



SOURCING STRATEGY- A CASE STUDY IN A TWO WHEELER COMPANY

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ABSTRACT

The purpose of this paper is to explore the dimensions of “Make” or “Buy” decision of sourcing determines its relationship with organizational supply chain agility and performance. The aim is to analyze if the decision process, or parts of it, can be used as a base for building a right long term sourcing strategy model. In this paper sourcing strategy is defined as; “the system which gives the “Make” or “Buy” solution is the long term strategic sourcing to be competitive now “. Our analysis of the literature points to a few areas of research pertaining to “Make” or “Buy” decision in sourcing strategy. There is need for studying different aspects related to “Make” or “Buy” to take appropriate decision in the given situation. The concept of outsourcing has, therefore, been growing rapidly during the last decade. Despite many old companies seem to have a vague understanding about the risks and benefits of outsourcing, except from a general idea that it will reduce cost and inventory. Many companies hence experience that sourcing decisions are complex and the need for a model supporting sourcing decision exist within many corporations sourcing strategy. The results indicate that a model for sourcing strategy ought to include, or be based on, following aspects, e.g. the company’s overall sourcing strategy, the company’s core competence. The sourcing process also ought to be made with a process approach, avoiding functional sub-optimization. The results of the measure of performance parameter’s are tabulated also indicated that financial evaluation benefits. This research was conducted on particular assembly of a niche market two wheeler Company. The company was working in a conservative culture and technology of more than 50 years old and struggling to grow in the market due to non adoption of the latest systems. Most of the noncore productions are done at in house. Costing more to the company with higher inventory. As a first steps the noncore production out sourcing done successfully. The fact that the study was done on a specific area and situation cannot be applicable to all industry.

Key words: *Supply chain, Make or Buy, Inventory, Sourcing strategy and supply chain agility*

1. Introduction

In the modern days, Business model has changed in numerous diverse ways due to global competition and high level of customer demand. Rapid development of Information and Communication Technology has made manufacturing, marketing are available in a short time and on affordable price.

Inventory is an invisible cost for any type of Industries. Higher inventory level affects indirectly the profitability of the organization drastically. Market fluctuation, Inaccurate market forecasting, wrong source selection, imbalanced inventory, vague sourcing strategy, etc., lead to higher inventory level. There are many different methods /tool available to control the inventory to optimize profitability and also meet the customer requirement. In this Make or Buy one of the method almost most of the company should have to pass through at one stage in different area like components,

sub-assemblies, assemblies, services, design etc. The sourcing manager has to have right sourcing strategy to make the entire organization, lean and flexible to meet the market requirement.

The literature on JIT production suggests a causal link between work-in-process inventory and manufacturing productivity. One of the studies uses historical data for 52 Japanese automotive companies to evaluate the relationship between inventory and productivity. The study indicates that on average, every 10% reduction in inventory level led to about 1% gain in labor productivity with a lag of about one year (Demeester, April 1999). These findings imply that the inventory reduction served as an important driver of process improvement and profit for all companies in the world.

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This paper describes relevant theories of inventory and sourcing strategies academically. It also illustrates the adopted methodology for the study. Furthermore, the paper depicts the results from a case study conducted in a two wheeler manufacturing company. Finally the Conclusions drawn from the case study are presented. The conclusion may be considered for future sourcing strategy for the company to improve the sourcing efficiency.

2. Literature Overview

The issue whether to make all components in-house or buy it from external suppliers have been an important issue for both the industry and the academy during a long time. Theories about sourcing have, according to Probert et al. (2000), been developed from different perspectives; the cost and strategic perspective. The first perspective, cost, aims to answer the sourcing decision with cost calculations as base (Mock and Millar, 1970; Yoon and Naadinutha, 1994; Poppo et al., 1995).

The second angle on sourcing literature, which Probert et al. (2000) points out, is the strategic perspective, which focuses on further aspects to the sourcing decision besides cost. Jennings (1997), Ford et al. (1993), Welch and Nayak (1992), Quinn (1999), Probert (1996), Insinga and Werle (2000) and Fill and Vissers (2000) are examples of researcher that all have been focusing on at more aspects to consider before taking a sourcing decision besides the cost. Although the strategic implications of sourcing questions have been discussed for many years, sourcing decisions are often made purely on the basis of cost (Probert et al., 2000) and many companies lack a firm basis for the evaluation of the sourcing decision. McIvor (2000) have, however, developed a model for outsourcing decisions that combine the sourcing decision with the companies' overall strategy.

Sharon Novak (2005) from Kellogg School of Management indicated the benefits of outsourcing of ABS Brake system.

2.1 Sourcing Model

The author David Probert in his "developing a make or buy strategy for manufacturing business" discussed three ways in which people in manufacturing industry encounter the need to make these decisions.

2.1.1. Strategic Make or Buy

Central to the manufacturing strategy of a business, the strategic approach in the long term aligns the choice of which parts of the products to make and which manufacturing processes to have in house with

the goal of the business. It provided the frame work for the shorter term tactical and component decisions.

2.1.2. Tactical Make or Buy

This deals with the issue of temporary capacity imbalance. When unforeseen changes in demand happen, it may not be possible to make everything in house even though this would be the preferred option. Controversially, if load falls, the company may wish to bring in house some work which had previously been outsourced, without damaging important supplier relationships. In these situations, managers need a way to choose between Make or Buy, within the guidelines of the strategy, and usually on the basis of optimal finance contribution.

2.2.1. Components Make or Buy

Usually at the design stage, component make or buy is the decision about whether a particular component of the product should be made in house or bought in. Largely determined by the capabilities and criteria established within the strategy, this decision becomes a routine matter that can be handled by a project team whenever it arises. The team should meet regularly to deal with this question, represent different functional views within the business and be familiar with the processes involved. Each company can take appropriate make or buy strategy based on their need and requirements.

Quality and new product characteristics, which leads to the question if the company should buy from an external supplier or manufacturing internal. According to Probert et al.,(2001) four main areas should, be compared and evaluated during the sourcing decision :(1) Technology and manufacturing processes. Technology and equipment, and Skills to perform and support the process.(2) Costs: Production costs and acquisition costs. (3) Supply chain management and logistics: Choice of supplier, collaboration with Suppliers and time to delivery. (4) Support systems: Quality and information systems and technical service.

This model points out the importance of cost accounting and that the decision should be followed up after some time. For a more detailed description about the sourcing model, read Probert et al. (2000).

3. Methodology

Looking at the constraints at the basic level such as man, machine and material, it was decided to use the following seven steps Make or buy decision methodology in this study. The Flow diagrams give the seven steps used for the present case study.

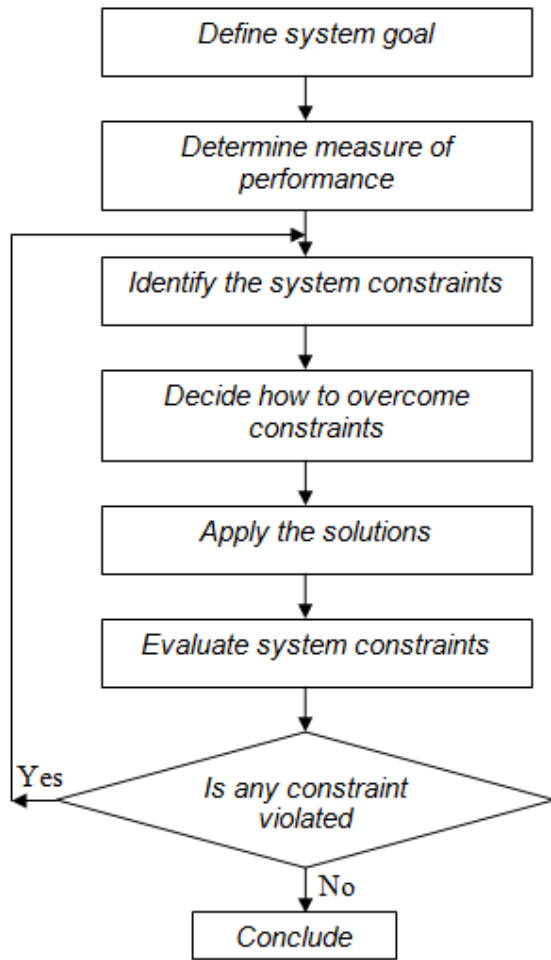


Fig. 1 Flow diagram for Methodology

3.1 Case Study

This study was conducted on a particular assembly at a two wheeler manufacturing company. The main objective of this study is to present the pattern of reduction in inventory by right sourcing strategy. This study would help the company taking a long term sourcing strategy. The Company is engaged in manufacturing high end motor bikes for niche markets. It is fifty years old company having 800 employees, manufacturing bikes, and selling bikes mainly for India and some portion for exports to different countries.

Since the company is 50 years old, the suppliers and the labor force are associated with this company for a long time and the in house process technology also obsolete. Recent and advanced process technology and procurement strategies are not adopted. Hence the key challenge is to improve the efficiency of sourcing, and formulate the sourcing model. First step is to reduce the raw material inventory. The thrust for

inventory reduction usually comes from financial analysis that reveals less than desirable conditions or performance. It might include a low return on investment, declining income, cash flow difficulties, or a belief that inventory investment is too high predicated on a turnover ratio that is too low. While these systems may be due to various reasons, it is common for them to be manifested in larger inventory.

To take appropriate decision for the particular assembly area, the management team established a cross functional group that worked together ,People from the sourcing department, the quality department, the finance department, the production department and R & D department including the representatives from labor union. After the identification of constraints in sourcing, quality, delivery and in house manufacturing process, and after sales service etc,it was decided to go for the study of Make or Buy decision process.

3.1.1 Definition of the System’s Goal

The basic definition of the system goal is to reduce the inventory, for the particular assembly. It is to reduce the total level of inventory from 4.2 m INR

3.1.2. Determination of the Measure of Performance

Seven parameters have been considered for the measurement of performance that include the measure of number of day’s inventory, value of inventory, reduction in manpower, delivery performance, warranty cost, subcontracting stock reconciliation. The data of these parameters are presented before taking the right action at Table 1

Table1: Front Fork Supply Chain Status at Inhouse Production

Major Measure			
Number of day’s Inventory		45	
Value of Inventory		4.2 m INR	
Other Measure			
Total Manpower used at Assembly and Machine Shop		20	
Delivery Performance		76%	
Warranty cost per annum		2.5mINR	
Subcontracting Stock reconciliation		Cumbersome	

Table 2: Details Front Fork Components Inventory Details

S.No	Description	Qty	Inv Value in Rs
1	Fork end LH Casting	1	529600
2	Fork end RH Casting	1	529600
3	Main tube cut length	2	1718010
4	Fork Spring Stud	2	104328
5	Spring long	2	412776
6	Valve Port	2	86940
7	Oil Control Collar	2	34776
8	Stud Cable adjuster	1	25326
9	Spring Guide	2	48762
Inv Value of the A & B Class parts			3590118
C Class parts			
1	Nut , Fork Spring Stud	2	58968
2	Spacer	2	56700
3	Ft. Fork Oil Seal	4	107654.4
4	Nut spring guide	2	40068
5	Washer , Copper Stud	2	39312
6	Stud	4	46872
7	Nut, forkend stud	4	46872
8	Spring Short	2	20260.8
9	Stud Mudguard stay	3	29484
10	Stud	2	19656
11	Valve Plate	2	17690.4
12	O ring	2	11793.6
13	Spacer	2	9828
14	Washer , Shake Proof	4	15422.4
15	Circlip	2	6048
16	Circlip	2	4536
17	Circlip	2	3024
Inv Value of the Subcontracted Parts			184615.2
1	Main tube	2	200245
2	Main tube AF body	2	100633.5
3	Fork end LH(Buffed)	1	186984
4	Fork end RH	1	186984
Total Value of the Subcontracted Parts			726046.6
Total Value of Inventory for the Front fork			4200780

The above table 2 shows the inventory details of different components of the assembly .The total value of inventory for the entire assembly is Rs.42 Lakhs.

3.1.3 Identification of the System Constraints

This study has identified the areas which cause excess inventory. It also executed the entire value stream mapping of the particular assembly, supplier capabilities, supply performance, internal design and production capabilities. As a result, the system constraints are identified.

Since the volume of production is very low, the suppliers are willing to supply a minimum batch quantity. The minimum batch quantity for items itself have inventories for six months that cause higher inventory level.

The number of supplier is more (21 Nos) and procurement of the parts (30 Nos) also more. Out of 16 total operations, 11 operations are carried out at in house, and 5 operations are carried out externally. Due to different location of operations, the materials kept as a stock in different stages cause more inventories.

Because of more suppliers and less volume of business, managing the supplies gets the first priority than controlling the inventory or quality of the product.

The process is an obsolete technology process as this assembly has been carried out for the past 25 years. The technological up gradation of machines and process has not been done.

The labor forces are also comfortable in doing these operations, not willing to improve the productivity. Since they have been doing these operations for a longer period.

The total number of components for this assembly is 30. The total number of supplier is 21. Fig 2 represents the present value stream mapping. It shows the 21 suppliers for the assembly and 30 components flow to the machine shop, and assembly.

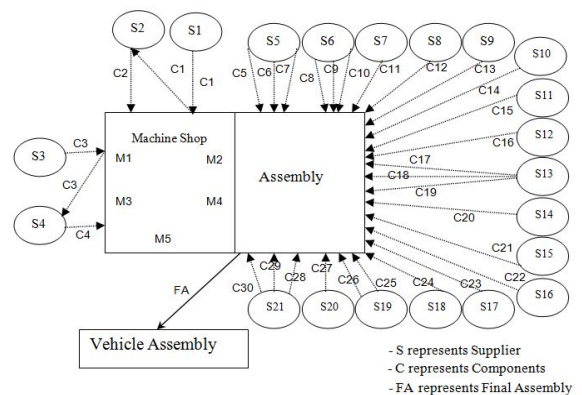


Fig. 2 Value Stream Mapping

3.1.4. Decision of How to Overcome the Constraint

After studying the entire value stream mapping, it was evident that the constraints were almost in all men, materials, and machines for reduction of the inventory. To eliminate the constraints from the root level, Based on the literature study and considering the time and cost required modifying the process at in house is becoming an unviable process. Since this process is one of the noncore manufacturing of this company. Based on cost benefit analysis it has been taken a decision to buy it from outside. As per literature overview maximize the outsourcing for the non-infrastructure components. Based on this recommendation it was decided to go for buy for this particular assembly.

3.1.5. Applying the Solutions

Based on the buy decision for this assembly, to implement the decision the Cross functional team started identifying the supplier and developed the samples, tested successfully and implemented the assembly outsource in the vehicle assembly. It has been decided during development stage itself the inventory at factory will be 3 days inventory. This is one of the key agreements with the supplier during the development stage itself. The supplier is 1000km away from the two wheeler manufacturing company. The supplier identifies a transporter warehouse near the plant and supplying the assembly to maintain the 3 days in`ventory.

Table 3: Benefit Comparision Table

Details	Before Corrective action	After Corrective action
Major Measure		
Number of day's Inventory	45 day's	3 day's
Inventory Value	4.2 mINR	0.8mINR
Other Measure		
Total Manpower used at Assembly and Machine Shop	20	Nil
Delivery Performance	76%	100%
Warranty cost per annum	2.5mINR	0
Subcontracting stock reconciliation	Cumbersome	Not applicable

3.1.6 Evaluation of the System Constraints

After started buying the assembly from the supplier, the measure of performance is compiled and tabulated in Table 3.

As per the new sourcing system the total number of component become one from one supplier as against of earlier procurement of 30 items from 21 suppliers. The fig 4 shows the details. Since the step 6 has given the required results, it is not preceded to the step 7. Fig 4 represent the simple value stream mapping as compared to the previous complex value stream mapping. This will give huge benefits to the organization.

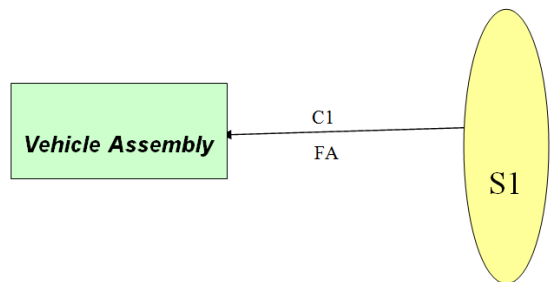


Fig. 4 Value Stream Mapping

4. Conclusion

The study implies by taking the appropriate sourcing decision, the cost of inventory is reduced drastically. Also the literature review indicated that the sourcing methodology is important for an organization. After the complete study and implementation of the Make or buy decision, the conclusion is to keep the critical processes like engine assembly, vehicle assembly ,paint shop and testing at inhouseRest of the operations can be out sourced. The company can take this as a sourcing strategy .This study is conducted in a particular industry cannot be generalized to all situation.

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