

## The graphical attractiveness and perceived effectiveness of cartographic presentations of spatio-temporal accessibility

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Apart from the objective criteria, such like the correctness and the time of acquiring information from the map (Mersey 1990, Leonowicz 2006), the cartographic presentation may be consider from the point of view of its effectiveness observed through the eyes of the viewer (perceived effectiveness) and graphical attractiveness. These two subjective criteria have become the subject of research into methods of cartographic visualisation (Slocum et al. 2009) of the spatio-temporal accessibility.

A comparison was made of 6 mapping techniques based on a monocentric road network model. The analysed methods included two-dimensional and three-dimensional visualisations in three colour scale variants. All of the graphical solutions were based on elements of reference: points, lines, or surfaces. Perceived effectiveness was researched on the basis of visualisations of spatial accessibility measured along roads (road accessibility in kilometres), while graphical attractiveness - on the basis of visualisations of temporal accessibility counted in minutes. Test tasks covered by the internet survey consisted in a comparison of 6 mapping techniques and an indication of the best and worst visualisation.

The number of positive and negative votes of respondents to the internet survey was used to calculate measures of perceived effectiveness and graphical attractiveness for each mapping technique. The impact of various colour scales on indications given by survey participants was also analysed.

The results of research, that is a breakdown of responses given by 180 persons, confirmed that the graphical attractiveness of cartographic visualisations of spatial accessibility on the monocentric model depends on the graphical variables used, but this does not translate into perceived effec-

tiveness. First and foremost, the most interesting conclusions include the following:

- users of statistical maps perceive three-dimensional methods as less effective than their two-dimensional equivalents;
- the stepped statistical surface method is considered as one of the most attractive graphically and the least effective in the conveyance of information;
- according to users, the scale of spectral colours is superior to the hypsometric and bipolar scales.

## References

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