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Revision and Improvement of Supply Chain Management and Channel Network for Food Service

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ABSTRACT

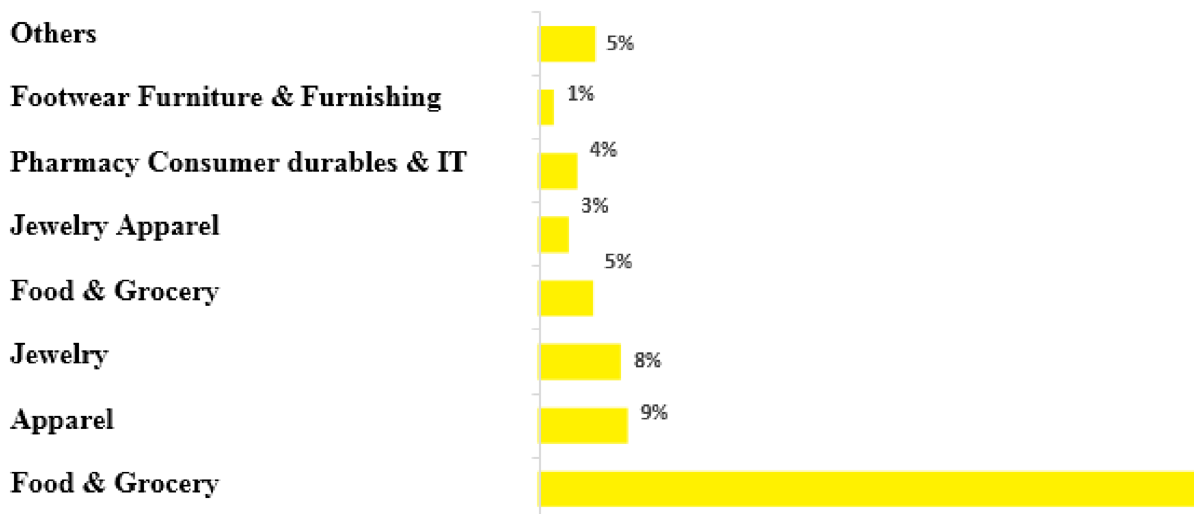
This paper explores ways of improving transportation and supply chain management within the food processing and food Service Industries. It involves the concept of lean tools, transportation model and supply chain management in the food industry. Consistent supply of quality raw material for food industry is missing with improper handling and transportation systems with chances in loss of productivity. In today's competitive market, it is extremely difficult to successfully produce high quality, low cost products without any other extra cost of suppliers. A supply chain management is an integrated network including people, organizations, information, activities and resources. Supply chains management must be able to accommodate uncertainty and variation of supply because these are vital factors that affect supply chain performance. In supply chain management information sharing system is most important for batter performance. This paper represents the ways to reduce in lead time using lean tools and supply chain management. Distribution and marketing channels play a critical role in connecting the consumer to the food supply chain. The transportation of goods and marketing channels can reduce their impact and provide an important contribution to improving the overall supply chain efficiency and effectiveness. Overall, transportation contributes significantly to global greenhouse gas (GHG) emissions with carbon dioxide emitted through the burning of fuels in vehicles. Food distribution, retailing, and restaurants contribute to the overall environmental burden of the food supply. Like-Subway restaurants provide a fresh quick service option to consumers across 100 countries.

INTRODUCTION-

A non-segregated making network that typically includes- people, firm, movement, information, and assets are known as Supply chain management (SCM). Supply chain management is more important in the food processing industry because timing plays a vital role in productivity with high quality, lowcost, and limited resources of raw material. Achieving a high quality of finish product needs high quality of raw material in a safe condition and also within time in the food processing industry, Supply chain management facing a problem in food processing industry like inconsistencies which occur in supply chains that make a problem for the industry to be consistent. Irregularity and unreliability create risk and may destroy profitability for the parties involved in supply chains. Irregularity in the food processing industry occurs due to different factors like transportation, social, financial, and physical linkages across the chain.

The Indian retail market is one of the fastest-growing markets in the world. Thanks to the economic growth the country is currently experiencing and is expected to reach €926 billion by 2020. Looking at the Indian retail market structure illustrated below, one can observe that the Food & Grocery (FG) category is expected to capture 66% of the total retail sector by 2020.

Expected retail market FY 2020[1]



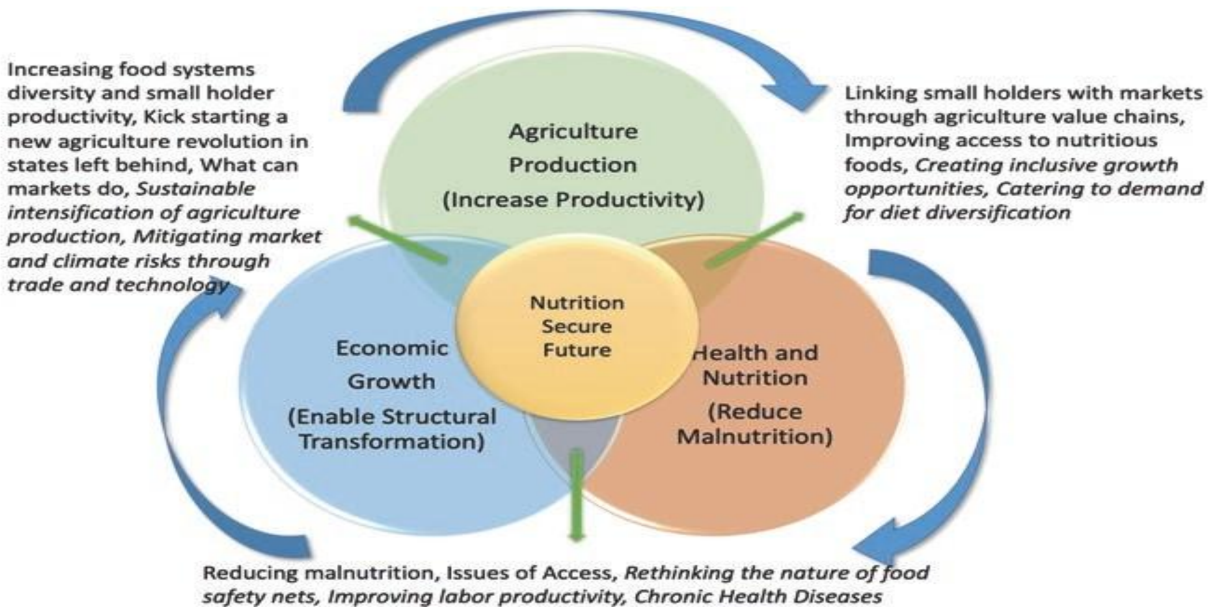
In Indian Retail, there is a strong distinction between organized and unorganized retailing. The unorganized sector is dominated by the Kirana ("mom-and-pop stores"), general stores, street markets, and convenience stores whereas the organized retail encompasses department stores, gourmet stores, supermarkets, and hypermarkets, and e-commerce retailers. However, the organized retail sector only accounted for 9% of the total retail sector in 2017, valued at €48.6billion.[1]

Formats	Description	SKUs offered		Store Size (sq.ft)	Major Players
Unorganized Retailers					
Kirana (Mom & Pop) / General Stores / Convenience stores	A neighborhood store which stocks small quantities of everyday use items	2,000 5,000	to	1,000 to 10,000	Individually owned stores Neelam Foodland Rakhangi (*stand-alone stores)*
Organized Retailers					
Supermarkets	In-city store selling predominantly food and household products	20,000 to 50,000		20,000 to 50,000	RelianceSuper Aditya Birla Retail Spencer'sDaily Big bazaar
Hypermarkets	A one-stop-shop, offering a wide selection of products and services, generally located on the city periphery	80,000 125,000	to	100,000 to 250,000	RelianceMart Aditya Birla Retail HyperCITY TrentSpencer's
Gourmet stores	Offer limited width and high depth of products with an emphasis on quality	2,000 4,000	to	1,000 to 10,000	Godrej'sNatures Basket Foodhall

Agricultural production and nutrition through the lens of a "food systems approach (FSA)"-[2]

A traditional FSA looks for opportunities to strengthen the linkages between agricultural production and consumption to strengthen nutrition access for individuals and households.

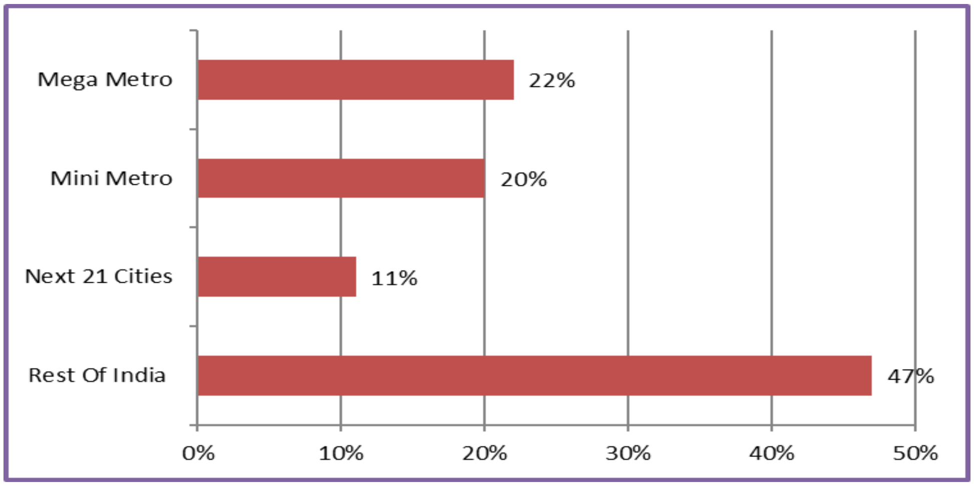
The motivation of our FSA model is to expand both opportunities to strengthen nutrition access and to enhance the capabilities of individuals so that they can access new opportunities in ways to increase their welfare. The creation of new opportunities and capabilities for increasing farm production and productivity, reducing malnutrition and improving labor productivity, and facilitating greater structural transformation that is also inequality reducing are the main goals of the approach.

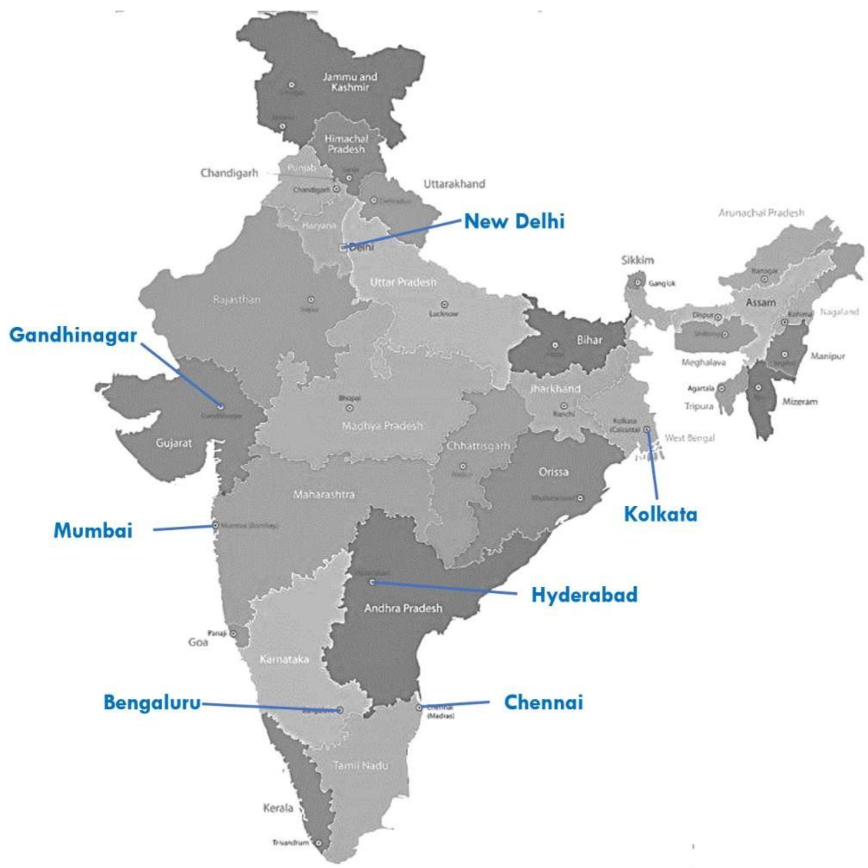


Food Service Industries-[3]

India is booming with food joints. New restaurants are constantly coming up. Whereas a decade ago, eating out is a high-flying feature in an Indian's life, over the years, due to changing consumer patterns, eating out has gained momentum. Online ordering, home delivery, cashback facilities, reward points, and heavy discounts summarize the current delights that restaurants offer to the consumers. By2021, the restaurant sector will contribute almost 2.1% to the nation's GDP witnessing a CAGR of 10%.

The top eight cities in India have been the major center of development, especially for the organized Food Services. The two Mega Metros, Delhi and Mumbai, contribute a total of 22%(11%each) to the Food Services market. The 6 Mini Metros (Ahmadabad, Pune, Chennai, Kolkata, Bangalore, and Hyderabad) constitute around 20% of the Food Services market, while the rest of the contribution comes from the upcoming 21 cities along with the rest of India.





The Food Services Industry is classified into two segments: organized and unorganized based on the following three key parameters: accounting transparency organized operations with quality control and sourcing norms;

Outlet penetration.

Some Facts of foodservice industries-[4]

The organized standalone market share in the total Food Services market is projected to rise to 29% in 2022 from 24% in 2017; In the case of independent restaurants (in hotels), the market share is estimated to remain constant at 3% till 2022. However, this segment is still expected to grow at a CAGR of 9% from 2017 to 2022. The casual dining restaurants which have around 61% of the organized standalone market share are growing at a CAGR of 16% to reach 66% by 2022 followed by QSR's growing at15%.

The chain foodservice market is expected to grow at a CAGR of 21% by 2022.

Among organized hotels and restaurants, opportunities are typically for foods or ingredients that are not readily available in India. Among four and five-star hotels, casual and fine dining restaurants, imported food, and ingredients are typically limited to products that cannot be sourced in India or products which cannot match the imported quality. Imported products primarily include wine, other alcoholic beverages, dairy products, meat, seafood, fruits, frozen French fries, sauces, seasonings, drink mixes, and food ingredients. Trending international cuisines in India would include Italian, Thai, Japanese, Chinese, Mexican, and Spanish.

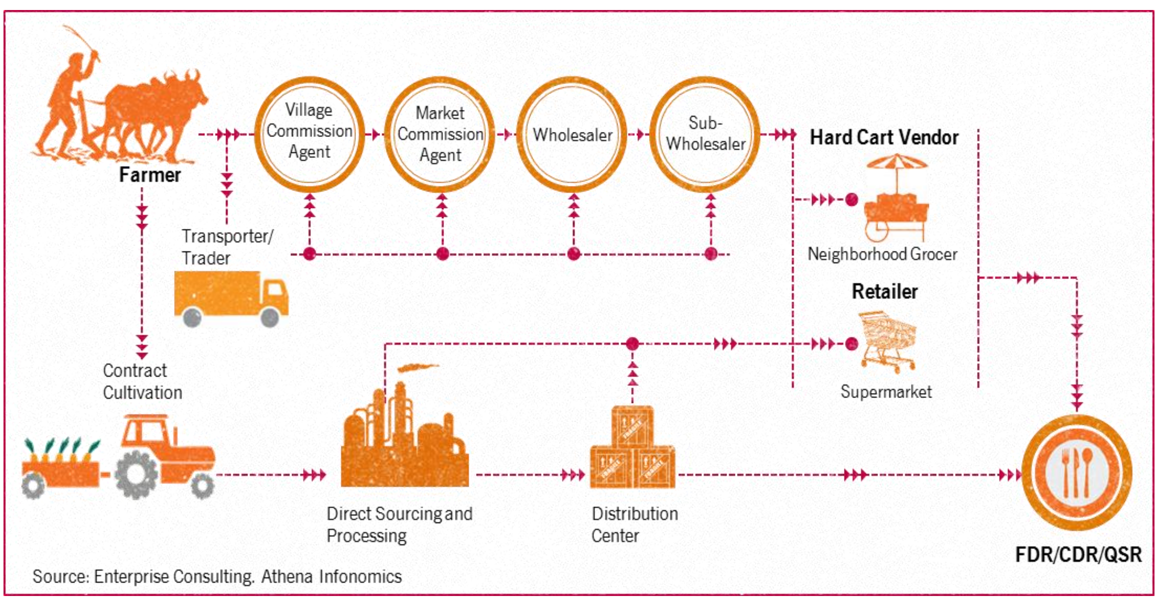
Food Service Market	Market Share			CAGR		Overview
	2013	2017	2022 P	2013-17	2017-22	
Unorganized Market	70%	66%	57%	6%	7%	Largely the roadside eateries and smaller food joints. Average spend per person: €1.5-and below (approximately).
Organized Market	30%	34%	43%	11%	16%	Standalone restaurants across all formats with less than 3 outlets + chain format which has 3 or more outlets across all formats like – Quick Service Restaurants (QSR's), Pubs and Lounges, Premium and Casual Fine Dining. Average spend per person: €2 to €40 and above (approximately).

E-Commerce and On-Line platforms-

Top Players (F&B)	B2C	B2B	Cities covered	Private label	Product Categories
Grofers	Yes	No	All Major Cities + tier-II cities	Yes (in the future)	Fresh Processed HomeCare
Amazon	Yes	No	All Major Cities + tier II + tier III cities	Yes (in the future)	Processed HomeCare Fresh (in the future)
Big Basket	Yes	Yes (in the future)	All Major Cities + tier-II cities	Yes	Fresh Processed HomeCare

Supply Chain in the Sector- traditional Setup[5]

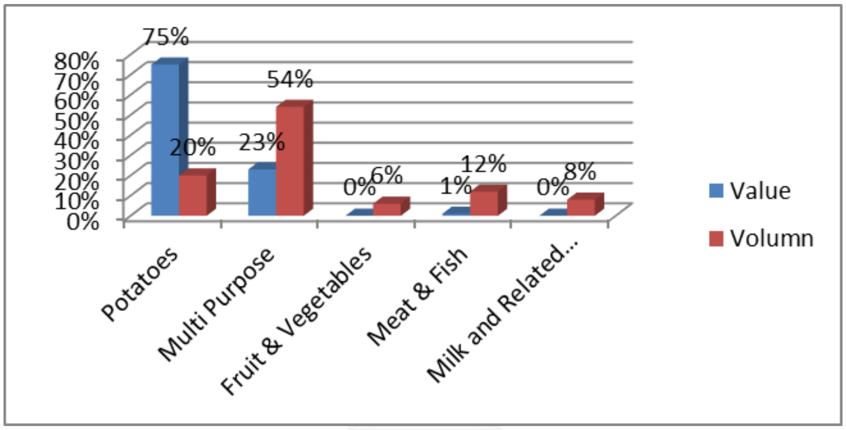
While the supply chain is dominated by the traditional set up of traders and intermediaries, a lot of venture capital and private equity activity has been taking place in developing strong food supply chains with the modernization of cold storage and transformation, While the supply chain is dominated by the traditional set up of traders and intermediaries, a lot of venture capital and private equity activity has been taking place in developing robust food supply chains with the modernization of cold storage and transportation.



Changing Trends of SCM- Cold Storage-

The current cold storage capacity of ~30 million tonnes in India, is dominated by storage facilities for potatoes, Fruits & vegetables, meat, and fish, dairy followed by multi-purpose cold storage facilities. While potato cold storage is high in volume, it is low revenue-generating. In contrast, multi-purpose storage capacity is low in volume but high in revenue generation. This increased the focus towards the multi-purpose cold storages total).

Current capacity Utilization (% Total) by Value and Volume[5]



There are 6,000 + total cold chain storages (which are mostly temperature-controlled facilities) in India, with 95% of them under private players. Also, 50%+ of the total is below 1000MT

KEY OPPORTUNITY:

The demand for cold storage is expected to grow to 47 million tones as the food sector (retail and service) is getting organized with support from Government initiatives on the back of demand for processed & frozen food.

133 million tons of milk produced in FY13, but cold storage capacity is only available for 70,000-80,000 tons of milk. As 20%-30% of fish production is annually wasted in India. It offers an opportunity for too cold storage business to play a key role in reducing wastage. 25,000 unregistered slaughterhouses are present in India, which generally lacks, chilling facilities. Since the concept of eating out and packaging food is growing, there is a huge opportunity for cold chain companies to match consumer demand.

KEY CHALLENGES OF SCM:

-While, implementation of FSSA in August 2012 is a positive step and needs to be more effective, the cost of compliance is evolving and is expected to be high at the transaction level. This has been one of the serious concerns in the industry.

-The current infrastructure is poor and the operating procedures followed needs improvement for the industry to evolve as a critical linkage.

-As this is a nascent industry in the course of growth, the availability of skilled manpower is a challenge as it is a specialist's job that requires training and sensitizing them on various aspects of food handling. There is a shortage of blue-collar staff, particularly drivers, who can drive refrigerated vehicles.

Initiatives are taken by Indian Government-[5]

100% FDI and Excise Benefit	FDI allowed through automatic route Excise waived on F&V, meat preparations, ice cream, and other RTE food mixes
Infrastructure Status	In the Annual Budget of 2011-12, the cold chain has been given infrastructure status. Priority lending status for cold-chain
Viability Gap Funding	Up to 40% of the cost
Monetary & Tax Benefits	5% concession on import duty, service tax exemption, excise duty exemption on several items. Subsidy of over 25% to 33.3% on cold-storage, project cost
National Centre for Cold Chain Development	Established in 2011, to look into matters related to cold chain infrastructure
Growing Emphasis On Food Parks & Integrated Cold Chain Development	Proposed financial outplay for cold chain infrastructure & Mega Food Parks of around INR 1,675 CR & INR 3,250 CR respectively Capital subsidy to the tune of 50% of the capital cost of the project. Around40 Food Parks and over 100 cold chains to be set up in the country

Modern ways Supply Chain management- Backward Integration:

The generic value chain of the food processing industry from raw materials to retail to the consumer is shown below. Traditionally, different players across the value chain played different roles and worked more or less independently.

Recently, the trend has been towards increasing integration and partnership with all the players in the value chain, to acquire mutual benefits. Such integration is being driven by the manufacturers, who are looking to integrate backward and establish linkages with both raw material producers (farmers) and aggregators/logistics providers.

These links have led to two new models emerging in the sector

Contract Farming and Terminal Markets details are bellowed:

CONTRACT FARMING:

Is an agreement between farmers and cooperative firms for the supply and production of agriculture goods, under predefined agreements and price, As noted agriculture is successful for a very long time, but these days farmers are facing a new problem of accessing the market and fully achieving profitability, to reduce this issue contract farming was introduced in the market, to maintain the profit balance for farmers and corporations.

It is a detailed partnership contract between farmers and processing companies, where the farmers are required to supply the agreed quantity and the quality of the crops in a specified period. As well as in return the cooperative company agrees to buy the produced crop from the farmers at a predetermined price on which they both have agreed to make the deal mutually.

Objective of Contract farming:

✓ This also helps farmers in generating a permanent source of income for every farmer.

✓ It also generates employment opportunities in rural areas, farmers are getting paid for working on the field, and for many other agricultural works.

✓ It reduces the load on central and state-level occupation systems.

✓ With the help of contract farming, the investments of the private sector in agriculture are also increasing.

✓ It also brings the market focus of crop selection by Indian farmers.

✓ This overcomes the relocation level in India of rural people who shift to urban areas due to the condition of unemployment.

✓ Majorly objective to provide a farmer a risk-free regular income.

✓ Contract farming –Why important in India-

✓ Due to contract farming, the risk of farmers is reduced by 80% whenever there is a pest attack, production got destroyed by rain and because of any other reason the company will bear it not the farmers, they will get their compensation hence 0% risk.

✓ The best part of contract farming is that there is no middleman in this contract the farmers will get to pay at the market selling price.

✓ Contract farming was introduced for the benefit of the farmer so they can get reasonable profits from their production.

✓ It is important to set a predefined amount of production, to be paid to the farmers.

✓ Through Contract Farming the farmers get seeds and proper pieces of equipment to produce the crop or farming with advanced technology.

Through Contract Farming the farmer’s knowledge increases and their production market value increases.

In India majorly our farmers are facing challenge like-The contract farming is more beneficial for large farmers in terms of production so the small earn less profit in comparison to large farmers, fundamentally In India there are no strict rules and regulations regarding the fulfillment of the contract, which fails the contract. The farmers are many in comparison to corporate buyers. This results in a monopoly due to a lack of buyers.

In the course of contract farming, farmers get to know about the record-keeping, efficient use of farm resources, and correct method of using the fertilizers, when they gain information about exporting the production they gain experience in how to deal with buyers.[6]

Quantity- Specifying the amount of product that is to delivered by farmers

Quality – The quality level of the product Farmer will produce for Organization.

Price – The fixed amount of price for the crops to be paid by the organization.

Value Add on by Contract farming-[6]

- Because of Contract Farming there is a guaranteed market for farmers, which increases their ability to produce.

- For best production company provides farmers good quality products, such as breeds and best advisors to give efficient advice to the farmers.

- It reduces unemployment in the rural area more and more farmers are getting paid and living a good lifestyle because of contract farming.

- Contract farming help in increasing the economic value of our country among other countries.

Basis	**Farmers**	**Companies**
Guarantee	Guaranteed market and return.	Form Long term commitment.
Risk Elimination	Security from the price fluctuation.	Security from the market price fluctuation.
Benefits	Increase in employment opportunities.	Increases the goodwill of the company.

Some Major organization purchasing raw material manage by contract farming-

- ✓ Baidyanath contract farming
- ✓ Aloe vera contract farming companies in India
- ✓ Dabur contract farming
- ✓ Patanjali Contract farming
- ✓ Coca Cola
- ✓ Tulsi contract farming, etc…
- ✓ Key elements of PepsiCo's success-[7]
- ✓ Core R&D team
- ✓ Unique partnership with local agencies including a public sector enterprise

✓ Execution of technology transfer through well-trained extension personnel Supply of all kinds of agricultural implements free of cost to contracted farmers

✓ Supply of timely and quality farm inputs on credit

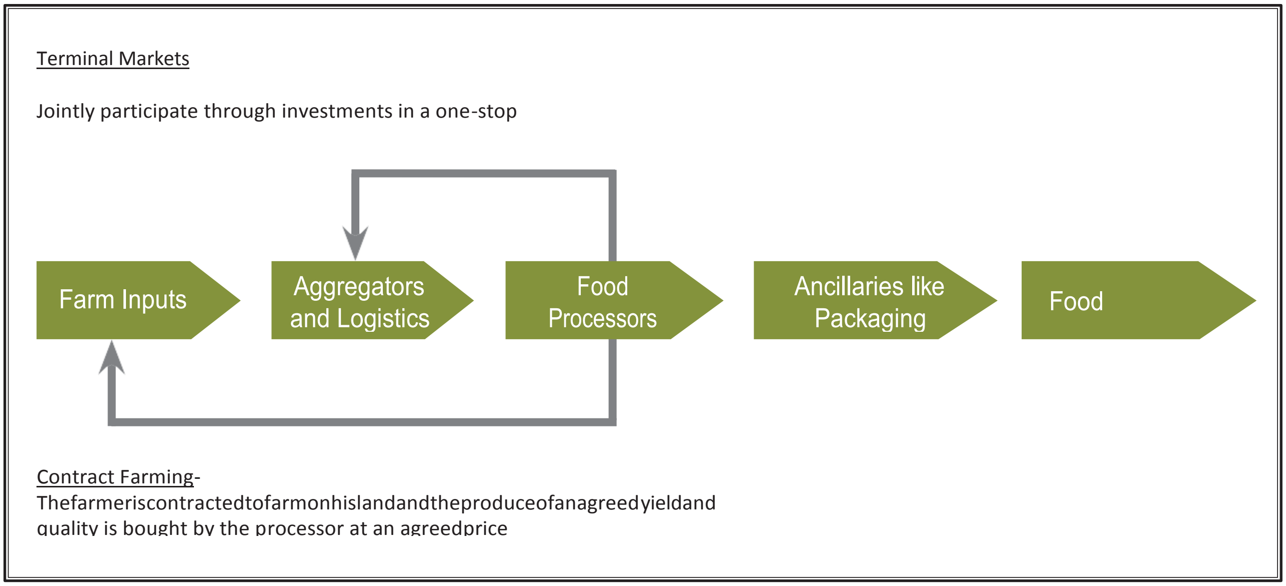
✓ Prompt dispatch/delivery/procurement of the mature produce from every individual contracted farmer through the system of 'Quota Slips'

✓ Effective adoption/use of modern communication technology like pagers for communication with field executives

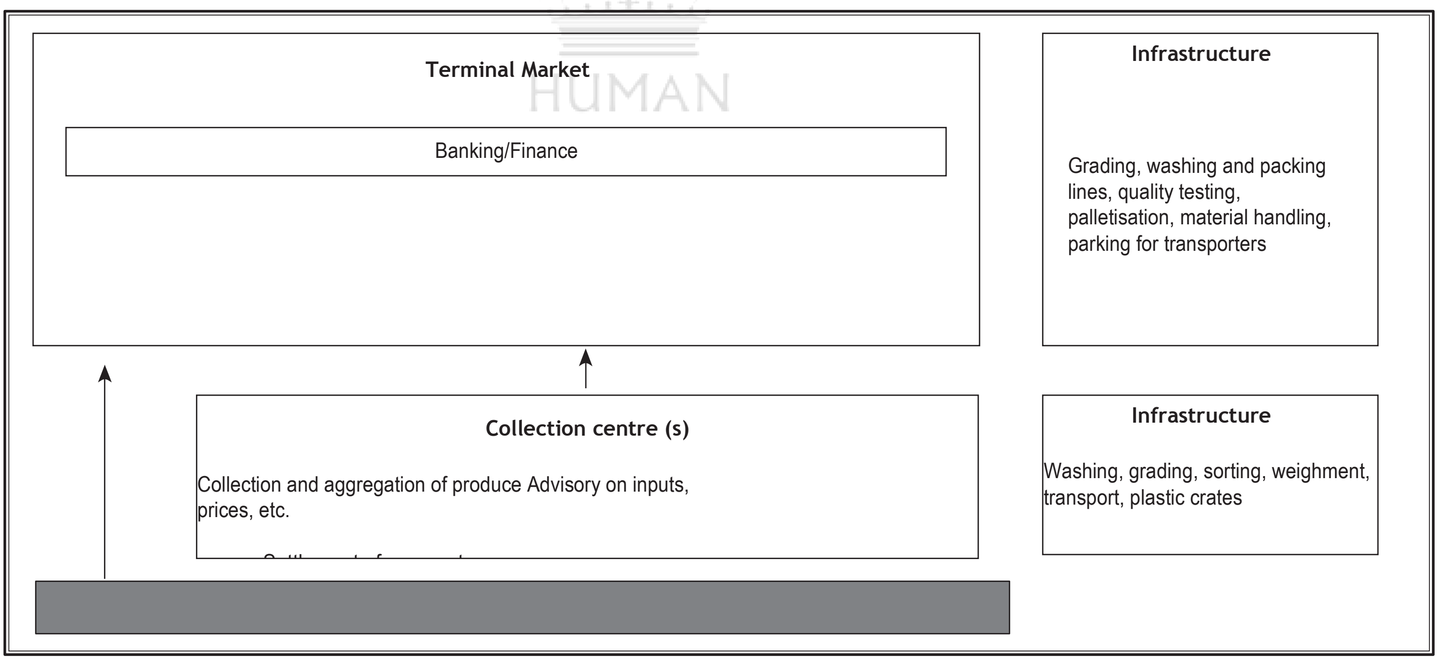
✓ Regular and timely payment to contracted farmers through computerized receipts and a transparent system

✓ Maintenance of perfect logistics system and global marketing standards.

Terminal Market- A Terminal market is a central site, often in a metropolitan area, that serves as an assembly and trading place for agricultural commodities. Here there are different options for disposing of the produce. It can either be sold to the end consumer, or the processor, or packed for export, or even stored for disposal at a future date. It thus offers different options to farmers under a single roof. Typically, terminal markets operate on a hub and spoke model where the markets form the hubs and are linked to different collection centers that are located close to the production centers. The typical value chain structure for a terminal market, as well as the key activities and corresponding infrastructure requirements at each level, are depicted in the figure below:



The Government of India is looking to promote terminal markets, as a means of integrating domestic produce with retail chains. There are plans to set up such markets in eight cities across five states, for US$ 131 million. The cities being considered are Mumbai, Nashik, Nagpur, Chandigarh, Rai, Patna, Bhopal, and Kolkata.[8]



Sales	E-Auctions	Storage
Trader/Processor/		Warehouse
Retailer/Exports		Cold Storage
		Ripening Chamber

Growing Trends of Channel Partners in Business Development -

While organized business continues to grow will provide to develop big retail channels, for selling products and also emerging as a major competitor to FMCG distribution.

FMCG companies today are staring at a major distraction in their distribution model. Other than some basic technology interventions to track primary sales, and in some cases, secondary sales, very little changed over the decades.

Products go from brands' manufacturing facilities to their Distribution Centre (DC), on to C&F agents in each state, on to the hundreds of Distributors (DB) in that state, and finally on to the retailers, where consumers/shoppers purchase them. The primary reason for the lack of change is the more or less static retail environment we have seen –close to 90% of retail even today is dominated by traditional outlets, or what we call General Trade (GT) in India, this was as high as 98% till a decade or so ago.

Traditional Distribution pattern

Distribution (1950 to 1980) traditional distribution model elucidated above and very little changed in the model.

Distribution (1980 – 2000) this was the period of small tweaks, where a) Company Sales representatives were transferred to the Distributor for better supervision and management, called Distributor Sales Reps (DBS Rs). Moreover, some leading companies starting to divide the sales teams into category teams, still primarily serving the General Trade, to focus on each category & SKU. b) We also saw leading FMCG companies adopt technology to track primary sales at both the distributor and branch level.

Distribution (2000 – 2018) This has been the period of major changes as under Wider adoption of technology to track inventory & sales (primary and secondary) through the implementation of Dealer Management Systems (DMS) and Sales Force Automation (SFA)

Launch and rapid growth of Modern Trade (MT) from 2000 onwards, followed by e-commerce in the last five years.

FMCG companies outsourcing their Sales Reps to third parties to reduce complexity for GT coverage, while also deploying Sales promoters in-store to engage with end consumers/shoppers to improve the shopping experience.

GST rollout in 2018, which for the first time allowed manufacturers to view India as 'One Market' and adapt their distribution networks accordingly, doing away with the C&F agents and consolidating distributors.

distributor, increasing complexity of FMCG business due to increasing categories and skills, increasing competition for shelf space in GT, the rise of private labels, and the rise of new distribution "aggregators", are impacting the traditional distribution model. Thus, distributor churn is increasing rapidly, and as per our research, this can range from 15-30% annually. It is also becoming increasingly difficult to replace existing distributors as the distributor community continues to shrink. This is likely to have a major impact on brands' ability to increase (or even maintain their direct distribution or coverage.)[9] Also, SalesForce turnover (across all levels, and especially at the field sales level) is increasing, and our research shows that it can be as high as 30-40%, annually. This is due to stiff competition from a new-age business like e-commerce delivery, food-tech companies, mobile phone retail, electronics and apparel retail (single and multi-brand outlets), QSRs, Jewellery chains, MT chains, etc. This is making it very challenging for FMCG companies to recruit and retain salespeople, putting further pressure on their model and margins.[9] Finally, increasing channel conflict on pricing, discounts, and range between GT, e-comm and MT is increasing pricing and margin pressure on FMCG companies as they juggle their volume growth ambitions with prices and margins, While the end consumer may be benefitting in this conflict through lower prices, the pressure on margins across the value chain continues to grow.

CONCLUSION AND SUMMARY-

Supply chain management is the management of the flow of goods and services and includes all processes that transform raw materials into final products. It involves the active streamlining of a business's supply-side activities to maximize customer value and gain a competitive advantage in the marketplace.

SCM represents an effort by suppliers to develop and implement supply chains that are as efficient and economical as possible. Supply chains cover everything from production to product development to the information systems needed to direct these undertakings.

How Supply Chain Management Works, Typically, SCM attempts to centrally control or link the production, shipment, and distribution of a product. By managing the supply chain, companies can cut excess costs and deliver products to the consumer faster. This is done by keeping tighter control of internal inventories, internal production, distribution, sales, and the inventories of company vendors.

SCM is based on the idea that nearly every product that comes to market results from the efforts of various organizations that make up a supply chain. Although supply chains have existed for ages, most companies have only recently paid attention to them as a value-add to their operations.

In SCM, major aspects of the supply chain-

The plan or strategy, The source (of raw materials or services), Manufacturing (focused on productivity and efficiency), Delivery and logistics, The return system (for defective or unwanted products)

The supply chain manager tries to minimize shortages and keep costs down. The job is not only about logistics and purchasing inventory. Improvements in productivity and efficiency go straight to the bottom line of a company and have a real and lasting impact. Good supply chain management keeps companies out of the headlines and away from expensive recalls and lawsuits.

Supply Chains

A supply chain is the connected network of individuals, organizations, resources, activities, and technologies involved in the manufacture and sale of a product or service. A supply chain starts with the delivery of raw materials from a supplier to a manufacturer and ends with the delivery of the finished product or service to the end consumer.

SCM oversees each touchpoint of a company's product or service, from initial creation to the final sale. With so many places along the supply chain that can add value through efficiencies or lose value through increased expenses, proper SCM can increase revenues, decrease costs, and impact a company's bottom line.

KEY TAKEAWAYS

Supply chain management (SCM) is the centralized management of the flow of goods and services and includes all processes that transform raw materials into final products. By managing the supply chain, companies can cut excess costs and deliver products to the consumer faster. Good supply chain management keeps companies out of the headlines and away from expensive recalls and lawsuits. On the demand side, a lot of new retail channels are emerging that are disrupting "Where" and "How" shoppers are shopping. We have seen the growth of modern trade in the last decade, e-comm/online retail in the last 5 years, and now hyper-local delivery models like "Click & Collect", etc.

Today, however, the time tested FMCG Distribution model is seeing massive disruption and this is likely to continue if we go by what has happened in other emerging markets like Central Eastern Europe, Russia, SE Asia & China.

On the supply side, factors like changing aspirations of distributors, changing role of modern trade as

In the last 5 years ad spends in India have grown 12-15% CAGR, with digital growing upwards of 30% CAGR. For the FMCG players especially who've have been big spenders overall, traditional media has been holistically evaluated, but robust sales ROI measurement for digital spends has been lacking.

Custom mix modeling kind of app help organization help to calculate the ROI on digital platform, or its looks at the impact of media platforms on sales, and provides digital ROI insights.

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