

Original Research Article

Recognition of Theoretical Domains Related to Urban Rhythms Using Systematic Metasynthesis*

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Abstract

Problem statement: At first glance, the concept of urban rhythms is often understood merely as repetitive temporal patterns or a technical lens for analyzing everyday urban life. However, beyond this superficial interpretation lies a deeper theoretical landscape that has not yet been systematically explored. Therefore, there is a need to identify and classify the diverse theoretical domains that shape the understanding of spatial-temporal dynamics in contemporary cities. This study seeks to answer the fundamental question: “What are the main theoretical domains associated with urban rhythms, and how can these domains be systematically identified, classified, and conceptually represented?”

Research objective: The main aim is to develop an integrated theoretical framework that maps, organizes, and interprets the core conceptual interactions underpinning urban rhythm studies, with particular emphasis on Henri Lefebvre’s theory of rhythmanalysis.

Research method: Adopting a mixed-method approach, the research was conducted in two main stages. First, a bibliometric analysis was performed on 1,539 scholarly documents indexed in Scopus (1994–2024) to identify dominant research streams and recurrent conceptual clusters. In the second stage, a systematic qualitative meta-synthesis was applied to 521 selected articles, using thematic coding and clustering in ATLAS.ti. This process led to the construction of a conceptual network illustrating theoretical interrelations within the field of urban rhythms.

Conclusion: The analysis revealed five major conceptual clusters: Temporal and Rhythmic Structures, Spatial and Urban Theory, Everyday Practices and Embodiment, Socio-Political Dimensions of Space, and Production and Political Economy. Collectively, these clusters indicate that urban rhythms are multi-dimensional and multi-temporal phenomena arising from the intersection of spatial, temporal, social, embodied, and political processes. The study provides a comprehensive theoretical and analytical framework that deepens the understanding of rhythmic complexity in urban life and offers a foundation for advancing future research in spatial-social rhythmanalysis and contemporary urban theory.

Keywords: *Urban rhythms, Bibliometrics, Metasynthesis, ATLAS.ti.*

Introduction

In recent decades, the concept of “rhythm” has gained growing attention as a key lens for understanding the

complexities of urban life. This growing interest has sparked research across diverse fields such as human geography, urban planning, the sociology of space, and cultural studies, each offering unique insights into the temporal and spatial dynamics of cities. Yet, the wide range of theoretical approaches and the fragmented nature of existing studies have created

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a clear gap: the absence of a structured and coherent synthesis of theoretical frameworks in the field of urban rhythms.

The theoretical origin of the concept of rhythm in urban studies can be traced back to the ideas of Henri Lefebvre. In his theory of rhythm analysis, Lefebvre introduced new dimensions such as body rhythm and temporal-spatial interactions into urban studies, thus providing a platform for extensive interdisciplinary studies. However, in addition to Lefebvre's views, researchers such as Tim Edensor and Paul Simpson have also made efforts to develop this theoretical field, which in turn has led to the expansion of theoretical discussions. Although this proliferation has created conceptual richness, it has made it difficult to achieve a comprehensive and integrated framework due to the lack of a systematic study to integrate and synthesize these trends. Therefore, there is a clear need for a more precise recognition and systematic classification of theoretical fields related to urban rhythms. Such a classification can not only lead to a deeper understanding of existing theoretical trends but also provide a solid basis for future studies and research prospects in this field. In order to achieve this goal, this research has used a two-stage approach. First, using the bibliometric analysis method, data extracted from 1539 scientific documents indexed in the Scopus database between 1994 and 2024 were analyzed. This part of the research seeks to answer three main questions.

-What has been the publication trend of research related to urban rhythms from 1994 to 2024?

-What are the global research streams and hotspots in studies on urban rhythms?

-What are the future research pathways in the field of urban rhythms?

In the second step, to deepen the theoretical analysis, a qualitative meta-synthesis method was applied. In this stage, the selected qualitative articles were systematically analyzed to answer the central question. The main question of this research is: what are the main theoretical areas related to urban rhythms, and how can these areas be identified, classified, and recognized in the form of a conceptual network through a systematic meta-synthesis of existing studies?

By carrying out these steps, this research attempts to identify key conceptual clusters and draw a conceptual network of theoretical interactions in the field of urban rhythms. In addition to filling the gap in the scientific literature, this research provides an analytical platform for future research and offers guidance for future research directions in this field.

Research Background

The concept of "rhythm" in urban studies was first introduced in Henri Lefebvre's theory of rhythm analysis. Lefebvre considered rhythms as the result of the dynamic interactions of time, space, and everyday life, and applied this concept as a practical tool for analyzing multiple dimensions of social and spatial life (Lefebvre, 2004, 8–10). In Lefebvre's approach, rhythms are understood at two main levels: On the one hand, "linear rhythms," which refer to uniform, repetitive processes, and on the other hand, "cyclic rhythms," which are associated with natural cycles and human bodily rhythms (Simpson, 2012, 425). In addition, Lefebvre places special emphasis on the concept of "body rhythm," which expresses the intertwining of lived experience and everyday interactions in urban spaces, and according to him, the human body is the main point of contact and intersection between space and time (Lefebvre, 2004, 18_20; Edensor, 2010a, 3_5). Tim Edensor is among the theorists who, by expanding Lefebvre's ideas, placed the rhythms of everyday life at the center of his analyses. According to Edensor, urban everyday life consists of multiple and interacting rhythms, which he refers to as urban polyrhythmia (Edensor, 2010b, 5–7). This approach clearly shows how social spaces are formed and transformed as a result of rhythmic interactions and how these rhythms continuously affect social relations, individual experiences, and spatial structures (Edensor & Holloway, 2008, 490–492). In other words, according to Edensor, rhythms not only determine the temporal framework of urban life but also have a direct impact on the quality of public and social spaces. Paul Simpson has also explored the "rhythms of movement" and provided detailed analyses of the

embodied dimensions of spatial experience. He introduces rhythms as active and dynamic structures that are constructed and experienced through the bodily interactions and movement of individuals in space (Simpson, 2012, 428). Simpson emphasizes in his analyses that urban experience is shaped through the rhythms of social interaction and everyday actions of individuals, highlighting the deeper connections between body and space in urban studies.

In addition to the aforementioned perspectives, other theoretical approaches have been proposed in the field of urban rhythms. These approaches address social, physical, and cultural dimensions. For example, Social Rhythm examines the temporal patterns of collective actions and social events in the city (Mulíček et al., 2015, 310). Physical Rhythm, in contrast, emphasizes spatial patterns, urban design, and structural elements of space (Paiva, 2016, 162–165). Cultural Rhythm also analyzes how cultural representations and meanings are associated with urban rhythms, and considers aspects such as urban identity and collective memory (Wunderlich, 2008, 128–130).

Overall, the theoretical review conducted shows that despite the existing theoretical richness, there is a need for a coherent and integrated approach to integrate these diverse theoretical fields. Theoretical integration not only contributes to a deeper understanding of the complexities of urban rhythms. It also provides a coherent basis for future research and urban policy-making.

Methodology

Given the objective of this research—to systematically recognize and classify the theoretical domains related to urban rhythms—this study adopted a mixed-method approach comprising two main stages: bibliometric analysis and systematic qualitative meta-synthesis.

In the first stage, to identify the most relevant and accurate articles, the Scopus database was used as one of the most reliable and comprehensive international bibliographic sources. This database was selected due to its wide subject coverage, high indexing standards, and comprehensive resources (Ramos et al., 2024). For the

search process, five frequently used keywords in urban rhythm research—Urban Place Rhythms, Social Place Rhythm, Urban Rhythm, Production of Space, and Rhythmanalysis—were searched within the 1994–2024 timeframe. The initial search yielded 1,921 documents. In the following stage, to improve the accuracy and focus of the research, the subject areas of Social Sciences, Arts and Humanities were selected to cover the social and cultural dimensions of urban rhythms, while Environmental Science and Engineering were chosen to examine their spatial and physical aspects. This selection reduced the number of documents to 1827. Subsequently, the dataset was limited to scientific sources, including research articles, review articles, book chapters, and conference papers. Only English-language publications were included, ultimately resulting in 1,539 documents (Fig.1).

For the analysis of bibliometric data, the software packages Bibliometrix (Biblioshiny) and VOS viewer were used. This stage aimed to address the following three questions.

- What has been the trend of publications related to urban rhythms over the past 30 years?
- What are the global research streams and hotspots in urban rhythm studies?
- What are the future research pathways in the field of urban rhythms?

In the second step, the qualitative meta-synthesis method was employed to deepen the theoretical analysis and identify common theoretical areas. As a comprehensive approach for integrating qualitative studies, meta-synthesis allows the identification of recurring theoretical patterns and conceptual frameworks.

The meta-synthesis process was carried out in three steps.

• Step 1: initial screening

The titles and abstracts of all 1,539 retrieved documents were reviewed. According to Table 1 Inclusion and exclusion criteria were defined as follows. Based on these criteria, 1,327 documents were identified as eligible primary sources.

• Step 2: Secondary Screening

In this phase, the abstracts of these articles were

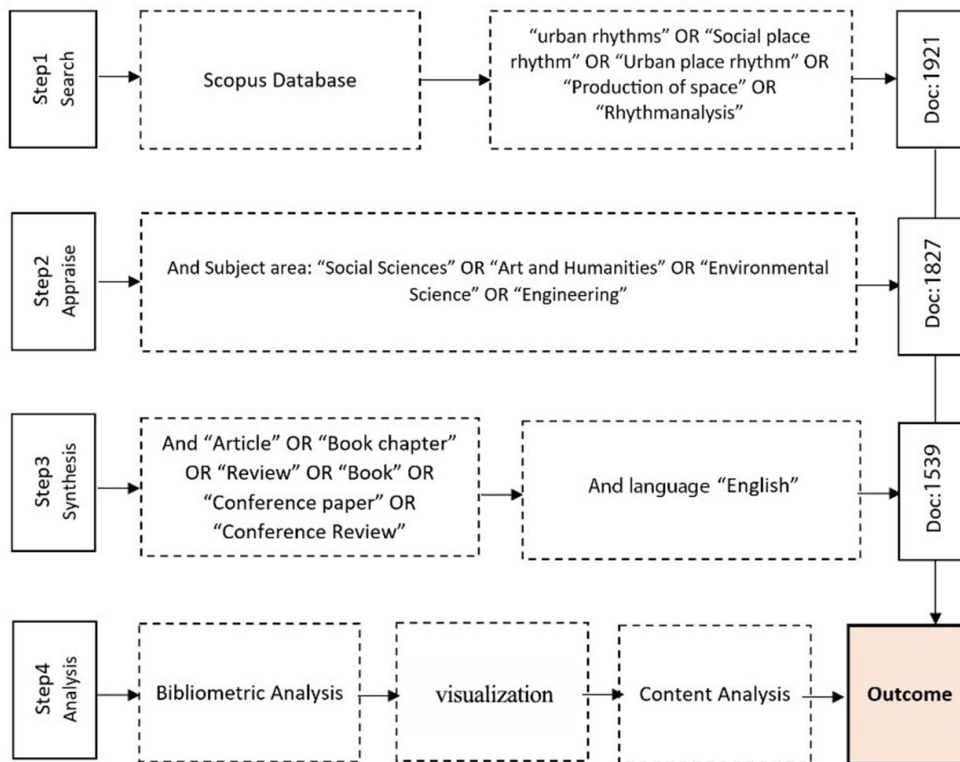


Fig. 1. Bibliometric analytical framework on the topic of rhythm in urban space. Source:Authors.

Table 1. Inclusion and Exclusion Criteria for Articles. Source:Authors.

Inclusion Criteria	Exclusion Criteria
Direct conceptual relevance to the production of space or urban rhythmanalysis	No explicit reference to spatial or temporal concepts
Use of Lefebvre’s theoretical framework or derived concepts	Purely statistical studies without theoretical-conceptual analysis
Research articles or published qualitative/mixed-method studies	Books, notes, editorials, or simple literature reviews
Published in 1995 or later	Published before 1995

examined more thoroughly to ensure that only studies with explicit references to specific theoretical frameworks related to urban rhythms were selected. This process resulted in 521 articles with a clear theoretical focus appropriate for thematic analysis.

• Step 3: Thematic Analysis

For the content analysis of these articles, the qualitative analysis software ATLAS.ti was used. Conceptual and theoretical coding was conducted across four dimensions: theoretical concepts, spatial concepts, temporal-rhythmic concepts, and empirical concepts. In addition, 20 frequently occurring keywords obtained from the bibliometric analysis were used as a supplementary basis for extracting and categorizing conceptual themes. Finally, the extracted concepts were organized and classified into a conceptual network.

The final output of this stage was the development of a theoretical framework and an analytical network of conceptual interactions in urban rhythm studies, designed and presented in a structured and visual format.

It should be noted that, given the methodological nature of this research— which is based on bibliometric analysis and systematic qualitative meta-synthesis—the primary focus has been placed on articles indexed in international citation databases with the highest levels of citation and theoretical authority. Since the aim of the study is to identify and classify the dominant and influential theoretical domains in international urban rhythm studies, sources were selected based on their scientific impact, citation linkages, and conceptual position within the knowledge network. Within this

framework, Persian-language articles and books which are largely outside international citation networks and bibliometric analyses were not included in the scope of the analysis.

Discussion

Of the 1539 identified sources, research articles represented the largest share with 1077 items. These were followed by 264 book chapters, 80 review articles, 72 books, 45 conference papers, and one conference review paper. A total of 146 journals have published articles in this field, of which only 32% have published more than five articles. According to Table 2 The Environment and Planning D: Society and Space journal has the highest number of articles (28), followed by Antipode and Environment and Planning A journals. Fig. 2. shows the number of documents published by ten academic sources between 1996 and 2024. Most

sources have become more active since around 2010. However, journals such as Environment and Planning D: Society and Space and Antipode have remained relatively stable, publishing only a small number of documents each year. In contrast, the Urban Book Series has grown significantly since 2014 and has become one of the leading sources in recent years. Sources such as Transactions Of The Institute Of British Geographers and Research In Urban Sociology continue to be active in their fields with a stable trend and a smaller number of documents. These changes may be due to changes in research priorities or increased interest in topics related to certain sources.

An analysis of the collected sources shows that 2,163 authors have published at least one work in this field, among whom 162 have produced two or more works. Influential authors were identified based on citation counts, publication output, and their h-index values. The

Table 2. Top 10 journals with the highest number of publications on this topic. Source:Authors.

Indexed in Scopus	Journal Name	documents	CiteScore	h-index
1983	Environment and Planning D: Society and Space	28	7.7	124
1969	Antipode	24	9.5	121
1973	Environment and Planning A	23	9.5	154
1970	Geoforum	21	7.3	141
1997	Space and Culture	20	2.8	47
2016	Urban Book Series	18	0.8	-
1983	Cities	16	11.2	127
1964	Urban Studies	15	10.5	174
2000	Research In Urban Sociology	14	0.4	-
1976	Transactions Of The Institute Of British Geographers	14	7.2	-
2005	City	13	3.4	65

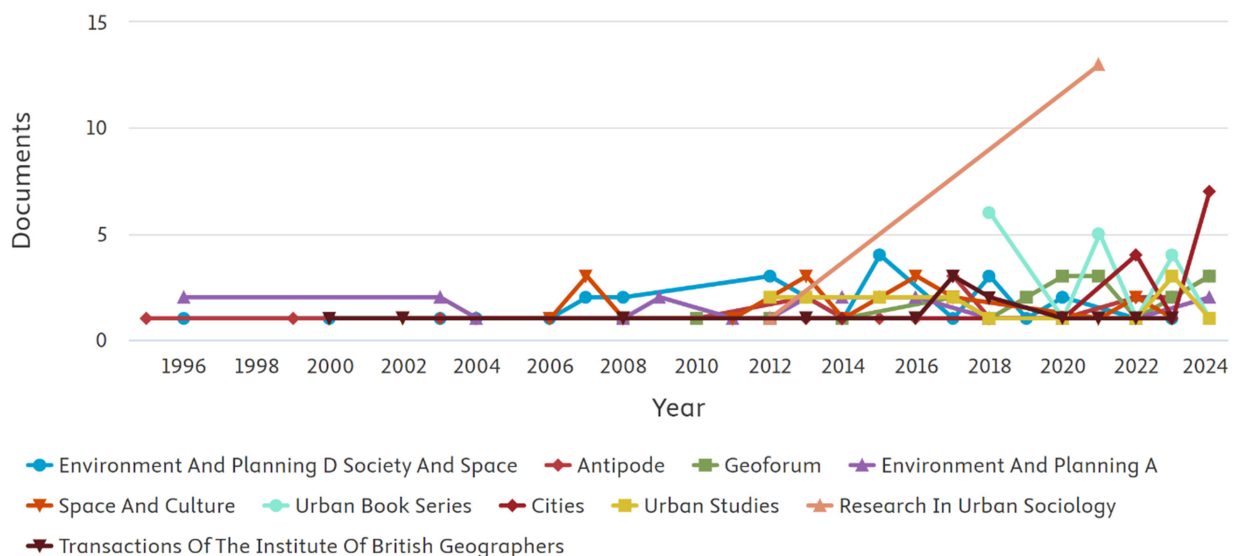


Fig. 2. Status of journals with the highest number of publications between 1994 and 2024. Source:Authors.

fifty most influential authors—those with at least two publications in this field and more than 50 citations—are listed in the table below.

Table 3 presents a list of influential authors with indicators such as the number of articles, citations, and h-index. Authors such as Neil Brenner and Ananya Roy have the highest citation counts, positioning them as clear leaders in terms of academic impact. Their extensive contributions and the high quality of their work account for this citation record. In terms of publication output, Chao Ye, with 11 articles, Christian Schmid, with 7, and Tim Edensor and Avinoam Meir, with 6 each, stand out as the most productive authors in the field of urban rhythms.

Fig. 3. illustrates the temporal trend of scholarly publications by different authors and their impact within the research field. The horizontal axis shows

the publication years, while the vertical axis lists the authors' names. Circle size reflects the number of publications by each author in a given year, with larger circles representing higher productivity. Circle shading reflects the annual citation counts, with darker circles indicating greater academic impact. The analysis reveals that authors such as Rob Kitchin and Christian Schmid have remained consistently active over time, with their works exerting a significant influence on the field. In contrast, Chao Ye has shown a notable increase in output since 2019, suggesting the emergence of new themes or developments in the study of urban rhythms (Fig. 4). The network generated through the VOSviewer tool illustrates the connections and mutual influences among prominent authors in the fields of urban rhythm, spatial production, and related theories. Authors with the highest citation counts appear as

Table 3. 50 influential authors based on number of publications, citation count, and h-index. Source: Authors.

No	Author	Documents	citation	h-index	g-index	No.	Author	document	citation	h-index	g-index
1	Brenner, Neil	2	1135	2	2	26	Osman, Robert	4	116	3	4
2	Roy, Ananya	4	1091	4	4	27	Ma, Xiangyi	3	112	3	3
3	Mckittrick, Katherine	2	681	2	2	28	Chen, Mingxing	2	111	3	3
4	Jabareen, Yosef	3	625	3	3	29	Axhausen, Kay w	2	110	2	2
5	Yiftachel, Oren	3	535	3	4	30	Schonfelder, Stefan	2	110	2	2
6	Edensor, Tim	6	524	6	6	31	Cronin, Annem	2	110	2	2
7	Schmid, Christian	7	455	4	7	32	Reid-musson, emily	2	107	2	2
8	Koskela, Hille	3	396	3	3	33	Blue, Stanley	2	105	2	2
9	Elden, Stuart	2	382	2	2	34	Sibley, David	2	102	2	2
10	Hart, Gillian	2	368	2	2	35	Carp, Jana	2	95	2	2
11	Kitchin, Rob	5	360	4	7	36	Mulicek, Ondrej	3	92	3	3
12	Ye, Chao	11	323	9	11	37	Chen, Ruishan	3	87	3	3
13	Yacobi, Haim	3	270	3	3	38	Valtonen, Anu	2	86	2	2
14	Calvert, Kirby	2	263	2	2	39	Zhuang, Liang	5	84	4	5
15	Simpson, Paul	3	259	3	3	40	Frisvoll, svein	2	83	2	2
16	Butler, Chris	4	247	3	4	41	Larsen, jonas	2	75	2	2
17	Dodge, Martin	2	211	2	2	42	Meir, Avinoam	6	75	4	6
18	Goonewardena, Kanishka	2	205	2	2	43	Mclean, Heather	2	73	1	2
19	Simonsen, Kirsten	2	197	2	2	44	.Adams, William	2	72	2	2
20	Hubbard, Phil	2	193	2	2	45	Apostolopoulou, Evangelia	2	72	2	2
21	Milgrom, Richard	2	192	2	2	46	gluck, zoltan	2	66	2	2
22	Henriques, Julian	2	169	2	2	47	Pietsch, Tamson	2	65	2	2
23	Van hoven, bettina	3	158	3	3	48	Manuel, David	2	64	2	2
24	Wilson, Japhy	5	147	4	5	49	Shields, Rob	2	64	2	2
25	Van den Berg, Marguerite	4	127	4	4	50	Cai, Yongli	3	61	3	3

central figures, reflecting their pivotal role in shaping theoretical debates. For example, Marston (2000), with their influential work on territorial restructuring and the production of spatial scales, have received the highest number of citations, highlighting the importance of their research in analyzing structural transformations of urban and regional spaces. Similarly, Smith (2008) theories on uneven development have significantly influenced debates on spatial production, particularly in examining the intersections of nature, capital, and urban space. Roy (2009) has contributed an innovative framework for studying metropolises, emphasizing the

new geographies of urban theory. Work by Yiftachel & Yacobi (2003; 2009) has had a profound impact on urban studies and spatial policy through analyses of “gray spaces” and social control. In parallel, Edensor (2010a) underscores the importance of bodily experience and the senses in shaping public spaces, while other studies extend these debates by considering the roles of technology, political economy, and social sustainability.

To capture research emphases and trends, it is also essential to analyze the keywords used across publications. Words appearing in article titles, abstracts,

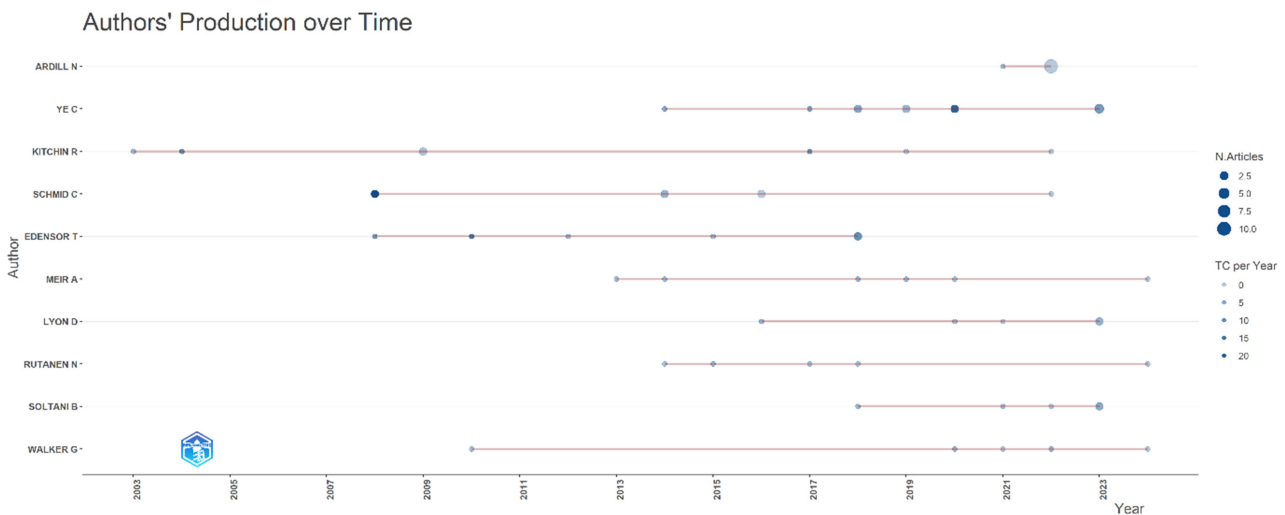


Fig. 3. Top 10 authors with the highest number of publications over time. Source:Authors.

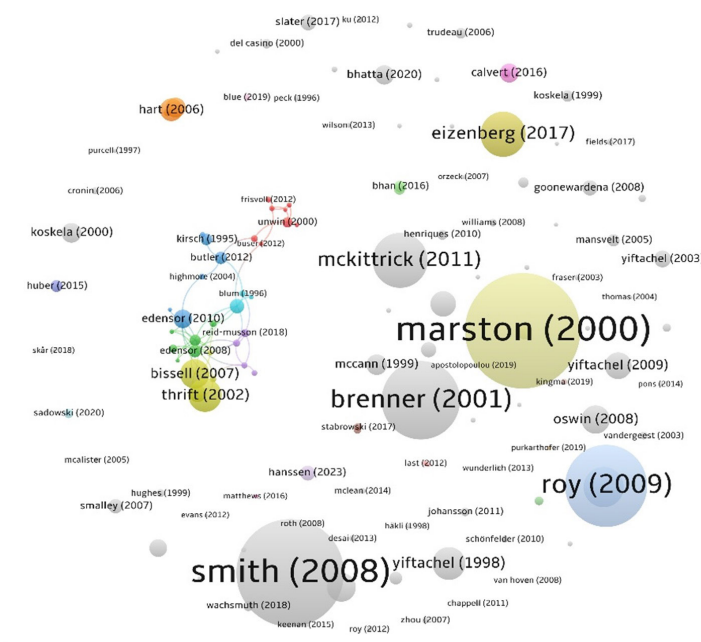


Fig. 4. Works of authors with the highest citations (above 50 citations). Source:Authors.

and author-provided keyword lists provide valuable insights into global research directions and emerging hot spots. For the thirty years from 1994 to 2024, all publications on urban rhythms were evaluated and ranked based on these keywords. Across the dataset, authors used 3,985 distinct keywords, which were then reduced to 145 terms occurring at least five times. As detailed in Table 4, The twenty most frequent keywords among these are as follows.

According to Fig. 5. the five most frequent keywords in this study are production of space, rhythmanalysis, space, Lefebvre, and rhythm. The interconnections among these concepts are visualized by the varying thickness of the connecting lines. The results indicate that rhythmanalysis is closely associated with terms

such as rhythm, time, movement, temporality, tourism, body, and embodiment. Similarly, Lefebvre is linked to concepts including city, social space, spatial practices, and lived space. The keyword production of space—one of the most frequent terms—shows strong connections with ideas such as informality, urban planning, and infrastructure. Taken together, these relationships highlight the breadth of conceptual networks and theoretical interactions shaping this research domain.

Fig. 6. illustrates a network of connections among citations (CR), authors (AU), and keywords (DE), highlighting the influence of foundational works, the contributions of key authors, and the centrality of concepts in related research. Within this network,

Table 4. 20 Most Frequent Keywords in the Research Field. Source:Authors.

No	Keywords	Frequency of Occurrence	No	Keywords	Frequency of Occurrence
1	Production of space	198	11	Social space	20
2	rhythmanalysis	155	12	Time	19
3	space	114	13	Gender	18
4	lefebvre	128	14	Mobility	18
5	rhythm	46	15	Place	18
6	Public space	32	16	Right to the city	18
7	Everyday life	29	17	Migration	17
8	china	27	18	Urban planning	16
9	Urban space	23	19	Affect	14
10	Social production of space	20	20	City	1614

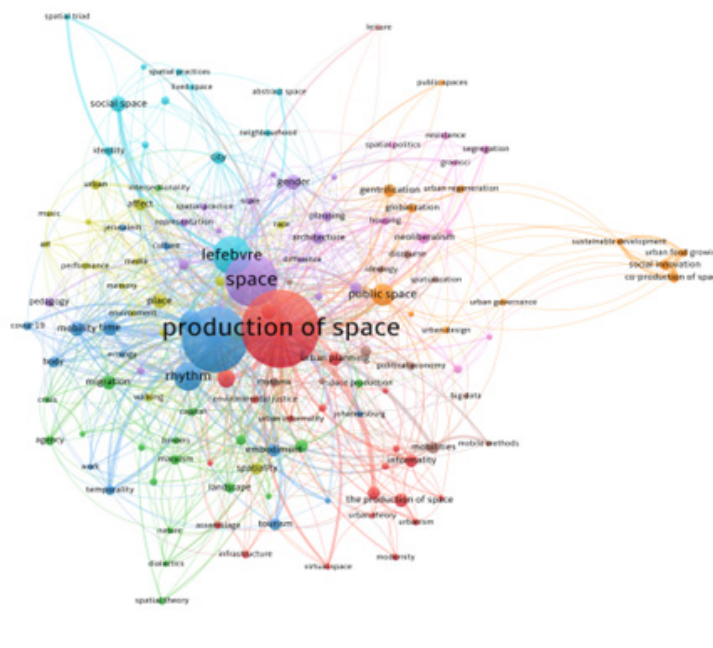


Fig. 5. A visual map of the relationships among the most frequent keywords in the research field. Source:Authors.

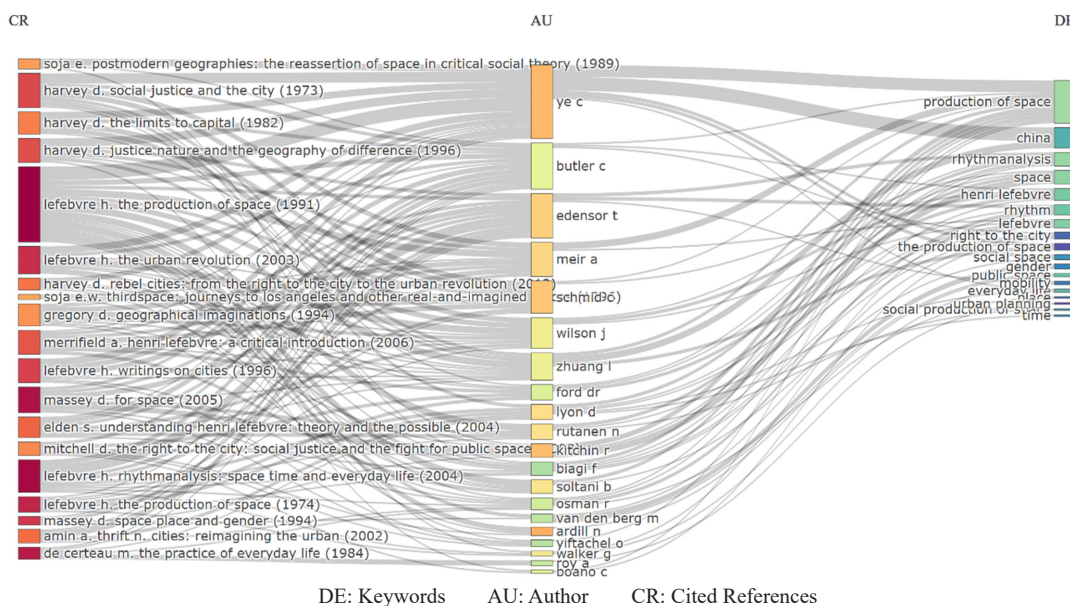


Fig. 6. Relationships between keywords, authors, and sources with high citation counts. Source: Authors.

seminal texts such as Lefebvre’s *The Production of Space* (1991) and *Rhythmanalysis: Space, Time, and Everyday Life* (2004), as well as Harvey’s *Social Justice and the City* (1973), have had a profound impact on the literature. Authors including Edensor, Kitchin, and Schmid have played a particularly prominent role in developing and extending these ideas. This network analysis reveals the complex interactions between sources, authors, and concepts, underscoring their strategic role in shaping theoretical foundations and advancing new conceptual directions in the field. To address the main research question—namely, “What are the principal theoretical domains related to urban rhythms, and how can these domains be identified, categorized, and mapped into a conceptual network through a systematic meta-synthesis of existing studies?”—this study employed the qualitative meta-synthesis method. Designed to structurally integrate the findings of previous qualitative research, this method enables a deeper analysis of theoretical concepts and the identification of recurring conceptual patterns.

In the first step, a systematic protocol for screening and selecting articles was developed. The inclusion criteria were as follows.

-A direct and explicit focus on concepts related to urban rhythms and the frequent keywords identified in the previous step

-The use of specific theoretical frameworks, particularly those derived from Lefebvre

-Qualitative or mixed-method studies published between 1995 and 2024

The exclusion criteria included:

-Purely statistical studies without theoretical or conceptual analysis

-Simple review articles, editorials, notes, and non-academic sources

-Articles lacking direct relevance to the research concepts

Applying these criteria to the 1,539 articles extracted from the Scopus database resulted in 521 eligible sources for deeper analysis. The qualitative coding process was then carried out in three sequential stages—open, axial, and selective coding. Through this process, the main theoretical domains related to urban rhythms were extracted and classified, leading to the construction of the final conceptual framework.

• **First stage: open coding**

In the first stage, the abstracts of the selected studies were reread, and key concepts associated with the most frequent terms were inductively extracted from the text. These concepts mainly appeared as phrases such as “everyday rhythms,” “differential space,” “embodied experience,” “time politics,”

“commodification of space,” “social asynchrony,” and “right to the city,” among others. Each of these referred to one of the theoretical, spatial, temporal, or empirical dimensions of the concept of urban rhythm. In total, 100 initial open codes were recorded at this stage.

- **Second stage: axial coding**

In this stage, the extracted codes were classified into conceptual clusters based on their conceptual similarity and theoretical overlap. The aim was to structure the data and identify theoretical areas that have been consistently emphasized in the literature on urban rhythms. Accordingly, the codes were grouped into the following five conceptual clusters (Table 5).

- **Stage 3: Selective coding**

In the final stage, the relationships between the conceptual clusters were examined, and the central concept of “urban rhythms” was identified as the focal point around which all other concepts and theoretical categories are organized. Within this framework, urban rhythms can be understood as the outcome of dialectical interactions among different temporalities, urban spaces, everyday practices, political forces, and structures of spatial production. The resulting conceptual model demonstrates that urban rhythms constitute a multidimensional and complex structure rather than a single phenomenon, one that is produced, experienced, and reproduced at the intersection of the six theoretical domains identified above.

- **Analytical layers and conceptual clusters of the study**

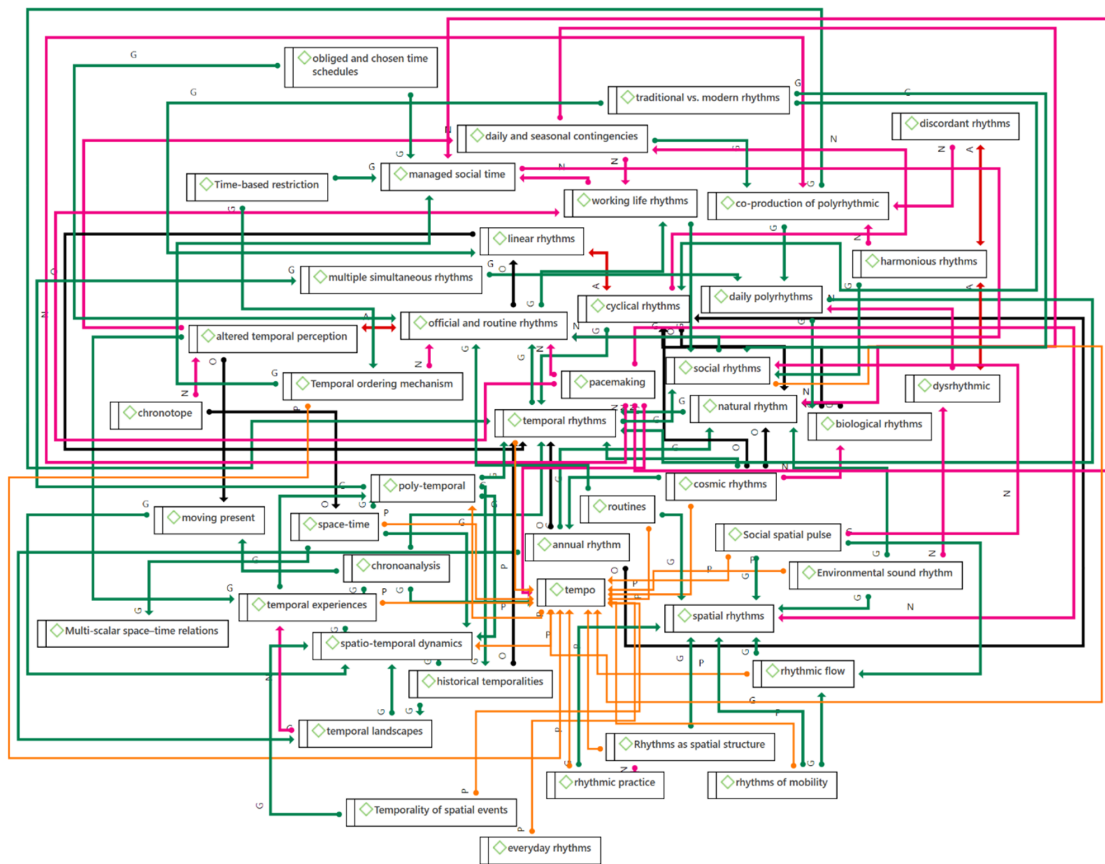
Fig. 7 The “Temporal and Rhythmic Structures” cluster, as one of the most fundamental theoretical dimensions in the study of urban rhythms, encompasses a multilayered system of concepts including temporality, rhythm, harmony, dissonance, intensity, repetition, and diversity in urban spaces. The presented diagram illustrates a dense network of interconnected concepts, linked through causal, contradictory, hierarchical, and associative relationships.

At the center of this cluster, the concept of Polyrythmia

emerges as the focal point, with related notions such as Urban Polyrythms, Daily Polyrythms, Simultaneous Rhythms, and the Co-production of Polyrythms structured as its subsets. These concepts emphasize that urban rhythms are not static or isolated units but rather multilayered, simultaneous, and interacting patterns that shape urban life through coexisting, harmonious, or conflicting dynamics. Examining the relationships between biological rhythms, natural and cosmic cycles, on the one hand, and social rhythms and physical urban flows on the other, reveals a complex network of temporality and action. This network demonstrates that urban rhythms result from the intertwining of human and environmental layers of life. Together with embodied everyday rhythms and rhythms as spatial structures, these layers highlight that time in the city is not merely an external order but a deeply sensory, spatial, and lived experience.

Alongside biological and social rhythms, institutional mechanisms play an important role in regulating urban time. Official Rhythms, Ordering Mechanisms, and Time Constraints act as tools of temporal management. Yet, such formal orders often clash with hidden and local rhythms, which emerge informally through lived experience and localized temporalities. The contrast between harmonious rhythms (eurhythmia) and chaotic or conflicting rhythms (arrhythmia) further illustrates different qualities of urban life, making it possible to trace rhythmic gaps, moments of synchrony and dissonance, and their implications for urban experience. Time in the city, however, is not only an objective phenomenon but also closely tied to perception. Altered temporal perception, living in the “moving moment,” and the experience of temporal vistas or chronotopic landscapes illustrate how time is continuously reconstructed through the body, memory, emotion, and space. Urban rhythms must therefore be understood not only as temporal patterns but also as embodied, lived, and spatial experiences.

The “Temporal and Rhythmic Structures” cluster thus provides a fundamental theoretical foundation for explaining rhythm in the urban context. In particular, the complex interplay between formal and lived rhythms,



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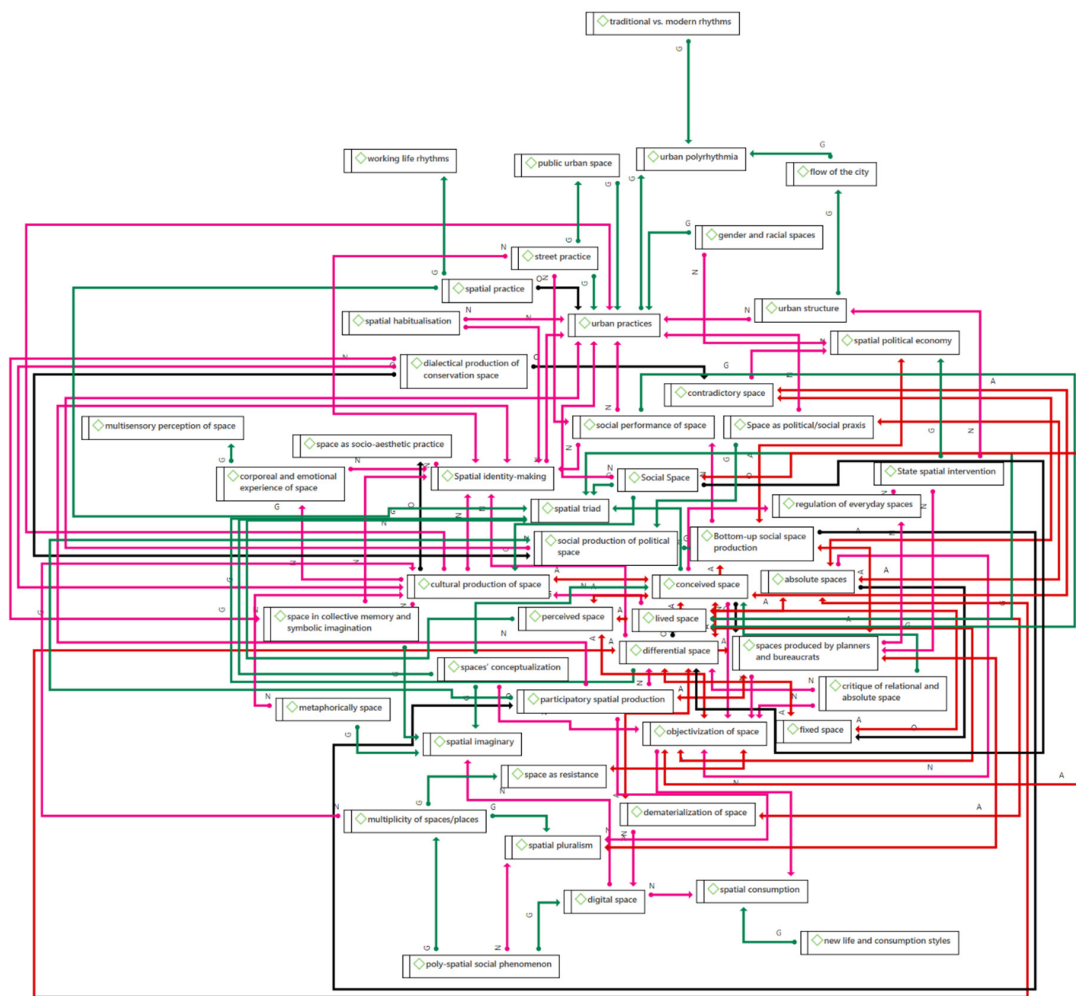
Fig. 7. Conceptual Cluster: Temporal and Rhythmic Structures. Source:Authors.

Table 5. Classification of Concepts into Conceptual Clusters. Source:Authors.

Conceptual Cluster	Conceptual Role in the Model	Relationship with the Core Concept (Urban Rhythms)
Temporal and Rhythmic Structures	Rhythmanalytical Core (Conceptual-Temporal Analysis)	Representation of temporal, poly-rhythmic, and dynamic urban rhythms: temporal structures, institutionalized times, analysis of event temporality, formal and informal rhythms
Spatial and Urban Theory	Spatial Context	Material-social context of rhythm production and organization: including concepts of absolute and differential spaces
Everyday Practices and Embodiment	Lived Experience	Emergence of rhythms in everyday actions: embodied experience, walking, spatial consumption, perception of rhythms through the body, collective memory, multisensory experience, and everyday spatial practices
Socio-Political Dimensions	Context of Conflict and Resistance	Role of power, domination, identity, social participation, and resistance: in reproducing or disrupting urban rhythms
Production and Political Economy	Mechanisms of Space Production	Forces of political economy, capitalist production, land commodification, and state interventions: in the production of space

institutional orders and embodied experiences, and the coexistence of simultaneous but sometimes conflicting rhythms points to the inherent multi-temporality of the city. This multitemporal and polyrhythmic condition is not only central to analyzing urban structures but also essential to understanding the everyday dynamics of urban life. In parallel, the analysis of the “Spatial and Urban Theory” cluster reveals a multilayered set of theoretical concepts in complex interaction. This

cluster explains different dimensions of the production, organization, and representation of urban space. The diagram illustrates a detailed network of connections between open codes, in which concepts such as conceived space, absolute space, differential space, and objectivation of space emerge as key elements. At the center of this network (Fig. 8), Lefebvre’s spatial triad serves as a key structuring framework. Conceived space is linked to concepts such as established space,



A=contradicts O=is a P=is a property of R=is associated with N=is cause of G=is part of

Fig. 8. Conceptual Cluster: Spatial and Urban Theory. Source: Authors.

planned space, and absolute space, reflecting the power of formal knowledge, planning practices, and dominant discourses in shaping and stabilizing urban spaces. These conceived spaces are causally connected to the objectivation of space and land commodification, which transform space into an economic, manageable, and consumable commodity. In contrast, notions such as differential space, space as resistance, bottom-up spatial production, and political/social praxis provide a critical perspective, emphasizing how marginalized groups, grassroots movements, and informal actors can challenge dominant structures. These ideas present urban space as a dynamic arena for resistance, negotiation, and the expression of difference. The cluster of “Power and Spatial Domination” includes concepts such as Conceived Space, Absolute Space, Fixed Space, Spatial Political Economy, and

Spaces Produced by Planners and Bureaucrats. Their causal and hierarchical connections demonstrate that space is shaped and reproduced through planning processes, political economy, and formal discourses. Complementary notions, including the objectivation and dematerialization of space, reveal how urban space is reduced to quantitative, standardized, and non-sensory forms.

By contrast, concepts like spatial identity-making, spatial imaginary, and space in collective memory highlight the role of symbolic, aesthetic, and memory-based experiences, bridging formal structures and lived experiences. From the perspective of urban rhythms, this cluster provides an analytical foundation: rhythms unfold in a context shaped by planned discourses, capitalist logics, and grassroots forces. The type of space—absolute, differential, established, or

resistant—directly affects the formation and interaction of social, physical, economic, and cultural rhythms. The “Everyday Practices and Embodiment” cluster focuses on the body, lived experience, and routine actions. Concepts such as daily practices, embodied rhythms, spatial practice, and urban practices illustrate that urban rhythms emerge first through everyday embodied routines before being formalized by planners or institutions.

According to Fig. 9. Concepts such as routines, spatial habituation, official and routine rhythms, and the regulation of everyday spaces refer to how rhythms are established through repeated actions. These repetitions lead to the reproduction of socio-spatial order and the creation of habitualized space, which contribute to the formation of spatial identity and a sense of place. Concepts such as the body, corporeal and emotional experience of space, multisensory perception of space,

and dressage show that space is experienced not only through observation but also through movement, feeling, touch, sound, and bodily memory. This bodily experience is the link between physical rhythms (such as walking, sitting, working) and social orders in space. Concepts such as working-life rhythms, social rhythms, rhythms of mobility, and vernacular lived experience refer to the reflection of rhythms that shape daily activities and social interactions. These rhythms can be in conflict with formal and institutional rhythms and are often embodied in the concept of spatial practices, defined as the main field of intersection between body, space, time, and society. Concepts such as lived space, performance or action in a specific place, space in collective memory, and space as a socio-aesthetic practice refer to the cultural, symbolic, and subjective layers of everyday life in space. These concepts emphasize the meaning of space through “memory,”

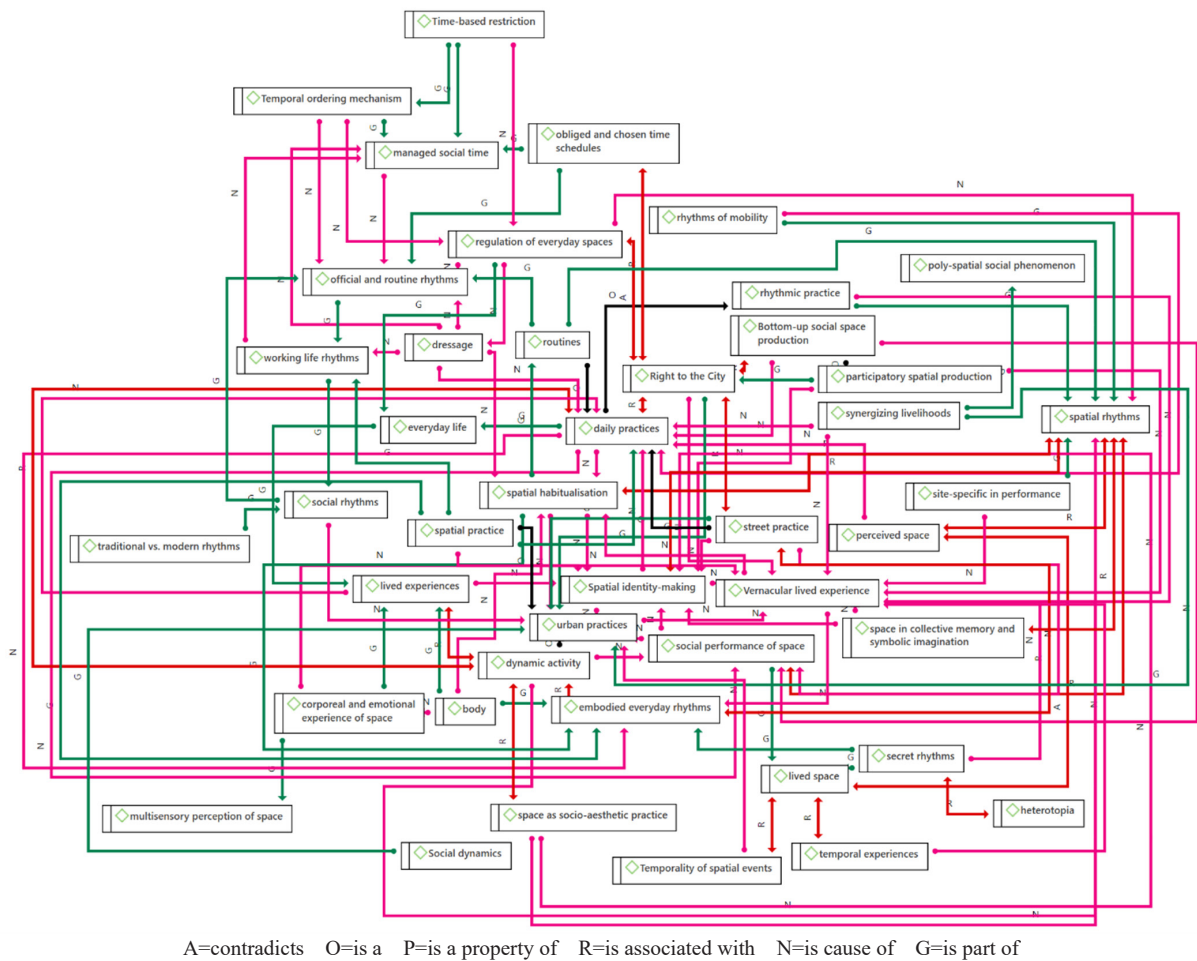


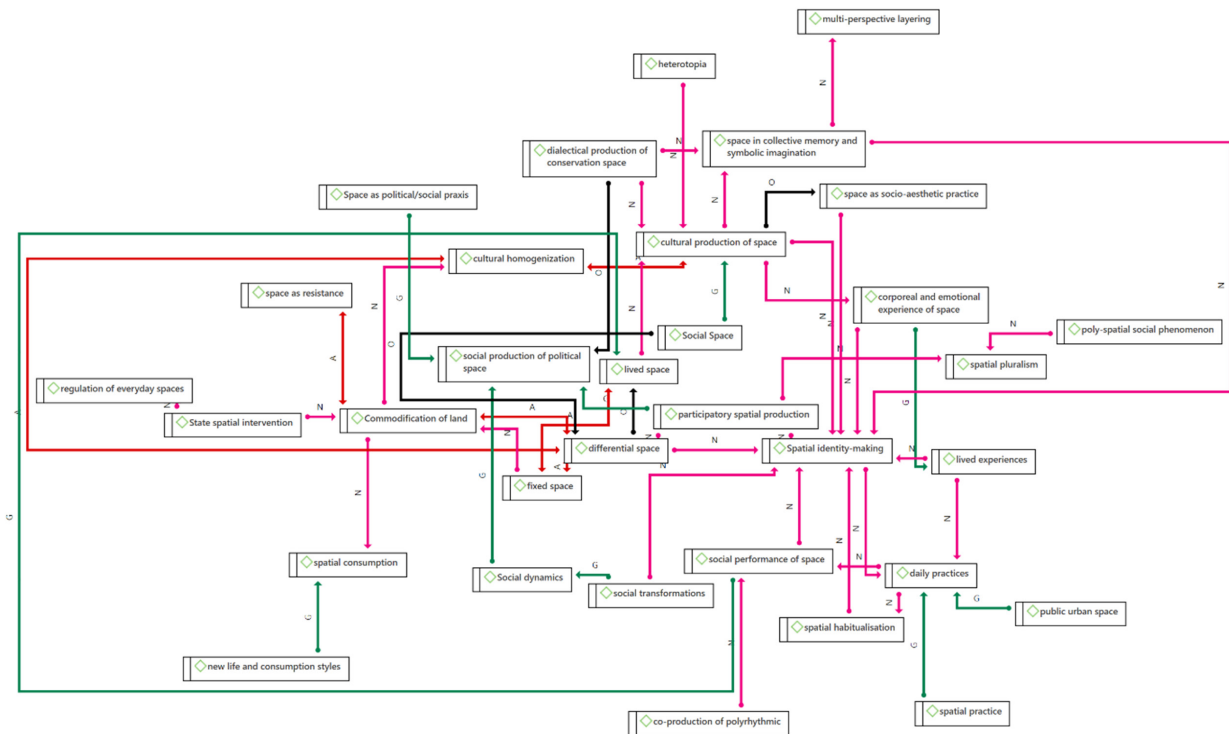
Fig. 9. Conceptual Cluster: Everyday Practices and Embodiment. Source:Authors.

“performance,” and “aesthetics,” and understand space not as a neutral background but as an active, emotional, and cultural experience. The conceptual cluster Everyday Practices and Embodiment provides the empirical infrastructure for the formation of urban rhythms by emphasizing bodily, social, everyday, and sensory rhythms. Urban rhythm is realized in the context of everyday habits, bodily movements, lived experiences, and public and street spaces. This cluster shows that urban rhythms are not only reflections of macroeconomic or spatial structures but are also the result of accumulated micro, embodied, and repetitive actions over time. In particular, the conflict between “official rhythms” and “local experiences” plays a significant role in creating a gap, or urban polyrhythmia, in the city.

The Socio-Political Dimensions conceptual cluster offers a structural and critical perspective on the production and reproduction of space in the context of power relations, social resistance, spatial consumption, and dominant ideologies. The network outlined in this section contains a complex set of concepts and relationships that form the basis for the analysis of urban rhythms from the perspective of political

economy and critical theory. At the heart of this cluster are the concepts of the social production of political space, space as political/social praxis, and state spatial intervention. These concepts show that space is not a neutral entity but an ideological construct—planned and in the service of particular interests. State spatial interventions and political processes determine the physical, social, and rhythmic form of space.

According to Fig. 10 Concepts such as the commodification of land, spatial consumption, and fixed space, along with the regulation of everyday spaces, reflect mechanisms that transform space into a commodified object. These established and managed spaces are in conceptual opposition to concepts such as space as resistance, differential space, and heterotopia, and they reveal the contrast between formal/administrative spaces and spaces of resistance/imagination. Concepts such as the cultural production of space, space in collective memory and symbolic imagination, and space as socio-aesthetic practice show that space is made meaningful through culture, collective memory, and social participation. These structures appear in line with participatory



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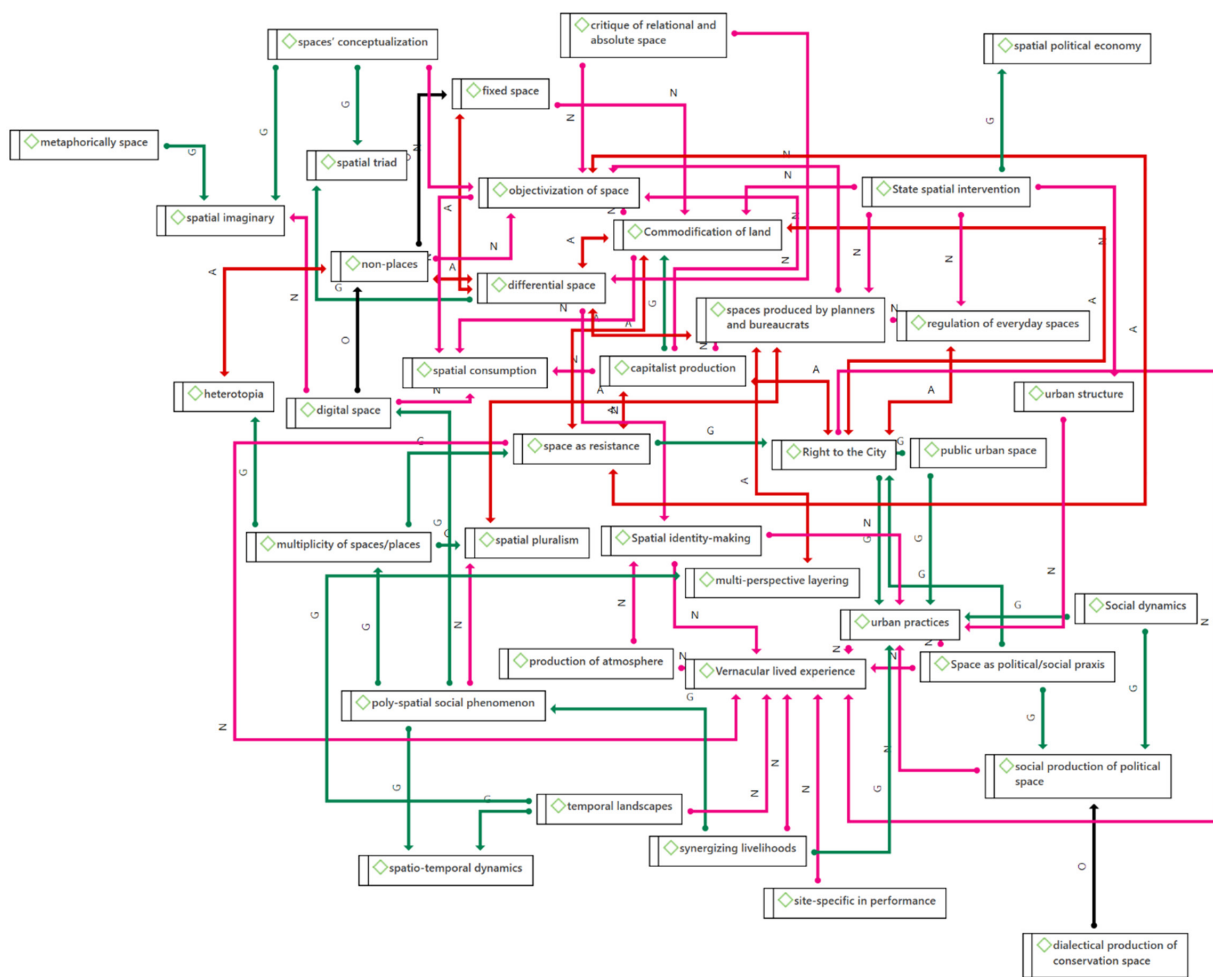
Fig. 10. Conceptual Cluster of Socio-Political Dimensions of Space. Source: Authors.

concepts such as participatory spatial production and spatial pluralism as tools for reconstructing space and creating social identity. The diagram shows that there are distinctly contradictory relationships between the concepts of state spatial intervention, cultural homogenization, and established space, and concepts such as space as resistance, differential space, heterogeneous space, and indigenous lived experience. These contradictions represent a dialectical dynamic in the production of space, in which structures of dominance are constantly challenged by the formation of marginal, creative, resilient, and polyphonic spaces. This conceptual cluster shows that the social and political context provides either the control or the disruption of urban rhythms. State interventions, the commodification of land, and consumer orders lead to the creation of uniform, managerial, and non-local

rhythms. In contrast, popular participation, the social production of space, cultural resistance, and collective imagination provide the basis for the creation of alternative, corporeal, local, and polymorphic rhythms.

The “Production and Political Economy” conceptual cluster provides a critical and systematic framework for explaining the processes of formation, management, and consumption of space in the context of economic, institutional, and ideological relations. It draws on theoretical traditions influenced by the ideas of Henri Lefebvre, Manuel Castells, and theorists of the political economy of space, and demonstrates the role of structures of power, politics, capital, and social imagination in the organization of urban spaces.

At the heart of this network, as shown in Fig.11 concepts such as the objectification of space, the commodification of land, capitalist production, and



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Fig. 11. Conceptual Cluster of Space Production and Political Economy. Source:Authors.

fixed space represent a linear and hierarchical system in which space is transformed into a homogeneous, consumable, and manageable object through processes of capitalist production. This trend, in conjunction with concepts such as state spatial intervention, spatial political economy, and spaces produced by planners and bureaucrats, highlights the process of producing space as a planned, bureaucratic, and ideological activity aimed at stabilizing power structures. Concepts such as heterogeneous space, differential space, space as resistance, and the critique of relational and absolute space represent critical discourses against established and dominant spaces. These concepts emphasize diversity, plurality, lived experience, and the possibility of creating alternative spaces. The concept of indigenous lived experience is also proposed as the source of everyday resistance, indigenous experiences, and the development of the right to space. Concepts such as digital space, non-places, spatial imaginary, and spatial consumption address the representation, consumption, and experience of space in contemporary cities. These concepts emphasize that spaces, especially in the context of late capitalism, have become arenas for symbolic, commercial, and digitized consumption that are in conflict with lived and experiential spaces. Concepts such as the multiplicity of spaces/places, poly-spatial social phenomena, spatial pluralism, multi-perspective layering, and spatio-temporal dynamics show that space in the contemporary city is a multi-morphological, multi-scalar, and multilayered phenomenon that cannot be analyzed

with a reductionist framework. These concepts are fundamental for theorizing the polymorphism of urban rhythms and the multiplicity of spatial patterns.

This cluster shows that urban rhythms are not only temporal orders but also emerge from the logics of spatial production. Rhythms that planners and institutional mechanisms create, such as formal rhythms or managed time, interact with or conflict with rhythms that emerge from indigenous experiences, the right to the city, or the collective imagination.

• **Synthesis of Findings: An Integrated Model of Urban Rhythms**

Although the detailed analysis of the conceptual clusters reveals a high degree of diversity and complexity among variables related to urban rhythms, the findings of this study can be reorganized at a more abstract level into four overarching analytical domains: temporal–rhythmic infrastructures, spatial–structural mechanisms, embodied everyday practices, and socio-political and political-economic forces (Fig.12). This framework demonstrates that urban rhythms are not the product of a single dimension, but rather the outcome of a dialectical interaction among temporality, spatial structure, lived experience, and power relations. Such a reclassification makes it possible to reduce conceptual fragmentation, enhance analytical clarity, and achieve a more applied understanding of the identified theoretical patterns, thereby redefining urban rhythm as a processual, multi-level, and conflict-driven phenomenon.

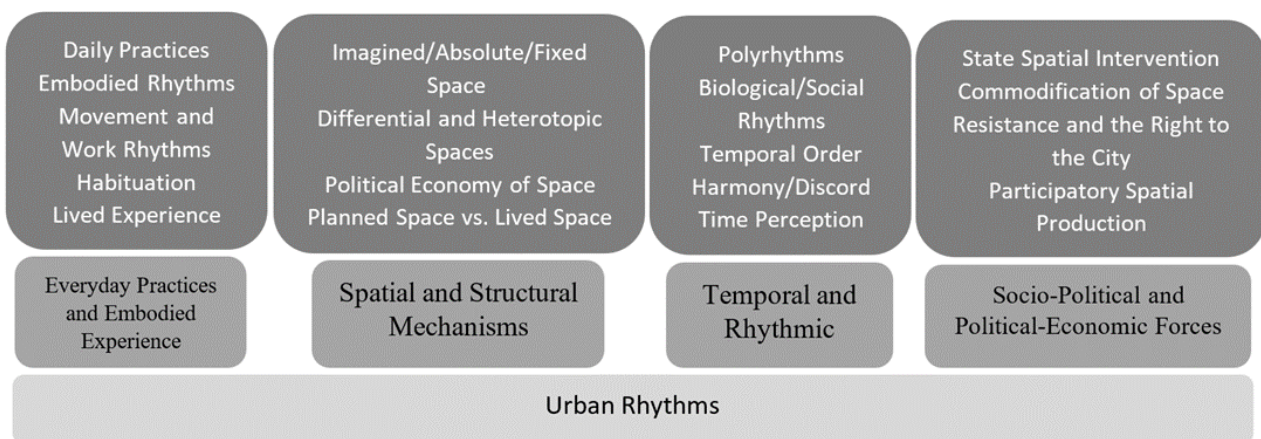


Fig. 12. Theoretical Domains and Main Branches Related to Urban Rhythms. Source:Authors.

Conclusion

This research, by adopting an integrated approach and utilizing bibliometric analysis methods and systematic qualitative meta-synthesis, sought to answer this fundamental question: What are the main theoretical domains related to urban rhythms, and how can they be identified, categorized, and recognized in the form of a conceptual network through structured conceptual analysis? In order to accurately answer this question, an analysis of more than 500 qualitative and theoretical scientific articles over a three-decade period led to the identification of five main conceptual clusters, each of which represents a layer of the complex and multidimensional body of theorizing in the field of urban rhythms.

The cluster of temporal and rhythmic structures, as a fundamental conceptual infrastructure, shows that urban rhythms are a combination of biological, social, spatial, and institutional temporal patterns that, in coexistence or conflict with each other, shape urban orders. This cluster links concepts such as polyrhythmia, discordant rhythms, embodied rhythms, and temporal ordering in a nested network with embodied experiences and time management mechanisms, emphasizing the polytemporal and polyrhythmic nature of the contemporary city.

The spatial and urban theory cluster, focusing on Lefebvre's spatial triad, shows that rhythms are formed in a spatial context that is itself the product of the conflict between established, commodified spaces and spaces of resistance and representation. Through concepts such as conceived space, differential space, and spatial imagination, this cluster reinterprets the spatial foundation of rhythms in discourses of power, planning, and lived experiences.

The cluster of everyday practices and embodied experience highlights the practical and embodied level of urban rhythms. The analysis of concepts such as daily practices, embodied rhythms, and spatial practices shows that urban rhythms are constructed and reproduced not only at the institutional level but also in the micro, repetitive, and body-centered actions of everyday life. The cluster of socio-political

dimensions of space highlights the ideological, resistant, and identity dimensions of spatial production. Concepts such as state spatial intervention, cultural homogenization, participatory spatial production, and the right to the city indicate that urban rhythms are a reflection of the tension between formal orders, local resistances, and social participation, and that space is a stage for temporal and political bargaining between different groups. The cluster of spatial production and political economy provides the structural and macro-theoretical layer of the analysis. The analysis of concepts such as capitalist production, spatial political economy, commodification of land, and differential space shows that urban rhythms are closely linked to processes of spatial production. In particular, formal and linear urban rhythms are largely the product of commodity logic and planned orders, while local and alternative rhythms are the product of resistance, imagination, and biogenesis.

In sum, the findings of this research imply that urban rhythms are multilayered and conceptual phenomena that are shaped by the intersection of spatial, temporal, social, embodied, and political mechanisms. A theoretical understanding of urban rhythms is not possible without recognizing and classifying these conceptual domains and examining the relationships between them. Therefore, the conceptual model presented in this study can be used not only as a tool for analyzing the temporal-spatial complexities of urban life but also as a theoretical foundation for the development of future research in the field of socio-spatial rhythmology of the contemporary city.

Conflict of Interest

The authors declare that there is no conflict of interest in the execution of this research.

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