

Finnish Railways

Building the new information line

In July 2001, VR-Track issued a tender for a total railway design and management system, complete with a Finnish/English interface and a wealth of applications to provide a number of functions such as geometric design for new and existing tracks, points and signals, 3D modeling and the ability to set speed parameters, perform mass calculations and produce reports. Of utmost importance was the system's ability to integrate the existing software systems and information databases of CAD files, network attributes and calculations.

Six months later, VR-Track awarded Espoo-based ViaSys Oy, the largest provider of infrastructure and GIS solutions in Finland, the contract to create VRTrack's new integrated GIS. Combining NovaPOINT Railway, a GIS solution for railway management with Autodesk Map, for railway design, mapping and analysis, ViaSys delivered and implemented VR-Track's new GIS in just 11 months. Operational since November 2002, the NovaPOINT/Autodesk Map solution is providing VR-Track personnel with the visual environment to take a holistic approach to managing 5,800 km of railway track, down to the millimeter-sized bolts hugging the line to the ground.

"NovaPOINT and Autodesk Map provide a perfect combination for the integration of GIS and design work," says Harry Harjula, the Head of Railway Consulting for VR-Track, "and combined with Oracle®, they provide an effective framework for information management and interoperability. Autodesk Map provides an excellent, easy-to-use design system as it can integrate both GIS and design functionality into the same software platform. Overall, the new GIS leaves staff to concentrate more on design work – rather than IT issues - to provide better quality results to our customers with less time and money."

Direct service to railway information

The VR-Track's GIS now links over five separate databases such as those held in the signaling, electric installations, rail network, bridge and geotechnical groups.

These core departments together produce all the design material needed to construct a new railway line or to upgrade an existing line, yet they were most hindered by the company's previous disparate IT infrastructure. In the past, for example, employees of the geotechnical group, who design the railway structure, determining for example the thickness and material of structure layers, would need to wait for their colleagues in the rail network group to finish designing the track geometry of a particular segment before they could begin to determine an adequate railway structure to support that track.

The new GIS eliminates the wait. Now, with NovaPOINT and Autodesk Map at the helm, personnel have access to an integrated, single source of spatial data, providing them with an open and direct line to significant levels of diverse spatial information across the enterprise and the tools to integrate the data into their own work processes.

Enabling staff to work off the same datasets simultaneously improves the accuracy of that data and the productivity of personnel. By replacing its former CAD system with Autodesk Map, staff can now perform spatial analyses on railway data such as the relationship between location and topology. In addition, designers tasked with designing upgrades to existing railway lines can now access and view all important assets – such as the network segment, safety equipment, signals, beacons, masts - and their attributes on one design sheet. Historically, this information was all held in different data formats and in varying degrees of completeness. Now it's all at the staff's fingertips. Using the combined NovaPOINT/Autodesk Map system, designers can quickly view any railway element such as structure sections of railway embankments, including structure layers, signaling equipment and electrical equipment, and capture the information they need to create the necessary railway design plans.

"Over the past two years, we've been working to better understand the issues that major railway organizations such as VR-Track are facing," says Michel Rives, Autodesk Sales Development Manager for EMEA. "Of paramount concern – all across Europe – is the need for integrated platforms. Platforms that not only enable designers to share design data among themselves and with colleagues outside

the design offices, but with colleagues across Europe as well. As 'interoperability' of railways (railway structure, train operations and regulations) between networks across Europe is being given high priority and the trans-European Rail Freight Network (TERFN) is becoming a reality, railway organizations need the tools to exchange easily railway-related information. "To answer these concerns properly, Autodesk has established a strategic partnership with ViaNovatIT (provider of NovaPOINT), allowing us to offer the market an integrated platform that sustains a series of professional solutions for railway designers and analysts," adds Rives. "We are extremely proud to see a prestigious account like Finland's VR-Group find business value in our efforts."

Expanding the information line

With the learning curve for the new GIS quickly flattening out and the confidence in the new system building daily, VR-Track is already looking ahead to expand the use of the GIS beyond the confines of its offices. In particular, it is interested in examining the possibility of transporting the GIS to the field. As many of VRTrack's design and maintenance processes include extensive fieldwork, Autodesk MapGuide, a software suite that allows users to create, publish, view and distribute maps and map-related content over an intranet or Internet, in combination with survey solutions is an intriguing option. With the tracks to a new railway information management system designed and built, VR-Track has set its GIS train in motion.

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