Efficiency in the Kenyan Purified Bottled Water industry: A Channel Intensity Strategy

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Abstract

Guided by the resource dependency theory and the contingency theory, this research sought to assess the relationship between channel intensity and distribution efficiency. Through systematic sampling 287 respondents were selected from employees of Aquamist limited in two distribution centres.The study used channel length and width as variables. This was illustrated using a case study of Aquamist Limited, a firm in bottled water purification and distribution. The data obtained were presented using cross tabulation and pie charts. The findings reveal that (i) distributors of purified bottled water preferred short and direct channels of distribution (ii) The number of distributors were inversely related to market coverage (iii) The expansion of channel intensity took tacit forms. The study recommends that while going for direct channels distributors need to employ agile distribution intensities to safeguard market coverage. Moreover new differentiated and branded bottled water products need to be pushed through the existing channels to enjoy economies of scale if channel expansion was not an option.

Key words: Distribution efficiency, channel intensity, purified bottled water.

Introduction

The purified bottled water global market faces cut throat competition. Channel intensity is mainly used to attain place and time utility. Competition is presented by juice and tap water as well as close substitutes represented by similar products. The global market concentration is low (Gleick, 2004). Consequently, the way distributors select channel intensities contributing to efficiency is important. Channel intensity decisions involve selection of channel width and the length of distribution (El-Ansary,Stern & Coughlan 2006). While the last decade has seen large shifts in manufacturing and distribution practices, there has been very little empirical research investigating manufacturers’ channel intensity in beverages distribution (Clemenz & Pamela 2002).

According to the international bottled water association (IBWA, 2002) bottled water refers to natural water, springs water, sparkling water and purified water. This association also includes in their definition, well water and sparkling water. The ever increasing demand for bottled water consumption, high competition and the relative less entry barriers in the industry are some of the significant issues facing bottled water distribution intensity (Shermer 2003).

The world wildlife fund survey (2002), estimates that individuals around the globe consume some 89 million litres of bottled water annually. This increase in consumption is largely attributed to health reasons,diet,lifestyle, the premiumization of water and clever advertising against tap water and other soft drinks (Wiesenberger, 2003: Amato & Amato 2009).

In Kenya, purified bottled water represents an alternative to packaged beverages and other sugared drinks. The small packaged sized 300ml comprise the fastest growing segment in supermarkets and retail shops .The industry performed well in 2011, registering growth of 10% in total volumes (Euromonitor 2010). Like other markets, consumers choose bottled water for its taste and purity. It is estimated that the bottled water industry nets over 1.3 billion shillings (16 million U.S dollars) annually. With the quest for safer water and agile channel intensities, the sales are bound to increase (Softa, 2005).

The selection of channels includes choosing distributors, agents, retailers, franchisees, distribution and a sales force (Yadav & Varadarajan, 2005).This also involves decisions about market coverage, vertical systems or multi-channel networks, strategic alliances and sales force management (Chen, Pulraj & Lado 2008). Other decisions include stock levels decisions, minimum order quantities, delivery methods, delivery frequency and warehouse locations. According to Cho et al (2007) all this decisions must be made in context of the intensity adopted. Channel intensity defines how a business is likely to move products efficiently from the point of creation to points of consumption.

Unlike the beer distribution industry, the bottled water companies have been considered laggards in logistics management exposing their economic activities to many risks (International Bottled Water Association 2004).Although this is the case, a distribution revolution is sweeping the global bottled water industry. This wave is likely to enable bottled water producers and distributors to diversify their approaches to distribute their products profitably (Awan,Rouf & Leigh 2009).

Statement of the problem

For the Kenyan case, although the industry has room for new entrants, existing challenges include water quality and channel cannibalism with channel intensity increase. The increased urbanization and changes in ways of life explains the boom in city sales. In cities such as Nairobi, Mombasa, Kisumu and Nakuru tap water systems and sewages systems that are not regularly maintained have made tap water lose its trust due to poor hygiene. Furthermore, this is worsened by unplanned construction responding to the high demand for housing and urbanization. Revelations by Euromonitor show the Kenyan bottled water distribution cost to total cost of a bottle to have increased by 3.2% in 2010 as the sales increased by 2% due to institutional based growth in demand for bottled drinking water. By 2015, the distribution cost is forecasted to reach 4.2% as distribution hits COMESA market due to distribution complexities of large markets-Purified bottled water is regionally distributed around radii of 50-80 kilometres.In this case, distribution intensity decision of bottled water producers becomes important in managing the distance and associated costs as distribution stretches to 250 kilometres. As Global Research studies by Nolan, Zhang, and Chunhang, (2010) show beverage companies such as Evian, Derek industries, Danone, Nestle, and Pepsi cola to have reduced distribution costs by 46 % when employing agile distribution intensities.

Theoretical framework

This study was guided by two sets of theories namely: Resource Dependency Theory (RDT) and the contingency theory .The Resource Dependency Theory has its origins in open system managed organization. According to Ulrich and Barney (2004) this theory is defined by organizations that maximized their power by using the available resources comparatively.Proponents of RDT seek to control their resources in order to achieve organization effectiveness. According to Swaminathan et al (2002) choosing the appropriate strategies that proactively influence and control the environment to a firm's advantage is strategic .This theory is essential to distributors whose objective is to employ available resources efficiently.

The contingency theory on the other hand, explains relationships in context and situation. According to this theory, managers need to evaluate the contextual conditions to choose the appropriate organizational structure, strategy and design that achieve the organizational goals (Iranaj & Franzil, 2006).

In spite of the availability of distribution resources and a conducive distribution climate, there is high contestability in the Kenyan purified bottled water industry due to the high demand for water, a pull factor to new distribution ventures. In view of this, established distributors have outstanding roles on individual distribution activities. Established distributors such as Dasani, keringet and Aquamist add up to 65 percent of the total supermarkets sales in Kenyan major cities. Individualized analysis of each firm reveal outstanding characteristics; regional distribution, limited use of intermediaries and lack of clear relations with channel members and where possible tacit control. In terms of market share, Aquamist controls 52 percent of the three (Aquamist, 2007).

The objective of the study

The broad objective of this study was to assess the relationship of channel intensity and distribution efficiency of purified bottled water. However, the specific objective was to assess the extent to which channels intensity affects distribution efficiency of purified bottled water.

Methodology and data collection

The study adopted to use a case study. Mugenda and Mugenda (2005) explain that the case study method is appropriate for studies with specific issues seeking variation in ideas and opinions. We employed this research design to gain in depth knowledge of channel intensity issues affecting distribution efficiency of purified bottled water in two distribution centres. The population for this study consisted of 1010 employees. Table 2.1, 2.2 and 2.3 shows the distribution.

Table 2.1: Distribution of Truck drivers

Center	Target	percentage
Westlands Center	14	46%
Industrial Area	16	54%
Total	**30**	**100%**

Table 2.2: Loaders

Center	Target	percentage
Westlands Center	42	54%
Industrial Area	48	46%
Total	**90**	**100%**

Table 2.3: Warehouse and Sales

Center	Target	percentage
Westlands Center	420	47%
Industrial Area	470	53%
Total	**890**	**100%**

The sample selected for this study was be derived using the slovin formulae as employed by Smith, et al (2006). This was given by:

$$n = \frac{N}{1 + N(e)^2}$$

Where n = Sample Size

N = the total population

I = constant

E = limit of sampling error

Assuming a sampling error of 0.05, this was computed as:

$$n = \frac{1010}{1+1010\,(0.05)^2}$$

$$n = \frac{1010}{3.525}$$

$$= 286.5$$

From the above formula 287 employees were selected to participate in the study. Using the ratio of Sample: Population, Systematic sampling was employed whereby a list of the employees was derived and every third member selected to constitute the sample size. The main tools of data collection were questionnaires and interview schedules. The questionnaires had close ended questions covering different issues of channel intensity. We employed questionnaires since they give frequencies that are easy to analyze. We also employed Interview schedules with open ended questions to establish close relations and to enable us extract strategic information. We split the results and analyses into two sections. The results of different variables were analyzed to identify weights and modes based on likert scaled questions. The theoretical framework variables were analyzed to measure their significance and strengths on distribution efficiency. We employed further inferential statistics by the use of the chi -square and gamma co efficient tests. The chi -square is appropriate for likert scaled questions and is essential for cross tabulation of ordinal data (Gratton & Jones 2010).The gamma co efficient was appropriate as it is appropriate for measuring the direction and strength of relationship of ordinal variables. It is given by:

$$G = \frac{N_a - N_i}{N_a + N_i}$$

Where Na (Concordant pairs) is the pair(s) in which one observation has a higher rank on both variables than the other observations in that pair. Ni-are ranks higher than other observations on one variable but not on the other (Discordant pairs)

Two hundred and eighty seven questionnaires (287) were sent to the sampled distribution personnel at Aquamist.One hundred and seventy six were filled and collected. This translated into 61% response rate. According to Odhiambo (2002) in Mugenda and Mugenda (ibid) a response rate above 30% is representative and reduces the risk of bias.

Results and Discussion

The study found out that distribution of purified bottled water was easily done in 250,500 and 1 litre bottles of which supermarkets sold most. In terms of distribution intensity the retailers had the largest frequency with a mode of 24 %(see figure 1).

The current study found out that 2-4 distributors had the highest mode of 41% . Second was one distributor in a channel (See figure 2). This shows that in the industry, short length and width channels were preferred. This was supported by the actual distribution coverage distance in terms of kilometres.As the coverage increased beyond 400 kilometers, direct and retailer controlled channels were stuck on (See Table 1). This finding corroborates with studies of Coelho et al's (2003) in which performance was negatively associated with the number of channels employed. However the present studies contradict previous results by Akinori and Tomokazu (2009) in the UK that recommends both direct and indirect channel in beverages distribution. Other previous studies contradicting the current study are Kabadayi (2008) carried out on US bottled water distributors. These studies recommended that independent channels were not the best for beverages.

Relating orders processing speed to intermediaries' numbers, most respondents reported an increase in order processing of sales. The highest mode, 36.36% associated this to a decrease in intermediary width. Moreover, in this industry channel members and agents handled bottled water of other competitors and hence responsive order processing was not addressed due to bulky and different inventories. This encouraged slacking in equitable brand promotion. The Chi-square sum of 17.848 at p = 0.01 and gamma value of 0.075 showed that channel intensity information could help interpreting distribution by 7.5%(see table 2).These findings corroborate with Oliver et al's (2012) findings that channel intensity is less significant in the distribution functions of purified bottled water since distributors clung to own distribution.

Recommendations

This industry is a vital industry whose activities must be synchronized with the Kenyan objective of keeping a growth rate of 10% till 2030. Strategic involvement should be encouraged through involving the most strategic channels moves. This industry is observed to be doing well. It is projected to keep on increasing as distributors enter COMESA markets.

The study recommends that although distributors preferred direct channels, market coverage was also important. This is because direct channels could act as a barrier. These channels avoided horizontal expansion and exerted pressure on distributor's distribution assets and core business specialization. One solution to this problem is employing agile distribution intensities is involvement of established channel members to hedge against direct investment in untested markets. Distribution managers reports revealed that in this industry wholesaler are tacitly avoided. This is because bottled water does not need blending and repackaging. Moreover, supermarkets have unique operation style which provided customer feedback cutting off wholesalers. A case was Nakumatt supermarkets which discouraged product ownership. They hired out shelf spaces to product manufacturers allowing them to enjoy the goodwill established. This means that in major cities distributors maximized their welfare by employing supermarkets and hypermarkets. This corroborated studies by the Canadian bottled water association (2007) that recommended limiting the number of retailers, to reduce distribution channel costs when establishing strong working relationship.

Besides, if the Kenyan bottled water industry was to follow global leaders standards similar to the Canadian and Mexican beverage distributors, existing channels should be maintained while new differentiated and branded bottled water products are pushed through to enjoy economies of scale. Take the early bird move which Aquamist have taken by introducing different flavored water, herbal water and juices which are distributed using the same channels.

The current study further recommends more selective display, branding in terms of PH levels, flavoring, advertising localization and bottle shaping. The other pertinent product that the companies needed to introduce alongside their water is fresh milk whose penetration has not reached most places where other beverages sell like in public houses.

Conclusion and Managerial implications

The key to effective distribution is the ability to forge long-term, strategic relationships with supply chain partners for the purpose of maximizing value to the ultimate customer. This study and reported results identified channel intensity as a relative important predictor of performance in purified bottled water distribution. Existing practices emphasizes tacit channel member control rather than open collaboration and diversification. The conclusion and research findings have potential implications for both beverage manufacturer and distributing businesses. The implication is that distributing companies with less resource base and power might suffer during high competition and demand as short-term relationships with mass, wide channel lengths and widths were not possible due to rigidity in channel expansion. Moreover overdependence on own asset and market penetration will increase risks and constrain territorial coverage in the wake of the rapid opening up of markets in Eastern Africa.

While the objective to investigate the relationships of channel intensity to distribution efficiency was accomplished, there are limitations to the study that should be noted. Utmost, case study information was used to assess linkages scales and to test the significance of the relationship. The study need to perform similar studies with more case studies for subsequent applications. Longitudinal studies also need to be done in the industry over a long period of time to capture the long-time strategies that will arise in the young Kenyan industry and elsewhere.

Appendices

Figure 1.Analysis of channel member intensity used in purified bottled water distribution

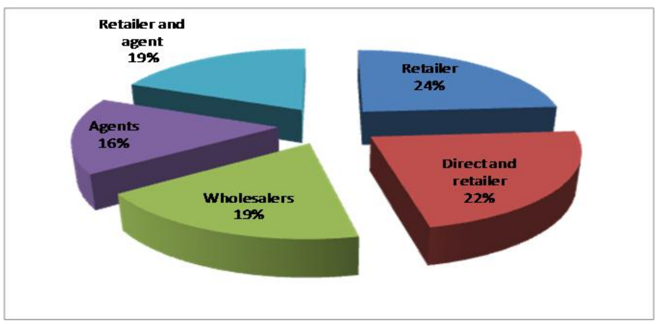

Figure 2:.Analysis of the number of distributor used at each level of distribution channels

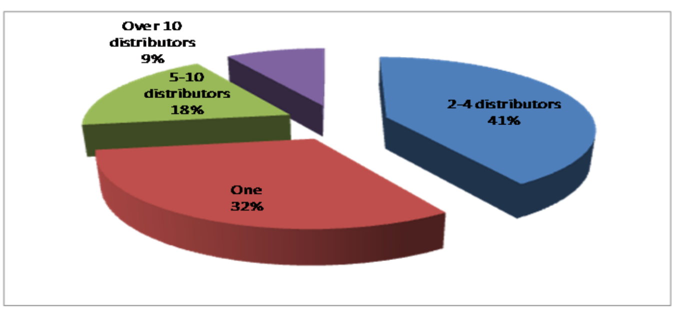

Table 1.Analysis of the relationship between channel intensity and distribution coverage based on distance in kilometers (o's)

Distribution coverage	< 10	10-20	20-40	over 40	Total
Direct +retailer	30	22	38	24	114
Direct +other	16	12	22	12	62
TOTAL	**46**	**34**	**60**	**36**	**176**

Table 2:.Analysis of channel intensity as a predictor of distribution efficiency in purified bottled water

		channel intensity			
		Decreased	Stagnated	Increased	Total
Distribution Efficiency	Decreased	37	13	9	59
	Row %	62.71%	22.03%	15.25%	33.52%
	Expected value	29.5	17.43	12.07	
	Cell chi-square	1.91	1.13	0.78	
	Stagnated	18	17	21	56
	Row %	32.14%	30.36%	37.50%	31.82%
	Expected value	28	16.55	11.45	
	Cell chi-square	3.57	0.01	7.97	
	Increased	31	22	8	61
	Row %	54.10%	36.07%	9.84%	34.66%
	Expected value	33.96	14.55	12.47	
	Cell chi-square	0.008	0.87	1.60	
	Column Total	**88**	**52**	**36**	**176**
	Column %	**50.00%**	**29.55%**	**20.45%**	**100**

Table 3: Cross tabulation of channel intensity and distribution efficiency

		Channel intensity		
Distribution Efficiency		Decreased	Stagnated	Increased
	Decreased	37	13	9
	Stagnated	18	17	21
	Increased	33	22	6

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