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CII Institute of Logistics

E-commerce retail logistics in India

Driving the change

May 2018

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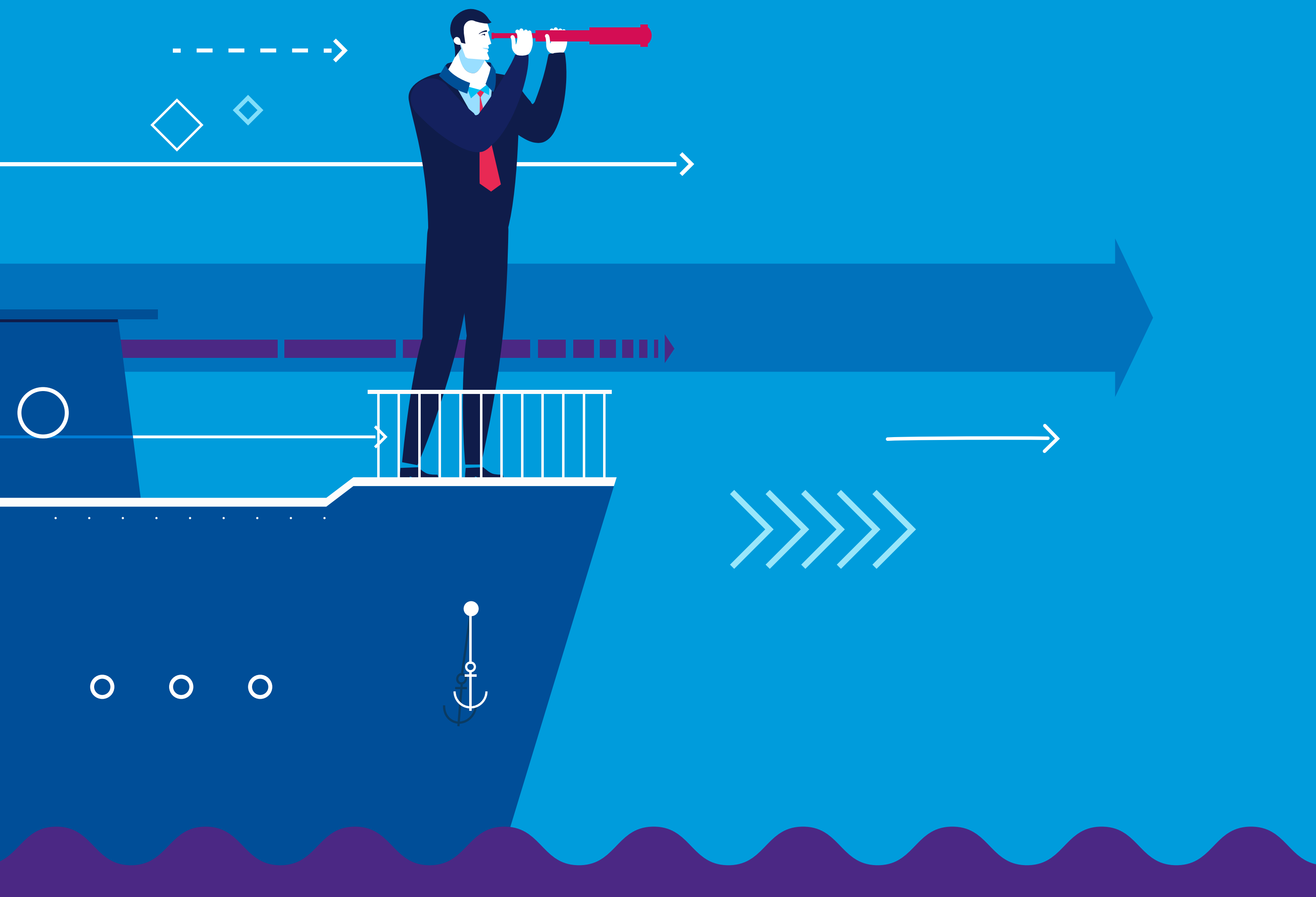

Foreword by KPMG in India

The e-commerce retail industry in India has grown substantially driven by increasing internet penetration, smartphone usage and language diversity on e-commerce platforms. Further, adoption of digital wallets has become more widespread now, aided by overall shift towards digital payments. The industry is expected to witness rapid growth, fueled by a recently-held large deal.

Consequently, the e-commerce retail logistics industry has grown at a brisk rate. While growth has been high, there are inherent challenges which the industry is trying to overcome. Some of the issues that confront the sector include high cost pressures, high returns and inadequate physical infrastructure.

Trends and developments in e-commerce retail, rising consumer expectations and amplified demand for same-day deliveries are shaping the ways the e-commerce retail supply chain functions. This sector is also experiencing the rise of new business models like omni channel retailing and new business models for last mile delivery like delivery through local retailers.

Logistics requirements for the e-commerce retail sector are getting reshaped by continuously evolving business demands. The growth of the sector continues to be on an upward trajectory, and is expected to continue to do so.

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Overview of e-commerce retail in India

E-commerce retailing in India

The online retail market in India has grown by leaps and bounds from its nascent state in the mid-2000s to its current market of USD19.5 billion worth of transactions at a gross level before returns and rejections. Strong government initiatives coupled with reducing prices of smartphones and data plans by telecom service providers have led to an increase in adoption of internet amongst new users. Consumer behaviour has also evolved wherein e-commerce initially was more of a heavily discounted market place, to today - where many users are seeking convenience of ordering products from the comfort of their homes, rather than visit physical stores.

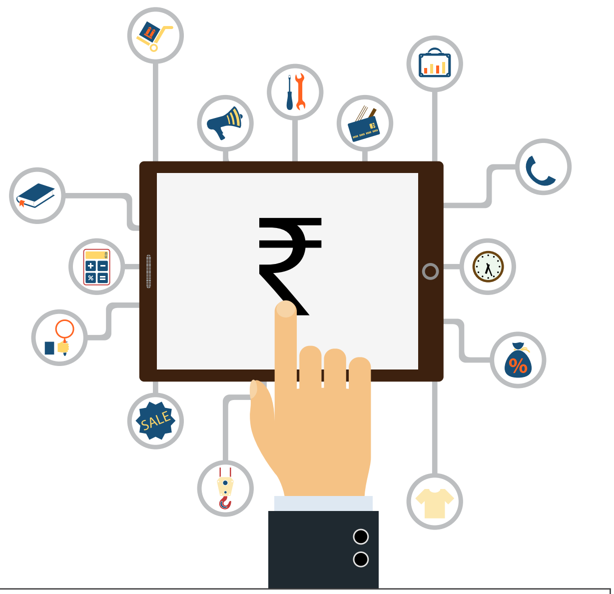
A market which has about 80-100 million online shoppers, is growing organically with the increasing employment ecosystem and new shoppers who are already among the 450 million+ internet users in India predominantly from the tier II and below cities and towns in India. The latter are coming in to the online shopping bandwagon due to various digital interventions by e-retailers as well as other ecosystem players. However, these potential customers are currently untapped primarily due to low internet penetration, poor logistics and delivery infrastructure and lack of regional language support. Further, these customers are unaware of technology usage and reside in remote regions, thus making logistics for a single order a challenge. The search for a solution to this issue has resulted in the rise of assisted e-commerce models, where the retailer at local stores uses internet enabled devices to order products. Products are delivered to the retailer, who plays a dual role of cash collection point for the ecommerce platform and pickup point for the end customers. This model has proven to be successful in solving the issue of low awareness and knowledge of online platforms as well as simplified and feasible logistics to these remote locations. It is seeing interest from both online and organised retailers and could prove to be the next big growth wave to tap.

Intense competition among players in the industry has seen a general rise in acquisitions. Top players are acquiring smaller rivals to increase their market share, in many cases influenced by international investors. Speculations based on international trends hint at possible mergers or acquisitions among firms in duopolistic segments of the market.

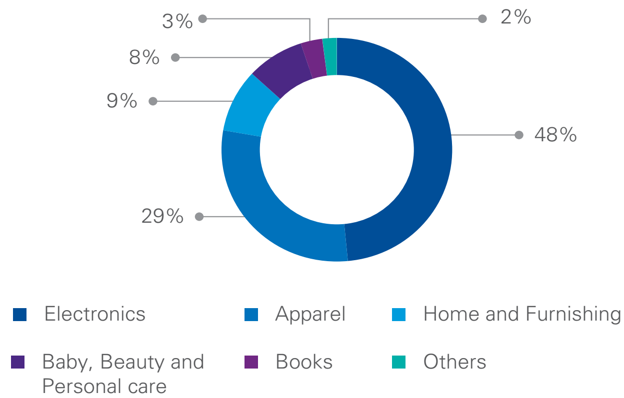
Unrelated diversifications have also started gathering steam as e-retailers are now attempting to ensure a stronger outreach and connect with customers. This might lead to a stronger influence in their future purchase decisions. These companies come from a plethora of industries, such as smart wearable devices, data analytics, virtual reality content creators and many more

Private labels promoted by leading platforms are also on a rise where in there is significant investments by the leading players in categories like fashion, electronics, home appliances and accessories.

Different approaches have been taken by the e-retailers, such as omni-channel strategies, brand endorsements by celebrities, digital influencers etc.; all receiving varied levels of success in the market.



E-commerce retail market by value - 2018



Top two players hold over 70% of the total online retail market in India

Source: Industry discussions, KPMG in India analysis

Growth Trends

a. **Internet penetration is on the rise**

Internet penetration in the country is growing rapidly, crossing 481 million in 2017 and is expected to hit 500 million users by June 2018.[01] AIMIA report highlights that urban India's internet penetration was 64.84 per cent in December 2017, in comparison to only 20.26 per cent for rural India.[02] With rural population accounting for around two-thirds of the Indian population, coupled with affordability of smart phones and data plans, internet penetration is likely to gain steam in rural India like never before.

b. **Mobile to be the game changer**

Mobile is no longer a device used only for communicating, it has now become a device that also helps the Indian internet consumer with entertainment options and shopping experiences. Consumers are getting comfortable buying products and services through various mobile applications that are available, thus making mobile commerce a viable business opportunity for retailers.

c. **Language diversity**

Adoption of Indian regional languages by retailers has also lead to regional customers exploring various ecommerce platforms – thus making shopping a convenience activity. Today, ~234 million users use Indian languages online, in comparison to ~175 million English language users.[03] Regional language content users are expected to account for ~75% or 536 million internet users by 2021, i.e. nine out of 10 new users will be Indian language users.[04]

d. **Advent of social commerce**

Social commerce is a platform that facilitates transacting basis social interactions and user experiences. India being a multi-cultural society, the concept of community buying and selling is expected to gain traction. With the ability to offer a wide array of choices, coupled with shared user experiences and referrals, social commerce is expected to impact consumer decision making significantly.

e. **Convergence of customers across multiple ecommerce businesses with use of technology**

With smartphone users expected to increase, time spent on the internet will also drive growth of ecommerce platforms. Ecommerce businesses now need to prepare for flexible ecosystems to let users move from entertainment to infotainment, eventually leading to online transactions. Further, several retailers are able to leverage traditional products and services with technology to make it appealing and convenient for consumers.

f. **Digital wallets to ride on the growth wave**

Significant investments in digital channels across Indian languages are expected to rise in the near future. Recent study by KPMG reveals that more than 75% of Indian language internet users prefer mobile wallets over websites and applications that have been promoted by banks.[03,04] Further, the Government of India's push towards digital initiatives is expected to accelerate outreach and adoption of digital wallets.

These trends are further fueled by factors such as growth in disposable income by ~55 per cent by 2020[03,04] increase in use of credit card transactions by 39% over the last year , increase in usage of debit card transactions by 98% for a 12 month period ending October 2017[05], mobile tariffs dropping ~96% in just 3 months in 2016[03,04] by ~530 million Indians.[06] The rising comfort with digital payments and the internet on the whole, have eventually proven to be strong growth drivers for online commerce.

01. Internet users in India expected to reach 500 million by June: IAMAI, The Economic Times, Feb 20, 2018
02. Internet users in India expected to reach 500 million by June: IAMAI, The Economic Times, Feb 20, 2018
03. Indian Languages- Defining India's Internet, A study by KPMG in India and Google, April 2017
04. Indian Languages- Defining India's Internet, A study by KPMG in India and Google, April 2017
05. India had 33.87M credit cards, 826.3M debit cards in October 2017, Medianama, Dec 2017
06. India set to have 530 million smartphone users in 2018: Study, Indian Express, April 2018

Indian e-commerce retail logistics

E-commerce retail logistics — Sector landscape

The Indian e-commerce retail industry has been on an upward growth trajectory with a lot of growth potential and logistics seen as a key enabler in its growth. The e-commerce retail logistics market is valued at USD1.35 billion in 2018, and is projected to witness a growth of ~36 per cent in the coming five years.

Overview of e-commerce retail logistics market in India (2018)

USD1.35 billion market	**36%** 5 years CAGR	19 lakh shipments/day

Source: Industry discussions, ROC filings, Annual Reports, KPMG in India analysis, 2018.

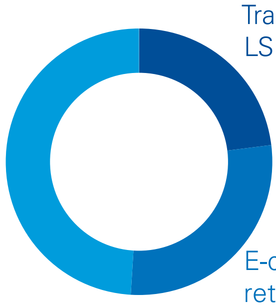
The e-commerce retail logistics sector is serviced by traditional logistics service providers (LSPs), e-commerce retail focused logistics service providers and captive logistics arms. It is largely a captive market (49 per cent share), however, a sizeable share is still dominated by new age players catering especially to e-commerce retail.

- **Traditional logistics service providers:** With rapid growth of e-retail sector in India, traditional LSPs have started providing e-retail focused logistics solutions in order to stay relevant. Most have branched out separate B2B and B2C operation capabilities. Their existing established network, coupled with their experience and expertise in India, have enabled them to capture roughly a quarter of the market share in the e-retail logistics sector. However, e-retail players demand certain level of capabilities and service levels in order to cater to their customers. Limited technological capabilities of incumbent traditional third-party logistics (3PL) players have given rise to e-commerce focused LSPs as well as captive logistics arms of large e-commerce retailers.

- **E-commerce retail focused logistics service providers:** In the past few years, dedicated LSPs for e-commerce retail have entered the market by using a technology-centric approach enabling the players to scale up, remain efficient and still provide competitive prices to customers. These players have captured roughly ~28 per cent of the sector. Individual players are growing at a rapid pace and are expanding their operations, reach and capabilities. A large influx of investments in start-ups and strategic tie-ups with e-retailers have been witnessed in the past few years.

- **Captive logistics arms:** In-house logistic arms of large e-retailers still execute over 70 per cent of the deliveries of their respective e-retailers. Not only are the captive arms of e-retailers assured of large in-house volumes, these captive arms have now started actively providing services to other external e-retailers. Further, when it comes to complex and/or high value shipments such as jewellery and furniture, e-retailers depend on their respective captive logistic arms for deliveries. This has led the players to capture nearly half the market share (~49 per cent). E-retailers are investing huge sums in their captive logistics arms to increase capacity, expand facilities and reach, hire more manpower and set up fulfillment centres pan-India to cater to increasing demands of both, in-house as well as external clients.

E-Commerce retail logistics - sector landscape



Source: Industry discussions, KPMG in India analysis, 2018

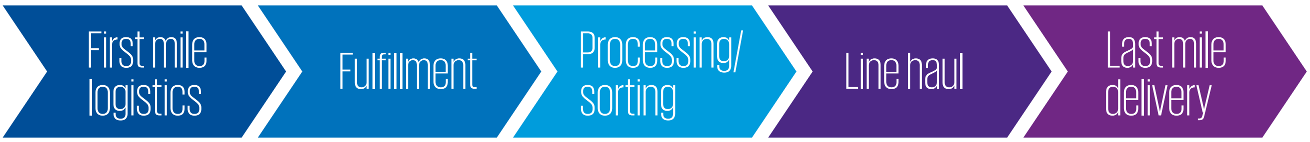
Major investments and new market entrants

Retail linked e-commerce has been driving significant investment and value for the Indian logistics sector, and has emerged as a crucial segment of the logistics spectrum. The growth of the sector has resulted in the emergence of new service requirements, and hence a new breed of logistics operators. Several e-retail companies have also invested in building their logistics networks and capability, recognising logistics as the key to drive customer experience.

Logistics in e-commerce retail plays a crucial role. There has been significant number of investments, with global companies looking at India as a favourable market. Further, with shifts happening in e-commerce retail sector like larger share of demand expected from of tier II and tier III cities and air to surface movement, existing players are looking at innovative ideas to improve end-to-end logistics. Dominant e-commerce retail platforms are looking at investing in their captive logistics arms in order to increase capacity, expand reach and ensure speed to market, enabled by a strong technology backbone. Also, with growing dominance of surface mode of transit, multiple new players are emerging with sole focus on surface delivery. A number of e-retail-focused logistics companies have extended their services to the B2B segment, placing themselves in direct competition with traditional logistics firms. Larger e-retailers are either directly investing huge sums in their captive arms or entering into alliances with local players by investing in them. A number of acquisitions have also been witnessed in this sector.

E-commerce retail logistics

E-commerce retail logistics activities



Products bought online undergo a range of processes before they finally reach customers. Starting with first mile logistics, which involves pick-up of goods from the sellers and transporting it to the e-retailers' fulfillment centre or directly to the mother warehouse, depending on the type of fulfillment model i.e., inventory-led or marketplace. In the inventory-led model, products are sent to the fulfillment centre without packaging/labelling whereas in the marketplace model, products are completely packed and sent to warehouse for storage. First mile logistics is followed by fulfillment, which involves picking and packaging of products once an order is placed on the website. After fulfillment, products are sent for processing/ sorting based on the delivery location at the processing centre of 3PLs and connected further in the supply chain through line haul depending upon the final delivery location. Line haul involves connecting the main supply centre with the main demand centre, via surface or air. Surface or airline haul is dependent on transit time and cost matrix. Airline haul is 3-4X costlier than the surface line haul, however, has lower transit time. Recently 3PLs have started surface express movements for dedicated movement between two points, with a shorter transit time than the normal surface line haul movement. This is followed by last mile delivery which involves dispatch and shipping of products from the mother hubs to the delivery hubs, from where they are shipped out to the customers. This leg is dependent on the manpower and infrastructure in terms of number of delivery hubs, delivery vans and bikes.

Operating models

With the swift rise in scale of operations, e-commerce retail players have been strategically opting for viable operating models depending on the nature of products and operations. Broadly, there are two kinds of models prevalent among the e-commerce retail players.

The marketplace model: In the marketplace model, inventory is not stored by an e-retailer. Packaging and quality checks are carried out by the sellers and then the items are sent to storage in the mother warehouse of e-retailer or directly shipped to customers from sellers' warehouses. The share of marketplace model has seen a declining trend due to rising issues in product quality, higher returns, pilferages and wrong products.

Inventory-led model: Within this model, inventory is purchased by the in-house buying arm of an e-retailer and stored by them in their fulfillment centres. The model ensures better quality control and service level for the customers, since the online retailers have control and visibility on all the processes, from inventory management to order management to fulfillment. While this is a capital intensive model, with high overheads and substantial inventory risks, it is nonetheless helpful in creating trust and service credibility among users leading to a better customer experience and enhanced brand value and recall. However, this model has become less prevalent amongst e-retailers as it is capital intensive and difficult for scalability.

Fulfilled by e-retailer: Another variant of the inventory-led model is the 'Fulfilled by e-retailer' model, wherein inventory is not purchased by them, rather it is purchased by the sellers and stored in the fulfillment centres of e-retailers. Quality checks, packaging and labelling are carried out by the e-retailer. It is the most prevalent model as it ensures better quality and reliability of products.

Returns

Another important aspect of e-commerce retail is high number of return shipments. Three primary reasons for returns are:

- Customer initiated returns after acceptance
- Returns due to order cancellation before first delivery attempt
- 3PL returns (delivery failure of 3PLs)

The returned goods are cycled back into inventory,restocked and relisted or sent back to sellers. These can however lead to complications like refund, exchange and replacement, which increases the overall supply chain cost. E-retailers are introducing innovative mechanisms to minimise returns such as size recommendation features to help shoppers make informed choices, reconfirmation via e-mail and option of cancelling the order before the shipment is processed.

Return shipments in e-commerce retail constitutes ~18-20 per cent of total shipments[01]. However, with stricter return policies and improvement in processes, returns are expected to reduce to 10-12 per cent by 2020[02].

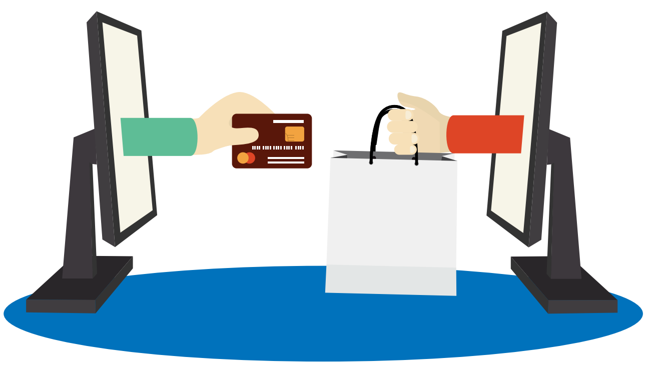
Recent trends in returns:

- Increase in local and zonal shipments may potentially increase speed to customer which in turn is expected to reduce the returns due to reduction in delivery failures
- Better operational processes and reliability may also reduce returns
- Change in category mix and implementation of stricter return policies may reduce customer initiated returns.

Challenges in returns:

Technology: 3PL providers use the same airway bill/tracking ID for reverse shipments as used in the forward leg. This reduces the sorting efficiency and leads to incorrect delivery

First mile capability: 3PL providers have built their capacity, infrastructure and resource for the forward leg. This set-up is not suitable to handle reverse leg efficiently; therefore 3PLs need to build separate capabilities to handle reverse shipments.



01. Industry discussions, KPMG in India Analysis 2018
02. Industry discussions, KPMG in India Analysis 2018

Cost structure - E-Commerce retail transportation cost

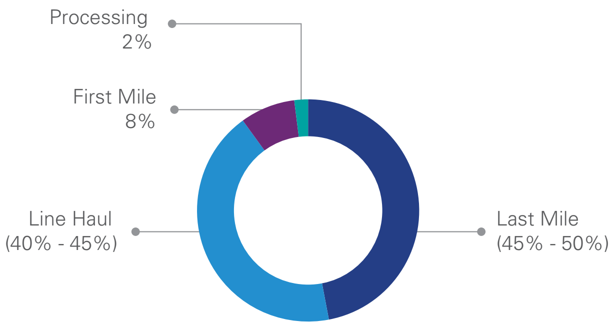
Transportation cost for e-retailers can be split across components of first mile, processing, line-haul and last mile delivery. The line haul and last mile delivery comprises a major chunk of the transportation cost. Return charges are additional to forward charges. Logistics cost is further a function of being local, regional or national deliveries. These cost functions may however vary by scale and use of technology.

Further, a high percentage of returns (~20 per cent) in the sector, and other incidental expenses such as mis-routing and lost shipments further add to the costs.

Also, other special deliveries such as time-bound delivery and slotted delivery commitments along with the prevalence of the cash-on-delivery model escalate costs.

Generally, all the standard delivery costs, including COD and returns, are borne by the e-retailers. However, the cost for special deliveries or value-added services are borne by the customers.

E-commerce retail transportation cost split



Source: Industry discussions, Analyst Reports, Press Articles, KPMG in India analysis

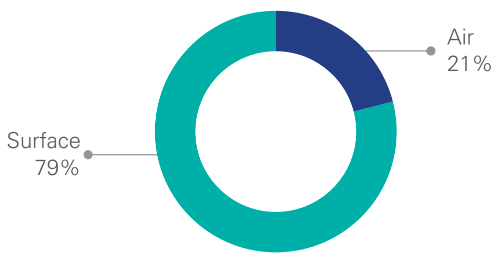
Recent shifts in e-commerce retail logistics

E-commerce retail industry is continually changing, thereby impacting the e-commerce retail supply chain. Some of the key shifts in the e-commerce retail logistics have been summarised below.

Modal shift

E-commerce retail logistics have seen a dominant shift towards surface mode. Surface transit is the preferred mode of transport, resulting in slow growth of air express market. Further, in e-commerce retail, lowering down logistics cost has become the prime focus rather than transit time, which was the key differentiator earlier. The pressure to reduce logistics cost has led to a switch to surface transportation, which is comparatively inexpensive.

E-retail logistics revenue split by mode (2018)

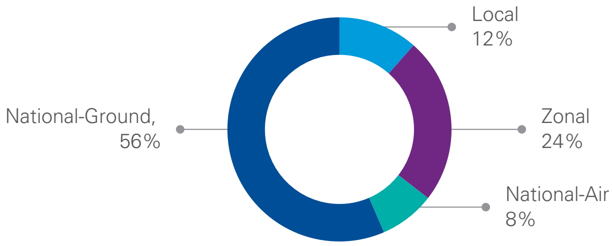


Source: Industry discussions, Analyst Reports, Press Articles, KPMG in India analysis 2018

Zonal shift

Traditionally, e-retailers established Fulfillment Centres (FCs) in locations where they enjoyed tax benefits resulting in larger number of national shipments. Now, with the implementation of GST, e-retailers no longer enjoy the same tax benefits, and are spreading their footprint of FCs pan-India. Big e-retailers are planning to expand their FC base to have better speed to customer which in turn will increase local and zonal shipments. Further, large shipments (share of which is growing) are also expected to have predominantly zonal movement.

E-retail logistics shipment split by zone (2018)

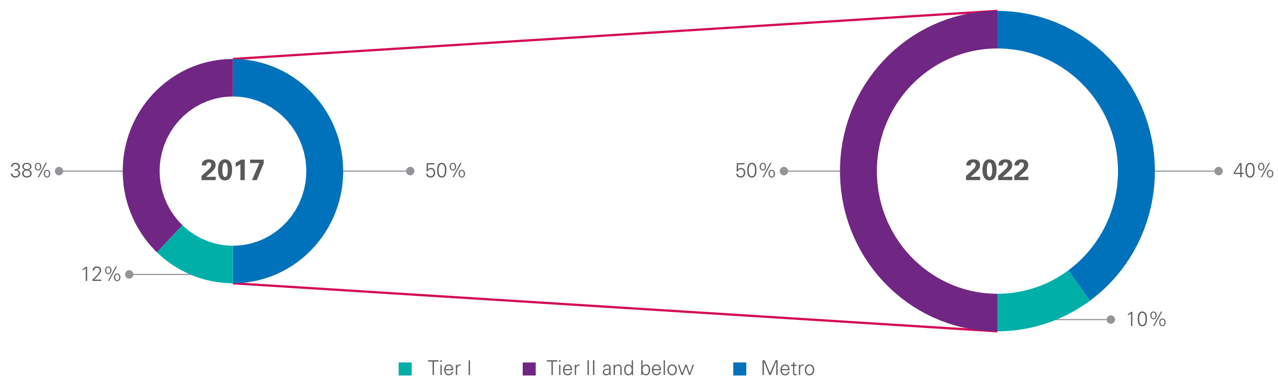


Source: Industry discussions, Analyst Reports, Press Articles, KPMG in India analysis 2018

Shift in demand centres (Reach expansion)

Currently more than ~60 per cent demand comes from metro and tier I cities. However, by 2022 this share is expected to come down, as we foresee emerging demand centres in tier II and lesser cities driven by increased internet penetration. Presently, internet penetration in metros such as NCR, Bengaluru and Mumbai is already high leading to major demand coming from metros and tier I cities. In the next five years, a high proportion of demand is expected to come from tier II and below cities primarily due to higher internet penetration, increase in number of smartphone users, rise in per capita income and increasing propensity to purchase online in rural areas.

E-commerce retail logistics shipments: Destination city-wise demand split



Source: Industry discussions, Analyst Reports, Press Articles, KPMG in India analysis 2018; P=Projections

Shift in product categories

With ever-evolving customer needs and preferences, e-commerce retail supply chains have also evolved in the process. One major development in product categories that has been witnessed in the recent years is large size shipments. Recent trends have shown an increase in large size shipment categories like large appliances and furniture.[03] E-retailers are focusing on growth in large shipments, which is expected to increase average weight per parcel.

03. Industry discussions

Challenges in e-commerce retail logistics

Even though the e-commerce retail logistics industry is expected to grow, its intrinsic challenges remain. This sector is up against numerous challenges including cost pressures, high returns and poor infrastructure to name a few.

Cost pressures

India faces high logistics cost as compared to developed countries like USA, Japan and many of the European countries. In addition to the infrastructural inefficiencies, cost of deliveries is driven up by factors like high return rate, high share of Cash on Delivery (COD) orders. Cost pressures are driving e-commerce retail logistics firms to switch to surface transit for deliveries.

High rate of returns

Currently, return shipments constitute roughly 20 per cent of total shipments. Return shipments come with their own set of challenges and drive up logistics cost. E-commerce platforms are taking measures to contain the percentage of returns. Returns are expected to come down, driven by improvement in operational processes, technological innovation, customer analytics, among other things. Further, change in category mix, shift to consumption-driven categories and implementation of stricter return policies may reduce customer initiated returns. Finally, increase in local and zonal shipments will increase speed to customer, which in turn is expected to reduce the returns due to reduction in delivery failures.

Poor infrastructure

The Indian logistics industry is plagued by lack of proper infrastructure for both air and surface transit. Poor infrastructure has led to inefficiency, longer transit times, higher logistics costs and higher returns. Since a majority of demand is expected to come from tier II and below cities, infrastructure will play a major role in e-commerce retail. Good infrastructure is expected to improve operational efficiency, reduce transit times, control costs and result in better utilisation of assets.

Readiness for rapidly growing cross border e-commerce industry

Globally, there has been a rise in international shipments driven by increase in online retail stores and growing cross border e-commerce market. India serves as a transfer hub for various intercontinental routes like Europe-Australia and Europe-South East Asia. Even though Indian airports have geographical advantage due to suitable location, they lack the required infrastructure to cater to growing international volumes. Further, this segment is still fragmented. There are insufficient facilities at smaller airports and lack of connectivity for Tier II and III cities with major cities for air transportation. Need of the hour is development of transshipment hubs to cater to growing intercontinental traffic, upgradation of existing airports and improving regional connectivity.

Impact of GST implementation

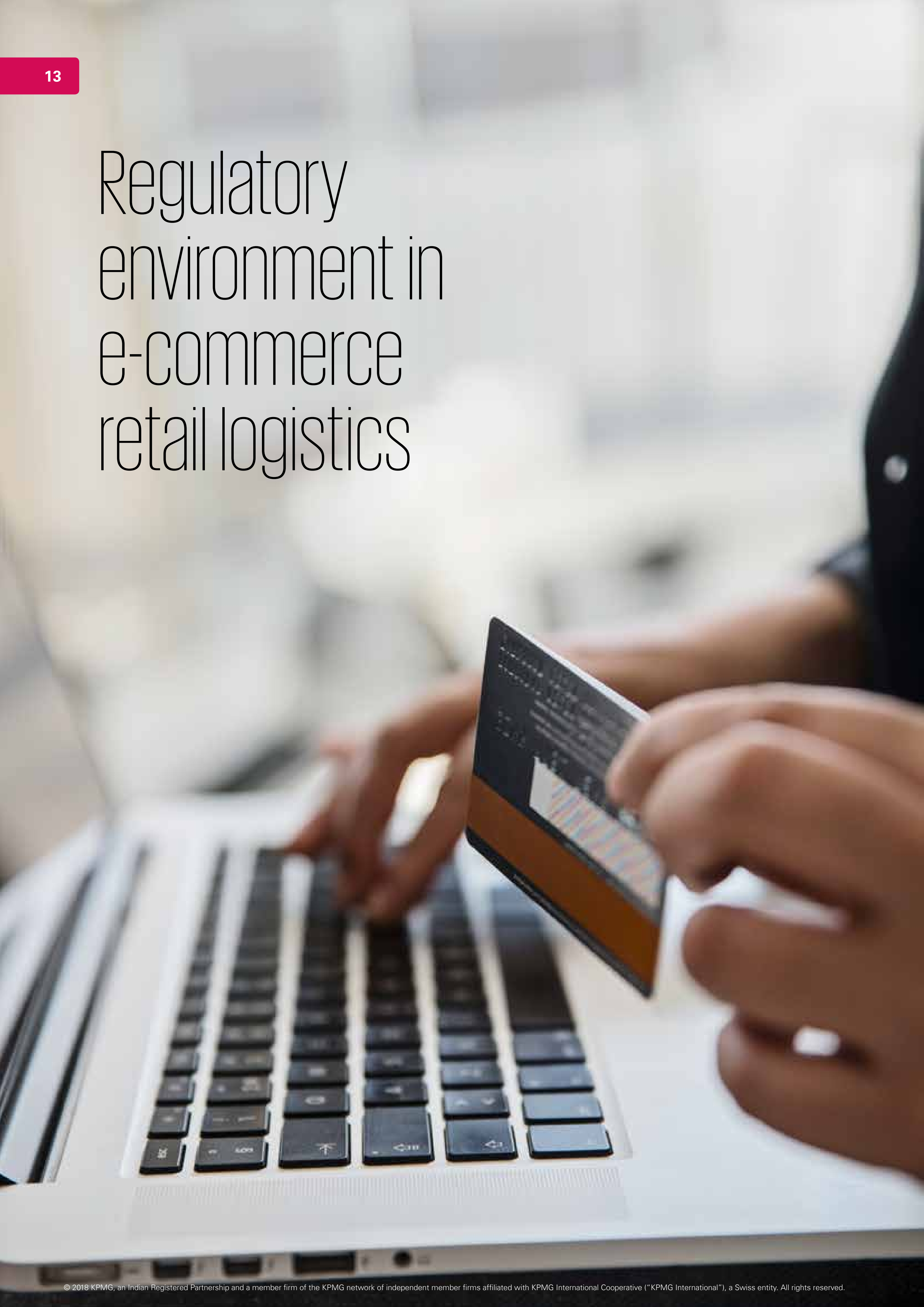
The implementation and roll-out of GST has simplified indirect tax and jurisdictional laws. However, for e-commerce players, GST law has increased the compliance requirement with the introduction of a separate chapter on electronic commerce with special emphasis on Tax Collection at Source (TCS) provisions. TCS is required to be collected and deposited with the Government where the consideration with respect to the supplies made by the suppliers on the e-commerce operator platform are collected by the e-commerce operator.

With the suspension of TCS provisions till 30 June 2018, the industry players can however, heave a sigh of relief. Once, the TCS provisions become applicable, it will lead to increase in compliances for the e-commerce operator and the suppliers on the platform.

The GST law has also introduced the definition of electronic commerce, electronic commerce operator and also mandated compulsory registration for e-commerce operators, which implies that the focus of the Government is now shifting to the e-commerce industry. With the introduction of GST, the focus will shift more on commercial viability instead of tax savings for analysing the need for setting up facilitation centres/warehouses in various states by the e-commerce operator/seller.

Lastly, the Government with a view to plug the loopholes in tax evasion, has introduced the concept of e-way bill provisions. Accordingly, applicability of e-way bill provisions for inter-state transactions has been made compulsory from 1 April 2018 for prescribed transactions exceeding a prescribed limit. Further, the Government has given an outer limit of 1 June 2018 to various states for implementing e-way bill provisions for intra-state transactions. Thus, various states have already started implementing intra-state e-way bill provisions. Therefore, e-way bill shall be required to be generated by e-commerce companies/logistics service provider/seller in the case of sale of consignment or return of consignment as may be mutually agreed between the parties.

Regulatory environment in e-commerce retail logistics



The foreign exchange control regulations govern the foreign direct investments (FDI) flowing into India. As per the existing FDI regulations[01], 100 per cent FDI is allowed in business-to-business (B2B) trading activities through e-commerce i.e. buying and selling of goods, including digital products over a digital and electronic platform.

In a recent notification[02], the Government has allowed 100 per cent FDI through automatic route for business-to-consumer (B2C) activities on a digital platform, for entities engaged in single brand retail trading subject to satisfaction of prescribed conditions. However, e-commerce retail trading is prohibited for entities with foreign investments engaged in multi-brand retail trading.

Further, 100 per cent FDI is allowed for entities providing an information technology platform to act as a facilitator between buyer and seller (popularly known as a marketplace model of e-commerce). However, it is restricted for marketplace e-commerce entity to allow a particular vendor or their group of entities to affect more than 25 per cent sales value of the total sales. FDI for entities engaged in selling goods out of their own inventory through e-commerce (i.e. inventory based model of e-commerce) is still not permitted.

Direct tax implications in e-commerce retail logistics

Taxation of entities engaged in e-commerce activities is quite complex. Foreign companies not having a presence in India were not subject to tax in India. In order to address such tax aspects for digital transactions, the Government in 2016 introduced the concept of Equalisation Levy (EL) and in Budget 2018, introduced the concept of Significant Economic Presence (SEP).

EL is a levy on the Indian resident payer for receipt of specified services from a non-resident for B2B transactions exceeding INR100,000. Currently, EL is 6 per cent on the value of specified services, which are defined to include online advertisement for digital advertising space or any other facility or service for the purpose of online advertisement.

The aforesaid EL does not cover other digital transactions, which remained untaxed in India in the absence of physical presence in India. Hence, the Government in Budget 2018 introduced the concept of SEP, as per which a non-resident shall be deemed to have a taxable presence in India if:

- Monetary value of any transaction(s) for goods, services or property carried out by such non-resident in India[03] exceeds a prescribed amount; or
- The non-resident does systematic and continuous soliciting of its business activities or engages in interaction with prescribed number of users in India through digital means.

The intention to introduce SEP is to tax digital business, which could cover any transaction of goods, services and property within its ambit as long as it exceeds specified user base[04] or revenue limit.

However, foreign companies from countries having tax treaties[05] with India can claim that in absence of parallel amendment in the tax treaty, the concept of SEP could not be enforced upon them for levy of taxes on profits earned by such foreign companies. Hence, such companies being a tax resident of a treaty country may still not be taxable in India under SEP unless the same is introduced in the respective tax treaties.

01. Foreign Exchange Management (Transfer or Issue of Security by a Person Resident Outside India) Regulations, 2017 / Consolidated FDI Policy Circular of 2017
02. Notification No.FEMA.20(R) (1)/2018-RB
03. including provision of download of data or software
04. Yet to be prescribed by the Central of Board of Direct Taxes
05. The tax treaty benefits could be obtained only if the foreign company has a valid Tax Residency Certificate and commercial substance in the home country.

Upcoming trends shaping the e-commerce retail logistics

Innovations in last mile delivery

The e-commerce retail market is growing continuously in double digits. With the growth, comes great opportunity for expansion. Recent technological innovations are expected to unleash major disruptions in how parcels are delivered in the last mile. Logistics players are leveraging technology and new business models to optimise cost and time efficiencies for last mile delivery.

Innovative last mile delivery mechanisms are being introduced to specifically cater to the unique requirements of the rapidly growing B2C segment in India. Typically, two factors are driving innovations in last mile delivery:

- **Customer expectations:** Customers have complex set of expectations in terms of flexibility (such as re-routing and re-scheduling), speed (such as same day / next-day delivery), and cost of delivery and security of the parcel.
- **Cost unpredictability:** Operational challenges such as high failed delivery rates, fluctuating volume and volume density, inaccessibility of remote locations, order cancellations, return orders, etc. increase unpredictability in last mile delivery costs.

Last mile delivery - Business models

Traditional last mile delivery operations

- Movement of parcels between last parcel sorting/ collection hub and final consignee location – usually an industrial area (B2B) or a residential area (B2C and C2C)
- Traditionally, a low efficiency process comprising sizeable chunk of cost of the overall parcel logistics process

Customer pick-up

Logistics companies and e-commerce retailers are investing in near door delivery points (manual or automated) from where customers can collect parcels

Delivery through retailers

In some areas, logistics companies are tying up with local retail stores to finally deliver parcels to customers' residences

Third-party logistics

Logistics companies outsource last mile delivery partially or completely to 3PLs players to improve reach and in some cases better service levels

Crowdsourcing

Web/mobile-based application to leverage groups of geographically dispersed people to match demand with supply digitally

Last mile delivery – Technological innovations

PUDO centres: 3PLs are tying up with local retailers like 'mom and pop' stores and kirana stores to act as pick up and drop of points for shipments. Such tactics are enabling the players to expand their reach to pin codes where they do not have direct coverage.

Secured lockers: Logistics companies have started providing a parcel locker facility which houses secure lockers at strategic locations, where a customer can receive e-commerce parcels and collect them as per convenience within a given time-frame.

Digitisation of addresses: One of the key focus areas to become a Digital India is to develop a new age addressing system for the country. One of the key developments is digitisation of addresses to align physical addresses with modern technology. As a result, India has witnessed growth of a number of companies which are focusing on digitisation of addresses. This is expected to have a number of benefits which include, but are not limited to, reduction in transit time, lesser number of delivery attempts, lesser customer initiated returns and improved accuracy of last mile delivery.

Automated delivery mechanisms: Globally, a number of high tech solutions such as drones, driverless vehicles and pick-up towers are being utilised for last mile delivery. These solutions enable parcel delivery without human intervention. Drones are unmanned vehicles that run on battery and can fly through air to deliver the packages. Currently, last mile delivery through drones is a futuristic proposition owing to high investment costs and regulatory constraints. Driverless vehicles are expected to be a key mode of transportation for the future. Though driverless vehicles, owing to unmanned operation, can improve service levels by enhancing flexibility, but at the same time, they are expensive and face regulatory hurdles in implementation. Pick-up towers are designated areas such as local retail store, secure locker facility or even the local post office from where the customer can collect the parcel. Several e-commerce retail and logistics companies are investing in automated pick-up towers from where customers can collect parcels without any human intervention.

Technology innovations

The tempo of technology change has been extremely fast. Companies are embracing advanced technologies to stay in business. To keep pace with digital commerce, technological innovations are revolutionising the e-commerce logistics and supply chain industry.

Internet of Things (IoT): IoT facilitates availability of key parcel information such as parcel contents, parcel location in the supply chain and parcel arrival. It also facilitates faster flow of information in the supply chain, thus improving customer satisfaction levels. It connects various technical devices (like vehicles, loading and unloading equipment, etc.) to one another through sensors installed on these devices, which enables procuring real-time information of various critical parameters such as temperature, filing rate, etc. However, data privacy is a key concern, which needs to be guaranteed for last mile.

Advanced algorithms: Advanced algorithms and superior software are enabling logistics companies to optimally route last mile deliveries. E-commerce retail firms are best served by incorporating a Transportation Management System (TMS) that works well for their unique challenges. Companies are leveraging advanced technology (algorithms and superior software) in choosing the right carrier mix, choosing optimal fleet size/location and exploring different fleet optimisation strategies.

Artificial Intelligence (AI) and automation: The explosion of AI and automation in e-commerce retail has allowed e-retailers to explore advanced technologies. As firms in the e-commerce retail industry continue to expand and cater to a growing number of customers, the need for an automated system to streamline their operations and marketing has become one of their top investment priorities. E-commerce retail players have now begun to explore sophisticated technologies, such as chatbots, visual research and visual listen, automated recommendation engines, design optimisation and forecasting to achieve the desired results.

Analytics: Information technology has changed the way of doing business and disrupted many business value chains. The market has been flooded with innovative products for managing, processing and analysing big data which helps in predictive analytics. It has become crucial for Indian e-retailers to institutionalise data analytics and modeling infrastructure and methodologies into their decision-making ecosystem, which will help them make better and informed fact-based business decisions. Analytics-based strategies have helped in resolving issues related to inventory management, performance management, fleet management, cost management, budget optimisation and business intelligence.

Supply chain innovations

In the wake of recent shifts in the e-commerce retail logistics space, certain notable changes and tweaks have been observed in the last few years.

Improved surface connectivity: With a shift to surface transit, there has been focus on improving surface connectivity in the country, and the same trend is expected to continue in the years to come.

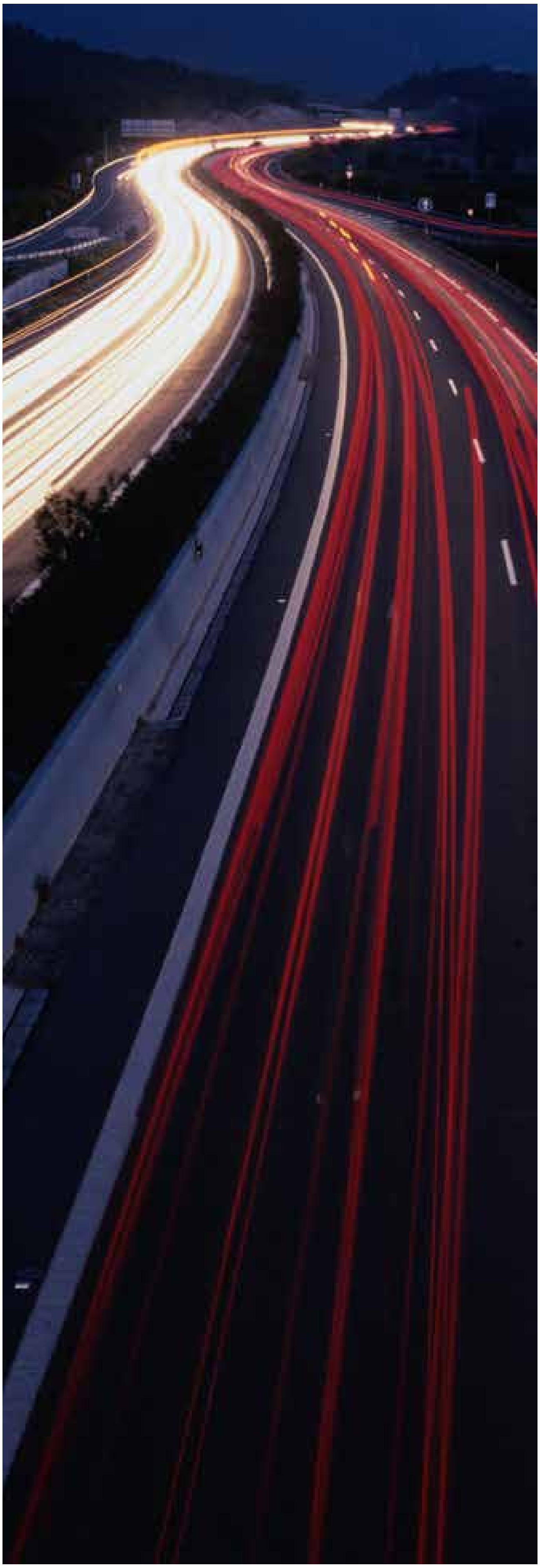
Increase in FC footprint and specialised FCs: With the local and zonal shipments becoming predominant, large e-retailers have already started establishing FCs, especially to cater to larger parcel sizes as well as setting up regional FCs closer to the end user to increase speed to market.

Reach expansion: With Tier II and beyond cities driving the growth, several e-retailers are looking at expanding their network via strategic alliances and logistics partnerships. Large e-retailers are also focusing on rural distribution models to cater to demand from rural areas. Companies are building pick-up and drop points by tying up with local shops in rural areas, and also employing local youth to smoothen delivery process in these regions.

New business models

Globally and in India, e-retailers are prioritising and reconfiguring their business models to fulfil the consumer value proposition and improving consumer experience, which has led to many disruptions in the industry and evolution of fast growing models like omni channel retailing.

Omni channel retailing is the new retailing and selling paradigm that has new touch points for customers. It is about customer convenience and customer expectations. Retailers are opting for many channels to maximise sales. Omni-channel retailing is being adopted by many retailers in India.



Conclusion

The e-commerce retail industry in India is flourishing, and e-commerce retail is gradually picking up its desired pace. Internet penetration is on the rise and mobile technology is expected to be the game changer. India is the land of multiple languages and cultures residing together, hence regional e-commerce platforms in local languages and social commerce are likely to influence consumer decision making in the future. Digital wallets are expected to ride on the growth wave. These trends are further augmented by growing disposable income, increasing usage of credit and debit cards, lower mobile tariffs and increasing smartphone usage.

The logistics needs of the e-commerce retail sector are evolving rapidly with the changing business requirements. Despite being a growing segment, e-commerce retail sector needs coherent yet efficient logistics set-up to cater to this enormous industry. As a result, the e-commerce retail logistics sector is expected to constantly evolve in order to cater to the changes in business needs.

E-commerce retail-focused logistics players as well as captive players are likely to witness an influx of investments in this sector in the years to come. A number of strategic tie-ups with e-commerce retail players may also be on the cards. However, a major share of the market is expected to be captured by the captive players, i.e. the in-house logistics arms of large e-retailers, as they continue to extend their services to other external clients as well.

The way forward for the e-commerce retail logistics sector

1. Surface transit has gained importance due to improvement in surface connectivity and persistence of cost pressures. Thus, it is most likely to become a dominant mode of transit contributing a large portion to e-commerce retail logistics revenues

2. Large e-retailers are expected to continue to expand their FC footprint pan India and hence, share of national shipments may decline further. Local and zonal shipments are expected to witness steady growth. However, growth in these shipments may not be exponential as expected due to cumbersome seller registration processes

3. Rise in demand from Tier II cities and beyond is expected to account for almost half the total demand by 2022. Hence, LSPs should focus on expanding their reach to these areas to meet the growing demands

4. New product categories are likely to continue emerging as customers' needs evolve. An increase in average size and average weight of shipments is expected as more and more customers place orders for large appliances and furniture online

With GST rolling in, the indirect tax and the jurisdictional laws have been untangled but it has led to a rise in compliance requirements and issues related to it. The introduction of E-way bills, with the objective to plug tax evasion, has been implemented by a few states till now, and in the coming months, it will be implemented throughout the country.

Despite growing demand, this sector is plagued by numerous challenges which include cost pressures, high returns and poor infrastructure. Further, the sector is still adjusting to adapt to GST and the issues that have arisen on account of it.

Amidst challenges, India's e-commerce retail logistics sector throws innumerable opportunities. These challenges provide an opportunity to e-commerce retail logistics players for innovation and disruption, but at the same time it requires attention to execution, and efforts to create long term value. Growth in e-commerce, a burgeoning middle class and government initiatives are some of the key drivers of the e-commerce retail logistics business in India.

E-commerce retail logistics players should continue to introduce new innovative mechanisms as well as focus on improving processes and standardising them in order to reduce turnaround time, decrease returns as well as bring down logistics costs.

In developed countries, a number of innovative last mile delivery mechanisms, such as use of drones, driverless vehicles, secure lockers and pick-up towers have been created. Indian companies should look to adopt such practices to improve last mile delivery. Further, a host of developments involving Artificial Intelligence (AI), automation (Bots) and use of analytics seem likely to propel the sector to further heights.

New business models such as omni channel retailing and delivery through local retailers are expected to become more prominent in this sector in the coming years.

To summarise, e-commerce retail logistics supply chain is expected to unremittingly adapt to the changes, trends and developments despite the challenges it faces.

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