The Insufficient Role of Urban Form and Its Uses in Baseline Assessments of Urban Plans in France

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Abstract
When broadly defined, urban form is a key dimension of planning, directly tied to the challenges of 21st-century urbanization. In France, municipalities and metropolitan areas use the Local Urban Plan (PLU) as a powerful tool to move beyond outdated functionalist approaches. For these plans to engage meaningfully with urban form, however, their baseline assessments must identify the strengths and weaknesses of built forms and their multiple connections to related issues. Yet the French Urban Planning Code remains vague on both the content and methodology of such assessments, resulting in varied and often inconsistent practices. A comparative textual analysis, supported by an analytical grid applied to diagnostics from Lille, Bordeaux, and Lyon, shows that urban form is generally reduced to physical features of the built environment. However, it belongs to a broader systemic perspective, which is unevenly recognized across the documents. The absence of standardized protocols, spatial analyses, and detailed cartography reflects the lack of a shared framework—ultimately limiting these cities' ability to produce robust, spatially informed strategies.

Keywords: Urban form in planning; Baseline Assessments; Human practice in public space; Urban morphology theories; France

1.Urban Form, Public Space, and the Limits of Baseline Knowledge in French Planning

In a changing global context, 21st-century cities face both new and enduring challenges — in France, as elsewhere in the world. The impacts of climate change and socioeconomic tensions at all scales demand more resource-conscious urban development models centered on human needs. At the same time, the complexity of urban systems challenges planning practices, pointing to inevitable interconnections between geographic scales and policy domains. The United Nations' New Urban Agenda (UN-Habitat, 2017) calls for a fundamental reorientation of planning goals and approaches. After decades of functionalist urbanism, urban form is increasingly recognized as a key driver of cost efficiency, ecological performance, and social sustainability. Its spatial dimensions — from the human scale to the integration of metropolitan infrastructures — are now seen as essential to achieving inclusive, integrated, and environmentally responsible urbanisation. Together with buildings and building codes, the New Urban Agenda identifies urban public space as a key element of the form of the human-centred sustainable city. It is explicitly recognized in the new urban paradigm and is the focus of eight specific planning commitments.

How can the solemn commitments of the New Urban Agenda be translated into operational practice? National planning cultures, along with differing priorities across urban contexts, inevitably shape how this question is answered in practice. A central issue lies in the specific forms of knowledge that are mobilized in the conception of plans and policies.

Since the foundational work of Patrick Geddes (1915), planning has relied on preliminary assessments (civic surveys, in his terms) to build a shared understanding of the urban condition. In France, since 2000, the core document of local planning has been the Local Urban Plan (Plan Local d'Urbanisme – PLU)[1], which articulates a municipality's overall spatial development strategy. It must be grounded in a baseline assessment (diagnostic territorial), often informed by the expertise of public urban planning agencies. Unlike the highly functionalist Land Use Plan (Plan d'Occupation des Sols – POS)[2] it replaced, the PLU is intended to address a broader set of local

1 Due to resource constraints, Local Urban Plans (PLU) were initially implemented in cities within major urban areas. It was only later that Intercommunal Local Urban Plans (PLUi) were extended to rural territories. By 2019, 49% of French municipalities were covered by a PLU, representing 89% of the national population (CEREMA, 2020).

2 Adopted under the Land Use Planning Act (Loi d'Orientation Foncière, LOF) in 1967, the Land Use Plans (Plans d'Occupation des Sols, POS) remained in effect until 2000, when the Solidarity and Urban Renewal Act (Loi Solidarité et Renouvellement

challenges: limiting the consumption of natural and agricultural land, ensuring access to quality housing, fostering economic activity, improving mobility, adapting to climate change, enhancing public space, and more. The integration of Development and Planning Guidelines (Orientations d'Aménagement et de Programmation – OAP)[3] within PLUs reflects the ambition of local authorities to adopt more qualitative, spatially sensitive planning tools, often engaging with urban design.

In France, as in many other countries, the baseline assessments that informed functionalist plans like the POS were primarily focused on managing the demands of urban growth. Their main goal was to evaluate population trends, future needs for public services, land for housing and employment, and infrastructure development. Quantitative standards were introduced for the provision of green space, public facilities, parking, and of course Floor Area Ratio (FAR), typically without regard for the spatial configuration of the urban fabric. These assessments rarely engaged with issues of urban form — except in designated heritage districts. The Malraux Law (1962) introduced Conservation and Enhancement Plans (Plans de Sauvegarde et de Mise en Valeur – PSMV) for historic centers, where assessments necessarily addressed urban form to justify preservation (Merlin and Choay, 2015). This contributed to a lasting association between urban form and heritage, often focused on visible stylistic and architectural features.

Since the 1960s, an extensive body of academic literature has explored how urban form shapes spatial structure, human behavior, and the social and symbolic dimensions of urban life. The early work of urban morphologists such as Muratori (1960) and Conzen (1960) focused on historical cities, but later scholars extended the scope to contemporary urban contexts (Lynch, 1960; Jacobs, 1961; Alexander, 1965; Rossi, 1966; Newman, 1972; Hillier and Hanson, 1984; Hillier, 1996; Salingaros, 2005). Over time, this literature has come to advocate for human-centered urban environments (Alexander 1979; Lynch, 1981; Gehl, 2011). Recent meta-analyses (Carmona 2018) synthesize empirical findings to highlight how urban form directly influences the usage value of space and the nature of everyday urban practices. Nevertheless, urban form remains marginal in many baseline assessments of French urban plans. To understand why, it is necessary to trace the intellectual and institutional trajectory of form-based thinking within the French planning context.

The emergence of urban morphology as an interdisciplinary field in France was explicitly intended to raise awareness of urban form among planners and designers (Vernez-Moudon, 1997). Despite the academic importance of the French school, best known as "école de Versailles" (Panerai et al., 1997; Panerai et al., 2004), urban morphology was the subject of strong critique from leading voices in the planning establishment (Merlin, 1984). These critiques shaped both academic legitimacy and practical influence, particularly during the 1980s and 1990s (Fusco, 2023). It was only at the end of the 1990s and beginning of the 2000s, within the new agenda of sustainable urban development, that urban form re-emerged in official discourse. The French Ministry of Ecology — also responsible for planning — and various research bodies began to reframe urban form through related themes: densification (Wiel, 1999), walkability and public space use (CEREMA, 2021), and landscape or townscape quality (MEDDE, 2015).

However, the French Urban Code remains relatively ambiguous regarding the integration of urban form in baseline assessments. While the assessment must anchor the plan in demographic and economic trends, it is also required to address landscape — including its forms and perceptions — as well as infrastructure and mobility systems. Densification potential must be assessed "while taking into account urban forms." In contrast, public space, although now central to the objectives of many PLUs, is not explicitly listed as a required theme in the baseline assessment. PLUs must include by law objectives related to the improvement of public space, the promotion of social cohesion, and the spatial coherence of streets, squares, sidewalks, vegetation, and other elements — indicating a growing association between public space and urban form. Yet, at the diagnostic stage, these concerns remain optional or inferred rather than obligatory.

Urbain, SRU) replaced them by PLU, also establishing a minimum quota of social housing in each municipality (Merlin and Choay, 2015).

3 Flexible components of Local Urban Plans (PLU), Orientation and Planning Guidelines (OAP) translate planning objectives into operational and qualitative terms. They may focus on a specific area, a particular theme, or both (CEREMA, 2023).

Within this contradictory framework, a few pioneering local authorities began to address urban form — most often through the lens of public space strategies or densification policies. Lyon took an early lead in both areas: since the 1990s, it has combined urban renewal with the requalification of public space as a structuring tool (Cosnier, 2001). It was followed by ambitious regeneration in Lille and the transformation of Bordeaux into a walkable, design-oriented metropolis, where the quality of public space became a central component of urban marketing. In each case, planning agencies produced studies, charters, and frameworks — often non-regulatory, and not always integrated into PLUs — that nonetheless helped shape local debate.

It is therefore legitimate to ask: to what extent have these form-conscious strategies influenced the baseline assessments of the PLUs in these three cities? This is the central question of the present paper, which also examines how different dimensions of urban form thinking are represented and interrelated within official planning documents.

The remainder of this paper is structured as follows. Section 2 defines the concept of urban form as it will be used in this study, identifying the key components that will guide our analysis of baseline assessments. Section 3 presents our methodology for analyzing planning documents from Lyon, Lille, and Bordeaux. Section 4 reports the results of this analysis. Section 5 offers a comparative synthesis and critical discussion of the findings. Finally, Section 6 concludes the paper and outlines directions for future research and policy development.

2. Framing Urban Form for Planning Analysis

Urban form has long been a subject of debate in urban planning. Several studies have offered critical insights and proposed alternative approaches. Four main perspectives have proven particularly fruitful: the need to go beyond reducing urban form to the urban fabric alone; the view of street networks as dynamic systems, not just mobility infrastructures; the concept of landscape as a way to connect natural and built environments; and the focus on uses—especially public space uses—as key to understanding and designing cities.

In France, Lévy (2005) was among those who most clearly challenged the narrow definition of form in urban morphology. Here, it is often limited to the relations between buildings, parcels, and street grids at fine scales, or to major urban layouts. According to Lévy, these represent only two dimensions—fabrics and structural layouts—whereas urban form is inherently multifaceted and polysemic. Earlier (Lévy 1999), he also criticized the tendency to focus on historic city centers, overlooking vast areas shaped by more recent urbanization.

Configurational approaches to street networks (Space Syntax, Hillier 1996) allow for computational analysis of entire metropolitan areas. But their value goes beyond digital modeling. They offer a new analytical lens—focused on the topological properties of networks in relation to mobility, social interaction, and spatial control. Contrary to Lévy (2005), Fusco (2018) considers the configuration of street networks as an additional dimension of urban form. Space Syntax reverses the usual perspective: it prioritizes the spatial void of public space over the built environment. Yet this focus is not new. Camillo Sitte (1889), an early figure in urban morphology, already placed public space at the heart of his thinking. The novelty of configurational methods is the multi-scale analysis of the complex network of public space in the city.

The landscape approach also deserves attention. Spatial analysis lends itself well to reading both urban (cityscape) and natural/rural (townscape) forms through the lens of landscape. Early urban morphologists drew inspiration from rural geography and its analysis of landscape units—highlighting the intellectual overlap between fields. This overlap is even more evident today, as diffuse urbanization, green and blue networks, and urban agriculture form complex continuums between urban, peri-urban, and rural forms. Capturing this complexity is essential.

A final shift has come from the humanistic turn mentioned earlier. Since the work of Jacobs (1961), Alexander (1977), and Gehl (1971), urban form can no longer be reduced to geometry. What matters is spatial affordance

(Gibson 1979)—how form enables or constrains action, whether in motion or at rest. This refocuses attention on public spaces that are accessible and usable by many, and on the affordances of different mobilities—walking, cycling, or driving. More broadly, it raises the issue of human scale and conviviality, in Illich's sense (1973): urban forms that support autonomous, creative use of space without heavy reliance on technology.

Indeed, Lévy has also outlined other dimensions of urban form: visual and material landscapes (corresponding to the already mentioned landscape approach), the spatial distribution of populations and functions (social morphology), and bioclimatic form—how the physical arrangement shapes environmental phenomena.

All these dimensions of urban form intersect with key planning concerns: housing, socio-spatial inequalities, health, economic development, tourism, retail, energy, risk management, pollution, and more. But this expanded view also brings a risk: turning urban form into a catch-all category, compensating for its earlier reduction to fabric alone. How, then, should urban form be understood?

A good starting point is to examine how urban form is addressed in the baseline assessments of French local urban plans (PLU). Given the diversity of existing approaches, looking at the operational practices of local governments can help reveal both limitations and opportunities, and suggest ways forward.

In this light, and building on the perspectives above, we propose four entry points to analyze how PLU assessments frame urban form:

- **Urban fabrics**, including building typologies—whether analyzed through their historical layers, heritage value, or functional aspects (housing, densification, etc.);
- **Public spaces**, with attention to their qualities, usages and degrees of conviviality;
- **Natural spaces**, as components not only of natural landscapes, but also of urban ones, structured by the ecological connections that link them together;
- **Mobility networks**, including transport infrastructure such as stations, terminals, and parking, which strongly influence both urban fabric and landscape.

Because of their clear intent to develop a more complex understanding of the city—its forms, functions, and uses—the metropolitan areas of Bordeaux, Lille, and Lyon have been chosen for focused analysis. In France, these cities are seen as pioneers in efforts to observe and reshape the city through the lens of public space. The baseline assessments in their local urban plans (PLU) are examined in the following sections, first individually, then comparatively, to identify shared insights and common directions.

3.Analyzing How Urban Form Is Framed in the Baseline Assessments of Local Urban Plans

Our analysis of the baseline assessments (diagnostics) from the local urban plans (PLU) of Bordeaux (2016), Lille (2024), and Lyon (2019) followed a two-phase approach. The first phase consists of a textual analysis of the occurrences of the keywords "urban form(s)" and "morphology(ies)," to understand how these terms are used in the documents (3.1). The second phase involves a deeper reading of the texts to examine how urban form is addressed, even when it is not explicitly named (3.2). For this second phase, we used a conceptual graph as a heuristic tool, structured according to a predefined evaluation grid. This method was chosen for its ability to represent complex interrelations between concepts and their uses (3.3).

3.1.Phase 1: Keyword Occurrence Analysis

The terms "urban form(s)" and "morphology(ies)"—whether singular or plural—appear in all three baseline assessments. For "morphology(ies)," we only considered occurrences related to urban morphology, excluding unrelated uses (e.g. river morphology or household composition).

The table below shows the number and frequency of keyword occurrences in the three documents. Overall, while the absolute number of "urban form(s)" references varies—partly due to differences in document length—the

frequency is similar for Lille and Lyon, but nearly cut in half for Bordeaux. As for "morphology(ies)," it is almost absent from the Lille and Bordeaux assessments, while present in Lyon's.

Table 1 : Occurrences and frequencies of selected keywords in PLU baseline assessments.

	Lille	Bordeaux	Lyon	Total
Page Count	**214**	**190**	**660**	**1 064**
Occurrences				
Urban Form: Forme(s) urbaine(s)	14	7	48	69
Urban Morphology: Morphologie(s)	1	0	20	21
Frequencies (= occurrences / page count * 100)				
Urban Form: Forme(s) urbaine(s)	6,5	3,7	7,3	6,5
Urban Morphology: Morphologie(s)	0,5	0	3,6	2,3

For each occurrence, we identified how the term was defined and what issue or policy domain it was connected to. For example: is "urban form" mentioned in support of densification strategies to limit sprawl and soil sealing? Or is urban morphology discussed in relation to urban greening and climate adaptation? These recurring themes are explored further in section 3.2.

The low frequency—or near absence—of terms directly linked to urban form in some cases confirmed the need for a second phase of analysis.

3.2.Phase 2: Item Analysis Using a Conceptual Grid

To deepen our understanding of how urban form is handled in the three assessments, we developed an analytical grid to extract, describe, and interpret elements referring to urban form and morphology—even when the terms themselves are not used.

The grid is structured around three guiding questions that helped extract and interpret concepts:

1. Content: what is being addressed? What does each assessment actually say about urban form? Are the elements presented in isolation, or are links made between them? While not all assessments address urban form directly, the analysis of fabrics, public spaces, natural areas, and mobility networks contributes to capturing urban morphology in its physical and qualitative dimensions, as previously stated.

Following this logic, Alexander et al. (1977) approached urban form as a set of interrelated elements, giving rise to a "pattern language." Inspired by this, we extracted items related to the core components of urban form—typically discussed as fabrics, public spaces, natural areas, and mobility networks. The goal was to detect the "language" each city might have developed.

We thus followed the anthropological distinction (De Sardan, 1998), between emic and etic perspectives: terms and logical categories used by the surveyed human group vs those used by the researcher. We treated all extracted elements as equally important, preserving the terminology used in the original texts (emic perspective). The researcher's only role was to assign each item to one of the four pre-identified domains.

To go beyond a simple list, we mapped the items and their connections—causal links, composition, association, reciprocal implication, etc.—into concept graphs. Each document produced four such graphs, one per domain. By analyzing the links within and across graphs, we could reconstruct how each assessment implicitly or explicitly

addresses urban form. Items appearing in multiple graphs were duplicated and linked to show identity.

2. Evaluation: are the elements assessed? Does the baseline assessment lead to an explicit evaluation of the various elements it describes? And how does it characterize them? An assessment cannot be limited to a neutral description, a snapshot of existing conditions, or an inventory of features. Beyond mere observation, an evaluation is expected—at a minimum through plain-language judgments, and ideally through a reproducible protocol that can guide public decision-making as part of the PLU development process.

This kind of protocol-based evaluation typically involves either a qualitative or quantitative scale. It may establish a threshold to distinguish what is considered "good" versus "less good," or define minimum or maximum standards that help assess how far the current state of the space deviates from an ideal or target condition. Evaluation, in this sense, depends on the reference framework adopted, which is itself chosen to focus and structure the diagnostic process.

For each element extracted from the baseline assessments, we therefore recorded whether it was subject to an explicit evaluation and whether this evaluation was framed in positive or negative terms. In doing so, we aimed to understand not just what is observed, but also how it is valued—what is considered desirable or problematic within the documents.

3. Spatialisation: are the elements mapped? Are the elements spatially located, and if so, how are they represented cartographically? Spatialization—especially through maps—is a powerful tool in planning, particularly during diagnostic phases (Debarbieux and Lardon, 2003; Lascoumes, 2007). It enables a transition from isolated evaluations to a spatial overview that reveals patterns, which can be recognized as strengths of weaknesses.

Urban form is inherently spatial and scale-dependent. Smaller-scale forms combine to create larger ones. For instance, mapping the walkability of public space at a fine scale can show whether pedestrian-friendly corridors create a coherent network across the city (Mezoued, 2020).

To assess spatialization, we noted whether items were mapped, whether the spatial granularity was coarse or fine, and whether maps used full choropleth coverage or focused on specific zones.

These three criteria—content, evaluation, and spatialization—form the analytical grid through which we read and interpreted the three baseline assessments. To make the results of this analysis more legible and comparable, we translated the grid into a visual format, using a standardized legend (Figure 1) to guide the construction of the graphs. This graphical coding system allowed us to represent, in a consistent way, how each element was addressed in the documents across the different dimensions of analysis.

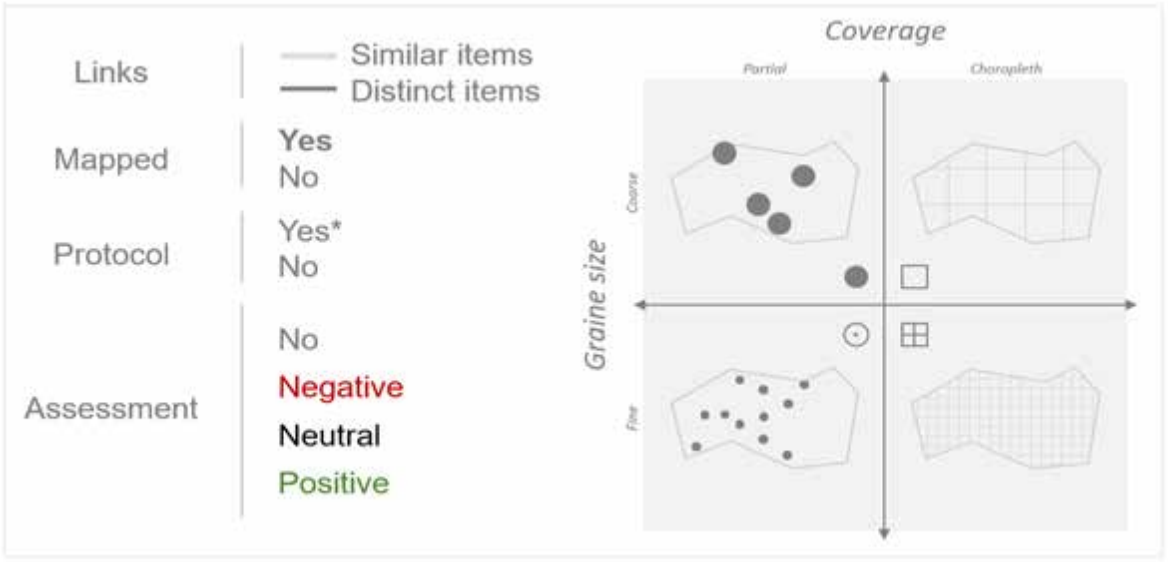

Figure 1 : Constitutive elements in the legend of graphs

This graphical language was used to produce the concept graphs presented and discussed in Section 4. The graphic representation is a heuristic visual method: graphs serve both as visual summaries of dense textual material and as tools for analysis. In short, drawing the concepts helped us understand them. These graphs aim to make visible—however imperfectly—how urban form is perceived and addressed in each document.

3.3.Concept Graphs: Strengths and Limits

It's important to clarify what the graphs represent. They do not depict the actual urban systems of the cities, nor do they reflect the full knowledge of local authorities. Instead, they show how the assessments express their understanding of urban form—filtered through our own reading.

For example, while there is a clear link between parking and public space usage, if that link isn't made explicit in the document, it's not shown in the graph. That doesn't mean authors are unaware of it—only that it wasn't articulated.

These results reflect only what is in the texts. A richer understanding would require complementary methods such as interview-based discourse analysis—a promising direction for future research. Very recently, (semi-)automated methods have been developed in this direction, such as those by Salazar-Miranda and Talen (2025) or Arlati and Nagel (2025). However, these methods do not offer a nuanced analysis of grammatical relationships between words or of evaluative and mapping modalities as we do here

Another limitation lies in the nature of the graph itself. It's built incrementally, item by item, and the overall picture may not match how the authors see the subject. In reality, different sections of the assessments are often written by separate teams (in-house or outsourced), coordinated by project managers and steering committees. The graph is thus a reconstructed vision of fragmented statements. It may not reflect a shared consensus among all contributors. It is a partial and situated representation of how a city presents and positions itself on the topic at a given moment.

A final challenge arises from the distinction between items and labels—that is, between the underlying concept (which is general and abstract) and the specific terms used to refer to it. For instance, labels such as "motorway system," "highways," or "major automobile corridors" all refer to the same broader concept: large-scale mo-

bility corridors. Beyond the practical issue of choosing which label to use when adding an item to the concept graph—should it be the most frequent, the most intuitive, or the most precise?—this raises the deeper problem of conceptual ambiguity. That is, how clearly defined is each concept being represented? And how do we deal with the grey areas between similar terms? This is a common difficulty in terminological or ontological approaches (Roche and Papadopoulou, 2020): how do we strike the right balance between grouping together different expressions that refer to the same thing, and avoiding the mistake of merging two distinct concepts just because they sound similar or are used interchangeably?

To manage these issues, we applied a few guiding principles. First, we started from a list of concepts drawn from the academic literature, but remained open to including more specific terms found in the actual planning documents. Second, we kept the original labels (in French) used in the documents, as noted earlier. Third, in constructing the graphs, we prioritized the most commonly used label in each document, to remain consistent with an emic approach—one that reflects the internal logic and language of each local case. This also allowed us to highlight semantic differences between the ways different cities refer to similar concepts, and to make these variations visible in the resulting graphs.

We deliberately chose not to build a full formal ontology, despite the many advantages such a method offers (Keita et al., 2008). In our case, that approach would have flattened the diversity and complexity of the documents we analyzed. Like a palimpsest, these texts carry meaning not only through what they say clearly, but also through their ambiguities, contradictions, and contextual nuances. A formal ontology would risk stripping away those layers and undermining the richness of the source material.

4.Understanding Urban Form in the Metropolitan Areas of Lille, Bordeaux, and Lyon

Following the corpus analysis protocol described above, this section aims to examine the content of the Local Urban Plan (PLU) for each of the selected metropolitan areas, before outlining comparative insights in the next section. Initial observations based on the analysis of textual occurrences are followed by broader and more in-depth reflections drawn from the infographic representation approach using graphs.

4.1.The Lille Case: A Systemic Vision Structured around Core Items, with human uses as the Guideline

In the baseline assessments section of Lille's Local Urban Plan , the term "urban form(s)" (forme(s) urbaines) is primarily mentioned within the typology of urban fabrics developed by Lille's urban planning agency (ADULM, 2017a). This work was carried out in preparation for evaluating the optimization potential of these same fabrics (ADULM, 2017b), in compliance with legislation requiring PLUs to analyze the potential for densification and transformation of all built-up areas, taking into account both urban and architectural forms[4]. A connection is also made with the 2021 Climate and Resilience Act, which sets the Zero Net Artificialization aim (ZAN) by 2050[5]. In this context, the typology proposed by the Metropolitan Authority of Lille (MEL) has the merit of presenting a wide range of urban fabrics at a fine level of granularity—namely the parcel—across the entire administrative territory of the metropolis. However, some aspects are debatable: only a functional approach is used to define fabric types (primarily based on building use), and the classification does not take into account the relationship between buildings and public or open spaces, nor with their broader environment. The concept graph allows to go beyond the limited view of urban form conveyed by these textual occurrences.

Overall, the graph extracted from the text is structured around a few main "core items"—that is, words that hold the most connections with other items—such as metropolis (métropole), major roadways (axes routiers majeurs), parking (stationnement), waterways (voies d'eau), public space (espace public), hemicycle (hémicycle), and fabrics (tissus). The four domains we identified as essential for understanding urban form in a PLU baseline assessments are all represented, though disparities in treatment are evident. There is a lower density of items in the domain of public spaces, and conversely, a higher density in the domain of urban fabrics. These core items are most often

4 Article L151-4 (2022) of the French Urban Code (2025), which frames the content of a Local Urban Plan (PLU).

5 This law prohibits the artificialisation of new agricultural, natural, or forested areas by 2050, requiring municipalities to turn to other urbanisation processes such as densification, renovation, or rehabilitation (Vie publique, 2023).

evaluated and more rarely mapped. They link to a wide range of peripheral items, mostly shown in grey—meaning they are neither evaluated nor mapped.

Moreover, the numerous cross-domain references and relationships reflect a systemic vision of the Lille metropolis. For instance, the hydrographic network (réseau hydrographique), located at the bottom right of the graph, highlights the relationship between built and natural elements through the development of riverside walkways (promenades). Another example is suburban expansion, in the top left of the green cluster dedicated to landscape, which connects with the domains of public spaces and urban fabrics.

In terms of evaluation, lengthy descriptions often accompany the items, sometimes leading to textual assessments. These evaluations are relatively evenly split between positive and negative observations, with some intermediate cases as well. Few evaluations follow a standardized protocol; they typically consist of simple ratios to the population size, followed by comparisons with other French metropolitan areas as part of a benchmarking approach. For example, the total length of the cycling network is compared with that of other major cities. Similarly, parking provision is ranked in comparison with other large French urban areas. This reflects the broader strategy of metropolitan competitiveness observed in France, where each metropolitan authority seeks to highlight its strengths and uniqueness to support its attractiveness.

Finally, some key elements are treated in a particular way.The document provides an in-depth analysis of two main elements. First, the typology of urban fabrics, which accounts for most of the fine-grain maps in the diagnostic, even though these do not undergo a systematic or protocol-based evaluation. Despite the density of items and relationships in this domain, the star-shaped structure of the graph shows few links between the different types. This suggests an image of the city as a juxtaposition of fabric types, rather than an integrated assembly of subtypes forming a complete urban fabric. Second, the notion of centralities (centralités) is also subject to in-depth analysis, again conducted by the Lille urban planning agency. Entirely addressed in a dedicated chapter of the diagnostic, this approach is functionalist: various levels of concentration of functions are identified as centralities based on the availability of amenities and services within a 500-meter grid. The centralities item, located in section of the graph dedicated to public spaces, also demonstrates Lille's ability to conduct inter-domain analyses: it links the domain of public spaces with those of mobility and landscape.

To conclude, two final points should be highlighted, as they cut across the four domains and, more broadly, the entire diagnostic.

The issue of human uses appears throughout the document, across the sections—particularly in relation to public spaces, centralities, and networks. Although not fully developed, this approach has the potential to recognize usage as an essential element of any urban baseline assessments, whether focused on urban form or not.

Lastly, and it's an important point for us, at the neighborhood or city scale, the Lille diagnostic acknowledges the importance of the street as a key component of urban form. Seen as a building block of public space and a support for human uses, particularly "mobility, commerce and dining, socialization and exchanges between neighbors..." (p. 201, PLU). The street acts as a link between the domains of urban fabric, public space, transport, and amenities, though it is worth noting the strong emphasis placed on mobility and transport.

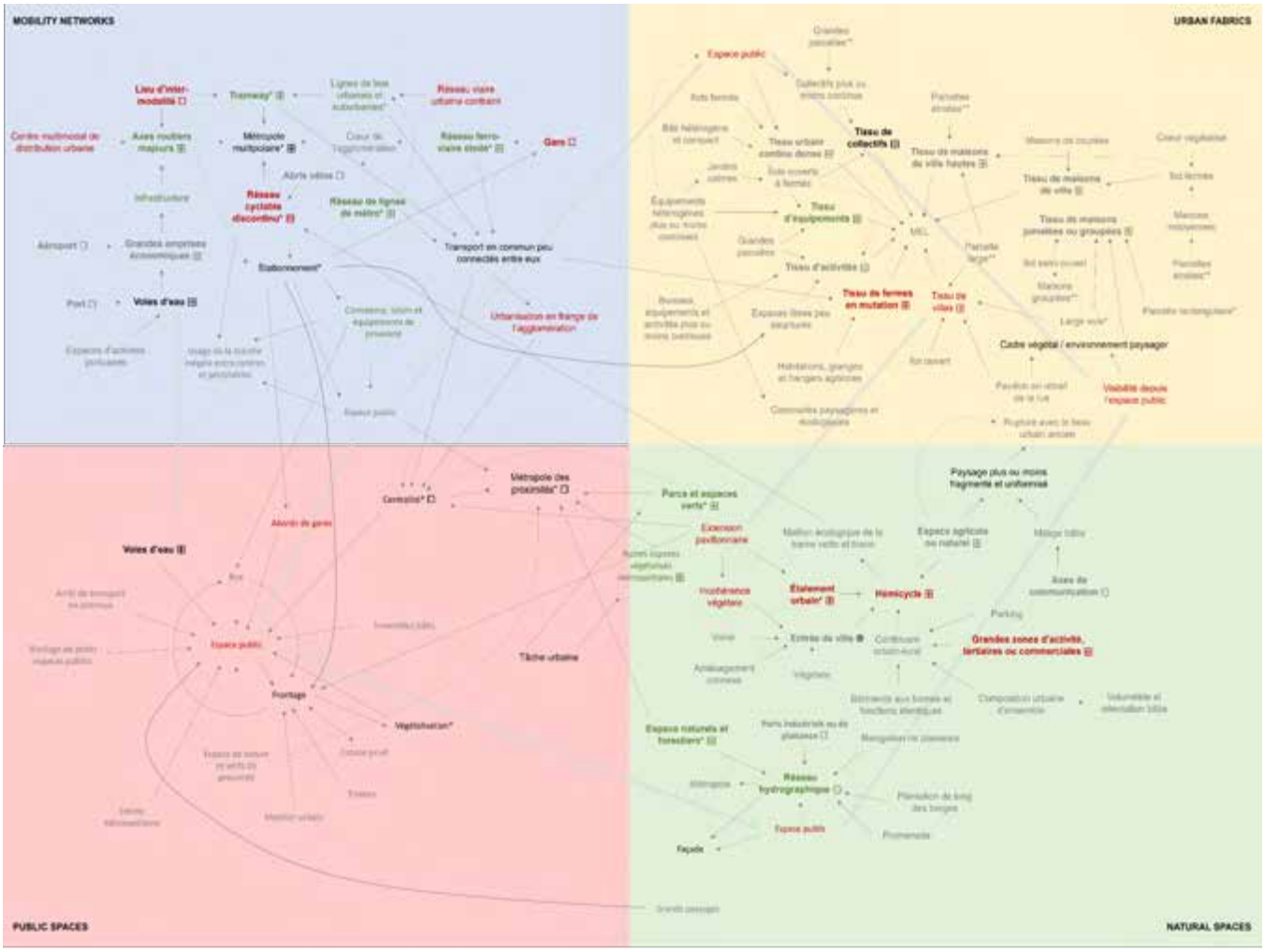

Figure 2: graph of Lille

4.2.The Bordeaux Case: A Diagnostic Rich in Challenges, but Lacking Spatialization and Systematization

In the diagnostic of the PLU for the Bordeaux metropolitan area, analysis of the occurrences of the term "urban form(s)" (forme urbaine) reveals that, as in Lille, the concept is primarily linked to the domain of urban fabric. However, when considering the broader context of its use, some nuances emerge, as these occurrences are associated with a variety of challenges (enjeux). Indeed, these fabric types are mainly discussed in relation to their density, organization, or broader environment: "fairly dense urban form" (p. 61), "urban form with scattered buildings" (p. 77), "low-compactness urban forms" (p. 35), or "surrounding urban forms" (p. 91). Urban fabrics are not viewed in isolation, but rather in relation to their surroundings—particularly for reasons of landscape and heritage coherence. There is also the question of densifying these fabrics in the context of "urban recycling and renewal," to use the terms of the diagnostic. Finally, unbuilt, impermeable, and green spaces—whether public or private—are included in the analysis of the urban fabric as supports for various uses, contributing to a high-quality living environment and human health. They are recognized for their potential to support "soft mobility, sports, relaxation, education, social interaction..." (p. 35).

However, no systematic analysis of the urban fabric or public spaces appears in the PLU of the Bordeaux metropolitan area, despite two notable studies produced by its urban planning agency.

The first is a document from 2008, related to the former PLU, which presents a zonal typology of the metropolitan space. This is a morpho-functional typology broken down into four main categories (heritage fabrics, collective

housing fabrics, suburban fabrics, and economic activity and facility zones) and 21 types. It identifies potential metropolitan centralities and assesses the quality of the living environment, in which public spaces link built forms with major landscapes. Combined with other variables, this typology was later used to create a mapped evaluation of urban heat island risk levels (a'urba and Alec, 2019).

The second is a collection of maps of public spaces in the Bordeaux metropolitan area, produced by the urban planning agency in 2015. Urban forms are analyzed through various lenses (bioclimatic, social, urban fabric), with public spaces as the keyline: alignment of building fronts with the street, relationship between facilities/functions and public spaces, form of transportation networks, integration of waterways and urban parks into the green and blue infrastructure, etc. With a 500-meter grid, this abundance of maps covers the entire metropolitan territory, is the result of a structured methodology, and occasionally includes cross-evaluations.

Although these notable works are nowhere to be found in the current PLU Baseline assessments of the Bordeaux metropolitan area, the concept map produced nonetheless reveals a relatively systemic vision of the metropolis in its understanding of the territory, with a high density of connections between items across different domains—mainly between those related to transport, urban fabric, and urban landscapes. However, there are significant disparities between the domains. While mobility and natural spaces are the focus of entire chapters, the domain of public spaces seems largely neglected. The domain of urban fabric suffers from the absence of a typo-morphological analysis comparable to Lille or Lyon. Unlike Lille, the core items are less obvious; although some, like rail and road infrastructure (infrastructures ferroviaires et routières), street mesh (maillage viaire), public space (espace public), and hydrographic network (réseau hydrographique), do stand out. Another possible interpretation is that this reflects a broader and more systemic approach that assigns equal value to all the components of urban spaces.

Evaluations are generally scarce. The few existing protocols are similar to those found in Lille—simple and comparative. The limited evaluations that are provided are expressed in textual form, but they are relatively balanced between negative, intermediate, and positive assessments. Maps are also less frequent, and most are either produced at a coarse granularity or cover only part of the metropolitan area.

To conclude, three more targeted reflections emerge from the analysis of the Bordeaux diagnostic.

Despite the interesting approach mentioned earlier regarding the connection between urban fabrics and planning challenges, the observations remain fundamentally focused on the city of Bordeaux itself, omitting the rest of the metropolitan area. Moreover, the document provides figures with limited spatial context, indicating only a specific municipality or vaguely referring to the west or east of the river, which hinders a more rigorous analysis of urban fabrics and a systematic reflection on their potential for densification.

Secondly, the PLU acknowledges both the environmental and social qualities of the green and blue infrastructure. On the one hand, it presents a wealth of descriptive information on biodiversity and the state of ecosystems within the administrative perimeter of the metropolis with items such as wetlands (zones humides), landscape entities (entités paysagères), ecosystems (écosystèmes), and ecological heritage (patrimoine écologique). On the other hand, it recognizes the human uses of this green and blue meshes (trame verte et bleue), such as green and local loops (boucles vertes et locales).

Finally, a specific reflection is dedicated to public facilities (educational, healthcare, sports, cultural, tourism, and leisure). The authors recognize their role in metropolitan attractiveness, but once again the spatial dimension is underdeveloped. The evaluation is carried out solely through comparisons with other metropolitan areas, and by calculating the equipment ratio.

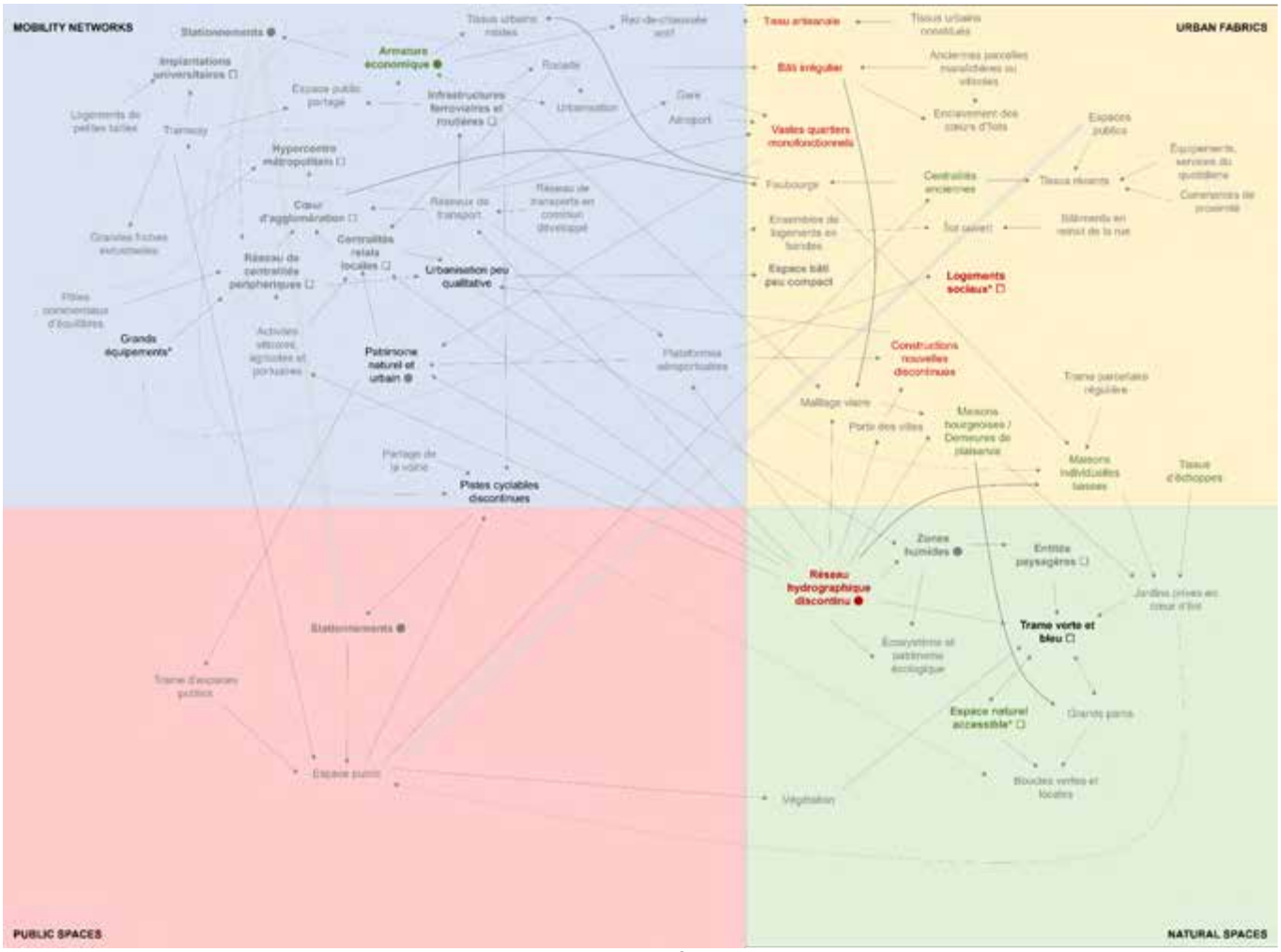

Figure 3: graph of Bordeaux

4.3.The Lyon Case: An Apparent Siloed Vision saved by the Underlying Role of Public Spaces

In the diagnostic of the Lyon metropolitan area's PLU, the terms "urban form(s)" and "morphology(ies)" refer once again primarily to the typology of urban fabrics (27 mentions)[6], or to the architectural characteristics of buildings (23), and to a lesser extent, to the spatial organization at the neighborhood scale (7). Produced by the Lyon urban planning agency, this typology of urban fabrics—first introduced in the 2005 PLU—covers the entire administrative territory of the metropolitan area with a granularity between the block and the neighborhood. Its morpho-functional approach provides a relatively comprehensive reading of urban fabrics, including highly vegetated, natural, or agricultural areas. Moreover, the proposed typology takes into account the relationship between built and unbuilt spaces, as well as a criterion of spatial homogeneity. However, no detailed information is provided on the methodology used to combine all variables and produce the resulting typology.

The treatment of urban fabrics is primarily based on the architectural characteristics of the buildings that compose them (17 mentions). Occasionally, their analysis is linked to issues of heritage (8), landscape (4), and densification (5) or housing typologies (collective, individual, and suburban) (4). Quality of life (3), centralities (2), and urban functions (2) are also addressed. Other topics are mentioned only once, such as the consistency and integration of buildings with their environment, greening, the fight against urban sprawl, and the articulation between built forms and public spaces.

6 It's the document that contains the highest number of occurrences of the targeted expressions (Table 1). Consequently, in the case of Lyon, it becomes relevant to report the number of occurrences—something that was not done for the cases of Lille and Bordeaux.

The Lyon metropolitan area presents a segmented image of the diagnostic, which is reinforced by the structure of the document itself: it first addresses natural spaces, then transport, and finally urban fabrics and landscapes—these forming the first three chapters of the document. Public space does not have a dedicated chapter, yet it plays an important role, as the concept map demonstrates.

Although the map is dense in items and relationships, interrelations between domains are rare and of highly uneven nature and density. Only a few cross-domain relationships are observed—for instance, the item shared public space (espace public partagé), which links the transport domain with public spaces, or urban nature network to be developed (réseau de nature en ville à constituer) , which connects the landscape domain to many items from the urban fabric domain –although these latter are not subsequently linked to other items. However, this relative independence among the different domains is mitigated by the role of public space, which subtly links them in the background.

Finally, beyond inter-domain relations, other core items structure the overall concept map—similar to the case of Lille: infrastructure mesh (maillage d'infrastructures), polycentric metropolitan areas (métropole polycentrique), public space (espace public), different types of urban fabrics, and the green and blue meshes (trame verte et bleue). These items are frequently evaluated and mapped, generally forming clusters of related items around them.

In the case of Lyon, no formal protocol is followed by evaluation of the different items. With a majority of intermediate cases, these evaluations are sometimes positive, more rarely negative. The authors aim less to deliver evaluations and more to identify challenges, which results in a more neutral stance throughout the baseline assessments. These issues are revealed through lengthy descriptions, with varying degrees of quantification and quality—particularly concerning urban forms.

As for mapping treatment, urban fabrics and natural areas are mainly represented through choropleth maps at a fine grain size. The domain of public spaces lacks any map, and the items related to it are systematically interrelated with items from other domains. In the case of transportation, maps vary in both coverage and grain size. Among the specific considerations regarding the approach employed by the Lyon metropolitan area, the treatment of urban fabrics, public spaces, and uses deserves particular attention.

The domain of urban fabrics is structured as a constellation, similar to the case of Lille. Numerous connections exist between the various components of the fabric types, such as historical axes (axes historiques), plots (parcelle), vegetation (végétation), or public spaces (espaces publics), leading to this in-between state. Presented as a morpho-landscape typology, it places significant emphasis on the role of vegetation in defining urban fabrics, and—albeit to a lesser extent—on public space, notably through the item of the street (rue). As shown in the graph, the street is recognized as an organizer of the building on the plot, creating visual links with the built and natural heritage.

The domain of public spaces is a triple-star constellation. Its numerous links to other domains reveal this concept as the backdrop of the entire baseline assessments. Public space is considered both as a component of urban fabrics linked to items such as: plots (parcelles), blocks (îlots), streets (rues), inner-block gardens (jardin en coeur d'îlot), frontages, etc., as a primarily shared space (illustrated through items such as sidewalks (trottoirs), pedestrian crossings (traversées piétonnes), parking (stationnement), public transport (transports en commun), car (voiture), soft mobility (mobilité douce), etc., and also as a space encompassing natural areas (as demonstrated by connections to items like green and blue meshes (trame verte et bleue), vegetation potential (potentiel de végétation), and built and natural landscape heritage (patrimoine bâti et naturel), for instances.

Finally, the topic of uses takes a much more prominent role than in Lille's baseline assessments, and even more so when compared to Bordeaux's. However, their treatment remains relatively vague and indirect in relation to

urban forms, becoming apparent primarily when parks and natural spaces are discussed.

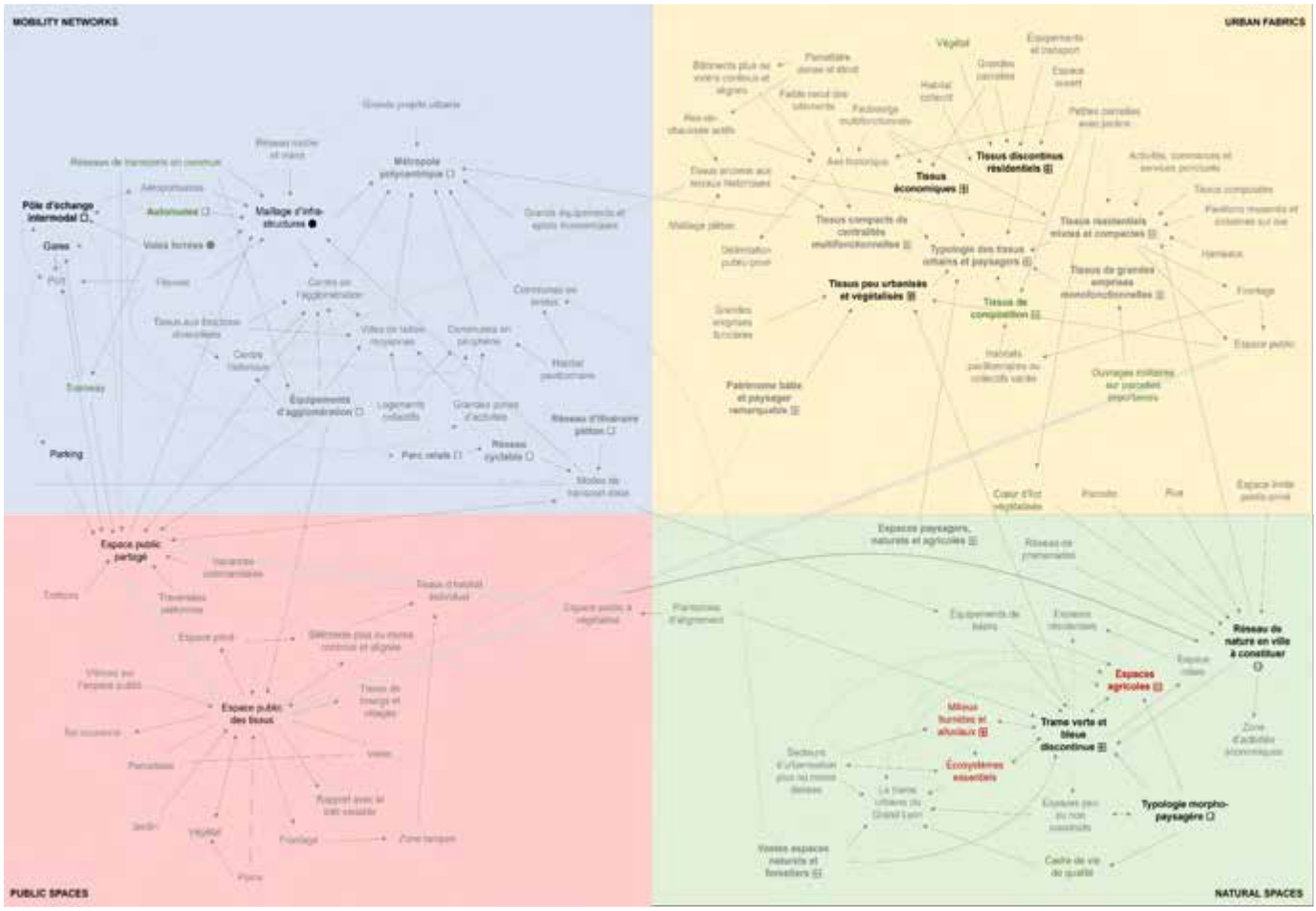

Figure 4: graph of Lyon

5.Urban Form in PLU Baseline assessments: A Relatively Systemic Vision, with Limited Protocols and Mapping under a Constraining Context

The analysis of PLU baseline assessments from the three selected metropolitan areas highlights specific observations for each case. Lille shows an approach to urban form through a few key concepts. Bordeaux demonstrates a wide reflection on urban space and its issues, but this momentum is hindered by insufficient methods for evaluation and spatialization. Finally, Lyon reveals a more siloed approach to diagnostics, but one that has the merit of recognizing public space as a foundational element of urban form, linking the various components. Beyond the specificities of each metropolitan area, broader reflections can be drawn about how urban forms are understood in France in PLU baseline assessments—insights that can also inform approaches developed in other French cities.

In general, when PLU authors refer to urban forms and morphologies, it is mainly to describe types of the urban fabric, buildings, or housing types. This reflects a broader trend in France to reduce urban form to the materiality of the built environment—an approach that overlooks key contributions already established by Italian typomorphology since the 1970s, which emphasized the broader context of urban form, including urban history and everyday uses. It also ignores the more recent developments brought by configurational approaches such as Space Syntax.

However, the creation of graphs—extending beyond what is conventionally referred to as "urban form"—broadens the definition to include a wider set of spatial registers, which are present in the baseline assessments and are variously linked to the narrowly defined issues of built-up forms. It is thus interesting to note that the analyzed metropolitan areas demonstrate both the intent and the capacity to grasp urban spatiality through a variety of elements beyond the built form. Yet this promising openness is not consistently supported by a rigorous and systematic methodology.

A transversal reading of the three graphs also reveals a similar treatment of the four domains selected for analysis. Three of the four—mobility networks, urban fabric, and natural spaces—proved to be well aligned with the contents of the diagnostics. Public spaces, however, suffer from the absence of a dedicated analytical section, even though they are consistently addressed across the other three domains, even linking them. Public space can serve as the guiding thread, as in the case of Lille, or as a background theme connected to the issue of uses and feeding into the characterization of urban form, as seen in Lyon.

Among the background elements present in the baseline assessments, human uses also emerge, though they are treated in a more superficial way. They are more often associated with transport and natural spaces, while their connection to the urban fabric—and more broadly to urban form—is only vaguely addressed. No diagnostic attempts to spatialize these uses, unlike many anthropological or sociological studies that examine how frequently and in what ways residents use public space (Gehl and Svarre, 2013). Even urban planning agencies have started addressing such issues: studies on children's presence in public space (a'urba, 2021), or on gendered and socio-economically differentiated mobility (urbalyon, 2021), have recently appeared.

Finally, the three graphs follow more or less general structures—star, constellation, lattice. They also rely on a variety of "core items" that are surrounded by numerous peripheral items, reflecting how the diagnostics are conducted. The texts unfold linearly, presenting the elements considered important by the authors: urban fabric, green and blue networks, transport systems, and so on. However, each diagnostic also features rich cross-domain connections, revealing a degree of systemic vision that these metropolitan areas nonetheless have of their territories.

Evaluation is generally rare and lacks standardized protocols. Scientific methodology traditionally involves building a reproducible protocol, applying it with appropriate adjustments to produce results, interpreting those results, and then offering an assessment. Here, however, the diagnostics bypass this effort, providing a series of qualitative evaluations in natural language without formal procedures. There are a few exceptions: the rare existing protocols rely on counts, quantified inventories, or simple calculations (e.g., equipment ratios, volume), enabling comparisons with other metropolitan areas.

One would also expect these protocols to be followed by proper evaluations, but there seems to be a disconnect between the two stages. Instead of evaluation, the notion of challenges (enjeux) is often preferred—intellectually richer but less demanding in terms of method and vague in spatial terms. Without being qualified and spatialized, challenges remain vague in terms of assessment,and spatial delimitations, strengths, or areas for improvement are neither clearly recognized nor encouraged.

As for cartography, it remains rare, thematically and compositionally variable in style. Three domains favor mapping: transport, urban fabric, and natural spaces—especially green and blue networks. These maps are usually choropleth. When not, they tend to highlight only major instances of a given item or focus on a limited area within the broader metropolitan perimeter. As mentioned previously, these maps are almost always descriptive or indicative, rather than evaluative. The distinction lies in the fact that it is possible to map existing elements (e.g., road layouts or hydrographic networks) without illustrating the quality of those spaces.
In the French professional literature, a few examples of such evaluative cartography do exist: maps of wide sidewalks with or without vegetation in the Lille metropolitan area (ADULM, 2017c), or maps showing areas with

sufficient or insufficient public space density in Bordeaux (a'urba, 2015). These maps are valuable because they help precisely locate and assess areas requiring intervention, or conversely, areas to preserve or enhance. However, these cartographic outputs produced by urban planning agencies are not found in the PLU baseline assessments, raising broader questions about the relationship between metropolitan authorities and their planning agencies in the development of Local Urban Plans.

In conclusion, one final point is essential to situate the considerations we present here regarding the quality of PLU baseline assessments. Our analysis is based on an initial assumption: we argue that a diagnostic should mobilize multidimensional content with a systemic vision, follow structured protocol evaluations, and spatialize analysis results using fine-grained choropleth mapping. However, questions arise concerning the predefined objectives set by the authors of these baseline assessments at the time of their drafting. The criteria and objectives we propose here are not necessarily those of the authors: while PLU baseline assessments are a regulatory requirement in urban planning, the methodology used in their preparation and the outcomes they are expected to achieve remain unclear. Moreover, it is important to recall that PLUs are short-term planning documents, subject to electoral calendars and political pressures. They are heavy documents, produced in institutional and political contexts that can be unstable or conflictual. In addition, the skills, time, and resources available for their development can vary widely, which may partly explain the scarcity of evaluation protocols and maps. Therefore, our considerations should be understood more as suggestions—an invitation for planning authorities to broaden their perspective on urban form, beyond the built environment—and as reflections that could, at a later stage[7], lead to an alternative method for approaching urban form in a more systematic way.

6.Conclusions

In general, the analysis of baseline assessments documents reveals that French metropolitan areas share a common vision: cities of high quality, accessible to pedestrians and public transport users, with efficient and safe mobility, pleasant public and natural spaces, and a good diversity and density of services, amenities, and local functions. However, this shared ideal does not lead to a unified reference model applicable to all cities. While similarities exist, each territory develops its own approach to conducting territorial diagnostics. This allows for an appreciation of local specificities, but also makes it difficult to establish a collectively recognized framework and methodology for understanding and analyzing urban spaces.

In this context, the understanding of urban form in France remains largely confined to a typo-morphological approach, based on the architectural and functional qualities of the built environment. While this perspective is valuable for identifying and distinguishing the urban fabrics that make up different territories—and for ensuring protective attention to built heritage—it overlooks a more complex vision and a rigorous methodology capable of integrating the various elements that constitute and animate urban form.

The ambition of the research project underlying this article is precisely to propose urban form—as long as it is approached in a systemic and protocol-based way—as a coherent and rich method for producing meaningful and comparable territorial baseline assessments at the national scale. The development of a reference urban model goes beyond existing legislative objectives, such as the Zero Net Artificialisation (ZNA) target (Climate and Resilience Act, 2021), or mandatory quotas of social housing (SRU Law, 2000). While we acknowledge that these objectives are closely related to urban form and have implications for other contemporary urban planning issues, these are often addressed independently within diagnostics.

Our hypothesis is that urban form, if properly conceptualized, constitutes a strategic dimension through which the material, social, and politico-economic dynamics of urban spaces can be more effectively understood, spatialized, evaluated, and finally acted on. Moreover, developing an urban model that integrates a vision of the desired forms of the city—and their connection with the various objectives of urban planning—should also enable

7 This contribution forms part of the early stage of Grégoire Picard's doctoral research, the article's first author, whose ultimate objective is to propose a new method for understanding urban form within the beeline assessments sections of Local Urban Plans (PLU) in France.

the production of more evaluative baseline assessments. Not merely descriptive overviews, but differentiated spatial assessments across the metropolitan area, identifying what aligns most or least with the intended goals.

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