

In the 2017 financial year, HHLA mainly focused its resources and available capacity on continuing its research in the area of battery-powered container vehicles for horizontal transport.

Container Terminal 4.0

The Container Terminal Altenwerder (CTA) is one of the most highly automated container terminals in the world. Since it opened in 2002, HHLA has constantly been researching and working on improving and expanding automation at the site. Right at the start, a paradigm was established whereby automated work areas are separated, isolated and off-limits to staff in order to guarantee occupational safety. This principle has always been upheld. Today, however, this paradigm is preventing the company from ramping up its automated processes as it inevitably excludes them from areas used by people. The research project "Container terminal 4.0 – a paradigm shift in the automation of container terminals via human-machine interaction rather than separation" is to be conducted as part of the German government's Innovative Port Technologies (IHATEC) incentive scheme. The project's main objective is to develop automation solutions for various container crane systems used at the terminal in work areas shared by people and machines (e.g. alongside ships and trucks) and to implement them as prototypes. At the same time, the experience, knowledge and evidence gathered during this process should play a fundamental role in establishing the safety standards needed to create a reliable framework for future automation projects.

Further Development of HVCC Software

Also as part of the IHATEC incentive scheme, the Hamburg Vessel Coordination Center (HVCC) launched the project "HVCC software – further development of interface- and real time-based software for the cross-operator coordination of barges, feeder ships and mega-ships at a universal and multi-terminal port with nautical restrictions"). The aim is to expand the software to incorporate the various operators involved in ship calls. This could eliminate redundant working processes and improve data quality. The project's main aims are as follows: Adapt the port to the challenges posed by persistent growth in the volume and size of container vessels. Boost international competitiveness and avoid unnecessary and inefficient transport, thus reducing the environmental impact. Accelerate the use of digital networks in maritime logistics and the port industry while making more effective and efficient use of the infrastructure of the Port of Hamburg and its upstream waterways.

SustEnergyPort

SustEnergyPort is another IHATEC project being conducted by Hamburg Port Consulting GmbH (HPC) to enhance energy sustainability in the port sector. As part of this project, a structured, model-based process is to be developed and filled with content to enable port operators to identify suitable measures for improving their energy sustainability, thereby minimising their

environmental impact and enhancing their profitability. The aim is to develop a structured process which will equip ports and terminals to achieve targeted improvements in their energy sustainability.

Performance Certified

In order to document their performance, the Container Terminals Altenwerder (CTA) and Tollerort (CTT) once again completed certification in accordance with the Container Terminal Quality Indicator (CTQI) in the reporting year. The standard, which was developed by the Global Institute of Logistics and Germanischer Lloyd, checks criteria such as the safety, performance level and efficiency of a terminal on both the water and onshore, as well as its links to pre- and onward-carriage systems. With their successful certification, the terminals once again confirmed their high levels of performance and compliance with all quality standards.

Purchasing and Materials Management

Purchasing activities of the HHLA Group are centrally organised at the management holding company in Hamburg. Important objectives are pooling and harmonising purchasing processes to meet internal customers' requirements in terms of service and performance as far as possible. The purchasing team focuses on standardising the supplier base to ensure that capital goods, raw materials, consumables, supplies, services and other products are provided reliably and on time, taking aspects such as cost, quality and sustainability into account. Market developments relating to new technologies, innovations and the service performance of specific suppliers are considered in close cooperation with the operations and IT departments.

The Purchasing department actively supports the review and adjustment of the Group's requirements and guidelines for purchasing processes and their mandatory fulfilment. All employees in the purchasing team are obliged to uphold HHLA's code of conduct. The compliance rate and purchase requisition rate are among the many methods used to monitor adherence to these requirements. The compliance rate measures the proportion of procurement orders handled by the Purchasing department. In 2017 this stood at 96.8 % (previous year: 95.2 %). The purchase requisition rate indicates the ratio of requisitions entered and authorised via the SAP enterprise resource planning system in compliance with regulations. At 99.7 % in 2017, it was roughly on a par with the prior year (previous year: 99.6 %). The automation of purchasing processes to create efficient, transparent and uniform workflows remained a key objective for procurement in 2017. In the reporting period, approximately 16 % of all purchasing processes were handled fully automatically by means of e-procurement systems (previous year: approximately 14 %). The Group is deliberately diversifying its procurement activities and

optimising its supplier base. As a result, there were no significant dependencies on individual suppliers in the 2017 financial year, as in the previous year, neither at Group nor at segment level. There were also no supply shortages during the reporting period. In 2017, equipment and energy accounted for 43.5 % of the Group-wide procurement volume, while information technology (IT) accounted for 24.6 %, construction for 18.1 % and MRO (maintenance, repairs and operations) for 13.8 %.

Taking competition law into account, systematic steps are being taken to enhance the way in which suppliers are involved in the development and optimisation of products, facilities and processes from a strategic and collaborative viewpoint. The aim is to safeguard the on-time completion of development and modernisation projects and the associated timely procurement of capital equipment, supplies and replacement parts. The focus here is on analysing and evaluating relationships with suppliers in terms of their reliability, quality, innovative strength, cost structures, economic stability and compliance. An IT-based supplier management system was implemented in 2017 to support this process. Suppliers register on an internet portal, which uses questionnaires to cover topics relevant to procurement, as well as issues such as occupational safety, sustainability and compliance. All content is coordinated with both the purchasing team and the relevant departments and is subsequently evaluated. Certain criteria may result in suppliers being excluded. These include entries in a state corruption register, insolvency proceedings, failure to pay minimum wages or operational restrictions (lack of certain licences, etc.).

Registration is mandatory for all suppliers contacting HHLA for the first time as part of tenders, market reconnaissance or on their own initiative. Suppliers already listed in the company's own pool are asked to complete the registration process successively. The need to register is prioritised according to the supplier's strategic relevance in terms of revenue, market and/or product and service range.

Downstream supplier management thus allows continual internal evaluation. These strategic suppliers are evaluated annually by the internal customers and departments. The evaluations include experience on first contact along with information about project procurement and flow. These details are assessed and documented in an event-driven fashion. The content and scope of the evaluation criteria are regularly reviewed and adapted according to legal requirements, corporate guidelines and rules, as well as their importance for service performance.

Another key project was the introduction of an electronic tendering platform. Although only mandatory as of April 2018, Purchasing rolled out an e-tendering platform when the amendment of German public procurement legislation came into force in April 2016. The platform not only standardises and transparently documents the tendering processes, but also significantly

improves process quality, reliability and efficiency. Secondly, the electronic process creates considerable added value for bidders, as a web-based platform ensures process reliability and fair competition. Early adoption gives suppliers the time and opportunity to prepare for and adjust to the new process.

Sustainable Performance Indicators

Direct and indirect energy consumption by HHLA and its companies were as follows in the year under review.

Direct and Indirect Energy Consumption

	2013	2014	2015	2016	2017
Diesel and heating oil in million litres	27.7	29.2	26.3	26.6	27.4
Natural gas in million m ³	3.1	1.8	2.3	2.4	3.6
Electricity ¹ in million kWh	148.7	154.4	138.3	139.6	135.6
thereof from renewable energies	78.0	84.1	76.1	73.2	82.8
Traction current in million kWh	37.9	51.7	130.3	150.0	157.5
District heating in million kWh	4.6	3.7	3.2	3.6	3.6

Consumption of natural gas, traction current and district heating in 2017 is based on preliminary and estimated figures.

¹ Electricity without traction current

For more information about sustainability, please refer to the "Sustainability" section of the Annual Report. ► see also Sustainability, page 158.

Non-Financial Report

HHLA reports on the Group and HHLA AG in the form of a combined separate Non-Financial Report, the contents of which are integrated into the "Sustainability" section. The non-financial report is also available as a separate PDF from the download centre of the online Annual Report. ► <http://report.hhla.de/annual-report-2017/non-financial-report>