Opportunities of Cloud Computing in Supply Chain Management

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Abstract
Cloud computing technology is a new and rapidly growing technology. It has impact on the working of different fields. The supply chain management also started using cloud computing. It open new opportunities in supply chain management and provides new benefits. It improves flow of information from customers to the production units. The production new can better understand the market and produce products as market demands. It also helps to reduce inventory levels improve logistic management. Real time status about products in transit helps not only to reduce inventory but also increase reliability of supply chain management. Customization of product on customer demand becomes reality.

Keywords: cloud computing, supply chain management, inventory, logistic

Introduction
Supply Chain Management is a wide network of facilities and distribution that involves in procurement of raw materials from suppliers, transforming these raw materials into intermediate materials or finished material and distributing these materials its users (intermediate materials to next stage of production and finished materials i.e., product to its customers through chain of realities). The complexity of the supply chain varies from industry to industry. Items are stocked in various inventories for smooth and uninterrupted supply of materials in the chain. Logistic is used to transport materials from one place to other.

Materials and Methods
For the purpose of in depth study the contents have been taken from relevant books, articles, journals, websites. The method is analytical and descriptive. Both primary and secondary sources of information have been taken.

Results and Discussions
A numbers of decisions have been taken by its players for various activities at different stages of the Supply Chain Management. Researchers provided models to achieve minimum cost. A correct and timely decision is necessary to implement a model and reduce cost and time. To achieve this goal, a good coordination of activities and fast communication among players are required. As Supply Chain Management spade over a large geographical area it is a big challenge for any organization.

The Cloud Computing: In Cloud Computing, a user of a Cloud only needs an internet connection and basic computing system. By use of an internet, a user can access sophisticated infrastructures, applications and services that are provided by the cloud. These services are available twenty-four hours and can be accessed throughout the world. The organization that uses a cloud pays as use the cloud. The Cloud Computing provides Software as a Service. It helps organization by

Improving visibility: The information about real-time demand from market, Inventory status, movement of product in transit and daily sales of product are very important for any supply chain management. The use of the cloud computing allows an organization to capture these information from the source of these information.

The use of GPS devices on vehicles and their monitoring gives exact position of a vehicle in its transit. It not only gives position but can also provide speed and direction of movement of the vehicle in a real-time. So, every
information that need to manage the supply chain management are available in real-time. Thus the cloud computing improves visibility of the organization in term of information.

**Opening New Opportunities** : As visibility of information improves, the supply chain management opens up for number of new innovative use. Few of these innovative uses are given below

The organization can reach to the customer through on-line shopping. The customer can get information about the product online and can place order online. The produce will be delivered to the customer from nearest retailer.

The cloud computing allows integration of marketing, production and supply chain management into one single unit. If a customer wants to order customizes product the marketing person can take order immediately from the field by gathering information how much the product can customize for the customer and how much the customer has to pay for that customization. The person can also able to tell the customer when the product will be delivered to the customer. The customer will get regular update on his/her order.

A customer can track its order and can know its exact status. Through CRM the customer can get regular update of his/her order/service.

As a product is sold in marketing, its sales figure becomes available to every concerned person in the organization, through the cloud. It helps sales and marketing team to better monitor sales in the market. If sales in a area is not up-to expectation, the team can react immediately and able to take corrective steps on the time.

**Security and Standardization** : Security of information is very important for any organization. Security of information stored on the cloud computing is maintained by cloud provider. Without it no cloud can exists. There are two basic types of clouds,

1. Private Cloud and
2. Public Cloud.

There is a third type of cloud which is a combination of above two basic types

3. Hybrid Cloud

A private cloud allows information stored on it to be accessed by only authorized persons. Even the cloud provider cannot able to access these information. Operation of the cloud providers is being monitored by a third party organization or by a government organization. The third party organization gives a certificate to the cloud provider that it follows all procedure for security and standard.

Whereas, a public cloud allows to share information stored on it with all concerned.

A hybrid cloud can be used to share information among all players of the supply chain management.

**Coordination among the community** : Supply Chain Management does not belong to a single organization. Actually it belongs to a number of organizations that work together and try to minimize cost involves in it. The Cloud Computing best suits for it as it gives services to all concerned in a well coordinated manner. Even though each party in the supply chain management is using different applications to manage their activities, the cloud computing can coordinate them. It allows them to chose their own application which suits them. The Cloud will integrate them so that they can work together as a single unit.

**Planning and Forecasting** : Cloud base tools are used to capture data from the actual ground level, perform analysis using statistical tools on it and forecast demands, plan manufacturing schedule and logistic movement of products on the market. It helps not only to reduce inventory levels required for smooth flow of product but also allow manufacturing units to produce as per market demands. The cost that the organization has to bear due to shortage of items (Goodwill Lost, Profit Lost etc.) is minimized through better planning resulting in reduction in overall cost.
If a retailer has ordered a product and the product is available in the nearest inventory then in the next logistic movement from the inventory to the retailer will include the ordered product. The other inventory that supply to this inventory will make note of these types of movements in advance and plan its own movement of items. These make a chain of movements from manufacturing unit to the retailer which allow faster and efficient order processing.

Better Logistics: Use of logistic is an important component of the supply chain management. Use of GPS becomes very common in current days to locate actual position of a moving vehicle in real time. It enabled to coordinate other activities like loading/unloading of items, planning of movements of vehicles etc. Use of RFID tags allows faster processing of items during loading/unloading of items and makes data ready for use of all concerned.

Sourcing and Procurement: Cloud computing represents a great opportunity to reduce total cost in sourcing and procurement. The Cloud-base tools collaborate with a large numbers of suppliers of raw materials who are supplying on routine basis, maintain database and generate reports to ensure timely arrival of raw materials.

Managing JIT (Just in Time) order and delivery become very easy by use of cloud in the supply chain management. Information related to production steps that use JIT order and delivery is being shared among supplier and production unit such a way that the suppliers starts producing the ordered item and delivered it when the item is required by production unit.

Integration of suppliers with production schedule helps to reduce overall cost involved. As information of sales and order placed by costumes from different locations pass to production units in real-time through cloud, production unit can makes its future production schedule immediately. The production unit needs raw materials for its production schedule. By sharing production schedule with its suppliers, suppliers and the organization can cut cost of unwanted inventories.

Service and after sales management: Services and after sales is a challenge for all organization. It helps them to retain their existing customers and maintain goodwill. Cloud Computing allows small numbers service centres to cover larger geographical areas by connecting widespread customers through cloud and use its resources effectively and efficiently.

Conclusion

Use of cloud computing in supply chain management provides a number of benefits. Due to its capability to gathers data from widespread area from the source of the data, very quickly and efficiently gives an edge. This changes the conventional ways of handling the supply chain management and provide new ways. The customization of product by customers now becomes reality. Online ordering and delivery is gradually becoming popular. Availability of current status in very quick time enables managers to take correct decisions that reduce overall costs of supply chain and time to deliver order. It also allows better management of limited resources.

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