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**COLD
CHAIN**

THE LIFELINE FOR PERISHABLES

India lacks proper cold storage at the farm gate level. Moving beyond, temperature maintenance and monitoring from farm to fork needs to be established for preserving quality and freshness of the commodities.

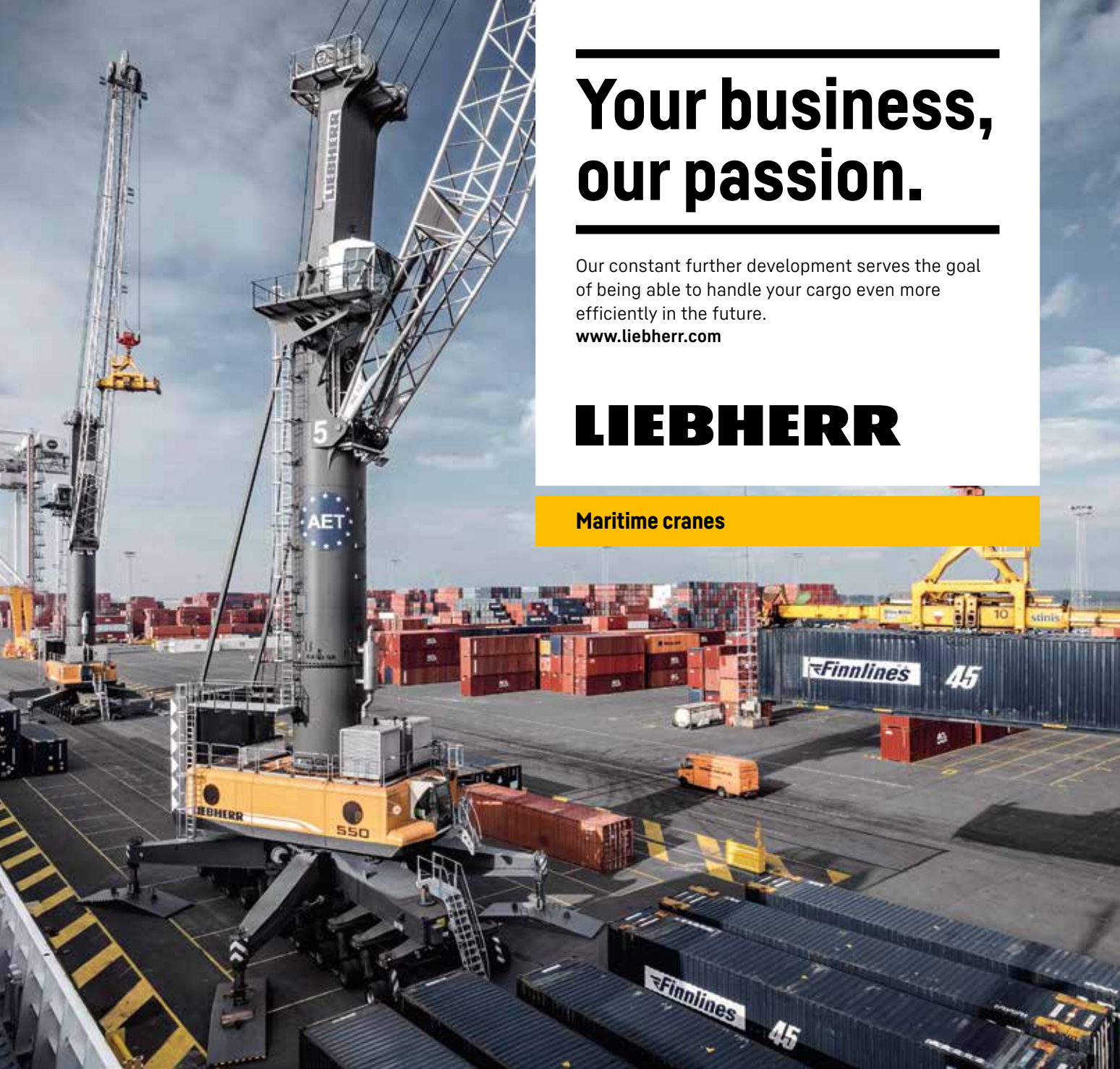
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SLOWING EXPORTS DON'T AUGUR WELL FOR "CHINA PLUS ONE"



Policy makers should focus on improving exports, even if incremental.

In a recent interaction, Ajay Banga, President, World Bank, said India has an opportunity to create jobs in the manufacturing sector by tapping into the 'China plus one' opportunity, but that window is available only for a short period of time, maybe 3 to 5 years, while the supply chains start adding on in another location. 15-20 million jobs need to be created with some highly skilled ones in manufacturing, technology, with a larger pool in the services sector.

In the post-pandemic era, search for resilience in global supply chains has provided India this window and India has been preparing for this eventuality for a while now. Over the past decade, India has cleaned up bad debts in the banking system, lowered corporate tax rates to internationally acceptable levels, diverted increasing chunks of the government budgets at building physical and digital infrastructure, and has rolled out incentives for local manufacturing and exports in select industries. India has the policy framework in place. It also offers a sizeable domestic market to swing corporate investment decisions in its favour.

But that is just half the story. China plus one also means more exports going out, but the reality seems to be just on the contrary. After hitting a record \$775 billion in 2022-23, India's exports are off to a rocky start this year. Outbound shipments of goods, that had crossed \$450 billion last year, have contracted 15.1% through the April to June 2023 quarter. June's provisional export tally, just shy of \$33 billion, was the lowest figure in eight months and reflected a 22% drop year-on-year, a scale of contraction last seen amid the initial months of the COVID-19 lockdowns.

There has been a decline in the import bill as well over the first quarter, albeit at a slower pace than exports. The decline in non-oil, non-gold imports has accelerated from 2% in May to 16.7% in June, indicating that domestic demand triggers are also ebbing, which does not augur well for domestic growth impulses that form India's key armour against the gathering global slowdown.

Service exports have slowed down and IT majors are downcast about their earnings guidance for this year, indicating the tide may get worse – for a sector which Mr Banga has seriously underscored for the economic growth.

Frail global demand may not just impact trade flows but also hurt foreign direct investments even as tightening monetary policies could exacerbate financial market volatility. The focus of Indian policymakers should be at improving competitiveness against rivals, while keenly observing divergent trends in different markets and help exporters capture incremental global demand.

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Banking on high-end technology

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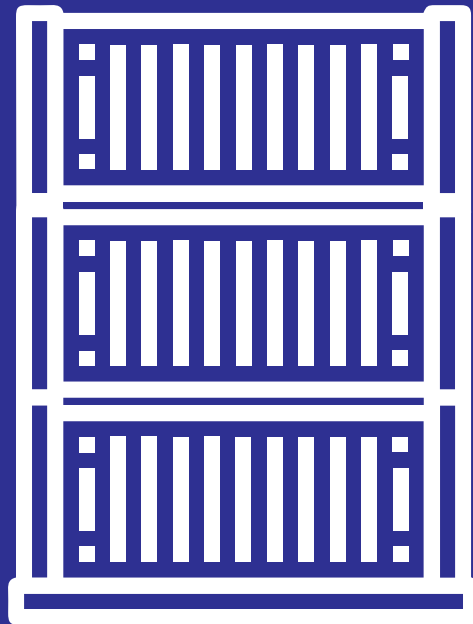


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RESOLVING SHIP-OWNERS' DILEMMA

"Investing in an engine now that unlocks a wider range of fuel options and possibilities for the future is a good insurance premium indeed," informs **Petteri Saares, Director - Middle East & Asia, Wartsila Marine Power**

The maritime sector is competing to reduce emissions and a number of options have come up in terms of eco-fuels such as Hydrogen, Methanol, Ammonia, etc. Which of these fuels do you see gaining acceptance quickly and which of them will be more widely available as bunker in the long term?

In recognising that shipping's 'new' fuels are not readily available yet at scale, it is difficult for ship owners – and the wider industry – to predict which pathway to take. It is why Wärtsilä is investing

in a number of sustainable fuels and developing flexible technologies.

Ultimately, the final step in shipping's journey towards decarbonisation will be the total use of zero-carbon fuels, either in whole or blended with conventional fuels or alternative power sources. We are starting to see great results with hydrogen, methanol and ammonia but they will all require more infrastructure to scale up. Many other steps can be taken in the meantime which provide simple and available possibilities to reduce baseload consumption and decarbonise with immediate effect, for example:

Drop-in renewable fuels have been a valuable option for the shipping industry and will be important in the short to medium term - particularly as blends. Without the need to modify engine components or refuelling infrastructure, drop-in biofuels and biogas are a viable way of lowering emissions without a capital-intensive fleet renewal or retrofitting.

Other steps that can be taken today include installing dual-fuel engines and efficiency-boosting technology - such as wind-assist, propulsion system



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When it comes to modifying a ship running on traditional fuels to make it compliant with eco-fuels, which of the engine components are replaced?

Modifying a ship running on traditional fuels to make it compliant with sustainable fuels can very much vary depending on the type of fuels, load- and operating profile, certification and safety requirements. In most cases, modifications are not limited only on engine. The whole fuel storage and supply system would need to be adapted depending on fuel selection.

After a ship is modified to run on alternative fuels, what type of warranty and after sales service does Wartsila offer?

Wärtsilä takes a long-term view on customer partnership and installations support. Our ultimate goal is to ensure that customers' satisfaction is achieved through predictable and reliable performances, from the environmental, safety, operational and economic perspectives. All these angles are achieved by both having an extremely vast, global, experts' presence and by the availability to propose long-term performance-based agreements. The latter ones are of multiple nature and different engagement levels, all ensuring owners and operators ease of mind.

Are there chances for ships to develop operational snags post-modification to run on eco-fuels? What are the common problems encountered post-modification?

As with anything in the marine market environment, there are unforeseeable events that can easily occur. When it comes to sustainable fuels, the process taking place after upgrades mainly relates to the new typology of fuel handling and the knowledge increase the crew is required to go through. One way that engine technology-related snags can be minimised is through creating thorough in-house development plans - from general technology to deep component endurance testing. The knowledge built in the field then provides the input for continuous developments, which, we at Wärtsilä, term our product improvement process.

improvements, air lubrication or hybridisation – to allow ship owners and operate flexibility in their decision-making on long-term decarbonisation strategies.

Each of these steps, available to operators and owners today, can be essential in terms of staying competitive in the future fuels' era. Investing in an engine now that unlocks a wider range of fuel options and possibilities for the future is a good insurance premium indeed.

At Wärtsilä, 'de-risking decarbonisation' calls for ship owners to have maximum flexibility and to keep options open as the industry navigates the uncertain pathway to net zero. We are taking an innovative approach to engine solutions and collaborating with industry partners to transform the industry together.

What are the latest engine technologies Wartsila has on offer for shipping lines to run on alternate fuels?

Wärtsilä is united in its aim of limiting climate change to below two degrees, and the development of engines capable of running on future fuels is crucial to that. Three examples to highlight include:

Our new Wärtsilä 25 engine. It is already capable of operating on diesel, LNG or on either gas or liquid carbon-neutral biofuels and can easily be upgraded to operate with future carbon-free fuels as they become available. The Wärtsilä 25 is also intended to be the first Wärtsilä engine to run on ammonia as a fuel – with technology development currently underway.

Another example is our Wärtsilä 32 methanol engine. Offering simple handling and storage, reliable combustion and near carbon-neutral power (when made using renewable electricity and captured carbon), methanol is emerging as a leading candidate for decarbonising shipping. The Wärtsilä 32 has a proven track record in a wide range of vessel applications, running on methanol and/or fuel oils.

In addition, Wärtsilä 46TS-DF features modular design, which means every part of the engine is a module that can be replaced as needed. This approach makes it more cost-effective and straightforward to upgrade to run on carbon-neutral fuels like green methanol in the future.

How is the market for retrofitting ships to make them compatible with eco-fuels? Among which categories do you see more demand for retrofitting – container carriers, bulkers, cruise ships, ferries, etc?

Without immediate action in the form of retrofits or power limitation, much of today's global fleet faces the prospect of non-compliance with the IMO's CII regulations. As such, we are seeing a general increase in demand for fuel conversion technology across all categories. To cater to this, we have the technology needed to use most future fuels today and development is on-going for others. We are also investing heavily in developing fuel conversion and retrofit solutions and currently already have a variety of retrofit solutions that can be implemented on both 4-stroke and 2-stroke engines.

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THE CONFUSION IN CHOOSING A FUTURE FUEL

The challenge is, there are many different options and no consensus on which sustainable fuels will be commercially available. This creates business risks regarding fuel availability, increased CAPEX/OPEX, vessel design, storage and handling, including complexities in managing cryogenic requirements, shares **Sachin Kulkarni, Head of Sales, Marine Power, South Asia, Wärtsilä**

What are the main challenges for zero-carbon energy transition for shipping in India?

In accordance with the IMO target, hydrogen and hydrogen-derived synthetic fuels (such as Ammonia or Methanol) are considered amongst the most scalable long-term solutions as marine bunker fuels; option of electrification is also being actively explored by the shipping industry.

The challenge we have is that there are many different options and no consensus today on which of the sustainable fuels will be commercially

available. Commercial availability depends on geographic location, national interests and legislations, and the availability of feedstock.

These uncertainties create business risks regarding fuel availability, increased CAPEX / OPEX, vessel design, its structure, storage and handling, including complexities in managing cryogenic requirements and toxicity. Then we also have the timing issue: when should one make the investment & go for sustainable fuel? We only have a limited amount of shipyard capacity in the world, so it would not be possible/

feasible to upgrade all commercial vessels at the same time.

Readiness and availability of zero carbon/ carbon neutral fuels remains lower than the transition fuels, which could offer GHG emission reduction in the short term while building capacity and infrastructure for long term requirement for zero carbon/ carbon neutral fuels. These transition fuels such as biofuels, LNG can leverage existing technology and infrastructure to enable uptake. However, cross-sector demand and volatile pricing mechanisms can increase the level of risk, along with uncertainty regarding the availability and compliance with new regulations.

Increased adoption of sustainable fuel technologies will give rise to the need to develop pertinent infrastructure and to ensure a steady supply, needed to have aggregate demand of these fuels. To derive aggregate demand not only for sustainable fuels but also charging infrastructure for electric vessels & shore power, key stakeholders in the maritime ecosystem need to collaborate and pre-empt the growth of demand for vessels and the subsequent energy requirements.

There is also a need for developing maritime clusters where increased co-operation amongst maritime stakeholders throughout the value chain can be facilitated.

Ultimately, the final step in shipping's journey towards decarbonisation will be the total use of zero-carbon fuels, either in whole or blended with conventional fuels or alternative power sources. We are starting to see great results with hydrogen, methanol and ammonia but they will all require more infrastructure to scale up.

How far are new CII compliance regulations going to affect Indian shippers? What solutions Wartsila can offer?

The Carbon Intensity Indicator (CII) is a measure of how efficiently a ship transports goods or passengers and is given in grams of CO₂ emitted per cargo-carrying capacity and nautical mile.

Wartsila's Decarbonisation Services has 3 steps:

- **Fleet Decarbonisation Program** – analysis of current fleet focussed on environmental compliance
- **Decarbonisation Modelling** - Real operational data analysis to identify how the referenced vessel is currently operated. Evaluation (and simulations) of solutions to reach the compliance
- **Installation Onboard** - Real technology installation onboard based on the results of the modelling analysis

Our Decarbonisation modelling process includes 3 stages:

a. Input

- Real operational data, collected and organized through the data cleaning & enrichment process
- Design data
- Selected technologies information

b. Digital model

- Digital creation of the current and the new possible configurations of the vessel

We use the "Vessel Simulator" developed at Wärtsilä that enables us to move from spreadsheet-based calculations to more advanced and precise algorithms.

All the selected technologies will be simulated to quantify how they can impact performances, new ways to operate the vessel, overall efficiency, environmental compliances, and safety.

c. Output – Define the decarbonisation path

- New vessel's functionalities
- Optimised equipment operation
- Fuel consumption analysis
- Emissions analysis
- Impact on CII rating

The order book for methanol-powered dual-fuel vessels has been on the rise. Do you think methanol has emerged as the best alternative future fuel?

We have many customers who are already running on methanol today. One example of a methanol project in which Wärtsilä was involved in was with Stena Germanica. The 240-metre long ferry Stena Germanica, with a capacity for 1,500 passengers and 300 cars, was retrofitted with a first-of-its-kind fuel-flexible Wärtsilä 4-stroke engine that can run on methanol or traditional marine fuels in 2015.

We have signed a contract to supply engines for Celebrity Cruises' new ship, the fifth vessel in the company's revolutionary Edge Series. Working closely in collaboration with Royal Caribbean Group and Chantiers de l'Atlantique, the project will enable the ship to be capable of operating with methanol fuel option. To enable this advance on our side, we will convert two Wärtsilä 46F engines to allow them to utilise methanol as fuel, marking the first-ever such conversion for this particular engine type.

Based on increasing interest over the last few years, we anticipate seeing continued growth in the market for methanol powered vessels. This is made clear by DNV's Alternative Fuel Insight (AFI) platform, which tracks orders and bunkering locations for alternative fuels. It recently logged orders for 35 methanol-fuelled vessels in 2022, which is in addition to the 26 vessels currently in operation.

According to a report published recently, the engine manufacturers are eying to retrofit the two- and four-stroke engines eligible for


conversion to run on green fuels to save 97m tons of CO₂ emissions annually. What are the technical solutions Wartsila offers to ship owners for green fuel transition?

At Wärtsilä, we offer a variety of retrofit solutions that can be implemented on both 4-stroke and 2-stroke engines. Examples include:

The Wärtsilä Fit4Fuels - a retrofit technology platform converting 2-stroke diesel engines to run on future fuels. The ground-breaking hybrid combustion concept maintains engine power density and eliminates fuel slip, providing a viable and flexible pathway towards a decarbonised future. It also increases the commercial value and lifetime of existing vessels.

To enhance this solution further, we recently introduced our new radical derating retrofit solution – Wärtsilä Fit4Power – which extends the emissions-compliant lifetime of merchant vessels by providing the existing two-stroke fleet with leaner, healthier and more optimised engines. Radical derating gives mid-life engines a new lease of life, with a power output and emissions profile that can take them through the early years of CII and prepare them for the most efficient use of new fuels needed to reach later emissions targets.

Another example is our Wärtsilä 32 engine which is available for newbuild or retrofitting. Our Wärtsilä 32 methanol engine does not require any technical conversion when starting to run on methanol. However, it is important that there is a methanol supply system in place along with the adequate safety measures taken in the engine room and tank space. That's why, last year, we announced that Wärtsilä has developed a dedicated fuel supply system for methanol, MethanolPac.

Combined with the Wärtsilä 32 Methanol engine, as well as our well-proven retrofit and system integration capabilities, MethanolPac enables Wärtsilä to deliver methanol-capable fuel and power systems across a wide range of vessel segments. 

**COLD
CHAIN**

THE LIFELINE PERISHABLES



FOR

India lacks proper cold storage at the farm gate level. Moving beyond, temperature maintenance and monitoring from farm to fork needs to be established for preserving quality and freshness of the commodities.

The significance of cold chain can be gauged by a simple fact that the value of goods moved in a cold chain is 2.5 times more than the value of normal goods moved in common trucks, which means using a cold chain facility adds to the per unit cost of the product. Cold chain helps in preserving any perishable commodity coming from diverse sectors such as pharma, dairy, agri products, seafood etc. Even the fast food chains like Mc Donalds, Dominos and KFC are dependent on cold chain for

preserving the freshness of their menu. However, the cold chain infrastructure is at a nascent stage in India. In 2021, the Indian cold chain logistics market was valued at \$24.62 billion, and it is expected to reach \$53.07 Billion by 2027, growing at a CAGR of 13.66% from 2021 to 2027. About 85% of the perishable cargo in India moves by road.

Indian cold chain sector has certain disparities, such as cold chain infrastructure is mostly concentrated in tier I cities, this has created a huge

gap in the tier II & III cities, causing shortage of cold chain facilities at the farm gate level. Approximately, 50,000 reefer trucks are operational in India, of which, just 11000 are managed by the organised sector, while the actual demand for reefer trucks is much more. India has 7,645 cold storages with 39 million tonnes of storage capacity, of which, 68% is used for storing seasonal products like potatoes and for the rest of the other seasons they remain empty. We currently require close to 200,000 reefer trucks on the road, but only 40,000 to 50,000 trucks are currently plying, which are again underutilised as this segment is completely offline. There is no central platform for booking and tracking these trucks and they don't have any mechanism for temperature maintenance, monitoring and tracking.

There is a severe lack of standardisation in the cold chain sector. Customers come with a unique set of requirements which are non-standardised. On the contrary, in the European countries there are standards, which enable things to be built to a certain level of efficiency. Using a cold chain adds to the cost per unit of the product, here the cost of establishing and maintaining a cold chain needs to be brought down, which will ultimately bring down the unit cost for the user. Here sustainable technologies for electrification and mobility come into the picture. Such technologies will be more desired by cold chain operators and will also reduce dependence on incentives.

We also need a system to track the lifecycle of the perishable commodities, right from the time they leave the farm to the point of consumption, to make sure they are maintained in temperature controlled atmosphere. With IoT devices like GPS and temperature sensors installed in vehicles and cold storages, along with transport management systems and warehouse management systems being fed into a central data mining operation can deliver the technology to monitor the entire cold chain.

Availability of proper cold chain at the farm gate level is the first step towards preserving the quality of food/

India has 7,645 cold storages with 39 million tonnes of storage capacity, of which, 68% is used for storing seasonal products like potatoes and for the rest of the other seasons they remain empty.

agri products. We are failing to arrest the deterioration of the quality right at the harvest level, as cold rooms or that sort of infrastructure is not available to the farmers. Further lack of cold rooms at retail market level and insufficient supply of reefer trucks causes high wastage and price fluctuations. For instance, if we are transporting onions from Maharashtra to Jammu, then we cannot control the quality of the onions if they are transported in regular trucks. Total value of annual food wastage


in India due to lack of cold storage facilities is pegged at Rs.440bn. It has been reported that India can save about Rs.20 billion annually if 0.2% of the waste is reduced in preservation and logistics of apple alone.

To arrest the quality at the farm level businesses like Ecozen have introduced solar powered cold storage rooms. This is a one-time investment for farmers, who can escape the high electricity bills and power backup charges, while preserving the freshness of their produce as it moves along the supply chain.

Another issue with the Indian cold chain market is either we are falling short of the required volume for storage or we are not able to properly use the available cold chain resources, because if we pick an imported fruit in a market like kiwi (imported from outside India) and compare it to a domestically sourced fruit, for instance apples from Himachal Pradesh, their freshness is not of the same quality as the imported fruits. So, somewhere we are not doing things the right way, even though there has been tremendous improvement in the cold chain in the past one decade in our country, but such gaps need to be identified and covered in order to benefit the farmers and consumer the most from the cold chain. Here multiple touch points along the cold chain need to be created and checked constantly to identify the gaps and breach in temperature control system.

A recent innovation is the phase change material (PCM) which replaces dry ice and is used to pack any temperature sensitive pharmaceutical material. It can maintain upto -40o temperature without any external source help upto 72 hours. PCM were largely used in distribution of covid vaccines.

Using cold chain prolongs the shelf life of commodities, as farmers are able to hold the products for longer time price fluctuations due to shortage of supply in the market can be controlled.

As India aspires to become the global factory, it is pertinent to address the grey areas across the cold chain to improve the quality of the products as per global standards. 



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ALLANA COLD CHAIN SOLUTIONS

BANKING ON HIGH-END TECHNOLOGY

"Our Transport Control Tower tracks position of each vehicle on the move. Driver Management System track behaviour and driving style of each driver. Unique 40' and 32' reefer trucks are built for Indian tropical climatic conditions with robust compressors from Daikin and Carrier, the cargo is safe in all seasons and in peak of heat as well."

Current scenario of cold chain market in India

India is the largest producer of milk and the second-largest producer of fruits and vegetables, and the region is also experiencing a substantial production of marine, meat, and poultry products. Most of these products are perishable and temperature-sensitive, which requires a specific temperature for storage and transportation. This is generating the demand for establishment of large cold chain facilities in the region. As of 2022, the Indian cold chain market was valued at ₹1,800 billion and for the next 5 year (2023-2028) a CAGR of 13% is expected which will result in doubling the size.

On a regional level, Uttar Pradesh currently dominates the market. The market is further classified into West Bengal, Punjab, Gujarat, Bihar, Andhra Pradesh, Madhya Pradesh, Maharashtra, Karnataka, Haryana, Chhattisgarh, Rajasthan, Orissa, and Tamil Nadu.

Size of cold storage facilities

Our current cold chain storage facilities have an overall holding capacity of 61,405 metric tons. With the addition of new cold storage facilities being established in Kolkata, Kakinada & Dera Bassi the overall capacity has moved up to 69,655 metric tons.



Presence of cold storage facilities across India and hinterland coverage

Allana Cold Chain has established facilities in 13 cities across 7 states- Maharashtra, Uttar Pradesh, Bihar, Punjab, Haryana, Telangana, West Bengal, and Andhra Pradesh. We have recently initiated an expansion plan in West Bengal, Andhra Pradesh and Punjab and the facilities shall be operational within the next 3 months.

Commodities being handled

The Products stored in the Cold Stores are majorly Agriculture based and processed food that requires storage for a period in the value chain. Apart from this, we also store Fruits & Vegetables, Frozen Fruit Pulp, Ready to Eat Frozen Food, French Fries & Green peas, Dairy & Ice-Cream, Bakery Products, Sea Food & Poultry and Pharma & API's.

Some of our major trusted clients are McCain Foods, Britannia Industries, Morde Foods, DP World, Delight Foods, Abbott India, Indo Rama, DSM Group, Suri Agro, Godamwale, Hyfun Foods, Varun Beverages, Dohler India, Baramati Agro, Hatsun Agro, Vijaya Dairy, Paras Dairy, Tirumala Foods, Jubilant Food Works, Jyoti International, JWJ Group,

Mars International, Sapphire Foods (KFC supplier), Bhole Baba Milk Food Industries etc.

We seek to expand our business through partnerships and uphold an unwavering commitment to excellence, which includes instilling an unyielding drive, an unwavering determination, and a persistent delivery standard to make sure that our partners do not suffer losses in the business when they rely on us.

Technology use and automation

Allana Cold Chain Solution owns and operates blast freezing systems that are of high quality and fire resistant. The refrigeration system is equipped with Mayekawa (Japan) and Sabroe (Denmark). Refrigeration automation and control systems are from Siemens (Germany) and Allen Bradely Scada (USA). Allana Cold Chain Solution has all the right technology and experience to freeze the products quickly with least stress on the product, while maintaining products texture as is.

Our cold storages are managed in palletized storage which are operated by high reach trucks and managed by latest "Warehouse Management Systems". We have collaborated with the world's

leading "OEMs" for refrigeration unit, tyres & containers to ensure the best combination forming the complete set of trailers. This makes the trailers sturdy and high-performance driven fleet running long hauls without breakdowns ensuring timely deliveries.

Our Transport Control Tower is equipped with the latest software helping the team track position of each vehicle on the move and take necessary actions in case support required. The trucks are using telematics comparable to luxury cars, e.g. ADAS (Advanced driver-assistance systems) to ensure road safety, DMS (Driver Management System) to track behaviour and driving style of each driver. The DMS is supported by cameras in the trucks and generates alerts to the driver as well as the Control Tower in case of any diversion from the plan, usage of DG sets, high stoppages at any place, distracted drivers, and pedestrian safety.

We move cargo across India with containers specially designed to carry high volume and weight. Allana Cold Chain Solutions trained technician and drivers are experts in delivering cargos safely and fresh as it should be. Unique 40' and 32' reefer trucks are built exclusively for Indian tropical climatic conditions with robust compressors from Daikin and Carrier, the cargo is safe in all seasons and in peak of heat as well. Our clients can connect with us 24/7 as we are a team of people who want them to experience the best of customer care.

Key highlights/USP about cold storage facilities

The company combines its core products of Reefer Transportation, Cold Storages, Blast Freezing, Packing, Inspection, and freight forwarding to deliver globally integrated, tailor-made end-to-end cold chain solutions for highly perishable and temperature-controlled food products.

Some of the Key highlights of our Cold Storages are as follow:

- **High Level of customer Service:** We prioritize exceptional customer service and aim to exceed our client expectations. Our dedicated team

Current Cold Storage Capacity in Metric Tons

State	Location	Current Capacity	Capacity Coming up in 1 to 3 months
Bihar	Kishanganj	688	
Haryana	Mewat	1,800	
Maharashtra	Aurangabad	8,148	
Maharashtra	TALOJA	17,580	
Maharashtra	Vashi	3,300	
Telangana	Zaheerabad	6,508	
Uttar Pradesh	Aligarh	5,600	
Uttar Pradesh	Banther	1,000	
Uttar Pradesh	Sahibabad	11,300	
Uttar Pradesh	Unnao	5,480	
West Bengal	Kolkata		2,850
Andhra Pradesh	Kakinada		2,520
Punjab	Dera Bassi		2,880
Overall Capacity		61,405	8,250

is trained to understand the unique needs of each customer, ensuring personalized support and prompt responses to any inquiries or concerns.

- We understand the importance of round-the-clock accessibility in the cold storage industry. Hence, Allana Cold Chain Solution has substantially invested in futuristic features to assure best-in-class client service by building a **24x7 operations** that supervises the Cold Storages and fleet maintenance. This effective management module has helped us to run our operations 24x7 which has in turn resulted in a 20% increase in revenue over the previous three years.
- We have an **in-house engineering team** comprised of experienced professionals who specialize in maintaining and managing the desired temperature within our cold storage facilities. These experienced engineers are equipped with the most modern toolsets to manage an in-house maintenance strategically for our facilities present across India. Their expertise guarantees reliable temperature control and minimizes the risk of spoilage or damage.
- **Range of Services:** In addition to our state-of-the-art cold storage facilities, we offer a comprehensive range of services to cater to our clients' diverse needs. These services include refrigerated transport, which ensures the safe and efficient movement of goods between locations while maintaining the desired temperature. We also provide repacking facilities, allowing our clients to consolidate or repackage their products within our controlled environment, saving them time and resources.

Opportunities and challenges cold chain operators face in India

The opportunity lies in the demand for cold chain services is increasing in India due to factors such as population growth, changing consumer preferences, and the rise of organized retail and e-commerce sectors. India is an agriculture-based economy, and




“Our cold storages are managed in palletized storage which are operated by high reach trucks and managed by latest Warehouse Management Systems. We have collaborated with the world’s leading OEMs for refrigeration unit, tyres & containers to ensure the best combination forming the complete set of trailers.”



DR. PARVEZ KAZI
DIRECTOR- SHIPPING & LOGISTICS, ALLANASONS

the cold chain plays a crucial role in preserving and transporting perishable agricultural produce. The growth of modern retail formats, including supermarkets and hypermarkets, creates opportunities for cold chain operators to supply fresh produce and frozen foods to these establishments. The pharmaceutical sector also requires temperature-controlled storage and transportation for vaccines and medicines, presenting opportunities for cold chain operators to cater to this growing market.

However, the cold chain industry also faces certain challenges such as high operating costs. Energy and Transport cost tops the list of the challenge faced by many players. Since the products are heavily dependent on a temperature sensitive environment, there is a great deal of electricity and machinery involved in the process. Transportation is another leg that requires a great deal of investment for the Fleet maintenance and for the transit operations (Fuel & Manpower). Since the product needs to stay in the constant temperature provided in the cold stores, the trailers need to be technologically advanced and meet the requirements to ensure that the delivered product is not hampered. 

BALMER LAWRIE

A PIONEER IN ORGANISED COLD CHAIN SECTOR

"Balmer Lawrie LOGICOLD is one of the few organised players in the Cold Chain Logistics business offering its own fleet of Temperature Controlled Vehicles (TCV) that are capable of handling cargo within temperature range of -18 to +25 Degree Celsius and ensure timely last mile delivery. All the TCVs are GPS enabled for real time tracking and also has real time temperature monitoring system."



Current scenario of cold chain market in India

The Cold Chain industry is presently considered as the Sunrise segment of India. The Indian Cold Chain logistics market is a fragmented market, which consists of a large number of local players to cater to the growing demand. The market is being driven by the growth in organised food retail and rise in the production and consumption of perishable food products. To efficiently manage the supply chains, most of the organised retail players are setting up large cold chain infrastructure. Further, increasing preference for processed food products and the growing shift towards the cultivation of fruits and vegetables over grain crops is significantly contributing to the industry growth. The favourable Government

policies coupled with the Government's initiative of setting up several mega food parks is providing a further boost to the industry. The growing demand for effective Cold Chain facilities from the health care sector in order to preserve heat sensitive products like vaccines, biopharmaceuticals, and clinical trial materials, among others, is propelling the industry growth.

The current Indian Cold Chain market size in volume is 33 Mn Tonnes and the cold chain market size is valued at 291 Bn INR. The industry is further expected to grow at a CAGR of 14.72% over the forecast period of 2022-2027 to attain a value of ₹3637.4 billion by 2027.

Size of cold storage facilities

Balmer Lawrie is one of the pioneers in the logistics industry and amongst the

leaders in the organised sector providing end-to-end Logistics services backed by pan India best-in-class infrastructure including Container Freight Stations, Cold Chain Units and owned fleet of Temperature Controlled Vehicles spread across the country. Balmer Lawrie has been providing total cold chain solutions through its brand 'LOGICOLD'.

Balmer Lawrie has four Cold Chain Units with a total capacity of 16,000 pallets.

Balmer Lawrie in association with Visakhapatnam Port Trust, through the JV Company Visakhapatnam Port Logistics Park Ltd. (VPLPL) has set up a state-of-the-art Multi Modal Logistics Hub spread over an area of 53.2 acres at Visakhapatnam. This facility has a Cold Chain Unit with total capacity of 3780 pallets.

Presence of cold storage facilities across India and their hinterland coverage

Balmer Lawrie has four state-of-the-art Cold Chain Units at Medchal (Hyderabad), Rai (Haryana) Patalganga (Navi Mumbai) and Chhatabar (Bhubaneswar), all adhering to international standards. Its JV company VPLPL has a Cold Chain Unit at Visakhapatnam.

Balmer Lawrie LOGICOLD is one of the few organised players in the Cold Chain Logistics business offering its own fleet of Temperature Controlled Vehicles (TCV) that are capable of handling cargo within temperature range of -18 to +25 Degree Celsius and ensure timely last mile delivery. All the TCVs are GPS enabled for real time tracking and also has real time temperature monitoring system.

Commodities handled

All the Cold Store facilities are designed to handle multi commodity storage with the temperature range between -18 to +25 Degree Celsius.

Major Sectors we cater to:

- QSRs – Quick Service Restaurants
- e-Groceries & Online Food Delivery
- Dairy & Milk products
- Pharmaceuticals
- Fruits & Vegetables
- Marine & Meat Products
- Exim Cargo
- Confectioneries

Major Segments

- Frozen (Below -18 Degree Celcius)
- Dairy, Marine, Processed Food, Frozen Vegetables and Meat varieties
- Chill (0 to 10 Degree Celcius)
- Dairy, Vegetables, Fruits, Pulp and Pharmaceuticals
- Mild Chill (10 to 20 Degree Celcius)
- Sub tropical fruits, Dairy, Chocolates and Seeds
- Normal (Greater than 20 Degree Celcius)
- Dehydrated foods, RTE, Oil and extracts.

“The Cold Chain Units provide multi chamber, multi temperature palletized storage facility with automated location tracking and can handle 1000+ containers of cargo across categories. The Cold Chain Units are BRC and FDA accredited and are MPEDA & FSSAI certified. It has the expertise in handling all products between the range of -25°C to +25°C.”



ADIKA RATNA SEKHAR
CHAIRMAN & MD, BALMER LAWRIE & CO LTD

Balmer Lawrie’s Cold Chain Unit at Hyderabad is the logistics and distribution partner of Covid-19 vaccines (Covaxin & Sputnik) besides other popular vaccines.

Technology use and automation

Technology plays a vital role and is a differentiator in the entire cold chain logistics supply chain and Balmer Lawrie has implemented tech-intensive initiatives to increase efficiency, and ensure safe handling of products and crucial last mile delivery seamlessly.

All the state-of-the-art Cold Chain Units at Balmer Lawrie work on Warehouse Management System (WMS) software for managing day-to-day warehouse activities effectively. We have centralized SCADA system for automated operation of the refrigeration plant which helps us to monitor real time storage temperature. All the Cold Chain Units are equipped with Reach Truck for loading and unloading of the products and Dock Leveller and Dock shelter. Each of the warehouse has ammonia gas leak detection system with alarm, automated doors and emergency alarms and 24x7 CCTV surveillance.

Key highlights/USP of cold storage facilities

Balmer Lawrie is one of the most trusted Cold Chain Logistics companies in India offering one-stop-shop solution under brand "LOGICOLD" to the temperature controlled supply chain requirements of the nation. It is an integrated service provider offering, storage, distribution and value added services. The four state-of-the-art Cold Chain Units, all adhering to international standards are strategically located providing cold chain solutions to all the four regions across the country. The Cold Chain Units provide multi chamber, multi temperature palletized storage facility with automated location tracking and can handle 1000+ containers of cargo across categories.

Balmer Lawrie LOGICOLD has the expertise in handling all products between the range of -25°C to +25°C. With the ‘customer first’ approach,

Facilities	Navi Mumbai	Hyderabad	Haryana	Bhubaneswar
Total Plot	2.00 acres	1.41 acres	2.20 acres	1.5 acres
Total Capacity	3840 pallets	3402 pallets	3800 pallets	2000 pallets + 3000 MT



we serve leading brands, catering to almost all industry verticals be it QSR chains, confectionary, food processing, pharmaceuticals, meat and poultry, or fruits and vegetables. We believe in going that extra mile to ensure that the products are delivered on time and in prime condition.

Balmer Lawrie has its own fleet of Temperature Controlled Vehicles (TCVs), which are GPS enabled and have 24x7 temperature monitoring system. Balmer Lawrie LOGOCOLD has already created its brand presence during the pandemic by storage and distribution of Covid-19 vaccines (Covaxin & Sputnik) from the Hyderabad unit.

Various value-added services like grading, sorting, packaging, dry storage, inventory management, bulk packing and repacking, client workstations providing complete food processing setup, blast freezer (Patalganga) are also provided. All the warehouses are compliant to all HSE and statutory requirements. The Cold Chain Units are BRC and FDA accredited and are MPEDA & FSSAI certified. A team of professionals including trained and skilled personnel work round the clock to provide superior services to all customers.


Balmer Lawrie LOGICOLD won various accolades and awards. It was conferred with the 'Best Customer Service in Cold Chain Industry' award by World Logistics & Supply Chain Congress in 2023. It won NCCD, CII awards for Best Cold Chain Facility in small category 2021, FSC awards for best Cold chain Project- 2017, 2018 and has constantly ranked among top cold storages as per yearly audit by major QSR.

What are the opportunities and challenges cold chain operators face in India?

The Cold Chain industry is observing a paradigm shift from unorganised cold storage to organised end-to-end cold storage solutions. There is considerable gap between the demand and existing capacity of organised Cold Chain service providers in the market for the storage and distribution of various high valued products. This gap presents a significant opportunity for stakeholders associated with the industry. Increase in the number of segment of products opens multiple opportunities to the Company in segments like Quick Service Restaurants (QSR), Pharmaceutical, etc. Increased demand in the real time temperature monitoring of products in the entire supply chain is opening multiple doors for temperature controlled vehicles as well. Since the organised Cold Chain segment is highly capex intensive, the capacity utilisation along with right pricing model and leveraging new age technology play an important role in ensuring the profitability of the business. With organised players gradually entering this market segment, a high price war for ensuring capacity utilisation resulting in reduction of average selling price may pose as a threat to this industry. However, service excellence, maintaining high quality standards, value added service offerings, seamless distribution of products and use of green technologies shall overrule the price war and help in customer retention.

Despite the growing size and criticality of the logistics and supply

chain industry in India, it is marred by an unbalanced logistics modal mix, high indirect costs, poor infrastructure, fragmented networks and lack of technology adoption. However, the COVID-19 pandemic and its ripple effects brought in expedited upheaval seen in the form of technology adopted and execution of operations. Modern technology such as automation, robotics, artificial intelligence, big data analytics, and the Internet of Things are being rapidly adopted by Cold Chain industry which is helping them to complete their deliveries with higher accuracy and shorter times.

The Cold Chain warehouses are highly volatile due to the seasonality which in certain cases lead to reduction in the utilisation of the infrastructure throughout the year. Scarcity of trained manpower is also a concern for Cold Chain industry. Large players are also focussing on a sustainable supply chain with by using solar, electric and other renewable energy solutions. 

GUBBA GROUP

THE PIONEERS

IN IMPECCABLE

COLD CHAIN

Gubba has integrated top notch temperature indicator outside every chamber in all facilities to ensure temperature impeccability. Barcoding technology is used for error-less inventory. Entire operations are ERP driven.



Size of Gubba cold storage facilities

We have 24 cold storages across India. The capacity of each facility, on an average is 7,000-8,000 tons. In total, the size of Gubba's storage is 1,80,000 tons.

Locations of cold storage facilities and hinterland covered by them

Gubba has its cold storages across Telangana, Aurangabad, Visakhapatnam & Surat. Facilities in Surat and Visakhapatnam are strategically located very close to the port.

Commodities handled by cold storage facilities

At Gubba, we preserve the vital forms of life – seed, food & pharma. In seed – we preserve foundation & commercial seeds.

In pharma – we preserve API's, bulk drugs, dangerous goods, etc. In food – we preserve frozen & chilled products.

Technology use and automation

Gubba has been a technology-oriented organization since its commencement. With time, we created structures to constantly upgrade ourselves with the industry needs & trends. For a cold storage – temperature integrity is an aspect that need utmost impeccability. We have integrated top notch temperature indicator, make from Japan outside every chamber in all our facilities. We use the barcoding technology for error-less inventory. Our entire operations are ERP driven - our clients, sitting in any corner of the world, at any point of time, with a single



touch on their smart phone can get all the where, what & how abouts of their stock.

Key highlights/USP about cold storage facilities

We have provided the nation many of its firsts like -

- 1st Seed Cold Storage in India
- 1st Jumbo Cold Storage in India
- 1st Private Germ Plasm Bank
- The only NABL accredited private Seed Quality Testing Lab in India
- 2nd Largest Pharma complaint cold storage facility in India
- Gubba Biotech lab – Precision and Excellence in testing at molecular level
- Gubba Multi-Location Trials – The only one in India undertaking MLT for private sector.

“We have approximately 8,000 cold storages across India, more than half of which are unorganised & unevenly distributed. There’s a lot of potential in increasing the size & quality of operations.”




GUBBA KIRAN
CEO, GUBBA COLD STORAGE

Our in-house QA department, international certifications & compliances, experienced, qualified & trained team, robust operational processes for satisfactory client experiences are some of the highlights.

Opportunities and challenges

The opportunity for Indian cold chain is enormous. As on today, the nation has 142 crores lives to take care of. The essentials of live & living are preserved in cold storages. We have approximately 8,000 cold storages across India, more than half of which are unorganised & unevenly distributed. There’s a lot of potential in increasing the size & quality of operations. The country is capable of contributing a much larger share on the global platter of cold chain.

Coming to challenges, the fact of setting up & running a cold storage being extremely heavy on the pocket is apparent. Public-Private partnership & subsidy from government is the urgent challenge that we need to overcome. 



“We have grown 20 times in just two years and expanded our operations from 5 to 350 cities.”

Current scenario of the cold chain market in India

The cold supply chain sector in India is highly fragmented and marred with severe challenges including inefficient temperature control and monitoring and inadequate tech integration. With the cold chain infrastructure continuously evolving and innovations enabling perishable food businesses to cater to consumer demands more efficiently, the industry will reach new heights in the future.

The NLP and supporting initiatives by the government, including the National Centre for Cold Chain Development (NCCD), are focused on infrastructure development projects, with 135 cold chain projects, 40 mega food parks, and grants above ₹7,000 crores.

The Indian cold supply chain industry is rapidly developing, especially post-COVID, and has huge growth potential. In 2021, the Indian cold chain logistics market was valued at \$24.62 billion, and it is expected to reach \$53.07 Billion by 2027, growing at a CAGR of 13.66% from 2021 to 2027.

Commodities being handled by Celcius

We have grown 20 times in just two years and expanded our operations from 5 to 350 cities. we have also added a 4500+ fleet of reefer vehicles, 107 cold storages, 7 Distribution centers, and over 100+ Hyperlocal riders. Celcius has transported over 125, 000 tons of perishable cargo for sectors like dairy, fresh agricultural produce, pharma,

fruits, seafood, and vaccines across 350+ cities in India. The startup has also ventured across the border, to enable the Export and Import of products like exotic fruits and seafood.

Technology use and automation in Cold Supply Chain

Our web-based and Android-based apps allow stakeholders to discover and book various sizes of refrigerated vehicles across the country. This booking of reefer vehicles across India has long been a significant problem. There is no direct visibility on the availability of vehicles. CELCIUS is the only platform having a web-based and android-based app that allows for the discovery and booking of various sizes of refrigerated vehicles across India, it's not limited

“CELCIUS is the only platform having a web-based and android-based app that allows for the discovery and booking of various sizes of refrigerated vehicles across India, it’s not limited to only booking but you can track, trace, receive data analytics, download reports, and finish your transaction by making payments.”



SWARUP BOSE
FOUNDER & CEO, CELCIUS

to only booking but you can track, trace, receive data analytics, download reports, and finish your transaction by making payments, this brings the age-old system of booking such vehicles via broker and agents onto the new age of digital adoption.

We aim to build a value proposition by adopting technology to solve inefficiency, transparency, and discovery challenges, and provide quality assurance in the cold-chain logistics market while aggregating fragmented demand and supply across regions. We have also successfully scaled up operations and diversified the services on the platform by integrating WMS (Warehouse Management Systems) and Transportation Management Systems (TMS), introducing an in-depth cold storage warehousing solution.

Key highlights/USPs of Celcius’s services and offerings

Celcius’s comprehensive proprietary tech solution includes a SaaS marketplace that offers end-to-end solutions connecting all the stakeholders of the cold-chain ecosystem, including solutions for reefer logistics and cold storage warehousing.

As an industry leader in Cold Supply Chain Tech solutions, we at Celcius have also introduced the first-of-its-kind Hyper-Local temperature-controlled delivery services for food and pharma orders, as part of its last-mile solution. The first-of-its-kind temperature-controlled hyper-local service allows for the transportation of perishables ranging from 500gms to 500 kgs, across the nation within 18 hours, through its fleet of bike riders, and leveraging air, rail, and road network. Our Advanced IoT sensors are designed to measure not just temperature and location but also record and share real-time updates on humidity fuel levels, speed and halts analysis, and driver behavior, thereby enhancing transparency and accountability.

Our holistic approach is towards creating a robust, tech-enabled, and seamless cold supply chain that offers a genuinely unbroken solution from source to end consumer.

Opportunities and challenges

Cold chain infrastructure ensures access to new markets and increased opportunities for businesses. An efficient cold supply chain also provides access to larger markets and thus increases the potential for growth while creating food security for the nation. It increases the shelf life of Agro produce, reduces wastage and allows farmers to gain optimum prices for their produce, and explores high cash-yielding options such as fruits and exotic vegetables that bring in better revenues.

As a nation, we currently incur food losses worth about \$14bn, most of which are post-harvest losses, due to inefficiencies in its cold supply chain. Challenges like lack of temperature

monitoring in cold storages, using non-refrigerated vehicles for last mile transport or for shorter distances, lack of tracking and tracing technology to monitor distribution, lack of reefer vehicles, and inaccurate handling of products with untrained drivers and delivery agents, and many other issues in terms of managing perishables. Shippers also incur heavy revenue losses due to systemic gaps in the cold chain. The lack of affordable cold storage and cold transport facilities is another common challenge faced by rural farmers and food producers. Since fresh produce has limited shelf life, farmers with no access to refrigerated storage are forced to sell their harvest at lower costs, to avoid wastage. This leads to financial losses and also reduces their access to wider markets.

There is certainly a lot of room for improvement, however, all the above problems can truly be solved only when there is a holistic approach to creating a robust, tech-enabled, and seamless cold supply chain that offers a truly unbroken solution from source to the end consumer. Access to financial aid for investments in technology solutions for cold chain, is another area that can help service providers build a stronger infrastructure while upskilling drivers and warehouse staff for handling perishables in a temperature-controlled environment, are other areas that can help create an efficient and seamless cold supply chain.

Future Plans of the Company

From our humble beginnings with just 5 employees during the COVID pandemic, we have become a leading player in the cold supply chain industry, with a team of 125 dedicated employees and an operational presence in 350+ cities across the country. We have recently launched smart solutions catering to the specific needs of last-mile deliveries and hyperlocal cold-chain transportation. Our mission is to bridge the systemic gaps in the cold supply chain industry and create an unparalleled tech ecosystem and an unbroken supply chain network. 🇮🇳

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he current scenario of the cold chain market in India is one of rapid growth. The market is expected to reach a size of ₹3,798.7 billion by 2028, exhibiting a CAGR of 12.3% during 2023-2028. The growth of the cold chain market is being driven by a number of factors, including:

- The rising demand for perishable goods, such as fruits, vegetables, meat, and dairy products.
- The growth of the organized food retail sector.
- The increasing penetration of e-commerce.
- The government's focus on improving the cold chain infrastructure in the country.
- Global warming and resultant rise in temperature in many cities in India

The current size of investment in the cold chain market in India is estimated to be around ₹1,814.9 billion. The majority of this investment is coming from the private sector, with the government playing a supportive role. The government has launched a number of initiatives to promote the development of the cold chain market, such as the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) and the Pradhan Mantri Kisan Samman Nidhi (PM-Kisan). The market is expected to require a large number of cold storage facilities, refrigerated trucks, and other cold chain infrastructure. Businesses that are able to provide these services are well-positioned to benefit from the growth of the market.

The cold chain requirement of pharma and life science are very different than that of other commodities.



WIZ FREIGHT COLD CHAIN SOLUTIONS FROM FARM TO FORK

WIZ Freight with its digital edge minimises the documentation, reduces the-turnaround time of execution and utilises passive packaging technology, to providing end-to-end solutions, from the farm to the fork

Temperature excursion and temperature tracking were major issues with reefer logistics. Which are the other major concerns?

High Capex and operational cost are the areas of major concern for temperature-controlled warehouses and storage areas. High power tariff is also a concern when speaking of operational costs.

Knowledge and skill building for handling temperature sensitive cargo

The knowledge and skills of those involved in cargo handling can be greatly improved by relevant training programmes and industry publications. The International Air Transport

Association (IATA), for instance, produces publications like the IATA Cargo Handling Manual (ICHM) and a perishable handling manual, which offers suggested procedures for airline stakeholders to adhere to when handling cargo.

It is crucial for reefer truck drivers and other personnel involved in cargo handling to have a thorough understanding of the particular needs, processes, and best practises for handling temperature-sensitive cargo. However, the specific level of knowledge and skill among these individuals may vary. The ability to maintain the appropriate temperature range requires knowledge of temperature control



increased efficiency, improved safety, and enhanced hygiene.

Global cold chain market: The global cold chain market has been growing, indicating an increasing focus on cold storage and related services. Automation is considered a key factor for optimizing operations and improving efficiency in the cold chain industry.

Automated storage systems and the COVID effect: The COVID-19 pandemic has accelerated the shift to online shopping, which has implications for various industries, including cold chain distribution.

The Indian cold chain market has come a long way and is improving constantly. But the scope for improvement exist and you currently don't see too much of automation as manpower cost in India are still reasonable.

Services offered at WIZ Freight for handling temperature sensitive cargo

When dealing with temperature sensitive cargo, there are multiple factors that must be considered. In the current dynamics of weather across the globe and in India, where extreme swings during the day have been witnessed, AI and blockchain have helped in making judicious calls to minimize the impact. WIZ, with its digital edge that minimize the documentation and reduces the turn-around time of execution and utilization of passive packaging technology, is working on providing end-to-end solutions, from the farm to the fork, which will help the stakeholders manage their EXIM supply chain efficiently while moving the shipment in the designated time. WIZ provides the active and passive solutions to help in maintaining the temperature of the pharma and time sensitive products until the shipment is executed and reaches the destination with visibility.

Cold Chain Unbroken which is the Pharma, Life sciences and perishables focused event, an industry initiative by WIZ, where discussions revolve around the actual issues affecting the industry and the finding solutions to solve them mutually. 

“WIZ provides the active and passive solutions to help in maintaining the temperature of the pharma and time sensitive products until the shipment is executed and reaches the destination with visibility.”



SATISH LAKKARAJU
SENIOR VICE PRESIDENT
GLOBAL HEAD – AIR FREIGHT & PHARMA, WIZ

devices, monitoring systems, handling procedures, and awareness of potential dangers and difficulties.

Organisations frequently invest in training programmes, standard operating procedures, and quality management systems to ensure the proper handling of temperature-sensitive cargo. With the help of these measures, drivers and crew will be better prepared to handle temperature-sensitive goods and reduce the hazards associated with temperature excursions.

In the recent past, the number of operators in the reefer trucking have started to increase and organizations are entering into quality agreements for service standards.

Technology use and automation

Cold storage automation solutions:

Cold storage automation solutions aim to streamline various processes in cold storage facilities, including storage, preparation, dispatch, and transportation of orders. These solutions offer advantages such as



KUEHNE+NAGEL CUSTOMISED SOLUTIONS FOR EACH COMMODITY

Transporting perishable items such as fresh fruits and vegetables, among other things, by understanding the unique needs of each product and addressing their respective challenges such as temperature management, odor prevention, and so on. We also specialize in transporting delicate items such as flowers & plants.



Size of cold storage facilities operated by Kuehne+Nagel in India

As the demand for fresh produce grows, companies that can deliver high-quality products with a long shelf life gain a competitive advantage. However, achieving this goal can be difficult. Maintaining a strict cold chain throughout the entire journey is critical to preserving the product's taste and quality. Therefore, it heavily relies on science to evaluate and account for the relationship between temperature and perishability. Furthermore, adhering to all relevant regulations when crossing borders is critical for a smooth and efficient supply chain process.

At Kuehne+Nagel, our perishables teams specialize in the safe and efficient transportation of a temperature-sensitive cargo according to the customer's precise requirements. Our expertise allows us to determine the most suitable transit times and transportation modes to provide maximum protection for perishable products, whether they are being shipped by air freight, sea freight, or any other method of transportation.

Kuehne+Nagel India has 1 GXP certified temperature-controlled warehouse (custom bonded) facility at Mumbai location closer to the Nhava Sheva gateway which has 672 pallet positioning capacity with 96 plug points.

In which locations do you have cold storage facilities across India, and which is the hinterland covered by them?

In India, Kuehne+Nagel has cold storage facility in Mumbai, which serves as a highly reliable solution for pharmaceutical hotspots like Mumbai, Goa and Hyderabad.

Commodities being handled

Ensuring the quality and freshness of perishable products is crucial, necessitating a strict cold chain throughout the entire journey while maintaining compliance with regulations during cross-border shipments based on details of local and international legislation.

At Kuehne+Nagel, we provide customized solutions for transporting perishable items such as fresh fruits and vegetables, among other things, by understanding the unique needs of each product and addressing the respective challenges such as temperature management, odor prevention, and so on. We also specialize in transporting delicate items such as flowers and plants. To ensure optimal vase life, we store them in cold stores at various temperature levels, with optimal transit times and transportation modes for maximum flower protection.

Kuehne+Nagel's FreshChain quality standard provides active and passive temperature-control packaging, last-mile delivery, and regular auditing to ensure that strict food quality and safety standards are met. Additionally, we prioritize care and food safety when handling diverse products like yogurts, cheeses, meats, seafood, and chocolates to prevent spoilage and minimize losses. We ensure that the highest quality of taste and appearance is maintained, while also adhering to strict safety standards.

In addition, Kuehne+Nagel's healthcare logistics service for biopharmaceuticals and vaccines provides the highest level of compliance and quality along with in-transit security to keep the products safe from theft and counterfeiting, as well as proactive monitoring that observes

“Our expertise allows us to determine the most suitable transit times and transportation modes to provide maximum protection for perishable products, whether they are being shipped by air freight, sea freight, or any other method of transportation. Kuehne+Nagel's FreshChain quality standard provides active and passive temperature-control packaging, last-mile delivery, and regular auditing to ensure that strict food quality and safety standards are met.”



SATYAM MAGON
HEAD SEA LOGISTICS KUEHNE+NAGEL INDIA,
SRI LANKA AND THE MALDIVES

temperature, humidity, and location in real-time. Kuehne+Nagel delivered over four billion vaccines to some of the world's most remote locations during the COVID-19 pandemic.

Level of technology use and automation

Our cold storage facility has roof insulations that help to maintain temperature control. Sustainable solutions are integral to Kuehne+Nagel's daily operations. We have our cold storage facility equipped with solar panels installed as a back-up for higher performance of the facility in the event of a power outage.

Key highlights/USP of cold storage facilities

Kuehne+Nagel's current cold storage facility at Mumbai is a GXP-certified warehouse (custom bonded). With its proximity of approximately 13 km to Nhava Sheva port, it provides cargo safety, efficiency in transportation, and reliability in temperature control. The facility provides tailored solutions that address the unique challenges associated with the storage, and transportation of healthcare products.

Opportunities and challenges

The cold chain industry in India is expected to grow exponentially over the next few years, driven by factors such as rising demand for perishable products, increasing urbanization, and government initiatives to promote food safety. There are several opportunities for cold chain operators in India as more and more businesses are looking to expand their reach and offer their products to a wider audience.

As India's rapidly growing country with a large population, and the demand for food and other perishable goods is increasing. This is creating a need for cold chain infrastructure, which can help to ensure that these goods are delivered to consumers in a safe and fresh condition. With the help of technological intervention, cold chain operators can improve their efficiency. IoT-enabled sensors can be used to monitor the temperature and humidity of products in transit, and AI-powered algorithms can be used to optimize routing and scheduling.

While the industry provides tremendous opportunity, it also faces certain challenges that, if addressed, can provide the necessary impetus to industry growth. One of the most significant challenges is a lack of infrastructure and modernized facilities. Other challenges include high operating costs for electricity, fuel, and land, which can make it difficult for operators to profit.

Despite all of this, the cold chain industry in India is a promising sector with a lot of potential for growth. With the right investments and initiatives, the industry can play a major role in India's economic development. 🇮🇳



SNOWMAN LOGISTICS SERVING DIVERSE SECTORS

In a span of 6 years Snowman Logistics has grown its pallet capacity from 90,000 to 135,332, providing end-to-end service with a fleet of 450 trucks.

Scenario of the cold chain market in India

The Indian cold chain market is currently experiencing significant growth and expects to continue expanding in the coming years. The rising demand for perishable goods, such as fruits, vegetables, dairy products, pharmaceuticals, and frozen food products, is one of the key factors driving the growth of the cold chain industry in India.

Various initiatives of Government viz. National Logistics Policy (NLP) and PM Gati Shakti would encourage investment in the sector. Going by the recent research documents published, we can estimate that the Cold Chain Logistics Market is valued at about USD 9.23 billion in the current year. The current market anticipates registering

a compound annual growth rate (CAGR) of over 10.5% in next 3-4 years. This indicates a positive investment outlook for the cold chain sector in India.

The growth of organized retail, e-commerce, and the pharmaceutical industry in India also contributes to the increasing need for cold chain logistics services. As a result, both domestic and international investors are showing keen interest in investing in cold chain infrastructure and technologies in India.

Size of cold storage facilities operated by Snowman Logistics

At Snowman Logistics, we have increased our pallet capacity from 90,000 to 135,332 pallets since 2017. And to support and end-to-end operations for our customers, we have a fleet of 450 trucks. We have recently ordered for 50 new trucks to cater to specific needs of our customers.

This expansion signifies the company's efforts to meet the growing demand for cold storage facilities in India.

In addition to cold chain operations, Snowman Logistics has recently ventured into the hazardous chemical storage market. We have established an A-Grade warehouse with a capacity of 5,500 pallets in Shoolagiri, Tamil Nadu. This facility has storage and handling equipment with 24-hour monitoring and fire prevention systems and can handle hazardous chemical storage.

Location of cold storage facilities and hinterland covered by them

We are present in 19 major cities across India, operating a total of 43 warehouses. Our network of cold storage facilities is strategically distributed across various regions in the country to serve a large hinterland.

The locations of Snowman Logistics cold storage facilities include Derabassi, Ballabgarh, Tauru, Jaipur, Ahmedabad, Surat, Mumbai, Pune, Hyderabad, Bangalore, Cochin, Coimbatore, Soolagiri, Chennai, Krishnapatanam, Vishakhapatnam, Bhubaneswar, Kolkata, and Siliguri. These locations are major hubs with significant demand for cold storage and logistics services.

Commodities handled by cold storage facilities

At Snowman Logistics, we handle a diverse range of commodities in our cold storage facilities. Our services cater to clients from various sectors, including agriculture, poultry, food, Quick Service Restaurants (QSR), and chemicals. Despite the lower demand for COVID-19 vaccines, our capacity utilisation remains steady due to our engagement with multiple sectors. We have observed no significant impact on utilization. Our expansion strategy is consistent with the government's policies and plans, which include developing several mega food parks. These initiatives provide opportunities for the industry to expand further.

Furthermore, we are expanding our focus on other categories that are pharmaceuticals, and chemicals. This will allow us to diversify our services and cater to a wide range of customer needs.

Level of technology use and automation

At Snowman Logistics, we leverage advanced technology and automation to enhance the efficiency and effectiveness of our cold storage facilities. We have implemented various systems and solutions to ensure real-time visibility, streamline operations, and provide a seamless customer experience.

Our system features minimal operating screens that offer clients real-time visibility into their stored products. This integration reduces work duplication between our logistics service providers (LSP) and client ERP systems. Additionally, we have a command center that monitors trucking events and milestones from the point of origin to the destination, with live tracking available. At the same time Command centre monitors temperature in all cold storages. The command centre is 24x7 manned.

We utilize advanced systems and IoT to optimize our operations. Our Navision 365 ERP and WMS app assist in managing various functions such as operations, warehousing, finance, CRM, supply chain, and analytics. We also employ a Transport Management System for contract management, POD (Proof of Delivery) auditing, and monitoring profit and expenses. Advanced telematics solutions enable dynamic monitoring of vehicles and trigger alerts when necessary.

To ensure compliance and operational efficiency, we utilize an app-based Compliance Management System that enables real-time monitoring of warehouse activities through online checklists. Our Chamber Monitoring System helps to ensure accurate and timely temperature monitoring and control across our facilities in India. Our Complaints Management system records, analyze, track, and address technical-related complaints. Furthermore, we utilize dashboards and reports powered by Power BI (Business Intelligence) to provide clear and comprehensive visibility of our business operations.

By leveraging these technologies and systems, Snowman Logistics aims to optimize cold storage facilities, improve



Snowman is present in 19 major cities across India, operating a total of 43 warehouses. We are expanding our focus on other categories that are pharmaceuticals, and chemicals. This will allow us to diversify our services and cater to a wide range of customer needs.



SUNIL NAIR
CEO, SNOWMAN LOGISTICS

operational performance, and deliver superior services to our clients.

Key highlights/USP about Snowman Logistics

- 5PL Services: Snowman Logistics provides comprehensive 5PL services, offering expertise, information management, IT solutions, and accountability to our customers at a very reasonable cost structure.

- Expertise and Experience: With extensive experience in the cold chain industry, Snowman Logistics brings deep knowledge and understanding of handling temperature-sensitive products.
- State-of-the-Art Infrastructure: Our cold storage facilities feature advanced infrastructure, including temperature-controlled chambers, monitoring systems, and fire protection mechanisms. The cold storages are equipped to offer variety in size and temperature requirements. Thus we have multi-product, multi-temperature cold storage facilities.
- Technology-driven Operations: Snowman Logistics utilizes advanced technology solutions, such as ERP, WMS, telematics, compliance management, and comprehensive reporting, to enhance efficiency and provide real-time visibility to clients.
- Nationwide Network: With a widespread network of cold storage facilities across major cities in India, Snowman Logistics can serve customers in various regions, providing a broad coverage area.


What are the opportunities and challenges cold chain operators face in India?

Opportunities

- Growing demand for temperature-controlled storage and transportation services.
- Government initiatives such as infrastructure development and implementation of National Logistics Policy.
- Availability of advanced technologies for supply chain visibility and operational efficiency.

Challenges

- Capacity shortages in specific locations. No asset light option.
- Every increasing costs/inflation, which is not addressed fully by customers due to price and competition pressure.
- Skill development to meet industry requirements.

These opportunities and challenges shape the landscape for cold chain operators in India. 

CRYSTAL GROUP WHERE INNOVATION MEETS PERFECTION



How has been the business performance at Crystal Group last year? What are your targets for this year?

The cold chain industry has seen significant growth in recent years, driven by factors such as increasing demand for fresh and frozen food products, growth in the pharmaceutical industry, and advancements in technology.

The Crystal Group have been performing exceptionally well, achieving impressive revenue growth, and expanding their operations globally. We have witnessed 35-40% growth last year and are confident in our ability to continue expanding and meeting the needs of our customers. The Group is a prominent player in the integrated cold chain sector with 60+ years of

proven track record. We will continue to invest in infrastructure, technology, and automation to ensure the highest level of quality and efficiency in our operations. We are at the forefront of the industry's growth and development and Innovation has been a key factor for Crystal Group's growth.

Current scenario of the cold chain market in India

According to a recent report by MarketsandMarkets, the Indian cold chain market is expected to grow at a CAGR of 13.7% from 2020 to 2025. This growth can be attributed to the increasing demand for frozen and chilled food products, as well as the rising need for temperature-controlled storage and transportation of pharmaceuticals and vaccines. The

report also highlights the government's initiatives to improve the cold chain infrastructure in the country, which is expected to further boost the growth of this industry. Furthermore, the increasing adoption of e-commerce and online grocery shopping in India is expected to further drive the demand for cold chain logistics services. This is because these platforms require efficient and reliable temperature-controlled storage and transportation to ensure the freshness and quality of the products being delivered. Additionally, the COVID-19 pandemic has also highlighted the importance of cold chain logistics in the distribution of vaccines and other medical supplies. Overall, the cold chain industry in India is poised for significant growth in the coming years, and companies operating



in this space We need to stay ahead of the curve in order to capitalize on these opportunities.

Size of cold storage facilities operated by Crystal Group

The size of cold storage facilities operated by Crystal Group can vary depending on the location and specific needs of the customer. Our Bhubaneswar facility is the state-of-the-art warehouse having 12000+ pallet capacity, and it ranges from small, specialized storage areas to large warehouses capable of storing thousands of pallets. We work closely with our clients to determine the optimal size and configuration of their cold storage needs, ensuring that their products are stored and handled with the utmost care and efficiency. Our

goal is to provide customized end to end solutions for the entire General and temperature control supply chain that meet the unique needs of each customer, regardless of the size or complexity of their operations. Our warehouse is spread over 2.26 acres of land, 8 Docs, 6 Rooms with a combined capacity of 12,000 pallet under one roof. To compliment this another facility is operational with 20000 pallet capacity at Bhubaneswar covering land over 5 acres.

There are two more locations are in Pipeline i.e. JNPT and Vizag. We will be happy to announce our new cold storage facilities shortly.

Crystal Group's growth rate was 35-40% last year, and we are confident in our ability to continue expanding our solutions in the form of Warehousing /

Dark Stores/Fulfillment Centers/Hyper Local Stores/Feeder Warehouses/Cold Storage/Portable Cold Storage Solutions/ First & Last Mile Reefer Transport etc. which provides end to end solutions for the entire General and temperature-controlled supply chain.

We will invest in infrastructure and technology to maintain quality and efficiency, while also prioritizing sustainability and regulatory compliance.

Locations of cold storage facilities across India and their hinterland coverage

We have fully equipped, and operational cold storage facilities located in Kolkata and Bhubaneswar. Our facilities are strategically located to provide coverage to the surrounding hinterland and ensure timely delivery of products to customers. We also have plans to expand our footprint in other regions of the country in the near future to better serve our growing customer base. Our upcoming projects are Vizag and JNPT. Our goal is to provide comprehensive cold chain solutions that meet the needs of businesses across all industries and regions of India. Crystal Group is a rapidly growing company that provides customized cold storage solutions to clients across India. We prioritize quality, efficiency, sustainability, and regulatory compliance in their operations and invest in infrastructure and technology to maintain these standards.

Commodities handled at cold storage facilities

Our cold storage facilities are equipped to handle a wide range of commodities, including fruits, vegetables, dairy products, seafood, pharmaceuticals, and more. We have specialized storage solutions for each type of commodity, ensuring that they are stored at the optimal temperature and humidity levels to maintain their quality and freshness. Our facilities also have advanced inventory management systems that allow us to track and monitor the movement of products in real-time, providing greater visibility

and control over the supply chain. At Crystal Group, we are committed to provide end-to-end cold chain solutions that meet the specific needs of each client and ensure the safe and efficient storage and transportation of their products.

Technology use and automation

Innovation and Technology has played a significant role in the growth of the cold chain industry, and Crystal Group has utilized it to its fullest potential. The company has implemented advanced temperature monitoring systems and automated warehouse management systems to ensure the safe and efficient storage and transportation of temperature-sensitive products. Additionally, the company has embraced the use of data analytics to optimize its operations and identify areas for further improvement. The operations were made convenient with the help of pallet racking system and mobile rack technology, also, temperature and humidity maintained through an online control system. Blast freezer facility available with a capacity of 20 ton per day. Freon, which is safer than ammonia, is used as refrigerant.

Barcoding/wms/remote monitoring/online tracking of vehicles/inventory management are provided.

Key highlights/USP of cold storage facilities

The key highlights of Crystal Group's Cold storage facilities are - state-of-the-art refrigeration technology, multiple temperature zones to accommodate a variety of products, 24/7 monitoring and security, and a highly trained staff to ensure proper handling and storage of goods.

Additionally, all our facilities are certified/Registered as below.

Certification of Food Storage/
Warehouse Safety Standards

- Food Business Operator with the Food Safety and Standards Authority of India (FSSAI) under the Food Safety and Standards Act, 2006
- ISO 9001-2008 Certified
- Member of the National Centre for Cold Chain Development (NCCD) - The body

“We have specialized storage solutions for each type of commodity, ensuring that they are stored at the optimal temperature and humidity levels to maintain their quality and freshness. Our facilities also have advanced inventory management systems that allow us to track and monitor the movement of products in real-time.”



AKASH AGARWAL
GROUP CEO, CRYSTAL LOGISTIC (COLD CHAIN) LTD

promotes and develops integrated cold chain in India and Recommends standards for cold chain infrastructure & appropriate policy framework for development of cold chain.

- Registered with The Marine Product Development Authority (MPEDA) for seafood export trade and Storage for deep-sea fishing products.
- Obtained Factory license from Department of Agriculture, Government of West Bengal.
- Our commitment to sustainability and regulatory compliance will remain a top priority as we navigate the challenges and opportunities of the ever-evolving cold chain industry.

Opportunities and challenges cold chain operators face in India

Looking ahead, the cold chain industry faces both opportunities and challenges. One of the biggest opportunities is the growing demand for perishable goods and pharmaceuticals, particularly in emerging markets. This presents an opportunity for the industry to expand its reach and increase its global presence.

However, this growth also brings with it challenges such as the need for greater investment in infrastructure and technology to support the increased volume of products. Additionally, the industry must continue to address issues such as energy efficiency, sustainability, and regulatory compliance to ensure its continued success.

Despite these challenges, the future looks bright for the cold chain industry, and it is expected to continue to play a critical role in ensuring the safe and efficient transportation of temperature-sensitive products around the world. As technology continues to advance and consumer demand for fresh and healthy products increases, the cold chain industry will need to adapt and innovate to stay ahead of the curve.

Overall, the future of the cold chain industry is full of opportunities, but it will require careful planning and strategic investments to realize its full potential.

The cold chain industry has come a long way since its inception and has witnessed significant growth and expansion. With the emergence of new market segments, advancements in technology, and adoption of automation and robotics, the industry is poised for further growth. The use of alternative energy sources for sustainability and increased focus on eco-friendliness in operations will also play a crucial role in shaping the future of the industry. As the demand for perishable goods and pharmaceuticals continues to increase, the cold chain industry will remain an essential part of the global supply chain. Overall, the future of the industry looks promising, and we can expect to see continued innovation and development in the years to come. 🌐



Current scenario of cold chain market in India

With the advent in e-commerce and m-commerce, India has seen significant growth in its cold chain sector in recent years due to various factors such as increasing consumer demand for perishable goods, expanding organized retail and e-commerce sectors, and government initiatives to reduce post-harvest losses, increased production and consumption of perishable food products, and the rapid urbanisation and industrialisation.

The Indian cold chain market reached a value of nearly INR 1,678.79 billion in 2022. The industry is further expected to grow at a CAGR of 14.3% over the forecast period of 2023-2028 to attain a value of ₹3,742.98 billion by 2028.

Size of cold storage facilities operated by Coldman Logistics

Typically, we make mid to large format warehouses ranging from 5,000 pallets to 10,000 pallets at each of the location. Currently Coldman has 1,00,000 Temperature Controlled Warehousing Pallets capacity across 14 locations and 24 warehouse in the country.

Location of cold storage facilities across India and hinterland covered

In West we are present in Mumbai, Pune, Baramati, Ahmedabad, In East and North East we are present in Kolkata and Guwahati respectively. In South we are present in Bangalore, Sricty and in

COLDMAN CUSTOMISED SOLUTIONS FOR EVERY CUSTOMER

Coldman facilities are BRCGS (Brand Reputation Compliance Global Standard) certified for storage and distribution practices. Customizable storage solutions are tailored to meet specific needs.

North we are present in Sonapat, Palwal, with extensive expansion plans to cover all major consumption centres in the country. By these locations we cater our clients for their businesses across their serviceability regions.

Commodities handled by cold storage facilities

We handle all commodities which are temperature sensitiveness as well as last year we also forayed into Ambient Warehousing segment, with Ambient warehousing we are able to provide integrated End to End Supply Chain solutions to our clients. Confectionaries, Dairy, Poultry, Seafood, Ice Cream, FMCG, Pharmaceutical, QSRs, RTC, RTE, Industrial products, F&V, Fruit Pulps etc are few industry segment where we are currently servicing our clients PAN India.

Level of technology use and automation

We use advanced inventory

management systems to ensure accurate tracking and efficient retrieval of your stored items. Our processes are designed to minimize errors, streamline operations, and provide real-time visibility into inventory levels, facilitating seamless logistics management. We use centralized system for monitoring temperature and humidity for real-time information access to temperature maintenance at all warehouses.

To regulate evaporation and minimize energy usage, we utilize Hot Gas Defrost technology with Electronic Expansion Valves. Our Battery Operated Material Handling Equipment, such as Reach Trucks, are equipped with floor level sensors and surveillance cameras to ensure safe and efficient operations. In line with our commitment to sustainability, we have implemented solar power generation in several of our cold storage facilities, contributing to our goal of reducing carbon emissions.

Key highlights/USP of Coldman's cold storage facilities

Our facilities are BRCGS (Brand Reputation Compliance Global Standard) certified for Storage and Distribution practices. Our facilities are equipped with state-of-the-art temperature control systems that ensure precise and consistent temperature management. We have a PAN India presence which provides our clients a bandwidth to expand their business in multiple locations from small quantities to bulk shipments.

We offer customizable storage solutions tailored to meet specific needs. Whether you require specialized storage conditions, segregated areas, or specific handling procedures, or require Value added services like gift packing, kitting, packaging etc we can accommodate your requests.

Our cold storage facilities are equipped with robust security systems, including 24/7 surveillance, access control systems, and advanced alarm systems. We prioritize the safety and integrity of the products. We use advanced inventory management systems to ensure accurate tracking and efficient retrieval of your stored items. All our facilities are equipped with reliable power backup systems to safeguard against power outages. This ensures that your products remain at the required temperatures without any interruption.

Opportunities and challenges cold chain operators face in India

Opportunities

Growing Demand: India's population is increasing, along with rising disposable incomes and changing dietary preferences. This has led to a surge in demand for perishable goods, including fresh produce, dairy products, meat, and seafood, creating significant market opportunities for cold chain operators.

Supply Chain Integration: As the Indian economy develops, there is a greater emphasis on supply chain efficiency and integration. Cold chain operators can leverage this trend by providing end-to-end solutions,

We offer customizable storage solutions tailored to meet specific needs. Whether you require specialized storage conditions, segregated areas, or specific handling procedures, or require Value added services like gift packing, kitting, packaging etc, we can accommodate your requests.



SANJAY SHARMA
CHIEF OPERATING OFFICER, COLDMAN

including procurement, processing, storage, transportation, and distribution of temperature-sensitive goods.

Government Initiatives: The Indian government has launched various initiatives to promote the development of cold chain infrastructure, such as the Pradhan Mantri Kisan Sampada Yojana (PMKSY) and the National Cold Chain Grid. These initiatives offer incentives, subsidies, and support for setting up and modernizing cold storage facilities, providing favourable conditions for cold chain operators.

E-commerce, M-commerce and Retail Boom: The rapid growth of e-commerce and organized retail sectors has increased the need for efficient cold chain logistics to ensure the timely delivery of perishable goods.

Challenges

Infrastructure Gaps: India's cold chain infrastructure is still developing, and there is a lack of adequate storage and

transportation facilities, especially in rural and remote areas. Insufficient infrastructure leads to challenges such as high post-harvest losses and compromised product quality.

Energy and Power Supply: Power outages and inconsistent energy supply pose challenges for cold chain operators, necessitating alternative energy solutions and backup systems.

Fragmented Supply Chain: The agricultural supply chain in India is often fragmented, with multiple intermediaries involved in the distribution process. This fragmentation can lead to inefficiencies, delays, and increased costs, making it challenging for cold chain operators to maintain product integrity and meet delivery deadlines.

Skilled Workforce and Training: Cold chain operations require skilled personnel who understand the nuances of temperature-controlled logistics, handling of perishable goods, and quality control. However, there is a shortage of trained workforce.

Cost Pressures: Establishing and maintaining cold chain infrastructure involves significant capital investment, including storage facilities, refrigeration equipment, and transportation vehicles. Additionally, operational costs, such as energy expenses, maintenance, and cold storage rent, can be high. Balancing these costs while remaining competitive is a challenge for cold chain operators.

Regulatory Compliance: Cold chain operations are subject to various regulations and compliance requirements to ensure food safety, quality, and hygiene. Cold chain operators must navigate these regulatory frameworks, including licensing, permits, and adherence to health and safety standards, which can be complex and time-consuming.

Overall, while the cold chain sector in India presents substantial opportunities due to changing consumer trends and government initiatives, addressing infrastructure gaps, overcoming logistical challenges, and ensuring compliance remain crucial for the success of cold chain operators in the country. 🇮🇳

INDICOLD INTELLIGENT COLD CHAIN SOLUTIONS

Indicold operates cold storage facilities across India varying in size from 7200 metric tonne to the smallest being 1100 pallets. They are currently coming up with the first High Bay Frozen warehouse in India forging ahead with a commitment to creating innovative intelligent cold chain solutions.



Current scenario of the cold chain market in India

In terms of revenue, the cold chain market in India was valued at INR 1.86 Trn in 2022 and is expected to reach ₹4.26 Trn by 2027, expanding at a CAGR of ~14.27% during the 2023 - 2027 period. India produces more than 400 million MT of perishables every year (horticultural produce+ dairy+ meat+ poultry + fish).

Many global cooling and logistics companies are stepping up their operations in the cold chain sector in India eyeing the huge potential in a large-sized agriculture driven country, which also happens to be the world's second-largest producer of grains, vegetables, and fruits.

The cold chain industry is expected to see significant growth in 2023-27,

driven by factors such as increased focus on sustainability, the rise of smart logistics, the expansion of the pharmaceutical sector, the growing demand for organic and specialty food products, and the increased use of alternative cooling technologies. These trends are expected to have a significant impact on the cold chain industry and puts it in an exciting spot to watch for.

Current size of the investment: The investment could range from 50,000 per pallet to a 1,00,000 depending on size, location and automation involved,

Size of cold storage facilities operated by Indicold

We operate cold storage facilities across India varying in size from 7200 metric tonne to the smallest being 1100 pallets. We work across a range of automaton

with traditional mezzanine structures used for low cost bulk storage and highly automated palletized racking in place for distribution centers.

Cold storage facilities across India and hinterland covered by them

We are deeply entrenched in Delhi NCR, Uttar Pradesh & Haryana and additionally also present in Karnataka, Maharashtra, Madhya Pradesh and Gujarat. By the end of the year we will be present in over 15 states.

Commodities handled by cold storage facilities

We function across multiple commodities like Ice-cream, Dairy, Fruits and Vegetables, Frozen Food ,Ready to Eat (RTE)/QSR and pharmaceuticals.

Technology and automation

We at Indicold are committed to re-defining the cold chain landscape of India. We are creating unique solutions:-

- By offering In-house proprietary tech and standardization
- Indicold's proprietary technology - our customers are able to track the product as it moves through the cold chain. By complete traceability we mean we are able to answer the questions how much, what, where and most importantly and what temperature? Not only is our tech solution an industry first in all aspects it is also very intuitive, multi lingual and user first. It gives real time whatsapp alerts to all stakeholders making it super easy for customers to know what is happening.
- We offer complete track ability and traceability of operations and movement to our partners who have entrusted us with years of association and continue to do so. We work with many marquee clients like Unilever, Amul, Zomato, Mother Dairy, Havmor to name a few.
- 2. Innovative solutions: We have just come up with world class facility with a capacity of over 4000 pallets in Rai Sonipat in less than 2 months which is an Industry first.
- We are currently coming up with

the first High Bay Frozen warehouse in India forging ahead with our commitment to creating innovative intelligent cold chain solutions

What are the key highlights/USP about your cold storage facilities?

- We prioritise the safety and security of our team on the cold storage shop floor. Ensuring that the correct safety gear is provided and they are given enough breaks to recoup from exposure ranging to as harsh as -18 degrees. While this appears to be hygiene, this is the most compromised in the industry.
- Increased Customer Engagement: With technical support and WMS in place the customer can monitor the movement of his goods through the cold chain. It eliminates the need for multiple calls and emails on movement of product.
- Standardization at supply side: SOP's and workflows in place across the network to maintain a consistent outlook. Due diligence to enforce systems in place.
- Increased Savings due to effective asset utilization: Optimum utilization of infrastructure and identification and discovery of the optimum location for every customer.
- Increased efficiency: With effective asset utilization the logistics costs are controlled considerably. Creating an ecosystem which is viable, transparent, and technologically savvy and cost efficient.
- Sustainability – Indicoldd has already implemented rooftop solar at some facilities. Indicoldd is converting mid mile small loads to sustainable and safe packaging.
- Indicoldd's propriety technology - our customers are able to track and trace the product as it moves through the cold chain.

What are the opportunities and challenges cold chain operators face in India?

The Indian Cold chain sector is in an interesting phase of significant growth and the cold chain operators are amidst a pool of opportunities

- To provide a standardized world class seamless customer experience throughout the entire product journey.
- Increase of automation and technology at par with global benchmarks.
- Focus on safety and security: by designing automated operations ensuring minimum supervision thereby reducing safety and health hazards for those working in sub zero temperatures for long hours.



“Indicoldd’s proprietary technology enables customers to track the product as it moves through the cold chain, particularly giving live update on the temperature maintained. Solar powered cold chain has been introduced at certain facilities.”



KARTIK JALAN
FOUNDER & CEO, INDICOLDD

- Create Sustainable and environment friendly solutions.

Challenges

- **Talent:** Putting up a team and training them in the shortest time is our challenge as it is a specialized industry and business nuances need to be understood. Furthermore, the cold chain sector in India does not have great quality members and hence we need to often recruit from outside the industry and retrain.
- Customer is price sensitive and not quality sensitive
- No guidelines to standardize cold chain infrastructure which is India specific.

Our Accolades

2023

June: Indicoldd :Under 40 Supply Chain Super Achiever at the 5th Celerity Supply Chain Tribe Conference & Awards 2023.


May: “Best Startup in Cold Chain Services Award” at the India Logistics Strategy Summit and Awards-Edition V, 2023 organized by Institute of Supply Chain Management (ISCM) in Mumbai.

April: “The Best Logitech Startup Award” at the IndiaFirst Tech-Startup Conclave and Awards, organized by AICRA with the support of Ministry of Electronics and Information technology, Government of India in Delhi

Jan: “Amongst Top5 Logitech startups to watch for” at the India Supply Chain Conference (ISCON 2023) held in Gurgaon by Logistics Insider and Chamber of Visionary Supply Chain Leaders

2022

November: “Amongst Top Most Promising Indian Tech 30 Startups to watch for” recognized by Yourstory.com as part of Tech Sparks 2022.

September: Selected among 16 logistics player by the Government of India to exhibit our tech solution at the National Logistics Policy Launch on 17th September 2022 under Machine Learning. It is of note that we were the only cold chain player representing the entire industry at the launch. 



GODREJ STORAGE SOLUTIONS

MOBILE PALLET RACKING

Godrej Storage Solutions, a business unit of Godrej & Boyce, offers Mobile Pallet Racking (MPR), best suited solution for dense storage within the cold chain.

Mobile Pallet Racking

A dynamic dense storage system that allows for movement of pallet racks along rails, creating movable aisles within a warehouse or storage facility. It is designed to maximize storage capacity and accessibility while optimizing space utilization.

Operation

The system consists of individual pallet racks mounted on wheeled carriages that run on rails. The rails are installed on the warehouse floor and enable the racks to move on it. By eliminating fixed aisles, mobile pallet racking creates a compact storage solution that can significantly increase the storage density compared to traditional static racking systems.

To access a specific pallet, the operator activates the mobile racking system through manual controls or a remote. The desired rack is then moved laterally to create an open aisle. This allows forklifts or other material handling equipment to enter the aisle and store or retrieve pallets.

The mobile pallet racking offers the highest volumetric utilization which becomes the reason why MPR is most sought after.

Safety

There is a myriad of Safety features incorporated into the MPR such as aisle entry sensors, front and lateral safety Sensors, acoustic and blink signals, emergency stop buttons and pre-start function to ensure safe operation and to prevent accidents or damage.


Why MPR?

- A dense storage system with 100% selectivity
- Maximizes space utilization by eliminating fixed aisles
- Enables compact storage of temperature-sensitive products
- Provides easy access to stored items, promoting smooth storage & retrieval
- Supports effective inventory management through organized product arrangement and streamlined stock rotation.

Features of Godrej MPR

- Operating temperature of -30 to 50 degrees
- Carriage speed of 4.7 m/s
- Max load on carriage 700 Tons
- Maximum height up to 12m
- <70DB noise level
- Controlled by PLC
- 2 sec time delay between bases
- Excellent features like ventilation mode, secondary control panel, automatic lighting, picking mode

Key Benefits to Customer

- 80% increase in storage capacity over conventional racking
- Higher cubic space utilization of up to 50%
- Self-lubricating bearings, hence lesser maintenance costs
- Since cost of refrigeration is higher, denser storage reduces the cost of investment. 

"MENTAL HEALTH AND WELLBEING OF SEAFARERS NEEDS TO BE TAKEN CARE"

Capt. Shawn Sequeira, Commercial Operations Manager, Triton Navigation, recently won the prestigious **top 20 under the age of 40** in the shipping industry at the award ceremony organised by Seatrade Maritime Logistics Middle East, held in Dubai.

In an interaction with Maritime Gateway Capt. Shawn Sequeira talks about the transformation in the tanker market following the Russian invasion of Ukraine, digitalisation on-board shipping lines and challenges faced by seafarers

Following the Russia – Ukraine war, there have been a lot of changes in the global oil supply chains. What has been the impact on the tanker and bulk carrier market? What is the current scenario in terms of demand/supply, charter rates?

The Russia-Ukraine war has had significant repercussions on the global oil supply chains, thereby impacting the tanker and bulk carrier market in the shipping industry. The specific impact and current scenario in terms of demand/supply and charter rates are as follows:

The impact on charter rates in the tanker and bulk carrier market can be influenced by the changes in demand and supply. If demand outweighs supply, charter rates may increase as companies compete for available vessels. Conversely, a surplus of vessels due to reduced demand may result in downward pressure on charter rates.

The conflict has disrupted established trade routes for oil exports, necessitating adjustments in transportation logistics and trade

patterns. This disruption can lead to changes in demand for tanker and bulk carrier services as new routes are established and existing ones are modified. Several ports in the Ukraine remain closed as vessels calling these ports and surrounding areas are not getting additional war risk coverage by the hull under writers. Ships had to be rerouted causing delays in cargo flows.

A lot of green fuels like Hydrogen, Ammonia are being experimented and are even being brought into the market. In this scenario, how is the demand for traditional fuels, HSFO, LSF0? How are these changing fuels impacting the operating cost for shipping lines?

The transition from traditional fuels to green fuels presents challenges for shipping lines. Retrofitting existing vessels or investing in new ships capable of utilizing alternative fuels requires significant capital investments. Additionally, the availability and infrastructure for green fuels may be limited in certain regions, impacting their feasibility and cost-effectiveness.

The demand for traditional fuels, particularly HSFO, has been experiencing a decline due to increasing environmental regulations and a global push for decarbonization. LSF0, on the other hand, continues to be in demand as it meets current sulfur emission limits and serves as a transitional option for shipping lines.

Finally till global shipping does not have a perennial of alternate fuel which is available globally, the industry will still have dependence on traditional fuel and will use it in conjunction with green fuels.

You have sailed on various vessels. What are the challenges seafarers face while on-board a vessel?

Seafarer's today often spend extended periods at sea, away from their families and loved ones. This isolation can lead to feelings of loneliness and homesickness, impacting mental health of the seafarer's.

Further during the Covid period the seafarer's were not allowed to join or disembark the vessel let alone go for shore leaves, this has had a severe impact on the mental health of the seafarer's.

With the advent of Internet onboard, it has enabled the seafarers communicate more often with their loved ones but has left an impact with reduced time being spent by personal with their colleagues onboard.



As a master mariner, what are the major lapses you have noticed in ship management and management of seafarers?

Lack of Mental Health Support: Mental health and well-being are critical for seafarers' overall welfare. However, ship management may sometimes overlook or inadequately address the mental health needs of seafarers, leading to increased stress, isolation, and potential mental health issues. Also many seafarer's including senior staff on-board do not come forward to inform the companies that they are facing depression, loneliness and other mental health issues as they fear that they will not be re-employed.

Rest hour violations --- Staff on-board and maritime leaders ashore need to address the big issue of rest hours violations onboard which happen far too frequently, leading to excess stress build up in sailing staff.

Inadequate Environmental Management: This may involve improper disposal of waste, non-compliance with emissions regulations,



or inadequate implementation of environmental protection measures.

At several forums industry leaders have voiced concerns about lack of digitalisation on vessels and seafarers are required to manually maintain several documents. How is the current scenario of digitalisation on-board ships?

Efforts for digitization in shipping have increased in the past decade and we are seeing more and more positive results. ECDIS - With the advent of ECDIS, there is no longer need for physical paper charts to be maintained and also data including corrections are fed in through the electronic system on-board.

Electronic BL's- In an increasing digitalised world, everyone wants access to data and documents online, 24/7 and from anywhere. The electronic bill of lading is an original electronic document which offers a more efficient, secure, and sustainable alternative to a complex and costly process. It has the same legal value and replicates the functions of an original BL in paper, but electronically. No more paperwork, postage costs, delays or disruptions to move physically important trade documents between exporters, shipping agents, banks, importers and other parties. We can now manage the BL's in a matter of clicks and really enhances the ease of doing business and shipping commodities.

Electronic Documentation: Efforts are being made to digitize and streamline documentation processes on-board ships. Electronic systems are being implemented to manage various documents such as crew records, voyage data, safety certificates, maintenance logs, and regulatory compliance documents. However, the transition from manual to electronic documentation is still ongoing in many cases.

Recently, there have been several instances of containers catching fire on-board vessels and vessel collisions as well. How can these accidents be avoided? What are the best practices to be followed?

Crew Training and Competence: The human element is the most important factor when it comes to accidents at sea. Even if not caused by human error, effectively trained personal can definite reduce the impact of an incident and cause it to be much contained. Training should cover safety procedures, emergency response protocols, navigation techniques, cargo handling practices, and firefighting skills. Regular drills and exercises help reinforce these skills.

Employing appropriate navigation practices is essential to prevent collisions. This includes proper voyage planning, utilizing electronic navigation systems, maintaining a lookout, adhering to International Regulations for Preventing Collisions at Sea (COLREGs), and monitoring vessel traffic.

Fire Prevention and Safety: Implementing stringent fire prevention measures is crucial to avoid container fires. This involves proper stowage and securing of cargo, regular inspection and maintenance of container spaces, effective fire detection and suppression systems, and crew training in firefighting techniques.

Regular inspection, testing, and maintenance of safety equipment are essential. This includes life-saving appliances, fire-fighting equipment, navigation aids, and communication systems. Properly functioning equipment increases the likelihood of effective response during emergencies.

RESILIENT AND FLEXIBLE SUPPLY CHAIN

"Prozo is committed to being at the forefront of technology. We will continue to invest in our tech stack to become more resilient and flexible," shares **Dr Ashvini Jakhar, Founder & CEO, Prozo**

Being a doctor by profession, you ventured into a totally different territory of shipping and logistics. How did it happen, please take us through the journey.

I was a Surgeon Lieutenant Commander in the Indian Navy and a doctor to boot. However, I realized that my own physical limitations could hinder my career growth in the military. I suffered a sports injury during service games in Aug 2008 year, which could adversely affect my career growth.

So, I made the tough decision to leave the armed forces and pursue a different path. After completing my studies at the Indian School of Business, I worked at McKinsey & Company, where I discovered my passion for entrepreneurship.

Like most businesses, Prozo also found PMF (product market fit) during the course of building the business. Prozo had started out as an education vertical focused e-commerce platform in 2016 which was supposed to go horizontal after establishing in one category.

During the course of building Prozo, we have taken one major pivot and one major category expansion. One was from



being an education vertical marketplace to full-stack play in the education segment (warehousing, freight, online distribution, & supply chain technology). Second was going horizontal with this full-stack play.

Tell us about the fulfillment services offered by Prozo, and your geographical coverage across India.

At Prozo, we offer full stack end-to-end integrated e-commerce supply chain services. Our services are designed to provide agility, elasticity, accuracy, resilience, and visibility to our clients, helping them thrive in the e-commerce landscape.

Here's an overview of the services we offer:

- Prozo Fulfillment Network (PFN), which consists of over 29 multi-channel, tech-enabled warehouses across India, totalling more than 1.3 million square feet. These warehouses are ready-to-move-in and equipped with our advanced warehouse management system (ProWMS) and order management system (ProOMS).
- Prozo Logistics Network (PLN), which covers more than 20,000 pin codes across India. PLN provides various freight services, including D2C e-commerce freight, full truck load (FTL), part truck load (PTL), and hyperlocal freight.
- 5-part tech stack called PWLP. It includes ProWMS for warehouse management, ProOMS for order management, ProShip for shipping, Pro Planning for optimization and growth, and Pro Insights for performance management. This integrated tech stack ensures seamless operations and complete visibility of inventory through our control tower and command center.
- Prozo Retail Network (PRN), which enables e-commerce reseller services across 20+ online platforms. This allows companies to leverage our network and services without the need to invest upfront in their own fulfillment centers or build their own tech supply chains.

One of the key advantages of partnering with Prozo is our pay-per-use model, which brings down the cost barrier. Companies only pay for the

inventory they store in our warehouses, allowing even small businesses with monthly sales of around 20 lakh rupees to benefit from our services.

What is the size of your refrigerated warehousing? How is the PAN India presence and the hinterland served by you?

We operate a cold chain warehouse out of Vizag. It's a 32,000 sq. ft box which caters to multiple fisheries vendors. We are going to open another warehouse of similar size in Krishnapatnam.

What are the technology solutions you offer in terms of WMS Integration and ERP solutions?

At Prozo, we offer comprehensive technology solutions that empower businesses in supply chain management. When it comes to Warehouse Management System (WMS) integration and Enterprise Resource Planning (ERP) solutions, we provide cutting-edge tools to optimize operations and boost efficiency. Our Prozo tech stack includes

- ProWMS, our advanced WMS solution. It seamlessly integrates with your existing systems and infrastructure, allowing you to effectively manage and control your warehouse operations. From inventory tracking and storage optimization to real-time monitoring and order fulfillment, ProWMS provides complete visibility and control over your inventory. With accurate deliveries and delighted customers as the result.
- ProOMS, our advanced Order Management System. ProOMS streamlines the entire order processing workflow, from order placement to fulfillment. It enables you to efficiently manage orders across multiple channels, automating order routing, effective inventory allocation, and real-time order tracking.

Furthermore, our tech stack integrates with ERP solutions to enhance your supply chain operations. The integration between your ERP system and our Prozo tech stack ensures seamless data exchange and synchronization. This unified flow of information empowers you to make informed decisions, optimize inventory

levels, and streamline your overall business processes.

The government has been implementing several policies for bringing down the logistics cost. As a service provider do you see any difference on the ground?

The government's focus on improving infrastructure, particularly roadways and railways, has shown promising results. The development of green highways and industrial corridors has reduced the distance between major cities and hubs, leading to more efficient transportation and potentially lower costs.


Furthermore, simplified regulatory procedures have helped streamline operations and reduce bureaucratic hurdles. This has resulted in smoother and faster movement of goods, improving overall logistics efficiency.

However, it's important to recognize that the logistics sector is complex and influenced by various factors. While government policies play a crucial role, other factors such as regional disparities, supply chain complexities, and the pace of policy implementation can also impact the ground reality.

How is the market for hyperlocal freight service? What are the demand drivers for this service? In which regions do you see demand growing?

The market for hyperlocal freight services in India is booming, presenting us with exciting opportunities for growth. We see strong demand drivers behind the expansion of this service.

First and foremost, the exponential growth of e-commerce is a major factor. As more people turn to online shopping, there is a greater need for quick and efficient delivery services. Hyperlocal freight services play a crucial role in fulfilling the last-mile delivery requirements of e-commerce platforms, ensuring faster and more convenient service for customers.

Time-sensitive deliveries have become increasingly important as on-demand services gain popularity. Hyperlocal freight services enable businesses and consumers to transport goods quickly and reliably, catering to time-sensitive items. 





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he road logistics industry in India is huge and is valued at around \$200 billion. This sector moves about 60% of all the materials or commodities being transported within the country. This sector is largely unorganised which is again a perennial problem, because around 85% of the lorry owners come under the unorganised category. They still follow old business practices wherein business or cargo load is booked by maintaining business relations or new customers are acquired through word of mouth. This category of truck owners have not tried using technology to grow their business.

Vahak, an online market place and a community for the transport industry is bringing the much needed technology edge to this sector. The basic function of this platform is to help shippers and lorry owners to rapidly book loads and lorries. Vahak has on-boarded more than 25 lakh lorry owners since its launch in 2019.

Vahak was established when Karan Saha identified the need for a platform in the road transport sector for connecting the load owners with the truck owners. After graduating from IIT Kanpur in 2015, Karan Saha, Co-founder and CEO, Vahak was working as a consultant when he was introduced to this huge problem of truck booking by his family members (who operate rice mills) in Raipur, Chattisgarh. Raipur

being a centrally located city is a big hub for transportation and Chattisgarh itself is a mineral rich state. The major issues that shippers faced were finding a trustable transporter, fluctuating freight rates, difficulty in getting transparency of the entire process. A few months of research unveiled that the problem was really huge and the whole nation was dealing with this issue. To further dive deeper into the sector Karan Saha started his own transport company in 2016. During the first two and half years Karan met a thousand transport companies and worked with them on the ground which unearthed the deeper issues in the sector.

There are more than 25 million SMEs and lorry owners in India who are carrying more than 60% of the

entire goods in the country. But 80% of these lorry owners are unorganised and the only way for them to book a load is through communication or phone call. There are thousands of calls happening daily which creates lots of miscommunication and delays causing the logistics cost to be extremely high and lorry utilisation being super low. In India there are around one crore heavy commercial vehicles and on an average these vehicles are able to run for just 50% of their time in a month. In the remaining 50% of the time these lorry owners are just searching for their next load, mostly through their personal trusted network and in most of the cases they have to wait for around 3 to 5 days to find their next load. This is where the cost of transportation increases and the goal of bringing down the logistics cost to around 7 to 8% of GDP gets a setback.

Following the launch in 2019, Vahak on-boarded the first 500 transporters through personal meetings. This also helped them to get a feel of how the technology and application are working. Gradually, Vahak witnessed a huge rise in organic users. In the first 6 months, about 10,000 users on-boarding the platform. This proved that there is a huge demand in the market and the lorry owners and load owners are just struggling to connect with each other and increase their network. In 2020 Vahak moved to Bangalore where the operational team was expanded and the platform by that time had about 20 lakh lorry owners hooked to it for finding their next load.

Thus, Vahak is offering a unique platform for uniting the fragmented transport industry. Following a technology first approach Vahak is trying to bring in Machine Learning, Artificial Intelligence to improve the entire process. With internet drastically penetrating into tier II and III cities, Vahak sees many more truck owners become tech savy to grow their business.

While many of the truck owners/drivers are not much educated and tech savy, but they are very good business men. They maintain good relations with their customers. The only thing they were lacking is the use of technology to further improve their relations and stay



better connected to their clients.

To help these truck drivers and make the platform more inclusive, Vahak has been launched in more than 9 languages. To make it more user friendly Vahak has added several features like audio postings and texting features. While the truckers are not tech savy but providing such user friendly features is engaging them very well.

When the COVID lockdown was announced, there was a sudden spike in activity on Vahak platform, which proved that these truck owners took to digital platforms when their physical connectivity was reduced. The drive to use digital technology comes from the urge to grow business among the truck drivers. So, the truck drivers and shippers are both coming forward to embrace technology to expand their network and grow business. This again helps them to optimise their truck capacity by hiring greater loads and they can ensure the truck never moves empty especially on the return leg of the journey. On the Vahak app the lorry owners can see the entire list of loads available to be hired on a particular route, so they can pre-book their loads even for the return leg of the journey. And for the truck owners who are already running on their optimal capacity they can expand their customer base online. The load owners can be assured about the truck driver as their complete details such as Aadhar number, registrations and permits are all available to be checked online. Using

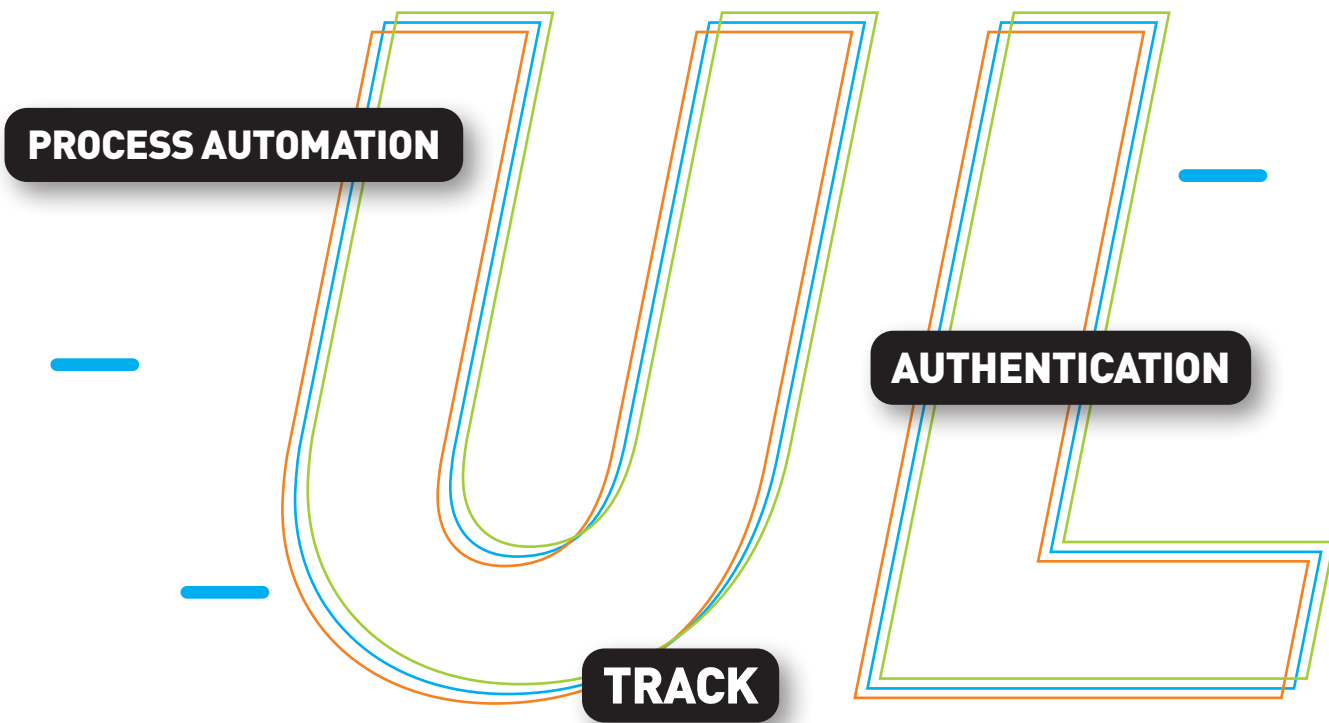
Vahak a truck owner can increase his load and earnings multi-fold.

In January this year, Vahak acquired Instalogist, a truck booking app and load marketplace platform for long-haul transportation. "Together with Instalogist, we are on track to become the one-stop shop for all logistics needs of the Indian road transportation sector," Says Karan Saha.

Instalogist users now have access to Vahak's community of over half-a-million monthly active users and two million registered companies, as well as its value-added services such as vehicle and cargo insurance, GPS, safe and secure payments and e-medical consultations. Additionally, users have access to Vahak's advanced AI and ML technology-enabled marketplace for load-lorry matchmaking based on tonnage and vehicle requirements, route and delivery timelines, and efficient return load booking.

The road transport sector in India faces numerous challenges such as the physical infrastructure and quality of roads, the resources they are able to access while on the move and the quality of toll booths. But there has been a dramatic progress in the quality of road infrastructure, especially the highways being developed under Bharatmala Pariyojna. While infrastructure related problems are being looked into by the government, technology related issues are being solved by startups like Vahak.

To resolve these issues in 2019 Vahak was launched. 📍



SINGLE WINDOW, UNLIMITED EFFICIENCIES

ULIP has emerged as a single platform to access data available with various **Government systems** for track/trace, authentication, document digitization, process automation

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nder the purview of National Logistics Policy, Government of India has implemented Unified Logistics Interface Platform (ULIP) which aims at breaking individual silos, promotes integration among various Ministries/Departments and creates a single window thus bringing efficiency and transparency in the trade. ULIP has emerged as a digital gateway for the logistics ecosystem to access data available with various Government systems for track/trace, authentication, document digitization, process automation as well as discovery services.

ULIP has been designed as an independent virtual gateway without impacting or interfering the regulatory and operational procedure of any concerned ministry. All modes of logistics (Sea, air, road, rail, waterways) are covered under ULIP, irrespective of type of cargo. So, data exchange for any mode of logistics is feasible.

DOCUMENT DIGITIZATION

TRACE

In ULIP, data is exchanged through APIs on request-response based manner. ULIP uses open standards, licenses, databases, APIs, etc. and promotes interoperability.

But, is ULIP really a game changer? Let us know from the users!

IMZ Corporate, an IoT company, that emphasizes secure logistics, tracking, and tracing, and is dedicated to revolutionizing the IoT-enabled technological industry in India, has partnered with Unified Logistics Interface Platform (ULIP), to inclusively enhance their technical services even further. "Our business association and collaboration with ULIP is a significant milestone for us, as a technology organization. It enables us to leverage their powerful seamless Application Programming Interfaces

(APIs), integrating systems like VAHAN, SARATHI, FASTag and FOIS, to name a few. By optimally utilizing these APIs, IMZ Corporate can streamline data, making it more interactive, effective, and efficient for the overall growth of its clientele, and its end user, accordingly," informs **Kush Mehrotra, CEO, IMZ Corporate.**



IMZ Corporate specializes in manufacturing cutting-edge products like GPS and RFID-based Digital Electronic Locks (E -Locks), AIS 140 based Vehicle Location Tracking Devices (VLTD), and IoT Sensors like Load Sensors, Bluetooth Sensors, and Dalla Sensors, to name a few. Its advanced technology allows businesses to track and trace their shipments, ensuring secure logistics and peace of mind.

He further adds, "ULIP's goal is to optimize transportation modes, simplify compliance processes, and

facilitate seamless data exchange between government and private entities in the logistics ecosystem. This collaboration aims to enhance efficiency and streamline operations in the Indian logistics sector. At IMZ Corporate, we are dedicated and committed to provide innovative and cutting-edge solutions that empower businesses and transform the logistics landscape. Our partnership with ULIP allows us to deliver even greater value to our prestigious clients."

There is dedicated interface available for the trade and industry players for fetching the relevant data based on a rule-driven mechanism. ULIP ensures data security and data confidentiality while exchanging data in a secured manner. Any personally identifiable information is automatically filtered through rule-driven PII (Personally Identifiable Information) engine.

ULIP has been developed as per the National Open Data Ecosystem (NODE) guidelines of Ministry of Electronics and Information Technology (MeitY), Government of India which ensures data-driven efficient and agile government operations to serve the needs of the citizens and stakeholders. ULIP adopts open and inclusive processes/SOPs focusing on accessibility, transparency, and accountability that promotes digital inclusion; overcomes digital divides; encourages cross-sectoral and inter-governmental coordination and collaboration.

ULIP has been integrated with 34 systems of 08 different Ministries through 112 APIs covering 1800+ fields. Within 10 months of its launch on 17th September 2022, the ULIP portal- Goulip, in has received registration from over 590+ industry players with the willingness to access data through ULIP.

There are nearly 100 million API transactions commenced so far over ULIP gateway by the industry players and one of these avid users of ULIP is Sharp Logistics. "Recognizing the need for seamless process, coordination and efficiency in the logistics industry, Sharp Logistics initial integration with ULIP has termed to be a game-changer. ULIP's comprehensive approach to streamlining logistics operations,



integrating disparate systems, and fostering collaboration among stakeholders resonated with our company's vision of optimizing supply chain management," shares **Sarjak Sheth, CEO, Sharp Logistics**.



He further adds, "Our experience using ULIP has been nothing short of exceptional. We have witnessed a remarkable transformation in our logistics efficiency and overall performance. From real-time tracking to analysing logistics processes, ULIP has aided us in making proactive decisions and mitigating potential disruptions. The extensive network of logistics partners accessible through ULIP opened doors to new collaborations and opportunities for growth. Overall, Sharp Logistics' experience using ULIP has been a resounding success, delivering tangible improvements in efficiency, cost savings, and customer satisfaction."

Sarjak says, "Among the numerous features offered by ULIP, one that is particularly favoured by us is the customer onboarding with GST (Goods and Services Tax) and CIN (Corporate Identification Number). These features have ensured that customers are onboarded efficiently and in compliance with the necessary regulations. Apart from these features, VAHAN and SARATHI features have enabled us to easily onboard vehicles and drivers while verifying their credentials and ensuring adherence to transport regulations. Also, LDB has proven to be a significant asset in enabling us to become better in various aspects of our

operations. The availability of these features in ULIP gives us a competitive edge by significantly simplifying the onboarding process, saving time, and eliminating the complexities associated with regulatory compliance."

ULIP has a dedicated portal that makes the process of data request simpler, faster, and transparent. The portal can be accessed through "https://goulip.in/". A dedicated support team is working round the clock to provide support to the industry players for registration on the portal. After the registration, users need to submit their use-cases, which will then be reviewed based on the proposed usage of the requested data.

Major industry players like CJ Darcel, DHL, Safexpress, Ultratech, TCIL, Jindal Stainless, Tata Steel, Yes Bank, BOSCH, Total Group, etc. have been onboarded on ULIP to develop their use-cases which will benefit them and their stakeholders alike.

Another delighted user of ULIP is TreZix a unified B2B SaaS platform for export and import. TreZix, has integrated with ULIP to bring all modes of transportation under a single window to connect its stakeholders. With this integration, TreZix will address the reconciliation issues faced by importers, exporters, and banks related to EDPMS and IDPMS data."

"IDPMS and EDPMS are considered to be the major pain points for exporters and importers. With the help of ULIP data, the TreZix platform will ease

processes like the bill of entry and shipping, bill status, detailed data and generation of reconciliation statements for importers and exporters and the banks they are dealing with. The platform will offer real-time visibility details to its users, helping them reduce logistics expenses and improve efficiency," explains **Haresh Calcuttawala, CEO & Co-Founder, TreZix**.



"The importer and exporter on the TreZix platform will be able to enhance their turnaround time with this integration, saving overall capital. The real-time assimilation of data and standardization of processes will lead to the accuracy of information. Moreover, standardization and a consistent approach will lead to a firm hold on compliance. With process integration, visibility and dynamic cost structure of ULIP, TreZix can work to improve the overall competitiveness of Indian exporters on the globe front."

"In the first phase, TreZix integration with ULIP proceeds as follows: The integration with the Ministry of Commerce and Industry APIs – DGFT will provide the stakeholders of TreZix with a real-time API link to check IEC Code. With integration with the Ministry of Finance – the ICEGATE, importer will have full details on shipment and real-time shipping bill status. The assimilation with the Ministry of Ports, Shipping and Waterways and Ministry of Civil Aviation will offer real-time tracking of vessels and containers and real-time flight cargo information with estimation time of landing, respectively."

Awards & accolades

Within the first month of its launch, the Unified Logistics Interface Platform was awarded "Geospatial for Logistics Award," organised by Geospatial World during the GeoSmart India 2022. It has also been awarded the Best Digital Initiative Award by Cargo Talk during the India Cargo Awards in July 2023. ULIP is one of the promising initiatives by Government of India in the direction of reducing comprehensive cost & time and increasing transparency in the logistics sector. 🏆

TCI Supply Chain Solutions

TCI Supply Chain Solutions

...leading in Concept to Execution of Supply Chain as a 3PL / 4PL



The core values offered by TCI Supply Chain Solutions are Network Design for production, aftermarket or demand fulfillment. We bring to the table **physical & digital expertise** to integrate your suppliers/customers into a **seamless network** enhancing your productivity & control over your supply/demand chain.

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Supply Chain Consultancy



Production Logistics



Finished Goods Logistics



Warehouse Management (DC/FC)



AFTO

Key Verticals



Retail & CP



Hi-Tech



Mobility



Heavy Machinery



Agri



Chemical



Pharma & Health Care

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- TCI
- YES BANK
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- and many more...