Annex A

FACTSHEET

URBAN LOGISTICS FOR URBAN LIVING IN A SMART NATION

Background

By 2050, 70% of the world's population is expected to be living and working in urban areas[1]. With this rapid rate of urbanisation, cities around the world are facing increasing strains on urban infrastructures like transportation, water, energy, and housing. Reflecting this demand, and future growing demands on existing resources, Singapore's population has grown to about 5.54 million in 2015.

The logistics sector provides an essential function that enables the delivery of goods and services to the population and enables commerce to thrive. As indicated in the Infocomm Media 2025 plan, Singapore's Smart Nation building will include strengthening this area, and building of new technological capabilities to alleviate the demands on these resources. Through these efforts, locally based delivery companies will be more effective in handling deliveries and have the ability to export these capabilities if they choose to expand their business overseas.

On October 2015, Deputy Prime Minister, Mr Tharman Shanmugaratnam, announced that the government will be spending S$20 million to leverage on technology to implement urban logistics solutions in the retail sector. This is expected to reduce the number of trucks on the road by a quarter, cut delivery manpower by 40 per cent, and reduce in-waiting and queuing time for deliveries by 65 per cent.

Sector Challenges

Operationally, current distribution networks and resources are not optimised when existing Logistics Service Providers (LSP) handle goods delivery in Singapore. As logistic companies individually fulfil their orders, trucks are also often underutilised, with goods packed below capacity for delivery runs. This leads to a wastage of resources and a high delivery cost-per-unit for companies. At the same time, the logistics industry is grappling with increasing overheads, driver shortages, and need for timely deliveries.

For truck drivers who rely mainly on experience to do their delivery runs, they lack the advance knowledge of traffic conditions, and congestion levels at the unloading bays.

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[1] Source: United Nations Population Fund

This often results in lengthy journeys and long wait times in an average delivery trip, thus reducing their productivity.

Urban Logistics Programme Approach

The aim of the Urban Logistics programme is to deploy appropriate technologies that achieves a collaborative distribution amongst different stakeholders in the supply chain. This paradigm shift of collaborative distribution involves the sharing of logistics resources such as vehicles, drivers and warehouses to coordinate delivery schedule to selected zones, improving the overall effectiveness of the sector for mutual benefit.

Companies can coordinate routes using Infocomm
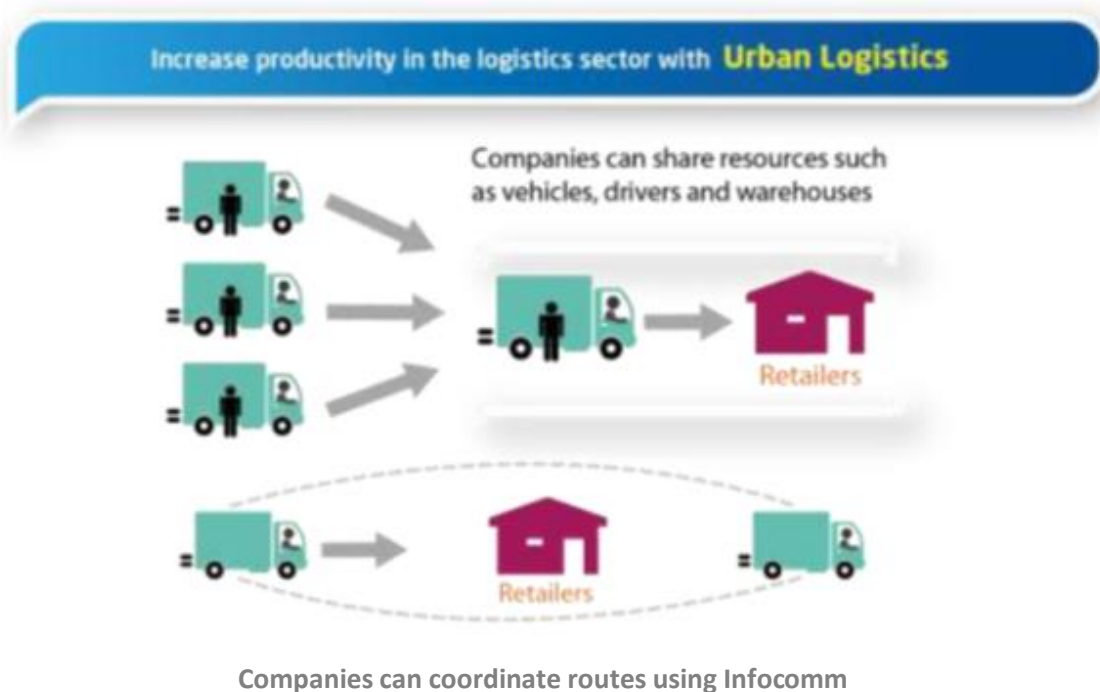
As this collaborative distribution requires significant process and business model re-engineering of the supply chain, it is important to have a crucial mind set shift that embraces disruptive changes, to be an early adopter so as to be more competitive in the medium and long term. Early adopters could include cost-conscious customers, retailers and mall owners in key shopping belts that are facing delays in deliveries that impair their ability to provide vital inventory to customers today.

In-Mall Distribution (IMD) and Offsite Consolidation Centre (OCC) are two collaborative distribution models in Singapore that are being implemented in the Urban Logistics programme.

In-Mall Distribution

In March 2016, the Infocomm Media Development Authority of Singapore (IMDA) signed a Memorandum of Intent with CapitaLand to launch the In-Mall Distribution (IMD) at Tampines Mall and Bedok Mall. In-mall distribution is part of the Urban Logistics programme that has since been led by the Infocomm Media Development Authority (IMDA) – formerly the Infocomm Development Authority of Singapore (IDA).

The IMD concept is enabled by various technologies including a dock scheduler and queue management system where LSPs are able to book time slots to make deliveries. This solution will work in tandem with a change-of-custody system to improve efficiency during the handing and taking over process to significantly reduce vehicle delivery queues into a mall.

The IMD process also involves an In-Mall Logistics Operator (IMO) stationed within the mall unloading bay to receive and consolidate deliveries from suppliers before making the last-mile delivery to retailers within the mall. The IMO can also offer other value-added services such as unloading bay facility management, security pass management, concierge services (e.g. bag/luggage deposit, cold storage facility), home delivery, meal delivery for F&B establishments, e-commerce pickup service and Just-In-Time replenishment or goods transfer for retailers.

Programme Benefits

In-Mall Distribution will change the last mile delivery landscape such as enabling lesser waiting time at unloading bays that leads to better utilisation of delivery trucks and drivers. It can improve productivity in the logistics sector, improve retailers' sales and provide a better consumer experience.

The industry can leverage technologies or systems developed in this programme to reduce dependency on manpower and achieve "best time" delivery. This will also contribute to better usage of the roads and reduction in urban congestion.

For Retailers:

- Improves on-shelf availability - can ensure items do not run out-of-stock in retail shops, improving sales potential.

- Opens market potential of brick-and-mortar stores by allowing shoppers to purchase online and fulfil their items from the store through IMOs' outbound delivery services to homes or offices.

- Better shopping experience as shop assistants will have more time to assist shoppers instead of receiving goods from different suppliers throughout the day.

- Allows for home delivery services, addressing changing needs of an ageing population.

- Reduces operating cost by outsourcing jobs such as stock transfer between outlets, goods return and on-shelf placement to the In-Mall Operator at a reasonable fee instead of needing to employ resources which incur overheads.

For Mall management/operators:

- Reduces traffic congestion for the unloading bay as the deliveries to the Mall will be scheduled and managed by the In-Mall Operator.

- Better Management of deliveries to retailers as the In-Mall Operator will schedule its deliveries to the retailers and be equipped to use proper equipment and facilities to do so.

- Better Mall Image because there will only be uniformed deliverymen moving within the Mall.

- Improves security through dedicated entrance and exit pass management.

- Reduces wear and tear of resources (serviced corridor, delivery lifts) through appropriate use via effective routing by In-mall operator.

For Logistic Service Providers:

- Quicker turnaround due to less congestion at the unloading bay. LSPs need only drop off delivery goods with the In-Mall Operator.

- Improves productivity because LSPs arrive at scheduled timings and no longer need to queue to get into the unloading bay.

- Improves asset allocation – better vehicle utilisation because a quicker turnaround results in more deliveries with an existing fleet of trucks.

- Reduces operating costs because LSPs can perform the same volume of deliveries with a smaller fleet.

Offsite Consolidation Centre

The In-Mall Distribution can work with another Urban Logistics model; the Offsite Consolidation Centre (OCC). Before delivering to malls, trucks with less-than-full loads can consolidate and sort their goods in the OCC. Goods can be re-loaded and then delivered to their intended destinations on a single truck within the same day. This reduces the number of trucks going to the same destination and improves truck load utilisation.

Technologies such as cloud-based dock scheduling solutions, queue management systems and change of custody systems, can be similarly deployed to enable efficient goods delivery. Advanced robotics can also be deployed to help sort goods, while fleet optimisation solutions can enable smooth, tracked and optimised delivery from the source to the destination

Dock Scheduler and Queue Management (DSQ) System

IMDA worked with Gurusoft Pte Ltd to develop the DSQ and deployed it for the IMD at Tampines Mall in June 2016. This solution can also be used at the OCC.

At Tampines Mall, the DSQ functions and features:

- Allow both internal and external users to access the application anytime

- Analyse data and develop reports and send alerts to process administrators, allowing planners to gain insights and make data-driven decisions on the process to benefit IMOs, drivers and retailers

- Facilitate access via multi platforms so that multiple parties can log on to make bookings and IMO personnel can verify approved vendors for their delivery timeslots

- React to deliveries coming too early and remove original booking slots for others as necessary

- Provide last mile delivery visibility to the Mall tenants

- Identify vehicles that overstay in the mall loading bay lots

Change of Custody (COC) System

IMDA worked with Ascent Solutions Pte Ltd to develop an innovative electronic lock to secure and track most delivery handling units such as roller cages and tote boxes to enable a quick change of hands in the supply chain, minimising the need to do a piece-by-piece counting of goods received by the recipient. This solution is deployable in both the IMD and the OCC.

The system can:

- Integrate with reusable locks that come with flexible locking mechanism to secure most storage units.

- Embed an inexpensive Bluetooth Low Energy (BLE) tag with a long battery life within the lock. It is readable by regular smartphones to enable a cost-effective cargo track-and-trace in the supply chain.

- Allow logistics providers to post their spare capacity for others to use.

- Automatically alert shipper and consignee when the lock is tampered.

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