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WHY IS THE CITY MAPS' CONTENT OF EASTERN AND CENTRAL EUROPEAN COUNTRIES SO EXTENSIVE?

Abstract: Significant changes in the wealth, variety and level of graphic form of city maps are noticeable in recent years, particularly those from Central and Eastern European countries. This is a consequence of the political and economic transformation, resulting in the abolition of censorship and introduction of the free market. City maps published in Western Europe have evolved as well during the aforementioned period due to higher political and economic stability. The paper compares city maps content of 18 European countries and shows the influence of Soviet cartographic style on city maps image in post-communist countries.

Key words: urban cartography, city maps' content, political factors.

INTRODUCTION

Modern cartography is dominated by problems related to the use of computer technology. At the same time it becomes more common, that this technology is only the efficient tool and while extending possibilities of cartography it did not change the essence of maps and their basic functions. Such approach can be related to treating map as a social product, which serves society for referencing to the world (Casti, 2005) and creates specific knowledge about surroundings and global space. W. Żyszkowska (2005) mentions that "maps should be treated not only as the effect and tool for studying reality, but also as an artefact, i.e. product of human mind, which reflects present social and historical situation".

Social, political and economic determinants of cartography are reflected clearly in concept and content of city maps. These maps are typical example of rapid dissemination and hence increase in significance of cartographic presentations.

Increase in importance of city maps results first of all from rapid development of mass as well as individual tourism in last decades, including

international tourism, covering mostly cities, especially large and historical ones. Secondly, globalization process causes people migrations also for non-tourist purposes (business, work, education, science). Thirdly, development of computer technology as well as internet tools significantly reduced costs, highly facilitated preparation and production of city maps, while at the same time various forms of their use are implemented (analogue maps, internet, mobile cartography). Finally, sudden development of urbanization process, resulting in extension of urban areas, contributed to increased demand for city maps.

As a consequence of all these changes, city maps became presumably the most frequently used cartographic products, used not only by city visitors, but also by citizens, particularly in larger cities.

DEVELOPMENT OF THE CITY MAPS CONTENT IN CENTRAL AND EASTERN EUROPE

Aforementioned civilization changes caused above all increase in social demand for city maps, as well as increase in their diversity. They also contributed, to some extent, to extension of their content, mostly by adding tourist, recreation and service features. These changes were most intensive in the second half of the 20th century. First four decades of that period brought an important political determinants influencing large-scale cartography of Central and Eastern Europe.

City maps may be considered as a kind of re-interpretation of topographic maps, supplemented with thematic content, mainly tourist one. It should be emphasized, that contrary to majority of thematic maps, topographic content on city maps does not form background information, but rather co-creates main content of city map itself. Restrictions in access to topographic maps and limitations on their usage in other publications after the Second World War in Central and Eastern European countries had an important impact on presentation of the cities in this region (Ciołkosz-Styk, 2009). Topographic maps, and so the topographic content, were classified (available, with some limitations, only for official use). In order to show on city maps indispensable elements of topographic content, it was necessary to distort, simplify and present them partially. Thematic content was presented mainly with the use of point symbols, as this way of presentation was censored to less extent (Konopska, 2007). This explains why point symbols replaced topographic outlines of objects.

Turning point in cartographic presentation of Central and Eastern Europe cities occurred in the end of 1980s. and beginning of the 1990s., after liberalization of censor instructions. This may be considered as a cartographic breakthrough in the representation of cities in the region. Topographic information started to be presented; it was no more distorted, simplified or limited (even military features could finally appeared on the maps). City maps were prepared on the basis of large-scale topographic maps. Scale

information and kilometer grid, along with higher number of features, especially previously prohibited ones (like industrial buildings, hospitals, police stations, railway side-tracks, airports) appeared. The most important innovation introduced in this period, however, was detailed presentation of built-up areas, including their functional characteristics.

Content of city maps in Central and Eastern Europe was also extended due to development of free-market economy. It resulted in establishment of numerous cartographic companies taking up elaboration of city maps among other publications. In first years after political transformation competition between these companies frequently forced authors of city maps to put extensively detailed information in order to gain larger group of users.

Quickened changes of landscape and functional structure of cities were the third factor (besides censorship abolishment and introduction of free-market economy), which contributed to expansion of city maps content in countries of Central and Eastern Europe. Large number of new objects, such as hypermarkets, currency exchange bureaus, cash machines, internet cafes, was introduced. Simultaneously, due to rapid development of services, many objects within some categories significantly increased (banks, hotels, catering facilities). Increased number of motorized users caused demand for information about parking and pedestrian zones, one-way streets, petrol stations, parking lots and car services.

The last factor mentioned above (development of services and motorization) had also an influence on extension of city maps content in Western Europe. Changes occurring in this period started in these countries much earlier and proceeded slower, which resulted from their higher political and economic stability. This stability also influenced development of urban cartography and use of conventional, already verified solutions.

ANALYSIS OF CONTENT OF THE EUROPEAN CITY MAPS

Circumstances, which shaped diverse development of urban cartography in Western, Central and Eastern Europe, induced authors to make comparative studies of city maps content in both parts of Europe. Preliminary analyses revealed great differentiation of European city maps, considering the applied scales, scope and level of detail of the presented content, as well as graphical and thematic level.

After preliminary review of several hundreds of city maps originating from 30 European countries, 50 maps from 18 countries (9 countries from Western Europe and 9 from Central and Eastern Europe) were selected for further analysis. In order to ensure higher comparability, maps of capitals of countries were mostly selected. In some cases maps of other large cities were chosen (Rotterdam, Munich) (Fig. 1). For each city two or three maps, issued by various leading publishing companies (representing countries, where cities were located) were studied. Taking into account dynamics of cartographic market only recent city maps, issued after 2005, were analyzed.



Fig. 1. Cities of Eastern and Western Europe, which maps were taken into further analysis

It is worth to mention that city maps' content analysis were performed by taking into consideration not only the map legend, but the whole map canvas. Analysis of the map legends itself would lead to incorrect conclusions as, very commonly, they do not explain full range of content. While classifying content's elements it was necessary to take into consideration that semantic scope of definitions of some elements on particular maps was sometimes different. Consequently the same objects had sometimes various definitions. Hence it was indispensable to prepare author's classification, which took into account actual meaning of the presented objects. Finally 344 types of objects were discriminated on the analyzed maps.

Considering these conditions number of types of objects presented on each analyzed map was determined and next mean number of content's categories

was calculated. This number can be treated as an index, which determines range of content of city maps. It was taken as representative for maps of the selected European countries.

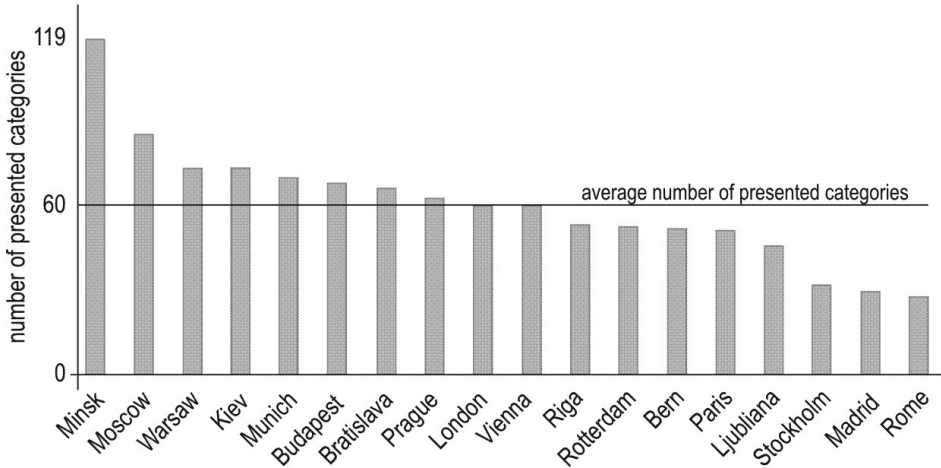


Fig. 2. Average number of features presented on the city maps

Table 1. Subcategories and categories of European city maps content

Subcategories	Categories
Road network	Road network and infrastructure
Road infrastructure	
Services for motorized users	
Public transport	Public transport
Buildings and built-up areas	Built-up areas, land use and landmark objects
Land use/Land cover	
Topographical & orientation features	
Sport and recreation facilities	Sport and recreation facilities
Religious facilities	Services
Cultural features	
Catering facilities	
Tourist accommodation	
Health service	
Education	
Other services	
Trade facilities	
Civil services	Civil service and administrative division
Administrative division	

Range of content presented on maps of European cities is very diversified (see Fig. 2). The number of selected features fluctuates from 119 on map of Minsk to only 14 on map of Rome. There is clear tendency, that city maps

of Central and Eastern Europe are characterized by higher number of features than mean value (60) (on the average 72 features), while cities in Western Europe are below mean value (on the average 42 features). The wealthiest content was found on maps of Minsk, Moscow and Kiev, representing former Soviet Union. 344 discriminated types of features were next divided into 18 groups, which were in turn joined into six main categories (table 1). Division into these categories was a basis for comparison of diversification of content of European city maps through analysis of this content on the selected 50 maps.

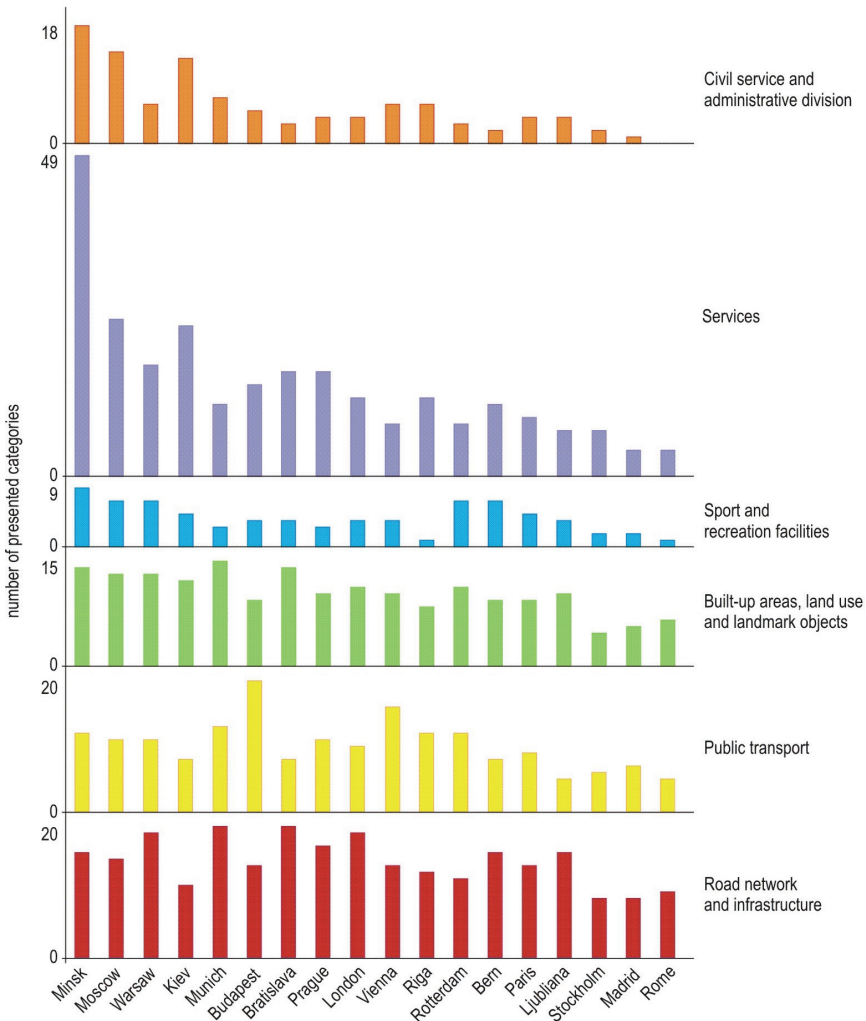


Fig.3. Average number of features in the selected categories presented on the city maps

Comparison of content of the analyzed maps according to six distinguished classes enabled to determine, which categories mainly decide on wealthier content of maps in Central and Eastern Europe. Conducted analysis clearly show that these city maps dominate in all categories (Table 2). The difference is relatively small in presentation of road infrastructure and public transportation (ca. 14 –15 %). It results from the fact, that these elements create a base information of the city map, which is next supplemented by the remaining content. Objects distinguished within these two categories are indispensable for fulfilling the basic function of a map, i.e. orientation. The advantage of maps in Central and Eastern Europe comes above all from presentation of specific features such as petrol stations, car services and diagnostic stations, which are usually omitted on Western maps.

Table 2. Comparison of number of features selected on Western and Eastern city maps

Categories	Number of features presented on Western city maps	Number of features presented on Eastern city maps	Total	% of features presented on Eastern city maps comparing to their Western equivalents
Road network and infrastructure	122	141	263	115%
Public transport	85	98	183	114%
Built up areas, land use and landmark objects	88	112	200	127%
Sport and recreation facilities	34	43	77	128%
Services	73	178	251	243%
Civil service and administrative division	28	73	101	264%
	644	430		150%

Maps in Central and Eastern Europe have greater advantage while presenting land use, sport and recreation features. Admittedly, land use category contains also built-up areas, but due to its great importance to the urban areas as well as unique status in the cartographic presentation, it was treated as a separated category. There are distinct differences in presentation of built-up areas on European city maps – one can meet various degrees of their generalization, next their differentiation and finally various forms of graphic presentation. According to degree of generalization city maps can be divided into 3 basic groups. First one contains city maps, which comprise all individual buildings (Russian and Belarusian maps). The second group includes city maps, in which individual buildings within high-density

zones are joined into built-up areas (Polish and Czech maps). The last group comprises city maps, which are characterized by the highest degree of generalization, all built-up areas are shown by the surface symbol. This kind of presentation is characteristic for majority of countries in Western Europe.

City maps of Central and Eastern Europe, comparing to their Western equivalents, are wealthier, especially if information on services, offices and administrative division is being concerned. Number of the presented categories on these maps is 2.5 times higher than on Western maps. The latter ones include mainly museums, hotels, hospitals, universities, churches, post offices and police stations. City maps of Central and Eastern Europe comprise also location of administrative organs, tax offices, diplomatic services, hypermarkets and other commercial features, pharmacies, libraries, monuments and on some maps (Belarusian, Ukrainian and Czech) also catering facilities.

It can be concluded, that city maps in Western Europe are differentiated, considering their range of content, way of presentation and graphical form. Their content, however, is usually depleted comparing to countries of Central and Eastern Europe. German maps are characterized by a relatively wide range of content; they are somewhat similar to Central European maps. Two factors could have impact on this similarity: relations between cartography of German-speaking countries and cartography in countries of Central and Eastern Europe have long tradition; moreover modern German cartography accepted some achievements of former German Democratic Republic.

Content of Western city maps is not that extended mainly due to their usage as tourist information, while maps of Central and Eastern Europe are more universal – they can serve tourists, drivers in transit, as well as citizens (Martyński, Ostrowski, 2002).

CONCLUSIONS

Variety of presentations of service and administration features on maps of Central and Eastern Europe is a consequence of forty year's restrictions in their presentation. These features were mainly shown with the use of point symbols, which replaced their topographic presentation. Moreover, addition of new content's categories was natural psychological consequence to former restrictions. This statement can be supported by the fact, that countries of former Soviet Union (where censorship was very strict) have the wealthiest city maps content.

As it results from the analysis, consequences of the recent political changes have the greatest impact on differentiation of content of European city maps. "Maps have always been about knowledge and power – selecting what to show and how to show it is crucial (Dorling, Fairbairn, 1997)". Hence communistic regime directly intervened in range of content of all detailed maps, including city maps. Moreover it should be mentioned, that historical

conditions shaped to a great extent cartographic traditions of publishing companies.

Conducted analysis allow to state that maps authors do not take into account specific features of the presented cities while planning map's content. Also correlation between city size or its' tourist attractiveness and range of content cannot be observed. Map of metropolis like London has modest content comparing to smaller Minsk, and maps of Rome, which is considered as very attractive from tourist point of view, are characterized by a relatively poor content.

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