

ABSTRACT OF PH.D. THESIS – RNDR. JAROSLAV BURIAN

Abstract in English

“Implementation of geospatial technologies into modeling of urbanization processes in strategic planning of city development”

PhD thesis represents original author’s approach to the modeling of urban processes by using GIS in Olomouc region. In theoretical part, urban processes and spatial structures of the cities are described in connection with geospatial technologies and digital data for studying, analysis, modeling and simulation. Practical part is divided into for separated parts to fluently binding and creating homogenous thematic block.

The first part of the thesis analyses development of Olomouc city by using functional areas derived from historical urban plans (since 1930). The development of urban processes, spatial structures of the city and impacts of urbanization and suburbanization are evaluated.

Second chapter describes identification, analysis and quantification of suburbanization in Olomouc suburban space. The main result is Toolbox “Suburban Analyst” in ArcGIS software that use multi-criteria evaluation method and allows identifying and quantifying suburbanization in municipalities’ level.

Third part analyses the readiness of municipalities and cadastral areas for suburbanization. The final values of readiness represent the intensity of readiness of cadastral areas and municipalities for future development.

The final part describes created extension “Urban Planner” including its testing. Urban planner was used for creation landscape potential for the future development, optimal functional land use and scenarios of three possible future developments (scenario compromise, human and nature).

During the creation of PhD thesis the author cooperated with experts from the municipality of Olomouc (Department of Urban Planning) and Regional Authority of the Olomouc region (Department of strategic development). The part of created results was used by those organizations for creation of planning analytical materials.

Keywords: urban processes, suburbanization, GIS, analysis, modeling, Olomouc