

ANNEX

The Centre for Next Generation Logistics, jointly set up by the National University of Singapore's Faculty of Engineering and the Georgia Institute of Technology, has completed three research projects in partnership with DHL-Singapore, ZALORA MARKETPLACE and SDV Logistics. These projects focused on addressing the challenges which the logistics industry face, namely, use of data analytics to improve operations, tailored supply chain solutions for e-commerce companies, and automation.

Data Analytics (DHL-Singapore)

Conducted from September 2014 to March 2015, this project focused on the outbound express service for which DHL-Singapore relies mainly on external airline companies. The research team examined ways to maximise the efficiency of shipment through air cargoes, based on the demand data on the several outbound lanes from Singapore.

After analysing a large data set containing demand as well as palletisation data, the research team developed a mathematical model that supports the management in making procurement decisions which minimise the contractual costs while improving the pallet saturation.

e-commerce (ZALORA MARKETPLACE)

This project focuses on assisting ZALORA MARKETPLACE, an online fashion retailer, with the management of returned products in cross-border settings. The research team developed a set of policies for the cross country return of goods. These policies support the company to manage returned goods efficiently by providing directions on ways to match the different product categories with the different means of transportation and related shipment costs, as well as on ways to set appropriate product pricing. The research project resulted in the delivery of a prototype software tool to support the company to evaluate different return strategy in terms of shipment costs and holding costs incurred. The tool is efficient and is executed according to a frequency related to the products' seasonality. Specifically, the tool enables both the optimisation of the return policy as well as the pure evaluation of the policy performance when this is supplied as input information to the tool. The project was carried out from September 2014 to March 2015.

Automation (SDV Logistics)

This project focused on implementing partial automation for the warehouse of SDV Logistics, which spans 8,200 square metres. The researchers developed simulation models for the picking-packing operations of the warehouse, based on field data collected. These models can effectively quantify the benefits of investment in automation, such as manpower reduction and operational improvement, and facilitate management decision making. The project was carried out from September 2014 to March 2015.