

Rijkswaterstaat chooses Systems Navigator and Witteveen+Bos for the development of the new SIVAK

DELFT; Feb. 13, 2019 - Systems Navigator and Witteveen+Bos have been selected by Rijkswaterstaat to renew the SIVAK (“Simulation package for traffic management at waterway objects”) simulation software for modelling waterways.

About SIVAK 1.0

SIVAK is a simulation system that has been in use by Rijkswaterstaat since 1990 to analyze ship handling of traffic at locks, narrow waterways and other waterway infrastructures. The system takes into account the effects of the traffic composition and traffic flow, operating strategy and traffic control, etc. Typical results from this model are visualizations on waiting times, utilization of waterways, waiting costs for different ship types per section of the waterway. The model calculations form an important basis for the MIRT (Dutch Multi-Year Plan for Infrastructure, Spatial Planning and Transport) in order to identify and prevent future bottlenecks, while also being applied when developing a new infrastructure.

The new SIVAK III

The SIVAK II has been built in programming language PROSIM which is no longer supported. Maintenance and further development of the tool became a challenge due to its design and technical execution. As Rijkswaterstaat relies very much on this tool, they started looking to include a new and more modern tool that could expand their capabilities.

The biggest challenge for this project is to transfer concepts and ideas that have been developed in SIVAK in the past years into the new object-oriented simulation environments of today.

The new model will bring many opportunities to improve the design, while making SIVAK a state-of-the-art simulator. In a later stage, Systems Navigator’s Scenario Navigator will allow Rijkswaterstaat to run SIVAK as a web-based solution available to the different users.

Consortium Selection

Rijkswaterstaat applied the EMVI (an objective method to compare tender bids used by the Dutch government) to select the best consortium to renew the SIVAK library.

The main selection criteria for Rijkswaterstaat were:

- Knowledge and experience of the project team;
- Quality of the solution;
- Possible improvements to the proposal;
- Development approach.

After careful evaluation of the 4 competing consortia, Witteveen+Bos and Systems Navigator were selected as the preferred partner to develop SIVAK 2.0. Among the most important factors for this selection, Rijkswaterstaat mentioned:

- The possibilities of Scenario Navigator platform with regards to scenario management, KPI reporting, debugging, documentation & scenario comparisons;

- A good understanding of the current and future challenges of inland waterway transport;
- Solid development process;
- Fresh ideas regarding traffic control;
- Accurate advice on the use of simulation engines & realistic and robust project plan.

According to Rijkswaterstaat: “Systems Navigator’s solid experience in this field, combined with Witteveen+Bos’ expertise and Rijkswaterstaat’s knowledge about the usage and challenges of the “older SIVAK”, perfectly positioned this consortium to re-design and renew SIVAK. To ensure the quality of the model, Marin Research Institute is included as an external advisor to Rijkswaterstaat.” – Tom van der Schelde, Adviser on shipping models.

On Systems Navigator and Witteveen+Bos side: “We are convinced that the synergy between this four outstanding organizations will take SIVAK to the next level. We look forward to starting this challenging development process!” - Rienk Bijlsma, simulation expert and Martijn Ruijgers, canal and waterways expert.

About Rijkswaterstaat

Rijkswaterstaat is part of the Dutch Ministry of Infrastructure and Water Management and responsible for the design, construction, management and maintenance of the main infrastructure facilities in the Netherlands. This includes the main road network, the main waterway network and water systems.

About Witteveen+Bos

Witteveen+Bos advises and helps clients all over the world in resolving today’s complex challenges. With a network of 19 offices in 11 countries and around 1,100 engineers and consultants, Witteveen+Bos works on improving the human environment for everyone, today and for future generations. Together with their stakeholders, they contribute to social, ecological and economic progress, with the sustainable development goals of the United Nations serving as an inspirational guideline.

Every year, Witteveen+Bos completes around 3,000 projects in the fields of infrastructure, water, the environment and construction. In these projects, the aim is to maximize value creation. That means sustainable solutions for society, maximum value for clients, and opportunities for talent development for their employees.

About Systems Navigator

Systems Navigator is an independent consultancy company based in Delft, The Netherlands. Systems Navigator specializes in the design, development and implementation of planning, decision support and digital twin solutions based on operations research technology. Our expertise relies on the use of both discrete event simulation, as well as optimization for decision support models that can predict future system performance. Additionally, digital twin systems can be used for operational decision making and/or planning and/or scheduling. Systems Navigator successfully delivered over 250 simulation projects specializing in capacity studies in port operations and waterways.

To learn more about SIVAK or Systems Navigator contact our office at +31 15 750 1030 or [email](#).