexity and Urban Coherence," in *Journal of Urban Design*, vol. 5, pp. 291-316, Carfax Publishing, Taylor & Francis Ltd

Secchi, Bernardo, (2003), "The form of the city", in www.planum.net, October 2003

Shane, David, (2005), *Recombinant urbanism: Conceptual Modeling in Architecture, Urban Design, and City Theory,* John Wiley and Sons Ltd., Chichester

Sieverts, Thomas, (2003), *Cities without Cities*, (1st English edition), Spon Press, London

Silva, Paulo, (1996), *Área Metropolitana de Lisboa, Tendências Recentes de Ocupação do Território*, Msc Dissertation in human geography and regional and local planning by the University of Lisbon, Lisbon, (polic.)

Silva, Paulo, (2006), "Mobilidades, sobre Questões de Mobilidade em Territórios Emergentes da Área Metropolitana de Lisboa", in *Planeamento* nº 2, ed. APPLA, Aveiro, pp. 105-114

Silva, Paulo, (2010), *Área Metropolitana de Lisboa: descontinuidades, desenho e planeamento*, PhD Thesis in environmental applied sciences by the University of Aveiro, Aveiro, (polic.)

Silva, Paulo, (2011), "(Dis) continuities, design and planning – how do time and space relation's affect continuity in housing areas? A European experience based on the case of Lisbon Metropolitan Area," in Proceedings of IAPS International Symposium 2011, IAPS-CSBE & housing network, Continuity and Change of Build Environment – housing, culture and space across life spans, Daegu

Venturi, Robert, Brown, Denise, (2000), *Aprendiendo de Las Vegas,* (4th edition), Ed. Gustavo Gili, Barcelona