



Success Story

Tank Truck Loading at Gunvor Fit for the Future

Implico completes major conversion project at Ingolstadt refinery

It was a project that had commanded respect even in the run-up: a complete replacement of the field equipment for tank truck loading at Gunvor's refinery in Ingolstadt. After numerous internal and external reviews, Gunvor decided to take the bold step of replacing equipment without interrupting ongoing operations. Software and consulting company Implico, which was one of the companies responsible for the project, ensured that the upgraded loading bays could be integrated into the OpenTAS terminal management system one after another. As a result, Gunvor now benefits from the very latest systems without having had to accept large-scale restrictions to day-to-day business caused by migration work.

Every day, around 200 loaded railcars and several hundred tank trucks leave the refinery in Ingolstadt, en route to important transshipment points. They carry heavy heating oil, diesel and gasoline to major fuel depots in Germany and neighboring countries. While railcar loading systems had been modernized from time to time in the past, the loading technology for truck handling was now out of date. "It actually dated from the 1980s," reports Erich Kutteneich, Head of Loading and Inventory Accounting at Gunvor. Parts were no longer available for the loading master that controlled the pumps and valves.

For this reason, Gunvor drew up a plan for replacing the field equipment, which consisted of the loading master plus the equipment in the loading tracks. The key challenge here was that all modernization work had to take place with no overall downtime. One by one, the twelve loading bays for tank truck loading were to be taken offline, fitted with new equipment and then brought back online, to ensure loading was possible at a minimum of eleven platforms at all times.

Software change was out of the question

Although most of the hardware would be replaced, there was never any question of replacing the shipping software. "OpenTAS was specified from the beginning," says Erich Kutteneich. Gunvor uses one of the most feature-rich OpenTAS deployments worldwide. The software, which integrates the technical field equipment with the Enterprise Resource Planning (ERP) system, handles tasks that include calculating net refinery production, loading control for tank trucks and railcars, and processing tax calculations both with and without EMCS (Excise Movement and Control System). The tank terminal in Passau is also connected to OpenTAS.

If all systems in a refinery are considered, then the terminal management system is typically a third-level system, positioned directly above the controller that controls the field equipment at the first level. "We used to have an additional level, however," says Salman Afsar, Project Engineer and



Project Manager at Gunvor. "Because the Loading Master was so old, we had to deploy another computer to ensure that it was even able to communicate with OpenTAS." After the replacement work, this extra level was no longer necessary.

Green light for hardware upgrading

In January 2016, all preparations were complete and hardware replacement work could start. While Actemium was responsible for the control and automation systems as well as installation work, Implico was responsible for integrating the equipment with the software.

Gunvor had set up a dedicated building on the refinery grounds for the new systems to avoid any disruptions to ongoing operations with the old system. As a first step, Implico's downstream experts installed a new OpenTAS system to work alongside the existing one. One by one, they then decoupled the loading bays from the old system software and reconfigured them to work with the new system after replacement of the equipment at the platforms. "We also took the opportunity to replace the old



interfaces,” says Volkmar Lindner-Billiau, Senior Consultant Oil & Gas at Implico. “They were difficult to monitor. Gunvor now uses the latest XML format for data exchange with the lower technical level and will benefit from smooth and seamless data communications in the long run.”

Quality assured with multiple test systems

To avoid unpleasant surprises, Implico deployed three separate systems for the duration of the project: the production system that actually controlled loading; a development system on which Implico’s developers worked and could test all of the process flows before deploying them to production; and an acceptance system. This last system was connected via an interface to Actemium’s development system in Frankfurt and ensured compatibility between hardware and software components. Volkmar Lindner-Billiau: “Both of these additional systems were very helpful because we were able to test the nuts and bolts of every function before it went into the production system. This ensured the high quality of the final system.”

The tests comprised dry tests as well as wet tests: while the software ran through theoretical cases in the dry tests, the wet tests actually involved real-world loading work. A forwarding agent provided a driver and vehicle for these tests. This allowed Gunvor to test tank truck loading under real conditions.

Implico’s team available 24/7

For the conversion of the first two loading bays, Implico’s consultants were on-site to support the new system integration. For subsequent platforms, only configuration work was required – most of which Implico completed remotely from Hamburg. “Whenever we needed support, the team from Implico was always there for us,” says Erich Kутtenreich. “Support was available around the clock and always managed to clarify problems then and there. I never had any occasion to worry about things going wrong.”

As part of upgrading, OpenTAS now also handles additional tasks: apart from load control, the software now also manages entrance and exit scales for Gunvor, as well as the exit terminal.

Tank truck loading fit for the future

The hardware upgrade went entirely to the Gunvor team’s satisfaction. “We’ve now put together a platform that means we are very well-prepared for the future,” says Erich Kутtenreich. “The conversions went very well and had virtually no impact on the rest of our business. To wrap this up inside a year is really a job well done.”

His colleague Salman Afsar adds: “Today we can get an on-screen visualization of the current situation in Loading. This means our colleagues in Shipping can now respond

more quickly if they need to. For us, these are important and significant improvements.”

Since refineries are virtually unable to use products or pricing as differentiators, customer satisfaction is particularly important for Gunvor – i.e. the satisfaction of the forwarding agents and drivers who pick up the goods in Ingolstadt. “Here, OpenTAS is an immense help in ensuring that we can offer our business partners a quality service – because rapid data communications mean that the right information is always to hand, for example,” says Erich Kутtenreich. Gunvor has set up a system where drivers can use a red, yellow or green smiley to rate their loading experience. The ever-increasing proportion of green smileys shows that Gunvor’s field equipment modernization project was the right decision in every sense.



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About Gunvor Group



Gunvor is one of the largest independent commodity traders in the world, with operations in energy trading, transshipment and transportation of raw materials and petroleum products, as well as crude oil refining. Within the Group, Gunvor Raffinerie Ingolstadt GmbH is one of the most energy efficient refineries in its class in Europe.

Gunvor Refinery Ingolstadt is a 100% owned inland refinery. Crude oil supply arrives via the TAL pipeline system from the marine shipping terminal in Trieste, Italy. Products are shipped from the on-site truck-loading rack and railcar-loading facilities.

About Implico



The Implico Group optimizes logistics and business processes for oil and gas downstream companies. The international consulting and software company with its headquarters in Hamburg, Germany, has subsidiaries in Malaysia, Romania and the USA. Founded in 1983, the company today employs around 200 staff.

Implico provides consulting services, data services and software solutions for the entire supply chain – from forecasting and dispatching to data collation. Leading oil and gas companies all over the world trust in Implico’s industry expertise and high-performance IT solutions.