

## **The Creation of Urban and Spatial Layouts of Former Border Railway Urbanized Centers in Poland**

In the pre-rail period, the focal point of spatial and functional development of border towns were cross-border trade routes. The emergence and development of railway lines and the introduction of international railway connections resulted in a notable increase in significance of such towns in the region and even in the entire country. The cumulation of road and rail traffic translated into the growth of city-forming potential in such towns. The uniqueness of railway border towns was due to their rarity: at the time, only few European railway routes were cross-border connections. In a sense, the situation repeated in the interwar period, but much fewer urbanized centers of this type were established, given the previous pre-WWI expansion.

The thesis presents research covering former border railway towns and villages situated along the pre-WWI and interwar (only a single town) state borders and which are now located on the Polish territory. The criterion for selecting towns for detailed research was the simultaneous creation of the state border and the railway route which both influenced the development of towns' spatial arrangement. Consequently, 26 former border railway towns and villages were shortlisted for detailed research. In addition, the study took into account 27 former border railway towns of Lithuania, Ukraine, the Czech Republic, Romania, Serbia, and Italy, for a broader take on the shaping of spatial layout in border railway urbanized centers.

In this study, the impact of the state border and the emergence of a railway route were assumed as key phenomena for the formation of new urban space and communities. The synergy between these two spatial factors contributed to the creation of an entirely new type of urbanized centers, not yet functioning in the settlement network at the time, i.e. railway gateway cities. These towns and settlement units centralized most of the movement of both goods and people, which required an appropriate functional, technical, and social infrastructure. Accordingly, the subject of the present study are the spatial and urban systems of towns established as a result of the simultaneous influence of the state border and rail transport. In the process of explaining spatial changes in the thesis, various references were made to drivers such as city-forming drivers, including the role of industry, migratory flows, cultural diversity, and local topographic conditions. Moreover, in the final stage of explaining the spatial changes in districts adjacent to railway stations, the issue of contemporary usage of former border railway stations and the urban areas associated with them is discussed. Therefore, the time scope of empirical research in the thesis covers two periods: historical (years 1842-1939) and contemporary (until 2019).

The aim of the study is to determine the trajectory of changes in the spatial structure of former border towns for which the construction of a railway station has become an equally important city-forming factor. It was also important to determine the change in significance of the surveyed towns among other communities of the border region, against the development of railway lines. In addition, the following specific objectives were formulated:

- The cognitive aim of the study is to determine the functional and spatial structure and the dynamics of its changes in relation to border centers of rail transport in Poland in the years 1842-1939, as well as an attempt at formulating a typology of the studied systems in terms of their individual spatial characteristics;
- The methodological aim of the study is to use archival cartographic (written and iconographic) materials to demonstrate the development of functional and spatial structure of former border railway towns and the changes in their spatial and urban systems;
- The practical purpose is to apply the results in various types of planning studies and revitalization programs aimed at preserving the heritage of areas adjacent to railway stations;
- The complementary objective is an attempt at defining the course of action of local governments and railway property managers towards former border railway stations and surrounding areas.

Moreover, the present study attempts to answer the following research questions:

- Do these two attributes (near-border location and an important cross-border railway line present) create synergy in the development of urbanized spatial and functional systems? Does this synergy have the ability to gain advantage over other settlements in the local network?

If so, then:

- If, due to border changes, the factor of near-border location ceases to exist, does the systematic capacity of the urbanized space (created as a result of the system's conditions) to function still exist? Or are such post-border settlements on their way to deurbanization?

The specificity resulting from the influence of the state border on spatial and urban systems, overlapping with the influence of the railway line, was also included in the three research hypotheses:

- 1) The spatial and urban layout shaped as a result of the influence of the railway station depends on the urbanized center's genesis and the barriers limiting its spatial development. In this case, the barriers are: state border, physical-geographical and infrastructural borders (railway

line with its facilities), on which the specificity of the spatial structure of a given town will also depend;

- 2) The political border may indirectly affect the spatial structure of the urbanized centers through the formation of functions related to managing the border, and directly when it constitutes a morphological barrier, often overlapping with a physical-geographical barrier;
- 3) When the extensive railway and border infrastructure is no longer a city-forming driver, it becomes a challenge for decision-makers in the process of its revitalization. Moreover, the legacy of former border functions and the pejoratively perceived “great powerness” associated with state borders are often emotion-charged for the local community.

The thesis consists of four chapters containing empirical and theoretical examination concerning the shaping of spatial and urban systems of railway gateway cities. The first part of the dissertation presents the conceptualisation of research on the formation of spatial systems of border urbanized centers. The following concepts were evoked, among others: central place, core-periphery, growth pole, gateway cities, centripetal forces activity and centrifugal forces activity, break in transport. In addition, a reference was made to the models explaining intra-urban changes: urban spatial structure, garden city, burgage cycle, and cycle of land development transformations. The models explaining the shaping of districts adjacent to railway stations today, such as "node" and "place" or Transit-Oriented Development, were also discussed. The second part of the first chapter reviews the literature on the development of spatial and urban systems for railway gateway cities, for both those currently located on the Polish territory and in other European countries. In addition, the resources used in the thesis were discussed, including both cartographic and written materials, such as: diaries and memoirs, guides, address books, technical magazines, press articles, reports, statistical yearbooks, or chronicles.

The second chapter is of an overview and theoretical nature. Its substantive background are the issues concerning the conditions and stages of development of Poland's borders and the railway network in their area (within the contemporary administrative borders as a reference point). The strategic factors that played a significant role in the development of railway lines and the creation of railway border crossings in the 19<sup>th</sup> century and in the beginning of the 20<sup>th</sup> century were also indicated. The second part of the chapter presents the theoretical approach to the influence of the state border on the development of the border zone and the structure of gateway cities. Emphasis was placed on the changes in the functions of the state border and the effects of changes in its penetrability as a spatial barrier. The influence of the border and railway

infrastructure on the formation of functional and spatial structure of the urbanized centers was also indicated.

The third chapter includes detailed historical research on the formation of spatial and urban systems of railway gateway cities. The change in significance of the studied urbanized centers in the border region due to the construction of the border railway station was analyzed. The analytical process was based on the *gateway cities theory* and the *break in transporting* concept, which made it possible to explain the city-forming processes resulting from the influence of the state border and the railway line. The research work included the analysis of written, iconographic, and cartographic archival materials, on the basis of which the reconstruction of the structure of economic activity and the spatial and urban assessment of urbanized centers was made. In addition, the role of social drivers in the development of gate urbanized centers was inspected. Furthermore, the historical analysis in Chapter 3 made it possible to indicate the specificity of the development of this type of settlements against the background of the region. This chapter also identified and analyzed the railway gateway cities established on the border of three European empires and located outside the territory of modern Poland, i.e. in Lithuania, Ukraine, the Czech Republic, Romania, Serbia, and Italy. The thoroughness of the analysis was owing to the availability of archival materials and other publications. The last part of the chapter attempted to establish a model explanation of the changes and processes taking place in the spatial structure of gateway cities. Some models explaining the genesis of such urbanized centers and the trajectory of spatial development were formulated, as they present the issues of economic and social spatial differentiation of structures of towns and villages.

The last chapter covers the contemporary transformations of districts adjacent to the railway station in former border urbanized centers. The problems of current management of near-railway station areas were pointed out. The research was based on the analysis of planning documentation and the assessment of technical condition of post-railway facilities, as well as the specificity and prospects for spatial development of the areas surrounding the former border railway station. The second part of the last chapter contains the paths local governments should follow to preserve the heritage of former border stations. In the explanation process, the author referred to L. Bertolini's theory of "node" and "place" and urban and functional development according to the concept of Transit-Oriented Development by P. Calthorpe.

The research problem of the thesis concerning the shaping of spatial and urban layouts of former border and railway urbanized centers in Poland is of an interdisciplinary nature, referring to geographical, urban, and historical research. Thus, the dissertation can constitute a

significant contribution to the development of the state of knowledge in the field of city-forming functions, spatial development, and the evolutionary approach in the interpretation of spatial changes