Indian Warehousing Market
Present and Future

July 2022

The Associated Chambers of Commerce and Industry of India

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Deepak Sood
Secretary General, ASSOCHAM

MESSAGE

India is one of the fastest growing economies in the world, with promising business opportunities. The Government of India has taken various proactive and conducive business initiatives. Over the years, the warehousing industry in India has evolved from mere storage space to highly sophisticated warehousing and logistics systems. Backed by the continuous expansion in the manufacturing sector and increased private and foreign investments, warehousing demand in India is on the rise. Warehouses have become one of the most crucial elements of the Indian logistics industry.

India's opportunities in warehousing are riding on the growing demand of E-retailers looking forward to opening up warehouses in tier I and tier II cities as well as collaborating with logistics service providers across the country. The warehousing industry in India is largely unorganised and is still in the nascent stage. India has the lowest warehouse capacity with modern facilities compared to the rest of the world, which offers ample opportunities for investment in this sector.

As the demand for warehouses increases, it is vital to incorporate sustainability in warehouses and move towards Eco-friendly warehouses that can withstand near-term shocks and increase efficiency and profitability for companies. As India works towards its sustainability goals, it would have to adopt a multipronged approach of investing in more efficient cooling appliances and promoting green buildings, which can help in energy savings. Warehouses will also have to focus on these factors, especially for a robust cold chain. High-impact sustainable warehousing solutions can be created by incorporating green infrastructure, industry-leading technology, and ecosystem-based approaches.

ASSOCHAM, jointly with JLL, has prepared this study to outline factors that would provide impetus to the warehousing sector. We acknowledge the efforts made by JLL and the ASSOCHAM team in bringing out the study.

I hope this paper will be helpful to policymakers and business investors who are keen to invest in the growth story of the country's warehousing sector.

Deepak Sood

Sanjay Bajaj
MD, Logistics & Industrial, India and MD, Pune, JLL

PREFACE

The warehouse real estate market in India is witnessing a steady growth and expansion from ~170 Mn Sq.ft. in 2018 to 287 Mn Sq.ft. in 2021 and this is likely to continue in the upcoming years. The Grade A share in the stock has also increased from 39% in 2018 to 47% in 2021 showing increased interest from developers and institutional investors for quality spaces with higher storage handling capacity as well as shift in occupiers' preference towards compliant spaces. In addition to the increase in quality warehouse spaces, there have been other notable trends in the Indian warehousing market:

- Increase in global investors in India's evolving logistics and industrial sector
- Warehousing demand from 3PL and E-Commerce sectors shifting towards larger storage space with advancement of technology and automation
- Urban logistics sector emerging as attractive sector in Tier 1 cities as the market is shifting towards on-demand solutions
- Omni-channel retailing transforming traditional warehousing into fulfillment centers with higher optimization

The strong institutional interest in logistics, warehousing development and operations in recent years has transformed the sector from being just a large storage space into a facility with value addition in terms of inventory management, packaging, product extraction, etc. This transformation is happening on the back of advancing technology and automation infrastructure, focus on efficient last-mile deliveries resulting in a growing demand for urban logistics, the rise of omni-channel retailing, etc.

Furthermore, India's position in various indices has improved from the previous years due to various initiatives by the Government such as Make in India, Digital India, infrastructure upgrades as well as rising skilled professionals under Skill India campaign.

The above dynamics and increased interest from Institutional investors in this sector have driven the high demand for quality Grade A warehouses. The rising demand, and increasing construction costs, are expected to increase the rents gradually for Grade A spaces in the near future. However, rent per pallet position is expected to become more viable and feasible due to the emergence of efficient warehousing solutions.

This report provides insights into the above-mentioned trends in India's Logistics Sector, including global investors investing in the sector, the rise in large Grade A warehousing facilities and their rents, increasing focus on urban logistics and omni-channel retailing. Moreover, this report also provides information on topics such as ESG in Warehousing, Cold Storage and Multi-Storey Warehouses which are at a nascent stage in India.

Enjoy reading!

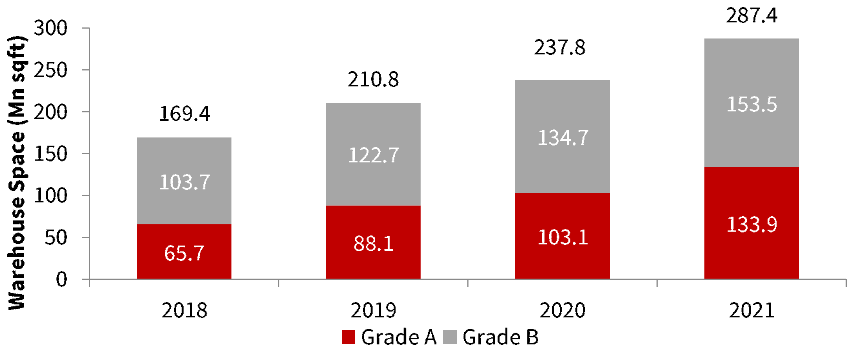
Sanjay Bajaj

CONTENTS

Warehouse Market Dynamics in India, 2021

Yearly Growth of Warehousing stock

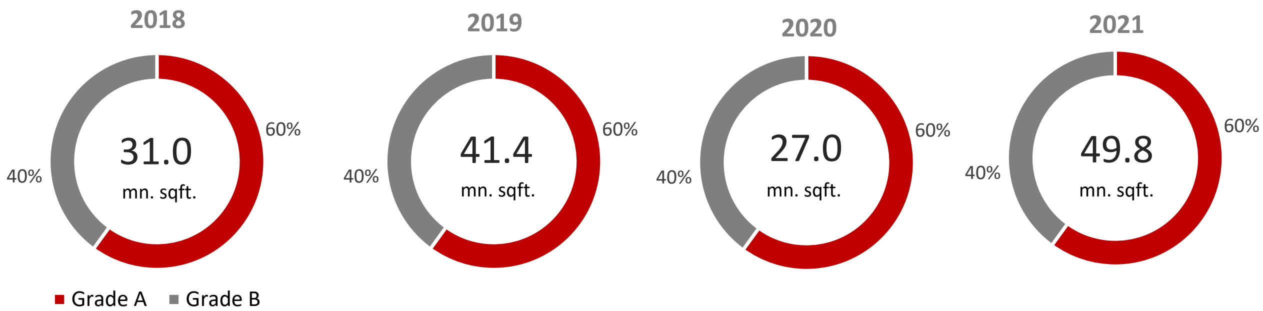
In 2021, India witnessed a 21% y-o-y growth in total stock in Grade A & B warehousing space in top eight cities.[1] The overall warehousing space stands at 287 mn sq.ft. at the end-2021 compared to 238 mn sq.ft. in the previous year. **Interestingly, Grade A stock in India stood at 134 mn sq.ft. translating to a 5-year CAGR of 29.9%.** Among the eight major cities, more than half of the warehousing stock is contributed by the three largest cities of the country including Delhi NCR, Mumbai, and Bengaluru.



Source: JLL Logistics & Industrial

New Supply Addition

Growth in supply of Grade A spaces over the years is due to high demand for spaces with high specifications and introduction of new players in the market.



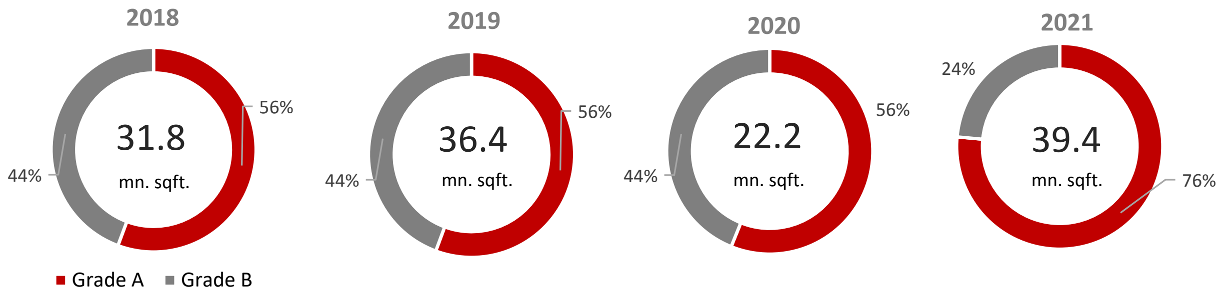
Source: JLL Logistics & Industrial

Indian Warehouse Stock** to reach nearly **500 mn. sqft.** by **2025

1 Top 8 Cities include Ahmedabad, Bangalore, Chennai, Hyderabad, Kolkata, Mumbai, NCR Delhi, Pune

Warehouse Net Absorption[2]

The warehousing sector has shown robust recovery in 2021 with the industrial demand reaching pre-COVID times with the net demand recorded at 39.4 mn sq.ft. In addition, more than 76% of this net demand was observed in Grade A space showing shift in occupiers' preference towards quality spaces due to adherence to additional hygiene and safety norms during COVID-19.

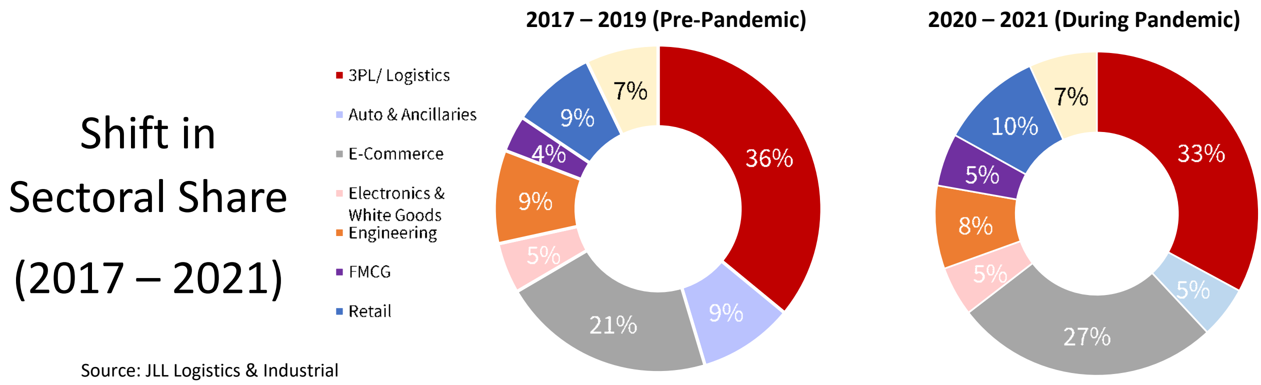


Source: JLL Logistics & Industrial

Warehouse Gross Absorption[3] *in* ***2021*** *is* ***49.0 mn.sft.***

Overall India Vacancy Level *for Grade* ***A & B*** *at* ***12%*** *in* ***2021*** *and is expected to witness huge dip to fall below* ***9%*** *by* ***2025***

3PL/Logistics has remained the largest segment based on warehousing space demand over the last 5 years. Space demand due to **E-Commerce** has gained traction as e-commerce penetration has increased over the years. Many e-commerce categories such as retail, grocery, pharmacy, and food delivery are expected to grow even further, as people make a behavioral shift from making offline purchases to online ones. COVID-19 has accelerated eCommerce adoption, leading to an increase in demand for online delivery of essential and non-essential items. Demand from other **consumption-based sectors such as Retail and FMCG** have also increased while the share of **manufacturing demand from Auto & Ancillaries and Engineering** sectors have decreased during the pandemic.



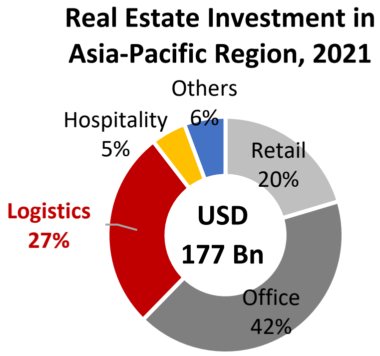
Source: JLL Logistics & Industrial

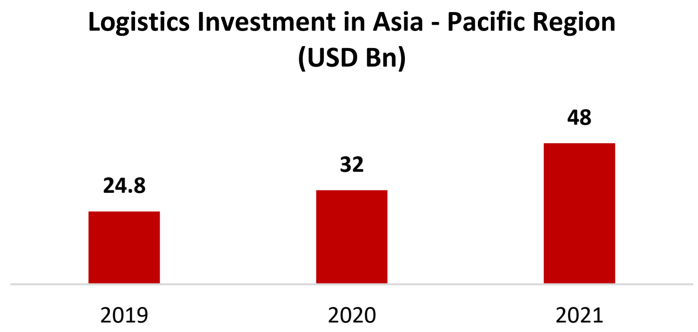
2 Net Absorption is the warehouse space occupied excluding renewals & churning
3 Gross Absorption is all transactions that happened in the market including renewals & churning

Current Trends in Indian Warehousing Market

1. Global Investments in Logistics and Industrial Real Estate

Interestingly, investment in the logistics and industrial sector for the Asia-Pacific Region was USD 48 Billion in 2021 which was almost a 50% upsurge from the previous year. This investment represented nearly 27% of total real estate investment in the region, a superior performance when compared globally.



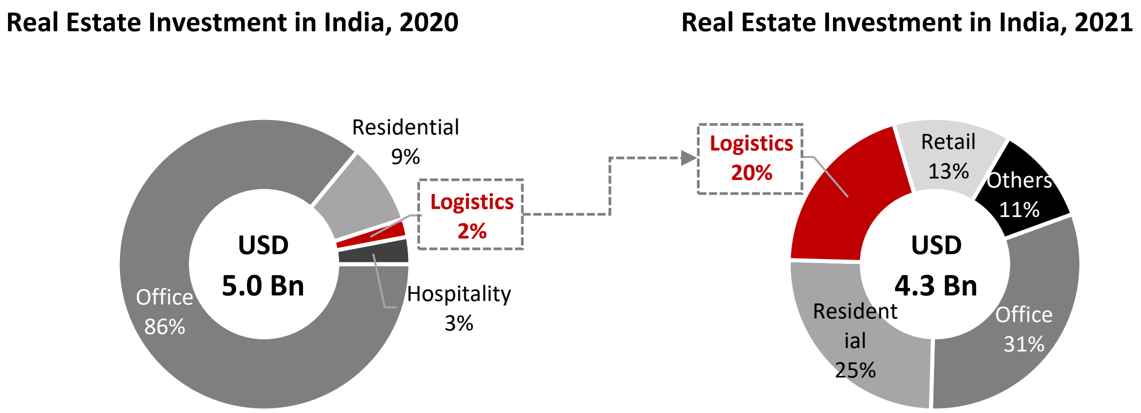


Source: JLL

In markets with a stronger economic recovery, sectors such as logistics and industrial have scaled up the wish-lists of investors looking to diversify their portfolios.

Global Investments in India's evolving Logistics and Industrial Sector

The warehousing and logistics sector has been the largest beneficiary during the COVID-19 pandemic and the share of the sector has increased from 2% in 2020 to 20% in 2021 *(Source: JLL India Research).*



Source: JLL

This sector emerged attractive during the pandemic due to the increasing shift to online shopping from discretionary to essentials. Major global funds have invested with warehousing developers and operators to expand their reach and regional footprint, being the key differentiators in the sector.

Highlights of recent committed institutional investments in Indian Logistics and Industrial Market, 2021:

Jan – Mar	Apr – Jun	Jul – Sep	Oct – Dec
• Singapore-listed Mapletree Logistics Trust purchased 2 warehousing properties in Pune from Mogan Stanley Real Estate Investing (MSRI) at USD 60 Million	• US-based Blackstone bought the Embassy Industrial Parks for USD 700 Million from Bengaluru- based Embassy Group & PE major Warburg Pincus • Xander invested USD 27 Million in a 30-acre logistics park in West Bengal	• ESR India to invest USD 112.8 Million in industrial and logistics parks in Gujarat and Tamil Nadu • Xander Investment Management acquired warehousing space in FTWZ, Tamil Nadu at USD 55 - 60 Million	• IndoSpace entered a JV with KSH Infra by investing USD 133 Million to develop a portfolio of Grade A warehousing & logistics parks across the country • Welspun One Logistics Parks Fund invested USD 24 Million to develop warehousing projects

Source: JLL and various other market sources

Although Tier 1 cities are the key focus investment hubs for investors, the increasing expansion needs steered by e-commerce and 3PL players have led to the development of Grade A warehouses in Tier 2 and 3 cities, attracting investments in these cities. This is due to the increased internet penetration, government's push for Digital India, rising levels of disposable income, young population which is cognizant of brands and a higher standard of living.

Tier 2 and 3 cities including Rajpura, Anantapur, Sri City, Coimbatore, Nagpur, Lucknow, Siliguri, Jaipur, Bhubaneswar, Guwahati, Hosur, etc. are attracting investments from institutional investors and developers such as IndoSpace, ESR, LOGOS, Welspun, Blackstone, etc. as they expand their footprints across the country. (Source: JLL India Research)

Growth Drivers

- The most active sectors during the pandemic have been **e-commerce, FMCG (including grocery), pharmaceutical and 3PL players,** and they will continue to expand over the long term. These sectors demand for special supply chain models including cold chain and last-mile logistics, which requires significant upgrades and wider investor participation.
- **Rising disposable incomes** across India and increasing demand from thee-commerce sector have prompted developers to increase the storage space across the country.

- **Shifts in the supply chain** due to the increasing prevalence of **direct-to-consumer consumption,** has generated an entirely new demand-base for industrial space. This has pushed the investors to look for innovative solutions and digital transformation.

- Pandemic has accelerated trends such as increased **internet penetration** rates, expansion of **online grocery, omni-channel retail,** and the **integration of technology** into logistics and warehousing.

Platform deals in the logistics and warehousing sector are likely to remain active as the segment has been benefitting from the growing e-commerce and 3PL demand as well as pandemic-induced demand for cold storage facilities from pharmaceutical and FMCG sectors.

Finance Issues in Warehousing

Although the demand and supply sides remain robust, the last two years of the pandemic and global supply-chain disruptions have resulted in significant escalation in construction costs for the warehousing industry. In comparison, rent corrections have been slow, putting pressure on developers' profitability.

Warehousing developers typically eye an entry yield of 9%-10% and IRR (internal rate of return) of 18%-20%. Given the current circumstances, builders have an entry yield of around 7%-7.5% depending on the location, land rates, etc. and IRR would not be more than 14%.

Some of the Key Factors impacting the yield are:

Land cost: Cost of land, a key input in warehousing, has increased across key markets since there is a lot of capital chasing the preferred land parcels.

Construction cost: The average cost of constructing grade A warehouses has gone up from INR 1,600 per square foot in pre-Covid-19 times to INR 1,800 - INR 2,000 now. This is because of steep cost escalation in major commodities such as cement and steel, which has gone up by 30%-35% and 45%-47% respectively.

(Source: JLL Whitepaper on "Construction Cost Guide Book India – 2022": https://www.jll.co.in/en/trends-and-insights/research/construction-cost-guide-book-india-2022)

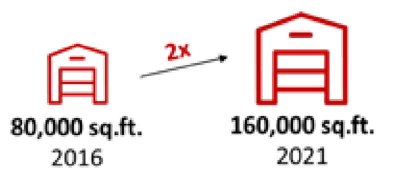
Warehousing Rents: Amid the rising costs, the current rentals for Grade A facilities across key markets are becoming less sustainable. Rents in key warehousing markets have grown by less than 3% CAGR from 2018 to 2021. Considering the increasing construction costs and land rates, most developers expect a correction in rents by 2023 and the new supply coming up is expected to attract higher rentals.

2. Sectoral Shift driving Warehousing Demand towards Larger Storage Space

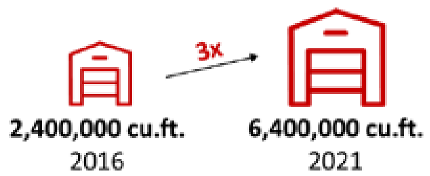
Over the years, the warehousing industry in India has evolved from storage space to highly sophisticated warehousing and logistics systems. The warehousing sector in India was highly fragmented with smaller boxes having limited scope of automation or mechanization. Now, warehouses have become one of the most crucial elements of the Indian Logistics Industry. The evolution of organized e-commerce, 3PL, retail and other sectors as well as increased traction from global investors/ developers have pushed the growth of organized warehouses. This market is now at a pivotal point in the evolution from manual warehouses to organized automated/ mechanized warehouses. The spread of e-commerce, retail and 3PL sectors in Tier 2 and 3 cities have also transformed the warehousing market in these cities.

This transformation towards sophisticated state-of-the-art warehousing has resulted in the **increase in average size of Grade A warehouse by 2x** in India. Interestingly, the warehouse size has not just increased in terms of area, the **average height[4] has also increased from 9 m in 2016 to 12 m in 2021 as per JLL assumption** which has **increased the average volume of Grade A warehouse by 3x.**

Average Grade A Warehouse Size



Average Grade A Warehouse Volume



Source: JLL Logistics & Industrial

The demand from 3PL/ Logistics and E-Commerce players have increased from less than 30% in 2016 to more than 50% in 2021. These sectors have specialized requirements in terms of warehouse layout, operations, and customer experience.

Demand from 3PL Logistics Players

The size of individual warehouses is growing, and they are now becoming cargo hubs to store goods for multiple clients.

The warehousing and distribution strategy has changed with the introduction of Goods and Services Tax (GST) in 2017, and warehouses are built on supply chain efficiency since then rather than considering the benefits from tax saving. Subsequently, the trend

4 Disclaimer: The height of a typical Grade A warehouse varies from 10 to 12 m in the market with some outlying height of 9 m and 13 m. The average height of 12 m is prevalent in the market.

moved towards consolidation from multiple smaller warehouses to larger fulfillment centers.

- Logistics companies have seized this opportunity and switched from **management of single company warehouses to a multi-client and multi-product model.**

- The small e-commerce players take advantage of these multi-client, multi-product facilities as they need flexibility in terms of seasonal space requirement.

- Through consolidation of operations in large warehouses, the companies can also benefit with **cutting down on cost.**

Large 3PL/ Logistics transactions with areas more than 4 lakhs sq.ft. have been observed in the last two years from major 3PL companies in large consumer-based cities such as NCR, Mumbai, Bengaluru, Hyderabad, etc. *(Source: JLL India Research)*

Growing E-Commerce Fulfillment Centers

The growth in e-commerce has turned warehouse and distribution centers into mega fulfillment centers.

> *A fulfillment center is the hub for all the logistics processes required to bring a supplier's product to his customer and is designed to enhance the customer experience around the process of ordering and having products delivered on time.*

India witnessed instances of global e-commerce transactions with box sizes of more than 2 lakhs sq.ft. going up to 1 million sq.ft. in tier 1 cities. Interestingly, volume of these warehouses is ranging from 8 million cu.ft. to 40 million cu.ft. in these cities which shows significant increase in efficiency in storage and handling capacity. *(Source: JLL India Research)*

Efficient Warehousing Operations demand for Large Space with adequate Interior Space for:

- flow of work
- handling equipment for the goods,
- ancillary activities such as repacking, labelling, kitting, break bulk, etc.
- special storage, if required (cold storage, hazardous goods, etc.)
- keeping large goods and heavy machinery in proper order without clutter
- Good amount of space surrounding the warehouse for parking to facilitate the efficient loading and unloading of goods.

India witnessed more than 15 transactions of warehouses with box size more than half a million square feet going up to 1 million square feet in the recent years. The demand

for larger warehouses is majorly driven by sectors such as 3PL/ Logistics, e-commerce, retail and other manufacturing sectors such as Engineering and Electronics. (Source: JLL India Research)

Warehouse Automation increasing the Warehouse Sizes

Warehouses have started automating their processes. These automated warehouses extensively use conveyors, sortation equipment, automated storage & retrieval system (AS/RS), and other material handling. Some of the automating equipment which increases the efficiency of a warehouse in the long run are:

Automated Storage & Retrieval System (AS/RS)

A type of warehouse automation technology specifically designed to buffer, store and retrieve product and inventory on demand. It includes shuttles, cranes, vertical lift modules (VLMs), micro-loads, mini-loads, unit-loads, or other mechanical systems integrated with a warehouse execution software (WES) or warehouse management system (WMS)

Automated Conveyor System

Mechanical devices or assemblies to safely and efficiently transport material through distribution process with minimal effort

Automated Sortation System

Automated system of separating products from in-feed conveyor lines to shipping lines, palletizing operations, packing stations and other sortation applications

Larger warehouses provide space and opportunity to improve operations via automation, which results in quicker turn-around time.

3. Transforming the Urban Logistics Sector

Urban Logistics Sector is highly attractive in tier 1 cities primarily in grocery & agricultural products, pharmacy, fashion & retail (clothes and garments) and FMCD. The market is shifting more towards on-demand solutions which has further increased the demand for faster delivery. Hence, the **last mile distribution of goods and urban logistics spaces attain critical importance by developing warehouses close to cities.**

Dark stores: An Infrastructure solution under urban logistics

Dark stores are the ‘go-to’ solution which can adapt to the complex supply chain involved in the workings of various formats that offer service options to the end customer. Consumers can make digital purchases through dark store online shopping platforms with the goods, either home delivered (same-day delivery) or collected by the consumer from the dark store.

The concept is rapidly gaining interest in India because of the post pandemic effect, where some of the retail outlets have also converted partially or fully to dark stores to leverage their assets.

Why are Occupiers moving towards Dark Stores?

- Higher space optimization and stock management can be achieved with lower delivery times and reduced shipping costs
- FMCG/ FMCD sector have higher requirement of Stock-Keeping Units (SKUs). Dark stores focus primarily on click-and-collect functionality, thereby optimizing SKU management
- Dark stores are efficient as they do not require dedicated space or cost for the shopping experience
- They cater to multiple online retailers simultaneously, facilitating retailers to save real estate expenditures

Global E-Commerce companies and e-grocery companies such as Blinkit (more than 25 in-city warehouse transactions), Big Basket are occupying in-city warehouses in major Tier 1 cities including NCR Delhi, Pune, Bengaluru, Kolkata etc. which are also the major distribution hubs in their respective regions.

(Source: JLL India Research)

Role of Dark Stores in the Supply Chain

	Case of Dunzo	Case of Swiggy
Before	Dunzo used to deliver from on-board local grocery stores in each neighborhood to its customers through delivery agent.	Swiggy's marketplace-based grocery delivery experienced below-par customer experience as this model relies on partners such as local grocery stores to continuously update their inventory database.
After	"Dunzo Daily" replacing local grocery stores and deploying over 250 dark stores to service more than 700 neighborhoods. Dark stores, stocked up with top 1,500 – 2,000 SKUs, have brought down the delivery time to just 20 minutes.	This model got replaced with "Instamart" to provide instant delivery service for groceries and other household items, fulfilled through a network of dark stores.

Source: JLL India Research and various other market sources

Developers' Approach towards In-City Warehouses/ Dark Stores

Although urban logistics is gaining popularity in the Indian market, it has a relatively higher cost component for the E-Commerce player to develop multiple in-city warehousing or dark stores in the city neighborhoods. **Moreover, the size of these spaces range from 5,000 to 25,000 sq. ft. for which availability of land is difficult in the city area.**

- Developers are now **reinventing and repositioning usage** of their existing assets in the city.
- Developers are more aware of the real estate market than the e-commerce players in **tier 1** as well as the **under explored tier 2 cities.** They facilitate the players to **carve out spaces in the city.**
- E-Commerce players also could explore the **defunct, stressed assets as well as alternate use of the existing assets of the developers.** These types of assets also help in **reducing the rents** and hence, overall cost of the in-city warehouses.
- To reduce the cost component of dark stores and **address the seasonality of the demand,** new models such as **temporary lease of 6 months** are being adopted.
- The delivery time is reducing from **1-day delivery to 1 hour to 30 minutes.** This reduction in delivery time from **days to hours to minutes** demand for multiple warehouses near to the consumption hubs (in-city).

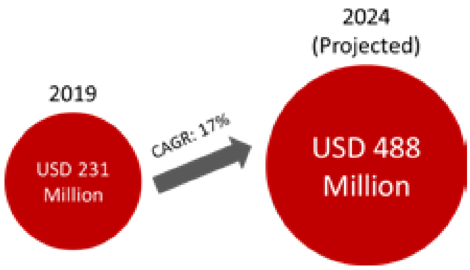
4. Transformation of Warehousing at the Advent of Omni Channel Retailing

Rise of Omni Channel Retailing in India

- India is the **world's fifth-largest retail market** accounting for over **10% of its GDP.**
- The Indian retail industry market size: **USD 950 Bn in 2019 forecasted to USD 1,750 Bn by 2026.**
- The retail sector growth is expected not just in the traditional brick & mortar stores, but also in e-commerce. E-Commerce market is projected to grow from **USD 45 Billion in 2019 to USD 99 Billion in 2024.**

Omni-channel retailing is expected to help in optimizing inventory holding costs, operating costs and real estate costs, while increasing brand prominence and consumer base across the country.

Indian Omni-Channel Market (USD Million)



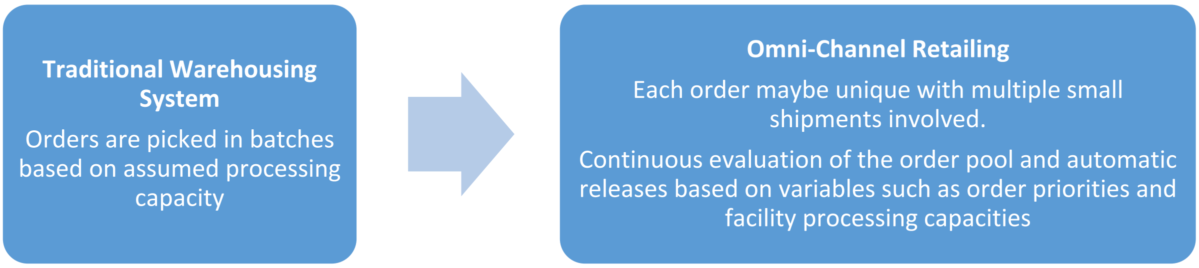
Source: https://www.marketsandmarkets.com/Market-Reports/india-omni-channel-warehouse-management-systems-market-3747439.html

Government's Push for the Omni-Channel Market:

1. *Easing of FDI policies in India with 51% FDI in multi-brand retail and 100% FDI in single-brand retail under the automatic route.*
   Cumulative FDI inflow in retail stood at USD 2.17 Billion between 2000 & 2020 *(Source: IBEF)*

2. *Launch of initiatives such as 'Make in India' and 'Goods & Services Tax (GST) Reform.*

Transformation of warehousing due to omni-channel retailing



Customers expect new alternatives: buying online and pickup in-store or ship from store

Effectually, this transforms a traditional retail store into a fulfilment center. This demands for optimization of store inventory and flexible fulfilment options that meet profitability targets too.

Logistics in Omni-Channel Retailing

Inventory Utilization: *First in-first out from stores to utilize older inventory*

Create a single program: *catering to all customer needs & providing a unified omnipresent experience*

Local Returns: *In-store returns for products purchased online presents an opportunity to boost in-store sales resulting in returns becoming a part of*

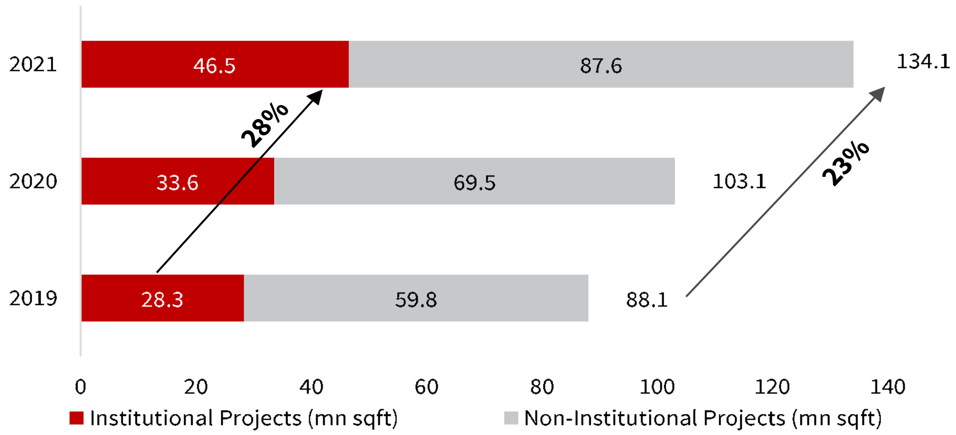
Some of the major omni-channel retail players including Decathlon, Pepperfry, IKEA, Reliance, etc. are occupying warehouses of size varying from 2 lakhs sq.ft. to 1 million sq.ft. in different Tier 1 cities (NCR Delhi, Bengaluru, Pune, Chennai, Kolkata, etc.) in the last two years. *(Source: JLL India Research)*

Future Trends in Indian Warehousing Market

1. Private-Equity Investors pushing the Warehousing Rents in India

Private equity-backed warehousing companies are capturing a substantial part of the overall growth in the warehousing sector with investors such as ESR, Blackstone, IndoSpace, LOGOS, MapleTree, Ascendas, Morgan Stanley, Xander, Welspun, etc. contributing to major warehousing transactions. While the Grade A stock grew at a CAGR of 23%, institutional funded projects grew at a CAGR of 28% showing a higher number of projects from institutional funds adding to the supply y-o-y.

Distribution of Grade A Stock in India (mn sqft)



Source: JLL Logistics & Industrial

Indian Grade A Warehousing Market reaching Global Standards

Grade A warehouses in India are becoming at par with global standards in terms of quality and specifications, which encourages more investors to invest and attract occupiers who require such facilities. These private equity-backed warehousing companies are bringing global standards to India and have developed state-of-the-art facilities in metro cities such as Mumbai, NCR Delhi, Chennai, Pune, Bengaluru, etc. Moreover, the same is being explored by the Indian developers and investors as well. These projects have warehouse box size of more than 1 Million Sq.ft., height of 12 m, FM2 compliant flooring with loading of 5 MT/ sq.m., internal docking and other features including skylight, fire hydrants, dock doors, etc.

For high quality Grade A warehouses, there is little scope of reducing costs, resulting in upward pressure on rents. With the increasing interests from the PE investors in the Indian Warehousing Market, the warehousing rents are expected to witness revisions and grow at ~5% annually in the next 4 years.

Grade A & B Warehouse Rents in INR per sq.ft. per month (2021 – 2025)

Source: JLL Logistics & Industrial

The overall rent for Grade A warehouses is higher than Grade B and C due to higher construction costs. But, considering the volume, current rents in India (INR/ sq.ft./ month), storage capacity, cargo handling capacity and pallet capacity, the rent for a Grade A warehouse is more cost-efficient than the other Grades (as shown in the table below).

The estimation of rental for each pallet position is derived based on a typical warehouse of 100,000 sq.ft.

Parameters	**Grade A**	**Grade B**	**Grade C**
Volume (cu.ft.)	2,800,000	2,475,000	1,440,000
Pallet Capacity (No.)	26,923	17,308	12,308
Rental for Cu.ft. Warehousing Space (INR/ cu.ft./ month)	0.75	0.73	1.04
Rental for Each Pallet Position (INR/ pallet/ month)	78	104	122
Source: JLL Logistics & Industrial			

Assumptions:

a. Rental Space • Grade A: 70% • Grade B: 75% • Grade C: 80%	**c. CAM Charges included in the rents**	**f. Handling Time per pallet:** • Grade A: 5 min • Grade B: 8 min • Grade C: 10 min
b. Rents (INR/ sq.ft./ month): • Grade A: 21 • Grade B: 18 • Grade C: 15	**e. Floor Load (kg per sq.ft.):** • Grade A: 500 • Grade B: 400 • Grade C: 250	

Incremental Reduction in Rental for each pallet:

- From Grade B to Grade A: 25%
- From Grade C to Grade A: 36%

This is a major factor for the increase in traction from the institutional investors and developers in developing good quality Grade A warehouses in India.

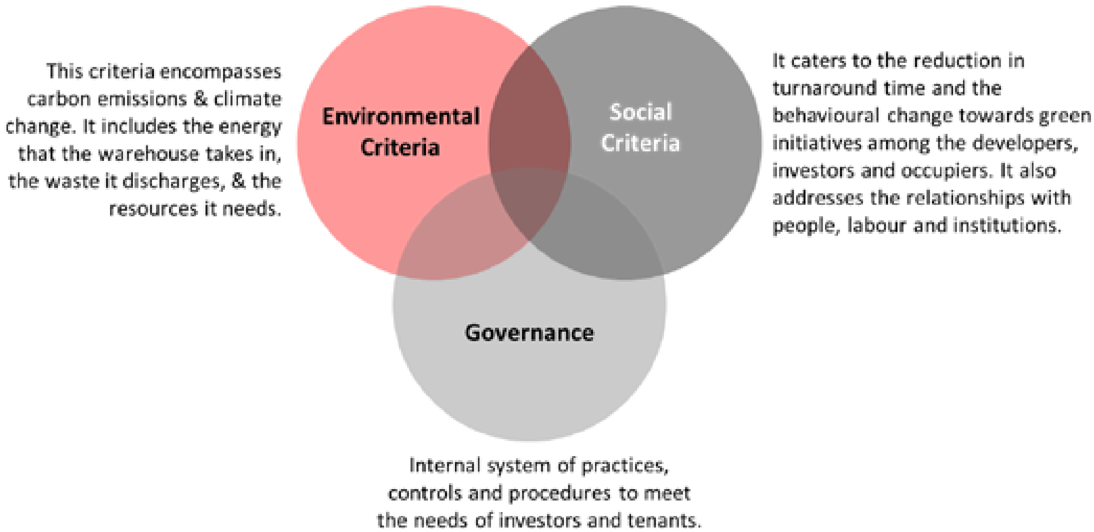
2. ESG (Environment, Social & Governance) in Industrial & Warehousing

Globally, the industrial sector accounts for 23% of the global carbon emissions (Source: United States Environmental Protection Agency) and freight transport currently accounts for around 30% of all transport related CO2 emissions (Source: ITF). Therefore, the carbon footprint associated with transporting and storing goods is under assessment.

ESG has therefore become a priority for industrial and logistics real estate developers, who are increasingly focusing on environmental and social issues along with business profitability.

The opportunity now exists for land-owners and developers to review the sustainability parameters of their assets.

Key Elements of ESG



Attributes of Sustainable Warehousing

Location: *Distribution centres close to cities & transportation hubs to minimize transportation costs & carbon emissions*

Interior: *Sustainable construction materials: specialized paints, adhesives, wood products, sealants, etc. Use of LED lighting & HVLS fans for regulating temperature*

Exterior: *Cool roofing (light-coloured reflective materials) & solar power panels*

Infrastructure & Park Operations: *Environment friendly landscaping practices, waste-water treatment plants & rainwater harvesting*

Labour Friendly: *Location, work environment & pollution-free workplace are the major success factors for a labour - friendly environment*

ESG trends in the Indian Real Estate Sector

- Developers are moving towards developing **net zero assets.**
- **Tenants are seeing value in properties that are energy efficient and sustainable,** given their commitment towards the net zero ambition.
- **Shift in investor preference** towards developers who are placing emphasis on ESG parameters, sustainability policy framework and initiatives
- **State-level incentives** are provided in India to encourage green buildings (including warehouses). For example, Government of Tamil Nadu offers a subsidy of 25% on the cost of setting up environmental protection infrastructure for industrial projects that obtain IGBC (Indian Green Building Council) Green Certification.
- ESG intervention is **shifting from a CSR initiative to a key constituent in decision making.**
- Some of the large developers in India have been working on having an ESG policy framework in line with the global standards.
- As a result, projects achieving ESG standards should experience easier planning process, tenant retention and investor confidence. It is therefore advantageous to consider ESG parameters at the time of master planning, designing and construction phases, to avoid higher costs for future refurbishing.

ESG could be an opportunity in brownfield warehouses

The potential for ESG improvements should not be ignored in the existing industrial and warehousing structures either. Although new structures offer the possibility of designing ESG initiatives during the master planning process, majority of the existing industrial and logistics structures were implemented when there was little awareness about ESG. In such situations, the aim should be to identify and improve the scope of existing environmental and social credentials. Use of LED lighting and HVLS fans are some examples of sustainable upgrades in the existing warehouses.

ESG Certification

Certification programs give a stamp of approval and provide guidance as to what measures should be taken for a warehouse to be sustainable. **EDGE (Excellence in Design for Greater Efficiencies)** is a green building certification system focused on making buildings more resource efficient. It enables developers and builders to identify the most cost-effective strategies to reduce usage of energy, water and embodied energy in materials. **GBCI (Green**

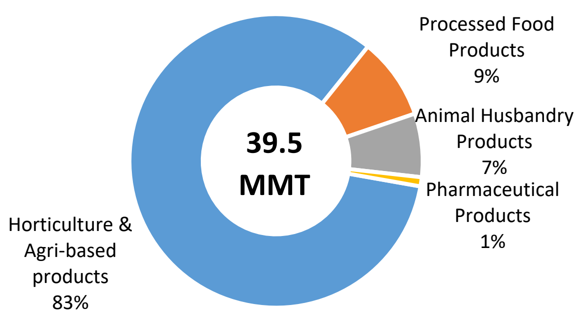
Building Certification Inc.) administers EDGE Certification in most countries around the world. In India, **IGBC (Indian Green Building Council) Green Logistics Parks and Warehouses rating system** addresses green features and operational aspects through their detailed guidelines and certification. IGBC rating systems recognizes achievement in green design, construction & operations, and platinum rating benchmarks applicants with international standards.

Commercial Benefit: The ESG compliant projects are receiving discounts in their lending rates from Lending Institutions as well as incentives and subsidies from Central and State government authorities to setup environmental protection infrastructure.

3. Cold Chains in India

The cold chain industry in India is still at a nascent stage. There are approx. 8,260 cold storage facilities with a capacity of 39.5 million MT (source: PIB by Ministry of Agriculture & Farmers Welfare on Cold Storage Facilities in the Country, MOFPI Annual Report 2021-22) available in the country in 2021 which are largely used for storing perishable horticulture produce (83%) such as fruits and vegetables. The Indian cold chain market was estimated to be worth USD 20.4 Billion in 2021 and is further projected to reach USD 47 Billion by 2027, growing at a CAGR of 15% *(Source: IMARC - Indian Cold Chain Market: Industry Trends, Share, Size, Growth, Opportunity and Forecast 2022-2027).*

Cold Storage Utilization in India, 2021



Source: PIB by Ministry of Agriculture & Farmers Welfare on Cold Storage Facilities in the Country, MOFPI Annual Report 2021-22

Although, cold storage contributes 43.7% of the total revenue from Indian cold chain industry, **36% of the cold storages in India have a capacity below 1,000 MT.** The cold chain potential remains untapped due to the following reasons:

1. High share of single commodity storage
2. High initial investment for land and refrigerator units
3. Lack of necessary enabling infrastructure

4. Lack of awareness for handling perishable goods
5. Lapses in service by storage and/or transportation providers leading to inferior quality goods

Cold storage facilities are hugely capital intensive but can fetch yields of around 12% and higher rental premium of 3 to 4 times than that of conventional warehouses.

Growth Drivers:

1. Growth in Organized Retail

Organized retail and food service industries have emerged as the new cold chain segments, majorly due to changing consumption patterns. Consumers have more access to a large variety of fresh fruits and vegetables, dairy products, meat and poultry products and other temperature sensitive commodities that require cold chain infrastructure. Organized retail players have also acknowledged that setting up of a strong cold chain infrastructure is a key step in efficiently managing their supply chains.

2. Growth in Food Processing Industry

The Indian food processing industry accounts for **32% of the country's total food market and contributes 13% of India's exports and 6% of total industrial investment** *(Source: IBEF).* The industry is critical from the economic perspective; therefore, the government is focusing on its development. This will result in boosting of cold chain infrastructure, which will in turn reduce wastage in the supply chain.

3. Pharmaceutical Sector

India caters to over 50% of global demand for various vaccines. 40% of generic drugs demand in the USA and 25% of all medicines in the UK are served from India. The sector is expected to grow to **USD 100 Billion by 2025** *(Source: IBEF).* Being highly susceptible to temperature and time requirements, cold chain forms backbone for the pharmaceutical industry.

Moreover, India needs to significantly ramp up its cold chain facilities for the **safe delivery of vaccines for mass immunization against COVID-19.** A vast portion of cold storage units available in India are used for agricultural produce, and very few are pharmaceutical compliant according to WHO guidelines. This has generated a huge demand for cold chain in India, and the government is roping in private cold chain operators to meet this requirement.

4. Government Support

Recent cold chain projects:

Scheme	Number of Projects	Investment	Grant
Scheme for Integrated Cold Chain & Value Addition Infrastructure	350 Cold Chain infrastructure projects	INR 9,564 Crores	INR 2,640 Crores
Pradhan Mantri Kisan Sampada Yojana (PMKSY)	27 Cold Chain projects	INR 743 Crores	INR 208 Crores
Backward & Forward Linkages	8 Projects	INR 62 Crores	INR 15 Crores

Source: PIB by Ministry of Agriculture & Farmers Welfare on Cold Storage Facilities in the Country, MOFPI Annual Report 2021-22

4. Multi-Storey Warehouses as the next step in Logistics

Multi-storey warehouses in urban areas, enable companies to mitigate the high cost of land, and maximize the potential of land as well as built-up area, making it an attractive proposition for occupiers who want easy access to their end consumer base. The boom in e-commerce has led to the increase in demand for urban warehousing & logistics spaces; hence to developers and investors looking at multi-storey warehouses as the next step in urban logistics.

Ramp-up access multi-storey warehouse is winding up as the future of warehousing, which is built vertically with wide ramps and docks on multiple floors for the easy navigation of trucks and trailers to upper floors.

Presence of Multi-Storey Warehousing in Asia Pacific Region

Multi-storey warehouses have existed in the Asia Pacific region for many years, particularly in the more developed countries such as, Singapore and Hong Kong, where dense population and limited land availability has made them a necessity. Interestingly, the space maximization potential of this asset class has helped their acceptance in China.

Multi-storey facilities in the APAC region offer significant advantages in the form of proximity to consumption centers, special business zones, and container terminals.

Some of the successful multi-storey facilities in the APAC region include **ATL Logistics Centre (Hong Kong), Goodman Qingpu Centre (Shanghai), Goodman Interlink (Hong Kong), Prologis Park Narashino 4 (Narashino, Japan), ESR Kunshan Huaqiao Park Phase 3 (Shanghai, China), and Prologis PLD SIN Logistics Centre 2 (Singapore).**

These facilities have the following typical parameters for their successful operations:

- **Geographical Significance:** Located in the areas with land shortage and constraints
- **USP Features:** Drive-in cargo logistics center for faster turnaround of cargo, Easy access to transport hubs, High land utilization efficiency, Dedicated cargo entrance to international airport
- **Vehicular Access:** Ramp Access for container trailers
- **Built-up Area:** Ranging between 0.25 Mn Sq.ft. to 1 Mn Sq.ft. with some of the facilities going up to 10 Mn Sq.ft.
- **No. of Floors:** Generally, from G+1 to G+3 with some of them going up to G+12
- **Clear Height:** 7.5 m to 9 m
- **Loading Capacity:** 2 tons/ sq.m. to 3 tons/ sq.m.
- **Facilities:** Cargo elevators, Cargo handling, CFS & distribution services

Land limitations in countries such as Singapore and South Korea, and populous metros like Hong Kong and Tokyo have resulted in costliest warehousing markets in these countries. Rentals as well as operational expenses could be reduced in these expensive locations by developing multi-storey warehouses. Higher cost efficiencies can be achieved by increasing number of floors as these provide more leasable floor area.

As observed in Asia Pacific case studies, accessibility to higher floors by ramps is a critical success factor for multi-storey warehouses. 2-storey warehouses need ramps for the movement of forklifts and those with more than 2 floors require wider ramps for trailers.

Future of Multi-Storey Warehousing in India

Potential for Multi-Storey Warehousing: Indian warehousing market has the potential to shift towards the multi-storey warehousing on back of the increasing demand from the e-commerce sector to be located close to their consumer base and to efficiently utilize the land area. This can kick-start the demand for tech-enabled multi-storey warehousing, which can facilitate maximum land utilization in cities having limited land supply as well as help companies to reduce transportation costs and time. Cities such as Mumbai, Bengaluru and Kolkata have the potential to attract Multi-Storey Warehouses as they have constrained land supply and higher land rates.

Challenges and Future: The permissible FSI for warehousing is lower than the desired FSI for multi-storey warehousing in Indian cities. Lower permissible FSI restricts warehouses from going higher which does not allow cost optimization. But, with growing population, space constraints and increasing land prices, multi-storey warehousing system can emerge in the Indian warehousing market in the near future.

Conclusion

The resilience of the industrial and warehousing market was tested as the COVID-19 pandemic hit India's economic growth trajectory. After showing resilience in 2020, **the warehousing market has recovered in 2021** with the demand reaching pre-COVID times. Warehousing in India is currently in the process of transformation due to **improved quality of warehousing spaces (primarily Grade A space), demand for larger boxes and positioning of warehouse location.**

- **Major global funds have invested with warehousing developers and operators** in order to expand their reach and regional footprint, being the key differentiators in the sector.
- These investments are not restricted to Tier 1 cities, they are **also spreading across Tier 2 and 3 cities** which are now emerging as major consumption and e-commerce hubs.
- **3PL and E-Commerce have become one of the fastest growing segments in warehousing space, contributing more than 50% of total net absorption in 2021, highest among all the other sectors.** COVID-19 has accelerated e-commerce adoption rates, leading to an increase in the demand for online delivery of essential and non-essential items. Demand from 3PL has increased as different sectors such as e-commerce, engineering, electronics & white goods are routing through 3PL.
- The potential for **developing large warehouses** is primarily leveraged by the institutional Grade A developers by constructing high quality spaces to meet the specialized needs of their tenants.
- As the e-commerce is deeply ingrained in the busiest commercial, retail and residential areas, **in-city warehouse space is gaining importance** for rapid deliveries to end users. Constrained supply of space is also driving re-positioning or change in use of existing assets such as malls, high-street retail, marriage halls, auditoriums, showrooms and workshops.
- Furthermore, the advent of e-commerce has had a significant impact on the Indian warehouse scenario. **Omni-channel retailing** is emerging to optimize inventory management costs, operating costs, and real estate costs while increasing brand awareness and consumer base across the country.

There are some noteworthy trends that are shaping the future of India's logistics and industrial sector.

- **Private equity-backed warehousing companies** are capturing a substantial part of the growth in the warehousing sector. These warehousing developers typically eye an **entry yield of 9%-10% and IRR (internal rate of return) of 18%-20%.** This will push the warehousing rents for corrections and grow at **~5% annually in the next 4 years.**

- Projects that meet **ESG standards** are experiencing easier planning process, tenant retention, and investor trust. Thus, developers have recognized that it is advantageous to consider ESG parameters at the time of master planning, designing and construction stage to avoid higher costs for future revamping.

- The Indian **cold chain industry** is also transforming post COVID-19 considering the growth food and pharmaceutical growth. **Organized retail and food service industries** have also emerged as the new cold chain segments, majorly due to changing consumption patterns.

- Another potential that the Indian warehousing market has is to shift towards the **multi-storey warehousing.** This is due to the increasing demand from the e-commerce sector to be located close to their consumer base. This can push the demand for multi-storey warehousing which can facilitate maximum land utilization in cities having limited land supply as well as help companies to reduce transportation and logistics costs and time.

The Indian logistic and industrial sector is maturing, and developers have started to include quality space and infrastructure in their portfolio. In the recent years, the sector has seen tremendous expansion and significant transformation trends across the country which is expected to continue in the future years.

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About ASSOCHAM

The Knowledge Architect of Corporate India

The Associated Chambers of Commerce & Industry of India (ASSOCHAM) is the country's oldest apex chamber. It brings in actionable insights to strengthen the Indian ecosystem, leveraging its network of more than 4,50,000 members, of which MSMEs represent a large segment. With a strong presence in states, and key cities globally, ASSOCHAM also has more than 400 associations, federations, and regional chambers in its fold.

Aligned with the vision of creating a New India, ASSOCHAM works as a conduit between the industry and the Government. The Chamber is an agile and forward-looking institution, leading various initiatives to enhance the global competitiveness of the Indian industry, while strengthening the domestic ecosystem.

With more than 100 national and regional sector councils, ASSOCHAM is an impactful representative of the Indian industry. These Councils are led by well-known industry leaders, academicians, economists and independent professionals. The Chamber focuses on aligning critical needs and interests of the industry with the growth aspirations of the nation.

ASSOCHAM is driving four strategic priorities – Sustainability, Empowerment, Entrepreneurship and Digitisation. The Chamber believes that affirmative action in these areas would help drive an inclusive and sustainable socio-economic growth for the country.

ASSOCHAM is working hand in hand with the government, regulators, and national and international think tanks to contribute to the policy making process and share vital feedback on implementation of decisions of far-reaching consequences. In line with its focus on being future-ready, the Chamber is building a strong network of knowledge architects. Thus, ASSOCHAM is all set to redefine the dynamics of growth and development in the technology-driven 'Knowledge-Based Economy. The Chamber aims to empower stakeholders in the Indian economy by inculcating knowledge that will be the catalyst of growth in the dynamic global environment.

The Chamber also supports civil society through citizenship programmes, to drive inclusive development. ASSOCHAM's member network leads initiatives in various segments such as empowerment, healthcare, education and skilling, hygiene, affirmative action, road safety, livelihood, life skills, sustainability, to name a few.

NOTES

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