

A Study on Optimizing Packaging in Supply Chain Management for an E-Commerce in India

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Abstract: *E-commerce makes new opportunities; in the meantime, it also offers the new challenges in terms of supply chain management, particularly concerning the packaging system. It has gained momentum in the Indian markets. The popularity between the young age group to go for e-commerce has increased over a period of time because of the wide variety of products available at a very cheap price. The foremost challenge of the online stores is handling their supply at different location and making it available to the consumer within the committed period. All this requires a strong supply chain management system in place. The proper channel to done and maintains the e-commerce it can be developed by some web development and design to easily sell the product in online, easy and convenient to access, update about the product at any time. Package optimization has a lot of different benefits, from not wasting money on unnecessary materials to creating a more sustainable package.*

Key Words: *packaging, e-commerce, supply chain.*

1. INTRODUCTION:

The customer is an important part of e-supply chain. It consists of various sources and resources at the different stage and hence we may be right in the calling it supply web accurately. It involves constant flow of information fund and product between various stages and stakeholders.

The flow of material, money, services and information from raw materials provider through industries and warehouse to end customer. The supply chain in an e-commerce business is more difficult than it seems. It is a most important controlling factor when it comes to bottom line of the business. The supply chain of e-commerce consists of 3 major components:

- Movement of goods
- Movement of money
- Movement of information

E-commerce as a disruptive force

Before the period of e-commerce, the lack of correspondence of information between several countries accepts the existence of a middleman in order that trade could be conducted. Commonly, exporters take on a business-to-business (B2B) model, which saw them concentration on a small number of business partners or customers within their selected markets. These partners were generally enormous importers, regional distributors, wholesalers. Transaction businesses would maintain long-term relationships with their out of the country partners and, as such, had a reasonable kind of their requirements. The partners would place the greater part orders with some exporters, who would then advantage to inspect the goods produced by the manufacturers, make sure they reached the required procurement standards. They would also monitor production plans in order to ensure that delivery time limit were met. As such, the exporters had no direct contact with their end customers.

View of supply chain flow:

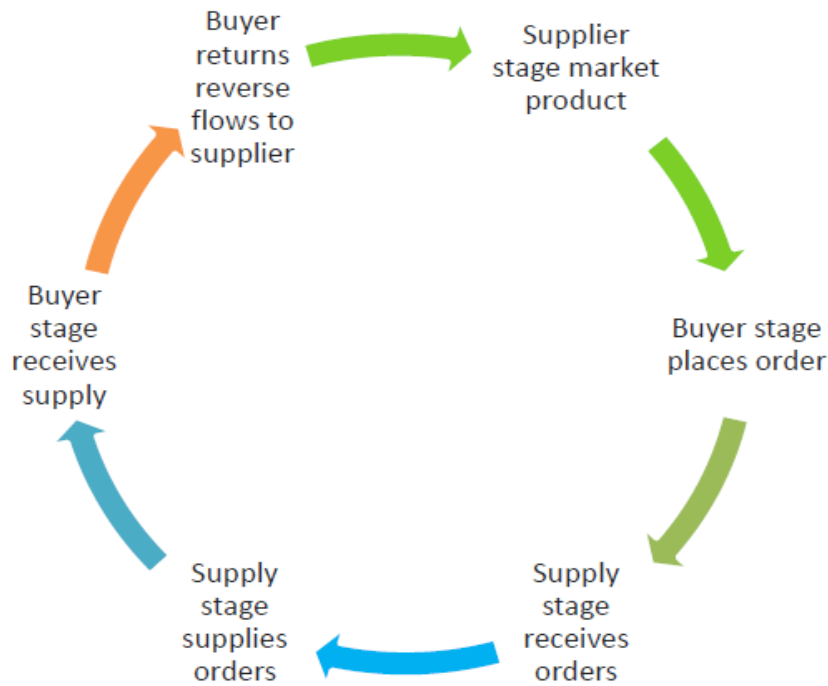


Fig 1: sub process in supply chain cycle

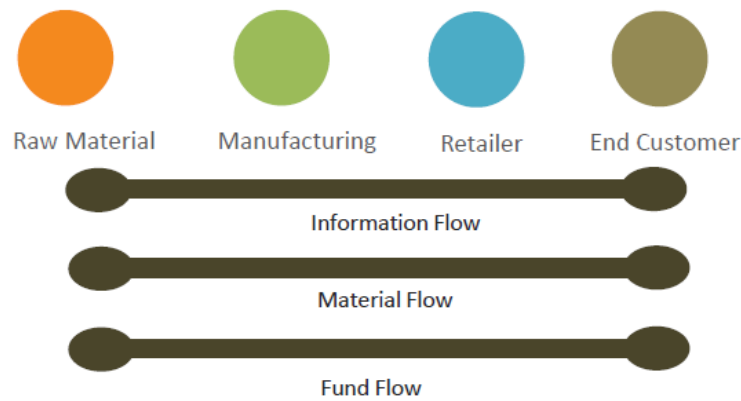


Fig 2: interdependent in supply chain management.

Sources:<https://www.slideshare.net/EdurekaIN/supply-chain-management-supply-chain-management-for-e-commerce-in-india>

2. Five major challenges in supply chain

- Cost containment 55%
- Supply chain visibility 70%
- Increasing customer demand 56%
- Globalization 43%
- Risk management 60%

It involves many internal and external partners located at various places. Both the information and material must flow in the middle of different entities and these transfers, especially when manually handled. It can be slow and error prone. Mainly they need to co-ordinate several activities and internal units and business partners.

For example,

DS Smith Solves E-Commerce Supply Chain Challenges

An industry first, DISCS tests whether packages can stay alive the bumps and scrapes of the average e-commerce supply chain. Online orders sometimes need to stay alive up to 50 touch points, so packaging must be long-lasting but also maintainable.

Named after the different types of testing (Drop Impact Shock Crush Shake), the system consists of five pieces of equipment, each duplicating a part of the product journey and therefore providing real world testing.



Fig 3: Testing process in packaging

Sources: <https://packagingeurope.com/ds-smith-solves-e-commerce-supply-chain-challenges/>

Isabel Rocher, head of e-commerce solutions at DS Smith, commented: “Finding the balance between protecting packaging and limiting the amount of materials used is a constant source of concern for retailers. Likewise, shoppers do not want to receive broken goods or have to deal with excess packaging. Our new DISCS technology enables us to scientifically assess our customers’ requirements and get this balance right.”

DS Smith has been pioneering and refining confidentially over the last year in the UK. The engineers used insight from customers and the logistics industry to design tests which accurately replicate the stresses and strains of the ecommerce supply chain.

There are three test levels for customers to choose from, depending on whether a package is delivered straight to customer first time, delivered and returned or delivered with three failed attempts and then returned. This final option can include up to 50 touch points, and replicates the most severe damage a pack can receive. An initial three testing suites are planned, based in the UK, France and Germany.

Made2fit

DS Smith is also launching new technology called Made2fit, to enable the creation of right size packaging. This innovation has been developed to specifically tackle the e-commerce challenge of void space, as shipping air is a waste of resources.

Creating a right size pack lowers costs for e-tailers by reducing both operational and shipping costs: saving storage space, cutting labor costs and order administration, and significantly cutting assembly and packing times. It also significantly reduces product movement, helping to reduce damage.

There is both a manual and an automated version. The manual Made2fit solution, is designed to work for lower volume orders, creating 39 possible box size combinations from just three blank sizes of cardboard. The automated version of Made2fit is for larger volume orders, with the capability to manufacture more than 10 million box size combinations, in a process that is Omni -channel ready.

Isabel comments: “Our two new offerings should revolutionize the industry, giving our customers access to state-of-the-art technology that will meet all their e-commerce packaging needs. The investment is great for our customers and great for us as a company as once again we are at the forefront, investing in world class technology and pushing the industry to embrace new standards. With e-commerce predicted to continue its dramatic growth over the coming years, this will be vital in helping retailers and manufacturers stay ahead and target growth.”

DS Smith launched both DISCS and the automated version of Made2fit at #Deliver2 in Berlin. Made2fit automated will then launch to the rest of Europe from October 2017 until early 2018. Made2fit

manual is officially launching in September 2017 and will be rolled out across Europe in the months to follow.⁽³⁾

3. Effect of customer experience in e-commerce packaging in supply chain:

- It's based upon arrival of package condition. (65%)
- The secondary packaging is cumbersome or extensive (48%)
- It can easily find the instructions (29%)
- The shipping cost is effective (33%)

Drive innovation opportunities for packaging:

There are top five innovation opportunities in e-commerce packaging are

- RFID (Radio frequency identification)
- Sustainable package
- Previously out of scope in packing cost reduction
- Replenishment in solution for new methods
- Ability to self-report issues in shipping

4. Need to consider the challenges in e-commerce supply chain:

- Make it flexible, make it easy.
- Be adjustable.
- Practical but impactful.
- Bring about the environmental impact.
- Embrace the opportunity.

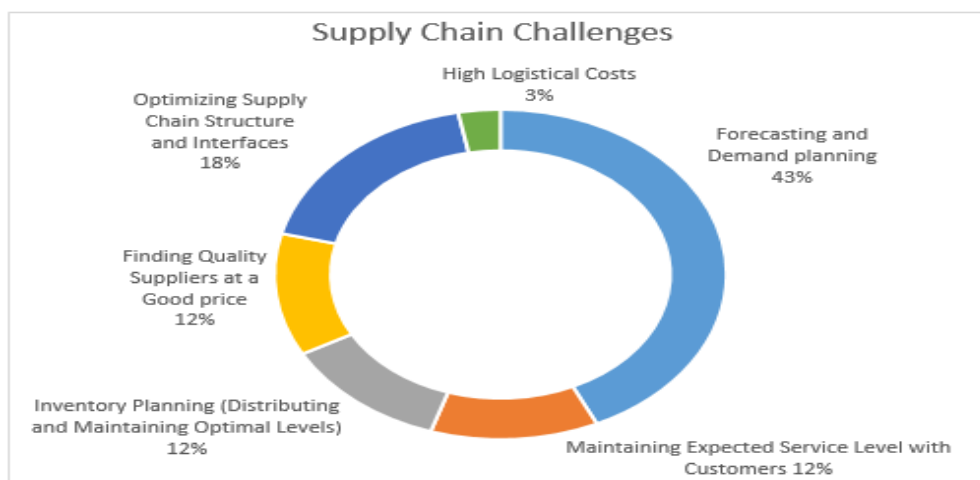


Fig 4: Trend in supply chain management

Source:

https://www.tefen.com/insights/industries/General_Manufacturing/trends_in_supply_chain_management

The Global trend affects the customer activities:

1. Changing consumer experience

These days shopping can be complete at any time in order to avoid shortfalls there is a quick service level required for inventory management. They need to set safety stock level to ensure the items are available when the customer order. In future the customer may want instant delivery of the product (Amazon done this response Canada, UK, Netherlands. It delivers time within 30 minutes via the drone)

2. Growing e-commerce

It is the link between the physical world, and the virtual world are shortening for the vendors. E-commerce cuts the link in supply chain its increase the selling and the product is reach straight to the end customer.

3. Crowding in urban centres

It means expensive real estate, there is no shortage space to customer price out their goods in big and small cities. The people have more expectation for convince in urban centre

Elements of e-supply chain in packaging:

1. Upstream

Upstream include all the activities of a company with its supplier and their connection with their supplier. Their relationship can be extended to several tiers in supply chain is the major activities in procurement. It gain the access to the resources it need to accomplish the business activities.

- 1 tier supplier(vendor, publisher, independent supplier)
- 2 tier supplier(wholesaler, partner)

2. Internal

Internal value chain includes in house process used in transforming the input from the suppliers into the business organization output.

(It transforms of material into semi-finished products into finished products) It concerns with production management, inventory control, manufacturing and packaging

3. Downstream

It includes all the activities involved in delivering the products to the end customer. (Distribution warehousing, transportation distribution centre, customer, retailer warehouse)

5. Key activities of e-supply chain:

- E-procurement
- E-logistics
- Monitor and control
- Collaborative planning and design in product develop management.

E-Procurement.

E-procurement is the custom of Web-based technology to support the basic procurement processes, as well as requisitioning, track down, contracting, ordering, and Payment. It also supports the purchase of both direct and indirect materials and works several Web-based functions, such as online records, contracts, buying orders, and shipping notifications. It can develop the operation of the supply Chain in various ways:

- Online catalogues can be used to reduce restructure of components in product development.
- Visibility of available parts and their attributes cares quick decision making.
- Online purchase orders speed up the ordering process.
- Advanced-shipping statements and strap line streamline delivery.

From the purchaser's perception, e-procurement can support well manage supplier relationships and accounts. It allows for further effective tracking of orders.

From the Supplier's perspective, e-procurement permits them to respond more quickly and effectively to the requirements of purchasers.

Both purchasers and suppliers report that e-procurement can support them in well managing their business development and Cash flows.

E-Logistics

It used in Web-based technologies to maintain the material acquisition, warehousing, and transportation processes. It enables the couple routing optimization in inventory-tracking information.

Monitoring and Control Using RFID

This is one of the most promising applications of RFID. To Inventory Management Using Wireless Devices A lot of organizations are now attaining improvements in inventory management by using combinations of bar-coding technologies (or RFID) and wireless devices.

Collaborative Planning and design in product development

Collaborative Planning have need of buyers and sellers to develop common demand forecasts and supply Plans for how to support demand. It should be updated regularly, based on data shared over the Internet. Such collaborative Planning requires B2B (business to business) workflow over and done with multiple enterprises done the Internet, with Data exchanged between partners dynamically.

In product development it involves the use of product design and development techniques across multiple Companies to improve product launch success and reduce time to market (as demonstrated In the Boeing opening case). It can be common over a safe network among the contract firm, testing facility, marketing firm, and downstream engineering and service companies. Other Techniques include sharing terms, test results, and design changes and using accessible prototyping to obtain customer feedback.

Wins in E-Commerce:

1. Tap into technology to reduce risk and drive growth.
It can help you enhance packaging for e-commerce distribution and help deliver growth. It have some tools to facilitate collaboration, ideation, rapid prototyping, and consumer and package testing.
2. Leverage insights from our work with key e-commerce players.
It works with leading e-commerce retailers to evaluate the packaging that is ready to survive the firmness of this distribution channel. It is used to collaborate fix and fails to drive the cost out of the system.
3. Accelerate your speed to market.
The packaging proficient to put on our e-commerce insights is the hardest challenges and quickly move their concept to commercialization

6. Drop Shipping is the strategy for an e-commerce supply chain

It is the real revolution of e-commerce in supply chain method

Benefits of Drop Shipping

- Keeping stock is not necessary for longer period
- wholesale prices is very low
- without investment they are not extended the range of products
- Less time devoted to inventory

Risks of Drop Shipping

Billing policy might be unsuitable for drop shipping after getting an e-commerce player drop shipping can raise the price but they dependent on them. It required reverse logistics situations they turn out to be sticky.

7. Top four reasons for Package Optimization

Most of the company's leave of absence packaging decisions to designers and marketing professionals who realize how to make the manufactured goods fly off the put on hold. Unfortunately, this can increase time and costs to the supply chain process.

7.1. Optimize Your Materials

The materials you usage for packaging could be holding your supply chain down. If you're consuming products that are costly, inefficient or challenging to use, you're addition time and money to your supply chain that you can't afford. While you don't want to reduction the quality of your product or the perception of your brand, you can usually reduce or change your packaging materials without your customer observing.

Optimizing your packaging resources creating smarter decisions about the packaging of the product himself and the shipping materials you usage to get the product from Point A to Point B. See if you can find another possibility, such as tape, that can save you together time and money. Through package optimization, you ought to look at each and all material you use in the packaging process.

7.2. Package Optimization Allows for Sustainability

Creating cardboard boxes can have serious concerns on our environment. With so many companies considering for ways they can go green, package optimization can be one of the greatest ways to stimulate sustainable business practices.

Companies can look for techniques to use less materials and decrease their carbon footprint. Whether you pick out to use a thinner plastic or reused cardboard, there are many different methods to create your package more sustainable. Not individual can this help with the exception of your company money, but you'll get additional benefit points with your customers for being environmentally friendly.

7.3. Make Transportation at ease

When you are get ready cargo for shipment, you are considering at things like size and weight of your boxes of product. Not only does this include the size and weightiness of the product itself, but also the packaging it is in. If you are not using optimized packaging, you could be wasting space and weight that could be engaged by more product.

Optimizing your product package reach agreement to you to reduce the unnecessary excess you could be wasting your money on. By reducing the amount or changing the shape and size of the packaging you are using, you can carrying more product — saving you both time and money.

7.4. Outcome of the Right Package Optimization

When looking for the proper way to package your items, you want to consider both complexity and efficiency. To modest complication, you want to take as many similar packages as possible, but to develop efficiency, you want every one item to have its best package. For companies with a wide-ranging variety of products, this can be difficult to balance. Outcome of the optimal level of complexity and efficiency is critical. When you find the right balance, you can subordinate your shipping costs, apart from space and weight with each shipment. You will save money in the long run, too.

Redundant costs hurt everyone. As of your company to your customer, spending money on inefficient practices means everyone is getting a depraved deal. As it should be optimizing your packaging can mean you with the exception of money and time all over the supply chain process — putting additional money in your company's pocket.

No matter what industry you're in, package optimization is important for both your business and the environment. Consider this when determining what kind of packaging you should be using for your company's products

8. CONCLUSION

To overcome the challenges in e-commerce. We will ensure a package can hold up in various shipping scenarios in diligence. In right-sizing of using warehousing effectively it can help to make feasible solution. Third party retailers can increase the communication a lead time. It keeps marketing and overall customer experience is synchronous. Retailer aim to win over consumer with appealing products packaging that offers protection at minimal cost.

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(Note: Wherever the References have been cited in the text the full name of the reference has been mentioned)