



Netherlands Enterprise Agency

Development of Autonomous Ship technologies in Korea

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Introduction

Korea is a leading country in the shipbuilding industry. Especially, from 2009 to 2013, the shipbuilding industry and offshore plant industry were booming. However, the recent rise in China's price competitiveness and drop in the international oil price has caused a huge challenge in the Korea's shipbuilding industry. In order to overcome the current crisis, and following the trend of the 4th industrial revolution era, the shipbuilding industry is also seeking for a next leap by developing autonomous ships.

Korea's Shipbuilding industry

Korea entered the shipbuilding industry in 1970s when Japan was leading the world shipbuilding industry. Since 1997, Korea took over the 1st place and after 2000 the market share of Korean shipbuilders reached 30~45%. It is Korea's representative main business which creates immediate jobs. The core products are big merchant ships, offshore vessels and LNG carriers.

Development of Autonomous ship technologies in Korea

The technology development level of Korea is about 5 years behind compared to Europe. The main technologies that are being developed are Dynamic Positioning (DP) system, and Collision Avoidance algorithm for small ships. For instance, Korea Institute of Ocean Science & Technology (KIOST) adopted autonomous ship technology using DP system at the icebreaking research vessel Araon.

Korea Register, Hyundai Ocean Service, Too Gram Systems, T1 IT and so on formed a consortium to conduct a research on the development of autonomous ship body, engine state-based maintenance system. This system is a recent trend of high value industrial asset management in order to prevent damage and well maintain the equipment by diagnosing the condition and analyzing maintenance time to provide.

Hyundai Heavy Industry, Samsung Heavy Industry and DSME have also developed a smart ship platform and solution those satisfy IMO (International Maritime Organization) MASS (Maritime Surface Ships) Degree 1(Automated Process and Decision Support). Their ultimate goal is to utilize this tool further develop the autonomous vessel which complies MASS Degree 4 (Fully Autonomous Vessel).

Korean Government's support

The Korean government is fully supporting the development of new and innovative technologies in the ship industry. The Ministry of Trade, Industry and Energy (MOTIE) is going to spend about 441 million EURO for R&D in the smart autonomous ship and offshore plant sector from this year until 2024. Furthermore, the Ministry of Ocean and Fishery (MOF) also cooperates with MOTIE to commercialize the autonomous ship technologies by providing foundries for pilot tests and ease in regulations. Last but not least, the Ministry of Science, Technology and ICT (MSIT) is also contributing in this project to support the development of cyber security and other ICT related technologies.



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Conclusion

There are active contribution from both public and private sectors to develop the autonomous ships, and as Korea is well aware of their status of the technology development, Koreans are open to collaborate with foreign knowledge institutes, companies or startups to jointly develop the autonomous ship technologies. The Embassy of the Kingdom of the Netherlands to the Republic of Korea can help the Dutch companies or knowledge institutes to find a research partner in Korea.

Source

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