

October 23, 2023

Kawasaki Kisen Kaisha, Ltd.

Development of CHRONUS System for Automatic Creation of Laytime Statements  
on Dry Bulk Carriers

— Digital Transformation to enhance customer service quality —

Kawasaki Kisen Kaisha., Ltd. (“K” LINE) has developed the CHRONUS system using the AI-OCR technology\*<sup>1</sup> developed by Cinnamon Inc. (Cinnamon AI). The system automatically retrieves the necessary information from the records of cargo loading and unloading services for dry bulk carriers (Statements of Fact) and calculates demurrage and dispatch fee. And it automatically prepares Laytime Statements\*<sup>2</sup>.

Usually in dry bulk carrier services, cargo owners and shipping companies set time limitation at a port for loading and unloading, called laytime, in the contracts between them. Every time a trip is finished, we calculate the actual duration of vessel staying at the port and the demurrage and dispatch fees actually incurred are settled. A Laytime Statement is prepared after calculating the net cargo handling time excluding the duration when services are not being performed due to rain or equipment failure in accordance with the details in the Statements of Fact provided by shipping agencies at individual ports and contractual conditions. However, the formats of the Statements of Fact vary depending on the port or the cargo owner. This means that it is necessary to enter a chronological record of the cargo handling work into a spreadsheet to calculate laytime.

Recently developed and put into use, the CHRONUS system reads the data from differently formatted Statements of Fact, recognizes records of cargo handling operations in time sequence from arrival of the ship, through the start and end of the operations to the departure of the ship, calculates the demurrage and dispatch charges automatically in accordance with the pre-imported conditions of the cargo transport contract and creates a Laytime Statement. Although creating Laytime Statements is an indispensable part of bulk carrier operations, the time and labor required for this process varied depending on how much practical experience the individual personnel involved had, and there were often calculation errors during the preparation of the statements. “K” LINE’s dry bulk team will standardize its workflows including the flow for the preparation of Laytime Statements to ensure they are not affected by the individual experience of the personnel involved and streamline the work processes to enhance its operation of services for its customers.

At “K” LINE, Digital Transformation is underway as a functional strategy for realizing the business strategy in the medium-term management plan\*<sup>3</sup> announced in May 2022. With the use of data and digital technologies, “K” LINE will improve its core value in safety, the environment and quality in a bid to boost its competitiveness and corporate value.

\*1 AI-OCR (Optical Character Reader)

A technology for optically recognizing printed and handwritten writing using artificial intelligence (AI)

\*2 Statements that keep a record of the difference between the allowed cargo handling time and the actual time

\*3 Medium-term Management Plan (announced on May 9, 2022)

<https://www.kline.co.jp/en/ir/library/strategy.html>

[Reference]

DX Strategy 2023 (announced on December 22, 2022)

[https://www.kline.co.jp/en/sustainability/dx\\_strategy.html](https://www.kline.co.jp/en/sustainability/dx_strategy.html)

Cinnamon AI

■ Company profile

Company name: Cinnamon Inc.

URL: <https://cinnamon.is/en/>

Location: 6th Floor, Spirit Building 3-19-13 Toranomon,  
Minato-ku, Tokyo, Japan

Established: October 2016

Representative: Miku Hirano, Representing Director and Co-CEO



cinnamon AI

Business description: AI product business and AI consulting business

To make a *world full of creation using AI where everyone can dream of a new future*, Cinnamon AI provides AI consulting and AI products aimed at realizing advanced business AI solutions.