GeoContacto: A FOSS based large-scale geomarketing application

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RESUMEN

Geodemographics have, for decades, been identified as critical for an effective targeting of public policies and for efficient geographical social classification by private sectors, such as insurance and banking. On the other hand, open-data policies cause a greater level of accessibility to spatial micro-datasets.

The focus of the present paper is to present the development process of the application "GeoContacto", built for the Portuguese postal services (CTT). It integrates large-scale demographic data with postal code geometries through the use of dasymetric mapping algorithms built using PostgreSQL. In terms of geomarketing studies, all statistical tools were developed with R. The interface with the Database Management System (DBMS) is based on the recently developed R Shiny library (http://www.rstudio.com/shiny/). It allows the creation and deployment of interactive web-applications with the full potential of R.

The study-area is Portugal's territories, including the Azores and Madeira archipelagos. The datasets include: approximately 175 thousand postal codes' geometries; demographic and geometric information from the National Census 2011 (approximately 266 thousand tracts).

The first task of the study is the creation of a geographical coherent database. The objective was to allocate demographic data according to Postal codes geometry. Dasymetric algorithms developed with PostGIS were used. The second task involved the development of the GeoContacto Web-application. The final interface includes a user-friendly environment allowing dynamic studies to be performed on-the-fly.