Last Mile Distribution in India: Overview

The distribution network in India has major channel components like retail network, wholesale network, and the logistic infrastructure. The traditionally followed last-mile distribution model in India can be explained as follows-

To design an effective logistic model for last mile delivery, understanding the retail market in India becomes essential.

Indian retail industry is considered as one of the most dynamic industries in the world due to its growth potential, demographics and complexity. Total number of retail distribution outlets in India is estimated to be around 1.2 Cr, out of almost 3 Cr retail outlets in the world. It constitutes over 10% of the nation’s GDP. The Indian retail industry, currently estimated at $490 billion, is projected to grow at CAGR of 6% to reach $865 billion by 2023, according to Oxford Economics. (The distribution network in India, October 2018) Retrieved from https://www.nordeatrade.com/en/explore-new-market/india/distribution
The retail market in India is still dominated by unorganised sector. It is characterised by low tax pay-outs, lower labour costs, credit availability and low rentals. These are mainly family-owned businesses and include mix of conventional outlets such as kirana shops (department stores), paan-beedi shops, general stores, and other smaller retail outlets. Organised retail outlets such as supermarkets, hypermarkets, specialised stores etc., are on the rise in recent times; however, India's organised retail penetration is much lower compared with other countries, such as the United States which has organised retail sector penetration of 85%. Indian retail industry also constitutes of service outlets like food outlets, beauty salons, coaching centres, etc. and upcoming e-commerce market. (Madan Sabnavis, June, 2017)

Such unique and complex structure of retail market poses number of challenges for last mile delivery in India. As a result, the last mile delivery contributes to the maximum share in the total shipping costs of goods and services. It is also the most time-consuming part of the entire shipping process.
Challenges for Last Mile Delivery in India

Warehousing impact on costs:
Choosing a Hub and Spoke model of delivery requires regional warehousing facilities at regions of high-volume density. This has an impact of costs and the size of building has a direct correlation with pricing. On an average, warehousing buildings have a size of 2,500 square feet. Pre-engineered I beam buildings cost around INR 600 per square foot.

C&F Agents:
Adding the partners in the supply chain leads to higher delivery costs. This challenge either compels the organizations to squeeze their margins, making it tougher for them to sustain in the business; and/or compels the customers to pay more for the goods.

Heterogeneous nature of outlets:
The 90% share of unorganized retail sector consists of a formidable mix of different types of outlets ranging from Paan-shops to general stores. Different types of outlets ranging from kirana shops to supermarkets and hypermarkets demand different type of last-mile delivery strategy, in terms of quantity, variety and different packaging of SKUs of similar products. This poses difficulty in storage, inventory management, sorting and shipping of the products. The co-existence of general trade, modern trade and alternate trade in India adds to the complexity of the last mile delivery.
Geographical disparity:

The Indian retail market is categorized in 4 zones, viz. North/South/East/West. Each zone has subcategories viz., rural, urban and metro regions. There is a great disparity in all the regions in terms of the logistic infrastructure and government regulations regarding Octroy and road permits (resolved to some extent after implementation of GST). LSPs have to implement different strategies regarding using hubs and cross-dock facilities, managing different mix of vehicles fleet, etc. in order to ensure last-mile delivery in different regions of the country.

The “reach” challenge:

The density of retail outlets becomes rarer across Tier I, Tier II and Tier III cities and rural regions, in that order. In case of denser metro cities, heavy traffics become a challenge for timely delivery of goods. As the retail market gets rarer in towns and villages, multi-point distribution adds to the logistic costs. It also results in longer delivery time and poses a challenge, especially for FMCG industry, in making timely availability of goods in remote regions.
**Inaccurate and confusing address:**

The median area in India that is covered by a pin-code is 90 sq. km and may contain up to a million households. House numbers and landmarks are either inaccurate or confusing. In an 8 hour shift, involving 40+ deliveries, this problem wastes valuable time for the delivery partners. Confirming addresses can have negative impact on the customers delight. A failure to locate address correctly breeds inefficiencies in processes like route planning, and results in multiple attempts of deliveries of the same shipment, further adding to the inefficiencies. (*Retrieved from https://newsroom.shadowfax.in/exactly-how-broken-is-indias-last-mile-logistics-cbc34af75f7c*)

**Poor vehicle utilization:**

70% of the last mile logistics sector is made up of small vendors. Thus, one of the major challenges for LSPs in making last mile deliveries is the inefficient average utilization of the vehicles at a lowly 35%. These inefficiencies can be grouped under three broad heads: Ineffective route planning, improper space utilization and concentrated demand at the peak times. (*Retrieved from https://newsroom.shadowfax.in/exactly-how-broken-is-indias-last-mile-logistics-cbc34af75f7c*)

**E-commerce:**

Indian retail market has come a long way in the e-commerce space, considering the fact that India now has 462 million active internet users as of January 2018. This has created a large opportunity for Logistics companies to tap on and a huge push towards the rural population. However, this segment of logistics has its own challenges namely:

- Cost: A high proportion of total delivery cost comes to be from the last-mile
- Transparency: Parcel tracking and frequent thefts on the way is a major challenge in this domain.
- Infrastructure: Road connectivity and IT amenities are lacking in most parts of India. Hence, the time lag from order to delivery has not been shortened by much.

**Measures of performance of Last Mile Delivery:**

- Fuel consumption per vehicle/driver
- Planned kilometers versus actual kilometers driven
- Number of deliveries per route
- Deliveries made on-time, as a percentage of total deliveries
- Percentage of vehicle capacity used
- Percentage of fleet capacity used
- Vehicle operating costs per kilometer
- Driver hours (stationary and in motion)
- Total costs per kilometer (driver, vehicle, and fuel)
- Total number of legs per trip (a leg being the journey from one stop to the next)
- Average distance per leg
- Average distance per trip
- Average time spent at each stop
- Number of stops (actual versus planned)
- Percentage of product value recovered
- Transportation and handling costs per returned item
- Distance travelled per item
- On-time pickup performance

Retrieved from https://www.logisticsbureau.com/fixing-retail-supply-chain/

**Opportunities for Last Mile Delivery in India**

For an LSP, to convert last mile delivery challenges into opportunities, the most important step is to select the Right Last Mile Distribution Model. Following are some opportunities for the LSPs-

**Double hub-and-spoke approach:**

This is particularly important for Omni-channel distribution approach. This involves the use of LSP’s own outlets such as cross-docks, as **final staging posts** for online orders. By trucking these orders in with your regular retail deliveries, LSP can cut down the costs involved in delivering smaller orders to residential addresses. If LSP does not have local outlets, they can make **use of urban distribution facilities, cross-docks** run by third parties to serve the same purpose. Retrieved from https://www.logisticsbureau.com/fixing-retail-supply-chain/

**Crowdsourcing model:**

Today, the concept of crowdsourcing is prevalent in service deliveries, through digital platforms like Uber, Ola, Airbnb, Swiggy etc. Location-based crowdsourcing allows consumers to open a mobile app to book a ride, book a place to stay, order food takeout, etc. The same model can be employed by LSPs in last mile delivery of goods. With crowdsourcing technology, logistics partners and consumers can connect directly with local, non-professional couriers who use their own transportation to make deliveries. They are usually well-informed about the area they function in. Companies can get their online orders to customers faster, and customers can get their items on desired address at the desired time. The freedom to make on-demand and
scheduled deliveries also ensures that customers get the control of their own delivery window, eliminating the need for a second (or third) attempt. This model can be effective in making last mile delivery in high density areas. However, as the delivery volume increases, there will be a further need of optimizing this model to improve cost efficiencies. Another factor influencing this model is the geographic scope of the market and nature of the product.

**Partnership with 4PLs:**

By negotiating a contract with one or more 4PL, having a solid reputation for customer service and functioning within specific area, can give a differentiator advantage for the LSP. This can be effective in areas typically posing the “reach” challenge. The local 4PL can gain access to bigger avenues through partnerships with LSPs of big corporate brands. In exchange, LSPs may be able to gain a reasonable degree of control over driver behavior and customer service commitments from the 4PL. If the products to be delivered take up a lot of space and require the aid of mechanical handling equipment, a carrier or 4PL specialising in heavy deliveries may be able to offer attractive pricing. Similarly, Motorcycle and bicycle couriers will be suitable for getting deliveries quickly through city zones in which larger vehicles are often gridlocked to a standstill. By selecting right partners, serving as specialists of last mile distribution of a particular zone, primary LSP may be able to save on the fleet management costs, maintenance and running costs.

However, overall this model can invite higher delivery costs. This challenge can be partly dealt with by **shared reception systems.** This system suggests the possibility of asking customers to meet the LSP halfway and collect their orders from secured **shared reception boxes or lockers** located in public areas or commercial facilities local to their homes. This can have implications over customer satisfaction, however, considering the challenge of reaching...
customers in remote areas, which today poses considerable threat towards customer dissatisfaction (damaged parcels, lost deliveries, higher delivery time), this may be a reasonable trade-off.

**Role of IT:**

The technological advances in IT and analytics sector can be effectively used for building an effective logistic infrastructure to overcome last mile delivery challenges:

**Dynamic route planning** and optimization: The routing and scheduling modules built into ERP and TMS solutions are not sufficient enough in modern times where the LSPs must cater to the needs of large omnichannel sales organisations, which involve accommodation of a **continuous stream of fresh customer orders** into route plans and providing customers with a range of delivery options. Hence, in addition to involvement of IT into route planning, LSPs can consider a value-added activity for customers by investing in a **best-of-breed scheduling** and optimisation solution. One of the steps involved in this system is maintenance of a private database of regions of high frequency orders.

Additional differentiator for the LSPs is integration of dynamic route optimisation with comprehensive tracking technology, enabled by vehicle telematics and/or mobile technology. This way, customers as well as sales organization can get real-time visibility of the orders being shipped. Parcel tracking devices can also be extended to auxiliary vendors ensuring last mile connectivity in rural villages. This will also help in reducing theft in the hinterlands. Finally, at the point of delivery, this system gives the cost and quality benefits of **electronic proof-of-delivery solutions**, avoiding the prone-to-errors paperwork.
References

Journal articles and reports

- Sabnavis M., June 2017, Indian Retail Industry - Structure & Prospects

Websites

- https://www.logisticsbureau.com/fixing-retail-supply-chain/
- https://newsroom.shadowfax.in/exactly-how-broken-is-indias-last-mile-logistics-cbc34af75f7c