

CHAPTER 9

AGILITY

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE17 PARTNERSHIPS
FOR THE GOALS

Material topics covered:



Technological
innovation



Terminal
operation
optimisation



Customer
satisfaction

As a leading global port logistics service provider, the Group keeps abreast of market demands and industry trends, adopting a customer-oriented approach to foster strong collaboration among port and shipping resources. The Group actively enhances the level of terminal operations through lean operations and explores the potential for port development through digital and intelligent innovation to accelerate the construction of smart ports, and to create a shared and mutually beneficial ecosystem through in-depth collaboration with business partners along the global industry chain.

PERFORMANCE HIGHLIGHTS IN 2024

Business Scale – The Group made steady progress in operating performance and solidly advanced high-quality development with a strategy-led and innovation-driven approach. In 2024, the total throughput reached 144,032,722 TEU, representing an increase of 6.1% year-on-year. For detailed information on the business performance for the year ended 31 December 2024, please refer to the section headed “Business Review” in the 2024 Annual Report of the Company.

Leading the Way in Innovation – The Group focuses on digital intelligence and accelerates the cultivation of new productive forces, achieving breakthroughs in high-quality development. By enhancing the volume and efficiency of automated operations, the Group has comprehensively advanced the construction of smart ports and the sustainable development of the port and shipping industry. During the year, the Group successfully launched the CSP Port Digital Twin Integrated Energy Management Platform, which is the first of its kind in the world, pioneering the high-level integration of “energy management” and “digital twin technology”, achieving intelligent energy control and refined energy management in ports, thereby allowing effective implementation of the green and low-carbon development strategy. In 2024, after a pilot run at CSP Wuhan Terminal, the platform has achieved a reduction of approximately 7% in the energy consumption per TEU for large port machinery. Additionally, driverless container vehicles were put into commercial operation and scaled application, with a total annual handling volume of 675,000 TEU, representing an increase of 221.6% year-on-year.

Construction of South America’s First Green and Smart Port – When launching new projects, the Company focuses on the concepts of digitalisation, intelligence, automation, and green and low-carbon development to advance the construction of smart ports. In November 2024, CSP Chancay Terminal in Peru, a key project under the “Belt and Road” Initiative, was officially inaugurated. It represents the latest practice of the Company in promoting smart port construction.

Leading Research into Cutting-edge Digital and Low-carbon Technology – Leveraging on the technological support generated from the Research and Development Center of Transportation Industry of Automated Terminal Technology, the Company has taken the lead in advancing the “14th Five-Year Plan” scientific research project of COSCO SHIPPING Group titled Research and Development Project on Green and Smart Ports, and gathered its subsidiaries, business partners and industry leaders to discuss and tackle common problems facing the industry in technology seminars.

During the year, the Group did not incur any fines or non-economic penalties due to violations of laws and regulations related to products and services.

MANAGEMENT SYSTEM

For the management approach to each topic, please refer to the section headed “Sustainability – Approach & Frameworks” on the Company’s official website.

In 2024, a total of 8 subsidiaries held certification to ISO 9001 Quality Management systems, including Tianjin Container Terminal, Lianyungang New Oriental Terminal, Xiamen Ocean Gate Terminal, Guangzhou South China Oceangate Terminal, CSP Abu Dhabi Terminal, CSP Abu Dhabi CFS, CSP Valencia Terminal and CSP Bilbao Terminal. Additionally, 2 subsidiaries held certification to ISO 22301 Business Continuity Management systems, including Piraeus Terminal and CSP Abu Dhabi Terminal.

TECHNOLOGICAL INNOVATION

Ports are key nodes in the global shipping network connecting shipping companies with global customers and are an essential part of the global supply chain system. The safe and efficient operation of ports is a vital prerequisite for the smooth functioning of the global supply chain. The Group is committed to driving the automation of port production, the intelligent development of port operations, and the smart development of port services through technological innovation, thereby enhancing operational efficiency and safety, and expanding service capabilities.

In terms of the automation of port production, the Group actively promotes the full-process automation of production and operations through hardware and software upgrades to realise the integration of automated quay-side operation, smart tallying, automated horizontal transportation, automated yard operations, intelligent gatehouse, and multimodal transportation and supply chain services, thereby empowering lean operations internally and providing efficient customer service externally. The Group has already built the first 5G-enabled full-scenario smart port for demonstration application in Xiamen Ocean Gate Terminal, creating an integrated intelligent handling system with remote-controlled quay cranes, driverless container vehicle platooning, and automated yard operations, which has reached an internationally leading level. CSP Wuhan Terminal and CSP Chancay Terminal, as greenfield projects, have implemented full-process and full-element automation planning from the outset of construction, and have respectively developed China's first rail-water intermodal automated terminal in Wuhan and South America's first automated terminal in Chancay in Peru.

In terms of the intelligent development port operations, the Group has been strengthening digital and intelligent construction. By optimising the advanced functions of the Terminal Operating Systems ("TOS"), building an intelligent operation management system, and applying technologies such as artificial intelligence and digital twins, the Group enhances its operational management capabilities through technological empowerment. Firstly, with intelligent TOS as the core, it connects with the automated quay crane and remote-controlled yard crane system, driverless container vehicle management platform, and intelligent gatehouse system, and introduces modules such as intelligent yard expert dispatching, intelligent loading, and container vehicle path planning, achieving full-process automated operations. Secondly, the Group has developed a data management system as a means to enhance visual management to provide effective support for higher terminal management and decision-making capabilities. Thirdly, the Group has widely deployed intelligent gatehouse systems, built intelligent security systems covering various scenarios, and pioneered the development of CSP Port Digital Twin Integrated Energy Management Platform, among others, to improve operational efficiency.

In terms of the smart development of port services, the Group is committed to providing holistic and smart customer services covering shipping companies, railway companies, vehicle fleets, electronic ports, cargo owners, and freight forwarders, thereby transitioning from pure terminal handling to comprehensive logistics services. By building a comprehensive logistics community platform connecting with systems of shipping companies and their agents, railways, trailers, and customs and inspection units, the Group has achieved interconnectivity among port, shipping, and cargo systems, and accelerated cargo turnover, helping customers reduce logistics costs.

To advance the technology and innovation-driven strategy, during the year, the Company's Engineering, Technology & Innovation Division has set up a dedicated Sci-tech Innovation Department and established the Management Measures for Technology Innovation to regulate the technology innovation system and operating mechanisms. This policy aims to enhance the Group's technology innovation capabilities and management levels, systematically promote technology development plans, build technology innovation platforms and research projects, and provide guidance to the subsidiaries on the transformation and application of technology innovation achievements.

SMART AND LOW-CARBON PORT IN FOCUS: CSP CHANCAY TERMINAL IN PERU

CSP Chancay Terminal is the Company's first greenfield multipurpose port invested, constructed, and operated in South America. Throughout the entire lifecycle of the project from initial design to construction and operation, the Company has fully integrated the concepts and elements of smart innovation, green, and low-carbon. Quay cranes, rail-mounted gantry cranes, gantry cranes, reach stackers, forklifts, and other major port machinery are powered by electricity. The electricity used at CSP Chancay Terminal is entirely sourced from hydropower. Additionally, the Company has adopted remote-controlled port machinery, intelligent tallying and intelligent gatehouse and successfully implemented full-scenario 5G technology application at CSP Chancay Terminal, covering horizontal transportation and real-time communication. The terminal also adopts world-leading smart handling solutions, such as remote-controlled quay cranes, automated rail-mounted gantry cranes, and intelligent container vehicles, significantly improving operational efficiency and safety.

In line with the initiatives for sustainability, CSP Chancay Terminal combines new quality productive forces with the concepts of "smart advancement, and green and low-carbon development". It has put into use a series of innovative and intelligent technologies, including autonomous driving, environmental perception, and green and low-carbon elements, to achieve the highest level of port intelligence in South America.

Technological Solutions

Practices of Smart and Green Port Construction

Autonomous driving technology of driverless container vehicles

- 40 driverless container vehicles equipped with a full-stack self-developed autonomous driving system were put into use. These vehicles have a parking precision of less than 5 centimeters, with a success rate over 99%, thereby significantly enhancing the efficiency of terminal operation.



Autonomous driving system

Automated rail-mounted gantry cranes

- The automated rail-mounted gantry cranes are equipped with advanced equipment management system, container vehicle guidance systems, video systems, intelligent recognition system, and monitoring system, and apply automated operation mode for container vehicles, which allow one operator to handle multiple rail-mounted gantry cranes, thereby promoting the efficiency of terminal operation.



Automated operation solutions

Technological Solutions

Practices of Smart and Green Port Construction

Energy optimisation management

- All main port machinery is powered by green electricity.
- Smart energy management system is in place to monitor and optimise energy use in real time.
- Large and high-performance lithium batteries are used to reduce energy consumption by 25% compared to traditional fuel-powered container vehicles.
- Semiconductor light-emitting diodes are used for all equipment lighting, which have longer service life and lower energy consumption.
- Renewable energy such as solar power and wind power are expected to be used in the future.



Smart energy management

Intelligent handling and tallying systems

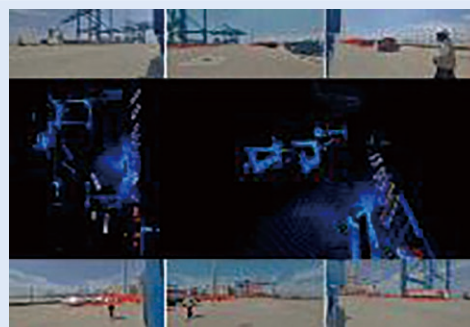
- International cutting-edge intelligent handling solutions are adopted to improve port operation efficiency and safety.
- The remote-controlled quay cranes are equipped with vessel scanning, container vehicle guidance, automatic anti-sway and torsion control, intelligent tallying, online fault monitoring and remote diagnosis systems, which can meet the handling requirements of container vessels with a capacity of 24,000 TEU.



Intelligent handling and tallying system

Environmental perception technology

- By integrating multiple sensing technologies such as laser, vision, and millimeter-wave radar, along with the latest bird's-eye view perception algorithms, the driverless container vehicles can accurately identify containers and the operating environment even under adverse weather conditions, guaranteeing a safe working environment and ensuring the safety of frontline workers.



Brand new perception algorithms

Technological Solutions

Practices of Smart and Green Port Construction

Environment-friendly measures

- All automated rail-mounted gantry cranes have been brushed with waterborne fluorocarbon paint in the manufacturing process, which is more environmentally friendly without releasing benzene volatiles.
- The use of highly intelligent super-large self-mobile piling platform at sea not only improves the construction efficiency, but also protects the water quality and creatures of the construction sea area.
- Local professional environmental protection team and animal rescue office have been set up.



Green and low-carbon port development

As a cooperation project between China and Peru under the “Belt and Road” Initiative, the Company has not only created a significant number of job opportunities for the local community and shortened the time required for one-way sea freight shipping between China and Peru through CSP Chancay Terminal, but also protected the nearby wetland ecosystem, making contributions to carbon reduction actively.



CSP Chancay Terminal is the first smart and green port in South America



CSP Chancay Terminal shortens the shipping time from Peru to China to 23 days

ENERGY MANAGEMENT AND CONTROL AND APPLICATION OF DIGITAL TWIN TECHNOLOGY

To promote energy efficiency management and control as well as smart operations at the terminal subsidiaries, the Group has developed an energy efficiency platform with complete independent intellectual property rights. By integrating an internal dedicated equipment and material management information system and Internet of Things technology, the platform enables real-time access to energy consumption data, significantly enhancing operational management efficiency.

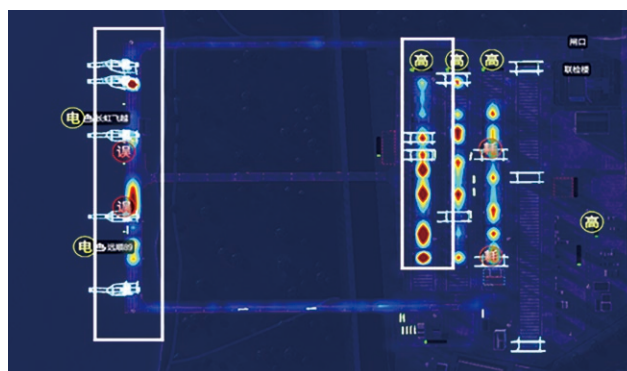
As of the end of 2024, the Group had completed the integration of the energy efficiency platform for all terminal subsidiaries in China. This includes data on port machinery energy consumption, electricity and water usage, photovoltaic power generation, and shore power connections, and allows effective monitoring of key indicators such as comprehensive energy consumption and GHG emissions. The energy efficiency platform provides four-dimensional energy management methods, which cover horizontal comparison via the headquarters interface, vertical comparison via the terminal interface, energy consumption per TEU analysis via the analysis interface, and time-segmented monitoring via the monitoring interface, ensuring all-rounded energy management.



Energy efficiency platform of COSCO SHIPPING Ports

To further realise intelligent management and control of port energy use and refined energy management, the Group has built CSP Port Digital Twin Integrated Energy Management Platform, which is first of its kind, based on the data gathered by the energy efficiency platform, achieving a breakthrough in the seamless interaction of port data in the whole process, thereby building a 3D visual, analysable and quantifiable global port energy digital twin management and control platform base.

Through the carbon footprint heatmap built on the platform, energy consumption is transformed from rigid numbers into a visual analytical tool. For instance, if it is observed that the energy consumption during the outbound journey is higher while the return trip consumes less, operators can optimise the overall scheduling strategy to achieve maximum efficiency and improve energy utilisation. Additionally, the system can trace the historical energy consumption process of the entire terminal, facilitating relevant departments in reviewing operational conditions and optimising energy efficiency.



Carbon heatmap

In the future, the Group will continue to focus on energy digitalisation, leveraging digital twin technology to enhance energy management efficiency and precision, thereby providing strong support for the green transition and sustainable development of ports.

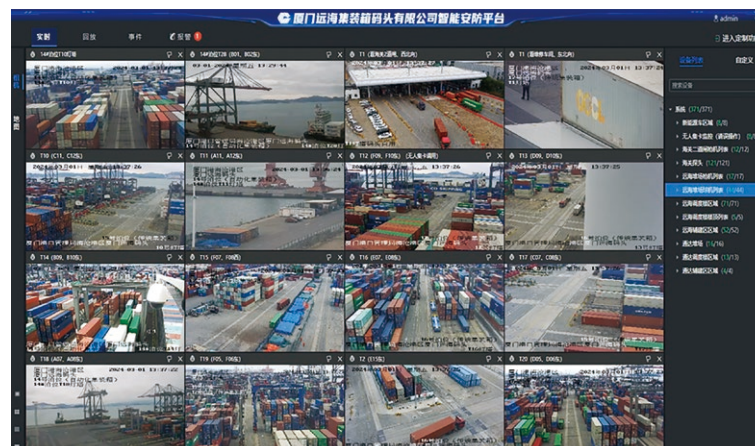
APPLICATION OF ARTIFICIAL INTELLIGENCE

Using satellite navigation positioning system, combined with key technologies such as multi-sensor integrated with artificial intelligence, customised flatbed unmanned autonomous container vehicles without cabins have been developed. This vehicle achieves functions such as two-way driving, battery-powered, high-precision positioning, and intelligent control, supporting the automation and intelligent transformation of terminal upgrades.



Terminal Driverless Container Vehicles

To strengthen the foundation of safety management and enhance risk control capabilities, AI visual and other cutting-edge technologies to build an intelligent security system. This system enables real-time, automated detection of safety hazards within the port, addressing the shortcomings of traditional manual monitoring, which has blind spots and low efficiency, thereby improving the Group's safety risk warning and control level.



Intelligent Security System

MANAGEMENT SYSTEM OF CONTAINER VEHICLE RESERVATIONS FOR ENTRY, EXIT AND QUEUEING

During the year, the Group launched a management system for external container vehicles to make reservations for entry, exit and queueing to optimise the process for external container vehicles entering and exiting the port, thereby enhancing terminal operation efficiency and reducing operating costs for vehicle fleets. Taking Quan Zhou Pacific Terminal as an example, this system is expected to reduce the average turnaround time for external container vehicles by approximately 22%, saving approximately US\$280,000 in fuel costs for external container vehicles annually.

STRONGER COOPERATION AND COLLABORATION WITH GLOBAL PORT AND SHIPPING ENTERPRISES

In April 2024, the Company held the 2023 Technology Innovation Conference cum the first “Green, Digital and Intelligence” Conference. At the conference, the Company officially released the COSCO SHIPPING Ports’ Green and Low-Carbon Transition and Development Plan, which detailed five key tasks for building green and low-carbon ports, covering green and low-carbon transition of energy, resource conservation and efficient utilisation, the construction of green and low-carbon infrastructure, digital and intelligent enhancement, and innovation in green and low-carbon technology. Xiamen Ocean Gate Terminal and CSP Wuhan Terminal, subsidiaries of the Company, shared their experiences in constructing green and low-carbon smart ports. Business partners were invited to share the latest developments and technological advancements in the green and low-carbon development of ports. Together, the participants discussed future trends in the port industry and explored collaborative efforts to promote digital, intelligent, green and low-carbon transition of the industry.



2023 Technology Innovation Conference cum the first “Green Digital and Intelligence” Conference



COSCO SHIPPING Ports’ Green and Low-Carbon Transition and Development Plan released

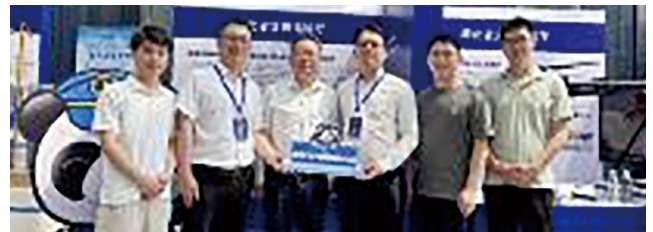
The conference not only showcased the Group’s latest achievements in green, low-carbon, digital and intelligent transition, but also demonstrated its scientific and technological innovation and sustainability leadership, reflecting the Group’s practical efforts in fulfilling its environmental and social responsibilities in the global port industry, thereby contributing to the realisation of green, low-carbon and efficient port operations.

CULTIVATING A CULTURE OF TECHNOLOGICAL INNOVATION

Embedding technological innovation into corporate culture, the Group enhances employees' innovative spirit through a series of technological innovation activities while promoting sustainability in the technology field across the industry chain. In May 2024, the Group organised multiple thematic seminars and salon exchanges on topics such as GHG emissions accounting and the application of remote-controlled port machinery video systems at ports, equipment retrofitting and green environmental protection processes, and the collaborative application of driverless container vehicles and terminal operation management systems. These activities have created an innovative culture and ecosystem, providing a positive atmosphere and environment for driving technological innovation and cultivating technological talent.



Jinzhou New Age Terminal held a technology advancement seminar to discuss current initiatives and future planning



CSP Wuhan Terminal demonstrated the application of driverless container vehicles and terminal operation management systems

Going forward, the Group will continue to increase investment in science and technology, strengthen the development of talent pipeline, and cultivate innovative thinking, thereby promoting the sustainable development of the port industry.

MANAGEMENT OF INTELLECTUAL PROPERTY RIGHTS

Amid the increasing importance of technological innovation in business operations and industry development, the Group actively strengthens the protection and management of intellectual property rights. During the year, 23 patents, including 16 invention patents, were authorised to the Company and its subsidiaries. As of the end of 2024, the Company, together with its subsidiaries, held a total of 124 patents, and won a total of 34 external awards, including the 2024 Standard Innovation Contribution Award from China ITS Industry Alliance.

The Group strictly abides by laws and regulations related to intellectual property rights in daily operations. During the year, the Group did not violate any laws and regulations related to intellectual property rights.

CASE

Quan Zhou Pacific Terminal obtained a certificate of utility model patent for an innovation project on gantry crane interlocking and twin-lifting

Quan Zhou Pacific Terminal obtained a certificate of utility model patent for an innovation project on gantry crane interlocking and twin-lifting from China National Intellectual Property Administration in June 2024. This project aims to enhance the management of operations involving the handling of oversized and irregular-shaped rough stone blocks, thereby further improving service quality. The innovation involves the development of a "balanced beam lifting device" for interlocking and twin-lifting operations by gantry cranes, enabling the handling of oversized cargo weighing up to 80 tonnes. This not only effectively addresses the environmental safety issues associated with the direct unloading of oversized rough stone blocks beneath the quay cranes but also increases operational efficiency while reducing the costs associated with renting large-tonnage mobile cranes.



Gantry crane interlocking and twin-lifting

TERMINAL OPERATION OPTIMISATION

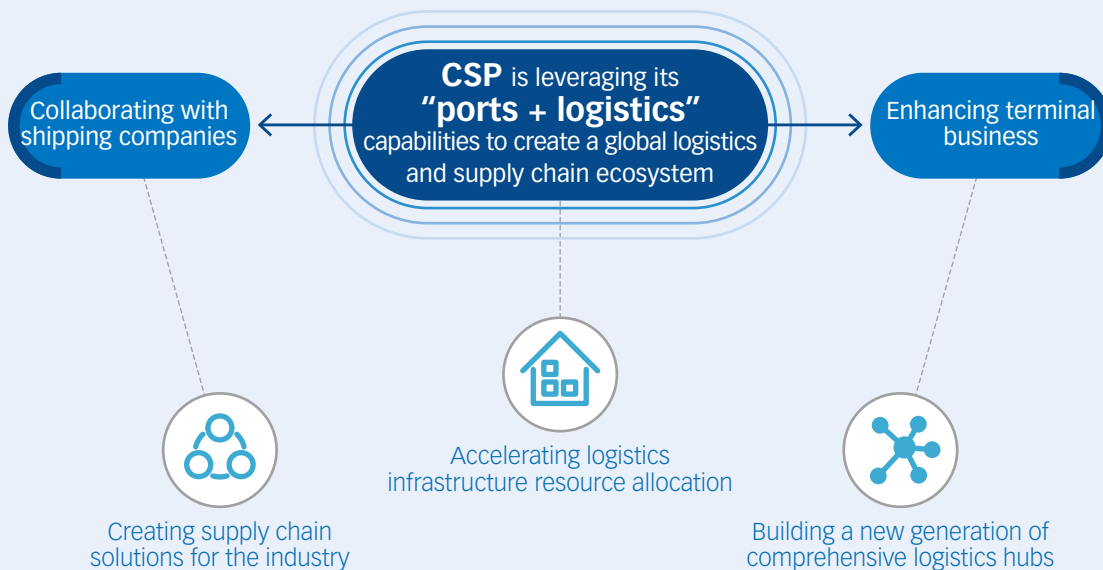
Centred around the corporate brand of “The Ports for ALL” and the vision of becoming a global leading port logistics operator with a customer-oriented focus, and based on the integrated development strategy of “shipping + ports + logistics”, the Group maintains a customer-centric perspective and leverages resources from its global terminal network, supply chain bases, and digital capabilities, with the aim of enhancing holistic service mindset and comprehensive coordination and operational capabilities that integrate terminal and supply chain resources, thereby creating high-quality and efficient terminal service products, making ports a key node supporting the logistics supply chain.

STRENGTHENING THE CONSTRUCTION OF PORT-RELATED SUPPLY CHAIN RESOURCES

With ports being positioned as the centre, the Group extends its business to the multi-logistics scene, constantly puts forward innovative products and comprehensive solutions, and realises the transformation from terminal investor and operator to port logistics service provider. In 2024, Xiamen Haicang Supply Chain and CSP Wuhan Terminal warehouse have officially put into operation, with an annual increase of 26,650 m² of warehouse area. As of the end of 2024, the Group has laid out supply chain resources in Xiamen, Quanzhou and Wuhan in China, as well as Abu Dhabi in the United Arab Emirates (the “UAE”), Zeebrugge in Belgium and other places, continuously building a global logistics supply chain ecosystem, thereby laying a solid foundation for its terminal business.

During the year, the Group added new logistics corridors, including the inland rail-water multimodal transport channel in Spain, a rail corridor covering the entire UAE with Abu Dhabi as the node, and a new rail-water corridor in Wuhan. These initiatives continue to create efficient export channels for various products and provide end-to-end logistics supply chain services for customers. This not only saves transportation time and ensures timely delivery of cargoes, but also promotes the integrated and collaborative operation of “port-shipping-cargo”.

CSP “shipping + ports + logistics” Integrated Development and Full-Chain Services



CASE

The Group has developed whole car supply chain, pulp supply chain products and green supply chain overseas warehouse centred around the integrated “port-shipping-cargo” philosophy

Leveraging its abundant terminal resources, the Group has developed a supply chain network created by the global supply chain bases and terminal-extended services and products to provide customers with efficient and safe full-process supply chain services.

Product 1: Whole vehicle supply chain

The Group fully utilises its terminal operation resources and integrated supply chain advantages to offer end-to-end transportation solutions for whole vehicles, ensuring the bulk export of domestic automobiles. During the year, the Group has integrated the data chains and business functions covering ports, shipping, logistics and container freight stations based around its global integrated logistics supply chain service ecosystem, and pioneered the CSP Automobile Digital Supply Chain Platform, which has been trusted by major automakers such as SAIC, BYD, and Dongfeng. This platform provides intelligent, visual, and digital solutions and value-added services for customers.

Product 2: Pulp supply chain product

The Group offers a comprehensive range of services for pulp customers, including containerised and bulk cargo handling within the port, bonded and non-bonded warehousing, in-port inventory control, and multimodal transfer and distribution services via road, waterway, rail, and feeder lines. Combined with the digital pulp supply chain platform, these services make the pulp supply chain product visible, controllable, quantifiable, and linkable, reducing trailer transfer costs and time while enhancing the efficiency of the entire cross-border logistics chain and the time required for cargo delivery.

Product 3: Green supply chain product

The Company’s terminal subsidiaries and container freight stations, leveraging its global layout, have established solid and long-term partnerships with numerous clients in the photovoltaic and energy storage sectors both domestically and internationally. For example, CSP Abu Dhabi CFS participated in the Al Dhafra PV2 solar power plant project, which was undertaken by China Machinery Engineering Corporation in Abu Dhabi. This project is the world’s largest single-site photovoltaic project and a significant new energy project under the “Belt and Road” Initiative. As the full-process logistics service provider for the photovoltaic modules of this project, CSP Abu Dhabi CFS worked closely with the client to provide high-quality “port-shipping-cargo” integrated logistics services. Approximately 4 million photovoltaic modules were safely transported to the project site, achieving “zero cargo damage, zero accidents, and zero vehicle congestion”.



CSP Wuhan Terminal rail-water intermodal transportation



CSP Abu Dhabi CFS will start construction of the second phase in 2025. Upon completion, it will become one of the largest container freight stations in the Middle East



CSP Zeebrugge Terminal and CFS become a new gateway for Chinese automobiles and cross-border e-commerce to enter Europe



CSP Spain Related Companies and container freight stations have achieved multimodal transportation

CASE

Xiamen Ocean Gate Terminal + Xiamen Haitou Supply Chain + Xiamen Haicang Supply Chain have achieved full-chain synergy

Xiamen Ocean Gate Terminal is China's first fully automated terminal, focusing on independent innovation to achieve full-chain intellectual property rights for automated terminal "solutions + equipment + processes + intelligent scheduling systems". With features such as remote operation, intelligence, safety, and sustainability, it has become one of the largest container throughput terminals in the Port of Xiamen.

Xiamen Haitou Supply Chain is a key domestic port-adjacent supply chain base developed by the Group, covering an area of approximately 486,900 m². It mainly operates port-adjacent logistics, cold chain logistics, and container yards. Located just 1 kilometre from Xiamen Ocean Gate Terminal, it is integrated into the "port + logistics" integrated platform of COSCO SHIPPING Ports, offering end-to-end customised services for customers.

With a warehousing area of 20,000 square meters, Xiamen Haicang Supply Chain is situated behind Berth No. 13 of Xiamen Ocean Gate Terminal, seamlessly connecting with the terminal's water-rail intermodal transport. It provides multi-level, customisable warehousing and logistics services, including regional distribution centres and urban delivery warehouses.

By integrating Xiamen Ocean Gate Terminal, Xiamen Haitou Supply Chain, and Xiamen Haicang Supply Chain, the Group has achieved one-stop comprehensive services for supply chain solutions in industries such as automobiles, cross-border e-commerce and new energy. Looking ahead, the Group plans to replicate and upgrade this model at other terminal subsidiaries, positioning Xiamen as a benchmark to become a leading port logistics service provider in the world with a customer-oriented approach.



Leveraging the port geography and information interconnection, Xiamen Haitou Supply Chain shortens the customs clearance time of cross-border e-commerce



Xiamen Haicang Supply Chain possesses extremely convenient collection and distribution channel resources

CUSTOMER SATISFACTION

DIVERSIFIED PRODUCTS AND SERVICES

The Group pays close attention to market trends and customer needs in the industry, maintaining close communication with business partners. It actively promotes the export of diversified cargo types and provides high-quality services to customers. As of the end of 2024, the Group had exported green and low-carbon products, including photovoltaic solar panels, electric vehicles, wind power projects, and energy storage cabinets.

During the year, Guangzhou South China Oceangate Terminal has collaborated with BYD to launch an energy storage cabinet export project to the Middle East. This project has strict requirements for loading operations. The terminal has successfully developed a hook-padded loading method, which has significantly improved loading efficiency while ensuring the appearance of the energy storage cabinets remained intact. This innovation provides strong support for the export loading business of energy storage cabinet, which is an emerging cargo type.



CUSTOMER SATISFACTION SURVEY

The Group regularly communicates with customers through different ways such as surveys, phone calls, meetings, on-site visits, seminars, and exhibitions to share the latest business updates and gain an in-depth understanding of customer feedback on its products and services. In 2024, the Company completed the annual customer satisfaction survey, with 100% of respondents expressing satisfaction, reflecting a high level of recognition for the Company's service quality.

During the year, the Group did not receive any significant complaints regarding products and services.