Original Research Article

Constraints and suggestions towards Supply Chain Management of Arize 6444 In Patna District of Bihar

Abstract

The study conducted in Patna district of Bihar State has investigated the supply chain of Arize 6444 seed based on the data collected in the field survey from 100 respondents. The study has used Henry Garrett's test for analysis. The study focused on the different constraints involved in the marketing of Arize 6444. The study has revealed that factors such as price, availability, certification problems, transportation, quality problems, competitors, communication gaps, and communication gaps hold a 1 to 7 ranking, respectively. This indicates that price is a major concern that should be considered first. It is also suggested that promotional activities like demonstrations, farmer meetings, and company co-official field visits be done at regular intervals to overcome the constraints.

Key words: Supply chain, constraint, factor affecting.

Introduction

Agriculture is the back bone of the Indian economy and plays a vital role in the overall development of the nation. About 70% of India's population, that is 830 million people, reside in rural villages, and agriculture is their primary source of food, fodder and fuel, as well as income to satisfy other needs. India has achieved self-sufficiency in food grain production and now the major concern is to achieve higher growth rate. There are two broad means for improving the competitiveness of a supply chain. One is a closer integration of the organizations involved and the other 1 Supply Chain Management – An Overview 11 is a better coordination of material, information and financial flows. **(Lee and Ng,)**

The term "supply chain management" arose in the late 1980s and came into widespread use in the 1990s. Prior to that time, businesses used terms such as "logistics" and "operations management" instead. Here are some definitions of a supply chain:

"A supply chain is the alignment of firms that bring products or services to market."—from Lambert, Stock, and Ellram. (**Lambert, Douglas M., James R. Stock, and Lisa M. Ellram, 1998).**

"A supply chain consists of all stages involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers, and customers themselves. "from Chopra and Meindl (**Chopra, Sunil, and Peter Meindl, 2015)**

"A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers." (**Ganeshan, Ram, and Terry P. Harrison, 1995),** "

The systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole." **(Mentzer, John T., William DeWitt, James S. Keebler, Soonhong Min, Nancy W. Nix, Carlo D. Smith, and Zach G. Zacharia, 2001**)

There is a basic pattern to the practice of supply chain management. Each supply chain has its own unique set of market demands and operating challenges and yet the issues remain essentially the same in every case. Companies in any supply chain must make decisions individually and collectively regarding their actions in five areas:

1. Production—What products does the market want? How much of which products should be produced and by when? This activity includes the creation of master production schedules that take into account plant capacities, workload balancing, quality control, and equipment maintenance.

2. Inventory—What inventory should be stocked at each stage in a supply chain? How much inventory should be held as raw materials? Semi-finished00, or finished goods? The primary purpose of inventory is to act as a buffer against uncertainty in the supply chain. However, holding inventory can be expensive, so what are the optimal inventory levels and reorder points?

3. Location—Where should facilities for production and inventory storage be located? Where are the most cost efficient locations for production? and for storage of inventory? Should existing facilities be used or new ones built? Once these decisions are made they determine the possible paths available for product to flow through for delivery to the final consumer.

4. Transportation—How should inventory be moved from one supply chain location to another? Air-freight and truck delivery are generally fast and reliable but they are expensive. Shipping by sea or rail is much less expensive but usually involves longer transit times and more uncertainty. This uncertainty must be compensated for by stocking higher levels of inventory. When is it better to use which mode of transportation?

5. Information—How much data should be collected and how much information should be shared? Timely and accurate information holds the promise of better coordination and better decision making. With good information, people can make effective decisions about what to produce and how much, about where to locate inventory, and how best to transport it. Supply chain management as the chain linking

each element of the manufacturing and supply process from raw materials through to the end user, encompassing several organizational boundaries. According to this broad dentition, supply chain management encompasses the entire value chain and addresses materials and supply management from the extraction of raw materials to its end of useful life. **(Scott and Westbrook (1991) and New and Payne 1995)**

Supply chain management may allow organizations to realize the advantages of backward vertical integration while overcoming its disadvantages. However, certain conditions must be present for a successful supply chain management adoption. **Farley (1997)** concludes that the single most important prerequisite is a change in the corporate cultures of all members in the value chain to make it conducive to supply chain management. A traditional culture that emphasizes seeking good, short-term, company-focused performance appears to be in convict with the objectives of supply chain management. Supply chain management focuses on positioning the virtual organization in such a way that all contributors in the value chain bennet. Elective supply chain management rests on the twin pillars of trust and communication **(Grieco, 1989)**

I Research Methodology

The precise method utilised to choose, pinpoint, process, and evaluate data on a topic is known as research methodology. It enables the reader to assess the study's reliability and validity. It is the route that the researchers must take in order to do their investigation. Basically, the methods through which researchers will continue. A thorough inquiry plan is known as research methodology. This chapter describes the methodology and investigational process employed throughout the whole trial period.

Garrett's Ranking

Garrett's Ranking Technique is applied to study the preference, change of orders of constraints and advantages into numerical scores. The prime advantage of this technique over simple frequency distribution is that the constraints are arranged based on their severity from point of view of respondents.

Percentage Position = $\frac{\{100(Rij-0.5)\}}{Nj}$

Where: -

Rij = Rank given for the ith variable by jth respondent.

Nj = Number of variable ranked by jth respondent.

II Result and Discussion

Objective: To identify different constraint involved in marketing of Arize 6444 & suggest suitable method.

There are many constraints which is selected on the based on the survey and study. Price, competitor, Transportation, Communication Gap, Availability, Quality Problem and Certification are taken as constraint in marketing of Arize 6444.

Table 1: Rank Given by Respondents to Factors

Constraints	Rank Given by Respondents						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Price	17	15	14	11	17	17	9
competitor	13	15	13	15	9	11	24
Transportation	18	10	12	18	13	11	18
Communication Gap	12	12	14	13	15	16	18
Availability	14	18	18	15	17	12	6
Quality Problem	12	13	15	16	14	18	12
Certification problem	14	17	14	12	15	15	13

Table 2: Percent Position & Garrett value

S No.	Position	Garrett Value
1	7.14	78
2	21.43	66
3	35.71	57
4	50.00	50

5	64.29	43
6	78.57	34
7	92.86	21

Calculation

Table 3: Calculated value & Ranking

Constraints	Garrett's Value of Response							Sum	value	Ranking
	1	**2**	**3**	**4**	**5**	**6**	**7**			
Price	1326	990	798	550	731	578	189	5162	51.62	1
competitor	1014	990	741	750	387	374	504	4760	47.6	6
Transportation	1404	660	684	900	559	374	378	4959	49.59	4
Communication Gap	936	792	798	650	645	544	378	4743	47.43	7
Availability	1092	1188	1026	750	731	408	126	5321	53.21	2
Quality Problem	936	858	855	800	602	612	252	4915	49.15	5
Certification problem	1092	1122	798	600	645	510	273	5040	50.4	3

The above calculation shows that most of the respondents consider price as the primary factor which influences their buying behaviour. Availability and Certification hold second and third positions. Reference from others, Transportation, Quality problem, competitor, and communication gap hold fourth, fifth, sixth, and seventh position respectively.

Suggestions:

- ✓ Price of the product should be in limit as compared to the product of other market players.
- ✓ Identify potential dealers and distributors for selling of their product because farmers buying their products under dealers and distributor influence.
- ✓ Promotional activities like Demonstration, farmers meeting, company co-officials field visit at regular interval should be done.
- ✓ Conducting demonstration in the fields of progressive farmers and showing the practical results and benefits associated with the product to progressive farmers. It can also attract other farmers who make their decision after consulting with progressive farmers.

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