Remesar, A. (2000). Waterfronts, Arte Pública e Cidadania. In P. Brandão & A. Remesar (Eds.), Espaço Público e a Interdiciplinariedade. Lisboa: Centro Português de Design.

Rossi, A. (1966). La arquitectura de la ciudad. Barcelona: Gustavo Gili.

Sennett, R. (1992). The Conscience of the Eye: The Design and Social Life of Cities. New York, NY: W. W. Norton & Company.

Sert, J. L. (1952). Centers of Community Life. In J. Tyrwhitt, J. L. Sert, & E. N. Rogers (Eds.), The Heart of the City: Towards the Humanism of Urban life (pp. 3–16). New York: Pellegrini & Cudahy.

UN-Habitat. (2015). Global Public Space Toolkit: From Global Principles to Local Policies and Practice. Nairobi (Kenya): UN-Habitat.

Urban Task Force. (1999). Towards an Urban Renaissance. London: Routledge.

Valle, D. C., & Travasso, N. (2014). Urbanization in the Ave Valley region: more than a sum of building projects? In V. Oliveira, P. Pinho, L. Batista, T. Patatas, & C. Monteiro (Eds.), Our Common Future in Urban Morphology (pp. 1502–1520). Porto: FEUP.

Whyte, W. H. (1980). The social life of small urban spaces. New York: Project for Public Spaces.

Zukin, S. (1995). The cultures of cities. Oxford: Blackwell.

Zukin, S. (1998). Politics and aesthetics of public space: The “American” model. In P. Subirós (Ed.), Ciutat real, ciutat ideal. Significat i funció a l’espai urbà modern. Barcelona: Centre de Cultura Contemporània de Barcelona.

ID 1426 | THE ROLE OF PUBLIC SPACE SYSTEMS ON URBAN TRANSFORMATION: A REVIEW ON LISBON SOUTH BANK REGENERATION PROCESS

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1 INTRODUCTION

Many urban regeneration processes, today, use public space as the main ground to implement urban transformation policies – economic, social, cultural, etc. – and deliver valued benefits. Recent discussions about public space relevance in contemporary urban dynamics – privatization, gentrification, etc. – are also a reflection of its role, not just as political or institutional terms, but acknowledging itself as an “urban value” (P. Brandão, 2005; Portas, 1999). These initiatives include from central and historic cores to former industrial areas, from large waterfronts to small scale projects for local communities, which encompass several urban dimensions, dynamics and stakeholders.

As urban areas grow, other typologies of public space arise – as transport interchange, shopping centres, waterfronts, theme parks, etc. (P. Brandão & Remesar, 2004) where categories of public-private-collective are mixed together, in a wide range of activities and urban settings. Public space’s traditional purpose (meeting and making social connections) is often colonized by trends of leisure, consumption, movement or marketing. As urban areas spread, public space may lose its central role of structuring and anchoring urban activities. Does this mean a possible crises or disbelief on public space role in the urban process? Or a need for a new approach?

Regardless of this strategic importance, it is not uncommon that public space projects still focus on isolated units or sectoral actions related to mobility, environment, energy, social cohesion, risk management... This may be related to a funding source, management structure, stakeholders’ action, or a trend favouring appealing urban areas. Frequently they lack integration with other urban systems to provide sustainable social, cultural and economic returns. So despite the growing diversity of places and urban contexts, dominant views of planning, designing and researching public space still focus on traditional typologies - the square, the park, the market – and still target local scale - the neighbourhood or

close proximity – even though urban structures are extending greatly. Finally, the assessment of public space role in urban change is commonly based on the consideration of a sum of units, not considering wider and interaction capacities.

New approaches are needed to address public space, as it is faced with these issues of discontinuity, lack of interaction and outgrowth of its traditional scale. The aim of this paper is to present a systemic perspective on public spaces and their role in urban change. This growing interest on the systemic approach to urban features is now developed concerning public space and its interaction capacities in urban systems .

This discussion is supported by presenting the study case of Lisbon South Bank regeneration process. This part of Lisbon Metropolitan Area grew and developed mainly due to its strong industrial background but today is has a larger diversity of urban contexts and mixed patterns of growth and decay. In the last decades major efforts for urban regeneration were made, and many actions included public space transformations. We register the emergence of an approach on public space not only focused on neighbourhood insertion and local focus, but as a part of larger networks of relations and services.

The paper will first address the relevance of a systemic perspective on public space, through a literature review and example discussion, developing a contextual and conceptual framework. Further we will analyse Tagus South Bank by a survey and empirical work , creating a time-line of public spaces and urban regeneration process (projects, policies, planning documents, etc.). Finally we examine the growth of a systemic approach on public space understanding, production and use, discussing its suitability for urban research and urban design practice (Pinto & Brandão, 2015).

2 SYSTEMIC PUBLIC SPACE REFERENCES

The diversity of urban fabrics and related problems is translated to the production of public spaces: “What is clear is that contemporary trends in public space design and management are resulting (over time) in an increasingly complex range of public space types” (Carmona, 2010, p. 172). These new multidimensional facts present several dilemmas: growth of scale and distance (dispersion), growth of complexity and diversity (indeterminacy), and growth of non-systemic actions (disruption) that call for new ways to address public space role within urban transformation. Can a systemic view of public space address this gap?

Most definitions of system emphasize a 'complex whole', a 'set of connected things or parts', an 'organised body of material of immaterial things' and as a 'group of objects related or interacting so as to form a unity' (McLoughlin, 1969). In this set of interconnected parts, each part can be seen individually, and also can be considered within another wider system. Interaction between different parts and the systems complexity guarantees its functioning as “The whole is other than the sum of the parts”.

There is a growing interest on the systemic approach to urban features – especially in relation to ecological and infrastructural aspects. But the parallel between systems and cities and urban development can be easily found throughout urbanism: city as a developing organism or ‘evolving’ in relation to its environment (Geddes, 1915); network-oriented thinking in urban planning (Dupuy, 1998 refering Cerdà, Arturo Soria y Mata and others); a view of the city as a system that evolves (McLoughlin, 1969); urban complexity appreciation (Alexander, 1965; Jacobs, 1961; Lynch, 1960); the rise of the network society (Castells, 1989) or the study of functional and spatial structures of cities and the relation between them (Hillier & Hanson, 1984).

In this systemic view, the different sets of components have to establish connections in order to form a system. They share structural elements – links, networks of relationships - understood in a dynamic way, since they respond to ever-changing conditions (Dupuy, 1998). So if the city can be perceived essentially as a system, thus the essential structure that guarantees relations and dynamics has to be public space.

Therefore public space should be considered, not as a sum of isolated space types, but as a network of places (Pinto, 2015), with shared set of properties, interdependences and interaction. A complex system “a system of systems, where layers of functional networks – infrastructural, cultural, economic, and environmental – intersect and complement each other in a mutually reinforcing and beneficial way.” (UN-Habitat, 2015, p. 42). From this starting point further development can be made.

By extending the notion of public space to a systemic idea we are enhancing its interaction potential: the infrastructural system, the landscape system and the public space system, build a city, integrating hardware and software. Such features are also the more lasting elements of urban fabric, supporting transformation over time (and enabling the systems survival). Some clear examples illustrate easily this: a street is still a public space even if it extends for miles (as in Manhattan, Paris or Barcelona), if it integrates intermodal transports, includes sewage networks or if it is a tree-lined street housing different bird species. Nor do we discard a public space perspective on many transport systems, or on parks systems.

So ecological views of public space refer to natural features and natural life supporting systems in the city - as wildlife, water courses, green structures, etc. – continuous structures that can be fostered and integrated in urban environment, so they can provide us with more and better goods and services. Infrastructural views of public space include, by definition, many sectoral system and utilities that frame and support urban life (such as road, transport, sewage, drainage, energy, etc.)

Each of these different perspectives (A. L. Brandão & Brandão, 2017) – public space as interaction, sharing and identity capacities, infrastructure as a mobility facilitator, urban activity support and landscape as production potential, ecological sustain) – offer several functions and services that can be valued and assessed, either by tangible on intangible aspects.

In fact the public character (of public space) comes to a large extent from the integration (or combination) of services and values not only with regard to its morphology (physical structure) but also fostering functional (activities and users) and symbolic (meaning) sense. This character does not derive from size or scale (proximity) but from interaction (common space).Thus, in addition to the more obvious physical systems that can be identified in the city – as ecological systems or the various infrastructures - we should also frame systems of meaning and of communication, related to the software dimension of public space.

Can this perspective be fostered and implemented in policies, development planning and public-space driven strategies?

3 LISBON SOUTH BANK TRANSFORMATION PROCESS

Lisbon South Bank area urban growth was sustained by industrial development and later by suburban dynamics. Some of these processes have been anticipated or succeeded by planning instruments and structuring projects, while others have “bypassed” legal planned actions. As result of rapid and uncontrolled urban expansion, many spaces are characterised by disconnected parts or poorly designed public spaces, similarly to several south European urban change processes. Recent urban strategies have tackled some of these deficits, developing regeneration actions. What was the role of public space on this transformation process?

3.1 THE RISE AND DECAY OF THE INDUSTRIAL CITY

Within the South Bank area, urban nucleuses were traditionally located close to the estuary, with river accessibility to Lisbon, rooted in fishing, trading or productive activities. From the early twentieth century, investment on industry and port activities lead growth around these centres, "fed" by migration from rural areas to these "new urban areas”. These industrial areas also promoted over time, both the settling of other industries and social and cultural services to workers, strengthening the bond and identity relationship of the entire population.

During the "Estado Novo" dictatorship, several urban plans started to be developed for this area (in the 40's and 50's), to plan industrial development and provide housing and facilities to a growing population. Most plans were not implemented (due to financial and operational difficulties) yet urban centres continued to expand, many of them based on uncontrolled allotments process or linear sprawl with poor urban qualities.

Some exceptions in planning actions were undertaken: (1) some parts of Costa da Caparica and of Almada’s Civic Center urban plans and (2) some initiatives of working-class (or low income) housing neighbourhoods. The firsts were developed in a garden city urban scheme, as suburbs of Lisbon,

combining housing areas, with leisure and green space: Costa da Caparica as a touristic area, Almada as a peripheral nucleus. Almada's urban plan was further developed including a set of central public spaces – Renovação Square (today

Movimento das Forças Armadas Square), Civic Center Garden, D. Nuno Álvares Pereira and D. Afonso Henriques avenues has urban structuring elements. The seconds aimed to tackle the insufficient housing offer: in Barreiro workers quarters were built by industrial companies (CUF and Rail Company); in Barreiro and Almada public housing initiatives were developed. Social segregation was common, but some development included facilities and services, but in either cases new developments were an "island" within existing urban structures.

In these decades we can also find references to some gardens and central parks, designed by relevant landscape architects. In 1939 opened Oliveira Salazar Park (presently Catarina Eufémia Park) as part of new urbanization area of Barreiro, Coreto´s Garden in Alcochete was designed in 1953 and Montijo's Municipal Park was designed 1956 as part of the new Court building surrounding. These spaces are probably the result of a sum of wills and particular cases, rather than a policy or strategic action.

3.1.1 SUBURBAN GROWTH

In 50's to 70's public works policies focused on infrastructure and economic activities conducted the 2nd phase of industrialization3. In the 60's industrial development reached its peak with socio-economic and cultural implications. Although depending from large public investment (Planos de Fomento), this production model promoted other forms of private investments (mainly housing) furthering suburbanization – particularly boosted by a bridge connection to Lisbon in 1966. New accessibility, demographic growth and land availability spurred urbanization, mainly through illegal (or largely uncontrolled) allotment processes with a variety of housing typologies, but clearly with no adequate infrastructures, facilities, public spaces or urban amenities. Lack of autonomy and incapacity of local authorities to manage urban growth resulted in a complacency with these process. In some areas these deficits still endure despite major efforts in qualification.

In this scenario of urban planning inefficiency, public space projects are not common. Nevertheless in the 60's and 70's the ones that got built have more relevance within urban structure - Bento Gonçalves Avenue's Park in Barreiro (1961) – and definition of an urban green structure - Moita's Municipal Park (1971).

3.2 DEINDUSTRIALISATION AND DIVERSIFICATION

In the 70's, several changes (economic crises, political instability, etc.) drove deindustrialisation: many industries progressively and over two decades were decommissioned or abandoned, in a disordered process. In the first years of the democratic period, lack of tools and adequate funds made urban planning action rather difficult, consequence of strong social pressures for policies to focus on adequate housing, infrastructure, public amenities and transportation. Several municipalities begin their territorial planning process, whereas the priority action was on urgent specific problems and populations support: basic sanitation infrastructure, water supply, school facilities, housing support, converting illegal housing, accessibility, waste collection, etc.

Later developments (80's, 90's) consolidated the centre-periphery model, reliant in Lisbon, with accessibility infrastructures, land availability, but in addition the already present real-estate "suburb" dynamic, other processes begun anchored in service economy or increase in commerce and logistic investments. Recently created urban planning system (Plano Director Municipal) was the main product (and main goal) of municipal urban planning: plans were drawn up for the entire South Bank: Seixal in 1993, Barreiro in 1994, Almada, Montijo and Alcochete in 1997. Despite the effort, PDM somehow lacked management and predictive capacity as most territories were already urbanized in a deregulated manner and without adequate infrastructures. Public space, urban design or local actions were not a priority.

3.3 URBAN REGENERATION ACTIONS AND PUBLIC SPACE

Efforts had to be made to reverse the significant deficits inherited from several decades of deregulated growth. During the following decades, important investments (mainly thought EU's funding) start to change the disqualified and damaged image of the South Bank area. The driver of change was the success of Lisbon's World Exhibition in 1998, in which urban design and public space projects were held responsible for quality of built environment and set new standards for quality of life.

Important road and rail infrastructures improve internal connective as well as links to Lisbon; better accessibility rapidly attracts commercial sector; investment in cultural, leisure and sports facilities and finally urban regeneration actions, including public space projects. Municipal strategies set an emphasis on urban image requalification, public spaces production, identity and cultural aspects in physical interventions, environmental recovery and natural spaces, etc. In the next pages, we detail these different actions.

3.3.1 HISTORICAL CENTERS AND URBAN REHABILITATION

Expansion cycles disregarded South Bank's historic cores, so rehabilitation of these area was largely needed. Most actions include not only built environment interventions but also (some more than others) economic and job creation incentives and social, tourist, nature related initiatives.

The Nova Almada Velha Urban Rehabilitation Program (1996-2000) in Almada brought together economic and social promotion actions with physical requalification interventions (Figure 1). New public spaces were created or recovered – outdoor spaces of Old Almada, Jardim do Rio and Casa da Cerca's Botanical Garden - new connections were ensured – watefront connection from Cacilhas and Boca do Vento public elevator. Later on Almada Velha-Ginjal Urban Regeneration Partnerships (2008-2012) initiative, carried on central spaces requalification in Cacilhas' area, including cultural animation activities and boosting the area's economic promotion (tourism, leisure).

Other actions in urban cores are linked to traditional trade revitalization. Examples include interventions featured in Montijo's Downtown Project - redesign of Praça da República (2001), pedestrianisation of some commercial streets or placement of new street furniture. Or partnerships with private actors, as the requalification of the of Barreiro's central market and surrounding area, developed together with a nearby shopping centre.

Figure 1 – Nova Almada Velha, Almada | Figure 2 - José Afonso Park, Baixa da Banheira
(Source: Ana Brandão 2015)

3.3.2 WATERFRONTS

Since the 1980´s municipal action started to prioritize actions in waterfronts areas, strongly embodied in local identities linked to river activities, to foster recreation and leisure functions.

This intention is first put into action by Moita municipality through projects and planning instruments (e.g. land acquisition for green spaces, tidal mills recovery, riverfront urban studies, etc.). The result of this effort was José Afonso Park (1993), in Baixa da Banheira, a green public space that redesigns the entire urban connection with the riverfront, together with semi-natural spaces and important facilities make a unique

design in its surroundings (Figure 2). This attention for quality of riverfronts had continuity on other urban areas (Salinas Park in Alhos Vedros, Canoas Park in Gaio, Picnic Park of Rosário's river beach, etc.).

In 2001, this strategy led to the elaboration of Pró-Tejo - Riverfront Improvement Program, which set guidelines and projects for integrated municipal action. Public space projects were developed (2006) in central Moita: recovery of the Caldeira (Figure 3), redesign of Marginal Avenue, new waterfront promenade and sewage and drainage networks renovation. Recently, another waterfront link was assured, connectioning central Moita to Rosário's Beach with environmental recovery actions and foot and cycling paths creation.

During the 2000s other municipalities also developed actions or strategies related with waterfronts. In Seixal the strategy was to develop a connect waterfront promenade around its Bay - Seixal, Arrentela and Amora – but implemented in several parts over time. This public space had great impact on this area image, identity promotion and acts as meeting point for several neighbourhoods. The following Valorization Plan of Seixal Bay completed and consolidated this strategy with a set of integrated projects regarding environment, tourism, economic activities, urban regeneration, cultural and social promotion (Figure 4).

In Barreiro investments were made in the riverside areas of Verderena's and Santo André's parishes – known as Recreational City Park (2008). The project included the restoration of Caldeira do Alemão, riverfront connections, street redesign and connection to the City Park. Following these actions was developed a Waterfront Municipal Program (IMPAR), which has drawn a global and integrated vision Barreiro's riverfronts.

The north part was qualified through Repara - Alburrica's Regeneration Program, with actions of physical requalification, economic, social and cultural promotion and Alburrica's area qualification (pedestrian paths, beach recovery), requalification of avenues and public spaces associated with facilities.

In Montijo was developed in 2001, the Riverside Structuring Plan (PEZOR), a connected set of environmental and urban regeneration projects encompassing 267 ha. Only some of them were carried out including: the relocation of the ferry boat terminal, restoration of Carlos Loureiro Municipal Park, the Tide Mill recovery of and redesign of central Montijo's waterfront. Despite the relatively small dimension of the redesign waterfront (compared to other municipalities) it transformed the city's image and its tourism and leisure uses.

In Alcochete was developed an Urban Regeneration Operation encompassing the entire municipality riverfront. Some of the projects were implemented by the Regeneration Action Program: riverfront redesign, central public spaces and traditional areas redesign, connection to cultural and social facilities, environmental promotion centre.

Almada's waterfronts public spaces have a rather distinct character given the municipality's characteristics. While the seafront was subject to an extensive urban project (see 3.3.5), the riverfronts have been redesigned within historical cores regeneration actions.

Figure 3 – Moita's Caldeira, Moita Figure | 4 – Seixal's waterfront, Seixal
(Source: CM Moita's site)

3.3.3 PARKS AND GREEN STRUCTURES

Despite the construction of some parks and gardens during the industrialization years, urban growth far exceeded the catchment areas of these spaces. Thus, with a new focus on environmental, landscape and socialization concerns, parks and green structures have grown in number and dimension, in relevant locations and with important impacts on urban and ecological structures.

In Almada the design of Paz Park (1995) was made possible by a land acquisition process framed by a detail planning action (PP7/PP9 Partial Plan). The park plays an important role in social and leisure activities as a gathering element of various urban fabrics. The diversity of spaces and ecosystems also allows support of important wild fauna and flora habitats. Previously, the Comandante Júlio Ferraz Park (1987) made possible a green central space long planned for that part of the city. This policy of green spaces dissemination throughout the municipality also extends to other urban centres: Costa Caparica Park (2008, see 3.3.5), Sobreda's Multiuse Park (2009), Adventure Park of Charneca de Caparica (2009), Fróis' Park (2013).

In Seixal, Paivas Park (1990) was one of the first green spaces to be set in a very dense and uncharacterized urban fabric, bringing new uses and nature features; while Quinta dos Franceses Park (2001) was developed with activities and functions related to the riverfront and with new cultural facilities. Barreiro's City Park (2000) takes advantage of the grounds of an old cork industry complex, linking several urban areas with natural spaces and various sports, cultural and leisure areas.

At another level, the definition of the metropolitan ecological structure advocated by Regional Planning (2002) foresees its implementation at the municipal level, with the definition of green and natural infrastructures. These municipal ecological structures, can diversify green spaces and connect them in network system. An example is the Salgueiro's green infrastructure in Montijo that it is developed along a water course and is framed in different ways in the urban network.

3.3.4 MOBILITY SPACES

Regarding mobility there is diversification of actions, not only focused on road infrastructure and car movement, but seeking greater compatibility with other transport modes, including soft mobility and with public space.

The construction of light rail network – Metro Sul do Tejo (MST) is an example of this change, aiming to connect the municipalities of Almada, Seixal, Barreiro and Moita (at different phases) and strengthen cohesion (Figure 5). The first part was inaugurated in 2008, articulating centrality areas and transport interfaces within Almada's municipality (reaching to Seixal's municipality) throughout very different urban fabrics. Several restrictions (budget and operational) limited the completion of the network. The design of a dedicated lane and the insertion in consolidated urban fabrics led a specific public space projects design, but with mixed results: in some cases new joints and easier connections are promoted, in other incompatibilities still persist. Despite these weaknesses it has potential for connecting several urban units and promoting urban mix.

Several ferry terminals were relocated or expanded with a park & ride logic - Barreiro (1995), Seixal (1997), Montijo (2002) - benefiting from the construction of large parking lots. Despite ease of access and connection to cars, it disregarded other transport modes and proximity to other urban amenities.

Mobility is also integrated within other regeneration actions: car traffic mitigation is a subject especially in historical cores – e.g. creation or extension of pedestrian areas - cycle paths and footpaths are design in new public spaces – nature features, waterfronts, avenues. The majority of these features are often isolated and fragmented, nevertheless present potential for further linkage. An exception can be found in Trafaria-Costa da Caparica cycle path. In a tourist area it connects the ferry boat to Lisbon with a sequence of urban beaches and leisure areas. The path follows the existent urban structure, connecting a diversity or urban fabrics, public spaces and uses. As a result, the cycle path comprises different sections and designs, ensuring connectivity and space for recreational activities and social interaction.


Figure 5 – Light rail network Metro Sul do Tejo Figure | 6 – Costa da Caparica urban project
(Source: CMAlmada, Flickr)

3.3.5 URBAN PROJECTS

In addition to local government regeneration actions, larger projects were develop by central administration – as the POLIS program (for more information see MAOTDR, 2007) – based on urban and environmental requalification. In the South Bank it targeted Costa da Caparica – an urban and touristic hub of Lisbon Metropolitan Area, encompassing a large extension of the seafront and some related inner areas (a total area of 650 hectares). The urban project pursued various actions: urban design (beachfronts requalification, green structure and new public spaces), improvement of residents' quality of life (new social facilities, re-housing), touristic valorisation (dune recovery, new accesses and hotel units) and improvement of mobility and accessibility (traffic restriction, soft mobility and intermodality).

A strategic plan defined various action areas and structuring projects, corresponding to each one a Detail Plan . The first phase of the urban project was completed in 2008-2009, with the construction of the Costa da Caparica's Park, redesign of public spaces in the seafront and of urban beaches facilities (Figure 6). Further completion of planned actions extended over time and encountered several difficulties.

4 LISBON SOUTH BANK TRANSFORMATION PROCESS AND PUBLIC SPACE SYSTEM INTERACTIONS

Despite the South Bank's industrial growth built environment disqualification, some public spaces (mainly small parks) were built in central zones, with a strong socialization role, urban image and even urban growth structuring. The suburban expansion occurred in the 1960's, mainly after the bridge connection to Lisbon, along with new accesses. It started mainly in Almada's and Seixal's municipality, but in the 1970's, 1980's and 1990's, the suburbanization process extended throughout the South Bank, with legal and illegal processes, extensive in some areas and intensive in others, but invariably unstructured and feebly equipped.

Since the beginning of the democratic period, the redesign of existing public spaces and construction of new spaces ones became a priority, leveraged by different mechanisms (municipal initiatives, EU funding, central government programs). Public space action has been a part (often instrumental) of other public policies regarding economical dynamics, city marketing, social cohesion, tourism, environmental and sustainability issues. New procedural characteristics can be identified:

- increasing diversity of public space typologies and uses;
- larger territorial scale, beyond local dynamics;
- identity features related to new views on industrial background or new reference images;
- new infrastructures as qualifying elements;
- environmental and economic issues as part or urban design problems;
- new design and planning tools – urban projects, strategic actions, engagement of different stakeholders.

Some municipalities already seem to make this a strategic action for urban regeneration, either by building continuous structures – waterfronts, ecological structures – or by ensuring "adequate coverage" in different

urban centres (e.g. parks in Almada's municipality). So can we acknowledge that public space as a system is already part of urban design practice (see Table 1) with several systemic characteristics in place (Batty & Marshall, 2012; Marshall, 2012; McLoughlin, 1969; Morin, 1987).

These examples of the South Bank area multipurpose spaces illustrate the potential of sharing by public space systems to address some issues on how can population's basic needs and expectations be met. Together these public spaces already form a relevant system, linking different urban fabrics, activities and structures throughout different municipalities. Several urban areas are faced with fragmented or mono-functional structures: many incoherent and in-between spaces remain, but existent potential can be further developed.

This means there is a systemic potential that needs to be assessed and fostered, so as to enable spatial and functional interaction. A research based on a combined action "systems of collective spaces grounded in the interaction with landscape and infrastructural systems" (Portas, 2004) can frame methods and tools appropriate for specific contexts.

	Dynamic & synergy	Scale	Diversity of uses	Systems connectivity	Tools & strategies
Almada's Civic Centre	Structuring urban growth	City-wide attraction and urban link	Economic activities, commercial, nature, leisure	Infrastructure, ecologic, symbolic	Planning initiative
Oliveira Salazar Park			Nature, leisure, sports, commercial,	Ecologic	Local action (isolated)
Montijo's Municipal Park					
Moita's Municipal Park			Nature, leisure, sports		Structural action
Nova Almada Velha	Urban regeneration	Metropolitan attraction	Economic activities, leisure, commercial social	Infrastructure, communication	Integrated strategy
Montijo's Downtown		City-wide attraction	Commercial, leisure	Infrastructure, symbolic	
Barreiro's central market		City-wide attraction	Commercial, leisure	Ecologic, infrastructure	Private & public partnership
Moita's waterfront	Urban regeneration and natural environment	Municipal link	Commercial, leisure, sports, mobility, nature, heritage	Ecologic, infrastructure, symbolic, communication	Municipal strategy (long term)
Seixal's waterfront					
Barreiro's waterfront		City-connection			Integrated strategy but local action
Montijo's waterfront					
Alcochete's waterfront					
Almada's waterfronts					Municipal strategy
Almada's Park systems	Natural environment and ecological connections	City-wide attraction and urban link	Nature, leisure, sports, commercial,	Ecologic, infrastructure	Municipal strategy
Paivas Park				Ecologic	Structural action
Quinta dos Franceses Park				Ecologic	
Barreiro's City Park			Nature, leisure, sports, heritage, commercial,	Ecologic, symbolic	
Salgueiro's green infrastructure	Ecological connections	Urban link	Leisure, nature	Ecologic, infrastructure	
Light rail network	New transport connections	Metropolitan links	Mobility	Ecologic, infrastructure	Central & local government
cycle path *Trafaria-Costa da Caparica*		Inter-urban link	Mobility, tourism, sports, leisure, nature	Ecologic, infrastructures	Structural action
C. Caparica urban project	Urban regeneration	Metropolitan attraction	Touristic, Leisure	Ecologic, infrastructure	Central & local government

Table 1 – Public space projects and their systemic characteristics

5 CONCLUSION

Public space is produced by many reasons as a result of many urban policies, planning and design tools, frequently integrating different time-frame and multiple stakeholders. This immense diversity is a reason of its great importance within urban structures, but is also a matter of conflict and fragmentation. We can summarize some of these issues regarding public space production, that could benefit from a more interactive and systemic approach:

- Diversity of users: "(...) public is not a single entity, as it is composed of different social strata, each with a different set of characteristics, interests and powers"(Madanipour, 2010, p. 9). This heterogeneity adds complexity in reaching a common understanding regarding public space, dividing responsibilities or seeking accountability. Public interest management, or negotiation between different interests, is also not a given, but it is a continuous manifestation in the governance processes of the public space, be they political, social, economic or design related.
- Offer and production dynamics: mismatches between the provision of public spaces, the services they offer and existing needs are frequent, as space transformation and society changes may not have coincident rhythms. Achieving coherence is difficult, especially if it is not anyone concern. So to ensure that public space remains a durable and relevant element in cities, temporal and flexibility aspects have to take in account. These are matters of planning, programming and implementation, either in urban growth scenarios or shrinking dynamics.
- Regulation and disciplinary practices: despite interdisciplinary motivation, the existing body of knowledge regarding public space is still divided in "boxes" of professional or disciplinary knowledge, as a sum of elements that do not relate to each other. Codes and regulations focus on sectoral aspects (mobility, environment, signage, urban furniture) ignoring the complexity of the public space and its interactive character, not facilitating or encouraging innovation (Urban Design Alliance & The Institution of Civil Engineers, 2002).
- So to support and develop a systemic perspective of public space is not wishful thinking, but a real necessity that has to translate to urban planning, design and management practices, and tools to address the flourishing complexity of public space production and change. This is the work that PSSS, Public Space System Service research project is pursuing. Preliminary findings in this field can steer further work:
- Public space is by definition relational, so its primary role is to make contact, to ensure interactions, to allow and facilitates coexistence, diversity and overlap. An interactive urban element, it connects and coexists with other urban systems – infrastructural, ecological, communication – integrating hardware (physical) and software (social) features.
- Public space, seen as a system of spaces, to serve all common activities in urban environment and many interactions (social, economic, environmental, ...) is based on the assumption that urban phenomenon depends on relations of actors and agents, with increasing intensity, diversity and complexity. By mapping spatial service values, their potential integration becomes legible within systems structure.

So a systemic organization of public space can be a basis for evaluating urban values – from proximity to the larger scale, from meeting and interaction, to mobility and exchange, etc. – acting as a reference in transformation process, managing change and balancing changing needs, actor's roles and resources, integrating different urban ensembles and natural elements into a common frame of reference (physical, social and symbolic). Integration is promoter of value, boosted by the diversity and synergy between system elements.

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BIBLIOGRAPHIC REFERENCES

Alexander, C. (1965). A City is Not a Tree. In S. Tiesdell & M. Carmona (Eds.), Urban Design Reader. Routledge.

Batty, M., & Marshall, S. (2012). The Origins of Complexity Theory in Cities and Planning. In J. Portugali, H. Meyer, E. Stolk, & E. Tan (Eds.), Complexity Theories of Cities Have Come of Age: An Overview with Implications to Urban Planning and Design (pp. 21–45). Berlin, Heidelberg: Springer.

Brandão, A. L. (2015). A incerteza no processo urbano. A produção do espaço na Margem Sul do Estuário do Tejo. Universitat de Barcelona. Retrieved from http://diposit.ub.edu/dspace/handle/2445/67851

Brandão, A. L., & Brandão, P. (2017). Public Space, Infrastructure, Landscape: an interdisciplinary matrix for urban spatial continuity. The Journal of Public Space, 2(1), 123–134. https://doi.org/10.5204/jps.v2i1.55

Brandão, P. (2005). Ética e profissões, no Design urbano. Convicção, responsabilidade e interdisciplinaridade. Traços da Identidade Profissional no Desenho da Cidade. Universitat de Barcelona. Departament d'Escultura, Barcelona.

Brandão, P., & Remesar, A. (2004). Design urbano inclusivo: uma experiência de projecto em Marvila "fragmentos e nexos." Lisboa: Centro Português de Design.

Carmona, M. (2010). Contemporary Public Space, Part Two: Classification. Journal of Urban Design, 15(2), 157–173. https://doi.org/10.1080/13574801003638111

Castells, M. (1989). The informational city: information technology, economic restructuring, and the urban-regional process. Oxford: Blackwell.

Dupuy, G. (1998). El urbanismo de las redes: teorías y métodos. Barcelona: Oikos-Tau.

Geddes, P. (1915). Cities in evolution. An introduction to the town planning movement and to the study of civics. London: Williams.

Hillier, B., & Hanson, J. (1984). The social logic of space. Cambridge; New York: Cambridge University Press.

Jacobs, J. (1961). The Death and Life of Great American Cities. New York: Random House.

Lynch, K. (1960). The Image of the City. Cambridge, Massachusetts: MIT Press.

Madanipour, A. (Ed.). (2010). Whose Public Space?: International Case Studies in Urban Design and Development. Taylor & Francis.

MAOTDR. (2007). Programa Polis: viver as Cidades. O Modelo Institucional, os planos e a comunicação e sensibilização ambiental (Vol. 5). Lisboa: Programa Polis, M.A.O.T.D.R.

Marshall, S. (2012). Planning, Design and the Complexity of Cities. In J. Portugali, H. Meyer, E. Stolk, & E. Tan (Eds.), Complexity Theories of Cities Have Come of Age (pp. 191–205). Berlin, Heidelberg: Springer.

McLoughlin, J. B. (1969). Urban and Regional Planning: A Systems Approach. Faber & Faber.

Morin, E. (1987). Método I - A Natureza da Natureza. Mem Martins: Publicações Europa América.

Pinto, A. J. (2015). Coesão urbana: o papel das redes de espaço público. Tesis de Doctorado en Espacio Público y Regeneración Urbana: Arte, Teoría, Conservaci. Universitat de Barcelona.

Pinto, A. J., & Brandão, A. L. (2015). A multi-scale approach of public space networks in the scattered city. Urban Design International, 20(3), 175–194. https://doi.org/10.1057/udi.2015.4

Portas, N. (1999). Espacio público y ciudad emergente. In La Arquitectura del Espacio Público. Formas del pasado, formas del presente (pp. 50–54). Milan: Junta de Andalucía / Triennale di Milano.

Portas, N. (2004). De uma cidade a outra: perspectivas periféricas. In Os Tempos das Formas. Vol. II: A Cidade Imperfeita e a Fazer. Guimarães: Escola de Arquitectura da Universidade do Minho.

UN-Habitat. (2015). Global Public Space Toolkit: From Global Principles to Local Policies and Practice. Nairobi (Kenya): UN-Habitat.

Urban Design Alliance, & The Institution of Civil Engineers. (2002). Designing Streets For People: Ideas and Recommendations on how to Transform our Streets into Places. London: Thomas Telford Publishing.