

# Integration of port and urban functions in port-city of Koper – research based on spatial analysis techniques and GIS tools

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**Abstract**— Ports and cities interact across many dimensions. In science there still exists a deficiency of more detailed insight, how port-cities do integrate port and urban functions. To contribute to this question we employed spatial analysis and sophisticated GIS tools and studied the integration of port and urban functions in the port-city of Koper in Slovenia. Starting with definition of urban and port functions in Koper, we proceeded with certain exploratory techniques to evaluate central features, to measure orientation, to map density, and to calculate spatial autocorrelation for both types of functions. Special emphasis was given on the geovisualization of the results. They show that urban and port functions in Koper are clustered, with highest density of urban functions on the area of old town, and highest density of port functions in newer area of central activities east of the old town. Both urban and port functions have east-northeast to west-southwest orientation. Comparison of spatial characteristics of port Koper function between years 2014 and 2015 shows only some barely visible differences, which is due to very short comparative period. From spatially point of view the integration of urban and port functions in port-city of Koper is reflected through specific land use, namely through concentration and orientation of urban and port functions and intertwining between both. The study can be useful in planning of port evolution and urban redevelopment.

**Key words**— port functions, urban functions, port-city of Koper, geographic information systems, spatial analysis.

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