

October 7, 2019 Kawasaki Kisen Kaisha, Ltd.

> <u>Commencing Joint Research and Analysis</u> and Market Conditions with artificial intelligence (AI)

Kawasaki Kisen Kaisha., Ltd. (hereinafter, "K" Line) has reached an agreement with Hiroshima University, the National Institute of Maritime, Port and Aviation Technology (hereinafter, "MPAT") and Marubeni Corporation (hereinafter, "Marubeni") to jointly work on research and analysis on maritime logistics and shipping market conditions using AI (hereinafter "The Research").

In recent years, it has become possible to use comprehensive, chronologically ordered ship movement and static data, such as position (coordinate information), speed, direction, port of call and drafts, for ships with over 300 gross tonnage traveling internationally. This data is being applied in a variety of ways. Additionally, AI is making remarkable progress with improving machine learning and deep learning technology, and there is much research and practical application of this technology that is being used to find patterns hidden in big data and to make predictions. The purpose of The Research is to estimate maritime logistics by combining data and technology, and to explore the possibility of developing predictive models with high accuracy.

The shipping market is one of the more difficult economic indicators to predict because it fluctuates greatly under the influence of various market and social conditions, and sometimes market sentiment as well. The method developed by The Research is expected to enable more accurate and transparent business decisions.

"K" Line Group is promoting the application of digital technology which never stops evolving, such as AI/IoT to our existing business by assigning "AI/Digitalization Promotion Division" as a driver.

We are working to further improve the quality of existing service based on safety in navigation and cargo operations to high-value-added services which can contribute to strengthening relationships with our customers that we have cultivated for many years.

We are also working to organically integrate and develop the various technologies and services cultivated across all divisions to date, and to move forward not only internally, but also through proactive cooperation with universities and other external research institutes, so that we can construct new business models more effectively and with a greater sense of speed.

"K" Line will continue to promote the creation of new values by combining its own knowledge on shipping cultivated for the past 100 years with new experience and knowledge of Hiroshima University, MPAT and Marubeni.