

Contract Logistics & Warehousing - Pricing & Costing Mechanisms

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Abstract

3PL Logistics Service Providers are many in the market. There are players from Multi National background, regional players, local companies and individually managed business organizations. Warehousing business, on the other hand, can flow through warehouses, consolidation and merging centers, finished goods stocking points, forward locations, raw material warehouses, JIT/VMI operations, bonded warehouses, in plant warehouses, etc. depending upon the business requirement. In this section of the article, we proposed to cover pricing mechanism aspects of a small warehouse like a consolidation center or finished goods flow through warehouse that need not be dedicated to the buyer alone and can be a shared facility. Normally the bigger operations involving inventory management etc. are considered stand-alone facilities and costing is worked out for the entire project, and this part of discussion is not covered under the scope of this article. Normally in the Finished goods supply chain or raw material supply chains, there would be a need for a warehouse facility en route to the plant or the markets. These warehouses can be consolidation centers or merging centers in case of finished goods where different components of the order or finished goods are brought in from various locations, merged and dispatched to the next leg of the network. In case of raw material supplies, there can be a consolidation center at a country level where all shipments from several buyers are consolidated and shipped out as a container load. Such kinds of warehousing requirements may not call for dedicated facilities. Normally the 3PL service provider who manages the freight will have warehouses that are used as shared or common facilities. In few cases public warehouses are also used by the buyers as the case may be.

Keywords: Pricing & Costing Mechanisms, Contract Logistics & Warehousing

1.0 INTRODUCTION

Normally in the Finished goods supply chain or raw material supply chains, there would be a need for a warehouse facility en route to the plant or the markets. These warehouses can be consolidation centers or merging centers in case of finished goods where different components of the order or finished goods are brought in from various locations, merged and dispatched to the next leg of the network. In case of raw material supplies, there can be a consolidation center at a country level where all shipments from several buyers are consolidated and shipped out as a container load. Such kinds of warehousing requirements may not call for dedicated facilities. Normally the 3PL service provider who manages the freight will have warehouses that are used as shared or common facilities. In few cases public warehouses are also used by the buyers as the case may be. General cargo warehouses or shared facilities and public warehouses are warehouses that house cargo of various clients. Depending upon the client's requirements, materials can be stored per day, week or month, etc. Inventory held of each customer may not be very high.

1.1 Storage Space

Storage and space options provided by the 3PL in such cases can vary with the client's nature of the business. In a country consolidation center, where multiple shipments are stored and consolidated, the buyer may contract a fixed space on square foot basis with specified number of locations. In another case of a merging center, the buyer may not contract fixed space and pay on transaction basis. Public warehouses normally rent out space in terms of per pallet storage.

1.2 Pricing

Fixed Price: In cases where the buyer contracts a fixed space, the costing model will be based on a fixed fee per month including cost of space, resources, infrastructure, etc. Even in Fixed Fee model, there are many variations in pricing models.

Transaction based pricing model: Wherever there is no fixed space allocation, the transactional pricing models are in vogue. Variable pricing models are many. Some of the usual methods of pricing are - Per pallet price, per unit or Kg -volumetric weight /volume price, per transaction price including price per inward, per shipment, etc. Normally in transactional pricing model, the buyer's requirement will be minimum and does not call for any specific or dedicated investments. The 3PL provider normally uses his general or public facility and recovers his total cost of investment and operations on the volume or transactions.

2.0 CONTRACT LOGISTICS PRICING METHODS

Warehousing and Contract Logistics forms an important part of Supply Chain Networks. Contract Logistics projects are of two kinds. The first being a flow through the warehouse that can be a Finished Goods warehouse for the purpose of consolidation and merging or documentation purposes or in the case of supplier shipments, inventories being consolidated to enable FCL shipments. Often supply chain logistics calls for shipments and cargo to be warehoused at the point of origin or destination. In all such cases, warehousing facilities are normally public warehouses or shared, and common facilities offered by 3PL are used. The second kind of Contract Logistics projects involves larger projects that are client specific and dedicated. Such warehousing projects may be called for in Supplier inventory management and supplies to the Plant or manufacturing lines called in plant logistics or models like JIT, VMI warehouses. In case of Finished Goods too, the distribution centers, FG warehouse and hubs at regional or country level entail dedicated facility.

Warehousing Projects are normally managed through an RFQ process where the qualified 3PL vendors bid for the business with the response document containing solution design, followed by presentations and negotiations with final selected 3PL supplier. Many companies prefer to suggest a pricing mechanism or model in the RFQ to enable them to compare the various bids as well as have clarity on costs involved therein. Types of Pricing Models in Contract Logistics:

1. Fee-based on the percentage of Sales Turnover or volume.
2. Cost Plus model
3. Price per Sq. Ft
4. Transaction and Fixed Price combination
5. Cost per transaction or unit pricing

2.1 Fee-based on percentage of Sales Turnover or volume.

Traditionally warehousing service providers who are called carrying and forwarding agencies involved mainly in Finished Goods logistics have practiced the pricing mechanism of charging Warehousing Fee as a percentage of sales billed per month. The fee can vary anywhere from 0.5 to 2% of the monthly gross sales turnover. This practice has been in vogue in a multi-tier supply chain network involving distributors at state levels and further regional distributors and so on. This pricing mechanism includes a basic minimum guarantee pricing called as floor price. Floor price or minimum price covers the fixed cost expenses of the warehouse.

The revenue earned by the 3PL varies with the sales revenue. 3PL stands to gain during peak months and loose during slack months. The variable cost that has a major impact on the costing is labor. 3PL service providers manage this costing by employing minimum number of human resources and add on temporary labor only when required. While 3PL is aware of the market conditions and sales estimation for the buyer's products he stands to make a gain when the sales shoot up. Buyer, on the other hand, would find it easier to account the cost as a standard percentage of the sales turnover without having to get into other operational details.

2.2 Cost Plus model

Large size projects that are dedicated and setup as per a buyer's requirement are normally run based on Cost Plus model. As the name suggests, the pricing mechanism involves estimating the total cost of running operations and profit as a Management Fee which is fixed as a percentage of the total cost. This costing method works well when the project size is huge and operations include multiple transactions and value-added activities within the warehouse. A large size warehousing project calls for

huge investments to create the building and infrastructure. The build may have to be built or may be hired by paying a security deposit. Infrastructure investments would include racking or shelving systems, material handling equipment including Forklifts, Reach Trucks, Dock levelers, etc., conveyer or any other equipment needed. IT infrastructure can include cost of hardware including servers, desktops, laptops, printers, RF equipment, etc. Given the size of the project and the investments involved, the contract or project is awarded for three years with two extensions of one year each. This helps the 3PL to amortize the investments over the contract period.

2.3 Contract Logistics Cost Model

Warehousing Costing methods vary with the business models. While some warehouses using common shared facilities may be worked up based on transaction costs, dedicated and standalone facilities would be on a different costing model. In this section, I shall go through the cost elements of a warehouse project briefly. Warehouse Cost elements are primarily divided into Fixed Costs, Variable Costs and Overheads.

Cost of Land & Building: This cost element is included if the land and building are provided by the 3PL and not the buyer. In case the land and building is acquired by the 3PL, the cost of land and building may be amortized over the life of the building or as per industry standards (average 10-12 years) and proportionate monthly costs can be added. One needs to ensure that the costs are realistic and nearer to market rates for rentals. In case the land and building is rented by the 3PL, the cost of monthly rental along with the cost of funds for security deposit may be added to the costs. All costs would be worked out for the term of contract period with annual escalations considered annually.

Infrastructure Cost: Cost of acquisition of all infrastructure including racks, MHE, Charging equipment, dock levelers and any other equipment including office equipment are itemized and amortized over the contract period or over the shelf life of the equipment as the case may be, to arrive at monthly cost of infrastructure.

IT Infrastructure: IT infrastructure consists of the cost of Hardware & Cost of Software. Hardware covers all servers, desktops, printers, laptops, RF Equipment and any other IT related hardware. Software application costs include cost of WMS based on one-time fee or individual number of user license, cost of other soft wares including mailing system and any operations related soft wares. IT Costs are amortized over two or three years depending upon statutory audit guidelines.

Manpower: Detailed manpower costing will include the cost of Management Staff, Operating staff, in-house operatives and outsourced operatives like labor, MHE Drivers, etc. Outsourced security staff costs are also added under this item heading. In case of in-house staff, detailed calculations based on cost to the company is worked out including staff benefit, insurance, bonus, training costs, uniform, etc. along with proposed incremental cost over the number of years as per contract period. Outsourced staff costs are also tabulated for the contract period including annual escalations.

Utilities & Consumables: Utilities are not fixed costs. They are monthly variable costs. The items in this category are the costs towards office and communication expenses including telephones, the internet, etc., stationary and consumables both for office and shop floor items like tapes, packing materials, etc., cost of electricity, water, fuel, etc.

Administrative expenses: Costs of office support, cost of insurance and third party liabilities and travel costs, etc. including any other statutory costs, deposits are covered here.

Overheads: Cost of management time is estimated and included here. Alternatively, a percentage of corporate or regional office cost overhead is loaded. Cost of money or interest cost on working capital for three months can be included.

Profit / Management Fee: Management fee can be added as a percentage of total cost or a fixed amount.

2.4 Contract Logistics Solution Design Document

In any project involving outsourcing of warehousing operations, setting up a Distribution Center or Managing Plant logistics, if the project involves setting up a dedicated facility for the customer and the size of the project is huge; such project requires detailed attention and work from both parties. The buyer would have to detail the requirements in the RFQ document, and the 3PL service provider would have to

work on designing a detailed solution. The RFQ response document holds the key to showcasing the proposed solution and the vendors understanding of the requirement and capability. A response document to an RFQ will normally contain the following sections:

- Covering Letter with List of Enclosures
- Solution Design
- Case Study of 3PL's other works of experience in the similar industry with photos or video if possible.
- Company Profile, Management Structure and financial information as requested in the RFQ,
- Project Implementation information detailing project team, project sponsor and management team, proposed timelines and schedule, etc.
- Pricing
- Terms and Conditions of offer
- Any identified deviations from the RFQ assumptions or requirements with justification
- Any other information supporting the solution design.

2.4.1 Solution Design Document

Solution Design Document is the main part of a response document, which details the solution proposed matching with the requirements of the buyer. Solution design generation is driven by Business Development team with the active involvement of a solution design team. The solution design team would have the required competence, engineering capability, and tools to prepare the design. Functional experts or Subject Matter Experts and operational experts are brought in to collaborate with solution design wherever required. Once solution design is ready, it is reviewed by operations team and IT besides costing team for internal acceptance and approval before being submitted to the client. A solution design normally consists of:

- **General:**
 - Detailing business process, requirement and assumptions as understood from RFQ.
 - Inventory analysis and other data analysis and resultant assumptions made in design
- **Proposed Location:**
 - Explain details about the selection of proposed site, facility drawing, layout and structural details including height, the number of bays, etc.
- **Proposed Infrastructure:**
 - Proposed Racking and Internal Layout Design with explanation on storage type selection, number of locations, total storage capacity, etc. including technical details of the racking.
 - Material Handling equipment and details.
 - All other infrastructure and equipment details.
- **IT:**
 - Proposed System / Application with technical information including possible enhancement requirements to support business operations.
 - Outline benefits of using the system and how it fits into buyer's requirement
 - System and network architecture design map with Document interface requirements and other technical points relevant to enable interaction between 3PL and buyer's systems.
 - Hardware and Network plan
 - IT infrastructure specification and list of equipment including RF equipment, labeling and printing machines, desktops, Laptops, etc.
 - Detailed implementation plan if possible.
- **Process / Operations:**
 - Process document should provide complete overview of the internal operations process combined with systems and physical processes. This document should be able to give a

clear picture to the reader and enable him to visualize the entire process within the facility.

- Human Resource:
 - List of total manpower assumption worked out
 - Proposed operations management structure
 - Escalation Route and structure
 - Details on how recruitments will be managed for the project
 - Brief on company policy on hiring, recruitment and HR management practices
- Other Information:
 - EHS, Safety & Security Management plan with details.
 - Maintenance Plan
 - Disaster Recovery Plan, including IT recovery.
 - Quality Policy and Quality systems implementation plan

3.0 INVENTORY MIGRATION

The need for Inventory Migration from one warehouse to another warehouse does not come about very often in Supply Chain Operations. However, sometimes the business demands necessitate a change of warehousing location, setting up a new location or even a change of business model. The occasion and need for an inventory migration can come about due to many reasons:

- Non-performance of a 3PL service provider
- A change in tax policy of the government
- A shift in market dynamics calling for a change of location
- Change of Business Model
- Product Mix and supply chain strategy or a simple case of an increase in business volume could make a case for shifting or setting up of a new warehouse and closing down a currently operating warehouse.

There could be many more reasons apart from the situations mentioned above warranting an inventory migration. A successful migration will depend upon carefully planning, detailing of every activity, simulation and trials, combined with team training and briefing exercises. Such a project involves and affects all functions including marketing, IT, finance, operations, order fulfillment, inventory planners and controllers, procurement, 3PL service provider, transporters, legal and tax compliance teams and finally the management. The project leader in charge of the project would have to have the knowledge to design operational processes for the entire project coupled with knowledge of the activities and functional departments involved in the entire exercise.

The first exercise involved would be to set up a cross functional project team, drawing leaders from all functional departments. If the proposed operations are being managed by a 3PL, then the team would have to include them as well. In fact, in such cases, the 3PL would need to form an internal project team with a project manager too. Effectively there would be two project teams managing the project and taking joint responsibility. The first team would be from the Principle Company and a second team from the 3PL. While the design, process, budgets, guidelines, project management would be driven from the company, the 3PL will manage to get the new facility ready, set up the team, training, getting ready to receive materials and start operations, besides planning for transportation and inventory movement.

The project being very critical in nature would need a Project Sponsor, who will review as Management and facilitate and coordinate to ensure timely decisions, resources are made available and manage communication with other departments and partners. The 3PL provider too will be required to setup a similar management structure to facilitate the project. A very important aspect of managing a smooth inventory migration is to build a healthy dialogue and continuous communication with the existing 3PL service provider to ensure the ongoing operations at the project planning stage are not disrupted and the Service provider co-operates with the company and the new 3PL in working together to hand over the inventory and assets belonging to the company as per laid down process and comply. Periodic meetings and contract review discussions have to be held to iron out differences arising out of the situation and would have to be handled sensitively and intelligently with patience.

3.1 Inventory Migration Scope

Inventory Migration is a mammoth project exercise involving internal teams as well as many external agencies. Detailed planning, process, simulation, and training are the basis to ensure successful inventory migration exercise. Project Teams would consist of teams from all functional departments namely finance, legal /compliance, inventory planners, IT, procurement, marketing, order fulfillment and logistics & Facilities team and headed by a Project Leader, who knows the operational details involved in such a project. A similar project team is required to be setup at the 3PL service provider's end too. The project also calls for Project sponsors from management to oversee and facilitate the project decisions.

The project planning and execution revolves around the setting of a target date for start-up operations from the new facility after migration. All activities originate after this announcement. Normally the transitions should be planned in a lean month or period when the demand for logistics supply chain is likely to be lean, and the inventory in the warehouse is at the lowest level. Marketing, Sales and Order Fulfillment departments would have to announce the plans to the distributors, channel partners and the rest of the players in the chain and plan to increase the stocks at the forward locations to cover up for the period of migration when the supplies are likely to get disrupted. The new location address and details would have to be informed to the markets.

Procurement, inventory planners and logistics will plan for holding required stocks in the pipeline, plan for a lean inventory in the warehouse by shipping out and liquidating stocks as much as possible, stop inbound shipments during the transition period and inform all vendors, suppliers, freight forwarders of the new warehouse location for future transactions. Legal compliance would entail registering the new facility with the authorities and obtaining the necessary licenses, permissions, and clearances from all statutory authorities concerned. This would have to be complied with, both by the company as well as the 3PL service provider in their respective areas of obligation. Inventory process planning involves three major components. Firstly, the volume of inventory to be transferred has to be estimated, some container loads calculated. This becomes the input for the rest of the major activities to be planned including transportation planning, resource planning, determining lead times for inventory handing over at the existing warehouse, transit time estimation and time for receiving and put away of inventory at the receiving warehouse.

Process planning would entail following activities at the existing warehouse. Step by step preparation of inventory at the existing warehouse for shipment, the sequence of inventory handing over by the existing warehouse for shipping out, the process of counting and handing over inventory, handing over documentation and sign off process. The plan should also cover the allocation of necessary resources, teams including supervisory and management staff. Transport management planning would have to ensure that the transporter provides dedicated capacity and containers as planned without disruption. Sufficient arrangements for loading equipment and teams would have to be planned. The inventory loading plan should cover details of how inventory would be loaded in sequence and the documentation process. The documents and loading information would have to be passed on to the receiving warehouse electronically before shipment reaches, so that the receiving teams can prepare the systems and teams in advance with the information on what to expect in each container.

The receiving team operations would have to plan in detail to receive shipments, unload, count and put away materials and upload the inventory into the system before declaring the warehouse ready to start operations and serve orders. IT plays an important and critical role. Detailed planning would entail setting up of new location and transfer of inventory in the system or transferring the existing inventory database to the new service provider. Aspects of location changes, layout changes or process changes would have to be worked out in detail, along with trails undertaken to ensure interfacing and data transfer in sync with the WMS at the new service location. In a migration scene, resolving the inventory discrepancies arising from the transfer and ensuring a hundred percent matching of physical inventory to the new system upload at the new warehouse location with the system at the companies' end is most critical to the entire operations.

3.2 Warranty Management

Warranty Management had been traditionally viewed by companies as a cost of doing business. The costs of warranty management were found to be costing between 4 to 5 percent of the total sales

revenue of the company per annum and were considered to be the cost of providing customer satisfaction and as an opportunity to building customer relationship.

However, over the last few years, many organizations have realized the underlying value that can be realized in this area. Today Warranty Management is considered to be a separate revenue stream. The process of Warranty Management has evolved over a period. The benchmarking of best practices has led to reduction in cost of service delivery of parts with increase in customer satisfaction and an independent revenue stream of warranty services.

3.2.1 What is Warranty?

Warranty is a statement of assurance or undertaking issued by the manufacturer of a product concerning the performance of the product and parts supplied by him by way of sale transaction to the customer, for a certain period as stated in the Warranty Card accompanying the product. In other words, it is a performance guarantee for the product given by the manufacturer. In case of any poor performance due to the nonperformance of any part or defect in any part of the product, will be made good by the supplier/manufacturer with either replacement of the part or product or repair of the product.

Important Components of Warranty Management System: Warranty Management is today a separate function of Service Parts Management Stream in the organization. Service Parts Managers Are P&L heads of their department and the entire business unit functions as a profit center with its revenue and cost budget.

Service Parts Management Team: Service Parts Management Teams and structure are the Service Support Delivery owners and function as primary contact points with the customer. At the first level Service, support teams comprise of Customer Desk, which is the first point contact for the customers to register the service request. Technicians and Engineers as front end site supports and second point contacts to the customers. Parts Support Managers oversee the functioning of the operations and take responsibility to close calls and for delivery performance.

Warranty Management and Claims Processing System: The entire business process and workflow management are driven by the Internet and e-commerce enabled system application that generally consists of the following modules:

- Service Warranty Database and Tracker (Database information uploaded from Sales Module)
- Service Request Registration, authorization, service job ticket issue, job ticket closure & Report functions.
- Parts procurement request, parts issue authorization
- Parts Inventory Management, Purchase Order Management, Repair Management, Vendor Management etc.

Logistics Service Management and Parts Supply Chain Management processes are driven outside the above system, managed by 3PL service providers and Logistics teams.

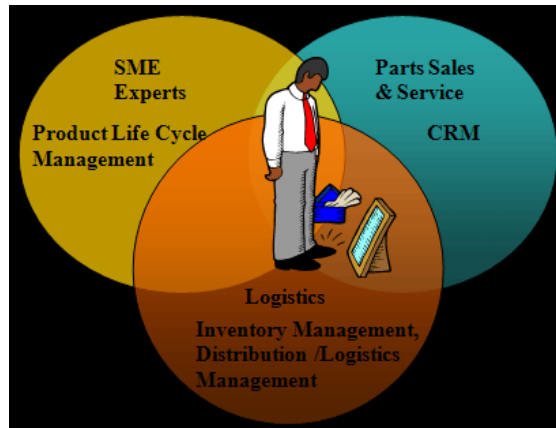
3.2.2 SME Experts

Service Parts Teams are supported by a team of Subject Matter Experts. Escalation processes determine the nature of technical support required to be assigned and timelines for service issue closures.

3.2.3 Parts Procurement and Logistics

Parts Procurement and Logistics may be handled by a single department or by separate teams depending upon the volume of business and the management structure. These functions manage parts procurement functions, inbound logistics, parts warehousing and distribution on the outbound cycle. Reverse Logistics functions managed by the team involve - Parts collection, parts segregation, inventory holding of defective parts, parts repair, warranty replacement with OE manufacturer, Re-Export, and Waste disposal or Scrapping functions.

Warranty Management is Cross Functional Team Effort



4.0 CONTRACT LOGISTICS - KEY BLOCK IN SUPPLY CHAIN MANAGEMENT

Supply Chain Activities constitute multi-modal transportation, customs clearance, and warehousing activities in one or more locations in the entire network. Supply chain activities may be local referring to within the country or regional meaning within a continent or region and global which is essentially intercontinental. Global operations are the order of the day as businesses follow markets and also look for cheaper conversion costs that are achieved by setting up manufacturing facilities in countries where costs are cheaper. Take the case of Pharmaceutical industry. High cost of manufacturing led the companies to shift manufacturing out of Europe and US to South Africa, India, and other cheaper nations. While inbound supplies from these countries may be consolidated in each country by the freight forwarder and shipped out, they may also be shipped out by the supplier to a third party warehouse in the destination country for VMI inventory replenishments. Inbound supplies may be running into thousands of part numbers and hundreds of shipments from a few hundred suppliers.

Finished goods, on the other hand, would be dispatched from the plant directly to a distribution center in the country or exported to another distribution center abroad. Similarly, each country distribution center would receive finished goods from the local plant, imported finished goods from other distribution centers. They would also receive the bought out items that are procured for integration with finished goods at the distribution center. The distribution center manages the inventory, completes any in-house process, etc. Further movement of cargo goes happens from the mother distribution center to subsidiary or secondary warehouses from where they finally reach the distributor. If you plot the above two supply chains, you will see that at any time, the highest amount of inventory is held at the warehouse that holds supplier parts and the distribution center and subsidiary warehouse. The amount of shipments in the pipeline would be very small compared to the inventory at the warehouses. Plants do not hold inventories at all. Therefore, warehouses are critical to supply chain networks. Warehouses are the main links in the supply chain and their location and functioning in terms of operations affect the rest of the supply chain efficiency.

Distribution Centers, VMI Centers, Parts Centers and various business models of warehousing activities are now outsourced to 3PL Service Providers. Many companies do manage these as critical functions in-house, but the increasing trend is to outsource these activities. A warehousing operation encompasses many value added processes and critical operations. In the case of plant logistics, these activities involve the complete responsibility of managing inbound traffic management, yard management, and inbound shipment receiving, warehousing and inventory management. In-house processes can include kitting; sub-assembly and any other value-add processes to be managed before parts are supplied to the plant. Any wrong transaction or mistake in the transaction will affect the production line and result in an increase in downtime. Other responsibilities managed include scrap management, packing material management, etc. In the case of automotive plants, these warehousing activities are very big and complex in size and word as independent companies on 24 x 7 basis with senior management being present at the site to manage the small company. Hypothetically In typical small size operations, a logistics facility could

be receiving over a hundred shipments a day, unloading around 50-60 containers a day, maintaining inventory anywhere between 20000 to 35000 SKU part numbers, held in various modes in 8000 to 10000 rack locations and many more block stock locations. Outgoing supplies to plant may happen on call basis - every two hours and supplies can consist of a few hundred parts kitted as per the Bill of Material. All this activity needs to happen continuously on a shift basis. Contract Logistics companies have further extended their services into managing semi manufacturing processes within the plant.

Many multi-national companies have invested into building Contract Logistics capabilities. The management structure consists of supply chain managers, engineers and other technical staff required managing specific segments. Development of core competence in managing warehousing operations and supply chain network was perfected in Europe in automotive, retail and many other industries. In cases where the operations size and processes involved are more than just a warehouse; normally it is referred to as Contract Logistics. The business is driven by a Contract Manager at the site with administration support staff and operations teams. Such sites normally call for a lot of investments in infrastructure including material handling equipment, racking, building, etc. The size of operations and investments being large, the contracts usually run for some years. The projects involve integration and building interface with IT applications of both companies to facilitate day to day transactions.

5.0 CONCLUSION

There are players from Multi National background, regional players, local companies and individually managed business organizations. Warehousing business, on the other hand, can flow through warehouses, consolidation and merging centers, finished goods stocking points, forward locations, raw material warehouses, JIT / VMI operations, bonded warehouses, in plant warehouses, etc. depending upon the business requirement.

In this section of the article, I covered pricing mechanism aspects of a small warehouse like a consolidation center or finished goods flow through warehouse that need not be dedicated to the buyer alone and can be a shared facility. Normally the bigger operations involving inventory management etc. are considered stand-alone facilities and costing is worked out for the entire project, and this part of discussion is not covered under the scope of this article.

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