SAMPLE CASE STUDIES – OPERATIONS

Case Study 1

Make Versus Buy Case

ABC Ltd. is a manufacturing company engaged in the manufacturing of valves. They have been in the business for last 3 years and have been manufacturing only one type of valves. They started their business initially with sales of 10,000 valves per month and now they have grown the volume to about 50,000 valves per month. They have been buying all the raw material for the valve and were doing all the manufacturing in house. Now they have established themselves in the market and are planning to expand and produce different varieties of valves. They have their plant in the main city and the total area of the plant is 50,000 sq. ft. Now if they want to expand and continue doing all the activities of manufacturing of all the varieties in house, they would need another 50,000 sq.ft. of the area. In the recent times, the land prices in the area have more than doubled in the last 3 years and still land is available with great difficulty. Mr. Mohan is the production head of ABC Ltd. and has been successful with the production and the level is continuously increasing. But in recent times, he is facing the problem of quality complaints which have gone up from average 0.2 % in previous 2 years to 0.5 % this year. Also, he is finding that there is a high level of dissatisfaction among the workers regarding workload as well as salary levels. The workers are regularly complaining about the over work.

Although, Mr. Mohan has found that the workers have been spending lot of time on tea breaks, lunch breaks and even in between the production spending lot of time talking to each other. But, due to insufficient workers and staff, he is unable to take strict action and the workers are taking advantage of this situation. For completing the work and delivering the products timely, he has to employ workers on overtime and his overtime cost has also increased 3 times. Mr. Mohan is worried about the new expansion plan of the management and is worried where the new workers would come from as he is already finding shortage of workers for the existing job. He has requested the management not to go for expansion immediately and look at improving and consolidating the existing set up. He has sent his request to Mr. S. Kumar Director – Operations.

Mr. Kumar has gone through the request of Mr. Mohan and called a meeting of all the department heads and explained the situation to all concerned. The marketing manager has expressed very bullish prospect about the company’s growth and said that the company should take advantage of growing economy and established brand image of the company and definitely go for expansion. The finance manger also expressed that this will result in economy of scale for the products and will further increase the profitability of the products. Mr. Mohan again expressed his problems regarding availability of manpower as well as production control and effect on quality and productivity. The Marketing manager asked the Production manager about the option of outsourcing. Mr.

Mohan is skeptical about the outsourcing option as he felt that the outside agency will always charge more as he will try to make his profit as well and also is worried about the possible problems of deliveries. Mr. Kumar asked the Mr. Naresh who is the Purchase manager about his views. He said that since the suppliers would also be interested in doing the business, they would not like to delay as with delay they also incur loss. The Finance manager said that we can look at cost comparison for buying against in house manufacturing.

After listening to all the views, Mr. Kumar told Mr. Mohan to work out the cost of production for future sales as per the forecast given by the Marketing department. He also told Mr. Naresh to collect the details of the future requirements to get the purchase cost details for few components of the valve.

Mr. Mohan and Mr. Naresh have collected their data and they have presented the data in the meeting called by Mr. Kumar to review the plan. First the marketing head Mr. Suresh presented his market forecast and then Mr. Mohan presented his report and explained the details as follows.

One supervisor with monthly salary of Rs. 5000 with expected increase of 10 % per year.
Direct wages of worker as Rs. 4 per unit. With 10 % reduction in second year, no change in 3rd year and increase of 10 % every subsequent year.
Material cost of Rs. 14 per unit with an increase of 10 % every year.
Power and fuel cost of Rs. 2 per unit with increase of 10 % every year.
Indirect labor as 50 % of direct labor.
They will have to buy a new machine with a cost of Rs. 50 lac. With usable life of 5 years

Mr. Naresh explained his details as follows:

Component price from supplier at Rs. 20 for the first 2 years with an increase of 10 % every subsequent year.
Transportation cost of Rs. 2 per unit for the first year with increase of Rs. 0.20 every subsequent year.
Inventory cost (storage cost) as 5 % per year of the basic material cost.

The Marketing manager has given the sales forecast for next 5 years as follows:

Year	1	2	3	4	5
Sales quantity	300000	500000	700000	900000	1000000

Questions

1. Based on this data, is it economical for ABC Ltd.to go for buying the product from market or manufacturing in house.

2. What other factors should ABC Ltd. look at for making this decision?

Possible Solutions

1. The following table gives the cost comparison of in house cost and outsourcing cost.

Manufacturing Cost

YEAR	1	2	3	4	5	TOTAL
QTY PER YEAR	300000	500000	700000	900000	1000000	3400000
MATL COST / UNIT	14	15.4	16.94	18.634	20.4974	
LABOR COST / UNIT	4	3.6	3.6	3.96	4.356	
INDIRECT LABOR COST / UNIT	2	1.8	1.8	1.98	2.178	
POWER & FUEL COST / UNIT	2	2.2	2.42	2.662	2.9282	
VARAIBLE COST / UNIT	22	23	24.76	27.236	29.9596	
TOTAL VARIABLE COST / YEAR	6600000	11500000	17332000	24512400	29959600	89904000
SUPERVISOR SALARY / YEAR	60000	66000	72600	79860	87846	366306
MACHINE COST / YEAR	1000000	1000000	1000000	1000000	1000000	5000000
TOTAL COST / YEAR	**7660000**	**12566000**	**18404600**	**25592260**	**31047446**	**95270306**

Procurement Cost

YEAR	1	2	3	4	5	TOTAL
QTY PER YEAR	300000	500000	700000	900000	1000000	3400000
MATL COST / UNIT	20	20	22	24.2	26.62	
TRANSPORT COST	2	2.2	2.4	2.6	2.8	
INVENTORY COST	1	1	1.1	1.21	1.331	
VARAIBLE COST / UNIT	23	23.2	25.5	28.01	30.751	
TOTAL COST / YEAR	**6900000**	**11600000**	**17850000**	**25209000**	**30751000**	**92310000**

Considering the costs as per table above it is very clear that we should go for buying the product from outside.

2. Even if the cost would have been same for both manufacturing in house as well as cost for procurement, we would have still gone for purchasing the product from the supplier. In case cost is higher for procurement little bit as compared to manufacturing in house, it is better still to go for buying from outside as it gives better flexibility and risk is less even if the forecast is wrong and the ultimate demand turns out to be lower than forecasted demand. Generally, whether we should go for in house manufacturing or outsourcing, we have to consider following factors.

The following factors generally influence make-or-buy decisions:

a. Relative economics
b. In-house capacity currently available
c. The need for control or secrecy
d. Advantages of access to supplier knowledge and skill
e. An opportunity to maintenance a robust supplier
f. The relative risks involved
g. Capital investment versus expense for tax purposes
h. Degree of scope definition available
i. Affects uncertainty and risk
j. Overall degree of technical, cost and schedule risk
k. Type or complexity of the requirements
l. Confidentiality of the process
m. What will be the contractor's entire responsibility?
n. Urgency of the deliverables
o. Contractors' capacity to perform
p. And/or extent of subcontracting
q. How long have we got for execution?
r. Affects the pace of the work
s. Extent of price competition
t. Contractors' accounting systems

Careful evaluation of these factors is required to arrive at final decision.

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Case Study 2

Logistics Operations

ABC Ltd. is the country's largest manufacturer of spun yarn with well-established market. ABC Ltd. has good reputation for quality and service. Their marketing department identified that the potential for global market is expanding rapidly and hence the company undertook exercise for expansion of the capacity for export market.

The company formed team of Marketing and Materials department to study the global logistics possibilities. After extensive study, the team came up with a report on global logistics and submitted that global logistics is essentially same as domestic due to following similarities:

- The conceptual logistics framework of linking supply sources, plants, warehouses and customers is the same.
- Both systems involve managing the movement and storage of products.
- Information is critical to effective provision of customer service, management of inventory, vendor product and cost control.
- The functional processes of inventory management, warehousing, order processing, carrier selection, procurement, and vendor payment are required for both.
- Economic and safety regulations exist for transportation.

The company had very economical and reliable transportation system in existence. For exports as well they decided to evaluate capabilities of their existing transporter and entrusted them with the job of transport till port. For customs formalities they engaged a good CHA after proper cost evaluation and entered into contract for freight with shipping company agent.

The response for company's export was very good and the company could get as many as 15 customers within first two months and reached to a level of USD 250,000 per month by the end of first half of the year. Based on this response the export volumes were expected to grow to a level of USD 400,000 per month by the end of the year. When the review was made at the end of the year, company found that export volumes had in fact come down to the level of USD 120,000 which was much lower than it had reached in the first half of the year.

The managing committee had an emergency meeting to discuss this and the export manager was entrusted with the task of identifying the reasons for this decline. Mr. Ganesh decided to visit the customers for getting the first hand information. When he discussed the matter with the customers, the feedback on the quality and price were good but the customers were very upset on the logistic services due to delayed shipments, frequent changes in shipping schedules, improper documentation, improper identifications, package sizes, losses due to transit damages etc.

After coming back, the export manager checked the dispatch schedules and found that production and ex-works schedules were all proper. Then he studied the logistics systems and found that the logistics cost was very high and all the logistics people were de motivated due to overwork and were complaining of total lack of co-ordination and the system had become totally disorganised.

Questions

1. Explain the problems experienced by ABC Ltd. What is the main cause of these problems?

2. What logistics model should the company go for to ensure proper operations of the company?

Possible Solutions

1. Here in this case, the company has faced problem of dissatisfied customers. The company has faced this problem due to improper handling of their logistics operations. The employees of the company are feeling the pressure of overwork as well as are demotivated due to the inefficiency in their logistics. The problem has been faced by the company due to their inadequate understanding of international logistics. Although their analysis of similarities between domestic and global logistics is correct but they have overlooked the fact that there are basic operational differences between global and domestic logistics operations.

   The basic difference in the domestic and logistics operations are as follows:

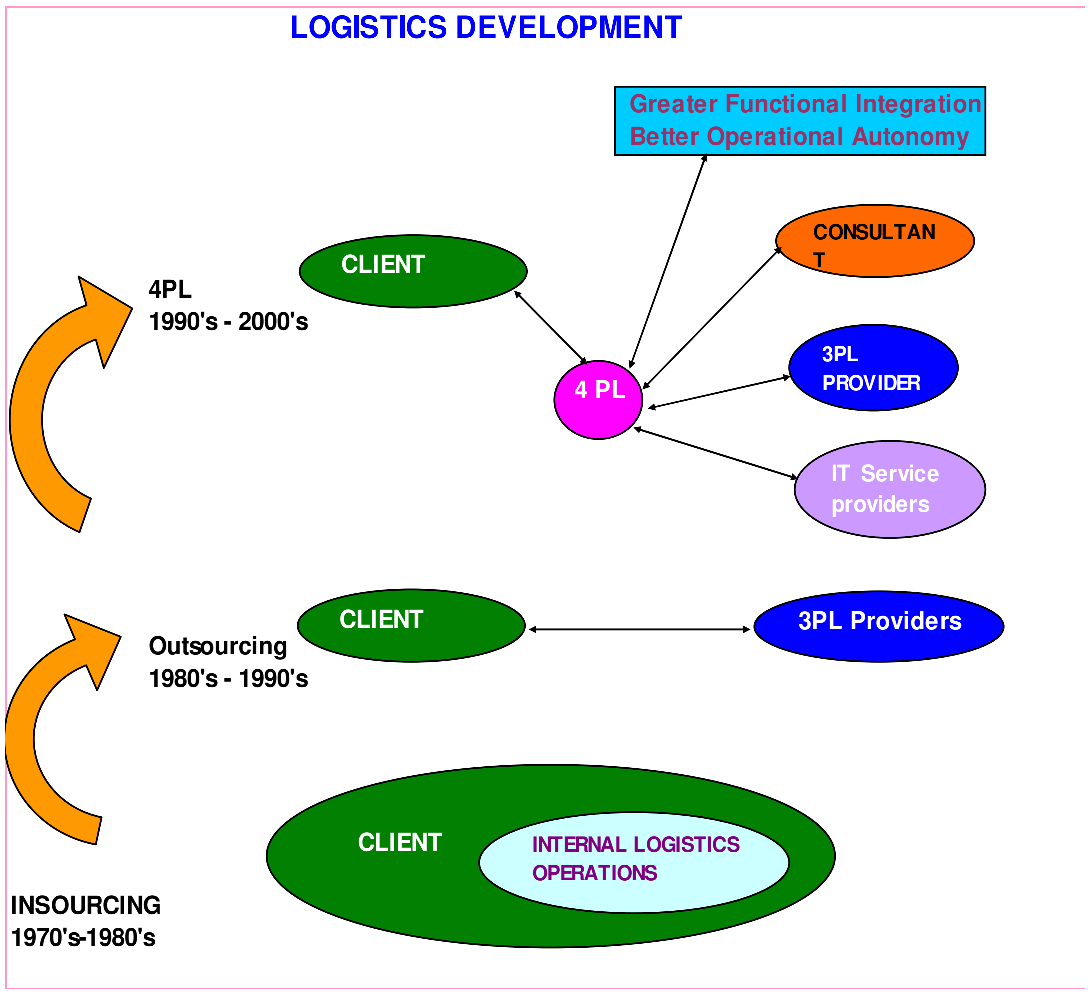
   - Distance : Global supply chain is typically greater than the domestic supply chain
   - Language: In domestic supply chain, usually only one language is spoken; whereas in a global supply chain, multiple languages are utilised.
   - Meaning : In international trade, same word has different meaning in different countries. Ton (Short= 2000, Metric=2205, Long=2240)
   - Cultural : Culture and work ethics vary across the countries.
   - Govt. Regulations : Country wise rules and regulations are different.
   - Currency : Exchange rate fluctuations are common in global chain.
   - Political Situation: Political instability in various parts of the world is a common factor for global supply chain.
   - Infrastructure : The infrastructure facilities vary in different countries.
   - Environment : Environmental regulations and compliances vary considerably in the global supply chain.
   - Labeling : Labeling laws differ among countries.
   - Customs: Each country has regulations controlling the exporting and importing of goods and services and can change overnight.

- Transport Regulations : Transport regulations in different countries vary to a great extent.
- Paperwork: Typical global logistics may require 20 to 30 different types of documents to be prepared depending on the country regulations.
- Payment Modes : Compared to local payments, mode of payments for global logistics is governed by different regulations.
- Govt. Regulations : Banking, Insurance, Accounting etc. regulations.
- Govt. Schemes : Understanding of DEPB, Drawback, Advance License, EOU, Free Shipping bill.
- Cross Country Agreements: Agreements like SAFTA, NAFTA,ASEAN etc.
- Carrier Selection: As regards selection of mode of transport, many modes and combination of modes are required in international logistics e.g. Charter Vessels, Break-Bulk, Containerised (GP,HQ,FR,OT) LCL, Air
- Stuffing: Different loading options are available for global logistics and the procedures and documentation is different depending on the type of loading like Factory stuffing, Dock stuffing, Consolidation etc.
- Preservations : Various atmospheric conditioning requirements are there for global logistics due to higher transit time.
- LC conditions : Understanding of Contracts and other conditions has to be very clear as different countries have different contractual obligations and payment modalities.

2. The solution for this problem is appointment of 3PL / 4PL service provider. A third-party logistics provider (abbreviated 3PL) is a firm that provides outsourced or "third party" logistics services to companies for part or sometimes all of their supply chain management function. Third party logistics providers typically specialise in integrated warehousing and transportation services that can be scaled and customised to customer's needs based on market conditions and the demands and delivery service requirements for their products and materials. There are numerous reasons why using 3PL can help to run a business more efficiently. Outsourcing logistics, first and foremost, helps a business preserve valuable time. By freeing up resources in the organisation, more time can be allocated to focusing on core competencies. It is also important to note that having the required resources available does not guarantee success. 3PL providers exist because they have an expertise in providing logistics support and therefore can potentially add value to the business supply chain. Outsourcing to a Third-Party Logistics Provider can also create shared responsibility for the business. The 3PL can share responsibility for a variety of services, such as supply chain management and locating economies of scale. Utilising a 3PL provider can also help to re-engineer a business' distribution networks by plugging the business into new markets. All of the benefits of outsourcing logistics to a 3PL provider contribute to gaining a competitive advantage in the market. A 3PL provides integrated logistics services (i.e. the complete set of logistics activities from the buyer to the seller). A 3PL is assets based unlike a 4PL (fourth-party logistics provider). The term "4PL" was actually coined by the consulting group

Accenture. In fact, they also hold the trademark to the name 4PL. Accenture defines a 4PL in the following manner: "A 4PL is an integrator that assembles the resources, capabilities, and technology of its own organisation and other organisations to design, build and run comprehensive supply chain solutions."

Following diagram give insight into working of 3PL and 4PL.



Thus, it will be advisable for ABC Ltd. to go for integrated 3PL service provider who will handle all their activities of export logistics operations.

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