

# Development and Analysis of Time-Series Geodata of Shops and Offices Using Digital Telephone directory

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**Abstract:** Buildings shaping the city change location and form, and thereby change state of city over time. Function of a building depends on shops and offices in the building. Figuring out change of shops and offices with time-series geodata leads to analyzing the past and evaluating the current, predicting the future. In a way, the state of city changes in response to people activity pattern changes. Change of the city reflects change of people activity. From these, it is very important to reveal change of buildings, shops and offices in a city.

In this research, we use a digital telephone directory that can extract information of shops and offices, and covers all of japan every year. Using this data, we develop and analyze time-series geodata of shops and offices. Digital telephone directory includes information of zip code and address, code of a business category, latitude and longitude. As development of time-series geodata, we extract their continuation and change, emergence, demolition by connecting different point of time and judging identity based on geodata of each shops and offices. As analysis, from the developed data, it is possible to foresee state of people activity and changes or relations of each business, future state of the city.

However, currently, the data of change of building in the city is available only for a limited area, and not enough for the analysis.

This research will provide a data of changes and analysis results that could covers wide range using enough digital telephone directory data.

Keyword: time-series geodata, digital telephone directory, city, shops, offices