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Journal of
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This special issue collects a selection of peer-review papers presented at the 8th International Conference INPUT 2014 titled "Smart City: planning for energy, transportation and sustainability of urban systems", held on 4-6 June in Naples, Italy. The issue includes recent developments on the theme of relationship between innovation and city management and planning.

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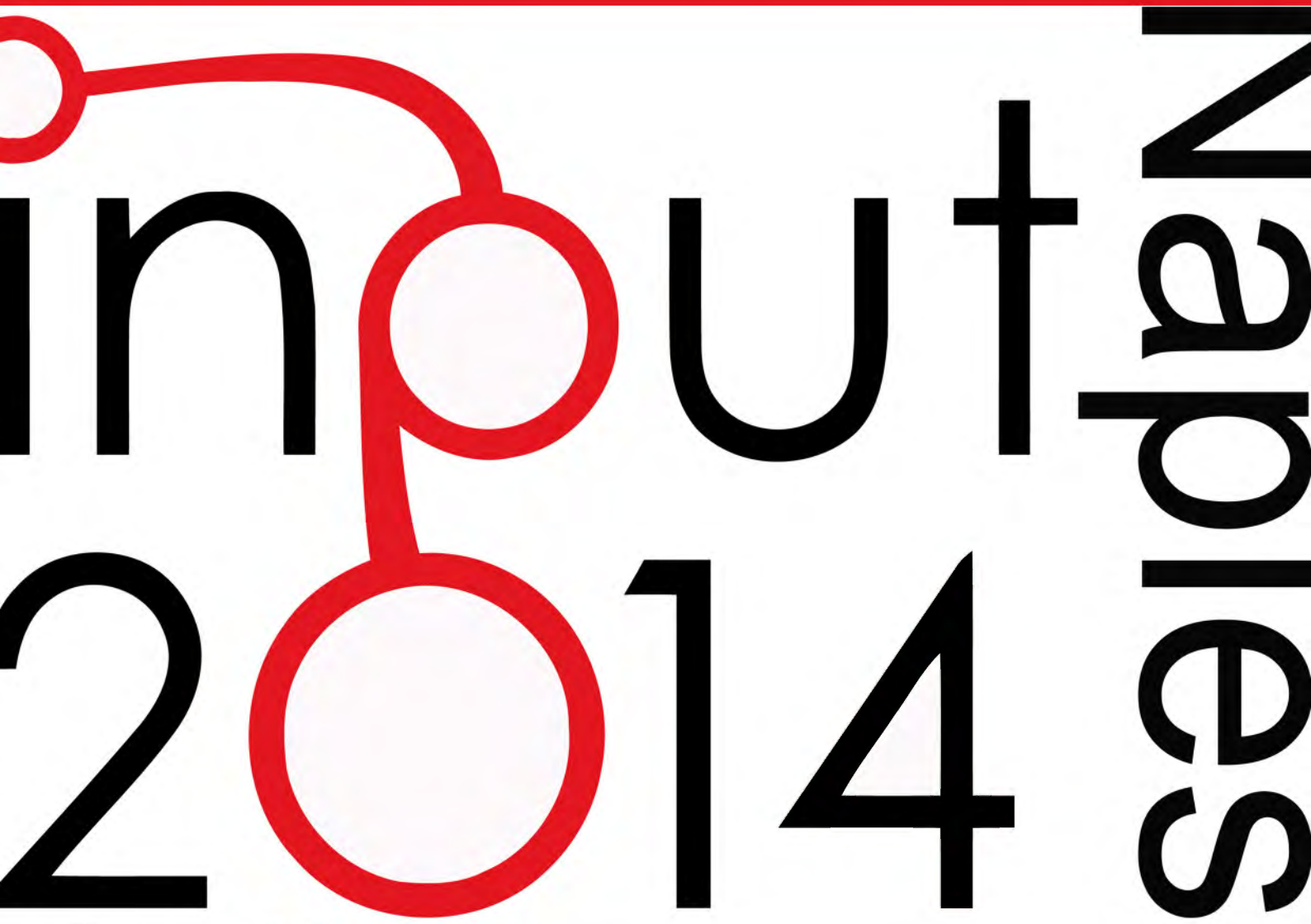

Smart City

planning for energy, transportation and sustainability of the urban system

Special issue, June 2014

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SMART CITY

PLANNING FOR ENERGY, TRANSPORTATION AND SUSTAINABILITY OF THE URBAN SYSTEM

Special Issue, June 2014

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TeMA Journal of Land Use, Mobility and Environment

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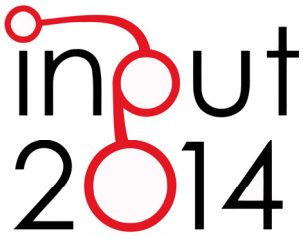
TeMA Journal of Land Use, Mobility and Environment

This special issue of TeMA collects the papers presented at the 8th International Conference INPUT 2014 which will take place in Naples from 4th to 6th June. The Conference focuses on one of the central topics within the urban studies debate and combines, in a new perspective, researches concerning the relationship between innovation and management of city changing.



TeMA Journal of Land Use, Mobility and Environment

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EIGHTH INTERNATIONAL CONFERENCE INPUT 2014

SMART CITY. PLANNING FOR ENERGY, TRANSPORTATION AND SUSTAINABILITY OF THE URBAN SYSTEM

This special issue of TeMA collects the papers presented at the Eighth International Conference INPUT, 2014, titled "Smart City. Planning for energy, transportation and sustainability of the urban system" that takes place in Naples from 4 to 6 of June 2014.

INPUT (Innovation in Urban Planning and Territorial) consists of an informal group/network of academic researchers Italians and foreigners working in several areas related to urban and territorial planning. Starting from the first conference, held in Venice in 1999, INPUT has represented an opportunity to reflect on the use of Information and Communication Technologies (ICTs) as key planning support tools. The theme of the eighth conference focuses on one of the most topical debate of urban studies that combines , in a new perspective, researches concerning the relationship between innovation (technological, methodological, of process etc..) and the management of the changes of the city. The Smart City is also currently the most investigated subject by TeMA that with this number is intended to provide a broad overview of the research activities currently in place in Italy and a number of European countries. Naples, with its tradition of studies in this particular research field, represents the best place to review progress on what is being done and try to identify some structural elements of a planning approach.

Furthermore the conference has represented the ideal space of mind comparison and ideas exchanging about a number of topics like: planning support systems, models to geo-design, qualitative cognitive models and formal ontologies, smart mobility and urban transport, Visualization and spatial perception in urban planning innovative processes for urban regeneration, smart city and smart citizen, the Smart Energy Master project, urban entropy and evaluation in urban planning, etc..

The conference INPUT Naples 2014 were sent 84 papers, through a computerized procedure using the website www.input2014.it . The papers were subjected to a series of monitoring and control operations. The first fundamental phase saw the submission of the papers to reviewers. To enable a blind procedure the papers have been checked in advance, in order to eliminate any reference to the authors. The review was carried out on a form set up by the local scientific committee. The review forms received were sent to the authors who have adapted the papers, in a more or less extensive way, on the base of the received comments. At this point (third stage), the new version of the paper was subjected to control for to standardize the content to the layout required for the publication within TeMA. In parallel, the Local Scientific Committee, along with the Editorial Board of the magazine, has provided to the technical operation on the site TeMA (insertion of data for the indexing and insertion of pdf version of the papers). In the light of the time's shortness and of the high number of contributions the Local Scientific Committee decided to publish the papers by applying some simplifies compared with the normal procedures used by TeMA. Specifically:

- Each paper was equipped with cover, TeMA Editorial Advisory Board, INPUT Scientific Committee, introductory page of INPUT 2014 and summary;
- Summary and sorting of the papers are in alphabetical order, based on the surname of the first author;
- Each paper is indexed with own DOI codex which can be found in the electronic version on TeMA website (www.tema.unina.it). The codex is not present on the pdf version of the papers.

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SPECIAL ISSUE

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REVITALIZATION AND ITS IMPACT ON PUBLIC SPACE ORGANIZATION

A CASE STUDY OF MANCHESTER IN UK, LYON IN FRANCE AND ŁÓDŹ IN POLAND

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ABSTRACT

Process of deindustrialization of downtowns in most of well-developed Western European countries has been undertaken since 1960's while in post-socialist countries just from last 25 years, after political and economic transitions in Central and Eastern Europe. As far as urban structure is concerned, a new type of inner-city sites has appeared as a consequence of the collapse of industrial activities in second half of 20th century. In vast majority of cases newly developed morhological units (e.g. run-down post-industrial) have been unavailable to the public. As a reult, "classical" public space organization of European cities has been significantly changed. However, revitalization of post-industrial urban areas creates opportunities to reorganize public space according to current inhabitants and other urban space users' needs. All transitions undertaken as a part of re-developement of brownfields sites are focused on impovements in physical and functional dimension of urban space quality to increase the standard of living condition. According to the concept of smat cities it is relaeted to "smart living" in sustainable urban environment. As a matter of fact, post-socialist cities in Central and Eastern Europe where interval of central planning was present in second half of 20th century and "classical" capitalist cites of Western Europe represent different patterns of public space transitions due to distinct historical development process of central space. In the paper a comparative study of Manchester, Lyon and Łódź is presented. The aim of the research is to indicate the reorganization of historically shaped public space structre in central space of analyzed cities after revitalization of post-industrial urban areas and new central space creation.

KEYWORDS

Revitalization of post-industrial urban areas, Public space organization, Central space

1 INTRODUCTION AND RESEARCH PROBLEM

Industrialization of a large number of European cities in 19th century commenced new stage of cities growth that formed urban environment where millions of people are living nowadays. One of the most significant dissimilarity between pre-industrial and post-industrial cities is public space system coherence due to industrial sites developed in downtowns that disturbed "classical" model of public space organization (Kostof, 1991; Słodczyk, 2012). As far as current brownfield's revitalization projects are concerned, they bring a great opportunity to stimulate new phase of public space growth as a coherent and attractive structure for urban users. This challenge is common for all former post-industrial cities in Europe. However, process of disintegration of public space was strengthen by communist's authorities in most of Central and Eastern European cities in second half of 20th century by implementing new industrial activities in downtowns and zoning central areas according to modernism concept of city building. In this context, comprehensive revitalization process of run-down districts, including post-industrial sites, can be understood as some kind of *panacea* for disruption of public space structure in Central-Eastern and Western European cities, as well.

This paper is concerned with revitalization of post-industrial urban areas and its impact on central space and its public space reorganization. This is a cause-and-effect process of urban development of European cities in the beginning of 21st century and essential part of morphological transmutation to adapt public space to current needs of inhabitants and urban space users. This process is associated with so called "smart living", that is one of most significant dimension of the concept of smart cities. According to this, smart cities provides for its inhabitants: friendly environment, in particular by providing broad access to public services, technical and social infrastructure, a high level of security, appropriate cultural and entertainment offer, as well as care for the environment and green areas (Stawasz, Sikora-Fernandez, Turała, 2012). Revitalization of post-industrial urban areas is important element of "smart growth" of current European cities as it prevents urban sprawl and inhabits development process on green areas. It also contributes to creating multifunctional areas for live, work, entertain and rest inside the area of downtown where public space system is modernized and extended. Creating new public squares and pedestrian precinct (including cycle lines) of high physical and functional qualities encourages inhabitants to spend more time in the city centre that can limit, e. g. cummuting to work and home during the day and week as well as power consumption in houses or flats. Increase the surface of pedestrian area in the city centre also can reduce car use and embolden public transport (trains, tramways, trolleybuses) or cycle (including urban bike systems) use, especially when it creates coherent system.

Public space is considered as crucial attribute of city centre as a place integrating key areas of "city life". Thus, its transitions have been one of the crucial areas of planners, architects as well as geographers' interests, especially in the context of re-development post-industrial cities (Kaczmarek, Marcińczak, 2013; Kochanowska, 2002; Lorens, 2010; Paccione 2010; Roberts, Sykes 2008; Sttot, 2012). For current researchers from Central and Eastern Europe, revitalization of inner-city brownfield sites as a way for public space reorganization is essential, mainly due to:

- functional (institutional) underdevelopment of central districts that have been developed mainly as a residential areas during socialist period (capitol cities were exceptions);
- far reaching degradation of central areas of post-socialist cities as a result of economic and planning decline after political transitions of 1990's;
- emergence of post-industrial urban areas as an integral part of downtowns structure after the collapse of industrial activities in 1990's.

As a consequence, significant share of central areas (downtowns) of a great number of former industrial cities have been covered by urban fallows as well as post-industrial run-down lands of various size and density (or dispersion). It affected fundamentally on public space organization in central areas of post-socialist cities (Ziobrowski, Domański, 2010). Quite similar problems also appeared in a great number of Western European cities in 1960's and 1970's (Jones, Evans, 2009). However, the different economic, social and cultural background of revitalization of post-industrial urban areas in Western and Central-Eastern European countries leads to various goals and then to distinct repercussions on central space and public space organization. While in Central-Eastern cities the main aim of revitalization of post-industrial sites is usually creating new central and multifunctional areas in run-down downtown, in most of Western European cities it is enlargement of central space and propulsion for renewal of whole downtown as a coherent area.

According to this brief introduction, the crux of the research problem is to answer the question: how change public space organization in Western and Central-Eastern European cities as a result of revitalization of post-industrial urban areas and new central space creation? The objectives of the paper are as following:

- characterize the process of central space development on post-industrial urban areas as a result of revitalization process;
- indicate and compare the results of post-industrial urban areas revitalization and its impact on public space organization in Manchester in UK, Lyon in France as a Western European "classical" capitalist cities and Łódź in Poland as an example of post-socialist city from Central Europe.

Analysis undertaken in this paper is based on *in situ* studies realized in two stages concerned on:

- central space transition as a result of revitalization of post-industrial urban areas: in May and June 2010;
- public space re-organization as a consequence of revitalization project: from July to September 2013 and in December 2013 as a part of research project financed by National Science Centre grant (NCN 2011/03/N/HS4/03145).

2 RELATION BETWEEN REVITALIZATION, NEW CENTRAL SPACE AND PUBLIC SPACE ORGANIZATION

Process of central space development is permanent. It is connected with transformation of existing morphological units that can be run-down areas or creating new districts in "new" locations. Regarding revitalization of post-industrial urban sites, it can be related to both types of mentioned spatio-functional transmutations. According to this approach one can indicate dichotomous character of central space and it is possible to distinguish: "old" central space that is associated to pre-existing central area (older than areas developed as a consequence of e.g. post-industrial areas after revitalization) and mentioned "new" central space. The second type of morphological units is an opposition to "old" central space and it has three meanings:

- new as young;
- new as this one which is developed in new location;
- new as modern, it is characterized by concentration of new buildings constructed according to the newest trends in architecture, often with use of original forms, new functions and institutions refers to current needs of urban space users and to create new and modern public space that meets the aesthetic requirements for a given period when it was created.

All of them are crucial for public space reorganization in the process of revitalization of post-industrial sites as the formation of new central space leads to:

- relocation of metropolitan institutions that demand high quality of public space – old that is modernized and new one that is designed for new central districts;
- enlargement of existing public space and its individual elements like public squares, public parks or some of pedestrian precinct;
- change of old public space functional equipment and its use by urban space users (e.g. inhabitants, tourists) as a consequence of creating new elements of public space structure.

Revitalization of post-industrial urban areas is qualitative as well as quantitative morphological transition. This is the essence for understanding how process of new central space formation can also change public space organization as a significant element of urban structure.

3 CASE STUDIES OF REVITALIZATION AND PUBLIC SPACE REORGANIZATION

This section is concerned with comparative case studies of public space transitions in Manchester, Lyon and Łódź. In all of these cities a new central space has been developed as a result of revitalization of downtown's post-industrial areas. There are some other criteria of selection of these cities, especially as:

- they are former principal cities of textile industry in England (Manchester), France (Lyon) and in Poland (Łódź, it was also localized in Russian Empire before 1918);
- the collapse of textile industry initiated there a long-term crisis of centrally located areas;
- they have similar number of inhabitants (at least 450,000);
- they are one of the most significant complementary cities to the capital city in: United Kingdom, France and Poland.

In spite of presented similarities, the impact of revitalization of post-industrial urban areas on organization of public space in central area can be distinct, mainly due to morphogenesis of central space and the objectives of spatio-functional transmutations of re-developed brownfields sites and other central districts.

3.1 CASE OF MANCHESTER

Manchester growth up rapidly during 18th and 19th century as "first industrial city in the World" and "industrial jewel in the crown of the British Empire". As a matter of fact, Manchester developed much more as a regional trade centre of raw and finished material than classical industrial city. The importance of the city as a capital of British and in fact World cotton trade capital was reflected not only in large scale, impressive buildings of warehouses, banks and insurance companies and public institutions (e.g. town hall, libraries and universities) but also well developed and complex public space consisted mainly of public squares, public gardens and exclusive commercial streets. This area was situated in the central and northern part of nowadays downtown of Manchester and it is possible to indicate it as current old central space of the city. The decline of industrial (textile, chemical, engineering and some other) begun in 1930's and its collapse was in 1960's. Revitalization of post-industrial urban areas in central Manchester hes been initiated in 1980's mainly in southern part of the downtown along canals (Bridgewater, Rochdale and Ashton) and rail tracks. All of former industrial (production, transportation and stocks) units of Castlefield, City Centre, Gaythorn, Whitworth and Piccadilly was implemented housing as well as central functions: retail, offices, education, culture, tourism and laisure. Thus, all southern part of the downtown has been developed as a new central space of Manchester of 155 ha. It also consists of new CBD of Manchester in former industrial and residential district of Spinningfield transsformed in 1990's. Along old central space of 174 ha there are

two retail and housing areas of Millenium Quarter (re-developed in 1990's after Irish Republican Army bomb atack in 1996) and still renewaled Northern Quarter.

As a one of crucial tasks for the projects of revitalization of post-industrial urban areas and renewal of run-down districts of southern downtown in Manchester, a new organization of public space was undertaken. The aims of re-devlopment masterplan were to: develop business, retail, leisure and entertainment base of the core of the city; create outstanding landscape of central area, consists of distinct spatio-functional units; and create high quality public infrastructure that can encourage urban space users to spend more time in public space. As far as public space transitions as a part of revitalization of post-industrial urban sites and new central space formation are concidered, they are related to:

- create of 7 new public squares of total surface of 27869 m^2 (fig. 1) – all in current central space of Manchester;
- modernization of 2 old public squares situated in Spinningfields of total surface of 10924 m^2 (fig. 1) – 27% of total surface of all modernized public squares in central space of Manchester;
- create 110892 m^2 of new pedestrian precinct including 67675 m^2 of waterfronts (61%) of all new pedestrian precinct, that gives 49% of all pedestrian precinct in central space, and 65% of only new pedestrian precinct in the analyzed area;
- modernization of public parks of St. John Gardens, Stockville Gardens and creating Roman Gardens in the site of ancient Roman fort (Mancunium or Mamuncium) and its vicus.

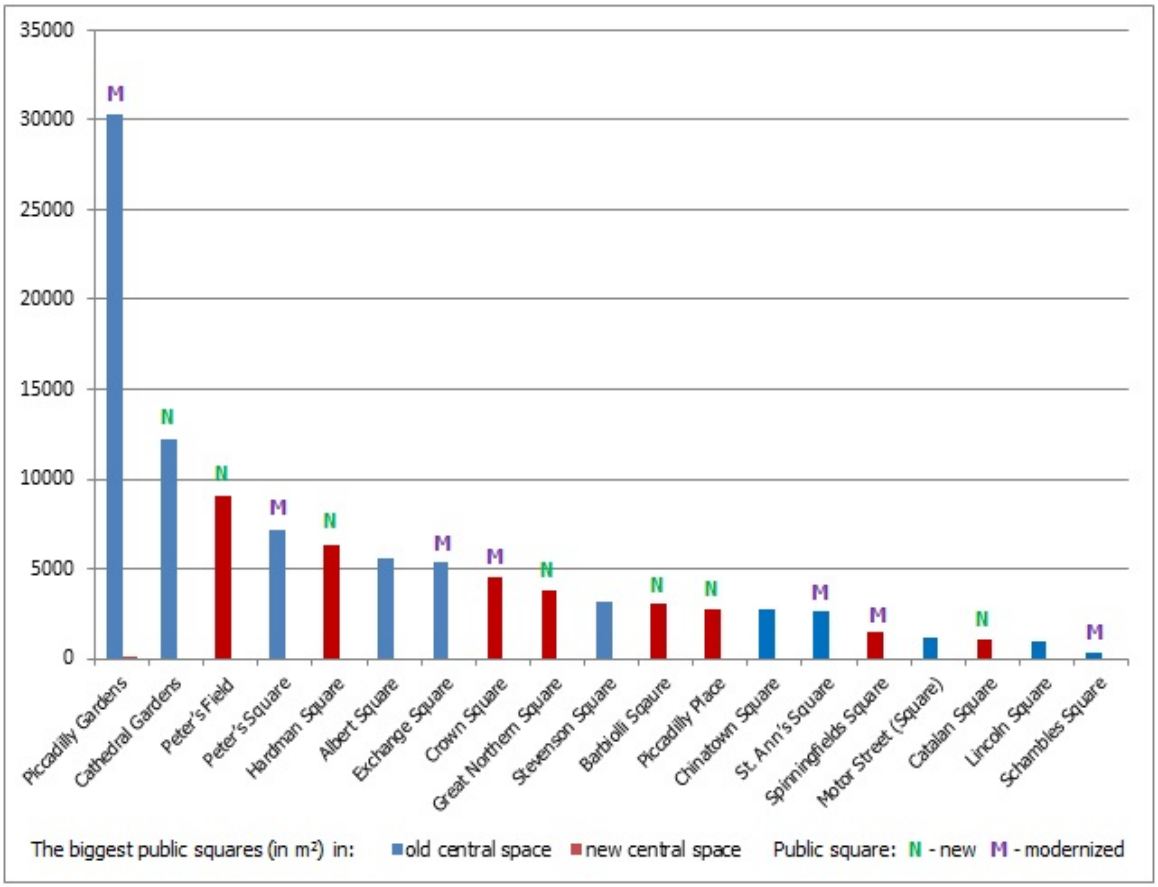

Fig. 1 The biggest public squares in central space of Manchester

All of noted spatial changes significantly extend well developed public space system of old central space to the southern and western part of the downtown. This result was reinforced by: modernization of 5 public

squares of old central space of total surface of 40081 m^2 (fig. 1) including the biggest one – Piccadilly Gardens where transportation node of regional bus and tram (Metrolink) system was created as well as creating of 23435 m^2 of new pedestrian precinct that is 52% of all pedestrian area in old central space and 15% of all pedestrian area in whole central space in Manchester in 2013.

3.2 CASE OF LYON

The origns of Lyon are Roman (as Lugdunum) like in the case of Manchester. However, the morhogenesis of central space in this French city is far distinct in comaprison to previously analyzed. While central space of Manchester was formed rapidly just through two centuries (before 18th century it was limited only to the area of medieval city next Cathedral church), current central space structure of Lyon has evolved from 3th century. Initially, it was associated with Old Lyon (Vieux Lyon) on the Western bank of the Saône river where public space is represented by 19 public squares of total surface of 19373 m^2 and average of 1020 m^2 linked by 22783 m^2 of pedestrian precinct in 2013.

Since 13th century (current old) central space has been developed on so called Presqu'île situated on peninsula between the Saône and the Rhône river. It is the the most important area of central space where 37 public squre are located of total surface of 106943 m^2 (55% of total surface of all publis squares in old central space) and average of 2890 m^2. The youngest district of old central space is Part-Dieu, constructed in 1970's as a Central Business District (CBD) of Lyon. There are only 8 public squares of 32176 m^2. However, the average of its surface is the biggest in old central space and it equals 4022 m^2. This analysis shows how well developed is historical central space and its public space system in Lyon. It has been equiped by a large number of metropolitan instututions like: town hall, opera house, museums, universities, banks and many international companies' headquarters characteristic for modern metropolis.

Industrial activities such as manufacturing and small workshops have been dispersed in the downton of Lyon, especially on its edges. The biggest area of industry concentration was Confluence, occupied mainly by enineering, chemical, food and transportation companies. Crucial for transportation of this district was Port Rembaud on the Saône river banks and rail station of Lyon Perrache (still working also as a TGV station). The collapse of industry in this area initiated a process of re-developemnt projects in 1990's. The main goal of revitalization in Confluence was extension of retail of old central space, connected with large investments of housing and central functions as offieces, hotels, media, cinemas, regional administration. As a result of revitalization some of metropolitan institutions was located in Confluence as: Hôtel de Region and headquarters of Euronews and Le Progress. This spatial and functional transitions entailed reorganization of public space in post-industrial area. Before revitalization and new central space formation there were only 2 public squares: Place de l'Hippodrome and Place General Delfosse of is 12255 m^2 of total surface and average of 6128 m^2. As a part of Confluence revitalization project 6 new public squares of 17851 m^2 (average: 2970 m^2) were created (fig. 2). Old public squares in this district haven't been modernized yet.

Essential for public squares integration in Confluence was creation of 122385 m^2 of new pedestrian precinct (87% of all pedestrian precinct of Confluence in 2013). It includes 108470 m^2 of waterfronts and boulevards of the Saône river (89% of all pedestrian precinct in Confluence in 2013). New pedestrian precinct developed in revitalization project gives 34% of all pedestrian precinct (76% of new ones created after 2000) in the whole central space in Lyon, while waterfronts and riverside boulevards – 62% (91% of new ones created after 2000). Significant for new public space system in Confluence are new green areas with restored riverside vegetation typical for the peninsula. They cover total surface of 34344 m^2 and bring favorable conditions for leisure.

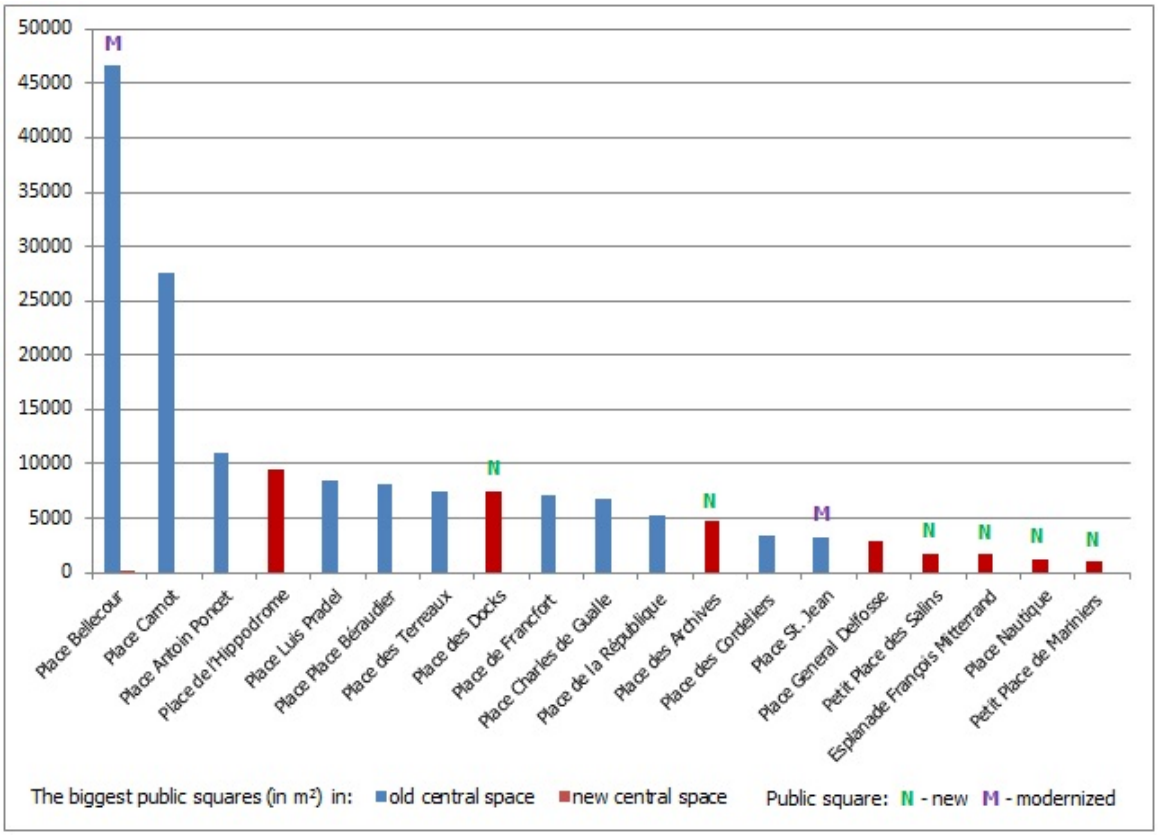

Fig. 2 The biggest public squares in central space of Lyon

In addition, new public space system formed in Confluence was complemented by pedestrian precinct in Cité Internationale, new central space developed in 1990's on the nothern edge of Lyon downtown, on the bank of the river Rhône. It covers 29200 m^2. This is to say new public space of new central space equals 170355 m^2. While new central space has being developed, investments in old central space have been concerned mainly on: modernization of Place de Jacobins and Place Bellecour (fig. 2) which is the biggest and principal public square in Lyon, as well as creating 187148 m^2 of new pedestrian precinct.

3.3 CASE OF ŁÓDŹ

Łódź is the youngest city through all of analyzed. Its origins deleve 14th century, but before 1820's it had developed as a small rural town. Łódź grown up rapidly in 19th century as a one of the crucial industrial city of Russian Empire and whole Central and Eastern Europe.

Because of its importance and some similarities of a great number of new inhabitants' increase it was called "Polish Manchester". However, this comparison was far exaggerated as it wasn't trade city as Manchester and in fact it was typical industrial city which urban structure was dominated by textile factories and other industrial and technical objects. Even along the main axis of Łódź urban development process and its principal street – Piotrkowska Street, some of industrial buildings have been located. Due to economic and political conditions of growth (firstly, radical restriction of urban space expansion imposed by Russian authorities, than 1st and 2nd World Wars, and lack of metropolitan investment during the period of socialist related to permanent industrialization and decapitalisation of the downtown) central space of Łódź in the beginning of 21st century was strictly limited to urban blocks along Piotrkowska Street.

The collapse of industrial activities in Łódź downtown was a consequence of political and economic transitions in Central and Eastern countries in late 1980's and early 1990's. Post-industrial urban areas was dispersed in whole downtown as a small complexes. They were leased for different services, mainly by wholesalers or stayed abandoned as urban fallows. Many of them were demolished. Some other, individual buildings were adapted for new functions. There were also some large-scale post-industrial complexes as situated in the Valley of river Łódka where Manufaktura shopping mall was created in the beginning of the 21st century and some other in the Valley of river Jasień in so called Manufactory permisses of Łódka that is still under re-development. Due to the lack of classical central space, the new one was developed in Manufaktura. Moreover, some new urban project of so called New City Centre of Łódź on post-industrial and post-rail areas is being developed nowadays as principal central area. It is expected to be finished in 2030. There are planned: four public squares (crucial are: Katarzyna Kobro Square and Władysław Strzmieński Square) of total space of 50397 m^2 (it will give 65% of all new public squares and 40% of all public squares in central space of Łódź in 2030) and public precinct of 55145 m^2 that integrate them with public squares in old central space (fig. 3) that will give 49% of all pedestrian area (excluding public squares) in central space in 2030. The biggest public square in current new central space of 21300 m^2 is located in post-industrial site of Manufaktura (fig. 3). Just one public square in current old central space of Łódź was modernized, but it wans't connected with any revitalization projects (fig. 3). Crucial feature of public space organization in central space of Łódź, even after revitalization projects is desintegration and malformation in comparison to the scale of the city in Polish settlement net. It is also weakly equiped with institutions typical for central area as theatres, cinemas, museums, art galleries, opera house, offices, retail, restaurants, night clubs and so others that are limited in a large extent to the Piotrkowska Street and Manufactura.

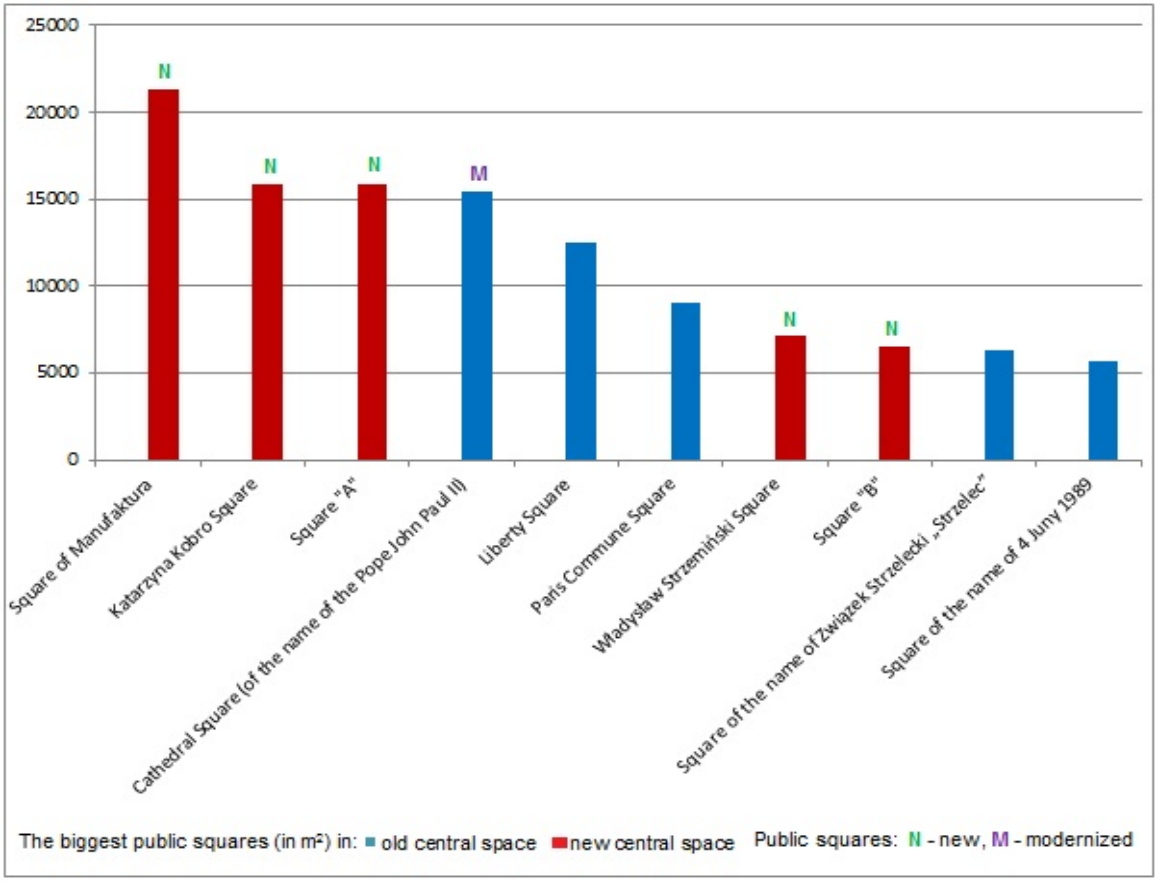

Fig. 3 The biggest public squares in central space of Łódź

3.4 COMPARISON OF PUBLIC SPACE ORGANIZATION OF ANALYZED POST-INDUSTRIAL CITIES

Case studies of Manchester, Lyon and Łódź showed that the impact of revitalization of post-industrial urban areas and new central space creation on public space organization can be distinct due to various objectives of the projects and historical central space development (its morhgenesis) as a cucial factor. Before re-development process of post-industrial sites had been initiated, the best developed central space (in fact the old one) was in Lyon, where was the biggest total surface of public squares (fig. 4). The difference between new and old central space is much more significant in this case than in Manchester and Łódź (fig. 4). Thus, it is possible to say that the impact of revitalization has the least impact on public space reorganization in the case of Lyon. Moreover, one can idicate that this influence is the most significant in Łódź, according to increase of the role of public space of new central space in whole central area (figg. 4, 5).

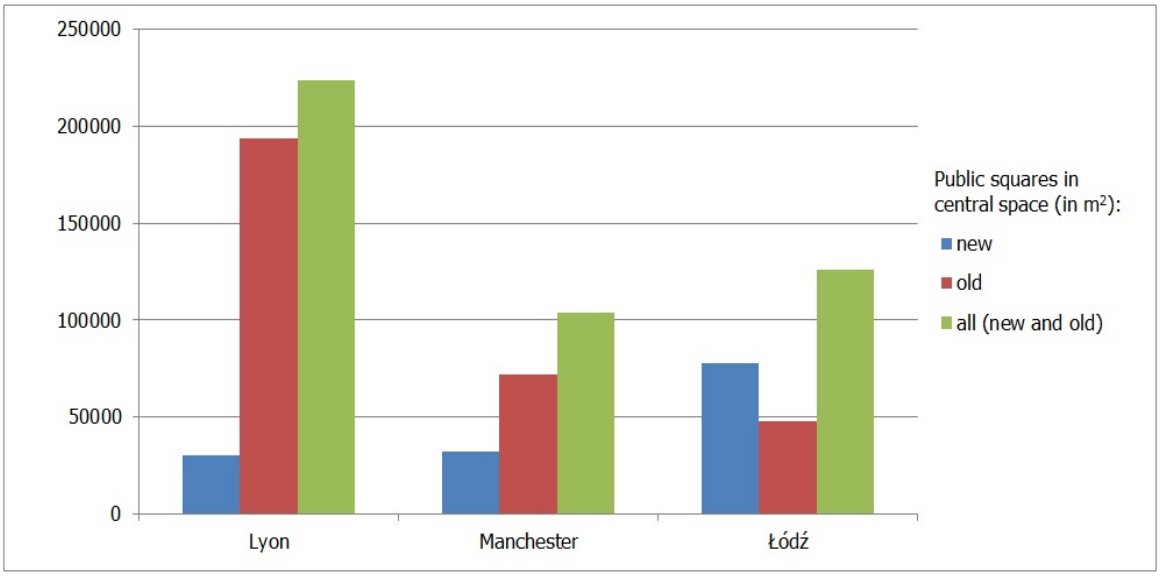

Fig. 4 Comparison of total surface of public squares in central space of Lyon, Manchester and Łódź

Regarding public space organization of central space and its different types, it is meaningful that the increase of total surface of new pedestrian precinct linking public squares is essential task for revitalization projects in all anazyed cities. The biggest surface of all pedestrian areas characterize Lyon, due to the most significant number of 72 public squares in central space (64 in old and 8 in new central space). The smallest surface of pedestrian precinct is identyfied in Łódź where only 11 public squares are situated in central space (6 of them are in new central space). In the case of Manchester the average surface of pedestrian area correspond to the number of 18 public squares in central space, included 7 of them in new central space. In the case of Manchester the average surface of pedestrian area correspond to the number of 18 public squares in central space, included 7 of them in new central space. According to the research the most fundamental increase of total surface of pedestrian areas is connected with waterfronts and riverside boulevards. As a result of their significant growth in new central space in Lyon and Manchester they become a key element of public space syetem. Only in Łódź, where there is no huge river in the central area, this type of pedestrian areas have not been created (figg. 6, 7, 8).

4 CONCLUSION

The results of the research showed revitalization of post-industrial urban areas is essential in current European cities' morphological transmutation, despite its various origins and mode of spatial and functional development.

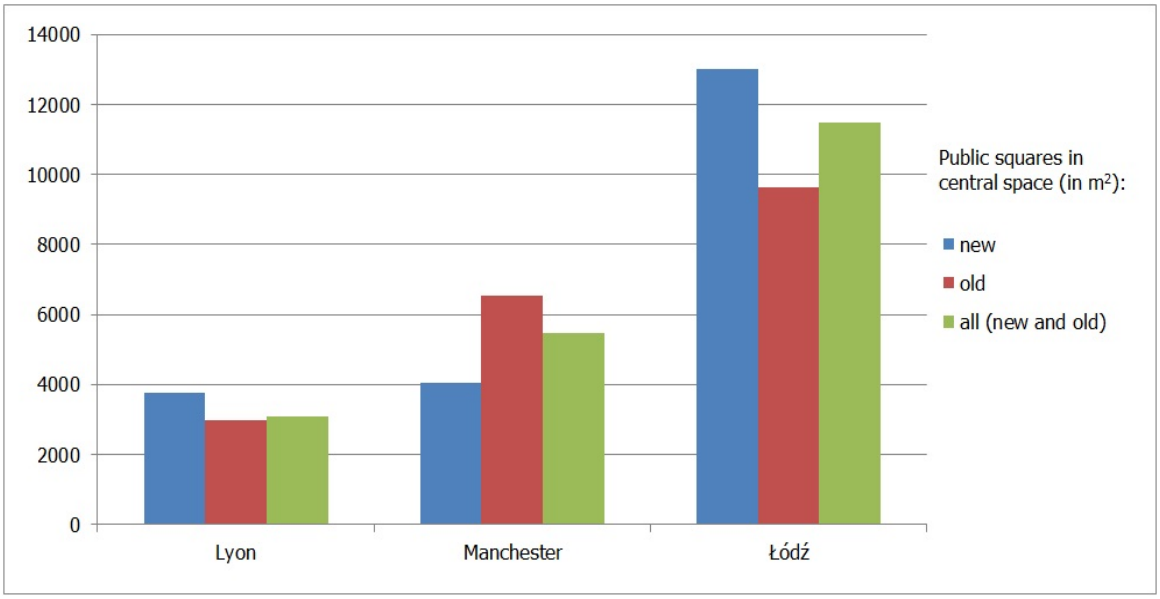

Fig. 5 Comparison of average surface of public squares in central space of Lyon, Manchester and Łódź

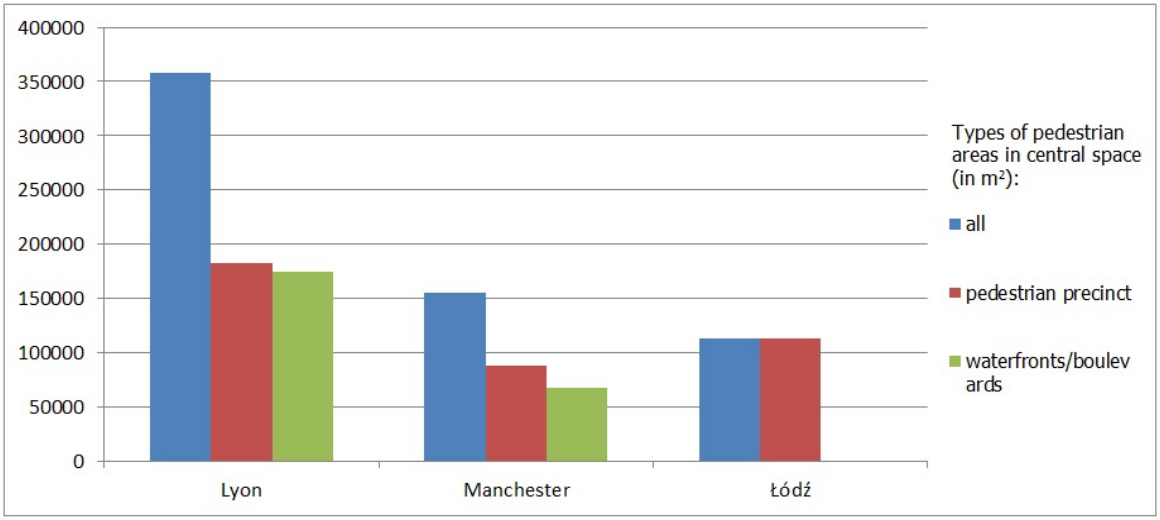

Fig. 6 Comparison of various types of pedestrian areas (excluding public squares) in central space of Lyon, Manchester and Łódź

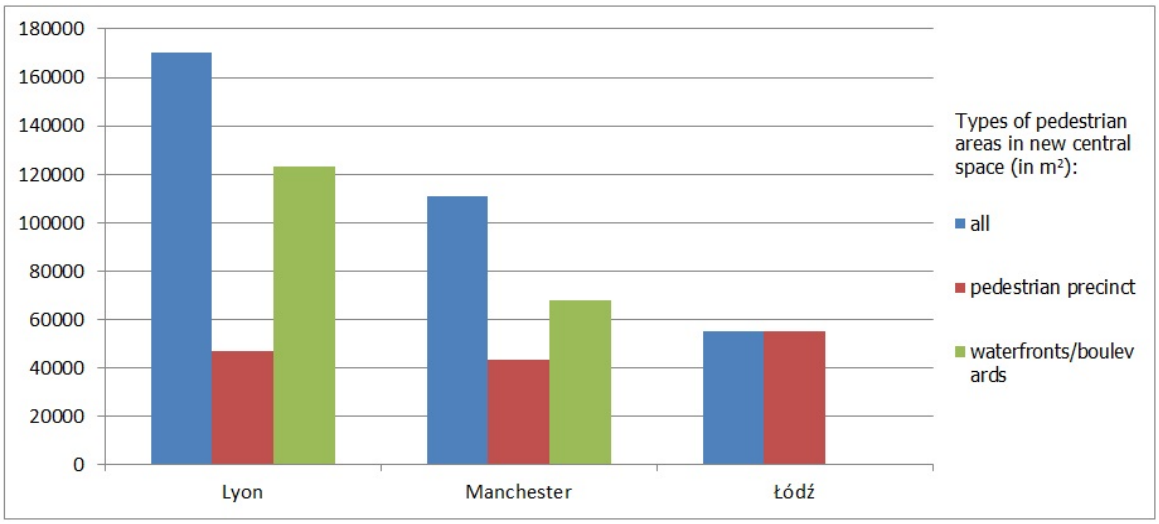

Fig. 7 Comparison of various types of pedestrian areas (excluding public squares) in new central space of Lyon, Manchester and Łódź

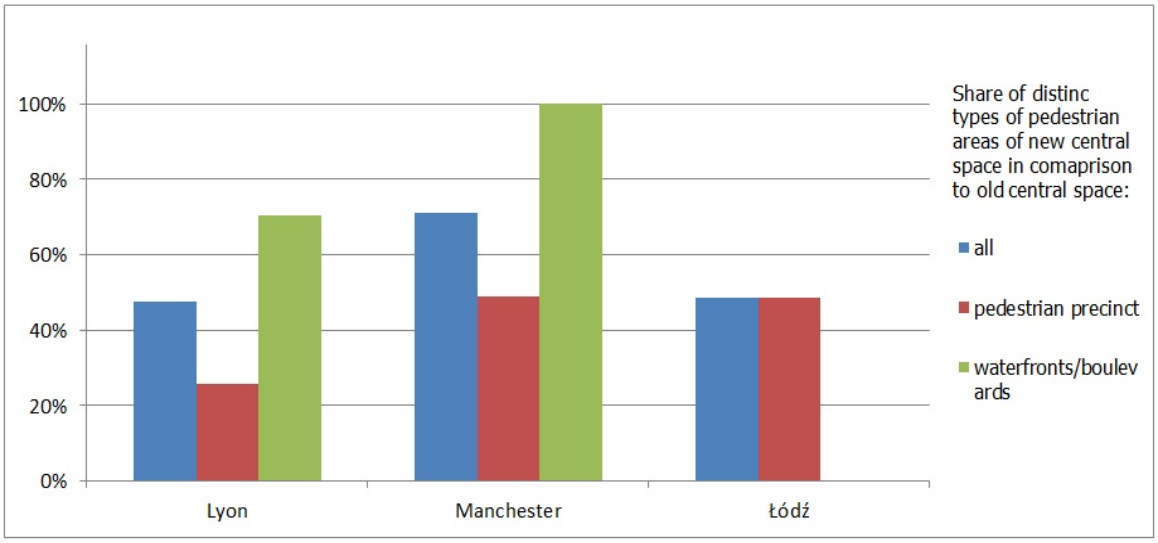

Fig. 8 Comparison of share of distinct types of pedestrian areas (excluding public squares) in central space of Lyon, Manchester and Łódź

However, it is also possible to indicate distinct impact of public space reorganization of central space. This is to say, that one can distinguish sustainable and unsustainable changes in public space system, mainly due to different morphogenesis of central space and various levels of public space development. Crucial in this context was also second half of 20th century when Western European and Central-Eastern European cities has developed in different economic and political conditions, that have considerable influence of its central space modification.

According to the research, Lyon and Manchester represent sustainable type of public space reorganization as a result of revitalization of post-industrial urban areas and new central space development, while in Łódź unsustainable changes were identified. New public space in Manchester and Lyon have supplemented old public space and initiated its modernization process. The structure of public squares and pedestrian precinct in both of Western European cities had been well-developed before revitalization of post-industrial urban areas where new elements of public space system have been created as a significant part of spatio-functional changes. In the case of Łódź, new public squares are planned as principal elements of public space structure. In consequence it can disturb historically shaped hierarchy of central space where Piotrkowska Street with public squares along it is essential. New central space enclaves as Manufaktura and especially New City Centre of Łódź are gaining the highest rank in the area of future Łódź's downtown. These transitions of current central space can contribute to far reaching marginalization and potential degradation of Piotrkowska Street as an old central space weakly integrated with new central space by pedestrian precinct. However, the results of revitalization projects undertaken in all of analyzed cities have some common features connecting with implementing the idea of "smart living" as essential part of smart city concept. First of all, this process is combined with sustainable growth by purifying polluted brownfields in the downtown area, restricting urban sprawl as well as protecting green belts inside and outside urban structure. Furthermore, reorganization of public space as a part of comprehensive downtown revitalization including post-industrial sites, comprises also development of environmentally friendly means of public transportations as tramways (Lyon and Manchester) or touristic lines of water trams (Lyon). Significant are also new cycle paths growth (Lyon and Łódź). Secondly, the increase of total surface of pedestrian areas encourages inhabitants and other urban space users to spend more time in city centre, especially in modernized public squares and new ones created on post-industrial sites. They are usually equipped with modern urban furniture and green areas enabling resting in central area. In fact, developing of coherent

structure of pedestrian precinct with rising numbers of small restaurants, galleries and shops along the streets give a possibility for limit car use during the day path of inhabitant's life. Finally, as a result of revitalization of post-industrial sites new housing areas are developed that entices new people to reside in the city centre. Well-developed structure of public space raises the standard of living in downtowns, especially in post-industrial cities. Important elements of attractive public space creation in all of analyzed cities are river banks (Lyon and Manchester), waterfronts (Manchester) and fountains (Lyon, Manchester and Łódź). To conclude, enlargement of public space in central space as a part of brownfields revitalization projects can be considered as essential task in creating "smart live" in post-industrial smart city.

NOTES

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IMAGES SOURCES

Figg. 1, 2, 3, 4, 5, 6, 7, 8: Author, based on *in situ* research.

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