# Commodity-Procurement Strategies of Food Companies: A Case Study

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This research evaluates the main characteristics considered in commodity-procurement decisions made by food manufacturers. Procurement characteristics are examined and a framework is developed which classifies procurement characteristics into three categories: product constraints, company constraints, and service constraints. A case-study approach is used to determine the importance of various procurement characteristics and their impact on the buyer's procurement-mechanism choice. The research also examines the strategic role that a commodity-procurement department plays within a corporation and how that role relates to the three commodity-procurement decision classifications.

Today's dynamic food industry generates a highly competitive environment for food manufacturers and food retailers alike. Part of this ever-changing environment includes consolidation, new retail formats, and globalization. Food manufacturers must also contend with power shifts in the channel that favor retailers and create pressure on manufacturers to increase service while reducing costs. Food manufacturers therefore face a challenging prospect where service level, quality, and price expectations from retail customers and end consumers are high and continue to rise—while pressure exists to keep prices stable or even to reduce them. Purchasing, if managed effectively, offers opportunities for better cost control while improving service levels (Kocabasoglu and Suresh 2006).

Many food manufacturers concentrate on developing effective procurement strategies in efforts to remain competitive. An effective purchasing strategy is "one that fits the needs of the business and strives for consistency between the firm's internal capabilities and the competitive advantage being sought, as defined in the overall business strategy" (Monczka, Trent, and Handfield 1998, p. 183). Since an average manufacturer spends "55 cents out of every dollar of revenues on goods and services," the impact of an effective procurement strategy on company performance is easily observed (Monczka, Trent, and Handfield 1998, p. 2). Furthermore, companies have increased the use of outsourcing considerably over the last decade, thereby increasing the need for procured materials and services (Leenders et al. 2006, p. 7).

A food manufacturer typically procures two types of goods: commodity and non-commodity goods. Seitz (1994) defines commodity goods as "widely traded raw materials and agricultural products such as wheat, corn, and rice" (p. 435). Commodities must meet minimum quality standards to be classified in a certain grade or standard category of that commodity, e.g., #2 yellow corn (Seitz 1994). However, there is no differentiation between a commodity that just reaches the minimum standard within a grade and a commodity that just misses the next higher grade. Conversely, non-commodity goods are highly differentiated, branded, and/or have value-added characteristics. For example, marinated chicken breasts may be differentiated by flavor and/or have added value provided by pre-cooking.

While both commodity and non-commodity goods are important to manufacturers, the procurement literature focuses on non-commodity procurement since its costs are relatively high for most manufacturing firms. Further, non-commodity procurement is usually contract-based and can include highly specific requirements. Non-com-

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modity procurement is considered to be more complex and thus has garnered more attention within procurement departments as well as in the academic literature.

The literature on commodities has historically focused on selling or marketing commodities from a producer perspective. A key element of effective selling is an understanding of the customer (e.g., their wants/needs, important buying characteristics, the procurement process), yet literature on buyers' perspectives on commodity procurement is noticeably scarce in both the general procurement and the commodity-marketing literature. This is perhaps due in part to the assumption in operational purchasing models (e.g., Economic Order Quantity) that the price of material is "known and fixed" regardless of purchasing policy—however, when large price fluctuations occur for input materials (as can occur in commodity procurement), purchase price becomes more important and "must directly affect the purchasing policy" (Simon 2005). Commodity procurement, however, is an important consideration. A recent study of mid-sized companies indicated that "a lack of sourcing and commodity skills" was rated as a top challenge, as companies often lacked expertise in key supply markets at a time when pressure to reduce cost is mounting and many commodity prices (e.g., oil) are increasing dramatically (Aberdeen Group, Inc. 2005).

Commodity procurement has unique characteristics that add complexity to the procurement function. In dealing with food commodities, buyers face not only the risk of inadequate supply but also the price risk inherent in seasonal and potentially volatile commodity markets. For example, seasonality and the need for buying products globally (e.g., coffee or cocoa) extends the lead time between when the purchasing commitment could be made and when the actual product is needed/used. This extended lead time increases price risk but also increases the need for assurance of supply (Leenders et al. 2006, p. 214). Perishability and quality add risk components as well. Hayenga (1979) points out that the timing of commodity purchases can have a significant influence on unit costs for a firm. Commodity procurement therefore represents an area on which food manufacturers should focus in order to improve profit, service, and/or quality and to withstand pressures to reduce price.

This research examines characteristics that impact commodity-procurement strategy, develops a classification scheme for these characteristics, and evaluates the importance and impact that each characteristic has on commodity-procurement decisions. Our findings lead to a proposed model of the strategic role of commodity procurement.

## Commodity Procurement

The most basic function of a food manufacturer's commodity-procurement department is to maintain commodity supply in order to meet production demands. Managing supply risk is an essential element of this function and is critical to successful supply management (Zsidisin and Ellram 2003). The commodity-procurement department's second function is cost minimization (Hayenga 1979). Commodity buyers accomplish these two functions by developing an optimal procurement strategy for each commodity depending on a variety of factors such as volume needs, associated risk, and potential costs. The commodity strategy "provides the specific details and outlines the actions to follow in managing the commodity for the long term" (Monczka, Trent, and Handfield 1998, p. 187). In this study, commodity-procurement strategy primarily describes food manufacturers' choices regarding the timing and method of commodity purchases used to meet specific needs of the firms. It embodies the firm's overall decision with respect to managing the commodity-procurement process. The two primary categories of commodity-procurement strategies are (1) spot-market (i.e., cash) transactions, and (2) forward purchasing mechanisms. Both categories are examined below.

### *Spot Market*

The spot (cash) market is the traditional commodity-procurement instrument, where buyers purchase the commodity in a predefined, general quality category on the cash market, immediately take possession, and have no direct contact with the supplier (Ferris 1997). Spot markets "offer products at essentially negligible lead time," but this flexibility often comes at a higher price and incurs greater price uncertainty (Seifert, Thonemann, and Hausman 2004). In food manufacturing, this strategy is employed as a simple replenishment strategy—e.g., when inventory drops below a pre-determined threshold level,

a repurchase order is generated and carried out in the spot market.

The spot market is widely used for several reasons. First, as a procurement strategy, it does not involve sophisticated tactics or market analysis, but merely involves monitoring current supply and reordering (Arthur 1971). Spot-market purchases also minimize inventory costs, since no storage is needed if the purchase is tightly coordinated with production needs (Arthur 1971). Furthermore, the spot market is an applicable tool when there is little price movement, and hence little risk of price fluctuation, or when price movement cannot be predicted, limiting the ability to minimize price risk through other strategic means.

While use of the spot market is often a viable commodity-procurement mechanism, exclusive use of the spot market does have disadvantages. There is the inherent risk that a manufacturer may not be able to procure the necessary volume when needed, leading to inefficiencies in manufacturing (Arthur 1971). Furthermore, relying on only the spot market may eliminate opportunities to purchase commodities at lower prices, since the buyer is assumed to be a price-taker in the spot market.

*Forward Purchasing Mechanisms*

Commodity-procurement instruments are sometimes used by firms to secure commodities needed for future production. These can be categorized as forward purchasing mechanisms, including forward buys and forward contracting. Each requires the buyer to project future quantity requirements. Firms also may reduce price risk by hedging spot-market purchases in the futures market. We do not discuss the use of futures markets in detail here since they are unavailable for the commodities considered in this research.

Forward Buy

A forward buy is a natural extension of spot-market procurement. Manufacturers purchase and take possession of a commodity in advance of manufacturing needs when spot-market prices are favorable. As Hayenga (1979) discusses, manufacturers can then establish a per-unit commodity price, set final good prices and, hopefully, capture desired profit margins. It may be advantageous to establish per-unit commodity cost on anticipated volume since "the timing of commodity purchases has a significant influence on a firm's costs" (Hayenga 1979, p. 351). For example, suppose a commodity price is forecasted to increase. If storage costs for that period are less than the forecasted price increase, a forward buy lowers per-unit commodity cost. However, price risk is inherent in a forward buy since the commodity price may not move as predicted after the forward purchase.

Variations exist on forward buys that affect who takes physical possession of the commodity at the time of purchase. This is a major consideration, especially if storage space is limited (Kingsman 1985). If storage is limited, for example, it is advantageous for the manufacturer to have the supplier retain possession until the manufacturer requests delivery.

Forward Contracts

A second forward purchasing mechanism used by manufacturers is a forward contract with a supplier that specifies delivery of a commodity at a certain future date (Ferris 1997). Such contracts typically stipulate all of the transaction's details, including the quantity to be traded, the quality of the commodity, delivery time and place, and price determination. Forward contracts offer the opportunity to procure commodities with the desired qualities for future processing without holding physical inventory and with little or no required payment in advance of delivery. A disadvantage of forward contracts is the possibility that the supplier fails to deliver either the desired quality or quantity. However, the likelihood of contract default is small and legal recourse is available.

**Commodity-Procurement Characteristics**

Given the lack of previous research in the procurement literature specific to commodity-procurement decisions and buying strategies, we relied on characteristics that were shown in the commodity-marketing literature to affect marketing choices for commodities. The general proposition guiding this research is that characteristics which play a role in commodity-marketing decisions will also play a role in commodity-procurement decisions. The general procurement literature was also reviewed, and where characteristics relevant to commodity procurement were found, those characteristics were

included. A thorough review of the commodity-marketing literature and the general procurement literature suggests that the following characteristics are important in commodity-procurement decisions: *market efficiency*, *perishability*, *seasonality*, *storage requirements*, *commodity cost share*, *budget constraints*, *cooperative involvement*, *limited supply*, *price risk*, *storage availability*, *traceability*, and *volume*. Additionally, insights provided by discussions with commodity professionals and academics completed prior to the case interviews indicated that characteristics not previously discussed in the literature also affect procurement decisions, such as *sales forecast accuracy, special promotions,* and *supplier service level.* We discuss the nature of each characteristic below and provide examples from the literature.

The characteristics described above can be divided into three broad categories which provide a potential framework for understanding and investigating commodity-procurement decisions: product constraints, company constraints, and service constraints. Product constraints are those characteristics that derive either from the physical characteristics of the commodity itself or from the economics of the commodity's market. Company constraints are those characteristics which are created by financial, managerial, or organizational characteristics of the firm. Service constraints are related to the manufacturer's relationships with buyers of the finished good as well as with purchasers of the commodity. As one goal of this research is to better understand the nature of commodity-procurement decisions, adding a level of explanatory power by creating potential higher-order factors in these category classifications was important. Figure 1 illustrates the three commodity categories and the factors that affect decisions in each category. A discussion of the characteristics within each category follows, including the expected affect of each characteristic on procurement strategy (e.g., spot market or forward pricing mechanism), assuming all other characteristics were held constant.

*Product Constraints*

Product constraints are related to the distinct characteristics of the commodity that may require special attention. Some product constraints derive from physical characteristics of the commodity, while others are related to economic characteristics of the commodity's market. Characteristics derived from product constraints include *market efficiency, perishability*, *seasonality*, *storage requirements*, and the *commodity cost share* in the final product. Each characteristic is discussed briefly below.

*Market efficiency* refers to the speed at which commodity markets react to and incorporate new information into market prices. Petzel (1997) indicated that "Market information is an important economic good that is valuable to the immediate participants in a trade and to others who operate in related areas. Good information guides efficient production and allocation decisions" (p. 256). A market with a high degree of market efficiency reacts very quickly to new information. Forward purchasing mechanisms are less likely to be implemented in more efficient markets, since a commodity-procurement department would have limited ability to "beat" the market. In less efficient markets, a commodity-procurement department may hold an asymmetric information advantage and may execute a forward purchasing mechanism, such as a forward buy or a forward contract, before the market is able to react. An information "advantage" can occur through "ordinary business activities" that enable a firm to better predict "input and output price movements more accurately than other market participants" (Knill, Minnick, and Nejadmalayeri 2006).

*Perishability* refers to the length of time before the commodity decays or spoils and can no longer be used in production. A high degree of perishability refers to a commodity with a relatively short shelf-life before spoilage and thus a higher associated transaction cost. Since companies move away from open markets when transaction costs are high (Williamson 1975), it is unlikely a manufacturer will use the spot market for highly perishable commodities. High perishability also discourages a standard forward buy that requires the buyer to secure storage. When commodities are highly perishable, it is likely that the manufacturer will develop forward contracts with a supplier to ensure fresh supply is delivered when needed to minimize risk.

*Seasonality* is the degree to which historic price swings (highs and lows) occur across growing seasons. A high degree of seasonality implies a strong and predictable pattern for the commodity's prices within a year. Seasonality in prices can stem from growing patterns on the supply side (e.g., sweet corn

in the Midwest) and seasonality in demand patterns (e.g., turkey sales increase around Thanksgiving). When purchasing highly seasonal commodities, it is likely that manufacturers will use forward purchasing mechanisms, such as a forward buy, to obtain large volumes of commodities when prices are low and hold product in inventory (Kingsman 1985).

*Storage requirements* of a commodity focus on the physical environment needed to preserve the commodity's quality (e.g., refrigeration). High storage requirements imply higher storage costs, so commodities with high storage requirements are less likely to be purchased with forward purchasing mechanisms, such as a forward buy (Kingsman 1985). When a manufacturer cannot accommodate special storage requirements, taking possession of inventory in advance of production needs may not be practical. Furthermore, relatively higher storage costs may eliminate any financial gains generally available from a standard forward buy. Thus the tradeoff between reductions in unit price and increases in storage costs must be considered, and is likely to favor a spot market strategy or a forward contract where delivery is taken close to the time of production.

The *commodity cost share* in the final product is determined by the contribution of the commodity to overall final product cost. When commodity cost share is high, it is expected that manufacturers will use forward purchasing mechanisms to minimize price risk and ensure profit margins (Hayenga 1979). Forward purchasing mechanisms also allow a manufacturer to set a stable final product price, avoiding radical price fluctuations for the final good.

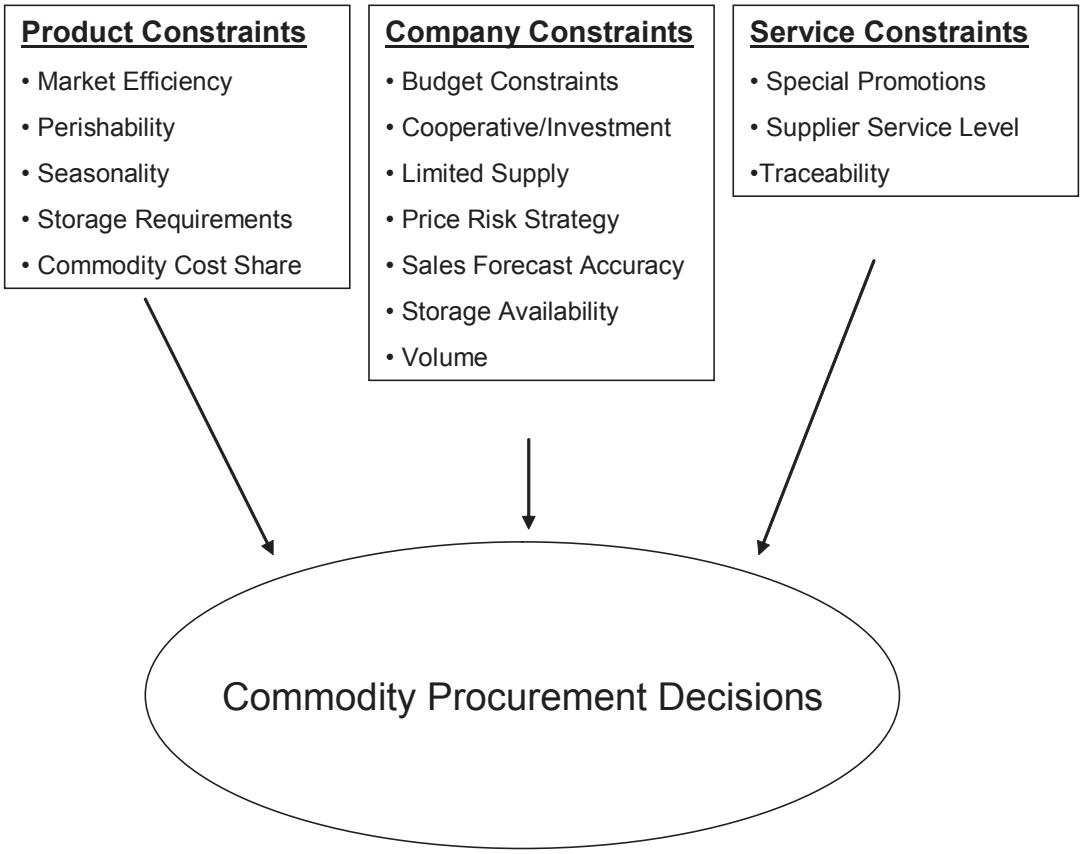


**Figure 1. Commodity-Procurement Decision Categories.**

*Company Constraints*

Company constraints are those characteristics that arise from the distinct characteristics or policies of the purchasing firm. Some company constraints stem from financial characteristics of the firm, while others are rooted in the firm's managerial and organizational characteristics (e.g., policies, marketing strategies). The nature and size of markets in which the firm participates also play a role in creating company constraints. *Budget constraints*, *cooperative involvement*, *limited supply*, *price risk*, *sales-forecast accuracy*, *storage availability*, and *volume* are all company constraints.

*Budget constraints* refer to the degree to which the budget for the commodity-procurement department is limited. In a strict budget environment, manufacturers are expected to be involved in fewer forward buys. Forward buys are expensive to execute in the short run since the manufacturer has to pay for the commodity before it is needed in production (Kingsman 1985). Furthermore, when budget constraints are high, it is expected that commodity-procurement departments focus more on cost avoidance or cost reduction. When budget constraints are more relaxed, the commodity-procurement department can focus more on profit or revenue generation as measured against price risk.

*Cooperative/common involvement* refers to a situation where more than one entity is involved in the procurement decision. The most common form is a farmer cooperative–owned plant that buys commodities from its members. Common involvement can also occur when multiple manufacturers form a buying cooperative. Commodities procured under a common-involvement process are more likely to be purchased through a forward price mechanism. Nearly all of these cooperative involvements have some form of contract that commits the parties involved to a given quantity of a commodity (Royer 1995). In this sense, the manufacturer is committed to a future purchase, and thus will want to hedge price risk via forward purchasing mechanisms.

When a *limited supply* exists at a specific quality level, it is more likely that forward purchasing mechanisms will be used. The primary benefit is the minimization of supply risk so that production can continue as planned and final product supply is not affected (Hayenga 1979).

*Price risk* refers to volatility of the commodity price over time. Volatility is measured in percentage terms and annualized to evaluate the historical volatility of a commodity (Bittman 2001). Higher volatility implies higher price risk. If the commodity price is relatively volatile, it is expected that a manufacturer will implement a risk-management instrument in the form of a forward purchasing mechanism, such as a forward buy. Without an advanced price mechanism there is a risk of paying a significantly higher price on the spot market. If there is little price risk, the spot market is generally sufficient.

Nearly all manufacturers base their procurement volumes for input supplies, at least to some extent, on the *sales-forecast accuracy* of final product. Sales-forecast accuracy refers to the degree to which forecast sales mirror actual sales. It is expected that higher a degree of sales-forecast accuracy will lead to a higher likelihood of manufacturer use of forward purchasing mechanisms. Greater accuracy minimizes volume risk, so a manufacturer can be more aggressive and focus on minimizing price risk.

*Storage availability* is the amount of physical space available for commodity storage. It is hypothesized that manufacturers with relatively high storage availability are more likely to participate in forward buying activities since ample space is available for storing the procured commodity (Kingsman 1985). Manufacturers with a relatively low amount of storage availability are limited to purchasing activities that do not require taking possession of the commodity in advance of production, such as spot markets or forward contracts.

*Volume* is the amount of a commodity needed within a given time frame to fulfill manufacturing requirements. It is expected that a manufacturer would seek a forward purchasing mechanism for high-volume commodities to avoid the risk of stock outs. When manufacturers lack sufficient levels of high-volume commodities, it delays production and incurs significant cost (Kingsman 1985). For low-volume commodities, it is more likely that a manufacturer will buy the commodity on the spot market in order to save storage costs.

*Service Constraints*

Service issues affect commodity-procurement departments in two ways. First, service can equate to

the service that the manufacturers' customers (e.g., generally retailers) demand; for this study, the customer-service requirement examined is *promotional expectations* that a retailer may have as part of its marketing strategy for the manufacturer's finished product. Second, service can equate to the requirements that the manufacturer sets for its suppliers, including *supplier service level* and *traceability*. The first service constraint affects the manufacturer as the *seller* of a finished good, while the second service standard affects the manufacturer as a *buyer* of a commodity product. Each of these constraints is discussed below.

While most *special promotions* are based at the retail level, the end result is an increase in production quantities for the manufacturer—translating into an increase in the volume of the required commodity. Special promotions also put price pressure on commodity-procurement departments. If the final product is discounted at retail, the base commodity must be purchased at a lower price in order to maintain profit margins. Based on pre-test interviews, it was apparent that this is a key characteristic, particularly in highly price-competitive markets. A special promotion is expected to encourage a manufacturer to investigate forward purchasing mechanisms. Two reasons for more-advanced purchasing include the need to ensure sufficient supply exists to produce the desired amount of final product forecasted for the special promotion; and the need to protect profit margin needed to make the promotion worthwhile and successful for both the manufacturer and retail customer.

*Supplier service level* refers to services available from a commodity provider, and can range from providing market forecasts to on-time delivery. Monczka and Trent (1995) list the service level of a supplier as one of the top five concerns of procurement. Commodities with a high service-level requirement are more likely to be purchased through forward purchasing activities. A high service level implies that a relationship generally exists between the two parties and more information is shared, allowing for forward purchasing activities to be executed (Kingsman 1985). It may indicate a higher level of trust and cooperation between the two parties. Thus manufacturers are more willing to listen to supplier ideas with respect to forward purchasing opportunities. Also, suppliers are more likely to work closely with manufacturers and assist in activities (e.g., cost-reduction programs) to ensure preferred-supplier status. Finally, since a spot market implies that no relationship exists between buyers and sellers, this procurement strategy will not be as beneficial when a high level of service is required.

*Traceability* refers to the ability to trace the source of a commodity and other pertinent product information such as where and how the commodity was grown (e.g., what herbicides were used on the field). A high degree of traceability refers to a commodity that can be completely traced back to its origins and where many details about the production environment of the commodity are known. When a high degree of traceability is required, a forward purchasing mechanism, such as a forward contract, is more likely to be used. While traceability is typically considered a differentiating trait, it is also true that the line between commodity and differentiated product becomes blurred when traceability is applied to commodity agriculture. In fact, it is the implementation of traceability that transforms an agricultural commodity into a differentiated product. We include it here as an important characteristic that may guide how some food manufacturers make commodity-procurement choices. As traceability is integrated into a commodity or is expected from a supplier, the transaction costs of maintaining traceability increase (Hobbs 1996), moving a manufacturer away from the spot market where commodities do not have traceability attributes.

## Methodology

Case-study methodology was used for this study. Case studies are appropriate when exploring "what" and "why" questions, and when the researcher has no control over the outcome (Yin 1989). As discussed by Sterns, Schweikhardt, and Peterson (1998), case-study research is an increasingly important tool for agricultural economists. The general design for case studies includes the following five components: the unit of analysis, the research questions, the research propositions, the logical process for linking the data to the propositions, and the criteria for interpreting the findings (Yin 1989). For this research, the unit of analysis is food manufacturers and their choices with respect to procurement strategy. Since very little attention has been given in the literature to food manufacturers and their commodity-procure-

ment strategies, case study is an appropriate methodology, because the "what" and "why" questions are particularly insightful and may lead to further research streams.

A thorough literature review identified typical characteristics that affect commodities. An open-ended discussion-based questionnaire was developed to better understand "what" commodity-procurement characteristics are important to buyers and "why" those characteristics affect commodity-procurement decisions. As is standard in any questionnaire development, we pre-tested the case questionnaire with several academics and industry representatives familiar with commodity marketing and commodity procurement in the food industry. The pre-test phase resulted in the addition of several characteristics which affect commodity procurement and have not previously been discussed in the literature. The discussion of these additional characteristics was included in the previous section. The questionnaire is provided in the Appendix.

The research propositions were exploratory which, as explained by Yin (1989), focus mainly on the purpose of the study. As such, the research propositions were focused on discovering whether or not individual commodity characteristics were important in a procurement decision, whether the decision followed expected patterns as shown in previous literature (e.g., in a more efficient market, are forward purchasing mechanisms less likely to be implemented), and whether decision patterns are consistent across the buyers interviewed.

The logical process for linking the data to the propositions and the criteria for interpreting the findings were completed following pattern-matching logic. As stated by Yin (1989), pattern-matching logic compares the patterns discovered through the interview process to the predicted patterns. Throughout the research, pattern matching was performed and included cross-case pattern analysis.

**Participant Descriptions**

The participating companies are all involved in food manufacturing, yet they each occupy a different strategic position. All three companies are medium- to large-scale food manufacturers that use both spot market and forward purchasing mechanisms across different food and agricultural commodities. One company manufactures and markets its own national brand in a niche market that includes both mainline and organic products. Another company primarily processes and packages for a top-selling national brand in its category. The third company is a leading broad-line foodservice distributor that manufactures and markets its own branded products and/or outsources production of its branded products to contract manufacturers. Specific company information is not disclosed here due to confidentiality agreements; however, each company is a leader in its segment and procures a broad range of food commodities. Additionally, there is overlap among companies in the types of food commodities procured, which increases the richness of the case-study results.

The three food manufacturers have similarly organized commodity-procurement departments. The basic structure consisted of one overall director of commodity procurement, with specific commodity-group responsibilities assigned to buyers reporting to that director. In one company, a business-support individual assisted each buyer. All participating companies assigned buyer responsibilities by related commodities. For example, one buyer would have responsibility for all dairy commodities. Organizing responsibilities in this way allows buyers to specialize in one commodity group and enables food manufacturers to benefit from the buyer's expertise. The firms employed between three and 12 buyers. In general, individual buyers had authority to make final decisions on commodity-procurement strategy.

Twelve commodity-procurement personnel across the three food manufacturers were interviewed, including agricultural-commodity buyers and managers in each firm's procurement department. Table 1 reports the number of interviews at each company as well as the positions held by the participants. Interviews were conducted on-site at the firms' facilities with two companies, requiring approximately one day on site. A third company was interviewed over the telephone. Individual interviewees were asked to answer the entire questionnaire. As such, a multi-case design was employed and replication logic procedures were followed whereby each case either provided support for similar results or logically explained dissimilar results. This number of interviews is higher than the eight-respondent minimum suggested by McCraken

**Table 1. Job Responsibilities for Survey Participants.**

| | Personnel position | Commodity |
|---|---|---|
| Company 1 | Head of procurement | Wide range of fruits and vegetables; popcorn |
| Company 2 | Procurement director | |
| | Packaging procurement director | |
| | Buyer | Fruits & Vegetables |
| | Assistant buyer | Fruits & Vegetables |
| | Buyer | Meats, Grains, & Oils |
| | Assistant buyer | Meats. Grains, & Oils |
| Company 3 | Commodity-procurement director | |
| | Lead buyer of soft commodities | Wheat, flour, soybean oil, orange juice, coffee |
| | Dairy buyer | Eggs, cheese, butter, milk, also some fruit and vegetable |
| | Meat buyer | Beef and pork |
| | Meat buyer | Chicken, poultry, and seafood |

(1988) and highlights the ability for this exploratory study to provide insights into commodity-purchasing strategies. The breadth of companies and the diversity of the commodities involved in the study increases the likelihood of generalizability outside of this particular sample.

## Research Results

Study respondents shared information on company structure, perceived roles of commodity-procurement departments, the commodity-procurement characteristics, and the choice of commodity-procurement strategy. Their responses are summarized below.

### *Procurement Characteristics and Strategy*

Table 2 summarizes the number of buyers assigning importance to individual commodity characteristics in the procurement decision (holding other characteristics constant), the expected procurement strategy, and the consistency of respondents' procurement strategies with the expected strategy. The importance of individual characteristics to individual buyers or managers varies, likely due to the nature and diversity of commodities included in the study. Many participant responses confirm the expected relationships with some variation across participants. Results for each group of constraints are discussed below.

#### Product Constraints

Buyer responses were mixed as to which product-constraint characteristics they considered when choosing a commodity-procurement strategy. Perishability and seasonality were considered by all twelve of the participants, while ten of the twelve considered market efficiency in their decisions. Buyers indicated a greater profit opportunity exists in relatively inefficient markets. Storage requirements and commodity cost share were considerations for only a few of the buyers (three and two, respectively). Storage requirements were only considered by buyers who were procuring frozen or refrigerated goods where storage space is relatively limited and expensive. Other buyers indicated that storage considerations did not enter the strategy decision since storage space is generally available and inexpensive (though the authors argue that buyers

**Table 2. Procurement Characteristics: Rate of Consideration and Agreement with Hypothesis.**

| Procurement characteristic | # of buyers assigning importance | Expected strategy* | Buyer agreement with expected strategy** |
|---|---|---|---|
| Product constraints | | | |
| Market efficiency | 10 | Spot market | 10 |
| Perishability | 12 | Forward purchasing | 12 |
| Seasonality | 12 | Forward purchasing | 12 |
| Storage requirements | 3 | Spot market | 3 |
| Commodity cost share | 2 | Forward purchasing | 2 |
| Company constraints | | | |
| Budget constraints | 5 | Spot market | 5 |
| Cooperative/common involvement | 1 | Forward purchasing | 1 |
| Limited supply of specified quality | 3 | Forward purchasing | 3 |
| Price risk | 12 | Forward purchasing | 10 |
| Sales-forecast accuracy | 12 | Forward purchasing | 12 |
| Storage availability | 0 | Forward purchasing | 0 |
| Volume | 7 | Forward purchasing | 7 |
| Service constraints | | | |
| Special promotions | 9 | Forward purchasing | 9 |
| Supplier service level | 12 | Forward purchasing | 0 |
| Traceability | 3 | Forward purchasing | 3 |

*Expected procurement strategy assuming the level of characteristic is high (e.g., if market efficiency is high, the spot market is the expected strategy).
**Based on the buyers who agreed that the characteristic is important. NOTE: N=12

are implicitly considering storage but that it is not a binding constraint in these cases). Most buyers paid little attention to commodity cost share, indicating that their primary focus was procuring the appropriate volume at the lowest possible cost.

When buyers considered a product constraint as important in choosing a procurement strategy, they were also in full agreement with the expected strategic choice. The buyers, indicating that market efficiency and storage requirements were important considerations, also indicated that the optimal procurement strategy given high levels of these characteristics would be the spot market. In the case of market efficiency, buyers believe they hold an asymmetric information advantage over other players in inefficient markets, likely attributable to expertise gained from frequent participation in the market, as described by Carlton and Perloff (1989). This expertise facilitated more opportunities to optimally time purchases through forward buys or forward contracts. Greater market efficiency dissipates the asymmetric information advantage, leading to spot-market procurement.

For the buyers who considered storage requirements as important (recall these were primarily buyers of frozen commodities), the spot market was generally used to avoid the search costs of finding additional storage and the high cost of leased storage. Regarding perishability, seasonality, and commodity cost share, buyers agreed that high levels of these characteristics would result in some type of forward purchasing mechanism rather than spot-market usage. When commodities are highly perishable, buyers prefer to implement

forward contracts with specific delivery times to avoid as much storage as possible. Alternatively, some buyers pursue forward buys for perishable commodities, but with much shorter time horizons than for non-perishable commodities. All buyers were concerned about over-purchasing for actual production needs, given the perishable nature of the commodity.

Buyers agreed that a high degree of seasonality would lead to procurement with forward purchasing mechanisms. Seasonality can affect both commodity availability and price risk for commodity buyers. Buyers serve the supply-assurance function by forward contracting or making forward buys to ensure that adequate volumes are available for future production. Buyers minimize price risk by timing purchases to take advantage of seasonal price swings.

Company Constraints

In general, buyers gave less weight to company constraints than to characteristics in the product constraint and service constraints categories. Only price risk and sales-forecast accuracy were considerations for all 12 of the buyers in the study. Volume was a consideration by seven of the 12, while budget constraints, cooperative/common involvement, and limited supply of a specific quality were considerations of less than half of the buyers (five, one, and three, respectively). Buyers were more concerned with obtaining an adequate return, so budget constraint was not an issue. The primary reason given for the lack of cooperative consideration was high transaction costs, including high coordination cost, high cost of developing common buying plans, and philosophical differences regarding how the commodity should be procured. In essence, the transaction costs were too high to make cooperative buying a profitable option for the participants in this study. Most buyers indicated that limited supply of a specified quality did not have a significant impact because they were buying commodities that meet basic standards. None of the 12 buyers explicitly considered storage availability as important to the procurement-strategy decision. However, as with storage requirements, it does seem that buyers are implicitly considering storage availability, as their general assessment was that storage space was available, whether owned or rented, if needed.

Buyers who considered company constraints in procurement-strategy choice also chose procurement strategies consistent with the proposed choice with the exception of the price-risk characteristic. The majority of participants (ten of 12) in the study agreed with the expectation that a high degree of price volatility would encourage a forward purchasing strategy assuming other factors, such as perishability, are not contradictory. Those disagreeing viewed price risk as a distraction to forward buying for fear of improperly timed buys (e.g., when prices may be higher). These buyers believed that using the cash market was the best way to minimize risk.

The three buyers who considered limited supply of a given quality to be important felt that obtaining the desired quality level gave their firm a competitive advantage for the final product. They agreed that forward purchasing mechanisms were the best way to ensure that adequate quantities of that quality were available. Buyers agreed that budget constraints would encourage spot-market procurement to postpone the purchase as long as possible, conserve cash flow, and reduce the chance of over-purchasing. Buyers also indicated that accurate sales forecasts allow them to be more aggressive with buying strategies and that forward purchasing strategies are more likely when sales forecasts are regarded as more accurate. Accurate sales forecasts also help buyers better time purchases since the quantity needed for each period is known.

For the seven buyers who considered volume as an important determinant of procurement strategy, it was clear that higher volume encourages forward buys. Generally, these buyers found high-volume commodities were usually core ingredients for final products, so the goal became maintaining supply. Several respondents indicated that they first concentrated on larger-volume commodities since these commodities potentially have the highest impact on profitability. In cases where profit was the strategic role of the commodity-procurement department, buyers were more likely to develop a unique buying strategy for large-volume purchases. The five buyers who did not consider volume to be important viewed all commodity purchases as profit opportunities and were focused on return on investment. These buyers also noted that commodity value was more important than commodity volume alone. When value was high, these buyers were more likely to use forward buys.

Service Constraints

Service constraints include special promotions, supplier service level, and traceability. Each of the nine buyers indicating that special promotions play a role in their commodity-procurement strategy also said that special promotions would lead to using forward purchasing mechanisms. Knowledge of the special promotion with sufficient advance notice allows the buyer to take advantage of more innovative strategies, and to use accurate sales forecasts and projected margins. Generally, buyers who considered special promotions in their procurement strategy were more likely to use a forward purchasing mechanism, avoiding the risk of spot-price increases between the promotion proposal and the promotion implementation.

A major finding of this research is that while all 12 buyers agree that supplier service level is an important consideration in choosing a procurement strategy, none agreed with the hypothesis that higher supplier service levels would encourage the use of forward purchasing mechanisms. Instead, they viewed adequate supplier service level as a basic prerequisite to a business relationship with their firm. Services expected by buyers included supply maintenance, on-time delivery, market knowledge, buyer-firm familiarity, exhibiting cooperation, and offering market opinions. Buyers will not procure products from suppliers that do not provide adequate service levels (as defined by the individual buyers and/or company).

Only three of the 12 buyers considered traceability, but those three buyers indicated that traceability was a very important characteristic. These firms market traceability in their final product and use forward contracts to ensure that the commodity meets traceability specifications. As such, traceability is a key role in the strategic direction of this commodity-procurement department and plays a role in this firm's service requirements.

Additional Insights from Case Studies

Further insights were gathered beyond the study's initial objectives, which is not uncommon in case-study research. Two primary insights relate to the roles of commodity-procurement departments.

Buyers recognized that the commodity-procurement department's role often strongly affected the procurement strategy selected. For example, when a company used traceability as a marketing tool for their finished product, traceability became, in part, the responsibility of the commodity-procurement department and led to a different procurement choice (a forward contract) that would ensure supply traceability.

The second primary insight is that the role of the commodity-procurement department can vary and may follow an evolutionary process. This is demonstrated in part by the fact that there was little consistency across buyers regarding the commodity-procurement department's strategic role. Perceived strategic objectives included controlling supply to the production plant, minimizing inventory, finding new suppliers, assisting the marketing department, improving/maintaining quality standards, assuring traceability, reducing cost, serving as a profit center, providing service or value to customers (e.g., retailers), minimizing risk, and taking advantage of opportunities in volatile markets. At first glance it may be troublesome that such wide arrays of objectives are perceived by buyers in these three companies' commodity-procurement departments. However, these various strategic roles can be organized into three main categories: supply-maintenance–focused, profit-focused, or relationship-focused. Supply-maintenance–focused commodity-procurement departments are primarily concerned with maintaining supply to the production facility. Profit-focused commodity-procurement departments seek potential profit opportunities in the market by making well-timed purchases. Relationship-focused commodity-procurement departments concentrate on providing value to their customers (generally to retailers) which also may be accomplished, in part, by forming close-knit relationships with key suppliers.

Further discussion with these commodity-procurement professionals suggests an evolutionary path with respect to the strategic role of a company's commodity-procurement department. This sequential path is visually presented in Figure 2. The wide arrays of responses above suggest that buyers are at different stages in the evolutionary process with respect to the commodities that they procure.

Given this evidence, we propose that a commodity-procurement department has three strategic levels: supply-maintenance–focused, profit-focused, and relationship-focused. Furthermore, each level is associated with a corresponding commodity-decisions classification (e.g., product constraints,

company constraints, and service requirements, respectively). A firm must first reach a minimum standard at the lowest level of the triangle before it proceeds to higher levels. For example, buyer and management responses to this study indicate that the chief objective of any commodity-procurement department must be to secure adequate supply, and that only when this minimum standard is met can buyers begin to focus on increasing profit. When a firm's commodity-procurement department becomes proficient at increasing profit (through various "sub"-strategies), buyers can then focus on relationship-building. It is important to note that attainment of the next level in the strategic role triangle does not negate the importance of the prior level, but instead builds on competency at the prior level. In fact, competency levels may continue to increase at previous levels as new competencies are built at the next level, presuming that the firm's minimum standard at the previous level has already been attained. That is, the strategic levels should be considered as building blocks rather than stepping stones. It also implies that a commodity-procurement department provides increased value to the competitive nature of the firm as its role move up the triangle. Each level of the strategic role triangle is discussed in depth below.

The research showed that ensuring sufficient

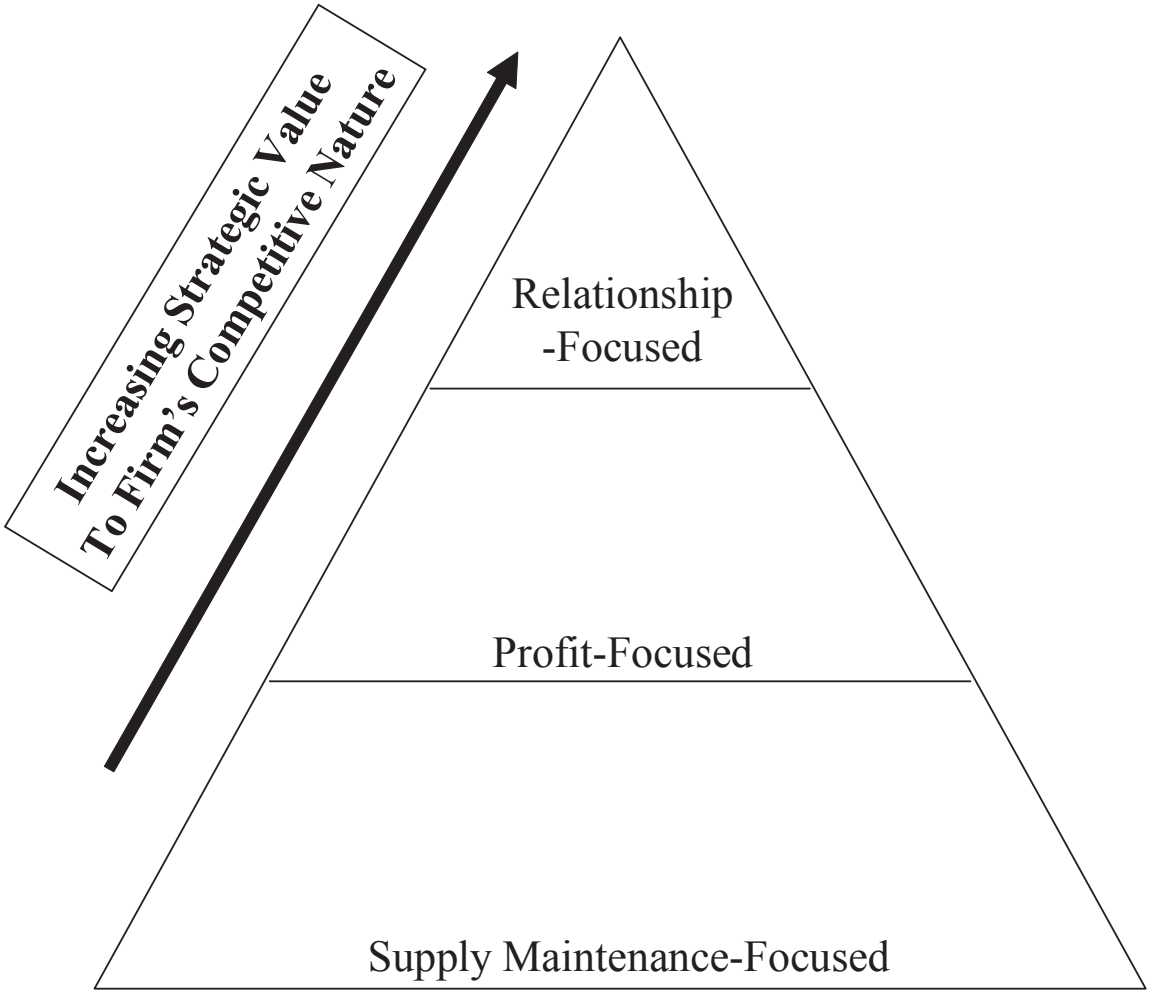


**Figure 2. Evolution of Strategic Roles of Commodity-Procurement Departments.**

volume to fulfill manufacturing demands was often the buyer's first concern. In order to maintain supply, the commodity-procurement department must reduce the risk of stocking out. In this sense, characteristics considered under product constraints may more prominently drive procurement decisions. There are many ways to manage this task, and commodity-procurement personnel will continue to find more innovative and cost-saving ways of protecting supply. A popular means of obtaining this goal is to have contracts to ensure supply. In some cases, the contract price is set when the contract is signed. Others included some type of formula that tied the contract price to the market price of that commodity at the time of delivery. The formula contracts allow commodity buyers to ensure their supply while also developing buying strategies that can be profitable.

When commodity-procurement departments are more profit-focused, they must focus beyond just eliminating or protecting against supply shortages. Commodities, by their nature, do not generally follow stable prices, resulting in inherent price risk. A commodity buyer must design a plan to increase profitability without increasing supply risk. Buyers must evaluate the risk-reward tradeoff and determine how much price risk they are willing to take in order to achieve expected profits. In most cases, it is nearly impossible to consistently buy a commodity at the lowest market price, and also to consistently avoid buying when the market is at its highest. If the strategic role of commodity-procurement department is to be a profit center, buyers are more likely to take additional price risk to try to maximize profit opportunities in the market. As such, buyers may begin to focus more on characteristics associated with company constraints in an effort to manage/calculate risk. Alternatively, if the commodity-procurement department is more risk-averse, buyers are less likely to seek maximum returns on a commodity purchase and more likely to stay at the supply-focused level.

The relationship-focused strategy is potentially the most advanced strategic level. Under this strategy, food manufacturers seek to develop closer relationships with their customers and suppliers in order to ensure the commodity-procurement department is integral to the cross-functional team working on the customer account. In order to implement additional services to customers, commodity-procurement departments must first be efficient in maintaining supply and being profitable. If a commodity-procurement department cannot fulfill these first strategic roles, then is it unlikely they can successfully provide value-added services for their customers. This requires commodity buyers to focus on characteristics associated with service constraints. An example demonstrated in this research is food manufacturers working with retail customers on special promotions. Food-manufacturer representatives, including a commodity-procurement buyer, help the retailer design and implement the promotion. The role of the commodity-procurement representative is to ensure that the increased quantity demanded is attainable at a price that allows the promotion to be profitable.

## Conclusions

This research uses an exploratory case-study approach to empirically evaluate the influence of various characteristics (classified as product constraints, company constraints, and service constraints) on commodity-procurement decisions. Characteristics evaluated in the study include those described in previous literature and new characteristics garnered from interviews with commodity professionals. Second, the study empirically evaluates those characteristics as to their importance in selected firms' commodity-procurement departments. Some of the factors that the literature suggested are important in commodity marketing and/or procurement decisions were very important empirically across all participants. Other factors that the literature indicated are important in commodity marketing and/or procurement decisions varied greatly across this study (e.g., storage costs).

This research also provides a framework for classifying commodity-procurement strategies as well as insight into a potential model for examining the evolving role that commodity-procurement departments can play within corporate strategy (Figure 2). The classification framework would illustrate that commodity-procurement decisions occur across three categories: product constraints, company constraints, and service constraints (as shown in Figure 1). The potential model for examining the role of commodity procurement within corporate strategy (as shown in Figure 2) implies that a commodity-procurement department must first focus on

supply maintenance. Once a commodity-procurement department has mastered maintaining supply, it can progress toward more profit–focused strategies. The final evolution moves toward development of a relationship-focused strategy. This model may allow managers to determine the strategic role of commodity-procurement departments, help the commodity-procurement department prioritize which characteristics to focus on, and consider how a commodity-procurement department can add additional value to the company.

## Research Limitations and Future Directions

Qualitative research has its place in conducting problem-solving research and developing new theory (Sterns, Schweikhardt, and Peterson 1998), but certainly further quantitative research methods are important. This research is a first step of trying to understand the "what" and "why" of commodity procurement since so little information exists regarding this activity. However, further research needs to be conducted.

Replication of the research using a larger sample size would provide additional insights on commodity procurement for food manufacturers. In addition, this study did not evaluate different-sized commodity groups and different dollar values across commodities. Examining food manufacturer's procurement decisions relative to the amount spent on each buy would provide "rules of thumb" concerning the risk-return trade-off that must be evaluated and could provide answers regarding when it is worth developing an advanced buying strategy.

Perhaps the most intriguing future research direction is to further develop the commodity-procurement decision framework in order to test for a higher order factor across product constraints, company constraints, and service constraints. Further research could also examine and test the existence of an evolutionary commodity-procurement strategy and its role in corporate strategy. Additionally, the relationship between the procurement decision framework and the strategic value of commodity procurement (e.g., would product-constraint–oriented decisions more likely be used in a supply-maintenance–focused strategy, while perhaps service-constraint–oriented decisions may more likely be used in a relationship-focused strategy?) would offer an additional research area.

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## Appendix

Questionnaire

1. Could you please provide me with some background on your company's procurement structure and its relationship to overall company structure?
2. Describe how your commodity procurement group is organized and how buying responsibilities are assigned.
3. What strategic role does commodity procurement play with your company?
4. Is the trend within your company to have more or less commodity buyers? Why?
5. Are the buyers organized by specific commodity groups or more decentralized across various commodities?
6. What are the different commodity buying strategies that you use?
7. Who decides what commodity buying strategy is used?
8. What determines what commodity buying strategy is used? Why?
9. How have these commodity strategies changed in the last 5 years? Why?
10. What advantages/disadvantages have you seen with these changes?
11. How do you see commodity buying strategies changing in the next 5 years? Why?
12. What do you see as the potential advantages/disadvantages of these future changes?
13. What materials are you using to train employees on different buying strategies?
14. How is price risk involved in a procurement decision?
15. If price risk is high what type of strategy does this generally lead to?
16. How is volume of commodity purchased involved in a procurement decision?
17. If volume of commodity purchased is high what type of strategy does this generally lead to?
18. How is commodity perishabilty involved in a procurement decision?
19. If perishabilty is high what type of strategy does this generally lead to?
20. How is the accuracy of sales forecast involved in a procurement decision?
21. If there is a high degree of accuracy of sales forecast what type of strategy does this generally lead to?
22. How do special promotions become involved in a procurement decision?
23. If there is a large special promotion ahead what

type of strategy does this generally lead to?

24. How does the amount of space required for storage of a commodity involved in a procurement decision?
25. If the storage requirements are high what type of strategy does this generally lead to?
26. How does the amount of space available for storage of a commodity involved in a procurement decision?
27. If the storage availability is high what type of strategy does this generally lead to?
28. How does the cost storage of a commodity involved in a procurement decision?
29. If the storage costs are high what type of strategy does this generally lead to?
30. How does the efficiency of the market of a commodity involved in a procurement decision?
31. If the price discovery mechanism for a commodity is highly developed what type of strategy does this generally lead to?
32. How is a budget constraint involved in a procurement decision?
33. If there is a tight budget constraint what type of strategy does this generally lead to?
34. How does seasonality of a commodity involved in a procurement decision?
35. If the seasonality is high what type of strategy does this generally lead to?
36. How does traceability of a commodity involved in a procurement decision?
37. If the traceability is high what type of strategy does this generally lead to?
38. How is cooperative involvement involved in a procurement decision?
39. If the cooperative involvement is high what type of strategy does this generally lead to?
40. How does the value of the commodity in the final good involved in a procurement decision?
41. If the value of the commodity is high in the final product what type of strategy does this generally lead to?
42. How is the service level of the commodity supplier involved in a procurement decision?
43. What types of services do you expect from your suppliers?
44. If the service level from the supplier is high what type of strategy does this generally lead to?
45. How are quality specifications of a commodity involved in a procurement decision?
46. If there is a very limited supply of specific quality of a commodity what type of strategy does this generally lead to?
47. Are there any other major factors that you consider when making commodity procurement decisions?