FOCUS GROUP

Transport Planning Simulation Tool f Transportation Sched

Transportation Rail Logistics

Problem

In CIS regions, passenger railway traffic is a highly specific field. Suburban railway routes are often cut due to their unprofitability. This may have a negative impact, not only on the passengers, but also on the social and economic conditions in the regions.

The Russian Central Federal District authorities faced

transportation simulation to test new routes and evaluate their effectiveness. The simulation would allow them to formulate and analyze various transport topology options, observe its operations in runtime, and evaluate their financial efficiency in a safe digital environment.

Thus, the consultants required a transportation optimization model that would serve as a decision support tool, instrumental in:

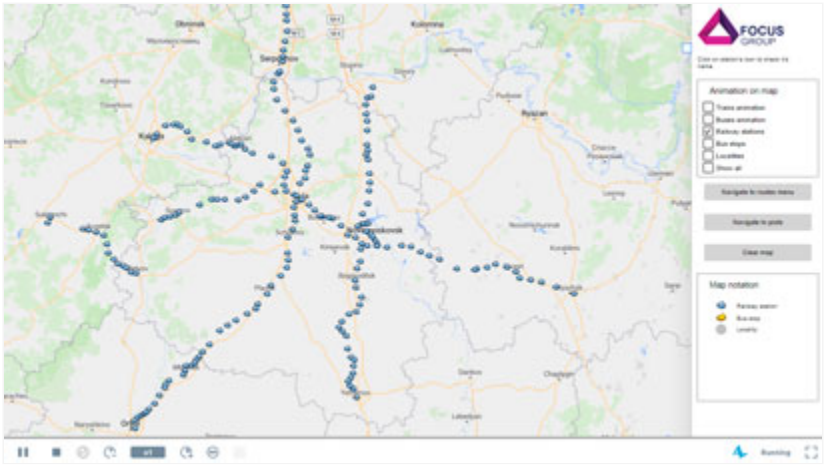
- Reflecting the current transport situation in the region.
- Scheduling alternative routes, taking into account the passenger traffic.
- Predicting the transport situation in what-if scenarios.
- Assessing the economic effect of planned changes on the regional transport system.

Solution

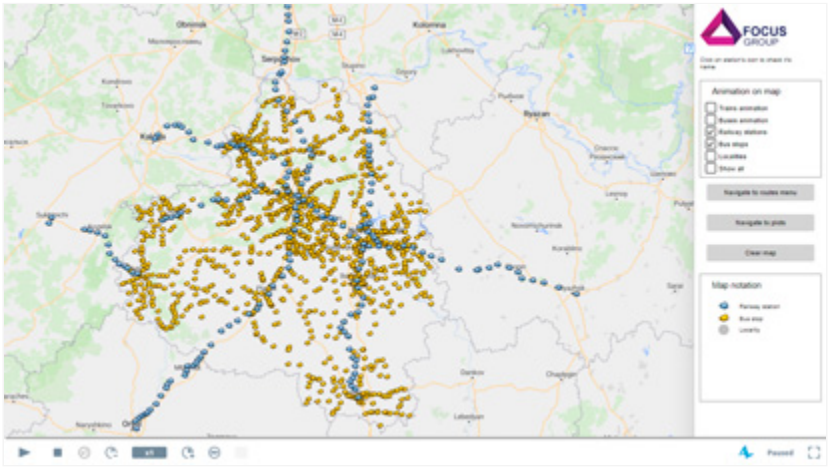
Having analyzed the simulation software market, the consultants opted in favor of AnyLogic transportation optimization software for building the transport and logistics model due to several reasons:

- AnyLogic is the only commercial transport planning software that supports agent-based modeling.
- GIS maps can be integrated in AnyLogic-models and applied for animation.
- AnyLogic transportation optimization model can be exported as a standalone Java-application.
- AnyLogic allows for the use of Excel templates and

approach significantly expedited the model building. All objects were located within the region GIS map. Information on real rail and road routes loaded in the model automatically.



Transportation simulation and optimization model interface (click to enlarge)



Transportation simulation and optimization model: railway stations and bus stops (click to enlarge)

When the model was set up, the consultants tested out various transport network topology options, considering financial indicators. In that way, they managed to figure out which alternative routes would be unprofitable, and which would be cost-effective.

concerning the launch of new routes.

The model was handed over to the customer as a customized standalone decision support application for transportation system analysis. The input data, such as traffic flows, can be adjusted, alternative routes can be tested out, and their effectiveness can be compared with the effectiveness of the existing ones. This application can also be reconfigured for the scheduling of transport routes in other regions.

This is a simplified version of the project's model:

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