Cold Chain Logistics Industry in Thailand

YAMADA Consulting Group

Summary

Cold chain logistics in Thailand has seen steady growth and this is expected to continue in the future. Prior to COVID-19, Thailand's cold chain logistics market mainly targeted the B2B segment, driven by food, pharmaceutical products and the expansion of convenience stores and restaurants. However, during COVID-19, new demand for cold chain logistics in the B2C segment emerged because of lockdown policies forcing people to stay at home. Even though the adoption of cold chain logistics by the Thai government is in the early stage, there will be potential supporting projects to further develop this industry. This industry is considered more difficult to penetrate than other logistics industries because of various operation investments and management. An increase in technological adoption in this industry will enhance cold chain logistics efficiency and strengthen competitiveness.

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Consulting Group

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Cold Chain Logistics in Thailand at a Glance

- Cold chain logistics in Thailand has been growing since 2016. Even though the industry was affected by COVID-19 resulting in the reduction of market value in 2020, cold chain logistics will continuously grow, which captures the demand from both B2B and B2C segments.

970 Million USD
Total Market Value in 2022F

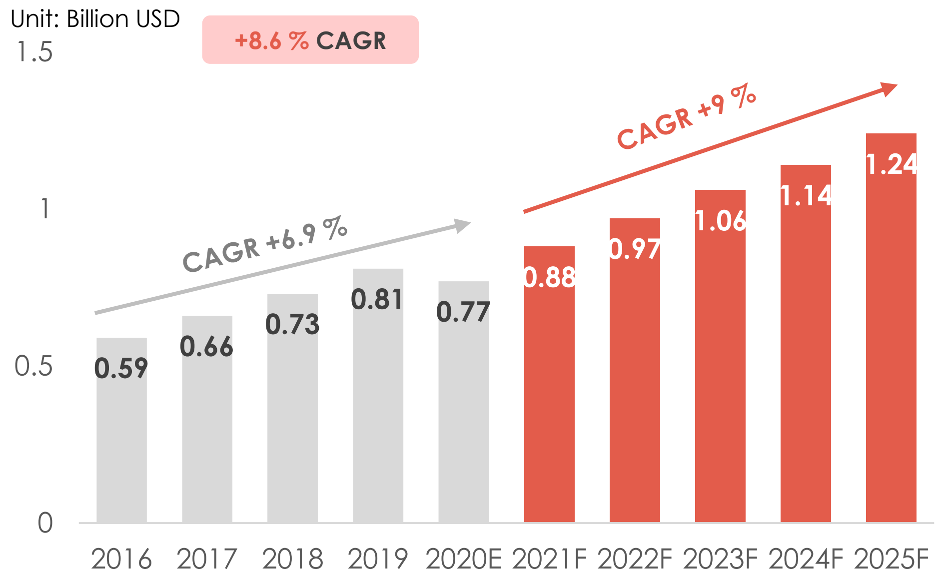
9% Forecasted CAGR 2021F-25F
6.9% CAGR 2016-2025F

2,116 Cold Chain Transportation Providers in 2022*

644 Cold Storage in 2020

Top 3 locations of capital invested in cold storage were Bangkok, central and southern part of Thailand (2020)

Market Value of Cold Chain Logistics in Thailand (2016-2025F)



Source: Mordor Intelligence (2021)

Example of Cold Chain Logistics Players

Cold Storage	Cold Transportation
▪ Pacific Cold Storage Co., Ltd. ▪ Thai Yokorei Co., Ltd. ▪ Thai Max Cold Storage Co., Ltd.	▪ Inter Express Logistics Co., Ltd. ▪ SCG Nichirei Logistics Co., Ltd.

Note: *The statistics presented are as of August 2022
Source: NESDC, BOL

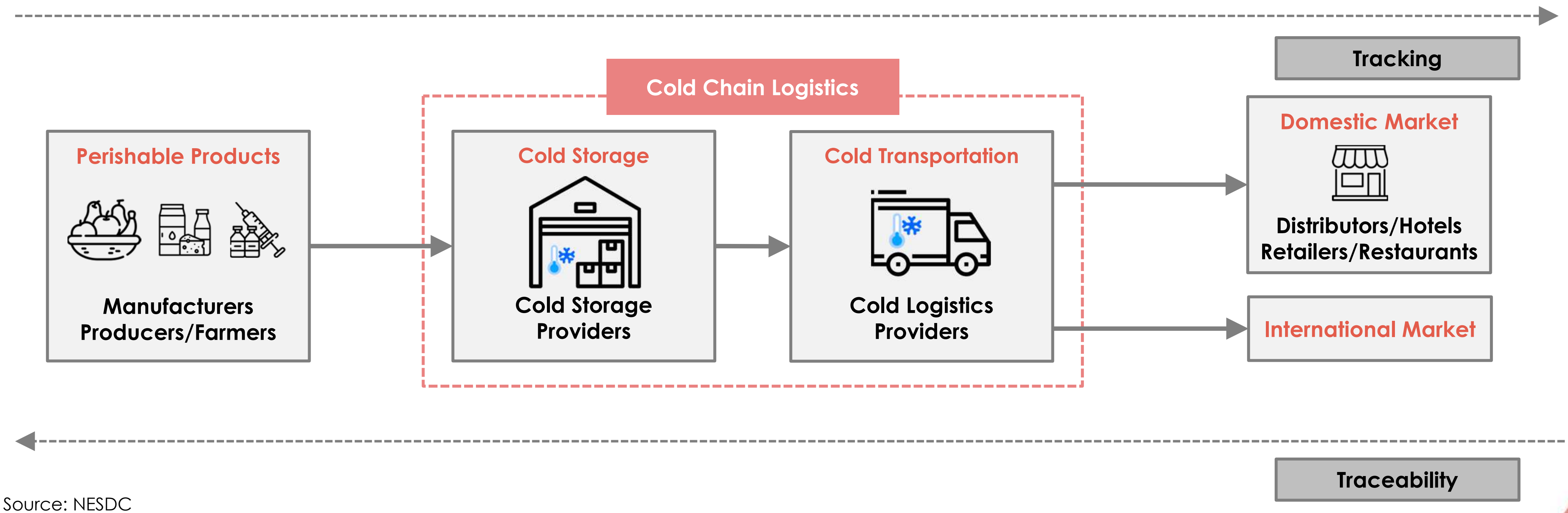
Overview of Cold Chain Logistics in Thailand: Supply Chain

- Cold chain logistics mainly is the action of using temperature-controlled storage and transportation to maintain the quality and freshness of products throughout the supply chain.
- Cold chain logistics is one of the essential parts in the perishable products' supply chain. Unlike normal products, perishable products such as agricultural and pharmaceutical products are sensitive to temperature changes, especially during storage and distribution.
- Recently, cold chain logistics' users and end customers are more aware of the products delivered, so adopting tracking and tracing systems in cold chain logistics management will ensure the quality of services

Benefits

- ✓ Maintaining products' quality, freshness and extending products' shelf lives.
- ✓ Reducing possibility of food loss during storage and distribution, which also prevents additional cost occurring from it.
- ✓ Enhancing brand reputation of business operators for providing high quality of products by using cold chain logistics.

Supply Chain of Cold Chain Logistics

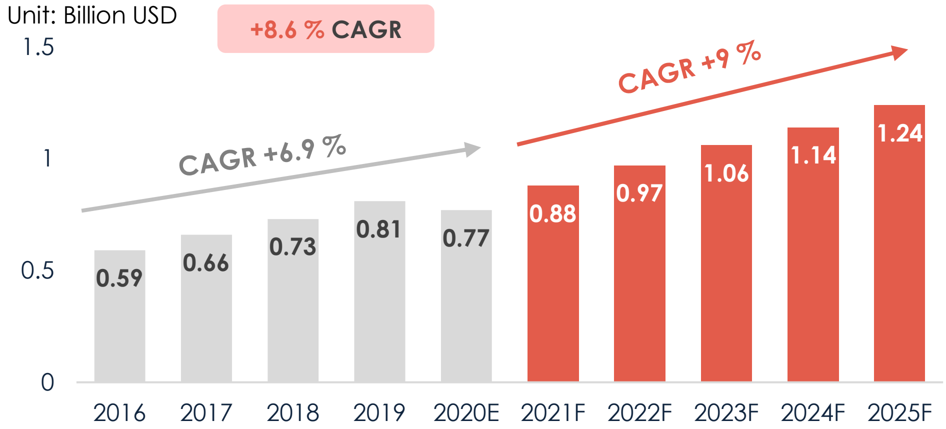


Source: NESDC

Overview of Cold Chain Logistics in Thailand: Market Situation

- Cold chain logistics' market value has seen a steady growth since 2016 and CAGR during 2016-2020 was positive, accounting for 6.9%.
- However, the COVID-19 pandemic resulted in a slight decrease in 2020, as the industry was heavily relying on exports, of which the volume declined due to the country's lockdown policy.
- COVID-19 also had a positive impact on cold chain logistics towards the penetration of a new segment, B2C. As people are forced to stay home with the necessity of food, many business operators, especially food related sectors, helped increase the demand of cold chain adoption in the B2C segment to directly ship their products to end customers.
- With key driving factors such as increasing demand in the B2C segment, better domestic and export situation for products that need cold chain logistics, expansion of convenience stores and restaurants, this industry's market value is forecasted to increase with 2021-2025 CAGR of 9%.

Market Value of Cold Chain Logistics in Thailand (2016-2025F)



Source: Mordor Intelligence (2021)

Cold Chain Logistics

Cold Storage 

- Cold storage refers to the activity of storing perishable goods in buildings that are designed for refrigerating and maintaining low temperatures to preserve goods.

Cold Transportation 

- Cold transportation is the activity of transporting perishable goods by refrigerated vehicles (this report will focus only on trucks)

Example of Supporting Industries

Food Industries: Fruits and vegetables, dairy products, processed meat and seafood, ready meals

Non-Food Industries: Medicines and vaccines

Range of Temperature Controlled for Major Industries

Range of Temperature	18-25 Celsius (Room Temperature)	2-8 Celsius (Chilled)	≤-18 Celsius (Frozen)
Fruits & Vegetables			
Dairy Products			
Processed Meat & Seafood			
Ready Meals			
Medicines & Vaccines			

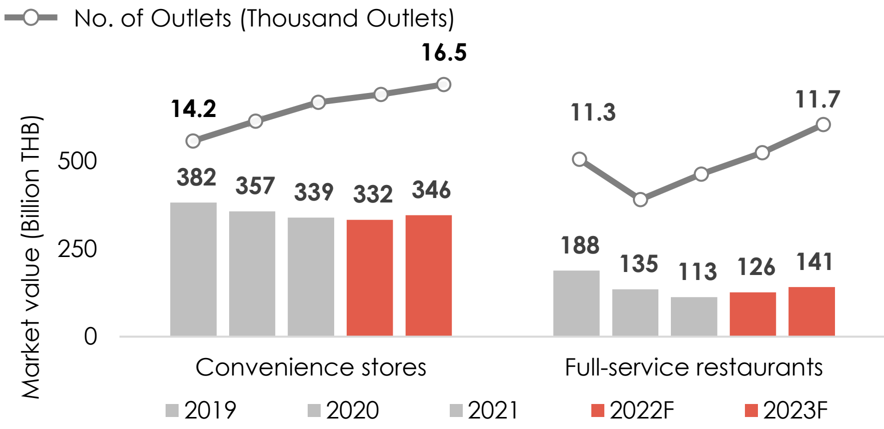
Source: Bumrungrad International Hospital, Kasetsart University

Overview of Cold Chain Logistics' Supporting Industries in Thailand

- The cold chain logistics industry is driven by the supporting industries, which mainly are perishable goods from both food and non-food industries.
- As food and consumer health products are essential for daily life, COVID-19 had little impact on these sectors.
- Convenience stores and full-service restaurants are also crucial supporting industries, as the expansion of outlets increases the demand of cold chain logistics. Even though the market value slightly decreased during 2020-2021, both market value and number of outlets are expected to increase from 2022 onwards.

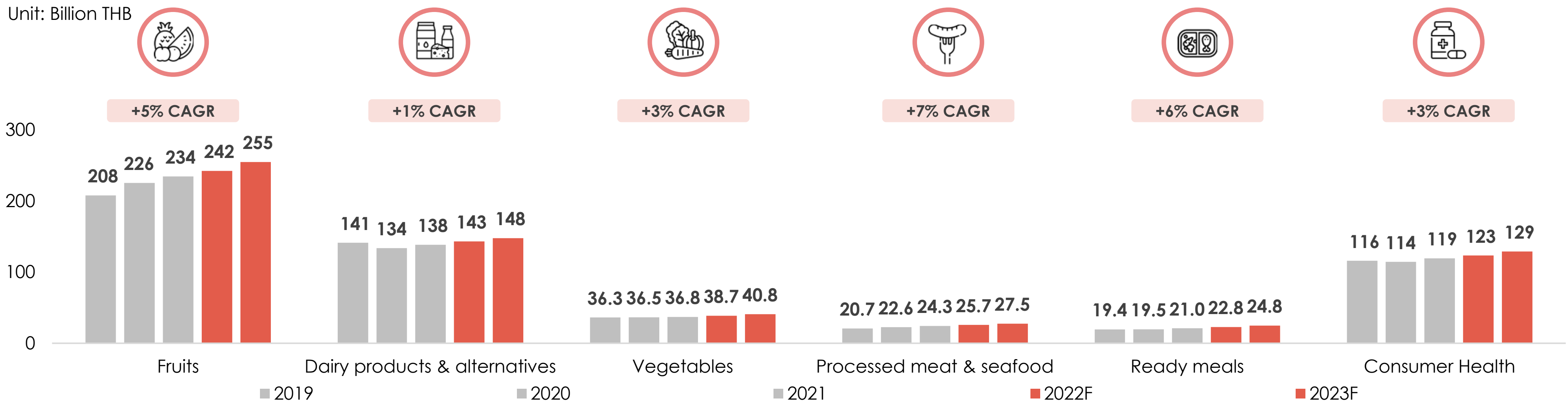
According to Duke University Global Health Innovation center (2022), Thailand has been acquiring Covid-19 vaccines, accounting around 243 million doses.

Market Value & No. of Outlets of Convenience Stores & Full-Service Restaurants in Thailand (2019-2023F)



Source: Euromonitor

Market Value of Food and Non-Food Industries in Thailand (2019-2023F)

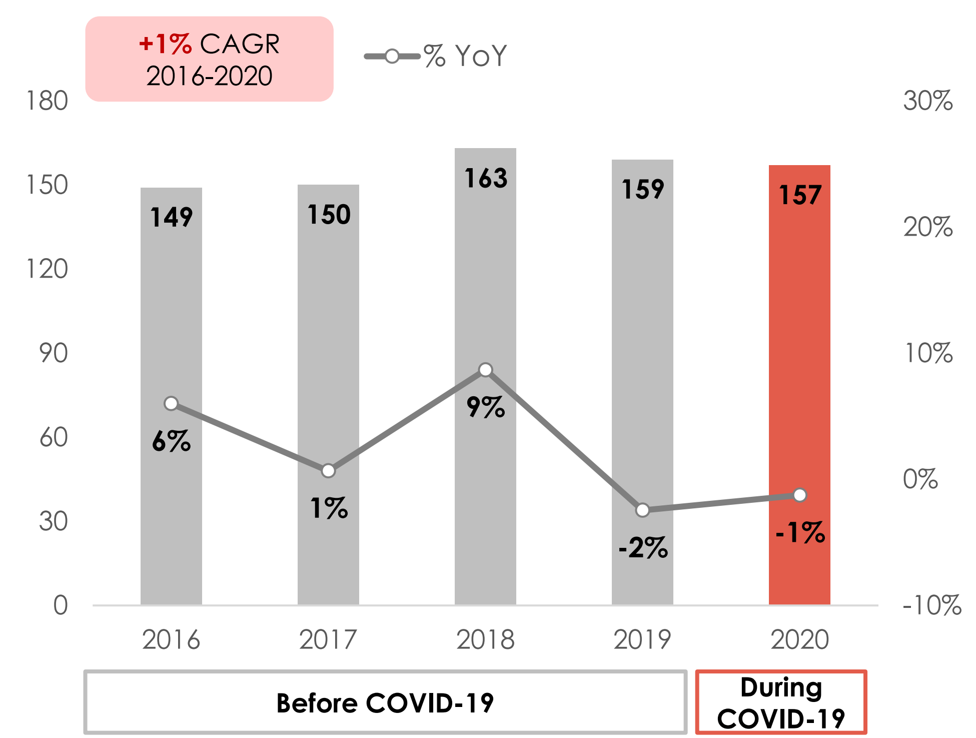


Note: Consumer health includes Over The Counter Drugs (OTC), sports nutrition, vitamins and dietary supplements, and weight management and wellbeing
Source: Euromonitor

Cold Storage's Market Structure and Key Players in Thailand

- In 2020, there were a total of 157 cold storage firms, with 644 cold storage facilities. The top 3 locations of capital invested in cold storage were Bangkok, central and southern part of Thailand.
- The cold chain industry is quite fragmented with a number of small players. According to Krungsri Research (2020), large players in the cold storage market accounted for 5% and the remaining 95% were SMEs.
- Prior to COVID-19, the cold storage market relied only on the B2B segment, with 1% CAGR during 2016-2019. However, in 2020, lockdowns caused reductions in export volume from Thailand and resulted in less demand for cold storage space. Since 2021, demand for cold storage space has been increasing as Thailand stopped lockdown policies, resulting in an increase of export volume. Increasing demand of the B2C segment also raised the need of cold storage spaces.

Number of Cold Storage Firms (2016-2020)



Example of Key Players of Cold Storage in Thailand

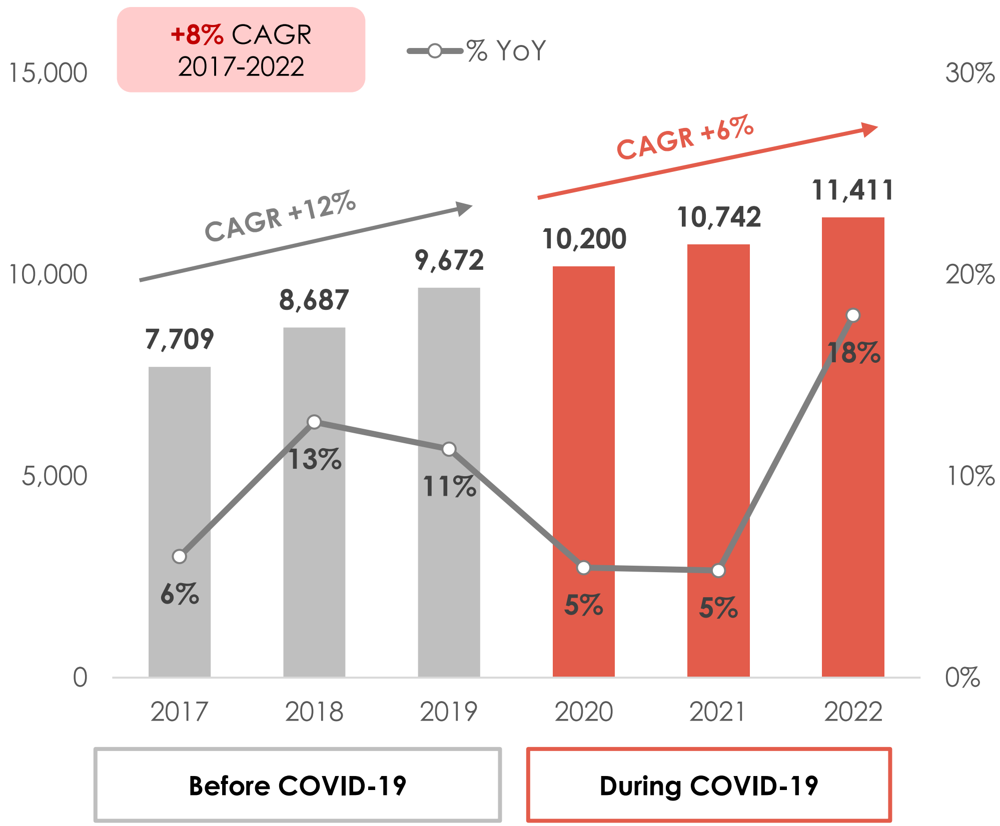
Company Name*	Net Sales** (2021) (Million THB)	Major Shareholders	Major Shareholders list
PACIFIC COLD STORAGE CO.,LTD.	543	Thai	▪ JWD INFOLOGISTICS Pcl.
THAI YOKOREI COMPANY LIMITED	502	Thai Japanese	▪ YOKOREI Co., Ltd. ▪ Sumi-Thai International Co., Ltd. ▪ Mitsui O.S.K Lines (Thailand) Co., Ltd. ▪ Best Cold Chain Co., Ltd.
THAI MAX COLD STORAGE CO.,LTD.	203	Thai Japanese	▪ MOL MANAGEMENT (THAILAND) Co., Ltd. ▪ IKARASHI REISO Co., Ltd. ▪ BOONMA CARGO Co., Ltd. ▪ MITSUI O S K LINES Ltd. ▪ KORE SERVICE Co., Ltd.
BANGKOK COLD STORAGE SERVICE LTD.	194	Thai Japanese	▪ K LINE (THAILAND) Ltd. ▪ KAWASAKI KISEN KAISHA, Ltd. ▪ KALLAWIS ENGINEERING Co., Ltd.
NISSEI LOGISTICS CO.,LTD.	144	Thai Lao Japanese	▪ NISSEI TRADING (THAILAND) Co., Ltd.

Source: Krungsri Research, NESDC, BOL
Note: * Company lists presented are from TSIC 52101 only
**Net sales include total sales from all company operations

Cold Transportation's Market Structure and Key Players in Thailand

- Before COVID-19, there were only a few key players penetrating cold transportation such as Inter Express Logistics and SCG Nichirei Logistics due to high initial investment costs.
- According to Truck Data Service Center (2022), there are a total of 2,116* cold transportation (trucks) providers in Thailand, which are mainly SMEs. Also, there is an increase in the number of cold trucks to 11,441 trucks in 2022 with a CAGR of 8% between 2016-2022 despite the spread of COVID-19. Normally cold transportation targets B2B, but companies saw an opportunity to penetrate the B2C segment, from which demand was accelerated by COVID-19 lockdowns, forcing people to stay home.

Number of Cold Trucks* (2017-2022)



Example of Key Cold Transportation Providers in Thailand

Before COVID-19	**Inter Express Logistics**	**SCG Nichirei Logistics**
	The leading medicine and health related transportation provider **since 1996** and expanding business to food chain business.	A joint venture between SCG logistics and Nichirei (Japan) **since 2014**, to penetrate the cold chain market, targeting food chain business.
During COVID-19	**Kerry Cool**	**Fuze Post**
	A joint venture between Kerry express and Betagro group **since 2021**, aiming to support Thailand's food processing industry.	A joint venture between Thailand Post, Flash Express, and JWD InfoLogistics **since 2021**, drawing on the strengths of all 3 companies.

Note: * The statistics presented are as of August 2022
Source: Truck Data Service Center, BOL, Companies' websites, Public news

Example Case: Cold Chain Logistics in MK Restaurant Group's Supply Chain

- The rising of convenience store and restaurants outlets in Thailand is one of the main drivers leading to the growth of the cold chain logistics industry.
- There is an interesting case of MK Restaurant Group, a leading restaurant chain in Thailand, in which cold chain logistics plays an essential part in its supply chain.

MK Restaurant Group's Key Cold Chain Logistics in Supply Chain

Procurement & Quality Inspection

Most of MK Restaurant Group's raw materials are fresh products, so the company carefully procure products from suppliers who meets the quality standards.

Receiving & Sorting Orders

The central kitchen will receive orders from all branches each day and sort orders and store in **M-Senko Logistics'** cold storage facility nearby.

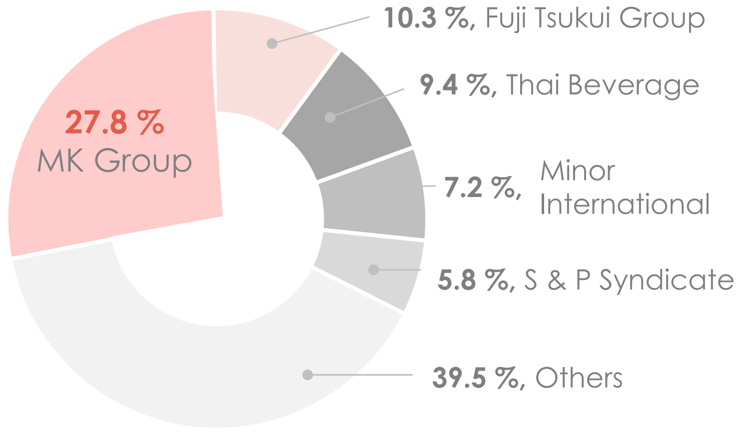
Logistics & Distribution

M-Senko Logistics Co., Ltd. is responsible for distributing orders to all branches by using temperature-controlled trucks, ensuring freshness and maintaining quality.

Delivering to each branch

Delivery frequency for each branch is based on the location; daily for BMR, twice a week for upcountry with a driving time of over 3 hours.

Full-Service Restaurants Brand Share by Market Value (2021)



Source: Euromonitor

700+ branches

MK restaurant group has various restaurant chains, mainly MK (hotpot restaurants), Japanese and Thai restaurants.

M-Senko Logistics Co., Ltd.

- **M-Senko Logistics** is a joint venture between MK Restaurant Group Pcl. and Senko Group Holdings Co., Ltd., a leading Japanese logistics provider, to operate cold chain logistics located near MK Group's central kitchen to facilitate MK Group's business and other companies (B2B segment).
- M-Senko's facilities include a 53,200 m² site area with a 22,000 m² floor-area building, automated warehouse having wide range temperature zones (-25, 0-4, 4-8, 6-10, 25-30 Celsius), and 170 temperature-controlled trucks.

Source: MK Restaurant Group's 2021 annual report, Senko Group Holdings' Press Release

Related Government Plans and Projects to Support Cold Chain Logistics in Thailand

- The Thai government is still in the early stages of cold chain adoption and development. However, there are some potential government plans as well as ongoing projects that emphasize the importance of cold chain management, which will strongly elevate this industry in the future.

Related Government Plans & Projects

Potential Government Plans

The Department of Industrial Promotion and Kasetsart University conducted a research project regarding cold chain management and suggested policies for cold chain management in the industrial sector as follows;

- Development of a standard in cold chain and cold chain management to be compliant with WHO guidelines on Good Distribution Practices (GDP) and Good Storage Practices (GSP).
- Development of technologies and applications in cold chain by promoting the use of technology and innovation i.e., track & trace system, warehouse management system, transport management system and backhauling.
- Development of devices, equipment and tools in cold chain to be more digitalized i.e., IoT, Bar Code, RFID, Sensors, GPS.
- Human resource development in cold chain management.

Others Related Projects

Eastern Fruit Corridor (EFC)

- EFC is one of EEC projects at the Smart Park Industrial Estate in Rayong, initiated by a vision of the Thai government to make Thailand the "Kitchen of the world".
- EFC is to strategically elevate Thailand's food sector by using a demand driven approach, integrating all supply chains and stakeholders. The project targets durian in the pilot stage.
- PTT, EECO, and IEAT signed MOUs regarding cold chain infrastructure investment (Blast freezer & Cold storage) to facilitate EFC of value 350 million THB.

Goal
To promote Eastern Thailand into a fruit planation center

Q Cold Chain Standard

- Q cold chain is a cold chain quality standard (voluntary) for truck operations initiated by the Ministry of Transport, with which truck operators need to comply to assessment guidelines and meet various types of requirements including:
  - Transport operation
  - Sanitation
  - Refrigerated Truck Standard and Maintenance
  - Human Resource Development

Goal
To develop cold chain management in transport operation to meet quality standards

Source: NESDC, public news

BOI Incentives for the Cold Chain Logistics Industry in Thailand

- For the cold chain logistics industry, the Board of Investment has granted both tax and non-tax incentives for investors.
- However, In some conditions, investors in this industry might not be able to receive CIT exemption unless they also invest in automation and robotic systems, which is one of Thailand's new S-curve target industries.

BOI Incentives

		CIT Exemption	Exemption of import duties on machinery	Exemption of import duties on raw materials used in R&D	Non-tax Incentives
Cold storage, or cold storage & cold storage transportation	**A4: Projects using natural refrigerants except ammonia as a refrigerant**	3 Years	✓	✓	✓
	B1: - Projects using ammonia as refrigerant - Projects using a synthetic refrigerant*	-**	✓	-	✓

Note: *The refrigerant must have limited environmental impact, based on relevant indicators such as Global Warming Potential (GWP), etc.

**Activities in Group B1 shall receive additional three-year corporate income tax exemption on the revenue in cases of:

- Investment in automation or robotic system: the cap on corporate income tax exemption on the revenue of the project shall not exceed 50% of the investment capital (excluding cost of land and working capital).
- Investments in automation systems: the cap on corporate income tax exemption will be raised to 100% of the investment, excluding land cost and working capital, if the value of linkages to the Thai automation industry reaches at least 30% of the total value of the automation system. Application is to be submitted by December 2022 (Announcement of the Board of Investment No. 2/2564 Measures for Additional Rights and Benefits for Activities in Group B that Utilize Modern Machinery together with Automation or Robotics System))

Non-tax Incentives

✓ Permit to own land

✓ Permit to bring into the Kingdom skilled workers and experts to work in investment promoted activities

✓ Permit for foreign nationals to enter the Kingdom for the purpose of studying investment opportunities

✓ Permit to take out or remit money abroad in foreign currency

Source: BOI

Trends, Challenges & Opportunities for the Cold Chain Logistics Industry in Thailand

- For cold chain logistics trends, the B2C segment is in high demand. The adoption of technology and eco-friendly concepts will strengthen cold chain management and operation to efficiently serve customers. However, there are still some challenges that need to be tackled.

Future Trends

Overall Market

- Currently, there are few players in this market, resulting in low competition. Increases in cold chain logistics demand for the B2C segment using express cold chain service providers will encourage players in related industries to also penetrate this segment.

Technological Adoption

- There are various technological advancements in cold chain management to help monitor and maintain products' freshness.
- With more customers concerned about the quality of goods delivered, most cold chain logistics providers have been adopting track and trace systems. Also, there may be more systems to ease cold chain operations in the future.

Eco-Friendly Cold Chain Logistics

- Greenifying and reducing GHG emissions in operations, such as reducing energy consumption by using electric vehicles, using environmentally-friendly refrigerant or alternatives, investing in smart systems to reduce energy and refrigerant consumption etc.

Challenges

Temperature Management

- Temperature mis-management may occur and cause damage to product, as close monitoring of temperatures is needed when transporting perishable goods using cold chain logistics in order to maintain the quality of the products, especially pharmaceutical products and vaccines.

Low Differentiation Among Competitors in the Industry

- Due to the nature of this business, services offered have low differentiation, leading business operators to intensely compete with quality and price of services.

High Entry Barrier due to High Investment Costs

- To enter this industry, potential operators must invest in expensive infrastructure and resources with high quality standards, which might limit some potential investors with insufficient investment capital to penetrate the market.

Increasing Variable Costs (Fuel, Drivers)

- Inflation and political issues have affected operation costs such as fuel. Also recently, Thailand approved policies to increase minimum wages, which affected cost of drivers.

Opportunities

- Players in the market can expand their services to the B2C segment to capture the demand.
- More investment in technologies to develop cold chain management and provide tracking and traceability systems for customers.
- Greenifying or turning the business to be more eco-friendly in order to strengthen the companies' brands towards sustainability.
- Collaboration or joint ventures with logistics and/or storage providers to establish cold chain logistics and integrated cold chain solutions.