



TECHNOLOGY CASE STUDY

AUTOMATED, OPTIMIZED SOLUTION ENABLES SEMICONDUCTOR CUSTOMERS TO FOCUS ON CORE BUSINESS



DHL Supply Chain's Advanced Regional Center (ARC) opened in Singapore in 2016.

This state-of-the-art 90,000 sqm facility features an \$18.8 million multi-customer automation system which uses advanced robotics, and bespoke solutions that cater for specific industry needs.

It enables DHL customers to enjoy the benefits of automated solutions without the need for significant capital investment.

Technology customers based at the ARC include integrated device manufacturers Dell and Infineon. DHL looked to deliver for them, and other semiconductor manufacturers, a showcase, automated system that would enable productivity improvements while delivering high quality services.

CUSTOMER CHALLENGE

Singapore is a land scarce country and real estate costs are therefore high, meaning that a shared use facility made commercial sense.

A conventional solution for DHL's semiconductor customers in the country would have been very expensive in terms of land and employee costs. With the customers achieving year-on-year organic growth of 10–15%, those costs would only increase.

CUSTOMER CHALLENGE:

- Land scarce country
- Need for fast turnaround
- Flexibility and scalability essential

DHL SUPPLY CHAIN SOLUTION:

- Industry first
- Highly automated and optimized solution
- Compact footprint
- Tier 1 WMS
- Energy efficient shuttle system

CUSTOMER BENEFITS:

- Faster turnaround time
- Resilient solution with no downtime
- Near perfect inventory accuracy
- Reduced headcount

Due to the nature of the semiconductor business, customers required an extremely fast time turnaround, from stock arriving to it becoming ready and available to ship.

The solution needed to be capable of carefully managing multiple, complex SKUs under strict 'first in, first out' (FIFO) controls.

Due to constantly evolving end customer demands, it was also essential that it had the ability to flex and scale very quickly, and handle the fast implementation of increasing volumes.

Because any disruption would have far-reaching consequences for customers' businesses it was essential that there was a smooth implementation.

DHL SUPPLY CHAIN SOLUTION

DHL proposed an innovative, multi-user automated system – a solution which was a first for the industry.

In talking to potential suppliers, DHL looked for a system that had extremely high throughput and could utilise the high 13M clearance at the ARC. It also needed to be compact in footprint and possess the flexibility to handle the requirements of many different customers.

After an extensive review by automation experts at DHL, the Dematic Multishuttle system was selected as the one that best met requirements. This next-generation shuttle system is designed to store, buffer and sequence products between bulk stock and functions such as picking and order assembly. It has been designed to dramatically increase speed, accuracy and throughput.



Working in close collaboration with Dematic, the automation team designed the process and the system. This involved close consultation with operations, IT teams and customers to ensure that their needs would be met, while making it generic enough to accommodate new customers.

A Tier 1 warehouse management system from JDA was chosen for its functionalities such as volumetric-driven inventory control.

The shuttle system has been designed with sustainability and energy efficiency in mind, and power is only routed to the shuttles when it is active. It is expected to have a lifespan of between 15 and 20 years.

CUSTOMER BENEFITS

The new system exceeded initial productivity assumptions. Its increased speed of picking and putaway has resulted in a faster turnaround time for customers and from order drop to completed pick now takes six minutes per order.

The solution has proven to be extremely resilient, with little or no downtime and operates 24 x 7 x 365. Even the minimal maintenance that is required can be completed while the unit is still operational.

Inventory accuracy of the system has been measured at 99.999% which has removed the need for extensive cycle counting.

The number of people required to operate the system is significantly lower than in a conventional facility, a benefit in a country where there is low unemployment and supply chain talent can be hard to recruit.

This highly automated and optimized solution allows DHL's semiconductor clients to focus on their core business.

QUOTE

"In 2017 Dell awarded DHL Supply Chain its Global Innovation Partner Award in recognition of the solution."

FOR FURTHER INFORMATION

Contact our supply chain experts [here](https://dhl.com/supplychain) >
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