

BASIC CONCEPTS OF SUPPLY CHAIN MANAGEMENT TAKING CASE OF MUMBAI TIFFINWALA AND IMPACT OF LOCKDOWN

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Abstract

In the past four decades, the supply chain has changed significantly. There has been a significant paradigm shift in the Management of modern business; that is, the individual companies no longer compete as a single autonomous business, but as a supply chain. So the final goal of the company is to deliver the customers with the best possible experience with the help of coordinated finances, products, information that flows using the latest technology. So there is a need for best supply chain managers who have in-depth knowledge and can make use of information technology-enabled systems to extend its customers and suppliers with the best possible solutions. This paper critically examines the need for the supply chain management. A detailed literature survey reinforces the goals, importance, and need for the supply chain management. A case study was done on how the famous ‘Tiffinwalas’ are able to deliver meals using efficient supply chain management, thereby reducing the cost. Additionally, the paper throw light on the impact of Covid-19 pandemic on Mumbai Dabbawala.

Keywords— Supply chain, Supply Chain Management, Tiffinwalas case study, Information Technology

Introduction

In the today's international market where competition is increasing day by day, the products are getting added with shorter shelf life, and the increase in expectations of the users has forced the big business to invest in and sharpen attention to the relationship with customers and suppliers. Supply Chain Management is getting increased attention due to the development of Information Technology (IT) that has allowed the frequent exchange of a large amount of data necessary for coordination purposes. As the Supply Chain improves, it results in boosting customer service, reduces operating costs, increases leverage in profit since supply chain managers assist control, and reduces the value of the supply chain, which delivers sweeping increase in business earnings. But Supply Chain Management faces these issues majorly

1. The globalization of manufacturing operation
2. To ensure the safety and quality of products.
3. Get access to the latest technology to improve customer service and cost control.

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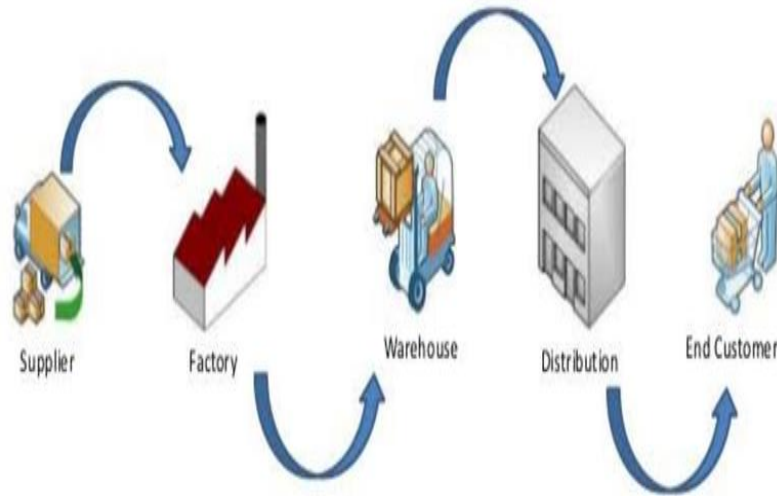
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4. Supplier and partner relationship management

5. To find qualified and interested Supply chain leaders with a crucial understanding of duties.

In trade, supply chain management (SCM) is regulator of the flow of services and products, involves moving and storing raw materials, inventory of work-in - process and finished products from the point of origin to the end consumer [1]. Oscar Gomes in year 1982 first time gave the term "supply chain management" publicly in an interview for the Financial Times [2].

Supply chain management's primary goal is to coordinate the different parts of the supply chain from providing go raw materials to supplying or repackaging products while attempting to minimize the costs of current chain partner's conflicts. These disputes may include the interrelationship between the sales department that needs to provide more inventory rates to satisfy demands and the warehouse that needs lower inventories to minimize keeping costs. So to solve such conflicts, the supply chain managers are required.



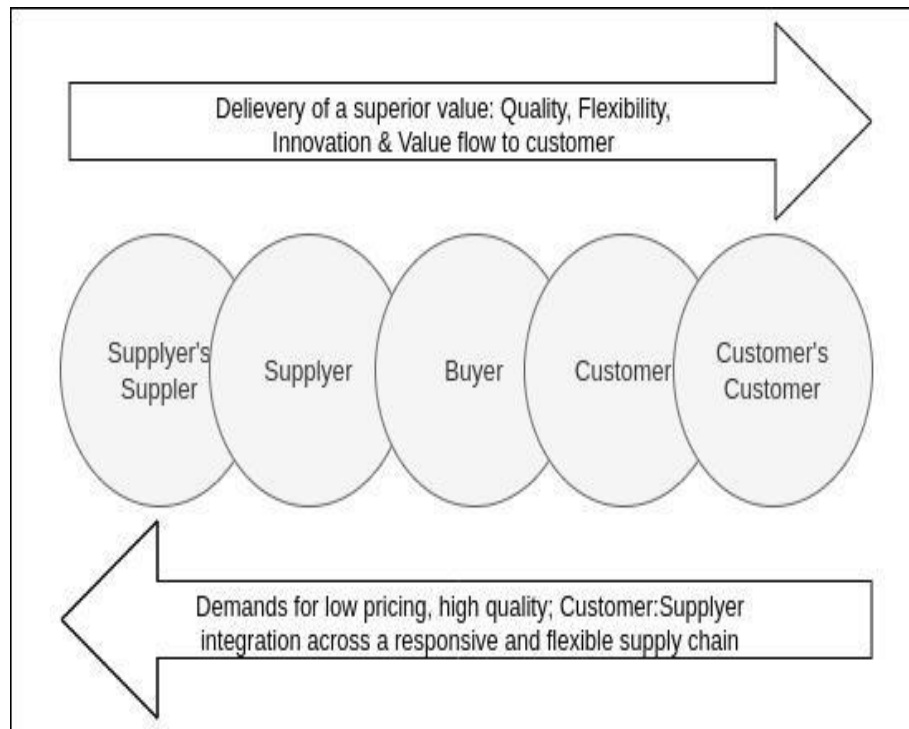
(Figure 1 : Generalize view of supply chain)

Supply chain management also deals with managing the supply chain between the producers and the consumers in a cost-efficient manner. Supply chain management is a method involving the control of the flow of raw materials into an organization, other components conversion into finished goods from raw material and delivering the finished good to end-consumer. When businesses seek to concentrate on core competencies to become more competitive, they are trying to reduce their influence on raw materials suppliers and delivery networks.. Such tasks are gradually outsourced to other companies who can more cost-effectively perform the activities. The consequence is to expand the number of companies engaged in satisfying consumer demand while lowering the oversight of day-to-day management logistics activities. Less influence and a higher number of supply chain partners contribute to the advancement of the supply chain management framework. Supply chain management aims to improve trust and cooperation between supply-chain stakeholders, thereby enhancing inventory visibility and product movement speed to achieve the desired quality.

I. LITERATURE REVIEW

As defined by Ellram and Cooper, supply chain management is - “An integrative way to deal with planning and control of the materials stream from providers to end-customers.” It directly focuses on the effective utilization of available resources and the profit of the involved parties along with customer satisfaction. The term ‘chain’ in the supply chain management actually means the network of the various involved parties. Several components such as globalization, hold users in progressively serious markets, reduction of time, etc. affect the supply chain management.[3]

Figure 2 represents an oversimplified supply chain.[4]



(Figure 2 : Oversimplified supply chain)

The term - “Supply Chain Management” used in various ways, but there are three main terminologies related to this term. First, supply chain management is used to denote the purchase and supply activities of manufacturers. Second, it is utilized to depict the transportation and logistics functions of the dealers and retailers. Third, it is utilized to depict all the worth including activities from the raw materials extractor to the end-clients, and including reusing. It should be no surprise, however, that in some cases the different terms overlap.[5]

A. SUPPLY CHAIN MANAGEMENT GOALS

Each company make an effort to match the supply with demand in proper time using its resources in an efficient way [15]. Here are the goals of supply chain management.

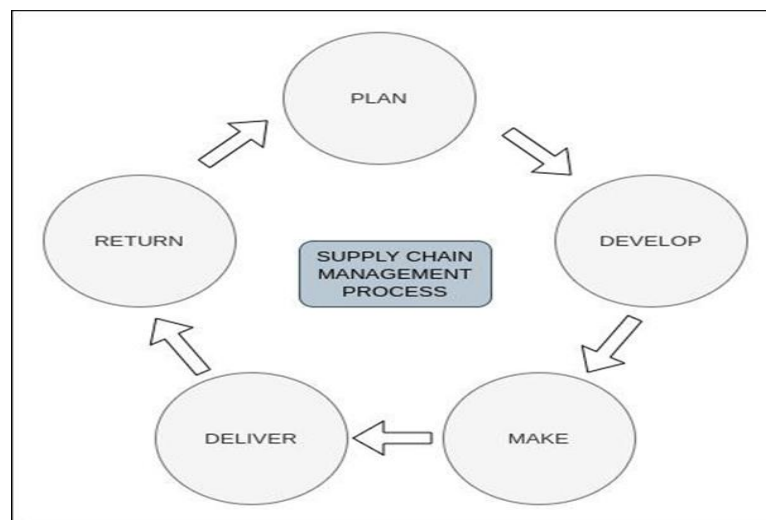
- To fulfil the demand of the right quantity at the right time with the right price maintaining the right quality.

- Minimize the expenses of supply chain mainly where there are economic uncertainties.
- Exceed customer expectation on a regular basis in order to satisfy the customer.
- Contributing to the success of an organization in terms of financial stability
- providing free flow of supplies, material and services which are essential for operation of enterprise.

B. SUPPLY CHAIN MANAGEMENT PROCESS

Supply chain management is a process by which organizations ensure the productive and financial effectiveness of their supply chain.

A supply chain is the collection of steps that a company adopt for conversion of raw materials into the final good. There are five basic steps which are adopted in supply chain management as mentioned in the figure below - [6].



(Figure 3 : Supply chain management process)

1. **Plan:** In supply chain cycle, the first stage is planning. Organizations require a strategy for management of resources for their goods and services to meet the demand of customer [13]. Organizations create a strategy or plan to address how goods and services meet customer's requirement and demand. In the stage of planning, a strategy is developed with the objective of profit maximization. The plan is made for optimum utilization of resources available for production of goods and services [14]. Supply chain management primarily focuses on preparation and development of metrics.

2. **Develop(Source):** The next step after planning includes developing or sourcing [12]. In this stage, organizations focus on developing good supplier relationship for smooth raw material supply for company.

3. **Make:** In this stage, the organization starts manufacturing process of goods and services offered. This stage includes activities such as production, quality control, packaging and distribution [9]. This is major part of supply chain which is metric-intensive where organizations measure the standard of quality, productivity and output.

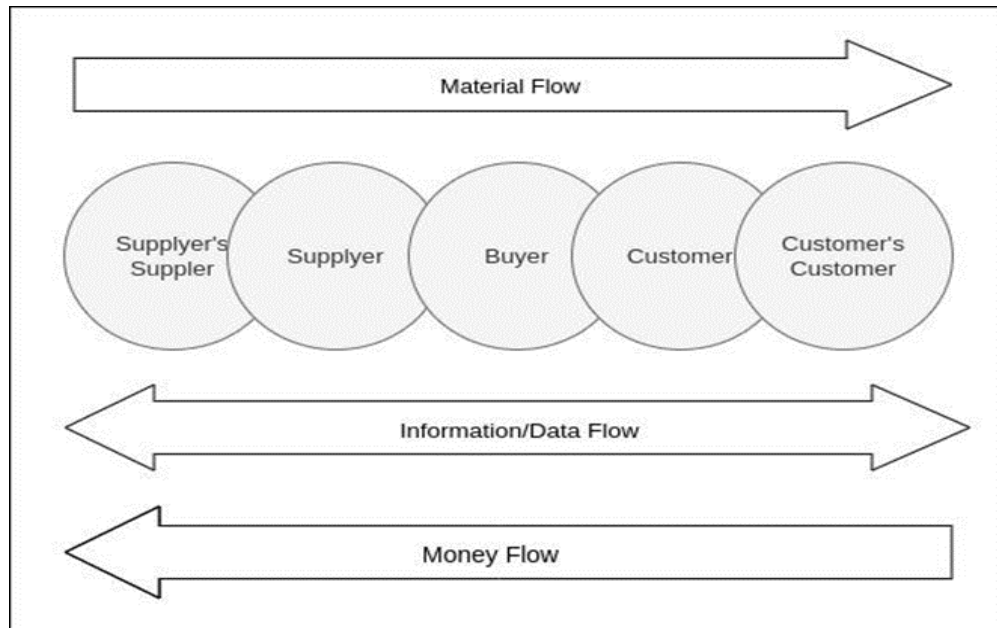
4. Deliver: In this stage, the product is delivered to the end consumer by supplier. This stage is essentially the logistics phase, in which customer orders are approved and the products are prepared for delivery [11]. The delivery stage is also referred to as logistics, where companies create a network of warehouses, select carriers to transport goods to consumers and set up a payment invoicing scheme.

5. Return: This is a reverse process of supply of good from consumer back to the company manufacturing it. This includes development of a network to get excess and defective goods back from consumers who no longer want the product received [10]. It also involves making refund of payment made by consumer.

C. SUPPLY CHAIN MANAGEMENT - PROCESS FLOW

The three kinds of flow in supply chain management are mentioned below:

1. Material or Product flow
2. Data or Information flow
3. Capital/ Money or fund flow



(Figure 4 : Process Flow in SCM)

1. Material Flow: This flow includes a smooth flow of material from manufacturer to end consumer. Thus, it involves the stakeholder such as warehouse, retailer, suppliers and manufacturers. The quicker the movement of of material, the smoother the low of SCM. Additionally, it also reduces the cash conversion cycle.

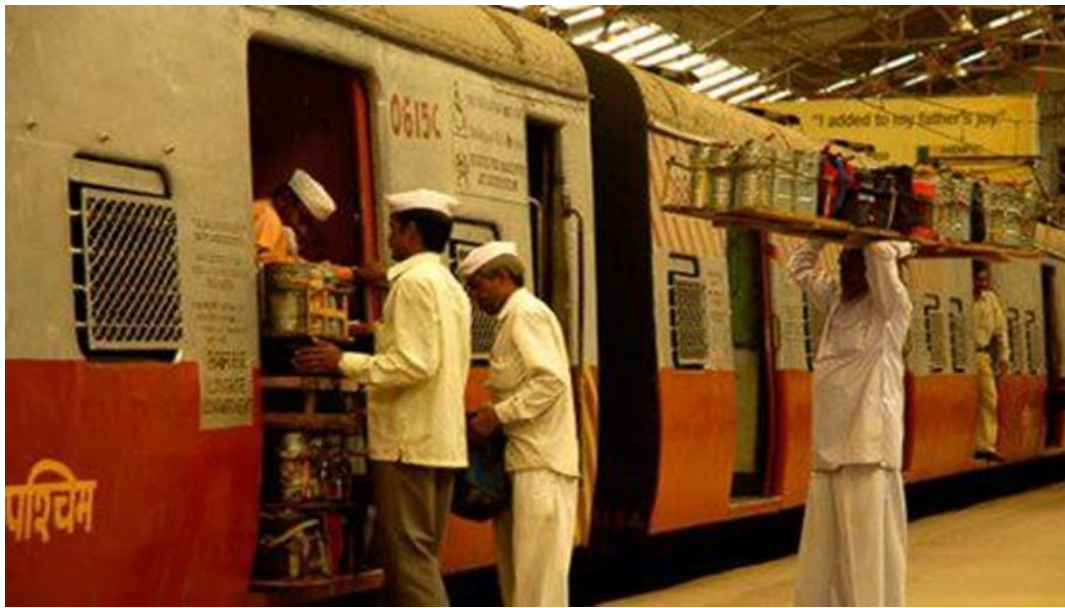
2. Information/Data Flow: In this, the information or data which is shared is demand for reports related to customer issues, product issues, monthly plans, purchase order and quotation request.

3. Money Flow: The customers evaluate the order for its validity on the basis of the invoice provided by the manufacturer. If there is no discrepancy in the data, the money will transfer/flow from customer to manufacturer. The payments or money transfer or flow can be in digital form also.

III. CASE STUDY

Mumbai is a city which provides employment to around millions of people and thus contribute around one-third of GNP of India. Thus, when such a large population works in one city, they face issues in travelling due to traffic and crowd. The connectivity to various areas in the city is proper via roads and local train both. But the crowded population travelling daily for job struggle for one thing i.e. home-made food at affordable price during lunch time. This need of people gave the opportunity for tiffinwala services in Mumbai [19].

Tiffinwala services got opportunity as booking tables for lunch in a restaurant daily in a city like Mumbai is both costly and inconvenient. And daily eating outside food which is spicy make people carve for a food which is homemade. This made working people of Mumbai to switch for Tiffinwala services which provides fresh and hot homemade food at offices during lunch time [20].



(Figure 5 : Tiffinwala unloading tiffins from train)

There are various service class people in Mumbai who travels long distance from their home to offices via local trains. Thus, they require to leave home early. In such situation if they prefer packing food in morning, then the food won't be fresh and warm during lunch time. On the other hand, Tiffinwala service provide fresh and warm food at office during lunchtime in offices at reasonable prices [21]. Additionally, they collect the empty tiffin boxes from the offices also.

The railway system of Mumbai is very efficient. Even there is a special train to carry tiffins to offices named tiffinwala special [19]. The tiffins are loaded and unloaded from train at respective stations (refer figure 5).

The tiffin service began in Mumbai in the 19th century. During that period, people were residing in new residential buildings constructed in the outskirts of the city. It was very difficult for the service class people to travel back home for lunch. Additionally, who would like to have a cold meal and when hot and fresh meal is available.

Thus, one Parsi banker identified it as an opportunity and provided employment to various people by starting tiffin services to provide fresh food to employees. Soon, various tiffinwala came forward and all were able to fetch customers. So, to avoid confusion, different tiffinwala services used different strings on their tiffin to identify their lot of tiffin. Over a period of time, they created an association named 'Mumbai Tiffin Box Carriers Association' in the year 1968 for the smooth functioning of all tiffinwala services [18]. Each tiffin servicewala was provided a separate area/locality of Mumbai to avoid interference.

The point of inspiration in the case of Mumbai tiffinwalas is their efficient supply chain management, smooth functioning from past so many years, consistent performance, efficiency and formal training which they provide to service providers.

Operation

There are thousands of tiffinwalas who provide services to lakhs of people in schools and offices of Mumbai. The daily routine of tiffinwalas is to pack meals of different dishes in tin containers, collect them from the homes of Mumbaikers and carry them to their offices during lunch time. And after lunch, the process is turned back. The best part is that food is always picked from home and dropped in offices at time. Every tiffin has a color code on top depicting its origin and destination. After picking the tiffins from home, they are carried to the nearest railway station. Tiffins are arranged according to their destination station. The timings of loading and unloading the tiffins in the local train is from 10.30 to 11.20. From the destination railway station, the tiffins are picked up by other tiffinwalas who ensure that the tiffin reaches the destined office location on time. These tiffinwala carry tiffin carriers weighing around 100 kg over their head driving a cycle. Tiffins are dropped in office at around 12.30 pm and again picked up from offices at around 2.30 pm. And the process is repeated the other way round to make tiffin reach its origin point.



(Figure 6 : Journey of tiffin)

The Code

It is mentioned above that every tiffin has a code on its top which is NXXXF where N depicts the number of tiffin given by the association, XX depicts the destination building and F depicts the floor of destination building [21].

The top of tiffin also contains a number which depicts destination railway station and a letter to depict the pickup station of tiffin. Thus, each tiffin has a specific code consisting of a flower or circle and a number.

For Instance : Code is “T-BO-10-12/A/10”

T	ID of Tiffinwala
BO	Borivali (Point of tiffin collection)
10	Nariman (Refers to specific location)
12/A/10	12th Building and 10th Floor

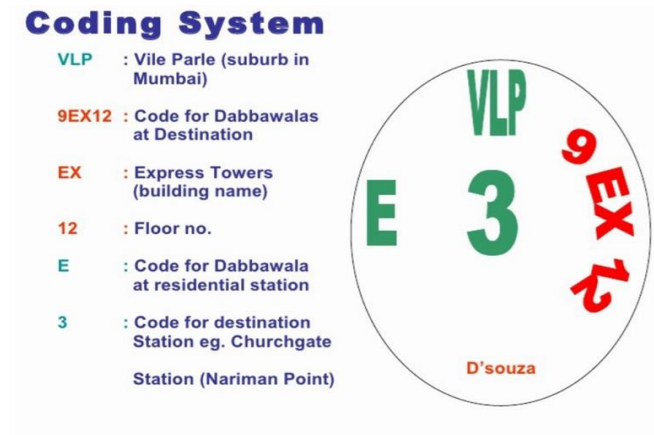
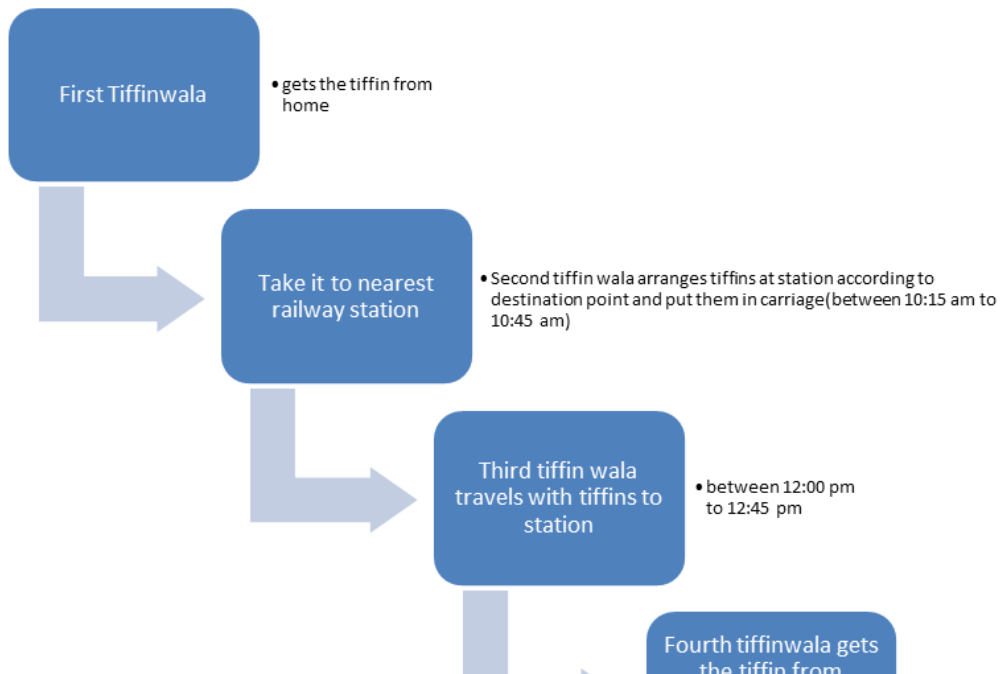


Figure 7 – Coding system used by Mumbai Dabbawala

Source - <https://www.henryharvin.com/blog/mumbai-dabbawalas>

Delivery Process



Six Sigma

Mumbai Tiffinwala got recognition in Forbes magazine in year 1998 by an article by Chakravatry and Kamall which focused on the efficiency of the delivery system of Mumbai Tiffinwala. According to article, Mumbai tiffinwala committed only one mistake in around 16 million deliveries i.e. 99.999999 % accuracy. The supply chain of Mumbai tiffinwala is quick and efficient irrespective of the traffic, literacy level of delivery boys and heavy rainfall in Mumbai. Thus, the process of supply chain of Mumbai tiffinwala is efficient round the year irrespective of heavy rainfall of mansoon or heat of summer. Additionally, the system is cost effective as its uses local train for travel and wooden carriage which are cheaper. Apart from this, the team member or group work in coordination with one another [17]. Also, they conduct monthly meeting to discuss issues faced by them. Additionally, the tiffinwalas are maintaining their own credit society also to help each other.

Goals of Six Sigma

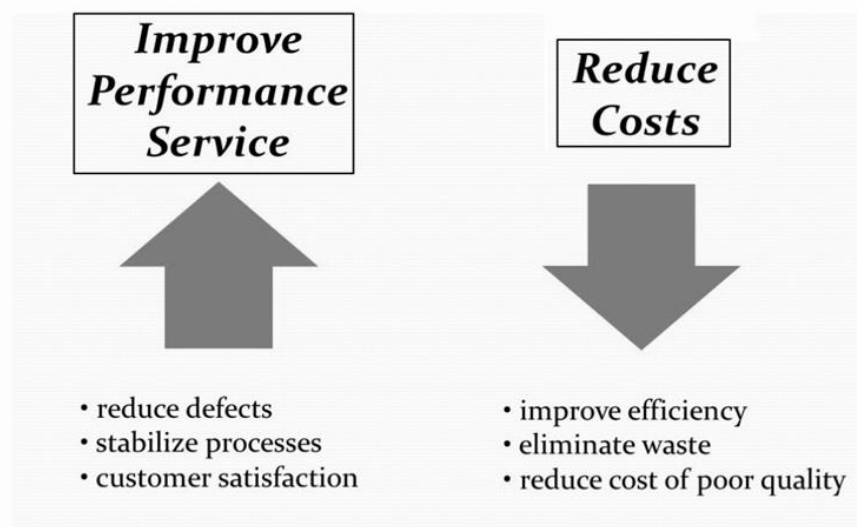


Figure 8 - Goals of Six-sigma

Source - <https://www.henryharvin.com/blog/mumbai-dabbawalas>

Figure 8 shows the objective of six-sigma which are covered in the supply chain management technique of Mumbai tiffinwala.

MUMBAI TIFFINWALA DURING COVID-19 LOCKDOWN

This venture is a 130 years old venture providing employment to thousands of people in Mumbai. Due to Covid-19 forced lockdown, a lot employees of Mumbai Dabbawala became jobless.



Figure 9- Jobless Mumbai Dabbawala after lockdown

During lockdown, when Dabbawala had no work, they went back to their respective native villages. After May 2020, when unlock occurred in nation, few of the offices functioned but since Mumbai Dabbawala were dependent of local trains, they could not start their operations. The local trains were not functional initially during unlock period. So it became difficult for Dabbawala to commute. Additionally, these decades old venture faced competition from quick delivery services by Amazon and Fedex during this pandemic (when they were delivering essential goods). Another competition to Mumbai Dabbawala are Uber eats, but they are not providing home made food.

Meanwhile Nutan Mumbai Tiffin Box Supplier Charity trust made a lot of efforts to present before government to restart their work. Now, Mumbai Dabbawala are again functional and are working on new QR code to enter a particular train. They are even estimating the customer demand and devising a plan to be functional again. This lockdown as caused their cycles also rusted. Additionally, this lockdown gave a lesson to this efficient supply chain management – not depending on one mode of delivery and other – not depending on one source of income [18]. Mumbai Dabbawala are not entering into new venture to deliver farm fresh vegetables to home.

When things were getting better, second wave of Covid forced another lockdown. This time Mumbai Dabbawala decided to stay in the city but with no source of income. The city people were on work from home but Mumbai Dabbawala were without work.

CONCLUSION

Supply Chain Management involves cooperation of customers, suppliers, and partners. It involves all the steps involving the conversion of product from raw material to reaching to the end consumer. Thus, it is a process which strengthen the relationship between all the stakeholders involve in supply chain. It also act as a competitive advantage for companies managing their supply chain management [17]. Managing supply chain efficiently leads to increased quality of product and reduced cost.

This case shows that Tiffinwala are managing their supply chain efficiently without using any technology or application. Also, the workers involve in this service are hardly literate but they are managing well to interpret the codes on tiffin. Also, keeping coordination among such a large number of workers is also a point of focus. This, example shows that managing supply chain does not necessarily requires literacy or technology but it does require formal training.



Figure 10- Mumbai Dabbawal delivering for Impressario

Presently, restaurant named Impressario has tied up with dabbawalas to deliver products and services at home (refer figure 10). This restaurant is serving across India and customers need not to place an order through Swiggy or Zomato and can place order directly. Mumbai Dabbawala were serving from 100 of years but they restricted their business to only serving to office going people. This period of pandemic and work from home has resulted into Mumbai Dabbawala with best supply chain management left with no job. Additionally, the unlock period also seemed of no benefit to them as their supply chain was dependent on Mumbai local train. This pandemic has forced a 150 year old business line to diversify its business into other segments to survive.

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