The Impact of Product Repeat Purchasing on Supply Chain Strategy

Wade Jarvis, The University of Western Australia, wade.jarvis@uwa.edu.au
Susan L. Golicic, Colorado State University, susan.golicic@business.colostate.edu

Abstract

Fundamental to the concept of supply chain strategy is the demand characteristics of the product. Past market share has usually been a key indicator of product demand performance and utilised to manage a category in subsequent periods. In this manuscript we introduce the concept of product repeat purchasing, or in particular product repeat purchase variation to supply chain strategy, via a typology that reflects both stability and instability in consumer product repertoires. This could form a richer phenomenon for managing products and identifying the specific type of supply chain strategy for a product.

Keywords: Product repeat purchase, product loyalty, supply chain strategy.

The Impact of Product Repeat Purchasing on Supply Chain Strategy

Introduction

Fundamental to the concept of supply chain strategy, or the strategy to deliver products to the market, is the demand characteristics of the product(s) being planned, produced and distributed through the supply chain (Christopher and Towill 2002; Fisher 1997; Lee 2002). These demand characteristics include the predictability of demand, profit margins of the product, life cycle of the product, and the variety of product offerings. Depending on these characteristics, a product is generally considered 1) functional (efficient) or 2) innovative (responsive). With functional products, for example, the focus may be on reducing wastage in inventories and reducing product variants while with innovative products, the focus may be on the flexible accommodation of unique and varied customers' demands. More recently, researchers have critiqued the comprehensiveness of these two strategies (Goldsby, Griffis and Roath 2006; Sebastiao and Golicic 2008) and proposed a further emergent supply chain strategy which requires both a leanness and a responsive approach. This may require a base product that can produced in a lean manner leaving agile accommodation of customer-specific needs.

While the supply chain literature uses traditional demand characteristics to define the product characteristics, for a long time in category management in marketing the focus has been on the loyalty structure of brands (Ehrenberg 1972). These structures inevitably focus on the brand propensity (i.e. the loyalty towards the brand). From the brand management literature, the notion of stable brand repertoires (resulting in merely large and small brands) as well as instable brand repertoires - resulting in niche, change-of-pace and reinforcing brand phenomena, has been established (Ehrenberg 1972; Kahn, Kalwani and Morrison 1989). If we apply the same types of phenomena to products instead of brands, we provide a new perspective on the marketplace and on supply chain strategy.

This paper therefore links the three product supply chain phenomena from the literature (efficient, innovative, efficient-innovative) with the brand loyalty literature, but applied to products and not brands. This more directly links consumer behaviour, via loyalty, to supply chain strategy. It also allows for product variation and therefore the possibility for various product supply chain strategies within the one category, rather than assuming each category relies on the one supply chain strategy. We show this via repeat purchase data from the wine category.

Background from the Literature

Supply Chain Strategy

Authors agree that a supply chain strategy should be chosen based on the nature of the product, matching the strategy to the unique characteristics of different products or markets (Christopher and Towill 2002; Fisher 1997; Lee 2002; Sebastiao and Golicic 2008). Fisher (1997) was the first to distinguish a *functional* product from an *innovative* product by their

demand characteristics. Because these two product profiles experience different costs, he proposes two different supply chain strategies. Due to its demand characteristics, a functional product should focus on achieving the lowest possible cost and therefore have a supply chain strategy oriented toward efficiency. An innovative product, on the other hand, must use a responsive strategy oriented toward reducing lead times and postponing product customization in order to respond quickly to unpredictable customer demand.
Lee (2002) elaborates upon the match between strategy and product characteristics by considering stable versus evolving supply characteristics (i.e., more vs. limited supply sources, stable vs. variable yields, less vs. more process changes, respectively) in addition to demand. Lee posits that the efficient and responsive supply chain strategies are associated with stable supply processes. He therefore proposes two additional strategies, risk-hedging and agile, to reflect conditions of evolving supply. Lean management and agility has attracted increased interest from supply chain management researchers. Authors characterize lean management as concerning the minimization of waste, and therefore cost, and liken this to a strategy focused on efficiency (Christopher and Towill 2002; Goldsby, Griffis and Roath 2006; Randall, Morgan and Morton 2003). These same authors contend that agility is about availability, flexibility and the ability to react quickly to changes; this is similar to the strategy focused on responsiveness. More recently, researchers have critiqued the comprehensiveness of these strategies (Goldsby, Griffis and Roath 2006; Sebastiao and Golicic 2008). Sebastiao and Golicic (2008) identify conditions of extreme demand and supply uncertainty in emerging technology markets and propose an emergent supply chain strategy in these cases. Goldsby, Griffis and Roath (2006) provide examples of products that require both lean management and agility and term this leagility, which is a hybrid of the two supply chain strategies, combining efficient and responsive practices. Thus we see there are situations where one strategy or another may not apply or may need to be adapted for specific products.

Brand Literature

Consumers purchases can be characterized either as 1) consistency, or 2) inconsistency. Consistent brands are perceived to be similar in what they offer, and are repeatedly and predictably purchased. Their similarities make it easier to manage these types of brands as it has been shown that, because of the similarity in offering, the large brands have a higher rate of repeat purchasing and a natural advantage in the market because of their exposure (Ehrenberg, 1972).

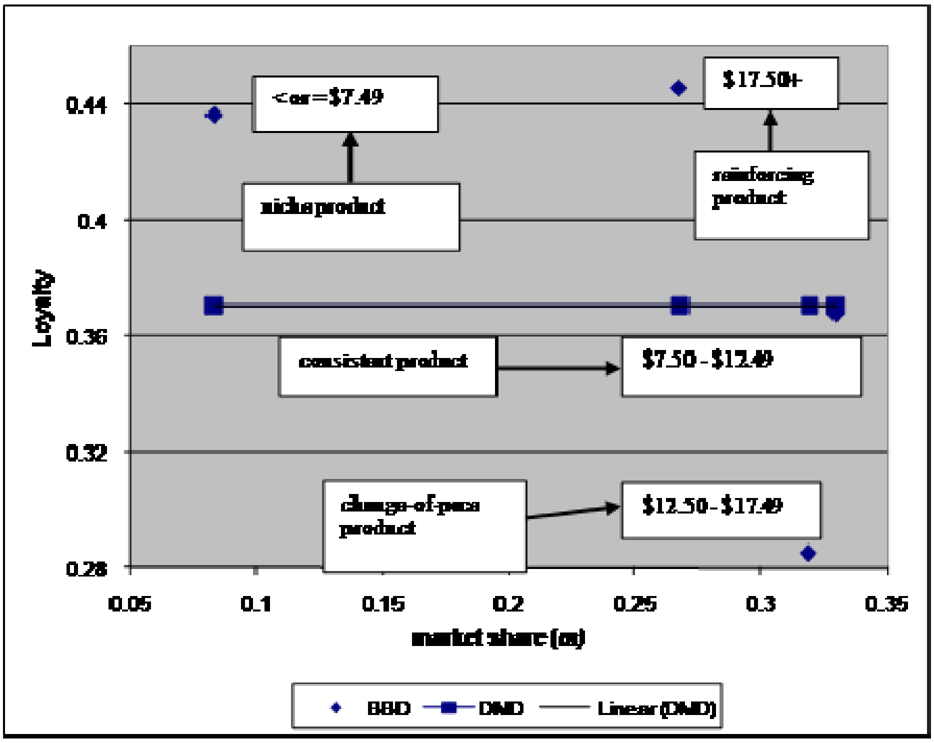
Inconsistent brands occur in those situations where consumers show differences towards the brand set in a category and this is reflected in reinforcing or variety seeking behaviour within consumers overall purchases. Such behaviour can be broken down into three sub-categories of brands – reinforcing, niche and change-of-pace. When a large group of consumers frequently repurchase a particular brand, this brand is known as a reinforcing brand. Each repurchase of this brand would be greater than expected. When a smaller group of consumers frequently purchase a particular brand, the brand is similar to a reinforcing brand but because of its smaller market share position is known as a niche brand (Fader and Schmittlein 1993; Kotler, 1991). In both reinforcing and niche brands, the products are considered to have "excess loyalty" (Kahn, Kalwani and Morrison 1989). Consumers also might buy brands within their own repertoires as 'change-of-pace' brands; these have a lower than average loyalty within repertoires. There is therefore a direct link between reinforcing, niche and change-of-pace behaviours. With products, we see a similar pattern where some products are repeat purchased in a consistent manner and some are repeat purchased in an inconsistent manner. However, little research has linked such phenomena to products within a category (Jarvis et al., 2006), as a better way of eliciting the correct supply chain strategy. Inconsistent and consistent products require different types of attributes and different supply chain strategies to deliver these attributes.

The extant supply chain strategy literature is heavily conceptual with little empirical testing of the proposed strategies (Sebatiao and Golicic 2008). It therefore becomes difficult for business to place credence in conceptualizations that were proposed over a decade ago with little actual support. Additionally, these strategies were formed based on the product, but not the delivery of those products to customers that would purchase and then use them. In other words, the conceptualization is based on the company's perspective and not that of the customer. The lack of a customer orientation in business decisions has been criticised (Grawe, Haozhe and Daugherty 2009; Woodruff 1997; Zhu and Nakata 2007). When it comes to brands and loyalty, research dictates that this must come from the customer's point of view (Keller 1993). Thus, the purchase of these products should play a role in determining the appropriate supply chain strategy.

Empirical Data

Product loyalty variation now refers to the repertoires of products, and not brands, purchased in repeat purchase markets. Being aware of, and measuring and managing product heterogeneity allows category managers to isolate possible consumer segments as well as change-of-pace behaviours linked to product types. If we take the case of the wine market, consumers purchase many different types of products during a defined time period. Jarvis et al. (2005), using purchase data and applying the polarisation method showed that consumers in this market purchase reinforcing and niche products but also change-of-pace products as well. They also identified a consistent product sub-category. The change-of-pace product represents a very significant 32% market share within the category – many consumers are variety seeking wine products which is intuitive for the category. Using price-tiers as proxies for the products in the category, the four products and their loyalty behaviour is shown in Figure 1.

Figure 1 - Product Loyalty Structure within wine category*.



***Taken from Jarvis et al. (2005). DMD line refers to a baseline level of loyalty under consistent repertoire conditions, while the BBD reflects a variation check in the market.**

Proposed Typology

We therefore provide the following propositions for this manuscript linked to our typology:

P1: Products considered to be consistent would benefit from an efficient supply chain strategy.

P2: Products considered to be change-of-pace would benefit from a responsive supply chain strategy.

P3: Products considered to be niche or reinforcing require an efficient-responsive hybrid supply chain strategy.

Products that are consistent require efficient approaches to their supply chain strategy. The result is high predictability, lower profit margins, a long product lifecycle and low variety of offerings. In the wine case mentioned, the $7.50 - $12.49 price tier requires an efficient approach. This represents 33% market share of the total category. This is the highest market share product in the category and is an interesting finding in itself.

Products that are change-of-pace require the management of variability in demand. These responsive conditions are reflected in low predictability, high profit margins, a short lifecycle and high variety of offerings. In our wine example, the change-of-pace sub-category reflects

32% market share in the total category and may be indicative of this category, where consumers are constantly seeking interesting and new products to try. This sub-category would be reflected in a high number of stock keeping units with variable attributes and constant price promotion.

Products that are reinforcing or niche are characterised by the majority of consumer's repertoires being taken up by these products. As they are not consistent but have higher loyalty amongst their customer base, they require a combination of efficient-responsive (hybrid) strategy where both leanness (efficiency) and responsiveness are required. This would require a more detailed understanding of what attributes might drive loyalty in the sub-category and a stronger focus on understanding the requirements of the sub-category and responding accordingly. Such a focus may lead the sub-category to eventually developing a product that has a consistent, yet high market share within the category.

Conclusion and Future Research

Many companies base their supply chain strategies around the channel through which they sell products to end customers without consideration for whether the supply chain is an appropriate match for the demand and supply characteristics of the product. Also, companies may develop their supply chains based on personal networks or what they feel is convenient with no consideration for how consumers purchase their products. In some cases, the category may actually require different supply chain strategies for the different products. In this paper, we have linked supply chain strategy to consumer product loyalty - the customer perspective. We have used the wine category as an example where the product loyalty is variable enough to reflect all four different types of loyalty conditions. We have linked the four conditions to the different supply chains strategies from the literature. This is an important addition to the supply chain literature. However, further work is required to 1) analyse the actual product and price activity that takes place under each condition, 2) how product loyalty and market share develops over time, and 3) how such conditions can be generalised across different product categories.

References

Christopher, M. and Towill, D.R. (2002), "Developing Market Specific Supply Chain Strategies," International Journal of Logistics Management, 13 (1), 1-14.

Ehrenberg, A. (1972), Repeat Buying, Amsterdam: North Holland Publishing.

Fader, P. and Schmittlein, D. (1993), "Excess Behavioural Loyalty for High-Share Brands: Deviations from the Dirichlet Model for Repeat Buying," Journal of Marketing Research, 30**,** 478-493.

Fisher, M.L. (1997), "What is the Right Supply Chain for Your Product?" Harvard Business Review, 75 (2), 105-116.

Goldsby, T. J., Griffis, S.E. and Roath, A.S. (2006), "Modeling Lean, Agile, and Leagile Supply Chain Strategies," Journal of Business Logistics, 27, (1), 57-80.

Grawe, S. J., C. Haozhe, and P. J. Daugherty (2009), "The Relationship between Strategic Orientation, Service Innovation and Performance," International Journal of Physical Distribution and Logistics Management, 39 (4), 282-300.

Jarvis, W., Rungie, C., Goodman, S. and Lockshin, L. (2005), "Using Polarisation to Identify Variations in Behavioural Loyalty to Price Tiers," Journal of Product and Brand Management, 15**,** 257-264.

Kahn, B., Kalwani, M. and Morrison, D. (1988), "Niching versus Change-of-pace Brands: Using Purchase Frequencies and Penetration Rates to Infer Brand Positionings," Journal of Marketing Research, 25**,** 384-390.

Kotler, P. (1991), *Marketing Management,* 7th Edition, Englewood Cliffs, NJ: Prentice-Hall.

Lee, H.L. (2002), "Aligning Supply Chain Strategies with Product Uncertainties," California Management Review, 44 (3), 105-119.

Randall, T. R., Morgan, R.M. and Morton, A.R. (2003), "Efficient versus Responsive Supply Chain Choice: An Empirical Examination of Influential Factors," Journal of Product Innovation Management, 20, (6), 430-443.

Sebastiao, H.J. and Golicic, S.L. (2008), "Supply Chain Strategy for Nascent Firms in Emerging Technology Markets," Journal of Business Logistics, 21 (1), 75-91.

Woodruff, R.B. (1997), "Customer Value: The Next Source for Competitive Advantage," Journal of the Academy of Marketing Science, 25 (2), 139-153.

Zhu, Z. and C. Nakata (2007), "Reexamining the Link between Customer Orientation and Business Performance: The Role of Information Systems," Journal of Marketing Theory and Practice, 15 (3), 187-203.