

FACULTY OF ARCHITECTURE, WARSAW UNIVERSITY OF TECHNOLOGY

ABSTRACT

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Title: "Digital methods of supporting the analysis of the spatial structure of cities. Case Study of Warsaw"

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The dissertation "Digital methods of supporting the analysis of the spatial structure of the city on the example of Warsaw" responds to the growing need to use modern computer tools in the work of urban planners and planners. Appropriately designed tools using digital methods, e.g. spatial information systems, can significantly support the performance of urban analyses, including the study of the spatial structure of cities.

In the theoretical and analytical part of the work, the most important issues regarding defining the spatial structure of cities were discussed. Selected methods of describing it were discussed in detail, along with examples of the use of the selected Rural-to-urban Transect method in the world and in Poland. The digital methods that are used by urban planners in their work were also presented, and those that formed the basis for the experimental part were selected. The theoretical and analytical part also includes chapters devoted to selected, exemplary applications of digital tools in the study and planning of cities. They were discussed on the example of the author's own research and implementation works, which became a contribution to the proper research on the description of the spatial structure of cities with the use of GIS systems. The knowledge and experience from these studies were used in the experimental part of the created tool.

The experimental part of the work begins with the selection of the spatial scope of research, in within which spatial and planning conditions were examined. Quite a lot of emphasis was placed on presenting the historical urban conditions of the development of the analyzed part of Warsaw. The construction of the tool and its parts are described in detail. Each of the modules introduced to the tool has been properly illustrated and described, which undoubtedly constitutes a knowledge base for building other tools of this type in the future. The results of the tool's operation have been visualized in the attached graphic studies and the interactive result map available at www.warsawobservatory.eu. The experimental part of the work ends with a list of cards describing each development zone indicated in the urban profile.

The dissertation is concluded with a summary and conclusions describing the benefits of supporting the performance of urban analyzes using digital methods, especially geographic information systems. This section also describes the identified development opportunities for the developed tool.

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