Function of Centers of Activity in the Shaping of Public Spaces in Lublin

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Abstract

The article presents relations occurring between the structure of city centers and that of public spaces in Lublin. It examines the problem of polycentricism of urban areas, relations between centers, and those between centers and their vicinity. It also analyses the structure of public spaces, its continuity, legibility, and its basic elements, particularly in terms of their morphology and quality of space arrangement. Results of comparative analysis of both urban structures are presented.

Keywords: polycentric city, city centers, public space

JEL: R42, R52, R53

Introduction

Transformations of the spatial structure of cities initiated by the industrial revolution resulted in the development of new forms of settlement, unknown to the human civilization before. Industrial cities crossed the administrative boundaries of medieval cities, and entered an epoch in which building development is dependent more on dynamic settlement processes than on the conscious act of composition. The new problems and spatial conflicts inspired the authorities, researchers, and designers to search for solutions in the scope of both diverse investments and planning and design. The appearance of new spatial structures also attracted interest of scientific circles, and inspired research in the scope. An example of such studies is among others the output of so-called "Chicago school," a trend in sociology developed by researchers associated with the University of Chicago in the first half of the 20th century.

The research led to the development of the following models of cities: concentric zone model (Park, Burgess, and McKenzie 1925), sector model (Hoyt 1939), and multiple nuclei model (Harris and Ullman 1945). The first two appeared in the 1920's and 1930's, respectively. They explained the location of different functional areas in the spatial structure of the city in reference to the city center, frequently described in the Anglo-Saxon terminology as CBD—Central Business District. The multiple nuclei model by Harris and Ullman from the 1940's was the first to involve the concept of many urban "nuclei," whereas one of them was still the main and dominant one, and the remaining ones were subordinated.

In the 1960's, Vance (1964), employed at the University of California in Berkeley, developed the concept of "urban realms." Based on research on the metropolitan area of San Francisco, Vance explained the appearance of new centers in the suburbia surrounding the central city. Their subordinate character and dependency on the main CBD gradually decreased, making the former suburbia increasingly independent (so-called "outer cities"). A concept was forming in which the model of the spatial structure of the city had no single main nucleus or center constituting the point of reference for the functioning of the entire settlement unit. The multiple nuclei structure of centers with no hierarchical relations is actually not a city any more, but an urban area open to constant spatial expansion.

In 1992, Garreau published the book *Edge City. Life on the New Frontier*. He popularized the term "edge city," referring to clusters of business, commerce, and entertainment forming in suburbia outside the main CBD in the 20th century. According to Garreau, the condition of existence of the "edge city" was the accumulation in one place of a substantial number of offices and commercial objects at a scale approximate to that occurring in the main CBD. As a consequence of agglomeration of commerce and services, such a cluster became an important center of workplaces generating high everyday two-way traffic to and from the center. The office and commercial function was gradually supplemented by entertainment, recreation, etc., developing a new, independent urban center.

Such new centers usually appeared near the main transport routes, manifesting the mutual dependency between the development of their network and the transport system (Clark 2003, 145). The intensified process of "urban sprawl" and decentralization of cities, observed from the early 1960's, resulted in numerous studies on the phenomenon of urban polycentricism. In 1981, Schneider published results of research performed on request of the Department of Transport of the United States of America. The objective of the study was to investigate the possibilities of control of the spatial development of cities through the development of urban subcenters and transport system, as well as to analyses the phenomenon of urban polycentricism. The analysis covered 14 American, 2 Canadian, and 1 English city. Schneider presented the advantages and disadvantages of the polycentric development of cities mentioned by other authors. He positively assessed the polycentric form of the city stating that "the polycentric city is the city of the future."[1] In his paper, he used many terms currently commonly used in scientific and planning studies for describing city centers, for example "downtown," "CBD — Central Business District," "MCD — Major Diversified Center," "cluster of activity," or "center of activity." The basic thesis of Schneider's research was to evidence that the polycentric form of the city contributes to development more than the monocentric form owing to greater possibilities of efficient use of the transport system. The model transport system in a multiple nuclei urban area should involve:

- good transport service within each of the centers,
- good local service around each of the centers, and
- good express service between centers.

An argument supporting the development of the polycentric model, presented by Schneider as well as other authors, is among others the necessity of searching for coherence with market trends. The process of spatial growth of cities generates spontaneous development, outside of the main city center, of clusters of services, commerce, and offices in suburban areas. Schneider presented study results showing considerably higher dynamics of population growth in new centers than in the main city center in all the analyzed cities. Another argument is creating the possibilities of finding good conditions for residence for persons with lower income for whom residential districts around the main center become inaccessible in terms of prices, and who are frequently pushed aside to urban ghettos of poverty and crime. Another argument is the necessity of development of the urban character of space offering high quality of life in areas located at a considerable distance from the main center. New centers in such areas can fulfil the function of accelerators of the vitality and attractiveness of the area owing to the broad offer of various services and urban activities. An equally important argument is the idea of self-sufficiency, allowing the residents living around the
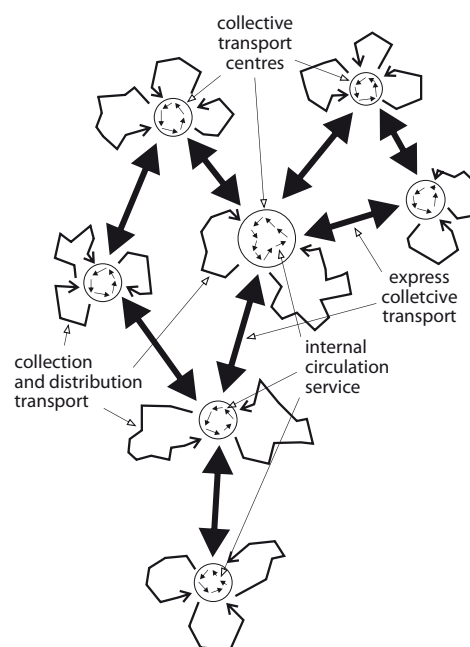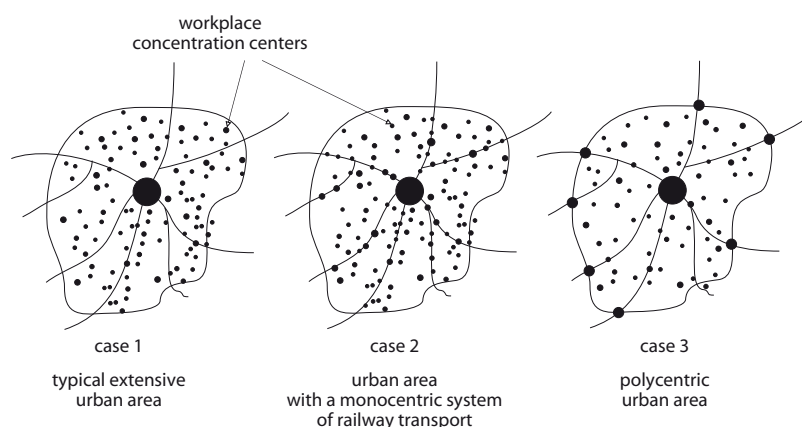

Fig. 1. Concept of interconnected centers of public transport according to J.B. Schneider

Source: Own elaboration based on Transit and the Polycentric City. op. cit., page 3

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1. See: Transit and the Polycentric City. Final Report by Jerry B. Schneider, September 1981, pages xi-xiv, [@:] https://ntl.bts.gov/lib/56000/56500/56591/transitpolycent8133jerr_0.pdf.

new center to satisfy all their most important needs in such a center. Sufficient population density and attractiveness of the center permits the creation of a substantial number of workplaces. This reduces the energy used for transport to distant service centers. The most emphasized argument for the polycentricism of cities in the literature and practice of management of cities, however, is the reduction of transport requirements. This entails possibilities of reduction of the use of fuel, elimination of traffic jams, improvement of aerosanitary conditions, and more favorable conditions for the development of collective transport.

Figure 2 presents three models of the urban form differing in the character of the transport system and spatial organization of centers. The first case shows the monocentric system with dominant individual transport, strongly developed main center, and small centers of services and employment dispersed throughout the area. The second case is a monocentric model with monocentrically organized traditional railway transport. In this model, outside the main city center, a tendency occurs for the concentration of services and employment in numerous small centers located along the railway lines. The third case is a polycentric model which in addition to the main center developed several other strong centers connected with the main center and with each another with important transport routes. Therefore, the new centers also constitute main transport nodes of the entire urban area.

workplace
concentration centers

case 1

typical extensive
urban area

case 2

urban area
with a monocentric system
of railway transport

case 3

polycentric
urban area

Fig. 2. Three alternative models of the structure of centers of the urban area according to J. B. Schneider
Source: Own elaboration based on Transit and the Polycentric City. op. cit., page 5

The emphasis by urban planners and city authorities on the necessity of reduction of transport requirements resulted in the development of the concepts of TOD (transit-oriented development) and "compact city,"—i.e., spatial management oriented to collective transport service, and allowing residents to minimize the use of private cars. Both concepts emphasize the role of transport nodes as multifunctional locations of centers reviving the socio-economic life of the surrounding areas (Dieleman and Wegener 2004).

The postulate of compactness of urban space and promotion of forms of urban mobility other than private cars, including collective transport, walking, and cycling, is reflected in the new urban agenda prepared by the United Nations Habitat (New Urban Agenda Habitat III).[2] The issues were mentioned in related articles of "Transport and Mobility"[3] and "Urban and Spatial Planning and Design"[4] published in May 2015. The articles also included a separate document addressing the issue of public spaces, article "Public Space."[5] It supplements the postulates of the compactness and accessibility of urban space with the need for creating publicly used and commonly accessible

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2. See: HABITAT III Issue Papers, [@:] http://habitat3.org/the-new-urban-agenda/documents/issue-papers/.

3. See: HABITAT III Issue Papers, 19, New York, 31 May 2015, [@:] http://habitat3.org/wp-content/uploads/Habitat-III-Issue-Paper-19_Transport-and-Mobility-2.0.pdf.

4. See: HABITAT III Issue Papers, 8, New York, 31 May 2015 [@:] http://habitat3.org/wp-content/uploads/Habitat-III-Issue-Paper-8_Urban-and-Spatial-Planning-and-Design-2.0.pdf.

5. See: HABITAT III Issue Papers, 11, New York, 31 May 2015, [@:] http://habitat3.org/wp-content/uploads/Habitat-III-Issue-Paper-11_Public-Space-2.0.compressed.pdf.

pedestrian-friendly common spaces. They particularly include streets, open spaces, and elements of urban infrastructure. Such places and objects should meet not only the requirements of usability, but also social, cultural, and aesthetic requirements. Article entitled "Urban and Spatial Planning and Design," states that urban design is a multidisciplinary process of development of physical management for the needs of urban life, including designing diverse spaces, landscape, buildings, and urban complexes.

The approach to the development of urban space combines the functional (centers and mobility system), socio-cultural (public spaces), and compositional aspects (urban interiors and other composition elements) of key elements determining the spatial structure of cities. The problem of polycentricism of cities is usually discussed in the literature on the subject in the context of large cities and extensive urban areas. This raises the question whether it is also observed in the case of medium-sized cities. Another issue is the character of relations occurring between centers. Do they form a hierarchical structure, or are they independent from each other, or perhaps the relations are binding, but with no hierarchical character? Another issue is the relation of the structure of centers to that of public spaces and elements of the compositional structure of the city. The author selected the city of Lublin as an example in the attempt to answer the above questions.

The analysis of the structure of the city of Lublin covered three stages: analysis of city centers and transport system, analysis of public spaces, and comparative analysis of both identified structures.

1 Analysis of the spatial structure of Lublin city centers

The city center is a center of social, cultural, business, and entertainment activity of the population of a given city. It is also a place of exchange in the material and ideological aspect. The center is a place where people gather for the purpose of satisfying their different needs, particularly those not directly related to residence, and frequently work (although centers also fulfil the function of workplace centers) (Mitković and Dinić 2004, 41).

The scientific literature and planning practice of different countries describe centers with different terms. In the Anglo-Saxon culture, terms such as "CBD," "CAD — central activities district," "downtown," "central activities zone," "city center," and "activity center" are used.[6] The last term combines the traditional term "center" with "activity", emphasizing the multifunctional character of the place, frequently postulated in different planning documents. An example can be the strategy of development of the Melbourne metropolitan area in Australia entitled "Plan Melbourne 2017–2050,"[7] earlier document "Melbourne 2030. Planning for Sustainable Growth," and its implementation element "Implementation Plan 4. Activity Centres,"[8] or document constituting an element of the spatial policy of the state of West Australia "Activity centres for Perth and Peel."[9]

Social activities and the need of their concentration for reviving social life was also addressed by Alexander in publication "A Pattern Language". The author pointed to the need of their location in transport nodes, and organization of the surrounding public spaces, namely squares. He recommended the creation of many such centers in the urban space connected with transport corridors, making the entire structure into a spatial system. He called such centers of concentration of people "activity nodes" (Alexander et al. 2008, 161–168).

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6. See: Activity centre. Wikipedia article, [@:] https://en.wikipedia.org/wiki/Activity_centre.

7. See: Plan Melbourne 2017–2050. Victoria State Government, [@:] http://www.planmelbourne.vic.gov.au/__data/assets/pdf_file/0007/377206/Plan_Melbourne_2017–2050_Strategy_.pdf.

8. See: Melbourne 2030. Planning for Sustainable Growth. State of Victoria, Department of Infrastructure, October 2002, [@:] https://www.planning.vic.gov.au/__data/assets/pdf_file/0025/78190/Melbourne-2030_complete.pdf; Melbourne 2030. Planning for Sustainable Growth. Implementation Plan 4. Activity Centres. State of Victoria, Department of Infrastructure, October 2002, [@:] https://www.planning.vic.gov.au/__data/assets/pdf_file/0019/20467/Activity-Centres.pdf.

9. See: Activity centres for Perth and Peel. Planning and Development Act 2005, State Planning Policy 4.2. Western Australian Government Gazette, Perth, Tuesday, 31 August 2010, no 166 Special, [@:] https://www.planning.wa.gov.au/dop_pub_pdf/activity_centres_policy_2.pdf.
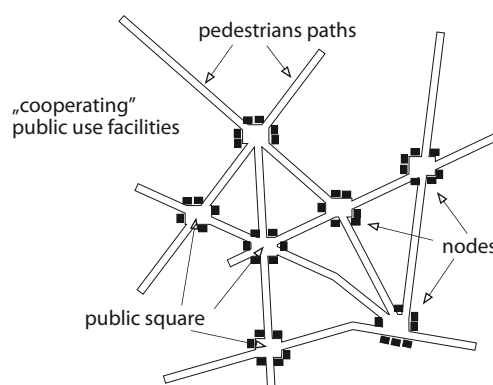
Fig. 3. Concept of "activity nodes" according to Ch. Alexander
Source: Own elaboration based on Alexander et al. (2008, 171)

Based on data published by the self-government of the city of Lublin on the website GeoPortal Miejski SIPL([10]) and own observations, the author developed a diagram of the structure of centers of activity in Lublin. The author divided the centers into two basic groups:
  • multifunctional centers, and
  • centers with a limited functional programme.
Multifunctional centers in Lublin show an evident hierarchical character of mutual relations. The main city center gathers functions with importance at the scale of the city and region. The "auxiliary" city center concentrates functions at the scale of the city, and district centers—basic functions. The main and auxiliary city centers were designated based on the identification of their detailed functions:
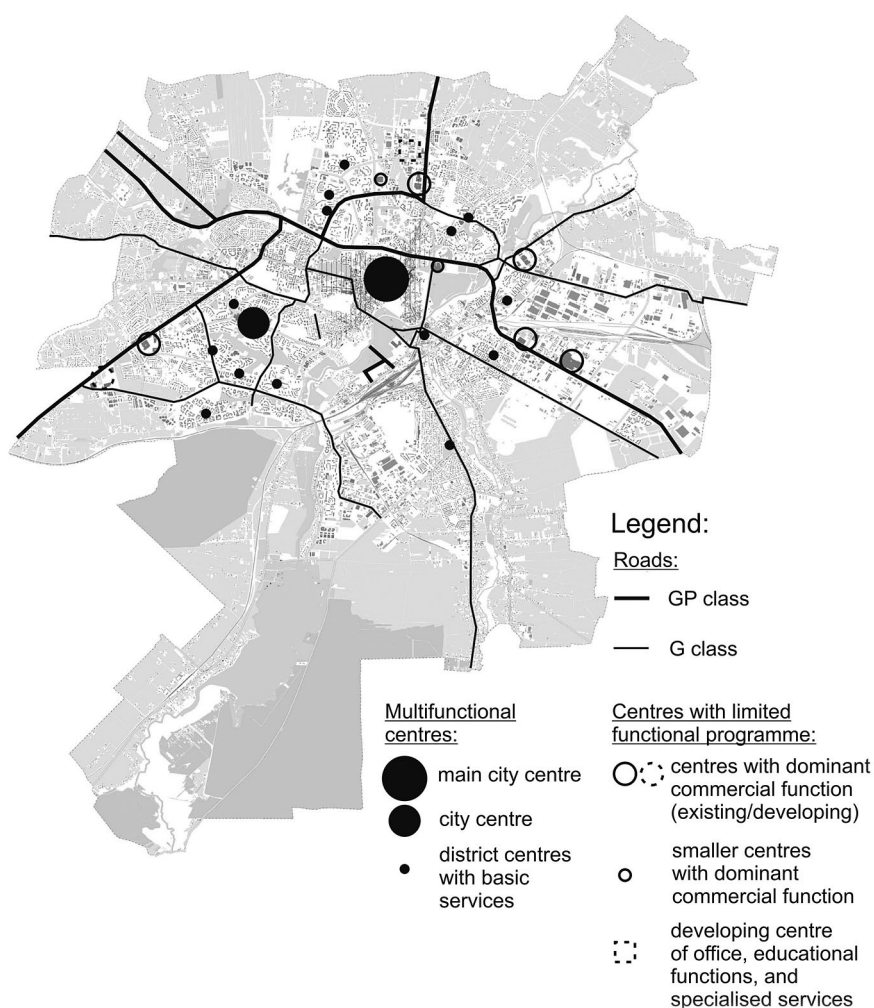 • services
  • retail
  • tourism service
  • financial-business
  • transport
  • information
  • cultural-entertainment
  • cultural, including religious
  • recreational
  • socio-political
The literature on the subject sometimes points to the optional occurrence of functions of health protection and sport in city centers (Mitković and Dinić 2004, 42). In addition to multifunctional centers, the territory of Lublin includes centers concentrating narrower spectra of functions strongly attracting users. Two groups of such centers particularly stand out. The first one includes single or clusters of large-surface commercial objects and shopping centers. The second group includes areas of adaptation of the former storage and production function to new purposes. The succession is usually directed towards the office, educational, and specialized services function.

For the purposes of the study presented in this article, a simplified typology and identification of centers was applied. The literature on the subject presents different typologies of centers which can be applied in different ways depending on the direction of detailed research. Criteria for the designation of types of centers include, for example:
  • rank
  • functions
  • morphology
  • genesis
  • character of internal transport
  • location in the spatial structure of the city (Mitković and Dinić 2004, 48)

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10. See: http://geoportal.lublin.eu/sipl/app/index#.

Legend:

Roads:

▬▬ GP class

── G class

Multifunctional
centres:

● main city centre

● city centre

• district centres
   with basic
   services

Centres with limited
functional programme:

◯ ⬚ centres with dominant
      commercial function
      (existing/developing)

◦ smaller centres
   with dominant
   commercial function

⬚ developing centre
   of office, educational
   functions, and
   specialised services

Fig. 4. Diagram of the structure of centers of activity and main elements of the transport system of Lublin

The comparison of the distribution of centers with the transport system of the city shows weak mutual relation of general city centers, multifunctional centers, as well as such centers with non-multifunctional centers. The assessment of multifunctional centers of the district rank shows their uneven distribution in relation to the residential areas of the city. The basic services are the best organized in multi-family housing districts built before the political transformation of the turn of the 1980's and 1990's. They are much worse organized in areas of single-family housing irrespective of the time of their construction, and in areas of new multi-family housing development. In such areas, service and commerce objects are often dispersed, and the functional programme of services in a given area is poorer than in districts with functioning places of concentration of basic services.

2 Analysis of Lublin public spaces

Public spaces play an important role in the spatial structure and life of the city. They serve as places of contacts and exchange of both goods and ideas. Due to the possibility of commercialization of exchange, public spaces can also fulfil an important economic function. Intangible exchange affects the cultural development of the group, civic participation, and development of social attitudes (Jastrząb 2004, 5–16). Open public spaces in cities of the pre-industrial epoch usually took form of an urban interior with a character of a square or street. The civilizational and spatial development of cities brought considerable diversification of functions and morphological forms of public spaces. Particular difficulties in the determination of typology of public spaces appeared in the 21st century. Banerjee points to three basic factors substantially modifying the modern character of public spaces (Banerjee 2001, 9–10). They are:

• economic liberalism contributing to an increase in the commercialization of public spaces and increase in the participation of private businesses in making decisions on the location of investments
• globalization of the economy, manifested in among others:
  – an increase in the influence of global corporate structures on local economies and local social life
  – an increase in mobility of employees, and related frequent change of place of work and residence, as well as weakening of the sense of local identity, and identity with the place and local community
  – mobility of ideas, opinions, and cultural homogenization also contributing to the weakening of the sense of identity and social and territorial connections
• development of modern means of transport and communication, expanding and accelerating exchange of information, and processes of cultural homogenization, but also transferring many social and economic functions to the sphere of the virtual world.

Based on urban planning research on Calgary in Canada, Sandalack and Alaniz Uribe (2010) proposed a typology of open public spaces presented in table 1.[11]

The Canadian typology is not entirely in accordance with the Polish urban planning reality. Therefore, it is impossible to directly adopt it in research on Lublin. This condition, as well as lack of the commonly adopted typology of modern public spaces in scientific circles in Poland and in the world, encouraged the author to apply own typology developed in 2008 for the purposes of research on public spaces in Lublin in the context of development of its metropolitan function

Tab. 1. Typology of open public spaces according to Sandalack and Alaniz Uribe

Main type	Subtypes
Street	residential streets commercial streets boulevards
Square	city square church square market square university square
Park, garden, cemetery	gardens cemeteries decorative parks
Linear systems, green corridors, paths	paths cycle paths trails crossings
Sports and recreational facilities in open air	playgrounds for small children playgrounds sports fields kindergarten premises golf courses skate parks
Camping and picnic grounds	camping grounds picnic and everyday use areas
Natural/semi-natural green areas	forest areas grasslands wetlands channels water bodies and streams nature reserves

Source: Own elaboration based on Sandalack and Alaniz Uribe (2010)

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11. See also publications available at Urban Lab web page, [@:] http://www.ucalgary.ca/urbanlab/node/17.

(Polska 2008). The typology, after correction taking into account spatial changes in Lublin which occurred since the time of the said research, covered the following elements:
- city centers — main and auxiliary
- district centers
- important streets
- shopping centers
- market squares
- parks and important green corridors
- places of gatherings and mass events
- transport nodes (railway and bus stations)
- sports and recreational facilities
- fair, exhibition, and conference centers
- important cultural objects
- important religious objects
- symbolic objects — historical sites and seats of authorities

The criteria of adopting such a typology has a mixed functional and morphological character.

The following was identified in the review of the structure of public spaces in Lublin:
- particular elements in accordance with the adopted typology
- urban planning quality of public space

The latter characteristic concerns requirements of public spaces the most frequently postulated in the modern planning practice, including:
- legibility of the spatial form,
- high quality of architecture and aesthetic values,
- accessibility (spatial, technical, social, cultural),
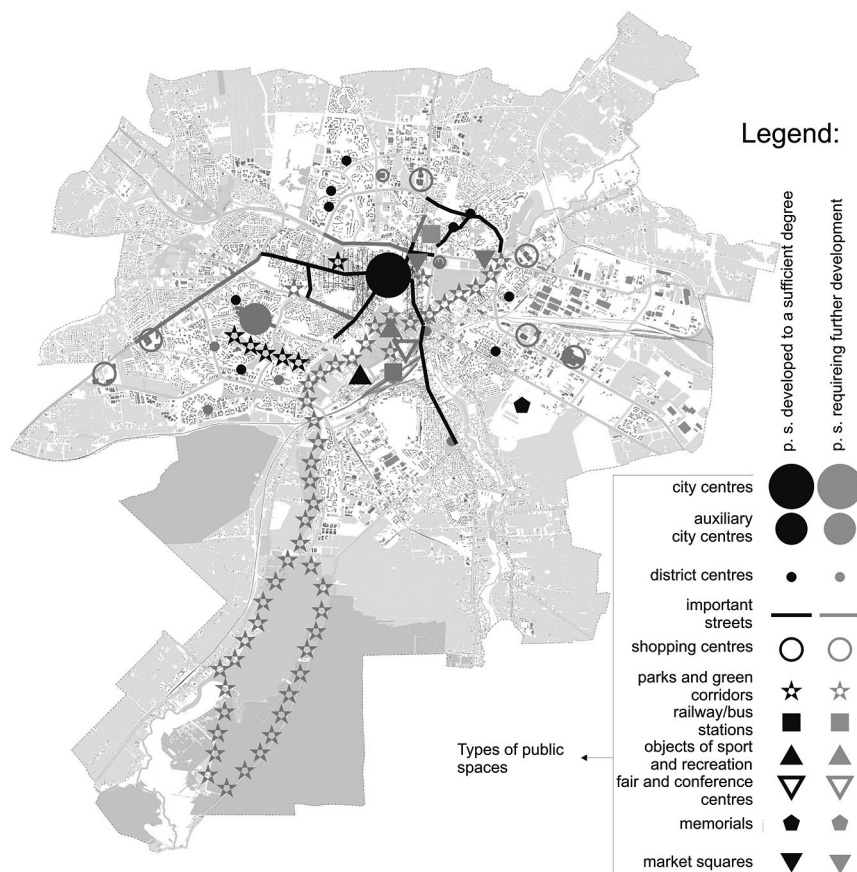
Fig. 5. Structure of the most important public spaces in Lublin

- possibility of multifunctional use, and related equipment with relevant facilities and objects of small architecture,
- coherence with the tradition and spirit of the place, and
- facility of pedestrian and cycling use.[12]

The research permitted the development of a figure presenting the structure of the most important public spaces in Lublin.

The scale of the study and low degree of detail made it impossible to present all objects and typological groups. The identified existing objects were divided into two groups depending on the assessment of their urban planning quality (sufficient or requiring improvement). The figure does not consider potential and very weakly developed public spaces.

The identified structure of public spaces shows high variability of its components, both in terms of cultural character (e.g., place of social meetings, mass events, exchange of goods, entertainment, passive and active recreation, memorial, symbolic place, place of manifestation of attitudes and status) and morphological forms, continuity, degree of development, and openness to variable use, as well as other attributes. The general assessment of the space of Lublin suggests that the areas of historical development from before World War II and multi-family housing districts designed and constructed before 1989 show more legibility of urban planning forms and a higher level of coherence of the structure of public spaces than the remaining areas. The main city center adopted the form of a complex of urban interiors with sufficient provision of objects of small architecture and facilities for pedestrian traffic and various social activities. The auxiliary center, despite the legible character of the interior in the form of a street, remains largely unfriendly for pedestrian and cycling traffic. Shopping centers constituting large objects or their complexes have an almost amorphic spatial form devoid of features of a public space. They contrast with small district centers which frequently take form of a broadened street or a complex of a street and a small square with a variable degree of character of a public space. The structure of public spaces in Lublin shows a high degree of discontinuity. Therefore, it does not function as an efficient system satisfying the cultural and spatial needs of residents. Drawing more detailed conclusions turned out very difficult at this stage. The author encountered several doubts both in terms of methods of assessment and delimitation of modern public spaces.

3 Comparison of both spatial structures

The comparison of the network of centers and public spaces showed that the coherence of both is variable. Multifunctional centers, irrespective of the scale, have a tendency for forming urban planning interiors and fulfilling the role of an evident public space. In the case of large shopping centers, the correlation is very weak. In the case of cities with a size similar to that of Lublin, the distance between the nearest centers is usually within a comfortable walking reach (i.e., 10–15 minutes' walk). This suggests the need for development of transport connections with a character of public spaces provided with facilities for pedestrian traffic. In many cases, however, no such facilities are provided between the centers. This seemingly increases the distance between centers, contributes to their isolation, and stimulates road traffic.

Conclusions

The methodological dilemmas revealed in the course of the research on public spaces, and the status of the issue of urban polycentrism "developing" in science, make it impossible for the author to propose unambiguous and satisfying answers to the problems presented in the introduction to this article. The performed analyses, however, permit investigating such problems in more detail, and determining directions for further studies. The review of the national and foreign literature did not permit the identification of satisfying tools of delimitation, typology, and assessment of public spaces. Current efforts of the author to develop own research tools also proved insufficient.

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12. See: HABITAT III Issue Papers, 11, op. cit.

In the assessment of the author, the rich literature on the subject includes more hypotheses with a postulative character and adopted a priori than those with a scientific justification. The methodological achievements in the area are not systematized, particularly due to its interdisciplinary genesis. At least three sources of research tools are available: sociological-cultural-psychological, architectonic, and economic, perhaps also environmental. The challenge involves not only the development of research methods, simultaneous in each of the trends, but also combined methods. Another difficulty is continuous evolution of the research subject itself, resulting from dynamic civilizational changes.

The issue of urban polycentricism also remains an open issue. Numerous studies from North America and Australia cannot be representative to the European situation. The genesis and history of settlement are different here, and therefore the modern forms of settlement also differ. The differences are also manifested in the culture of use of space (in various aspects, e.g. dominant forms of transport, development of space identity, social life). Another issue is polycentricism within cities of different sizes. In other words, the question arises whether the approaches to the problem developed based on the example of extensive urbanized areas can be implemented in medium-sized and small cities. The problem of the character of relations occurring in polycentric structures, namely hierarchical structure, full independence, complementarity, or other complex compositions of relations, also remains unsolved. Constant dynamic development of techniques and technologies in the scope of transport and communication can affect the issues of optimization of mobility systems and their roles in the development of polycentric structures. Detailed research problems aroused in the course of the research are presented in table 2.

Tab. 2. List of detailed research problems requiring further investigation

Basic issues	Detailed research problems
Public spaces	delimitation typology assessment elementary spaces and urban network of public spaces adjustment of interdisciplinary research tools modern evolution and diversity of public spaces
Polycentricism	possibility of implementation of American study results in Europe functional programme of centers centers vs. public spaces polycentricism vs. scale of the city relations between centers urban planning form of centers polycentricism in the context of aspects of spatial order (environmental, economic, functional, social, cultural, aesthetic)
Mobility systems	development of the mobility system vs. structure of public spaces development of the mobility system vs. urban planning form harmonization of diverse forms of mobility (individual and collective road transport, railway, pedestrian, and cycling traffic)
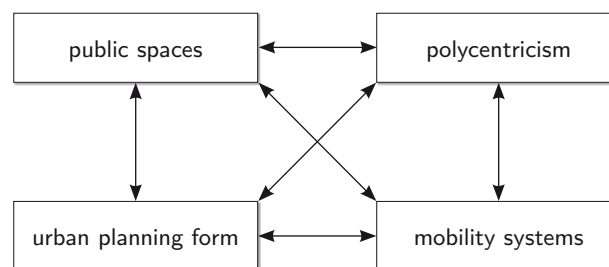
Fig. 6. Diagram of potential directions of interdisciplinary research

At the next stage, the possibility of interconnecting all the aforementioned issues multiplies the number of directions of research and research problems, as illustrated in figure 6.

This article is solely an attempt to identify the phenomena of polycentricism within cities. The issue requires further detailed investigation. It can bring interesting results of not only strictly scientific, but most importantly practical importance. In view of the inefficiency of unilateral approaches to planning and management of space, interdisciplinary approaches can prove to be a more useful instrument of development of urban structures.

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