Clusters of specialized activities and peri-urban spaces in Bologna metropolitan city.

A survey on planning instruments, between continuity and innovation

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Abstract

In the framework of a broader disciplinary debate (regarding the urban regions' peri-urban areas and the fragmented and discontinuous dimension of the contemporary territory), the contribution presents a design exploration focusing on the definition of the new guidelines for the functional poles' territorial agreements in the Metropolitan City of Bologna, Italy. The experience has been developed in connection with the new city's PTM - Metropolitan Territorial Plan. In this specific context, the functional poles represent the large service structures and settlement on a metropolitan scale, elements at the core of the previous polycentric strategy, linked to railway infrastructures and with the aim of controlled growth.

In the process for the new guideline's definition, a "tester" - composed by a general scheme, guidelines of interventions and a wide range of references - was developed. The need to introduce new elements for the design of the metropolitan poles, in addition to the traditional ones, was strongly indicated and developed. The new guidelines elements are connected to the issues of habitability, regeneration, spatial and functional articulation. In particular, they focus on new forms of mobility's, connections and paths within the territory, internal structures' articulation, and poles' open spaces qualification.

Keywords

Cluster of activities, Peripheral poles, Metropolitan city, Territorial agreements

1. Two areas of work: urban fringes and specialized peripheral areas

The contribution is placed at the intersection of two different fields of study and project of the metropolitan territory: on the one hand the research on peri-urban areas and fringes of urban regions, on the other the reflections on the specialized peripheral settlements, indicated in the literature in various ways, as "functional poles", "clusters of activities", "sub-centres" (Hall, 2001), but also through more figurative and evocative terms such as *aeroville*, *funurbia*, *university town*, *technopolis* (Kunzmann, 2001, up to the most recent Fernández, 2018).

The peri-urban areas of contemporary regions have often been investigated, focusing mainly on open space, on the need to protect the natural elements and environmental characteristics subject to development pressures. On the other hand, the problematic balances due to the presence of critical specialized activities were dealt with less systematically. Activities such as infrastructural nodes, sports and logistic areas, commercial and entertainment centers (up to campuses and tertiary services)

represent a variety of settlements with different characteristics, but united by being catalysts of material and immaterial flows, by a strong specialization and limited relations with the context.

As mentioned in other texts (Fini, 2019) these interventions can be interpreted as the result of new forms of "functionalism": that is, processes of specialization and separation of functions, of reductionism and simplification of space and practices.

For both background themes mentioned at the beginning, there is an extensive reference literature that can only be taken up here through some essential references. From the first texts on the urban fringes of the Anglo-Saxon context (Gallent, 2006), to the first European comparative researches with a synoptic character (Dubois-Taine, 2004); up to the most recent European studies, focused on new project and policy themes for the fringe territories (Attademo, Formato, 2018, URBACT research). Likewise, it is possible to trace numerous texts that reflect on the discontinuous and fragmented nature of the contemporary territory and its functional "islands". A condition in which the design of infrastructures - considered in a broad sense - and of the landscape are necessary but not sufficient to reduce the polarization processes and connect different settlement systems.

It therefore clearly emerges that peri-urban territories represent a field of continuous tensions: between the protection and enhancement of natural elements, the pressures for settlement development, the metropolitan level choices that affect these places, which are not traditionally central but increasingly relevant in the relations and dynamics of a large metropolitan area.

2. The construction of the new Territorial Plan of the Metropolitan City of Bologna

The issues mentioned here constitute for the writer the background in which the collaboration for the definition of the new guidelines for territorial agreements for the functional poles of the Metropolitan City of Bologna has been placed (Gabellini, Fini, Saibene 2019). The contribution was developed by the RAPU + Research Laboratory of the DASTU-Politecnico di Milano, with a group composed by Prof. P. Gabellini (responsible), G. Fini and C.M. Saibene.

The reference framework in which the experience is placed is that of the definition of the new PTM - Metropolitan Territorial Plan of the Metropolitan City of Bologna and the new PUG - General Urban Plan of the Municipality of Bologna.

The two instruments are governed by the new regional urban planning Law no. 24/2017 which substantially modified the previous Regional Law n. 20/2000. The law reformulates the idea of planning by hierarchical levels through the principle of "competence", with a revision of the municipal planning tools, of the Metropolitan City, of the vast area and the region. Within this evolving planning framework, there are finally three further aspects of interest concerning the project experience:

1. The theme of functional poles is, in the context of the metropolitan area of Bologna, of long duration. The "poles" were one of the elements on which the polycentrism strategy at the heart of the previous Territorial Plan (PTCP) was developed, in synergy with the development of the Metropolitan Railway Service (SFM) and to contain new urbanizations and strengthen only some nodes and parts of the territory;
2. During the work, it was possible to observe the relations between the Territorial Metropolitan Plan (PTM) and the Urban General Plan (PUG) of the Municipality of Bologna. In both these tools, important issues such as the protection of naturalistic-environmental characteristics, the reduction of land consumption, but also the need to strengthen innovation, the economic system and the

attractiveness of the entire metropolitan area are linked. All themes that are intertwined with the planning and design of functional poles;

3. Finally, the project experience is linked to two other relevant issues in the Bologna context and at a more general level: the containment of land consumption on the one hand, and the request for expansion or modernization of the extensive logistics and distribution platforms of goods on the other. Themes that can be recalled here only briefly, as a background, but which enter the heart of an urgent debate and open up new research operations, both concerning the general strategies of the Plan and about the construction of poles' territorial agreements.

3. Apennines, via Emilia and the Plain: a “unique territory”

The Territorial Metropolitan Plan conceptualizes the three morphological environments that make up the metropolitan territory (the “Apennines”, the “via Emilia” and the “plain”) as a single territory, intending to overcome certain distinctions and mend spatial, economic and settlement. Following the morphology of the region, we can find in the south the chain of the Apennines, that delimitate the mountainous, hilly and foothills of the metropolitan area. The historical route of the Via Emilia, together with the modern infrastructures, connects the medium and large centres. The plain is characterized by large spaces destined to intensive agriculture, production and logistics activities, together with the network of smaller centres that historically were built radially around the central core of Bologna, following the paths of the ancient communication routes.

The morphological, settlement and economic systems of the Bologna metropolitan area are also clear by observing the potential pollution factors, such as landfills, waste plants, quarry areas, but also the freight distribution centers, the airport and the racetrack. (Metropolitan City of Bologna 2020c: 24). By combining this information with sources for aqueduct use, drinking wells, groundwater recharge areas and groundwater protection areas (located mainly in the mountainous and foothills areas), the image of the plain emerges as an intensely exploited territory. It is highly specialized, with the location of many supra-territorial functions (i.e. the functional poles), almost absent on the contrary in the hilly and Apennine areas.

Looking more closely at the plans, we can also grasp the strategic importance of these spaces and the challenge that concerns them, since it is precisely in the plain area that the settlement forecasts of the municipal urban plans and the primary urban regeneration interventions are located.

The territory of the central part of the Bologna metropolitan area is therefore a fringe territory, a hybrid peri-urban, with both urban and rural characteristics (Fini, 2014). The sector opens up to the agricultural areas of the Po valley. Here, significant natural elements persist, but is characterized at the same time by the presence of crucial specialized settlements in the metropolitan city: Marconi airport with related activities and some large commercial settlements to the north-west; the main logistics centres such as Interporto and Centergross to the north, the Bologna Fair, the CAAB agri-food centre to the north-east with FICo Food Exhibition Center and the nearby tertiary, commercial and university activities.

4. Metropolitan structure, specialized areas and functional poles

Before going into the details of the characteristics of the functional poles, it is useful to recall some elements of the Territorial Plan, in particular concerning its structural component, valid for all the municipalities that are part of the metropolitan territory. For them, it is the PTM that defines the discipline of new urbanizations, such as settlement functions and extensive area of services (Metropolitan City of Bologna 2020b: 13).

The structural component of the PTM outlines the metropolitan armature, formed by the integrated system of settlements, infrastructures and metropolitan level equipment. It represents the settlement system through which to consolidate the objectives of efficiency, attractiveness and inclusion of the territory. For settlements and endowments of metropolitan importance the following are considered: a) service endowments and role of the centres; b) supra-municipal production and logistic areas; c) functional poles; d) the territorial parks and d) the network of cultural sites (museums, theatres, libraries).

The Territorial Plan is also responsible for identifying the settlements that are characterized by a strong attractiveness of people and means, and for the significant impact on the environment and on the mobility system. Among them, we can recognize the functional poles, in addition to the supra-municipal production areas, large sales structures and multi-screen cinemas of supra-municipal importance. Finally, the PTM also defines the structural component relating to ecological networks and environmental ecosystem services, identifies the grid of elements that characterize the extra-urban territory, defines the discipline of the rural environment and the specific areas intended to ensure the feasibility of public works.

4.1 The functional poles: definition, characteristics and need for adaptation

Within the planning framework outlined so far, in the PTM the major hubs for the transport of people and goods are classified as functional poles (the Bologna airport and station, the two logistic centres of Interporto and Centergross, etc.); metropolitan services (universities and research, health and wellness, justice), large equipment for sport and entertainment (the Bologna stadium, the Imola racetrack), tertiary polarities with a large influx of visitors (the Fair Exhibition Centers, the CAAB-Centro Agro Alimentare, the commercial areas of Centronova and those A and B of the Municipality of Casalecchio di Reno).

The previous PTCP identified 29 functional poles, envisaged 5 localization areas for new poles and identified a series of specialized poles for trade. It is interesting to observe how 25 functional poles are located along the turning “T” defined by the infrastructural corridors (motorways and railway network) and how 13 of these are located in the city of Bologna. This arrangement seems to confirm the development of the metropolitan area of Bologna which over the decades has been characterized by controlled and planned urbanization (despite the numerous recent criticisms). It is also possible to observe the effective distribution of higher-ranking poles over the entire metropolitan area, albeit with some historical polarities such as the fair, the station and the stadium within the central nucleus of Bologna.

The theme of a necessary rethinking of functional poles is reiterated both within the Territorial Metropolitan Plan (PTM) and in the Urban General Plan (PUG) of the Municipality of Bologna. Here we can find a specific reference to the poles located within the municipal perimeter and with the third strategy of the Plan: “Attractiveness and Work”. The aim is to support the qualification of metropolitan centers into “places to live, inserted in the context”. This is a precise aim that we find both in the PUG and in the PTM. This title recalls the aim, as well as the objective of the design activity developed by the working group of the RAPU + research laboratory.

For the methods used to define the planning of functional poles and their consultation process, from 2004 to date twelve territorial agreements have been stipulated, activated on the need for expansion or transformation of the pole, and to define the territorial dimensions, the settling functions, the infrastructures necessary for sustainability, landscape integration and financial compensation for the territories affected by the impacts connected to them.

These issues, therefore, seem to recall some critical aspects in the design of the poles, but no longer sufficient on their own to define sustainable and attractive spaces, spatially and functionally articulated and in relation to the development of regeneration projects. We can in fact find reference to the size of the hub, the functions (perhaps in a somewhat uncritical and standardized way), the infrastructures and financial compensation. At the same time, the themes of the contemporary urban design, as illustrated below, are not yet developed.

The drawings attached to the PTM, which represent the territorial agreements in place and are also quite dated in the definition, clearly show the limits of the previous approach, with essential schemes with respect to the complexity of the contexts in which the functional poles are located and of the themes with which they enter into relationship and conflict.

5. The new guidelines for territorial agreements: "Even functional poles are places to live"

The research collaboration for the definition of new guidelines for territorial agreements has provided for the identification of the themes on which to build the guidelines, the construction of an "sample" (a tester), and the development of a wide range of projects proposed as references.

Two important logistics centres in the north-east of the metropolitan city were chosen as functional poles on which to make the test: Interporto and Centergross. The first is the central hub of metropolitan logistics, with an area of over 4,100,000 square meters and 600,000 square meters of covered warehouses, which has grown exponentially since the second half of the 2000s. The second is instead a smaller logistics centre, aimed at in particular to companies in the fashion and fabrics supply chain, an intermediary point between wholesalers and private sellers. The choice to use the two logistic poles for the tester was determined by two reasons: the forthcoming redefinition of the territorial agreements for these poles (also concerning a possible, much-debated extension of Interporto) and the importance that logistic activities have in the Bolognese territory, with the connected problems such as the transport of goods still predominantly by road, the intense economic competition between companies and the demand for new spaces. The Emilia-Romagna region alone accounts for 15.3% of the turnover of logistics activities on the Italian national total, while the employees who deal with freight and logistics correspond respectively to 25% and 32% of the regional total.

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The creation of the specimen (a sort of "application test" of the guidelines) was dictated by the desire to make the elements of structuring and modification of the pole immediately visible, discuss these aspects with the administration and show the possible actions through the catalog interventions. The location maps of the poles were used in an analytical-interpretative way to indicate the systems with which the settlements must be related: accessibility, landscape and constraints.

The proposal for functional poles is summarized by the title-declaration: "Even functional poles are places to live in". In addition to the more traditional elements, such as public accessibility, charges and equipment, new challenges have been reported, linked to habitability, regeneration, spatial and functional articulation of the poles, through actions such as encouraging forms of sustainable mobility, internal routes and connections with the territory, the qualification of open spaces, the environmental comfort of interventions and energy saving. The proposal for the guidelines is divided into three main fields:

- I. *Accessibility. Reaching the hubs in multiple ways*: that outlines the theme of accessibility and integrated mobility of the hub, the redefinition of parking lots and equipped surfaces;
- II. *Habitability. Work and feel good inside the hub*: with proposals relating to public spaces, environmental quality and interventions on the built environment;
- III. *Relations. Opening the pole towards the territory*: through the remodeling of the borders and the definition of new relationships with the adjacent territory, both urbanized and rural.

The guidelines, maps, and references

The development of the guidelines - which must subsequently be implemented and defined in the territorial agreements - strongly outlines the evolution of the functional poles, articulating their predominantly mono-functional concept, anchored to the almost unique economic dimension, in favour of new principles which can guide the project. Therefore, the intrinsic needs of the cluster, challenges and other related planning tools (i.e the Sustainable Mobility Urban Plan PUMS and the Bologna Charter) were taken into account, summarized through the key themes of “accessibility”, “habitability”, “qualification and articulation”, and “relationships”. Below are some of the guidelines explanations, within a project that includes approx. twenty intervention proposals.

- In the first group (*Accessibility. Reaching the hubs in several ways*) actions are developed such as the qualification of the stations of the Metropolitan Railway Service in synergy with the choices of the PUMS; the completion of the cycle links between the local stations and the connection to the strategic network of metropolitan cycling mobility; the creation of access routes and a network of slow internal mobility and crossing on both sides; the creation of equipped and interchange surfaces (currently absent).
- The second group (*Habitability. Working and being comfortable inside the hub*) is the most complex. Some of the fundamental operations fall into this category, such as the creation of:
 - a system structuring the pole, through the redesign and characterization of multifunctional tree-lined streets, to improve usability, comfort, mitigation and shade;
 - a system of public spaces by reworking the existing open spaces, starting with the presence of services and favoring functional articulation;
 - the articulation of an internal network of paths, in connection with tree-lined streets and public spaces.
 - Other proposed interventions concern the transformation of residual spaces by recovering permeability, interventions on parking areas in shaded, sheltered spaces, with vegetation, lighting, services and support equipment.
 - The interventions on the buildings concern the adaptation and transformation of the logistics and commercial warehouses to differentiate and enrich the range of uses and improve safety and energy performance.
- Finally, the third group (*The relations. Opening the pole towards the territory*) proposes the characterization of the edges of the pole as “multifunctional green bands” part of the green and blue territorial infrastructure and the enhancement of the elements characterizing the rural territory: canals, rows, wooded spots, dirt paths.

A large overall map depicts the possible pole’s remodeling, identifying both specific interventions and extended parts treated homogeneously. The identification of the interventions required a detailed study of the territory and a good knowledge of the functional centre. They are therefore contextual and precise

configurations, although the subject needs a further necessary check in the agreements. It is interesting to note that through the themes and actions identified, important spaces for qualification and modelling of the two logistic poles open up, intending to make the guidelines applicable also in other functional poles.

Finally, the guidelines were accompanied by numerous references: a constructive operation even in a technical, institutional work environment, within an administration, because the references refer to a catalogue of possible solutions that can be viewed and reused by technicians with relative ease.

6 | Effects and fallout in the Plan: an open and challenging field of work

The proposal for the new territorial agreements' guidelines was developed in synergy, but independently, of the Territorial Metropolitan Plan's definition. During the process, the Plan's Strategic Objectives Document (*Documento di Obiettivi Strategici*) was approved in February 2020 and its assumption was confirmed in July 2020. The Plan proposal is expected to be adopted at the end of 2020, with the final approval in March 2021.

Starting from the Plan's documents, an attempt was made to understand which elements - among those discussed with the administration - have been considered and finally entered in the Plan. The researchers want to further explore this topic, with interviews to technicians and managers of the Plan. The results of this reflection can be summarized through the following points:

1. In the PTM it is stated that an update selection and identification of functional poles must be developed. In the first hypothesis, it is considered to reduce the number of poles, due to the actual metropolitan importance and to the commerce poles specific treatment, in light of the new regulatory framework.
2. It is possible to observe which dimensions for the rethinking of functional poles are present in the Plan and how, in general, a new, strong, shared intentionality is expressed. The Administration intends to implement a "verification of the sub-articulation and an update of the information regarding relevant aspects of the poles" concerning the general objectives of accessibility, habitability and resilience (Città Metropolitana di Bologna, 2020c: 101). At a broader level, the plan proposes to link the functional poles with the 15 and 30 minutes railway service, with the mobility centers and with the Metropolitan Public Transport network (TPM - Trasporto Pubblico Metropolitano).
3. The plan proposes to carry out an assessment - of the territorial role and the levels of the adequacy of the poles - taking into consideration the topics mentioned, including:
 - the sustainable accessibility of employees and goods (rail, main road network and cycle network);
 - the distribution of activities (functional mix) and the presence of functions at the service of employees;
 - the elements that determine urban quality and liveability (tree-lined streets and parking areas, permeable greenery, sidewalks, shaded public transport stops with information panels, etc.);
 - analysis of the productive sectors to which the companies belong;
 - geo-referenced analysis of the abandoned settlement heritage in the main production areas, in collaboration with sectorial association.

We also note the identification of other elements that had not directly emerged in the design experience by the working group: the presence of primary infrastructures for the settlement's urbanization (purifiers and public lighting), the technological communication infrastructures, the energy efficiency and seismic

safety of buildings, the presence of companies with the eco-green certification of environmental sustainability.

Finally, the integration of the analysis of the dynamics relating to large logistics platforms is reported in the cognitive framework of the PTM: a theme that again refers to the need to monitor the dynamics of a sector that has important economic repercussions on the territory.

The representations of the functional poles accompanying the cognitive framework of the PTM - over ninety pages of maps and dedicated representations - clearly show the need for an evolution in the conception and treatment of the functional poles.

They must return the complexities, challenges and risks of the contemporary project: not a procedural and technical simplification, that standardizes and at the same time trivializes the themes and interventions of the project. Through the exploration of the new guidelines, an attempt was made precisely to focus and return this urgency in a technical, albeit initial, way.

The next field of action will be the definition of territorial agreements, where the design moves from the strategic and structural component to the consultation between the multiplicity of private actors and entities involved, up to their complete definition. The research activity, therefore, far from being completed, aims to study the agreements further and continue the dialogue with the Administration, to verify the effective possibility of conception and re-modelling of functional poles, both in the study of recently defined territorial agreements, both for the definition of new ones.

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