

Asian Logistics and Maritime Conference 2019 InnoTalks

Moderator

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Speakers

Ms Vic Cui

Director of Operations, MUJIN China

Mr Jean-Marie Guerin

CCO, ANJI-CEVA Logistics Co, Ltd

Mr Wei Ran

Executive Deputy Director-General, Office of Planning, Development and Management of Beibu Gulf Economic Zone of Guangxi Zhuang Autonomous Region

How technological innovations reshape the logistics industry in future?

Disruptive technological forces are reshaping the logistics and supply chain management in ways that are profound and unprecedented. At InnoTalks session, three distinguished speakers shared innovative technologies including “teachless” robotics, autonomous vehicles, and the development of a smart port.

Mainland China’s first fully automated warehouse

Vic Cui, Director of Operations of MUJIN China, noted that the company’s mission is to automate robots with software systems to increase worldwide productivity.” The controllers empower manufacturers and logistics service providers with smarter robots.

In 2017, MUJIN helped JD.com, one of the largest e-tailers in Mainland China, to realise the world’s first fully automated warehouse. “There are 20 robots which can handle up to 20,000 SKUs and work 10 hours a day, said Ms Cui. “During Double 11 Shopping Festival, our robots were able to work 100 hours continuously. In 2 years, the warehouse handled more than tens of thousands of products. Those 2 years included the 6-month trial period.”

She mentioned that the core technologies involved real-time motion planning, perception and control. With this total robot solution, the robot is able to detect, pick up and place products at their designated locations. "The robot needs to know what it's going to pick up and how the object is oriented. It also needs to evaluate the conditions in real time, and make motion adjustments in time in order to pack objects and avoid accidents," she explained. "It's a good demonstration of a truly autonomous robot system that meets challenging requirements in the logistics industry."

The company's goal is to develop a "teachless" robot. "For factories handling fixed SKUs, it makes sense for having 6 months to teach the robots to handle the procedures. For warehouses like JD.com, the situation is always changing as existing SKUs will have their packages and sizes changed when there are tens of thousands of SKUs to be handled."

To achieve this teachless goal, MUJIN is using technology to fill the gaps. For example, there is a registration system controlling the grasping strategy of the robots. "The system automatically creates the necessary strategy, such as marking a location as a red zone to instruct the robots not to grab. With this technology, operators are not required to know anything technical about the robots."

Asked if Guangzhou is the second base for the company's development, Ms Cui confirmed that their success story with JD.com helped them understand the Mainland China market. "The logistics industry is growing fast in the mainland, with customers demanding higher technology requirements and tighter schedules." She also mentioned that being close to Hong Kong and research institutions in South China allows them to recruit talent easier.

She added, "Our founder's mission is to make robots easier to use for everyone, and free people from repetitive tasks, particularly in unfavourable work environments such as car factories and cold chains where robots should be more effective."

Autonomous trucks at the Yangshan deep-water port

ANJI-CEVA Logistics Co, Ltd is a joint venture between CEVA Logistics, the leading global supply chain company, and SAIC AnJi Logistics, the world's largest automotive logistics company. ANJI-CEVA Logistics launched an autonomous container project transportation in the Yangshan deep-water port of Shanghai with China Mobile in 2017.

According to Jean-Marie Gueri, CCO of ANJI-CEVA Logistics Co, Ltd., the collaboration will offer a fully automated solution to move containers faster from the port to the terminal. "The solution is to understand when the ships are arriving, what's inside the ships, then we can organise the fleet to pick the goods up at the right time and move them from the warehouse. Thus, optimising the usage of the limited space in the port."

A highlight of the project is to transfer the containers from the port to the railway with an intelligent logistics solution. "An SMS fleet management system was created to receive and organise information using China Mobile's 5G technology and to send autonomous trucks to pick up containers at the port at the exact time," Mr Gueri explains. "The autonomous trucks are equipped with radar and cameras. The key is to ensure the trucks move the way we want them to, rather than doing it manually."

While safety issues for autonomous vehicles is a concern, Mr Gueri points out that human drivers pose the same threat to pedestrians. "There is still a long way to go to achieve fully autonomous driving," he admits, adding that a lot more testing is necessary.

Intellectualisation of Beibu Gulf

Wei Ran, Executive Deputy Director-General, Office of Planning, Development and Management of the Beibu Gulf Economic Zone in the Guangxi Zhuang Autonomous Region (GZAR), reported the innovation and practice of the automation and intellectualisation of the international gateway port of the new western land-sea trade corridor.

According to Mr Ran, GZAR planned to build a new international trade corridor in 2017. With Chongqing as the transportation hub, the corridor sets the Beibu Gulf as the land-sea interface for connecting Western Russia and the countries along the Belt and Road. Also, GZAR aims to establish a large-scale, internationalised, professionalised and intellectualised advanced port. A proactive approach is taken to promoting the development of prime infrastructure, maritime services, multimodal transport and logistics information platform of the Beibu Gulf, in the hope that Guangxi will be more accomplished through enhancing the strategic status of the Beibu Gulf.

While reporting the outcomes of a number of initiatives, Mr Ran gave a brief account of the objectives and progress of the intellectualisation and automation of the Beibu Gulf. He said, "Concerning the port operation, the Beibu Gulf and PSA Singapore have established the 'Beibu Gulf Network' ('Network'). It is an external

service platform of port construction, offering a broad variety of functions such as container redeployment, fund settlement and online transactions. Through offering informatisation services for ports, trailers and freight forwarders, online processing and resource sharing of the port business are realised, enhancing the level of intellectualisation of the Beibu Gulf.” Mr Ran highlighted that the objectives of checkpoint services are establishing customs clearance automation and optimising business environment as early as possible, so as to reduce the cost, the number of customs clearance centres, as well as the procedures and time required for customs clearance in 2020.

When asked about the logistics information construction, Mr Ran revealed that one of the terminals of the Beibu Gulf system connects the container dynamic data of 23 ports, including East Asia, Europe, ASEAN, among others. Another terminal connects the national railway system and the national logistics information platform data, which enables the interconnection and sharing of logistics information and achieves a sea-land seamless interface.

Concerning the intellectualisation, automatization and modernisation of the logistics of beneficiary ports and the sea-rail intermodal transport, Wei Ran stressed that upon strengthening the service capability of the Beibu Gulf and the integrated competitive power; the business of various fields, such as maritime container transportation, railway transportation, cold chain logistics and port logistics, will be expanded in the future. Besides, a professionalised, systemised, personalised and modernised container logistics network will also be established.