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Technology lends a hand to green e-commerce

LIANG HAO & CHEAH SIN MEI

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The world has witnessed an e-commerce boom in the past 2 decades, and Asia-Pacific is now driving the latest wave of growth. The Covid-19 pandemic has further accelerated consumers' growing preference for online consumption, with the Asia-Pacific region raking US\$230 billion in online retail sales in 2020.

Within the same year, 1 in 3 digital services consumers in South-east Asia was a new user and 90 per cent intended to continue their newfound habits post-pandemic. In Singapore itself, there has been 70 million new digital consumers since the start of the pandemic and online sales here is estimated to reach US\$8 billion. These developments led to the prediction that Asia-Pacific's online retail market would be worth US\$2.8 trillion by 2025, up from US\$1.7 trillion in 2020.

As consumers continue to enjoy the convenience and flexibility of online shopping, e-commerce is silently exerting pressure on the environment. More orders translate to more packaging waste and more delivery trips result in more transportation emits. Generating a larger carbon footprint than before, e-commerce businesses have to be mindful of the increasing impact on climate change.

Last year was the warmest year on record and greenhouse emissions were also at a record high. Given the magnitude of the impact, organisations can no longer avoid the subject of environment sustainability and must take climate change seriously.

MITIGATING THE EFFECTS OF RAPID E-COMMERCE DEVELOPMENT

Major e-commerce players in the region and the world are in partnership with logistics service providers that are actively taking steps to slow down the pace of destruction to the planet. While striving to be more environmentally responsible, at the same time, they are preserving customer satisfaction and hence the bottom line.

Leading logistics firms have been championing green logistics and industry-wide sustainability initiatives in their respective countries. One of them is Cainiao Smart Logistics Network, the logistics arm of the Alibaba Group. The Green Logistics 2020 campaign led by Cainiao is by far one of the most extensive in the country that involves major retailers such as Taobao, Tmall, Freshippo, Lingshoutong, Idle Fish and Ele.me.

LEVERAGING TECHNOLOGY TO DRIVE SUSTAINABILITY

Technology has been a game changer for the logistics industry when it comes to pursuing sustainability. Take artificial intelligence (AI) as an example. The use of an AI solution in packaging has helped Cainiao significantly reduce material wastage from over-packing; this reduction came up to as many as 12 million shipments during the 11.11 Global Shopping Festival last year.

The AI algorithm works by analysing data such as product category, dimensions (length, width and height) and weight of the items, to recommend the right-sized box and the order in which the items are to be packed. As a result, space utilisation of carton boxes is maximised and fewer boxes are used.

Another innovative solution is AI-powered new energy vehicles equipped with smart routing features. These low-emission vehicles have in-built capabilities to suggest the most optimal routes after taking into consideration multiple delivery locations and real-time traffic conditions. Smart routing is estimated to provide a 30 per cent reduction in the average delivery trips to China's rural areas, thus cutting down on vehicle emissions.

Complementing the delivery fleet are autonomous logistic robots that ply the neighbourhoods of the community. The Xiaomanlv, a delivery robot, can self-navigate through traffic from the depot to designated pickup points in Hangzhou. Each robot vehicle can carry 50 packages on a single trip of up to 100 km without recharging, and deliver up to 500 parcels daily.

Consumers can play their part in last mile delivery by picking up their packages at selected places near them. Cainiao has introduced a network of more than 80,000 Cainiao Post Stations in China, and thousands more across the world, to enable consumers to collect their parcels at their preferred time and date. At selected self-pickup stations, smart lockers installed with self-identification features operate 24 hours a day.

DELIVERING ON SUSTAINABLE BUSINESS OUTCOMES

Given the serious impact of increasing carbon emissions on our planet, industry leaders have the power to set the tone and steer the industry towards the adoption of sustainable logistics. In China, as Cainiao has demonstrated, the industry leader can pave the way forward for themselves, other players in the ecosystem, as well as the communities they serve.

There are tremendous opportunities in using technologies like AI, the Internet of Things, and autonomous vehicles to discover new efficiencies that could minimise the sector's carbon footprint. Working together, logistics players stand a better chance in mitigating the impact of the climate change, and build a better tomorrow.

- **The writers are from Singapore Management University. Liang Hao is associate professor of finance at Lee Kong Chian School of Business. Cheah Sin Mei is a senior case writer at the Centre for Management Practice.**
- **This article is adapted from the authors' teaching case study - Alibaba Cainiao's Smart Green Logistics Strategy: Good for the Earth, Good for the Business, available at: <https://cmp.smu.edu.sg/case/5016>**