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Abstract
The process of designing and selecting distribution channels is challenging and it demands an in-depth understanding of the market. Leading firms competing in Latin America are exploring creative ways to effectively reach and efficiently serve each segment of the market. This paper characterizes the key drivers that shape the design and selection of sales and distribution channels. Based on a series of workshops and in-depth analyses from 14 enterprises and 35 distinct distribution schemes we identify key factors and propose a framework that characterize drivers currently used by Latin American companies to design distribution channel strategies.

Keywords: distribution strategies, emerging markets, discriminant analysis

Introduction
Over the last century, there has been an enormous effort to understand how companies should design, organize, and operate their sales and distribution channels. The relevance of this topic to the fields of marketing, logistics, finance, and economics has brought together many researches from diverse disciplines. As a result, multiple perspectives have been developed to explain the dynamics of sales and distribution channels. However, as stated by Coelho and Easingwood (2008), despite the popularity of channel strategies, their design has been virtually unexplored. A plausible reason for this is that markets are becoming quite diverse and therefore demand highly differentiated product and services. Most of the frameworks that have been developed to design/select distribution channels include sets of variables that tailored to the specific needs of a particular industry, company, or geography.

The concept of a distribution channel has evolved not only in terms of its theoretical definition but also in terms of its practical implementation. It is a fact that companies are now looking at sales and distribution schemes as a single integrated system rather than separate or isolated structures. For instance, Coughlan et al (2006) defined distribution channels as a set of interdependent organizations involved in the process of making a product available for use. Chopra et al (2007) defined a distribution channel as the necessary steps required to move and store products from a supplier stage to a customer stage. Frazier and Shervani (1992) defined a route to market as the distinct

process through which a product or service can be selected, purchased, ordered, and received by a customer.

While distribution channels tend to be predictable and standardized in developed countries, the opposite is true when it comes to the developing world. Defining a sales and distribution scheme to serve an emerging market is more of an art than science. The process of designing and selecting distribution channels is extremely challenging and it demands a deep understanding of the market. The fact that most emerging markets are experiencing significant growth and development makes it extremely difficult for companies to implement the same distribution strategies that are used to serve mature markets. Leading firms are now exploring creative ways to effectively reach and efficiently serve each segment of the market.

This paper intends to explore and validate key drivers that shape the design and selection of sales and distribution channels, as well as to recommend a framework that could help companies in Latin America and other emerging markets design and select channels that are aligned to their core business strategy and to the requirements of their target markets.

Literature Review

The frameworks for channel design or channel selection developed over the last 30 years have not been standardized. Most of these frameworks include multiple variables or dimensions that have been tailored to the specific needs of a particular industry, company, and geography. In general, designing or selecting channel of distribution has turned out to be quite challenging for companies. Certainly, there are a wide variety of factors affecting the length of the channels and types of distribution. Contemporary research suggest that the design of a sales and distribution channel should be aligned to the specific requirements of customers and end-consumers. Rangan (2006) suggested that channel should be constructed from the customer in rather than from the supplier out. Unquestionably, channel configurations must rely on a deep understanding of customer's needs, overall competitive strategy and performance objectives (Alderson et al, 1997).

Rangan et al (1992) defined channel choice functions and identified eight customer requirements that determine the type of distribution that a company should employ. These customer requirements include: product information, product customization, product quality assurance, lot size, assortment, availability, after-sales service, and logistics. Alderson et al (1997) described the channel design process as being similar to the steps followed in developing a competitive strategy. Alderson et al (1997) emphasized that a channel should support the overall strategy of a company and that it must meet the following requirements: effectiveness, coverage, cost-efficiency, and long run adaptability.

Vinhas and Anderson (2005) argued that channel types collide when they sell standardized products. This is derived from the lack of opportunities for competing channels to differentiate in ways other than price and service. Neslin et al (2006) introduced the concept of multichannel customer management, which refers to the design,

deployment, coordination, and evaluation of the channel through which customers and suppliers interact. Neslin et al (2006) suggested a framework for understanding key challenges experienced by managers when designing a multichannel strategy. The framework provides a set of questions for guiding managers through the channel design process. These questions include: what determines channel choice? Is a multichannel approach a means to segment customers? Should the channels be independent or integrated? What aspects of the channel design should be integrated?

Recently, Manicoba Da Silva (2008) presented a comprehensive summary of past research for 27 individual factors that affect the length of distribution channels. These factors were classified into four categories: consumer habits, product characteristics, market factors, and company factors. Some of the factors include: the frequency of purchase from customers, product complexity, volatility of demand, intensity of competition, geographic concentration, market share, and order size. Miracle (1965) explored the behavior of unit value and frequency of purchase and their relationship to the marketing mix.

Mallen (1996) noted that the recent explosive expansion of mass merchandising and retailers initiated a trend towards shorter (or more direct) channels. He suggested that the greater the total size of the market, the more direct, intensive and multiple can the channel system be.

Vinhas et al (2010) reviewed current literature on channel design and identified some opportunities in the channel design and management domain; specifically, highlighted that channels of distribution should be seen as value constellations or value networks, and that customers are important actors in this network, both as value creators and as value appropriators. In addition, Vinhas et al (2010) elaborated on how the design and management of multiple distribution channels impact value creation at different levels in the channel system, and described several factors that must be considered when designing a channel. These factors include: channel ownership (direct, indirect, and multiple independent channel entities), channel types, multiple channels, and customer management (acquisition, retention, pre- and post-sales services). Coelho and Easingwood (2008) presented a model that suggests that channel service outputs (product sophistication, market target sophistication, and channel conflict), market resources and maturity, and resource-based issues (competitive strength, scope economies, and company size) are main drivers for influencing the development of multiple channel structures.

Further studies have concluded that distribution systems in developed countries are much more manageable than in developing countries. Marketing channels tend to be long in developing countries as serious financial and organizational constraints hamper the organization and distribution among members in the marketing channel. Additionally, legal systems and crime prevention are deficient, and corruption is often a serious problem (Ghauri, Lutz, and Tesfom 2004). These obstacles make it difficult for a company to establish a relationship-management approach to marketing channel management.

Unfortunately, current academic research has not been able to formulate a clear distinction on how firms should differentiate the structure of their channels of distribution in developing and developed countries. There is clear evidence suggesting that the level of infrastructure development, culture, type of geography, type of product, customer's income and education levels, market fragmentation, and regulations play a critical role in shaping the structure of distribution channels.

Methodology

After carefully reviewing the factors explored by Manicoba Da Silva (2008), Miracle (1965), Mallen (1996), Webster (1976), and Rangan (1992), the following factors were selected for the analysis:

Table 1 – Distribution Channel Driving Factors Selected for the Study

Factor	Description
Market Share (Webster 1976)	The percentage of the total available market or market segment that is being serviced by a company (i.e. Coca-Cola has 60% of US Market)
Drop Size (Mallen 1996)	Refers to the average quantity of products that is delivered to a customer or group of customers during a specific period of time (i.e. 1500 SKUs, 5 tons, etc.)
Product Complexity – Merchandising (Miracle 1965)	Level of effort (in terms of merchandising) required from the manufacturer to sell a product or group of products. Three levels were defined. High: merchandiser must visit customer's premises at least for 20 minutes every week. Medium: merchandiser must visit customer's premises once a month. Low: the customer does not require a merchandiser from the manufacturer/producer.
Frequency of Purchase (Mallen 1996, Webster 1976, Miracle 1965)	Refers to the average number of times that a customer or group of customers requests an order from a manufacturer during a specific period of time (i.e. weekly orders, bi-weekly orders, thee orders per week)
Geographic Concentration (Mallen, 1996, Webster 1976)	Refers to the number of customers per unit of measurement. (i.e. 500 customers per squared miles, 10 stores per squared kilometer)

A group of fourteen Latin American companies were interviewed and selected for analysis. Companies included cement, bakery, beer, candy, prepared foods, paint, soft drinks and vegetable oil. These companies had large operations in Colombia, Ecuador, México and Brazil.

Based on information collected from the group of selected companies we characterized the current set of distribution strategies prevalent in Latin America. Each strategy was described in terms of if sales and distribution activities (Table 2). These channel distribution strategies were validated through a series of workshops with various managers and executives of companies in the region. Each of the current distribution schemes, was characterized using the selected channel distribution factors (see Table 1), assigning a score of one to five scale, reflecting a low to high predominance of each factor. Since most of the selected companies use multiple channels to serve their customers, the scores were assigned by channel and by company. Table 3 describes the various scores used for each factor.

Table 2 – Distribution Channel Strategies Used in Latin America

Type	Name/Scheme	Sales	Distribution
Direct	Presales with Scheduled Delivery	A seller visits customer's premise (i.e. point of sale), establishes relationship with customer, captures the order, and executes merchandising activities	Products are delivered to the store within a specified lead-time. (Sale and delivery do not occur at the same time)
Direct	Onboard	The seller/driver captures the order and delivers the product in the same visit. Product is stored in the vehicle.	
Direct	(Call Center) Telesales with Scheduled Delivery	A seller calls the customer (point of sale), establishes relationship with customer, and captures the order.	Products are delivered to the store within a specified lead-time. Merchandising is executed by the driver or merchandising figure
Direct	EDI with Scheduled Delivery	Customer sends order electronically	Products are delivered to the store with a specified lead-time. Merchandising is executed by the driver or merchandising figure
Indirect	Wholesalers (Presales and Scheduled Delivery)	A seller establishes relationship with wholesaler and captures the order (manually or electronically). Wholesaler sends pre-seller to the point of sales	Wholesalers deliver products to point of sale within a specified lead-time.
Indirect	Wholesalers (Onboard)	A seller establishes relationship with wholesaler and captures the order (manually or electronically). The wholesaler sends a seller/driver to capture the POS orders and to deliver the product in the same visit.	
Indirect	Distributors /3PL (Exclusive)	A seller establishes relationship with point of sales and captures the order (manually or electronically). An exclusive distributor sends delivers the product.	
Indirect	Distributors/3PL (No Exclusive)	A seller establishes relationship with point of sales and captures the order (manually or electronically). A general distributor, which also sells/delivers product from other companies, delivers the product to the POS.	
Indirect	Partners	A seller (from either company) establishes relationship with the POS and captures the order (manually or electronically). Merchandising is executed by the seller/driver.	Products are delivered (jointly) to the store. Merchandising is executed by the seller/driver.
Hybrid	Mix of Schemes	Multiple sales schemes are used to manage the relationship with the POS, provide merchandising, as well as to capture the orders.	Multiple distribution schemes are used to deliver products to customers.

Table 3 – Scores used to characterize factors for each distribution channel

Score	Market Share	Drop Size (customer)	Product Complexity	Frequency Purchase	Geographic Density
5 - High	> 80 %	<10 customers served per vehicle	Intense Merchandising & Negotiation (In every visit)	Daily	>50 POS per area
4 - Medium/High	>60% and <80%	>10 and <15 customers served per vehicle	Intense Merchandising (Weekly)	3 times per Week	>35 and <40 POS per area
3 - Medium	>40% and <60%	>15 and <25 customers served per vehicle	Merchandising is only required when a promotion takes place	Weekly	>20 and < 34 POS per area
2 - Low/Medium	>20% and <40%	>25 and <35 customers served per vehicle	Merchandising is rarely required	Every 2 Weeks	>10 and <20 POS per area
1 - Low	<20%	>35 customer served per vehicle	Merchandising is not required	Monthly	<10 POS per area

Analysis

Since most of the selected companies use multiple channels to serve their customers, the scored was assigned by channel by company for a total of 35 company–scheme combinations. The following table illustrates the evaluation for a brewery company:

Table 4 – Channel Factor Evaluation for Brewery Company

Scheme	Market Share	Drop Size	Product Complexity	Frequency of Purchase	Geographic Concentration
Presales	5	4	5	5	5
Specialized Presales	5	5	5	5	5
On-board Sales	1	1	2	1	1
Call Center	5	5	2	2	1
EDI	Retailers/Wholesalers				
Exclusive Wholesaler					
Wholesaler					
Partner	1	1	1	1	1
3PL					
Food Service					
Express	3	1	1	1	5
KAM	Retailers/Wholesalers				
Hybrid	5	1	2	1	2

As it can be observed in Table 4, a presales scheme is used to serve markets with a high market share, medium to high and high drop size, high levels of merchandising required, high frequency of purchase, and located in dense urban areas. In contrast, an on-board sales scheme is used to serve markets with low market share, low drop size, low levels of merchandising requirements, medium to low and low frequency of purchase, and located in rural territories.

A discriminant analysis was used to validate if the factors could be reliable predictors of

the sales and distribution schemes used by companies competing in Latin American markets. The main purpose of a discriminant function analysis is to predict group membership based on a linear combination of the interval variables. The procedure begins with a set of observations where both group membership and the values of the interval variables are known. The end result of the procedure is a model that allows prediction of group membership when only the interval variables are known. A second purpose of discriminant function analysis is an understanding of the data set, as a careful examination of the prediction model that results from the procedure can give insight into the relationship between group membership and the variables used to predict group membership.

We used JMP 9.0 to generate the discriminant analysis using the scoring of the selected companies. The interval variables that were considered were the factors (market share, drop size, product complexity, frequency of purchase, and geographic concentration) and the group memberships were the channel strategies (presales, specialized presales, call center, hybrid, on-board sales, wholesalers/distributor, and exclusive wholesaler).

Discriminant Analysis Results

The frequency of purchase turned out to be not statistically significant, therefore only four factors were included in the model. Out of the 35 observations used for the analysis, only 6 (17%) observations were misclassified in terms of sales and distribution scheme currently used by the companies. In other words, based on the limited amount of data available, the four factors that were used for prediction could be seen as good predictors of the current channel distribution schemes (83%). Figure 1 shows the result of the discriminant analysis.

Discriminant Scores

	Training
Number Misclassified	6
Percent Misclassified	17.14
-2LogLikelihood	55.96

Row	Actual	SqDist(Actual)	Prob(Actual)	-Log(Prob)		Predicted	Prob(Pred)	Others
1	Presales	2.1454	0.5401	0.616		Presales	0.5401	Specialized Presales 0.22 Wholesaler 0.23
2	Specialized Presales	0.1104	0.6805	0.385		Specialized Presales	0.6805	Presales 0.29
3	On-board Sales	2.6309	0.5143	0.665		On-board Sales	0.5143	Exclusive Wholesaler 0.48
4	Call Center	2.9590	0.9909	0.009		Call Center	0.9909	
5	Hybrid	0.0000	0.9998	0.000		Hybrid	0.9998	
6	Presales	2.1454	0.5401	0.616		Presales	0.5401	Specialized Presales 0.22 Wholesaler 0.23
7	Specialized Presales	0.1104	0.6805	0.385		Specialized Presales	0.6805	Presales 0.29
8	On-board Sales	2.6309	0.5143	0.665		On-board Sales	0.5143	Exclusive Wholesaler 0.48
9	Call Center	2.9590	0.9909	0.009		Call Center	0.9909	
10	Hybrid	0.0000	0.9998	0.000		Hybrid	0.9998	
11	Presales	8.6947	0.0657	2.723	*	Specialized Presales	0.8890	
12	Specialized Presales	0.1104	0.6805	0.385		Specialized Presales	0.6805	Presales 0.29
13	On-board Sales	6.2508	0.7558	0.280		On-board Sales	0.7558	Exclusive Wholesaler 0.11 Hybrid 0.13
14	Call Center	2.9590	0.9909	0.009		Call Center	0.9909	
15	Exclusive Wholesaler	-8.88e-16	0.9791	0.021		Exclusive Wholesaler	0.9791	
16	Hybrid	0.0000	0.9998	0.000		Hybrid	0.9998	
17	Wholesaler	9.4364	0.0416	3.181	*	Presales	0.7512	Specialized Presales 0.16
18	Presales	2.2410	0.5074	0.678		Presales	0.5074	Specialized Presales 0.42
19	Wholesaler	4.9813	0.7942	0.230		Wholesaler	0.7942	On-board Sales 0.19
20	Presales	4.4073	0.3611	1.019	*	Specialized Presales	0.5067	
21	Wholesaler	0.0429	0.8135	0.206		Wholesaler	0.8135	Presales 0.11
22	Presales	2.1454	0.5401	0.616		Presales	0.5401	Specialized Presales 0.22 Wholesaler 0.23
23	Specialized Presales	0.1104	0.6805	0.385		Specialized Presales	0.6805	Presales 0.29
24	On-board Sales	15.4193	0.0009	7.034	*	Presales	0.4965	Specialized Presales 0.10 Wholesaler 0.39
25	Presales	7.2408	0.5860	0.534		Presales	0.5860	Call Center 0.20 Wholesaler 0.20
26	Call Center	9.5333	0.0396	3.229	*	Presales	0.7512	Specialized Presales 0.16
27	Presales	3.2072	0.7016	0.354		Presales	0.7016	Call Center 0.13 Wholesaler 0.13
28	Food Service	-7.11e-15	1.0000	0.000		Food Service	1.0000	
29	Presales	3.2072	0.7016	0.354		Presales	0.7016	Call Center 0.13 Wholesaler 0.13
30	Call Center	6.6178	0.1275	2.060	*	Presales	0.7016	Wholesaler 0.13
31	Presales	2.1454	0.5401	0.616		Presales	0.5401	Specialized Presales 0.22 Wholesaler 0.23
32	Specialized Presales	1.7662	0.7748	0.255		Specialized Presales	0.7748	Presales 0.14
33	Wholesaler	1.7058	0.9527	0.048		Wholesaler	0.9527	
34	Wholesaler	0.0429	0.8135	0.206		Wholesaler	0.8135	Presales 0.11
35	Wholesaler	0.0429	0.8135	0.206		Wholesaler	0.8135	Presales 0.11

Figure 1: Discrimination Analysis Results

Channel Selection Driving Factors

The discriminant analysis generates a canonical plot that allows a graphical representation of how the selected factors help determining the sales and distribution schemes adopted by the companies. The canonical plot resulting from the discriminant analysis is shown in Figure 2.

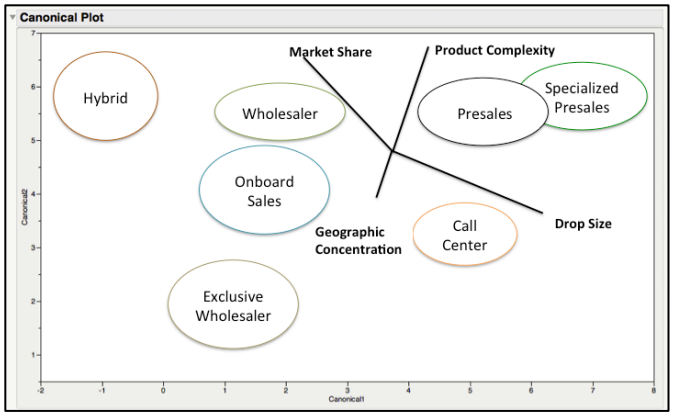

Figure 2: Canonical Plot from Discriminant Analysis

The selection of wholesalers and on-board sales is driven by market share and geographic concentration, while the selection of presales is driven by product complexity (service requirements) and the drop size.

Using the discriminant analysis results and through a series of validation workshops with stakeholders (Garza, 2011), Figure 3 describes a robust framework that characterizes distribution channel selection in the Latin America context. Manufacturers serving channels characterized by low market share and low geographic concentration tend to rely on wholesalers to achieve coverage and reduce unit costs. On the other extreme, channels characterized by customers with high drop size as well as high product complexity could be served through on-board sales or specialized presales scheme, which allow manufacturers to create stronger bonds with customers as well as to provide a superior service. The other quadrants of the framework indicated trade-offs to overcome potential high operational costs vs. channel proximity.

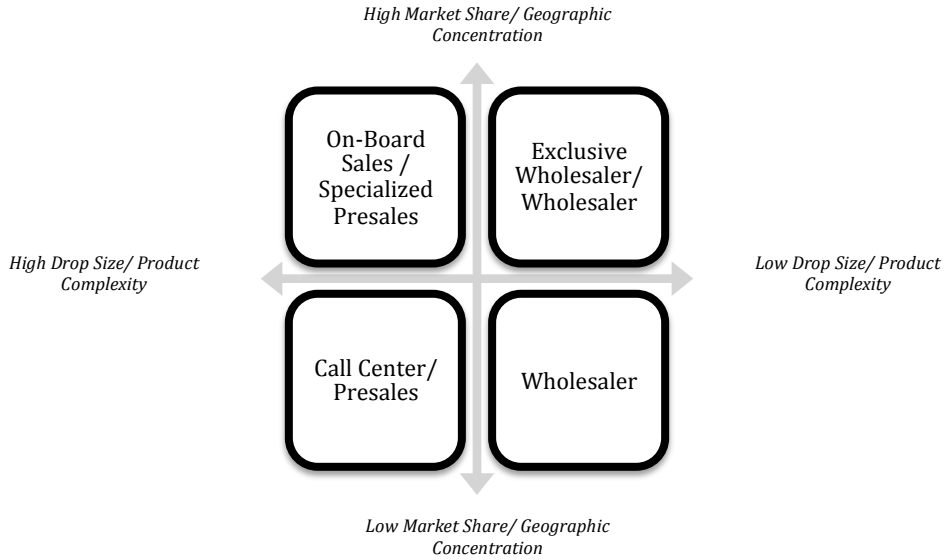

Figure 3: Framework for Distribution Channel Selection

Conclusions

Designing or selecting sales and distribution channels require an in-depth understanding of the strategy of the firm as well as of the requirements of the market. The key drivers resulting from the analyses performed in this paper are highly dependent on the how target customers purchase products from manufacturers and how customers sell products to end consumers. Nevertheless, drop size, product complexity, geographic concentration, and market share are factors that were reliable predictors and drivers for the design and selection of sales and distribution channels. The discriminant analysis shows that by using these four aggregate factors, we were able to provide a statistically valid discrimination of the 35 documented distribution strategies.

Certainly, companies require having multiple sales and distribution schemes to meet the diverse requirements from customers or segments of customers. The proposed framework should be applied systematically across different product and customer segments to design robust multichannel distribution strategies.

Future Research

The analyses presented in this paper are limited to list of selected companies, most of which belong to the consumer packaged goods industry, as well as to a set of variables defined through a series of workshops and literature review. The research, through the framework obtained from the workshops, intends to provide a high level recommendation on how companies should design or select a sales and distribution channel to serve the market. However, there are two key pieces missing from this research. The first one is to research additional representative factors that could drive the channel design/selection process. For instance, some factors that emerged from literature review and from discussions with practitioners include: access to cash, trends in urbanization of cities/territories, and the buying power of customers and consumers.

In addition, another element that should be explored is the cost to serve, which is a measurement that gives an integrated view of costs at each stage of the supply chain. It reflects the total cost of servicing a product, customer, channel, and/or region. The cost to serve metric should be included in the framework, since it helps companies determine the profitability of sales and alternative distribution schemes.

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