PURCHASING STRATEGY OF SURAFON FOODS FOR FROZEN FOOD PRODUCTS BY APPLICATION OF THE COMMODITY PORTFOLIO MATRIX MODEL

By

Mr. Navin Bilmanoch

A Final Report of the Six-Credit Course
SCM 2202 Graduate Project

Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Science in Supply Chain Management
Assumption University

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ABSTRACT

The objective of this project is to develop purchasing management by setting up purchasing strategies to monitor ingredient material, package material and indirect material used in frozen production. Those purchasing strategies also include guidelines for a program to improve supplier performance (Appropriate Quality & Prompt Delivery) and supplier relationship (Data Exchange & New Product Development). In order to determine an appropriate purchasing strategy, each material will be incorporated into a ‘Commodity Portfolio Matrix’ model, which is a tool to develop long term strategic purchasing plans and to realign items to ensure that the correct resources are applied to the appropriate items.

It was found that the appropriate purchasing and supply management could drive sales up, in terms of faster to market, improved quality, price flexibility, innovation, enhanced customer satisfaction, customer fulfillment flexibility, short cycle and lead times. Furthermore, the appropriate purchasing and supply management could result in lower total cost, in terms of better product designs, acquisition cost, better asset utilization, quality cost, down time cost risk, cycle time cost, non-value added cost, supply cost, and post ownership cost.
ACKNOWLEDGEMENTS

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Furthermore, I would like to thank my advisor Dr. Ismail Ali Siad and my co-advisor A. Thanapat Panthanaprataez for their continuous support in my graduate project. They always guided and corrected me on my ideas, and explained to me the different ways to approach a research problem.

Moreover, I would like to thank the rest of my graduate project committee: Asst. Prof. Dr. M. Asif Salam and Dr. Wittaya Suharitdamrong who questioned me and gave recommendation in the project defense.

Finally, I would like to thank Assumption University for giving me the opportunity to meet professional persons in different fields, who have been educating me with aspects from both arts and sciences to pursue my interests.
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Chapter 1
Introduction and Project background

Business Overview

Established in 1977, ‘Surapon’ is one of the leading manufacturers and exporters of frozen seafood in Thailand for over 25 years. The company was first registered as Surapon Seafoods Co., Ltd. (SSF). In 1989, the company was the first frozen food company listed in the Stock Exchange of Thailand under ‘Surapon Seafoods Public Company Limited’.

The company continues to excel and develop a line of products to meet the fast growing popularity not only in frozen seafood but also frozen foods for both domestic and international markets. SSF has diversified into many other varieties of frozen foods and seafood ranging from conventional seafood (shrimp, cuttlefish, squid), further processed foods (steamed dim sum, easy meal and deep fried items), sushi toppings (sushi ebi, cuttlefish, eel slice, etc.), breaded seafood (breaded shrimp, breaded fish fillet, etc.). To reflect the company’s commitments to food – not just seafood - the company has changed its name to Surapon Foods Public Company Limited.

To cope with all the expansion in the frozen food industry, the company now has 5 facilities in member group of companies as follows:

- Surapon Foods Public Company Limited (SSF) – factory in Samutprakarn province near Bangkok
- Surat Seafoods Co.,Ltd.(SS) - factory in Suratthani province, South of Thailand
- Surapon Foods Public Company Limited (Kabinburi branch) – factory in Prachinburi province, North East from Bangkok.
- Surapon Nichirei Foods Co.,Ltd.(SUNIF) – factory in Samutprakarn near SSF
- Surapon Nichirei Foods Co.,Ltd. (SUNIF) – Kabinburi branch

Because of the company’s ability to provide a wide range of products, the company has customers from all over the world – Japan, Korea, Taiwan, Hong Kong, Singapore, Australia, the United States of America, Canada, European Union, Switzerland.

To comply with requirements and quality standards of all these markets, the SSF group of companies with a workforce more than 4,000 workers and staff, has accomplished internal as well as external quality standards. It is ISO 9001:2000, HACCP, GMP, Pre-Certification (Japan) certified to ensure overall customers’ satisfaction from the sourcing of raw material to the on time delivery.
**Company Vision:**
To be a world class frozen, ready-to-eat, food manufacturer and distributor, which responds swiftly to the volatile market, while generating high earnings and outperforming competitors via brand recognition throughout retail and food service markets worldwide.

**Company’s mission:**
To invest in new technology for the frozen foods business development and continue improvement in human resource’s learning skill.

**Business strategies (Current year)**

<table>
<thead>
<tr>
<th>Financial</th>
<th>Increase profitability</th>
<th>Increase market share</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Increase revenue</td>
<td>Reduce cost</td>
</tr>
<tr>
<td>Shareholder</td>
<td>Retain customer</td>
<td>Acquire new customer</td>
</tr>
<tr>
<td></td>
<td>Customer engagement</td>
<td>Supplier engagement</td>
</tr>
<tr>
<td>Internal BU</td>
<td>CRMM</td>
<td>Supply chain management</td>
</tr>
<tr>
<td>Learn &amp; Growth</td>
<td>R&amp;D</td>
<td>Competent &amp; Engaged workforce</td>
</tr>
</tbody>
</table>


Purchasing and supply management could increase sales, in terms of faster to market, improved quality, price flexibility, innovation, enhanced customer satisfaction, customer fulfillment flexibility, short cycle and lead times. Furthermore, purchasing and supply management also produce lower total cost, in terms of better product designs, acquisition cost, better asset utilization, quality cost, down time cost risk, cycle time cost, non-value added cost, supply cost, post ownership cost. **Therefore, finding and determining appropriate purchasing and supply strategies is one of the major tools to support the business strategies (as in Table 1 above) and achieve the company mission.**

At the present time, the purchasing function does not focus only on buying raw material (both direct and indirect material) at the cheapest price, but it also needs to compare price with the service quality that suppliers should provide in terms of right raw material quantity at the right time, with the right specification & quality of the material, and at the right place.
Sometime, it is necessary for a trade-off between high quality and low price. Next, supplier engagement is the second strategy for the purchasing function to maintain close working relationship with the suppliers. This will facilitate exchange of information (market situation, price index, and economic condition) and collaboratively developing business plans in future (demand forecasting, seasonal material, and continue improvement).

Purchasing specialists now analyze companywide purchase requirements and group them into one of four categories which are: unique items, critical items, generics and commodities. The grouping begins to define the appropriate purchasing. One of the strategic tools of function is the ‘commodity portfolio matrix’, which helps to identify each item’s characteristic (unique items, critical items, generics and commodities) and provide further ways to manage. The result of this assessment is a ‘portfolio’ analysis of critical commodities that are essential for success in the targeted company.

However, this discussion is an extension of the company’s overall corporate-level strategic planning function and should include participants from other critical functions affected by sourcing decisions, including finance, marketing, technology, accounting, production, and design.

Current situation of Surapon Foods

➢ There is no suitable purchasing strategy to control and monitor raw material over 1,000 SKU in ‘Surapon Foods’ company.
➢ Selling price is higher than other competitors (approximately higher by 10-15%)
➢ Low negotiation power with suppliers due to variety of materials (large supply base; over 200 suppliers)
➢ High number of customer complaints (25 times within 6 months)
➢ Unstable monthly/weekly production plan for Dimsum’s plant (2-3 revisions per week)
➢ Easy for the substitute (Indirect) and direct competitors to launch new products with different quality in the market.
➢ Low technologies supplier.
➢ Specific materials requirement requested by R&D leads to no alternatives.

Research problem

• What are suitable purchasing strategies for ingredients, packaging and indirect material of ‘Surapon Foods’ company?
• How should those purchasing strategies be applied in the company’s current situation?

Research objective

• Specify raw material type by applying the commodity portfolio matrix.
• Suggest appropriate sourcing strategies for raw material in each commodity, to increase potential of the purchasing and supply process, in term of negotiation power, alternative suppliers, standard product specifications, and possible substitution.
• Save ownership cost from the purchasing processes of the company by reducing waste, by reducing purchasing costs, and by reducing excess inventories and non-value adding activities among the supply chain participants.

Scope of study

To study and improve the current purchasing and supply process for ingredients (Powder, Sauce, Sugar, Food mixing Color, Seasonal, etc), packaging (Master carton, Inner carton, Plastic tray, Plastic pouch, Sticker), and indirect material (Bubble groove, Boot, Worker uniform, etc).

Significance of the study

This research contributes the following benefits:
1. Determining an appropriate purchasing strategy to control & monitor raw material for over 1,000 SKU, which leads to total cost of ownership reduction and has preventive plans for raw material shortage.
2. Improvement of purchasing management in the following areas:
   • Improve supplier relationship
   • Prompt delivery
   • Suitable quality
Chapter 2
Literature review

The role of purchasing in an organization

Traditionally, purchasing was regarded as being a service to production, and corporate executives paid limited attention to issues concerned with purchasing. However, as global competition intensified in the 1980s, executives realized the impact of large quantities of purchased material and work-in-process inventories on manufacturing cost, quality, product development, and delivery lead time. Savvy managers adopted new supply chain management concepts that emphasized purchasing as a key strategic business process rather than a narrow specialized supporting function to overall business strategy.

Table 2
Cost of Materials as a Percentage of the value of shipments

<table>
<thead>
<tr>
<th>Year</th>
<th>Value of shipment $ Millions</th>
<th>Cost of material $ Millions</th>
<th>Manufacture $ Millions</th>
<th>Capital Expenditures $ Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$2,231,622 52.9%</td>
<td>$2,002,629 47.5%</td>
<td>$154,914 3.7%</td>
</tr>
<tr>
<td>2000</td>
<td>$4,217,852</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>4,031,885</td>
<td>2,084,316 51.7</td>
<td>1,954,498 48.5</td>
<td>150,325 3.7</td>
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<td>1998</td>
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<td>1,891,266 48.5</td>
<td>152,708 3.9</td>
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<td>74,625 4.0</td>
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<td>1979</td>
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<td>65,797 3.8</td>
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<td>1,358,526</td>
<td>782,418 57.6</td>
<td>585,166 43.1</td>
<td>51,907 3.8</td>
</tr>
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</table>


The Annual Survey of Manufacturers (Table2), conducted by the U.S. Census Bureau, shows that manufacturers spent more than 50 percent of each sales dollar (shown as “value of shipments”) on raw materials from 1977 to 2000. Purchases of raw materials actually exceeded value added through manufacturing (shown as “manufacture”), which accounted for slightly less than 50 percent of sales. Purchases as a percent of sales dollars for merchants are expected to be much higher since merchandise is primarily bought for resale purposes. Unfortunately, aggregate statistics for merchants are not readily available.

However, individual information can easily be obtained from the annual reports of publicly traded companies, either directly or from the U.S. Securities and Exchange Commission (SEC). For example, Wal-Mart Stores, Inc. reported that its cost of sales was more than 78 percent of its net sales for both fiscal years.
ended January 31, 2002 and 2001. This ratio shows the potential impact of purchasing on a company’s profits. Therefore, it is obvious that many successful businesses are treating purchasing as a key strategic process.

The primary goals of purchasing are to ensure uninterrupted flows of raw materials at the lowest total cost, to improve quality of the finished goods produced, and to optimize customer satisfaction. Purchasing can contribute to these objectives by actively seeking better materials and reliable suppliers, working closely with and exploiting the expertise of strategic suppliers to improve the quality of raw materials, and involving suppliers and purchasing personnel in new product design and development efforts. Purchasing is the crucial link between the sources of supply and the organization itself, with support coming from overlapping activities to enhance manufacturability for both the customer and the supplier. The involvement of purchasing and strategic suppliers in concurrent engineering activities is essential for selecting components and raw materials that ensure that requisite quality is designed into the product and to aid in collapsing design-to-production cycle time.

**Why does a company require suitable purchasing strategies?**

- Obtaining the right material, in the right quantities, with the right delivery (time and place), from the right source, and at the right the right price are all purchasing functions.

- The purchasing department has the major responsibility for locating suitable sources of supply and for negotiating price.

**How does appropriate sourcing strategy support successful supply chain management?**

A number of recent worldwide economic factors have acted to hasten many organizations’ plans to institute supply chain management strategies to reduce costs and delivery cycle times while improving quality, leading to improvements in long-term financial performance. Additionally, the increasing number of global competitors, attempts by firms to be come more customer-focused the high costs of globalization and materials, and the need to deliver more innovative products more frequently and cheaply than competitors have also combined to place added pressures on firms to achieve breakthrough performance in supply chain management. Today, these trends have become the drivers of strategic sourcing and supply chain initiatives.

A recent survey of purchasing managers highlighted a number of trends in purchasing, when compared to earlier surveys that had been performed:

1. Purchasing managers supervised almost 50 percent fewer employees compared to 1987.
2. Half of the respondents served on product development teams.
3. Twenty-one percent of the respondents held professional certifications in purchasing, compared to 14 percent in 1987
4. Eighty percent were consolidating their purchases with fewer suppliers.
5. Sixty-eight percent were using foreign suppliers.
6. Sixty-nine percent were monitoring supplier performance.
7. Sixty percent said they meet with top management at least weekly.

Developing effective sourcing strategies that create sustainable competitive advantage is no easy task. Building, maintaining, and improving supplier alliances pose many benefits for the firms involved; but many of these relationships end in failure because of misaligned strategies, lack of commitment, unrealized goals, and loss of trust in the relationships. Managers proactively managing their supply chains must also come to understand that some sourcing strategies are better suited to some supply chains than others. Firms may have dozens of supply chains among their most important inbound purchased items and outbound finished products. Some of these supply chains may be driven by a low-cost overall strategy, while others may have quality or service as the overriding objective.

Dr. Martin Fisher describes two types of supply chain: those for functional products, and those for innovative products. Examples of functional products are MRO (maintenance, repair and operating) items and other commonly purchased items and supplies. These items are characterized by low profit margins, relatively stable demands, and high levels of competition. Thus, companies with functional product purchases most likely concentrate on using sourcing strategies based on securing a stable supply at the lowest cost.

Many of Wal-Mart’s supply chains, for example, would fall into this category. Examples of innovative consumer goods in the past have been the IBM ThinkPad and HDTV for retailers; in industrial settings, these might be new types of control mechanisms, innovative office software products, or a new piece of communications equipment. These products are characterized by short product life cycles, volatile demand, high profit margins, and relatively less competition. Consequently, the sourcing strategy for these products may rely much more heavily on supplier quality, speed, flexibility, and communication capabilities. Many of
Motorola's supply chains for example, would fall into the innovative product category. Many of the commonly used purchasing strategies of thirty years ago will not work well today. For instance, simply ‘squeezing’ suppliers to generate a lower cost of goods sold may ultimately prove harmful to buyer-supplier relationships and may in fact cause quality to deteriorate, as suppliers seek ways to cut corners in order to deep their profit margins at desired levels. If long-term sourcing plans are to be successful, they must support the long-term supply chain and business strategies; and suppliers must also see some benefit from the initiatives implemented.

**The right reasons for monitoring & investing in inventory**

Physical inventory plays an important role in all supply chains. Without inventory companies cannot build products, provide customer service, or run their operations. When deciding whether to maintain an investment in inventory, a broad premise to follow is that inventory should be held only when the benefit of holding inventory exceeds the cost of holding the inventory.

**Support Production Requirements**

A major reason for maintaining an investment in inventory is to support production requirements. Even in an era of just-in-time production, almost all firms hold some level of preproduction inventory, which may include bulk supplies of raw materials, semi-finished goods, or material to support the packaging and shipping of finished products.

Production inventory consumes a major portion of inventory investment. For this reason, firms emphasize the development of systems designed to control and reduce the amount of production-related inventory maintained at any given time. The reduction of production inventory (particularly work-in-process) results in reduced inventory costs. While the need to support production requirements will always remain as a primary reason to hold physical inventory, it is not a reason to hold excessive inventory.

**Support Operational Requirements**

Nearly every organization carries MRO inventory (maintenance, repair, and operating supplies) to support operations. The true cost of MRO inventory often goes unnoticed because firms fail to track these items with the same intensity as they apply to production inventory. Multiple or obsolete items may be held in stock, and inventory pilferage can further lead to inventory-shrinking losses if proper tracking systems are not established.

Most firms are trying to control the costs associated with ordering and maintaining MRO items. Some of the techniques used to control MRO costs include the use of a central MRO stores location, online requisitioning systems, and the use of full-service distributors. These distributors are responsible for managing the entire supply and demand for MRO inventory items, and may charge an additional fee for their services.

**Support Customer Service Requirements**

Many products, such as computers, appliances, and automobiles require service or replacement parts. A lack of adequate spare parts inventory increases the risk of not meeting customer service requirements. To avoid this possibility, companies often maintain a significant inventory of service and replacement parts.

Service and replacement parts can be a major source of inventory waste or customer dissatisfaction if incorrect inventory levels are maintained. Accurate part forecasts and material control systems are critical for maintaining proper inventory levels for service and replacement parts.

**Hedge against Marketplace Uncertainty**

Supply chains are sensitive to changes in markets, including changes in the availability of material supply as well as price changes. When purchasers anticipate material shortages or price increases, they often increase purchase quantities as a hedge against these uncertainties. Material hedging is a common response, for example, when a strike by a supplier appears likely. Another reason to hedge occurs when potential shortages in common commodities (e.g., lumber) appear imminent, and price increases are likely. In these situations, purchasers will carry out forward buys by ordering larger-than-normal quantities.

Increasing inventory levels in response to a legitimate threat of a shortage can be a good reason, at least in the short run, for holding additional material. One of the primary objectives of purchasing and supply chain management is to support continued and uninterrupted operations. If this requires increased inventory to avoid a material shortage, then a purchaser should consider such an action, assuming that additional sources of supply are not readily available.

**Take Advantage of Order Quantity Discounts**

Suppliers often offer quantity discounts to encourage larger orders from purchasers, which Chapter 12 discusses. A purchaser might consider ordering a two-month supply versus a one-month supply, for
example, in exchange for a per-unit discount. At one time most companies felt these discounts were worthwhile because they resulted in a lower average price. However, a lower purchase price does not necessarily translate into a lower total cost. Lower total costs result only if the benefit from reduced ordering costs (larger purchase quantities means ordering less frequently) and a lower per-unit price outweigh the cost of holding additional inventory. It sometimes makes economic sense from a total cost perspective to take advantage of the quantity discounts offered by suppliers and to hold larger amounts of inventory.

Each of the reasons presented here can result in holding some level of physical inventory. Regardless of the reason for holding inventory, supply chain managers must be aware of total inventory costs. The key is to minimize inventory investment wherever possible while still meeting competitive and customer requirements.

**What is meant by ‘Total cost of ownership (TCO)’?** Total cost of ownership is a financial estimate designed to help consumers and enterprise managers assess direct and indirect costs related to the purchase of any capital investment, such as (but not limited to) computer software or hardware. A TCO assessment ideally offers a final statement reflecting not only the cost of purchase but all aspects in the further use and maintenance of the equipment, device, or system considered. This includes the costs of training support personnel and the users of the system, costs associated with failure or outage (planned and unplanned), diminished performance incidents (i.e. if users are kept waiting), costs of security breaches (in loss of reputation and recovery costs), costs of disaster preparedness and recovery, floor space, electricity, development expenses, testing infrastructure and expenses, quality assurance, incremental growth, decommissioning, and more. Therefore TCO is sometimes referred to as total cost of operation. When incorporated in any financial benefit analysis (e.g., ROI, IRR, EVA, ROIT, RJE), TCO provides a cost basis for determining the economic value of that investment.

Furthermore, Total Cost of Ownership requires a purchaser to identify and measure costs beyond the standard unit price, transportation, and tooling when evaluating purchase proposals or supplier performance. Formally, total cost of ownership is defined as the present value of all costs associated with a product, or capital equipment that are incurred over its expected life. Most large firms base purchase decisions and evaluate suppliers on cost elements beyond unit price, transportation, and tooling. Research indicates, however, that companies differ widely about what cost components to include in a total cost analysis.

Typically these costs can be broken into four broad categories:

- **Purchase Price.** The amount paid to the supplier for the product, service, or capital equipment.
- **Acquisition Costs.** All costs associated with bringing the product, service, or capital equipment to the customer’s location. Examples of acquisition costs are sourcing, administration, freight, and taxes.
- **Usage Costs.** In the case of a product, all costs associated with converting the purchased part/material into finished product and supporting it through its usable life. In the case of a service, all costs associated with the performance of the service that are not included in the purchase price. In the case of capital equipment, all costs associated with operating the equipment through its life. Examples of usage costs are inventory, conversion, scrap, warranty, installation, training, downtime, and opportunity cost.
- **End-of-Life costs.** All costs incurred when a product, service, or capital equipment reaches the end of its usable life, or net of amounts received from the sale of remaining product or the equipment (Salvage Value), as the case may be. Examples of end-of-life costs are obsolescence, disposal, clean-up and project termination costs (Mongzka et al., 1998:364-365).

**Appropriate inventory management reduces supply chain cost**

Considering again the objectives of supply chain management, cost reduction is clearly high on this list of priorities. Cost reduction can be achieved throughout the supply chain by reducing waste as already described, by reducing purchasing costs, and by reducing excess inventories and non-value adding activities among the supply chain participants. As supply chains become more mature, they tend to improve their performance in terms of these cost reduction activities through use of continuous improvement efforts, better supply chain communication, and a further integration of processes. The purchasing function among supply chain participants will continue to be viewed as a major strategic contributor to cost reduction through better supplier evaluation techniques, value engineering and analysis in product design and production,
standardization and reduction of parts and materials, and through make-or-buy decisions. Finally, the transportation and logistics function will also play a major role in cost reduction along the supply chain through better design of the distribution networks and more efficient use of third-party logistics service providers.

**The development of supplier-manufacturer relationships**

McGinnis and McCarty (1998, p. 13) argued that "in an effort to optimize buying externally, companies are instituting sophisticated new buying processes and changing the relationships they have with their suppliers". Figure 1 shows the development in the nature of typical manufacturer-supplier relationships over the last 40 years. Traditional relationships in 1960s and 1970s were characterized by an adversarial arm's-length approach. Lamming (1993, p.149) surveyed supplier-manufacturer relationships in the UK automotive industry and identified that at this time there was "a period of relative calm, with domestic demand and supply well balanced for mass producers". This suited traditional purchasing, which is primarily price-oriented. The pressure for change was low, but increased in the next decade so that logistic relationships were adopted. These added an emphasis on making the materials transfer from suppliers to manufacturers more efficient (Da Villa and Panizzolo, 1996). At the beginning of 1990s, relationships required an even greater degree of interaction due to the added need for product innovation and co-operation in technological developments – and this high level of interaction is termed partnership (Lamming, 1993). Unfortunately, it is unclear how exactly partnerships differ from other forms of relationship. Lemke et al.'s (2003) study of the attributes of partnerships was a rare empirical investigation of this area. As it was based on a limited sample, however, the findings cannot be generalized. Similarly, it is unclear how the typical forms of supplier-manufacturer relationship will develop in 2000s (Figure 1).

![Figure 1: The steps in the evolution of buyer-supplier relationships driven by the pressure to change.](image-url)
**Sourcing strategies and options**

It is unlikely that it is desirable to establish partnerships with all suppliers. For example, partnerships are unnecessary with suppliers of commodities. Therefore, sourcing policies are closely allied with the type of relationships a manufacturer intends to establish and partnership typically stands for “one supplier per part/component” (single-sourcing strategy), according to Groves and Valsamakis (1998). Conversely, when suppliers are managed at arm’s-length, the multi-sourcing strategy (i.e. several suppliers per part/component) appears more suitable. In this case, quickly changing from one supplier to another is easier, as a close relationship has not been developed. There are a number of possible sourcing options, as shown by Figure 2. Between the single-sourcing and multi-sourcing strategies is the “single-active” variation. This consists of one active partner and one inactive back-up supplier. Additionally, there is a “dual-sourcing” strategy (with two active suppliers). There are numerous options between dual- and multi-sourcing, for example, any strategy involving more than two suppliers per part/component, as shown by the dotted line in Figure 2. Typically, a manufacturer will have a mix of options in its sourcing strategy. For example, critical components may be sourced using a dual option, and commodity parts from multiple sources. Each sourcing option has distinct advantages and disadvantages (Godefroid, 2003; Slack et al., 1998). In the past, for instance, the safest approach was to focus on multiple sourcing, avoiding the potential dependency on a small number of suppliers. This was most beneficial when the focus was on price alone (Green and Nordstrom, 1974; Ramsay, 1996). Today, however, the majority of researchers and practitioners advocate investing time and resources in maintaining relationships, rather than choosing new suppliers time and time again (Peck et al., 1999; Preiss et al., 1996). This shift in emphasis renders the sourcing options on the left-hand side of Figure 2 advantageous and conversely, multi-sourcing appears outdated in many business situations.

![Sourcing options](image)

Christopher (1998, pp. 32-3) highlights the fact that “in many industries the practice of ‘single sourcing’ is widespread. More and more companies are discovering the advantages that can be gained by seeking mutually beneficial, long-term relationships with suppliers”. This observation accords with the development of partnership relations in 1990s as shown in Figure 1. Larson and Kulchitsky’s (1998) empirical work in the US lends support to Christopher’s observation, as their survey and exploratory case study established significant links between single-sourcing, higher supplier product quality and lower total costs. In addition, Kalwani and Narayandas (1995) demonstrated that suppliers in long-term relationships achieved a higher profitability compared to other transaction-oriented firms in the USA. Long-term relationships have thus the potential to benefit both business partners.

Empirical evidence on manufacturing companies’ sourcing strategies is relatively sparse and so, further empirical investigations are required. The tendency towards single-sourcing strategies implies the development of supplier-manufacturer partnerships, but the question is: how can they best be managed? Supplier management is no longer focused on just transactions and price negotiations, but concentrates on a wider range of issues (Jahnukainen and Lahti, 1999). Today, the aim of supplier management is to achieve an
optimal flow of high-quality, value-for-money materials and/or components from innovative suppliers (Goffin et al., 1997). In this situation, the new role of the purchasing manager has been described as an “information exchange broker” (Spekman et al., 1998) and Figure 3 shows the vastly increased information flows between a manufacturing company and its supplier base. Purchasing is located at the supplier-manufacturer interface and deals with the co-ordination of the flow of information between the supplier base (external links) and various departments (internal links). An effective supplier base can be used to enhance a manufacturer’s capabilities. For example, through building on a supplier’s expertise in technology and NPD (new product development). Stump and Sriram (1997) found in their study of US manufacturing and service organizations that greater investment in IT played a role in changing the nature of relationships – investment in IT helped to develop closer relationships with suppliers. Consequently, one would expect the increase in external electronic information links to enable partnerships to flourish. In this environment, the purchasing manager provides other functions within the manufacturing company with relevant data for their decision-making, including:

- Suppliers’ capacity and production rates;
- Logistics data;
- Pricing and discounts; and
- New-product information.

Co-operation on NPD projects is a critical element of supplier management today (Liker et al., 1996; Ragatz et al., 1997; Weken et al., 1997). Recently, a German Delphi-Panel of experts forecast that suppliers will become responsible for major parts of research and development (R&D), as manufacturers focus on their core competencies (Cuhls et al., 1998).

![Figure 3: Information flows from and to purchasing](image-url)
An appropriate information system is required to manage information flow from and to suppliers, especially for NPD (Spur, 1997). The implementation of Siemens' SMART (Strategic Material Acquisition Roadmap Technique) programme is a good example of this as it encourages suppliers to submit ideas in a systematic way (Schwalbe, 1998). Overall, the content of information flow between the suppliers and manufacturers and the communications process itself are under-researched areas.

Portfolio Analysis: The Mapping Tool for Developing Commodity Strategies

(Author: William L. Michels, C.P.M., Director of North American Consulting, ADR, Ltd., Whitmore Lake, MI 48189, 313/449-2010.)

- Portfolio Analysis is a Purchasing planning and decision support tool which helps Business and Purchasing Managers understand the nature of the purchasing portfolio.
- The portfolio matrix assists purchasing managers in planning the necessary actions to generate profit, reduce risk and secure competitive advantage.
- This technique will assist in planning the development of the purchasing team and in applying individual competence to the commodity profile.

One possible way to organize global sourcing and to manage a global supply base might be through the use of a purchasing portfolio model. Research findings indicate that successful supply chain management requires the effective and efficient management of a portfolio of relationships (e.g. Bensaou, 1999; Frohlich and Westbrook, 2001). This places purchasing managers for the task of developing and executing a set of differentiated supplier strategies. The need for such strategies requires some sort of classification (e.g. Olsen and Ellram, 1997; Liliecreutz and Ydreskog, 1999). Therefore, in advance a portfolio model for supplier relationships appears to be a useful tool. Kraljic (1983) introduced the first, comprehensive portfolio approach for purchasing and supply management. By categorizing products in a 2x2 matrix, sensible guidelines are given for managing supplier relationships. Some twenty years later, purchasing portfolio models have gained ground in both research and practice (e.g. Cox, 1997; Nellore and Söderquist, 2000). In a survey of Dutch manufacturing companies, Gelderman (2003) found a widespread utilisation of purchasing portfolio models. Of the larger companies some 80% are using some kind of portfolio approach. However, there remain unanswered questions with regard to the actual employment of portfolio models in practice (Gelderman and van Weele, 2003). In line with the foregoing, the prime questions underlying our research were:

- How to find balance between global contracting and local opportunities?
- What kind of supplier strategies is applied by purchasing professionals in a global context, using a portfolio approach?
- How do experienced professionals handle measurement issues of purchasing portfolio management?

Conclusion (Literature Review)

Portfolio Analysis is a purchasing planning and decision support tool which helps Business and Purchasing Managers understand the nature of the purchasing portfolio. The portfolio matrix assists purchasing managers in planning the necessary actions to generate profit, reduce risk and secure competitive advantage. This technique will assist in planning the development of the purchasing team and in applying individual competence to the commodity profile. Moreover, portfolio management for purchasing was developed from the strategic marketing models of the Boston Consulting Group and the Dutch researcher Kraljic. The technique and its application to Purchasing has been refined by ADR International Purchasing Consultants. When this approach is applied correctly, it provides a road map of opportunity, vulnerability and strategic direction. It achieves this by concentrating effort and expertise on the critical activities to be pursued.

The Benefits of Portfolio Analysis

There are four primary benefits of portfolio analysis:

1. An understanding of the nature of the Purchasing portfolio, along with an improvement in the quality of purchasing thinking.
2. An analysis of expenditure in a way that determines the required direction and action needed to influence the supply market effectively for a wide range of purchased goods and services.
3. The ability to pinpoint the options for actions to be taken to increase purchasing’s profit impact through aggressive cost management, vulnerability reduction and focused buying effort.
4. A plan for organizational and team development of the purchasing function by:
- structuring purchasing along portfolio lines
- matching competence of the Buyers to the buying task and administrative requirements of the different segments
- developing the competencies required to impact the different supply markets
- putting the necessary management controls in place.

However, most companies carry a large number of items in stock. In order to have better control at a reasonable cost, it is helpful to classify the items according to their importance. Usually, this is based on annual value usage, but other criteria may be used. Then, the item groups are required to have specific strategies or methods for efficient managing. (Inventory Management, P.245, 2001) An organization may already be sourcing from world-class suppliers due to effective in-sourcing/out-sourcing decisions and suppliers, or they may buy external inputs in a very small proportion to total costs or sales so that investment in suppliers is neither strategically or financially justifiable. Therefore, managers must analyze their own situation to determine if supplier investment is warranted, and if so, which purchased commodities and service require attention (Supplier Management and Development: Creating a World Class Supply Base, p.309) Input from other departments is required in finding and evaluating sources of supply and to help the purchasing department in price negotiation. (Inventory management, P.245, 2001)

Therefore, classify item-groups is necessary to prioritize their importance (Value) and required to have specific strategies, by applying the ‘Commodity Portfolio Matrix model’ to understand the characteristic analysis for suitable expenditure of each item-groups and pinpoint the options for actions to be taken. However, choosing the right strategy requires input from the marketing & sales, R&D, manufacturing, finance, QA department and top management.
Chapter 3
Research Methodology

Step 1: Data Collection
In order to analyze risk, opportunity, and volume of each raw material, the following data are needed.
- Purchase volume per year
- Details of raw material
  - Characteristic: specification, function, limitation, etc.
  - Number of suppliers in the market and alternative suppliers
  - Purchased lead-time
  - Purchasing for OEM production or Surapon’s brand production
  - Other constraints
Period of data collection: January - December 2006.

Step 2: Ranking by purchased volume
The Pareto Principle (80:20 rule) is applied to classify items into high or low purchased volume. The 80:20 Rule means that in anything, a few (20 percent) are vital and many (80 percent) are trivial. In this case, it means that 80 percent of total purchased value in Year 2006 comes from 20 percent of total materials in the store warehouse. Therefore, this 20 percent should be focused in order to maximize benefits or get positive leverage from purchasing and supply management activities.

Step 3: Ranking by risk/opportunity
Risk and opportunity are classified by raw material’s characteristic analysis in terms of:
- **Raw material is used for OEM production or Surapon’s brand production (20% from the total risk evaluation)**
  At the present time, the company makes the products under its own brand and external customers brand (OEM), which usually they provide and determine the production formula. Some ingredients and packaging may be fixed as the customer requirement. Whenever the company has faced material shortages (e.g. Seasonal change, Import material, Supplier’s production problems, etc.) which effects directly on customer shipments, it is compulsory to inform them of the situation, test alternative material and send new samples to the customer for permission. This will be more difficult and urgent for a make to stock system, which does not have safety stock. On the other hand, products under the company’s brand are less complicated to manage and to find alternative material. It could take a shorter working process to test alternative material and test the finished product by internal persons. Therefore, this material group is evaluated as the highest percentage of risk.
- **Raw material’s sourcing: Import / local sourcing (15% from total risk evaluation)**
  Import material sourcing is more complicated than local sourcing, in term of longer transportation, unpredictable regulation (food laws), high minimum order quantity and unstable quality in case of one big lot. It is not only includes the risk of a long lead time, but it also include risk for unpredictable regulation and uncontrollable quality control. Therefore, this material group is evaluated as 15% of total risk.
- **Raw material is made to stock or order (15% from total risk evaluation)**
  This group of materials is based on the supplier production system. A make-to-order system is usually planned to purchase raw material, and assemble after order confirmation. Overall lead time includes purchasing, inspection, production, and transportation. Moreover, minimum order quantity is determined for a make-to-order system. So, a supplier could run machines and operate at an economic production quantity. However, the company might be forced or advised to use specific material by the customers. Otherwise, either customer or company needs to differentiate the finished product by using specific material. It is not only a risk of long lead time, but it also risk for uncontrollable minimum order quantity. Sometime, it is possible for the remaining quantity to become dead stock. Therefore, this material group is evaluated as 15% of total risk.
- **Purchased lead-time. (15% from total risk evaluation)**
  This is material lead time for itself, because of its own extra requirement process. Some ingredient materials must wait to become finished goods by fermentation. There are also some materials that have to be purchased through middlemen, who do not keep high inventory. So, they have to re-purchase from their supplier. Therefore, this material group is evaluated as 15% of total risk.
- **Number of suppliers in the market and alternative suppliers (10% from total risk evaluation)**
  This is one of the main factors to evaluate risk, in terms of available choices in the market. If there are many suppliers in the market, the company will have more opportunity to test, evaluate and select alternative suppliers. If there is only one supplier in the market or no alternative supplier, it will mean high risk, in terms of shortage, quality, price comparison, and other performance. Therefore, this material group is evaluated as 10% of total risk.
- **Raw material's shelf life (10% from total risk evaluation)**
  One critical factor of a material is shelf life, which directly affects the quality of the finished product. If the shelf life of a material is short, there will be greater risk, in terms of quality, regulation, and reputation. Therefore, this material group is evaluated as 10% of total risk.
- **Frequency of purchasing (10% from total risk evaluation)**
  Sometimes, material can only be purchased once a year, for all the production in one year. Higher number of frequency means there is higher opportunity for shortage. This is because warehouse space is not enough for long-time storage. If the supplier could not deliver on time, the company might have to stop the production line for that period. Therefore, this material group is evaluated as 10% of total risk.
- **Raw material is used to produce more than one finished product. (5% from total risk evaluation)**
  If a single material is used to produce more than one finished good, the company will request more time to test alternative materials and samples. Therefore, this material group is evaluated as 5% of total risk.

Each raw material's characteristic is weighted and given a mark, to evaluate risk by historical data reference and group discussion with Surapon's purchasing members. The purchasing group consists of the assistant purchasing manager, who has more than three years' experience in the purchasing and procurement field. Next is the purchasing supervisor, who has more than four years' experience. The final member is the direct purchasing officer, who has been working here for over 25 years.

**Step 4: Apply to commodity portfolio matrix**

From the purchased volume in step 2 and risk analysis in 3, each material group is classified into each quadrant of the commodity portfolio matrix as shown in the following diagram:

<table>
<thead>
<tr>
<th>Bottlenecks (High risk)</th>
<th>Critical Strategic Supplies (High risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substitution difficult</td>
<td>Strategically important</td>
</tr>
<tr>
<td>Monopolistic market</td>
<td>Substitution/alternate supplier difficult</td>
</tr>
<tr>
<td>High entry barriers</td>
<td>Major importance for purchasing overall</td>
</tr>
<tr>
<td>Critical geographic/political situation</td>
<td></td>
</tr>
<tr>
<td>Non-critical Supplies (Low risk)</td>
<td>Leverage Supplies (Low risk)</td>
</tr>
<tr>
<td>Availability adequate</td>
<td>Availability adequate</td>
</tr>
<tr>
<td>Standard specifications of good/services</td>
<td>Alternative suppliers</td>
</tr>
<tr>
<td>Substitution possible</td>
<td>Standard product specifications</td>
</tr>
<tr>
<td></td>
<td>Substitution possible</td>
</tr>
</tbody>
</table>

Each quadrant is provided and recommended with a strategy in two approaches, as follows:
## Price / Cost management approaches

<table>
<thead>
<tr>
<th>Bottleneck Supplies</th>
<th>Critical Strategic Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategies:</td>
<td></td>
</tr>
<tr>
<td>Preferred suppliers</td>
<td>Strategic supplier partnerships</td>
</tr>
<tr>
<td>Critical factors:</td>
<td></td>
</tr>
<tr>
<td>High costs when cost/quality problems occur (Ex. Engineering items)</td>
<td>High costs when cost/quality problems occur (Ex. Unique items)</td>
</tr>
</tbody>
</table>

### High risk

<table>
<thead>
<tr>
<th>Non-critical Supplies</th>
<th>Leverage Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategies:</td>
<td>Strategies:</td>
</tr>
<tr>
<td>Standardize/consolidate</td>
<td>Leverage preferred suppliers</td>
</tr>
<tr>
<td>Critical factors:</td>
<td>Critical factors:</td>
</tr>
<tr>
<td>Reduce cost of acquisition (Ex. Office supplies)</td>
<td>Reduce cost of raw material (Ex. Basic packaging, Logistic service)</td>
</tr>
</tbody>
</table>

### Low risk

<table>
<thead>
<tr>
<th>Bottleneck Supplies</th>
<th>Critical Strategic Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest level of safety stock</td>
<td>Relatively low safety stock</td>
</tr>
<tr>
<td>Short review interval</td>
<td>Shortest review interval</td>
</tr>
<tr>
<td>High degree of monitoring &amp; control</td>
<td>Highest degree of monitoring &amp; control</td>
</tr>
</tbody>
</table>

### Low volume

<table>
<thead>
<tr>
<th>Non-critical Supplies</th>
<th>Leverage Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>High level of safety stock</td>
<td>Lowest level of safety stock</td>
</tr>
<tr>
<td>Longest review interval</td>
<td>Short review interval</td>
</tr>
<tr>
<td>Lowest degree of monitoring &amp; control</td>
<td>High degree of monitoring &amp; control</td>
</tr>
</tbody>
</table>

### High volume

### Management inventory approaches

<table>
<thead>
<tr>
<th>Bottleneck Supplies</th>
<th>Critical Strategic Supplies</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Relatively low safety stock</td>
</tr>
<tr>
<td>Short review interval</td>
<td>Shortest review interval</td>
</tr>
<tr>
<td>High degree of monitoring &amp; control</td>
<td>Highest degree of monitoring &amp; control</td>
</tr>
</tbody>
</table>

### Low risk

<table>
<thead>
<tr>
<th>Non-critical Supplies</th>
<th>Leverage Supplies</th>
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</thead>
<tbody>
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<td>Lowest level of safety stock</td>
</tr>
<tr>
<td>Longest review interval</td>
<td>Short review interval</td>
</tr>
<tr>
<td>Lowest degree of monitoring &amp; control</td>
<td>High degree of monitoring &amp; control</td>
</tr>
</tbody>
</table>

### Low volume

### High volume

### Step 5: Summarize appropriate strategies for managing items in each quadrant

**Bottleneck items**

For bottleneck items there are concerns and questions with respect to the assurance of supply. After all, there is just one available supplier for a certain ingredient. The buying strategy is a forced single sourcing. Generally speaking, negotiating for lower or the lowest prices is not the main focus of purchasing. Because of the company’s vulnerability, suppliers of bottleneck items must have contingency plans and emergency stocks. In the contract there is a clause inserted that compels the supplier to report an intended termination of production. Otherwise, costly safety stocks would be inevitable. A search for alternatives only takes place in exceptional cases, because the costs of testing are several times higher than the expected results. This means that high levels of risk and dependency have to be accepted to a certain degree. A consignment system is a practical solution for some bottleneck items. The supplier is responsible for the continuous availability of certain raw materials that are stocked at the sites of manufacture. Payments are based on actual use, not based on deliveries, which means that financial risks are taken by the supplier, not by the buyer. It is the supplier’s responsibility to replenish the stock when and if necessary.
Non-critical items

Non-critical items represent a low value of purchases. The added value is low and the supply risk is small, because of the large number of suppliers and/or alternative products. The strategy here is aimed at minimizing the cost of preparing and placing purchase orders. Possible options are standardization of procedures, combining of orders and invoices, and E-procurement. These measures reduce administrative costs, and the time-consuming handling of orders, to a minimum. On another decision level, possibilities of outsourcing are to be considered, meaning that parts of the purchasing process might be outsourced. A possibility would be the contracting of a large international distributor. Another option to consider is to ask a supplier of leverage or a strategic product to supply a certain non-critical item as well. The same holds for bottleneck items.

Leverage items

Suppliers in the leverage quadrant manufacture ingredients for which alternative products exist, or for which alternative solutions can be found through a simple adaptation of the method of preparation. In many cases there is an added value to the products, for instance just-in-time delivery, consignment stocks, or the delivery in a special format or packaging. These special features should save production costs. Supplier selection is often based on the added value in these areas. Obviously, purchasing is an interested 'partner' for suppliers. The purchasing department is alert, looking for suppliers that offer more added value and/or charge lower prices. Purchasing is continuously monitoring the supplier performance and taking action when a supplier deviates from the agreement. A leverage position however, does not mean that the buyer is the dominant party. The value of purchases is relatively high from the perspective of the buying company, not from the supplier's perspective. Units are usually too small to dominate even leverage relationships. On an occasional basis, the relationship with a supplier can be transformed from leverage to strategic. This is only an option if a partnership is expected to add to the competitive advantages of the firm in end markets. A chosen strategy of increasing the dependence on a supplier is limited to special circumstances that is, if the cooperation with a supplier will result in a new or better product, providing a competitive advantage to the business unit. A partnership is always on a temporary basis, because after a couple of years the innovation is diffused and the search for alternatives recommences.

Strategic items

Too often, the supplier is the dominant party in the buyer-supplier relationship. In practice it is very hard to come to an agreement on the needed requirements. In those cases, the company has no choice but to accept that a supplier does not add the required value. The supplier has a strong position when negotiating the quality, the size of packaging, the moment of delivery, and so on. However, exceptions do exist. For instance, if the company is the major account for a supplier, then there is naturally room for negotiating a better deal. Another possibility would be that the company is considered an important customer for reasons of image and charisma. A position in the strategic quadrant is not preferred, because of the risks and disadvantages of being dependent on a single supplier. Sometimes the number of suppliers can be enlarged by means of supplier development. Strategic partnerships are rarely an option, because the business unit is too small and the risks are too high. Strategic partnerships are only pursued if there is a competitive advantage in end markets to be gained in a buyer-supplier relationship. These partnerships are always on a temporary basis.
How portfolio analysis works

In its simplest two-factor version, analysis is made from a four-segment matrix that measures profit impact / annual expenditure on the horizontal axis and the degree of supply difficulty (number of suppliers, internal constraints) on the vertical axis.

- Acquisition / Non-critical: Low profit impact; low market difficulty.
- Critical: Low profit impact; high market difficulty.
- Leverage: High profit impact; low market difficulty.
- Strategic: High profit impact; high market difficulty.

As the result, the ingredient, package and indirect material of Surapon Foods could be classified into each quadrant of the commodity portfolio matrix as in the following diagram:

<table>
<thead>
<tr>
<th>Bottleneck Supplies</th>
<th>Critical Strategic Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ingredient material 117 items</td>
<td>• Ingredient material 55 items</td>
</tr>
<tr>
<td>• Package material 557 items</td>
<td>• Package material 106 items</td>
</tr>
<tr>
<td>• Indirect material 12 items</td>
<td>• Indirect material 2 items</td>
</tr>
</tbody>
</table>

(Material detail will be enclosed in the reference part)

<table>
<thead>
<tr>
<th>Non-critical Supplies</th>
<th>Leverage Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ingredient material 30 items</td>
<td>• Ingredient material 3 items</td>
</tr>
<tr>
<td>• Package material 141 items</td>
<td>• Package material 4 items</td>
</tr>
<tr>
<td>• Indirect material 98 items</td>
<td>• Indirect material 21 items</td>
</tr>
</tbody>
</table>

(Material detail will be enclosed in the reference part)

<table>
<thead>
<tr>
<th>Group</th>
<th>Ingredient</th>
<th>PK.</th>
<th>Indi.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quadrant</td>
<td>Actual no.</td>
<td>%</td>
<td>Total RM (%)</td>
<td>Actual no.</td>
</tr>
<tr>
<td>Bottleneck</td>
<td>117</td>
<td>57%</td>
<td>10%</td>
<td>557</td>
</tr>
<tr>
<td>Non-critical</td>
<td>30</td>
<td>15%</td>
<td>3%</td>
<td>141</td>
</tr>
<tr>
<td>Critical</td>
<td>55</td>
<td>27%</td>
<td>5%</td>
<td>106</td>
</tr>
<tr>
<td>Strategic</td>
<td>3</td>
<td>1%</td>
<td>0%</td>
<td>4</td>
</tr>
<tr>
<td>Leverage</td>
<td>205</td>
<td>100%</td>
<td>18%</td>
<td>808</td>
</tr>
</tbody>
</table>

Table: 3
Therefore, each material group will be applied and monitored by the recommended strategies, as follows:

<table>
<thead>
<tr>
<th>Bottleneck Supplies</th>
<th>Critical Strategic Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategies &amp; Further actions</td>
<td>Strategies &amp; Further actions</td>
</tr>
<tr>
<td>- Find more alternative suppliers approved by R&amp;D (matching product) and select preferred supplier</td>
<td>- Internal information sharing: efficient demand forecast (normal, season, promotion, etc.)</td>
</tr>
<tr>
<td>- Create a partnership</td>
<td>- Create a supplier partnership</td>
</tr>
<tr>
<td>- Supplier Relationship Management (SRM)</td>
<td>- Find more alternative suppliers (multiple sourcing)</td>
</tr>
<tr>
<td>- Better sharing demand forecast (two-way communication)</td>
<td>- High safety-stock only during year-end (low season of sugar)</td>
</tr>
<tr>
<td>- Long-term contract</td>
<td>- Long-term contract</td>
</tr>
<tr>
<td>- High level of stock (long lead time)</td>
<td></td>
</tr>
<tr>
<td>- High degree of monitoring and control</td>
<td></td>
</tr>
<tr>
<td>- Single sourcing by use the same supplier as other</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-critical Supplies</th>
<th>Leverage Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategies &amp; Further actions</td>
<td>Strategies &amp; Further actions:</td>
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<td>- Standardize and consolidate items in order to increase purchase volume (try to move to leverage supplies)</td>
<td>- 1 Key supplier and 1 alternative supplier</td>
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<td>- Single source: evaluate qualify supplier</td>
<td>- Keep and maintain relationship</td>
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<td>- Keep and maintain relationship</td>
<td>- Better communication (demand forecast)</td>
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<tr>
<td>- Better communication (joint demand forecast)</td>
<td>- Long-term contract / Partnership contract</td>
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However, there are huge numbers of item in each quadrant, which makes it quite hard to take full control and implement at the same time. Furthermore, each item in the different quadrants has its own characteristics that need to carefully apply the appropriate strategies. So, the items in each quadrant will be implemented in order, as in following action plan:

<table>
<thead>
<tr>
<th>Q1</th>
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<th>Q3</th>
<th>Q4</th>
<th>Metrics (Measurement areas)</th>
<th>Remark</th>
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<tr>
<td>Bottleneck Supplies</td>
<td></td>
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<td>1. Unit price cost reduction- actual price for same items</td>
<td>1. Highest %</td>
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<td>2. Target prices achieved. ‘should cost’ $</td>
<td>2. Most are ingredients hat directly affect finished goods.</td>
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<td>3. Total delivery cost reduction</td>
<td>3. Able to take action immediately by planning section</td>
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<td>1. Total delivery cost reduction</td>
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<td>2. Percent of cost of goods sold improvement</td>
<td>2. Most are package &amp; indirect material, which are not as complicated as ingredients</td>
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<td>3. Transportation cost reduction</td>
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<tr>
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<td></td>
<td></td>
<td>1. Target prices achieved</td>
<td>1. Take more persons in change from other departments.</td>
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<td>2.Unit price cost reduction- actual price for same items</td>
<td>2. Complicated transaction &amp; process</td>
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<td>3. Joint cost saving</td>
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<td>Leverage Supplies</td>
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<td>1. Price change improvement to market index</td>
<td>1. Lowest %</td>
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<td>2. Most are indirect materials, which are out of planning section control.</td>
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19
From the action plan, the items in the bottleneck supplier quadrant are planned for first implementation, because of the highest number, and the current situation has shown that:

- Selling price is higher than other competitors. (approximately higher than 10-15%)
- Low negotiation power with suppliers due to variety of materials (large supply base; over 200 suppliers)
- High number of customer complaints (25 Times within 6 months)
- Unstable monthly/weekly production plan for Dimsum’s plant (2-3 revisions per week)

Bottleneck supplies has substitution difficulty, monopolistic market, high entry barriers, critical geographic/political situation, which result in buying at a higher price (low purchasing volume with high risk). Moreover, net material requirement is sometimes under the supplier’s minimum order quantity, and the company has to pay extra charge for transportation cost and administration cost. Finally, the selling price of the finished product is higher than other competitors. Not only buying at the higher price, but the company also has been losing negotiation power. The company could not fully control the supplier, in term of delivery time, quality and payment term. As a result, there are high numbers of customer complaint about the product’s quality. It was found that nearly half of all quality problems come from this material group. Furthermore, uncontrollable delivery time has led to unstable monthly or weekly production plans. If the production plan has been changed or adjusted within a week, it would have wastes, in term of time to recalculate capacity (different production capacity for different products) and fresh raw material (vegetable material). These causes have directly affected the company’s strategy, in term of cost reduction, customer relationship management and supply chain management.

Therefore, firstly implement the plan in the bottle supplier quadrant, which will effectively manage the above current situation. However, to implement the plan needs the following action:

- Moving these materials from the bottleneck quadrant to leverage quadrant by
  - Increase purchased volume (combine similar material, such as using only one brand of sugar, coconut milk, soy sauce, fish sauce, one same dimension of master carton and inner carton with different declaration stickers for each product)
  - Reduce risky factor (find more alternative suppliers, such as small or middle enterprise supplier size, who have suitable minimum order quantity within the company requirement, using standard and available material in the marketplace)
- Short review interval, high degree of monitoring and control the highest level of safety stock means that action could be taken immediately by material requirement planners, in order to have more time to process long term corrective action and manage the critical supplier quadrant and so on.

Critical strategic supplies are strategically important, substitution or alternate suppliers difficult, and thus of major importance for purchasing overall. Then, the critical supplier quadrant will be implemented in the third quarter, because the current situation has shown that:

- Easy for the substitute (indirect) and direct competitors to launch new products with different quality in the market.
- Low technologies supplier.
- Specific materials requirement requested by R&D leads to no alternatives.

This specific quadrant explains that materials have high purchased volume, but still face risk, in terms of single supplier, single sourcing, outstanding material, and so on. Therefore, implementing the plan is going to need action as follows:

- Internal information sharing: efficient demand forecast (normal, season, promotion, etc.) Set up as one major issue in the monthly production plan meeting amount sale department, production, marketing and planning department.
- Find more alternative suppliers (multiple sourcing)
- High safety-stock only during year-end (low season of sugar)
- Create a supplier partnership
- Long-term contract

In conclusion, the supplier partnership is a long term corrective action to enhance the product differentiation by sharing information (product specification, current problems, market trend, competitive product, regulation, and so on). The company also could share current business strategies to cooperate with suppliers in the same direction. Furthermore, the company should share technical skills to improve the supplier’s knowledge, in term of operation process and management. If the company could continuously
develop the supplier relationship into institutional trust, it will improve supplier's technology and differentiate new product development through outstanding material supply.

However, the non-critical supplies and leverage supplies quadrant are planned to be implemented at the same time, because they are located in low risk area, have only a small number of materials and need more people in charge. These quadrants are consider and viewed as providing a high opportunity to earn benefits from high volume. Therefore, implementing these plans needs the following action:

- Group similar material and standardize them to increase volume (possible to combine and standardize materials at all three main factories)
- Offer bidding, for the marketplace to choose the best price with the best option.

The implementation of this plan requires more persons in charge from different department and factories. Sometime, the different factories have their own comparative advantage. Therefore, top management and effective communication will be strongly needed to support the implementation plan.
Chapter 5
Discussion, Implication and Future research

Discussion & Implication

Based on the situations and conditions on the marketing and sales side, purchasing strategies are focused on handling costs and strategic vulnerability (dependence on suppliers). Targets are determined for each product category in each quadrant, dealing with these issues. Purchasing strategies in general are aimed at adapting and improving conditions, not so much at changing positions in the portfolio matrix. However, sometimes movements are possible and desirable in the matrix. The main movement in the matrix is from strategic to leverage; other switches are rare. The point of action is the number of suppliers. Sometimes it is possible to enlarge the number of suppliers, in particular by means of an active strategy of supplier development. The value of purchases is usually not compliant to intervention, because of the fixed prescribed composition of costings. The method allows identifying to what extent products can shift to another quadrant.

For instance, suppose product A is a raw material that is only available from one mine in the world, owned by one supplier. Suppose product B is a raw material of which the buying company requires its specifications to meet extremely high quality elements. Obviously, products A and B will be positioned in the strategic quadrant. While product A can hardly be shifted, product B could be moved towards the leverage quadrant, provided that its specification could be defined less strictly, which opens the market to more suppliers. In other words, additional background information is needed on products, markets and suppliers, in order to avoid opportunities or threats being neglected. In practice, there are practically no chosen movements from the left half to the right half of the matrix. In other words, purchasing strategies are generally not aimed at reducing the number of suppliers. For raw materials a general rule holds that it is always better to deal with two or three suppliers, than to deal with a single supplier. The reason is that any supplier reduction increases dependence which leads to vulnerability to price rises.

For reasons of flexibility, the company stresses the importance of maintaining good relationships with potential suppliers that are not currently contracted. They can provide useful information to be used in negotiation processes. Moreover, these suppliers may provide alternative arrangements in cases of emergency or problems with the current suppliers. Working with a limited number of suppliers is preferably combined with the possibility to fall back on alternative suppliers (flexibility). It is recognized that there is a huge difference between having a sole supplier of choice and a sole supplier of necessity. There is an area of tension between purchasing and marketing departments. Product and marketing managers are always looking for possibilities to differentiate products, whereas purchasing managers are always looking for possibilities to simplify and standardize products. The demands of marketing and customers limit the number of possibilities for purchasing in their natural propensity for controlling and reducing cost.

Future research

After the implementation of the action plan, measurement tools will show the result, which needs to be compared with the author’s expectation. The expectation that “appropriate purchasing and supply management can drive sales up and cut cost”, could be feedback, in terms of number of customer complaints and cost of ownership. Moreover, there are other important and high-value types of raw material for production in the company. Frozen material and fresh material are the future plan for applying ‘the commodity portfolio matrix’ model. Those materials are high in annual purchased volume, high value and high risk, and thus need more time and more ideas from the high potential of a cross functional team.

Conclusion

The portfolio analysis is considered to be an indispensable tool for the development of purchasing strategies, differentiated according to products and suppliers. The portfolio analysis is used to indicate the importance of a raw material and its suppliers, and to rank-order the purchasing value. This results in a clear picture of their own strengths and weaknesses in purchasing markets. The main purpose of the portfolio approach is to detect products or product groups that cause problems and risks of dependence: bottleneck and strategic items. Considering the vast number of items that are being bought, it is imperative to use a portfolio tool. Otherwise, it would be impossible to gain a clear insight into the problems and possibilities of the product portfolio. The results of the portfolio analysis point at the problems and products that need to be tackled, and in what priority. The results focus on the goals and directions of purchasing strategies, and the efforts of R&D Departments in their search for alternative solutions.
References


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Remark:
1. OEM/EX/DM (Finished goods) : DM = 10 points, EX = 15 points, OEM = 20 points
2. Domestic RM / Imported RM : Local RM = 5 points, Imported RM (Supplier's stock) = 10 points, Imported RM = 15 points
3. Lead time : 1-4 Days = 5 points, 5-7 Days = 10 points, 8-15 Days = 15 points
4. Make to order : No = 0 point, Yes = 14 points
5. Frequency : 0 times/year = 0 point, 1-3 times/year = 2 points, 4-6 times/year = 6 points, 7-9 times/year = 9 points, 10-12 times/year = 12 points
6. Alternative supplier : Has = 0 point, Not has = 10 points
7. Common use : 1 FG = 0 point, 2-4 FG = 4 points, 7-5 FG = 8 points
8. Shelf life : More than or equal 7 mths. = 0 point, 4-6 mths. = 3 points, Less than or equal 3 mths. = 6 points.
BIOGRAPHY

Name
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Education
Bachelor's Degree (2003)
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