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Development of A Citizen-oriented Web-based Regional Planning Support Tool

A Case Stuy in Susono City, Shizuoka

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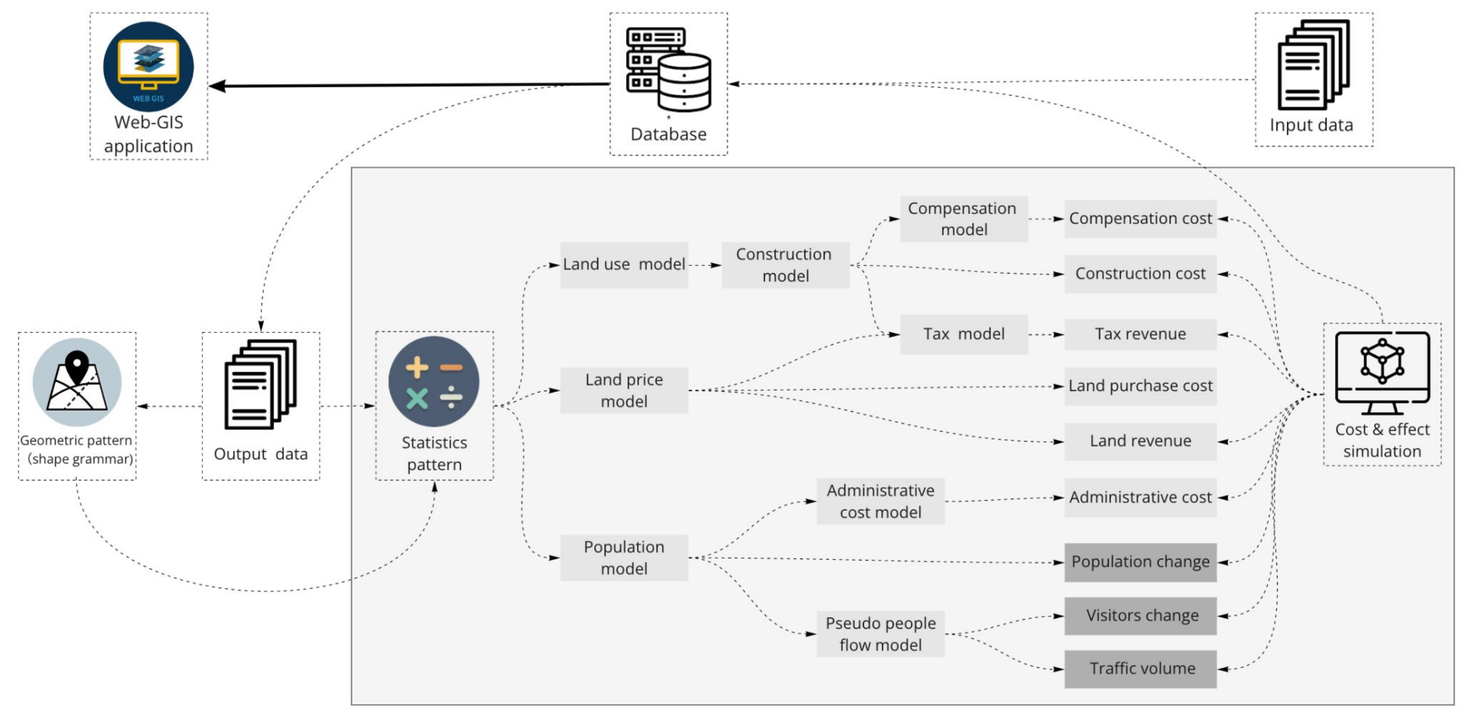
Background

Advancements in digital technologies and the demand for citizen participation have significantly reshaped regional planning. This discipline requires accurate data, effective tools, and collaboration to manage growth and enhance citizens' quality of life. Consequently, this study explores the development of a user-friendly, data-capable, and citizen-oriented web-based simulation tool, seeking to answer: How can we empirically design a tool to streamline and enhance regional planning efficiency?

Methodology

Cost & Effect Simulation System

Fig. Framework of cost and effect simulation

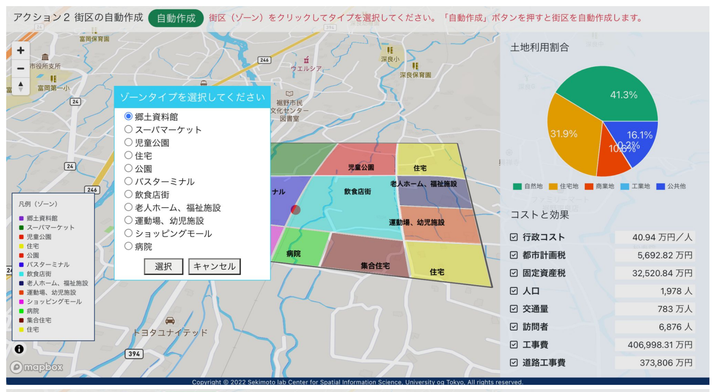


Our model estimated costs encompassing expenditure (land purchase, construction, compensation, and administrative costs) and revenue (tax and land revenue), alongside effects incorporating changes in resident population, visitors, and traffic volume.

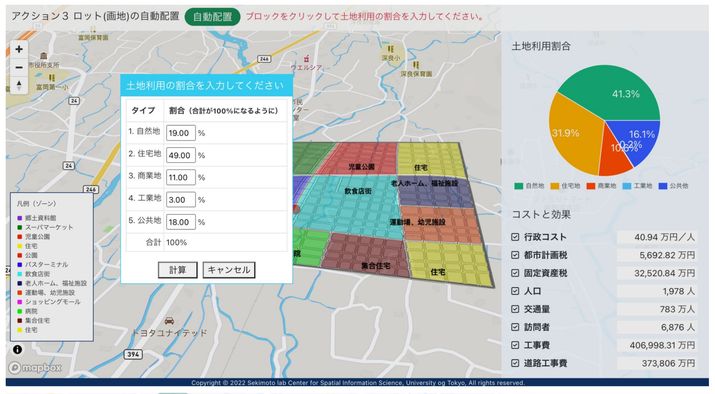
Implementation as A Web Application

- New Station Scenario

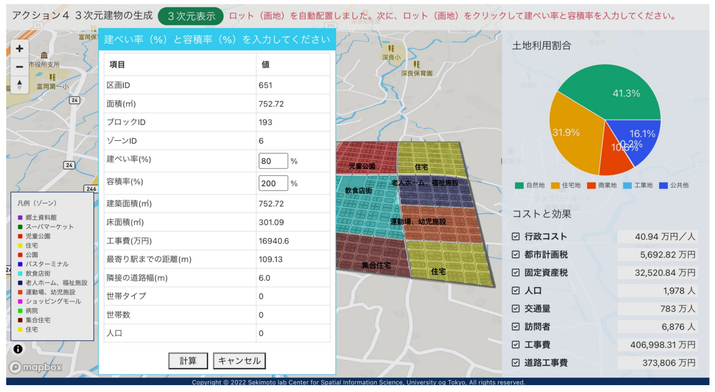
a.



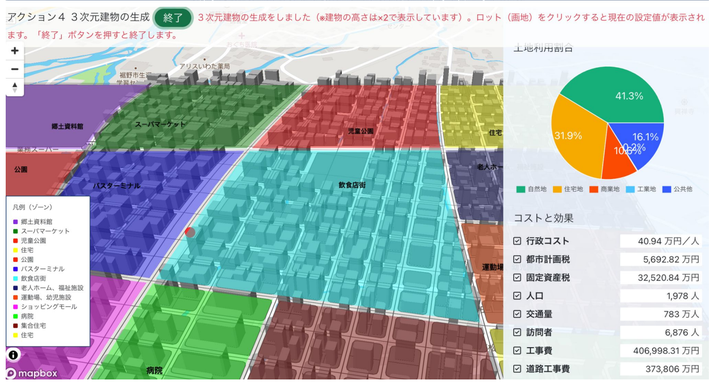
b.



c.



d.

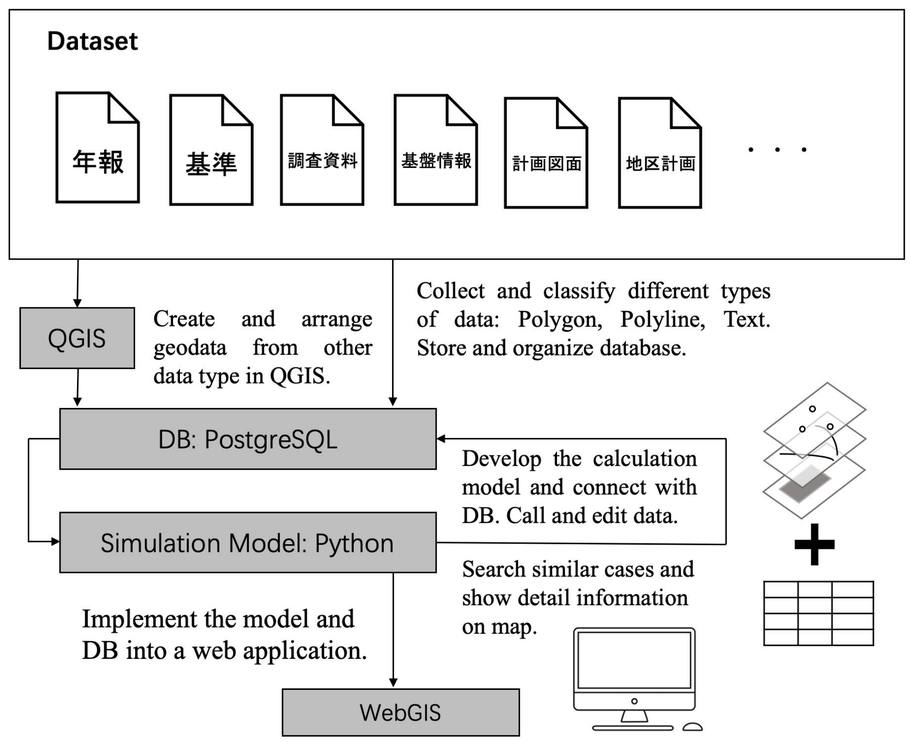


- New Road Scenario

a.

b.

Building Database



A multi-source GIS database was created to access indices and features for a simulation model and to compile related case data. It supported land purchase and land readjustment scenarios for various development approaches. This study details the database production and its associated model, aiming to enhance citizen communication and regional management efficiency.

Result

Case study findings

Our case study found that 1) the new station project could relieve the future population decrease, 2) the compact city and new station projects contribute to improving the efficiency of public services and future sustainability, 3) urban vitality could be enhanced by the new station construction that generates a new urban core, and 4) compact city policy may have a positive effect on sustainable city development by decreasing and concentrating traffic volume, and shorten trips by car. The simulation results of planning proposals could help to crystallize the whole picture of cost and effect to stakeholders, and provide them a sense of ownership over the living space. Our proposed model-based web application has the potential to support decision-making among regional planning stakeholders.