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CUSTOMER STORY – RETAIL & LOGISTICS

HHLA Hamburger Hafen- und Lagerhaus-AG

Fully automatic transfer from water to land

Background

HHLA, with over 60 subsidiary companies and participating interests, is the largest port handling enterprise in Germany. At the Port of Hamburg, HHLA has a market share of around 65 per cent. In 2002 the group defied the stagnating economic situation and boosted its turnover by 25 per cent, from 490 to 603 million euros. Its annual net profit after tax amounted to 1.7 million euros. Altogether, the 3,500 or so employees handled 3.5 million container units (TEU) – an increase of 14.5 per cent. With the new Container Terminal Altenwerder, which was opened in June 2002, HHLA expanded its annual handling capacity by a further 1.1 million TEU. Once the second construction phase is completed, another 800,000 TEU will be added as well.

Challenge

At the end of the 1990s, HHLA was faced with the challenge of expanding its capacities and further shortening the throughput times for containers. To address this, the first stage of building the new Container Terminal Altenwerder (CTA) began in 1998. This project was to be the first step towards the automation of container handling at the Port of Hamburg, and the CTA was to become the container terminal with the highest degree of automation in the world. The period of use was projected to be 30 years.

To be able to run the CTA it is essential that there is smooth interaction between various systems, all of which HHLA has developed itself: the central logistics and control system (TLS) for the sea side and land side, surrounding systems such as a ship planning system, the ContainerBasisSystem for the administrative processes, and an additional customs tariff system. Given this complexity, it would have been impossible to guarantee the requisite project transparency, never mind any ability to keep control of the project, using conventional methods.

Solution

A new operational concept coordinates the complex system sequences. Fast, high-availability programs control the equipment and transports. They optimise all transport operations at the facility in real time. The heart of the facility is the new terminal control software, very largely developed in-house. It plays a key role in the integration of the various software components, which for the most part are based on tried-and-tested computer programs. The complexity of the terminal control system is implemented with the Java programming language using object-oriented procedures.

To be able to control this complexity, HHLA invested in quality assurance methods and tools. A total of some six million euros was spent on software testing, thus accounting for a quarter of all development costs.

Working in collaboration with consultants and test specialists from SQS Software Quality Systems AG, the company primarily implemented the following measures:

- Development of a test methodology that accompanies and supports incremental software development
- Organisational and technical separation of software development and testing
- Methodical support for the entire test process
- Formation of a team of up to 35 testers
- Transfer of methodical test know-how to HHLA employees
- Introduction of cost estimation and planning procedures
- Creation of a documentation, analysis and prediction model in error management
- Automation of the application tests through the development of suitable tools

Benefits for the Customer

- The first construction phase of the CTA entered service with a slight delay.
- Operation of the terminal commenced with the planned residual error rate. Automation of sea-side and land-side container handling was successfully implemented.
- The automation of testing saves the company time and money.
- It was possible to put a precise figure on development and test costs in advance.
- The applications provide a consistently high level of quality.
- Starting testing at an early stage, i.e. the technical specifications, meant that software development could begin at a high level.
- The project has turned company employees into test specialists.

Contact

If you are interested in SQS' service offering regarding testing and quality management for the Retail & Logistics industry, please do not hesitate to send us an e-mail: info@sqs.com