

# SIMULATION MODELING OF REGIONS' SOCIAL AND ECONOMIC DEVELOPMENT IN DECISION SUPPORT SYSTEMS

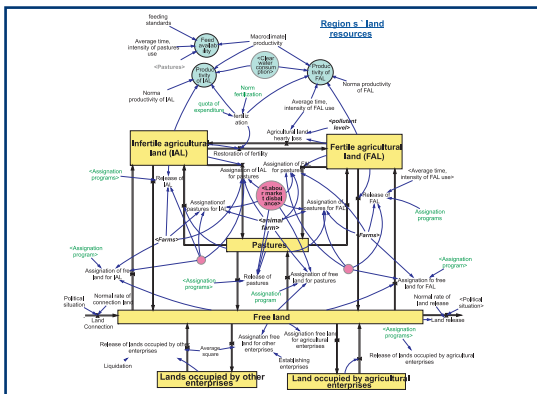
STATE UNIVERSITY OF MANAGEMENT

*Analysis and forecasting of the region's resource potential. Natural resources. Demography, labour resources. Regional economy. Agriculture. Social sphere.*

## SAMPLE MODELS

### System and dynamic model of health care

- analyzing demographic tendencies, morbidity dynamics and population living standards; analyzing social, territorial, ecological and other risk factors;
- analyzing and forecasting financial condition of compulsory health insurance system;
- strategic planning of material, financial and staffing needs of health care system; reorganizing network of prevention and treatment facilities;
- analyzing and forecasting population provision with health care services.



### Simulation models for housing and communal utilities

- analyzing housing stock condition and performance of housing and communal utilities and supporting infrastructure;
- planning budget expenditures of the city including housing stock maintenance, renewal and construction in order to improve population provision with dwelling;
- analyzing business activity of construction and maintenance enterprises and investment processes when constructing housing stock and infrastructure;

- analyzing condition of land resources of urban territories, validating town-planning programs.



### Pension System Simulation Model

- analyzing financial sustainability of the Pension Fund;
- analyzing and forecasting average labor pension size;
- scenario modeling of allocation of pension savings between financial market segments and forecasting changes in profitability of the total investment portfolio as the result of changes in its structure;
- analyzing changes in amount of pension savings;
- analyzing financial market impact on investment portfolio profitability and amount of pension savings.

### Solutions for municipal authorities

- situation analysis when reorganizing industrial districts of the town based on the simulation model;
- town-planning policy and allocating various functional objects on the territory using territorial maps and multiagent simulation models.

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#### Modeling toolkit

- developing extensive econometric models;
- scenario forecasting;
- optimization and optimal control tasks;
- forward-looking dynamics;
- simulation modeling.

#### Economic models and approaches

- Input-output balance model;
- modeling general economic equilibrium;
- high-frequency modeling;
- algorithms to provide automatic selection of econometric models.

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