Excellent Supply Chains in the Consumer Packaged Goods Industry

by

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Chapter 1 - Introduction

1.1 Scope

This paper is part of a larger research project called the Supply Chain 2020 Project. The Supply Chain 2020 (SC2020) research initiative is a multiyear research project designed to identify and analyze elements of organizations that are crucial to the success of their future supply chains. Led by faculty, research staff, and students of the MIT-Zaragoza International Logistics Program, this research project involves students from MIT and a number of universities around the world, members of the Industry Advisory Council (IAC), as well as industry contacts from various organizations, to examine elements that make an excellent supply chain. The scope of the SC2020 initiative is to identify components and innovations that will constitute excellent supply chains out to the year 2020 in such industries as the Aerospace, Apparel, Automotive, Computers, Consumer Packaged Goods, Pharmaceutical, Resources, Retail, and Telecommunications industries. The main questions the project wishes to answer are:

1. What will excellent supply chains look like in 2020?
2. What should companies do to prepare for 2020?
    a. What risk management strategies should they follow?
    b. What "sensors in the ground" should they put in place?

This paper is designed to serve as a foundation for the future research work which will ultimately answer those questions.

1.2 Motivation

In order to gain a full understanding of both the past and the future, the SC2020 project is divided into two phases. Phase I research, the current stage of research and to which this paper contributes, is designed to understand the present state of supply chain using corporate business cases. By identifying and researching leading organizations' supply chains in a broad range of industries, the project team will unveil business processes and practices that drove these companies to become competitive and to continue to improve in the future. For each case study the analyses will involve the identification of:

- The business strategies in place
- The distinctive operating model used

- The metrics used to drive operational excellence
- The set of best business processes leveraged including their:
    - Organizational and technology enablers
    - Underlying supply chain principles
    - Business case in terms of value versus implementation cost analysis.

Based on the findings of the first phase of this project, Phase II research will see into the future through macro scenario-generation, and the analysis of these scenarios and their effect on future excellent supply chains. By studying a set of macro scenarios, recommendations will be generated to prepare and assist corporate organizations for making future business decisions.

This paper focuses on the Phase I part of the research, by studying the consumer products industry; more specifically, the consumer packaged goods (CPG) industry. Almost any product one can find in a retail store could be classified as a consumer packaged good, and it is almost impossible to draw the boundaries of where the industry begins and ends. Starting from packaged snacks to consumer electronics, there is a limitless number of products in this industry, and the definition of the industry may be very general. However, we found that most consumer packaged goods follow similar industry trends or supply chain structures regardless of the specific product category. For example, as different as razors and deodorants may seem, the business processes they go through in a supply chain were very similar to one another, and the demand of both products are highly driven by the consumers. Therefore, we left the definition of this industry quite broad and focused on some specific product categories of Procter & Gamble and Gillette, the two case studies researched.

Since the main focus of this research is on the supply chain processes and elements that brought these two companies to become competitive in their industry today, the paper does not cover current information such as the radio-frequency identification (RFID) technology research and the recent merger of these two companies. These factors are still in the development process and have yet to affect their supply chains or impact their business processes. Additionally, this paper only focuses on the North American market, although both companies generate significant amount of revenues and hold great market share in consumer goods markets around the world.

1.3 Research Approach and Methodology

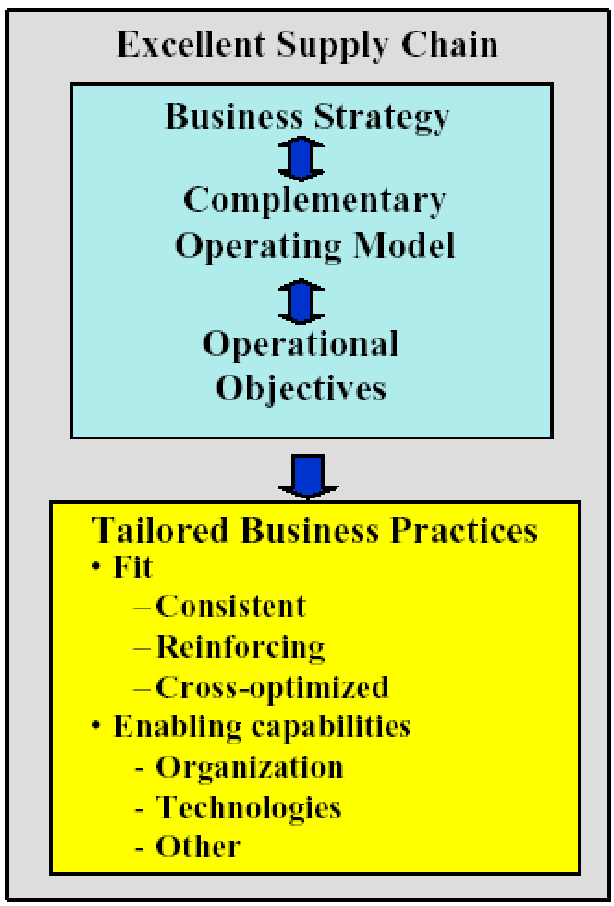
In order to understand the major concepts of the CPG supply chain, a general literature review about the major concepts and trends of this industry is done. An overview of the industry and companies presented in the cases is done through literature review and interviews with industry experts. Several company contacts from Gillette and consulting firms working closely with Gillette and Procter & Gamble have generously provided insight regarding this research topic. There was no direct contact with P&G and all information in this paper related to P&G is based on publicly available data sources.

Chapter 2 - Literature Review

2.1 Definition of an Excellent Supply Chain

In the Supply Chain 2020 Project: Industry Advisory Council (IAC) Webcast, Lapide [1] defines an "excellent supply chain" as a supply chain that: 1) supports and enhances a business strategy; 2) uses a distinctive operating model to have a competitive advantage; 3) executes well towards a balanced set of objectives/metrics; and 4) leverages appropriate best business processes. As seen in Figure 1, excellent supply chains tightly relate strategy, operating models, and operational objectives, which are supported by the tailored business practices. The strategy, operating model, and objectives mutually support each other, as well. [2]

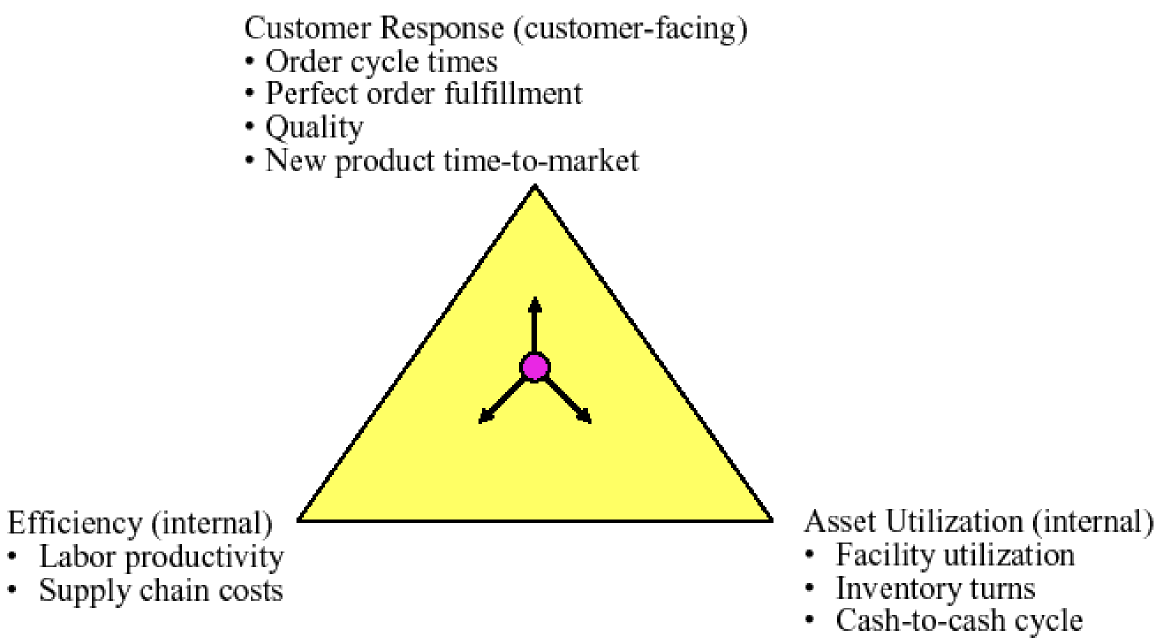
Figure 1: Excellent Supply Chain Research Framework (source: Supply Chain 2020 Project)



It is also important for an excellent supply chain to have an operating model and business strategy that are supported by a balanced set of operational objectives and associated metrics.

The Supply Chain 2020 team divides the operational metrics into the customer facing Customer Response metrics, and the internal metrics of Efficiency and Asset Utilization. Different types of industries or companies may choose to emphasize different objectives, depending on the business strategy they wish to support. For example, chemical plants that should never shut down may value asset utilization; while consumer packaged goods companies who emphasize on-shelf availability and product quality on shelf may value the customer-facing metrics more than other metrics.

Figure 2: Objectives Balancing Framework (source: Supply Chain 2020 Project)



2.2 Integration of Business Strategy and Supply Chain Management

In the past, organizations typically developed a business strategy and handed it to supply chain function to execute accordingly. However, it is becoming apparent that supply chain is a critical element of operations that will strengthen the business when it is tightly integrated into the business strategy, rather than trying to fit the supply chain into the existing strategy. A truly competitive supply chain supports the business strategy by supporting the business model in a highly integrated way.

Porter [3] points out that although many companies have gained operational improvements through competitive advantage, it alone cannot bring a company to success. Only when they gain strategic position is when they are able to gain sustainable profits and excel faster than their competitors. He notes that strategic positioning means performing different activities better than competitors or performing similar activities in different ways, whereas operational effectiveness means performing similar activities better than competitors. Hammer [4] defines Operational Innovation as “the invention and deployment of new ways of doing work.” As it means companies are doing business in an entirely new way, it is different from operational improvement or operational excellence, which means to improve the existing way of doing things. Operational innovation can bring operational, marketplace, and strategic benefits in the long run.

Additionally, Porter mentions that it is important for companies to understand trade-offs and leverage combinations of activities. This means companies may have to give up certain activities to support another activity (trade-off), but at the same time, may want to perfect those activities that fit and reinforce their core activities, as a system of a combination of activities. However, once an effective system is in place, the only way a competitor can win you over is to match the entire system. Therefore, in order for a company to be sustainable and differentiated, it is essential that a company designs its supply chain to be not only operationally effective, but also be strategically positioned with a tightly integrated business strategy and operating model. Additionally, it is important to consider how the supply chain activities fit into the business strategy, as well as how it fits and reinforces different activities within the supply chain.

2.3 Choosing the Right Supply Chain for the Right Products

Despite the wide spread of technology and innovative ideas to improve supply chain performance, companies are having trouble matching the right supply chain for their products. Fisher [5] explains that the first thing a company should do when choosing a supply chain is to consider the nature of the demand for the products, which generally fall under two categories: functional or innovative. Functional products tend to have stable, predictable demand and long life cycles. However, the demand of innovative products tends to be unpredictable and volatile, with short life cycles. Therefore functional products with lower profit margins require an efficient supply chain, whereas innovative products require a responsive supply chain to meet the rapidly changing demand. Fisher concludes that aligning the right products to the right supply chain will bring “a remarkable competitive advantage that generates high growth in sales and profits – makes the effort worth it.”

2.4 Consumer Packaged Goods Industry Supply Chain Trends

Having the right product, at the right place, at the right price for the consumers is one of the most important issues consumer packaged goods companies are focusing on these days. The number of stock keeping units (SKUs) in the consumer packaged goods market increased by 20 – 50 percent since 1993, but the time an average consumer spends shopping has decreased by 25 percent [6]. This means consumers have more products to choose from in a shorter time than a decade ago. With so many new products and slightly improved existing products entering the market everyday, the consumers are faced with a challenge every time they visit a retail store and stand in front of the shelves to choose a product. It is almost impossible to select the exact items that meet their exact needs, but the consumer’s desire is becoming more and more specific. The consumers’ demand is becoming less and less predictable, as the number of product lines, competitors, promotions, channels, and geographical networks are becoming more complex.

In order to accommodate the vastly changing consumer needs and consumer goods market environment, it is essential for CPG companies to have an effective supply chain that is driven by consumer demand. “The dynamic and competitive business environment for CPG companies requires a new operations strategy that focuses enterprise investments, initiatives and performance management priorities on meeting consumer demand with a profitable product portfolio [7].”

Therefore, there is a rising trend of CPG companies to put more focus into its demand planning processes. The development of software tools from software companies such as Demand Management, or Manugistics, is one of the key enablers for CPG companies to effectively plan their supply and demand schedules. By using such technology, CPG companies are moving towards a pull from the consumers’ demand from the previous push environment, where products were pushed by manufacturing companies to the market. [8]

2.5 Demand Driven Supply Network (DDSN)

AMR Research [9] defined DDSN as “a system of technologies and processes that senses and reacts to real-time demand across a network of customers, suppliers, and employees.”

DDSN is designed to improve operational efficiency, streamline new product development and launch, and maximize profit margins. DDSN is different from the traditional supply chain in a sense that it focuses on the entire network of players and partners in the supply chain, rather than an internally focused linear supply chain. It uses real demand signals and dynamic supply chains built around improving supply chain efficiency, rather than the push oriented or passive pull distorted demand signals, with a static supply chain. DDSN is also designed to focus on value and profit, as well as to optimize opportunity against risk, rather than the traditional cost based view. AMR Research found that companies using DDSN have a 5% higher profit margin, 10% more perfect orders, and 35% lower cash-to-cash cycle times [11].

2.6 Supplier-Retailer Collaboration

As the margins in the consumer packaged goods industry become tighter and higher customer service levels are expected from the customers, the importance of building a strong relationship with the retailers is becoming crucial for suppliers. Simchi-Levi [12] explains that by combining the supplier's knowledge of production capabilities and lead time information with retailer's knowledge of consumer demand CPG companies can make the supply chain more efficient and reduce the overall cost of the entire supply chain. Described below are some supply chain initiatives the suppliers and retailers are jointly working on to improve supply chain efficiencies.

2.6.1 Continuous Replenishment (CRP) and Electronic Data Interchange (EDI)

Simchi-Levi [13] defines continuous replenishment, or rapid replenishment, as a strategy that "vendors receive POS data and use these data to prepare shipments at previously agreed upon intervals to maintain specific levels of inventory." This allows both the retailer and manufacturer to hold minimal inventories and avoid costly stock outs, due to variation in demand. EDI is a set of standards for transactions between retailers and suppliers. This allows trading partners to send electronic transactions rather than paper, and contributed to significant savings in cost and time. In the late 1980's, P&G used EDI to capture its customer's daily sales, and CRP to determine the quantity of products to be shipped to retailer's warehouse. This enabled P&G to provide sufficient safety stock, minimize total logistics cost and eliminate excess inventory in the retailer's warehouse.

2.6.2 Collaborative Planning, Forecast, and Replenishment

Collaborative Planning, Forecast, and Replenishment (CPFR) is a "collection of processes that enhance supply chain efficiency by facilitating buyer/seller interaction through improved information visibility and utilization [14]." The objective of this initiative is to achieve targeted customer service levels, which will ultimately yield increases in profitability for both the retailer and supplier.

CPRF takes advantage of the fact that suppliers often have insights on seasonality and regionality about their products, while the retailers and distributors have insights on planned merchandising activities and supply network changes that will impact future orders. Some of the business processes that are collaborated together may be: DC to store and supplier to retail DC forecasts, supplier truckload brackets, order cycles, on-hand inventories, in-transit inventories, order multiples, lead times, seasonal and promotional pre-builds to maximize store availability, and targeted service levels/safety stock. [15]

2.6.3 Vendor Managed Inventory

Waller [16] describes vendor –managed inventory (VMI) as the inventory replenishment decisions where the "vendor monitors the buyer's inventory levels and makes periodic re-supply decisions regarding order quantities, shipping, and timing." Initiated by Wal-Mart and Procter & Gamble in the 1980's, VMI transfers the transaction responsibility to the supplier rather than the buyer or distributor, who may already be responsible for meeting specific customer service levels. Cost reduction and service level improvement are two of the main benefits seen by implementing VMI. From the supplier's point of view, it reduces the uncertainty and fluctuation of demand, and factories can see much smoother demand, enabling them to increase their service and safety stock levels. From the retailer's point of view, sales increase because of the lower prices enabled by lower costs, and service levels increase through greater product availability.

Chapter 3 - Consumer Packaged Goods Industry Overview

This chapter will start by explaining the definition of consumer packaged goods industry, followed by the evolution of some market leaders of the industry, target customer segments, and distribution channels. A typical industry and supply chain structure will be briefly introduced, and some industry trends and demand drivers will be covered in this chapter.

3.1 Definition

The CPG industry can be broadly categorized into: Food and Beverage, Footwear and Apparel, Cleaning Products, Consumer Electronics, and Personal Care Products, including cosmetics and toiletries. Most nondurable household goods are included in this industry, as well. Standard & Poor[17] divides the nondurable household goods market into two categories: household products and personal care products. It defines non-durable goods as products that are "used up entirely in less than a year, assuming normal or average rate of physical usage." In its definition, household cleaning substances, laundry detergents and additives, room deodorizers, storage bags, garbage bags, paper plates, cat litter, and the like are some products in the household products category. Personal care products include hair care, color cosmetics and fragrances, skin care, deodorants, oral care, and the others category, which encompass shaving preparations, sun care products, nail products, and hair colorants.

This paper will review high-level trends and initiatives that encompass all the five categories above, but will be followed by more detailed company case analyses about the supply chains of the personal care products of Gillette and various personal care and household goods of P&G.

3.2 Evolution of the Top 5 Companies

Standard & Poor's industry surveys estimates the nondurable goods global market size is about $156 billion, with around 50% of its sales generated in the United States. As seen in **Figure 3**, Unilever, a Netherlands-based consumer packaged goods company, was the largest market player with more than $59.7 billion revenue in 2002, followed by Procter and Gamble and Kimberly-Clark, with $43.4 billion and $14.1 billion of sales in 2003, respectively. A brief overview of the top players in the nondurables market will be described below, and details about Procter & Gamble and Gillette can be found in following chapters.

Figure 3: Market Leaders in Household Nondurables Market

Company	Global Sales (in $M)	Net Income	%
Unilever	54,035	3,478	28.37%
Procter & Gamble	43,373	5,724	22.77%
L'Oreal	17,669	2,082	9.28%
Kimberly-Clark	14,348	1,705	7.53%
Colgate-Palmolive	9,905	1,423	5.20%
Gillette	9,252	1,378	4.86%

(source: Standard & Poor's Industry Survey: Household Nondurables)

In 2004, Unilever generated $54 billion in revenue and $4.6 billion in operating income, of which 56% was generated in the foods category and 43% in home and personal care. About 43% of Unilever's sale was generated in Europe, but they are a strong player around the globe with significant sales in North America, Asia/Pacific, Latin America, and Africa & Middle East. Its gross profit margin was about 47.5%, decreased from the 55.4% of the prior year, while its operating margin dropped to 8.5% from its 13.1% and 12.3% from the prior years. Some of the most well-known brands of Unilever include Calvin Klein, Bird Eye, Dove, and Lipton.

The third largest nondurable goods company is L'Oreal, with its L'Oreal, Maybelline, Lancome, and Redken and Softsheen/Carson brands. L'Oreal is the world's largest beauty products company. In 2003, the company generated $17.6 billion in sales and $1.8 billion income, increasing from $15 billion and $1.5 billion in 2002, respectively.

Kimberly-Clark is the world's largest paper products maker, and Cottonell, Kleenex, Scott, Huggies, Kotex, and Depend are just some of its major brands. In 2004, together with its 60,000 employees, it generated $15 billion in sales and $1.8 billion profit, both growing about 5% from the previous year.

Colgate-Palmolive is the world's largest toothpaste seller, with its Colgate toothpaste brand, and a world leader of oral care products. The company is also a strong player in personal care products and household cleaners, with brands such as Ajax, Palmolive, and Fab. The company generated $10.5 billion in sales in 2004, and $1.3 billion of profit.

3.3 Target Customer Segments

The direct customers of CPG companies are retailers and distributors. However, it is important for them to understand that consumers are ultimately the ones buying and consuming their products. They must also realize that their direct customers are the distributing channels, who reach these end consumers with their products at the end of the day. Therefore, CPG companies must understand the real target audience of its products and market its products to target these audiences. For example, the main target customer segments that drive personal care demand today could be divided into three customer segments: the aging population, who are concerned with health and wellness; baby-boomers, who are sensitive about looks and have more disposable income than other population segments; and young adults, who are children of baby boomers, and focused on glamorous and functional products. Some products that are targeting the aging population may be gingivitis/gum toothpaste, and anti-aging skin care products, while skin care and hair color sectors are targeting baby boomers. Fragrances, makeup, skincare, hair care, and personal hygiene products are targeted towards the young adults audience.

3.4 Distribution Channels

Consumer packaged goods are mainly sold through wholesalers, mass merchandisers, grocery stores, membership club stores, and drug stores. Sales in supermarkets and hypermarkets have increased, due to urbanization and the attractiveness of one-stop shopping. Traditional channels are suffering, while discounters and direct sales have increased. Although not as widely spread, some companies are looking into opportunities in expanding their distribution network through mail, phone, or websites.

Table 1: Cosmetics & Toiletries Distribution by % Sales

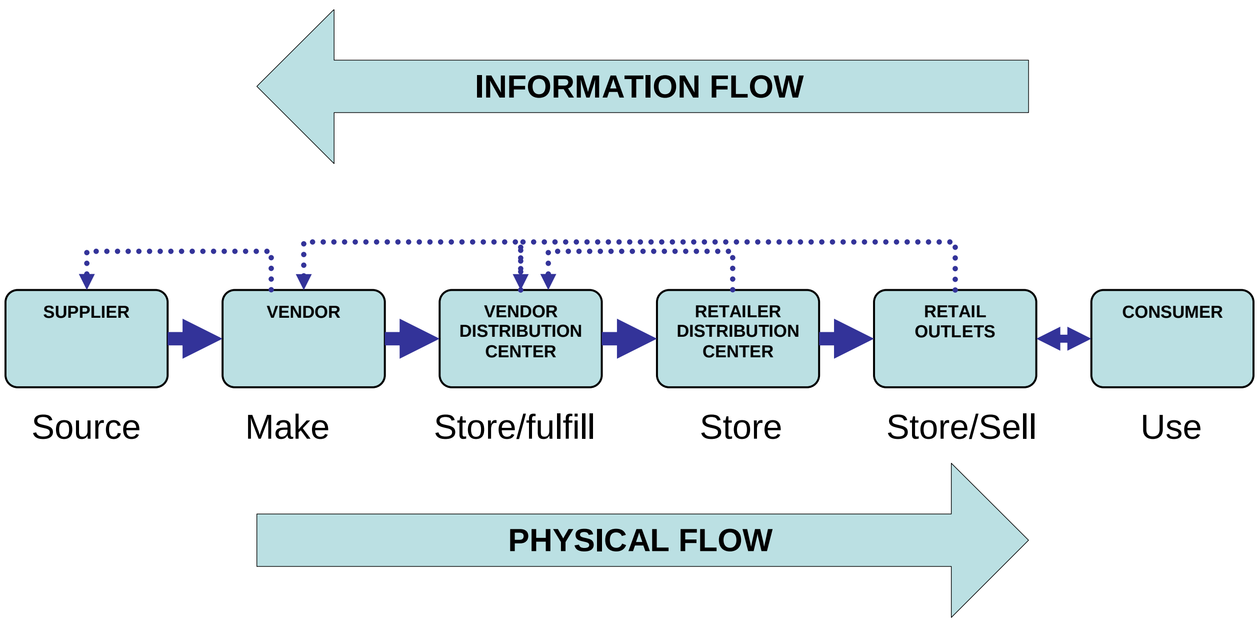
% retail value	1998	2003
Supermarkets/Hypermarkets	23.9	25.1
Pharmacies/Drugstores	20.2	19.6
Department stores	15.5	14.7
Specialists	11.9	11.7
Direct sales	8.5	9.2
Discounters	7.0	8.1
Independent food stores	4.1	3.7
Convenience stores	2.3	2.4
Outdoor markets	1.9	1.5
Others	4.5	4.2
TOTAL	100.0	100.0

Source: *Euromonitor*
Note: *Others includes outlets such as chemists/drugstores, kiosks and vending*

3.5 Industry & Supply Chain Structure

A typical consumer packaged goods supply chain (Figure 4) consists of suppliers, vendors, retailers, each player's distribution centers, and the end consumers. Vendors are

Figure 4: Traditional Supply Chain Structure



Source: Modified from Ellram, La Londe, and Weber. (1999) and Dau and Chiles (2005).

supplied by their suppliers with raw materials and outsourcing partners with work-in-process (WIP) goods. Typically, CPG companies' products are made-to-forecast and held as inventory in the vendor's warehouses or distribution centers until an order is placed. Once the distribution centers receive the order, the products will be shipped to the customers' distribution centers or sometimes, directly to the retailers' stores. Once the inventory reaches a certain threshold at the vendor's distribution centers, production will be triggered, and the products will be made at the manufacturing plants. Suppliers and vendors are working closely to supply raw materials just-in-time for production or assembly, and many CPG companies are outsourcing their production of products that are not their core-competencies. Once orders are received at the customer's distribution center, the products are distributed throughout the retail channel ending at the stores, where the consumer will purchase the products. In most cases, products are transported by third-party logistics (3PL) carriers or private fleets, and information technology enables each party in the supply chain to communicate and share information freely and collaborate effectively.

3.6 Industry Trends

The consumer goods market has been dominated by a couple of strong players such as Unilever and Procter and Gamble, who generate more than half of the total industry's revenue. Although industrialized nations of North America and Europe were their primary focus, as these markets are becoming more mature and as it becomes harder to gain significant sales, consumer products companies are looking for new opportunities elsewhere. The demand of higher-margin items is increasing, and the demand segmentation is becoming more important.

3.6.1 Developing and Emerging Market Opportunities

Many consumer goods companies have been moving overseas to developing and emerging countries in Central and Eastern Europe, China, and India, in order to access the virtually untouched huge market potential. Recent economic and population growth suggest growth in gross domestic product (GDP) and disposable income in these areas, offering new opportunities for the already mature US companies. Most recently, Gillette, the maker of Duracell batteries, acquired a leading battery company in China, and Procter & Gamble acquired Wella AG in Germany in order to increase their global presence and capture the huge market share potential. As its disposable income level rises, Russia is becoming one of the fastest growing markets for major multinational companies. In 2003, for example, Russian cosmetics and toiletries sales increased on the previous year by 14.3 percent to be worth almost $5.4 billion [18]. Despite the decrease in global sales during the 1998 financial crisis, most consumer products companies have recovered and relaunched more aggressive policies, recently.

3.6.2 Growth in Higher-Margin Items

As the amount of disposable income increases, consumers tend to spend more on higher-margin discretionary items and less on basic household products. Although the sales volume is not changing significantly in the already established markets in North America, consumers are demanding better quality products, and are willing to pay a premium for those products. For example, as consumers are becoming more health and beauty conscious, they are willing to pay more for toothpaste with added-value benefits such as whitening or gingivitis protection, on top of the existing functions.

3.6.3 Demand Segmentation

With access to more accurate demand information, consumer product companies are able to target their consumers' specific needs and wants with the exact product they need. More than 24% of the populations in the US are "baby-boomers,' aged between 45 and 65 years old, and 14% are between 10 and 19 years old [19]. CPG companies are introducing new product lines or product extensions in order to specifically target these consumer segments. For example, as the baby-boomers are becoming more health conscious with more disposable income, sales of products such as wrinkle-free cream or hair dye have been growing fast. The extremely fashion conscious teenagers, children of the baby-boomers, have been an important focus for these companies, as well. Different types of acne care products, or makeup geared toward teenagers are dominating a majority of the shelf space in the retail and/or drug stores.

3.6.4 Wal-Mart Effect

With more than $256 billion in annual sales in 2004, Wal-Mart is the world's largest retailer of CPG products. With its aggressive expansion plans and offering of low-priced consumer goods, the retailer is continuing to gain market share from supermarkets and other merchandisers. Due to the economies of scale and access to the largest distribution channel, CPG companies are starting to pay closer attention to working together with Wal-Mart, its biggest customer, and building long term relationships. For example, Procter & Gamble and Gillette have management teams specifically designed to work with Wal-Mart at its headquarters, and receive point-of-sales (POS) data for more accurate demand information.

3.6.5 Acquisitions and Mergers

Over time, the market is becoming more concentrated and big players are only becoming bigger. The CPG market is extremely concentrated with a small number of strong players in a given sector. It is a common phenomenon for one or two companies to dominate the sector and generate the majority of the sales. For example, Gillette holds more than 70% of market share of men's grooming products, and Johnson & Johnson's dominates the baby care sector. There are also frequent mergers and acquisitions. Recently in the personal care market, P&G acquired Wella and Clairol, Gillette acquired Rembrandt, Estee Lauder acquired Darphin, Michael Kors, and most recently, P&G and Gillette announced the intent to merge to become a CPG powerhouse.

3.6.6 Private Labels and Premium Brands

As the quality of more private labels is becoming comparable to major brand name products, supermarkets and hypermarkets are successfully introducing private brand label products into the market. For example, in the personal care category, bath and shower, baby care, and oral hygiene products are some of the strongest private label products in the industry due to the competitive quality and attractive price, along with aggressive branding and marketing strategies.

The demand for premium brands has increased in North America and Western Europe. This growth is due to the high levels of consumer affluence and rising disposable incomes. The increase of salon care sales led the hair care sector to see the highest growth in this category.

3.6.7 Strategic Alliances beyond a Sector

As the consumers are demanding more in a single product, companies have been forming strategic alliances beyond its traditional sector to meet these consumer demands. Some recent trends in personal care include the introduction of products providing a mixture of dietary, beauty, health, and leisure benefits. For example, Procter and Gamble’s beauty brand Olay introduced vitamins and dietary supplements, and Shiseido and Coca-Cola recently collaborated in the introduction of Body Stylish mist and Body Style Water.

3.7 Industry Demand Drivers

The demand for CPG goods is affected by many factors including advertising and marketing, price and household income, and product innovations. It is important for manufacturers to keep these factors in mind when developing new products as well as throughout the life time of the products.

3.7.1 Advertising and Marketing

The demand of the consumer packaged goods industry is heavily driven by advertising and marketing. The two market leaders, Procter and Gamble and Unilever, in this industry spent more than $3 billion in marketing, just in the United States. Through advertising and marketing, companies are able to gain potential customer's awareness and customer loyalty. This allows them to be more flexible in pricing, as they can leverage brand names across different product categories and boost sales, as the consumer recognize the brand names. Companies with strong brand named products are able to gain better access to shelf space in retailers and boost their product volume sales.

3.7.2 Price and Household Income

As the CPG market is mature, the units sold of consumer packaged goods companies have been quite stable. However, the revenue in this market has been increasing as the quality of product changes, allowing companies to charge a premium price. Increase in disposable income increases the price of consumer product prices, and drives the demand significantly. Regardless of the amount of income, there are only so many tubes of toothpaste one can purchase each year, so when incomes increase, consumers become more interested in purchasing products with added benefit, at a slightly higher price. On the other hand, a decline in disposable income lowers consumer product prices and shifts the demand to private label brands.

3.7.3 Product Innovation and Brand Extension

In order to stay competitive in the market place, CPG companies continue to develop new products and extend the existing product lines. They continue to add benefits and excitement to existing products to be able to charge higher prices, invest in continuous research and development efforts, and conduct attitude and usage studies of consumers. Broadly, there are three types of product development, which could drive a higher demand for a company's products. First, they could develop a completely new product never seen in the market place before. Second, by improving the existing formulas or product benefits and new innovative packaging, they could create additional demand. Lastly, product line extension is a good example of leveraging existing brand power to generate additional revenue. For example, Armor

Car Wipes product line introduced a number of different wipes for cleaning windows, dashboards, leather seats, and other parts of cars.

Chapter 4 Gillette's Position in the Industry

This chapter discusses a general overview of Gillette's position in the industry. It will cover the financials, business segments, sales channels, customer segments and the evolution of their top competitions.

4.1 Company Overview

With annual revenue of $9.25 billion in 2004, Gillette is the leading manufacturer of a variety of consumer products including razors, blades, oral care, personal care, batteries, and small power appliances, around the world. The first year King C. Gillette put his razors on the market in 1903, he only sold 51 sets, but sales quickly grew to sell more than 90,000 sets of Gillette Safety Razors the following year. Since the company was established with King Gillette's idea of disposable razors in 1895, Gillette has grown to become the world leader in most of its product lines including the razors and (via acquisition) the batteries sectors of the company.

Gillette has gone through numerous acquisitions and divestitures to become the company it is today, leaving only those business units where Gillette was the dominating market leader in its sector. The following timeline shows the evolution of its growth [20]:

- In 1948, Gillette purchased Toni (home permanent kits), which later became the Personal Care Division in 1971.
- In the 1950's, Gillette adopted the name The Gillette Company and introduced shaving cream, and bought Paper Mate.
- In the 1960's and 1970's, Gillette introduced Right Guard deodorant, Cricket disposable lighters, and Eraser Mate pens. Gillette acquired Braun and Liquid Paper during this time period.
- In 1984, Gillette purchased Oral-B and entered into the oral care market.
- In 1993, it bought the Parker pen business.
- In 1996, it bought Duracell, the number one market leader in batteries.
- In 2001, Gillette sold its stationery products business to Newell Rubbermaid
- In 2003, Gillette acquired China Battery International Ltd. from China Battery Holdings, Ltd.

4.2 Historical Company Revenues, Operating Margins, and Employees

As seen in Gillette's ten year net income history (

Figure 5), since the major restructuring efforts in 2000, Gillette's net income has more than tripled. In 2004, the company operated on a 16.26% net profit margin, compared to the 10.44% average rate in the personal care industry [20]. As the business is heavily driven by technologically advanced product innovation, more than $209 million was spent on research and development expenditures in 2004, and $201 million and $181 million in 2003 and 2002, respectively.

Figure 5: Gillette's 10 Year Net Income

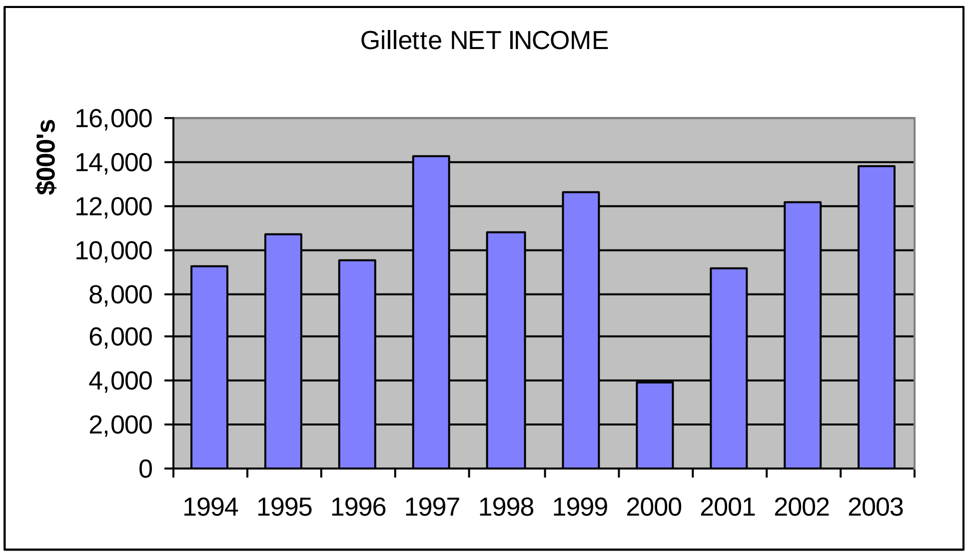
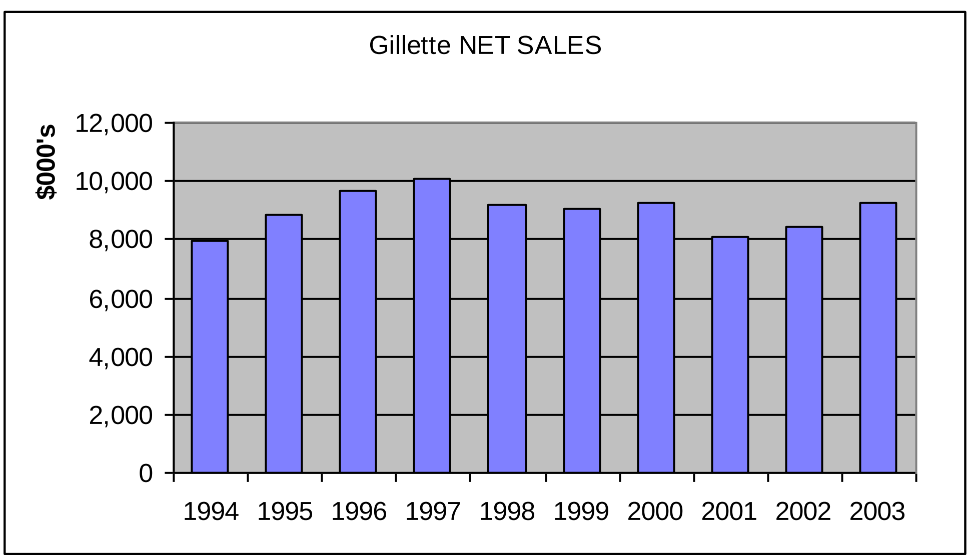


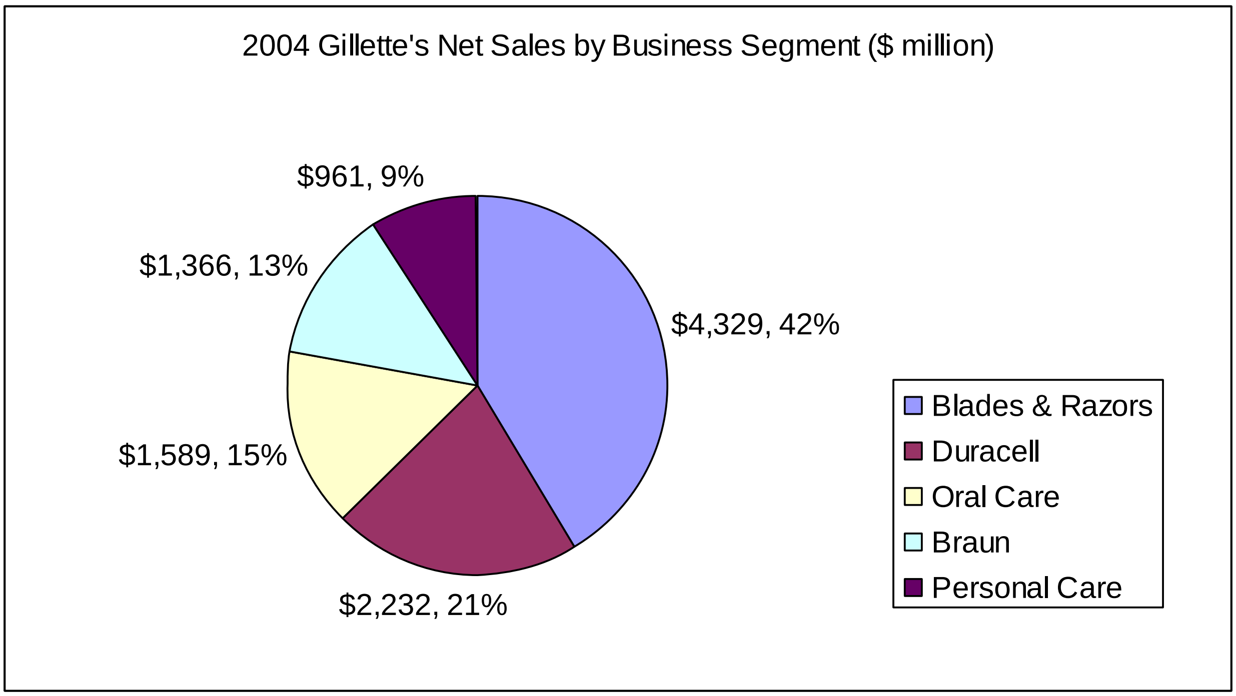
Figure 6: Gillette's 10 Year Net Sales



4.3 Business Segments

Gillette operates under five business segments: Blades & Razors, Batteries, Oral Care, Braun, and Personal Care. The business segment information shown in Figure 7 is based on Gillette's fiscal year 2004 10K report.

Figure 7: Gillette's Net Sales by Business Segment



4.3.1 Blades & Razors

Holding more than 72% of the market share of sales and profit in the United States, Gillette is the world wide market leader in the blades and razors sector. The blades & razors segment generated about 68% of the operating profit and its $3.8 billion revenue comprised of 42% of Gillette's total sales in 2003. In 2004, the successful launches of its new products such as M3Power, Venus Divine, and Sensor3 systems contributed to the 10% sales growth. With a number of cutting edge technology driving the profitability, the company enjoys a profit margin of 37.6%, in this blades and razor group. This business unit is strongly driven by new technology, product performance, price, marketing, and promotion. As the manufacturing technology is highly proprietary, all manufacturing is done in-house, with the exception of outsourced packaging processes.

4.3.2 Batteries

In 1996, Gillette purchased Duracell International, the world's top seller of alkaline batteries at that time. Since then the batteries segment has grown through acquisitions of various battery companies in Korea, India, and, most recently, China. Gillette is now the world market leader in the industry, holding more than 37% of the total US batteries market share. The batteries sector generated 22% and 17% of Gillette's annual revenue and operating profit, respectively, in 2003. While Gillette and its major competitor Energizer Holdings compete in the high end customer segment, the private label market is targeting the low end market. This dynamic market is starting to take over significant market share by capturing consumer demand with its low prices. With the development of cellular phones, PDAs, laptops and other electronic devices, the demand of portable and rechargeable battery packs led to enormous growth in the batteries market. The consumers are demanding smaller and more powerful products for its portable electronics, and this business segment is continuing to see growth.

4.3.3 Oral Care

Gillette's oral care segment dominates both the manual and power toothbrush markets with more than 34% of the US market's dollar share in this category. $1.3 billion dollars of revenue, 14% of Gillette's total sales, was generated by this segment in 2004. The manual toothbrush sector showed decline in its market size, which was mainly due to the growth of the power toothbrushes sector. As the health conscious US consumers are willing to spend more on products with greater dental benefits, Oral-B is producing higher margin products with added benefits at a higher price. This segment is highly driven by innovative, premium products with higher price points.

4.3.4 Braun

Braun, an operating segment with Gillette's fourth largest market sales, produces small household products, such as hair care products and a number of personal diagnostic appliances. In 2004, Braun generated 13% of Gillette's revenues, and 2% of its net profits. According to its

2003 10K, Gillette's Braun segment is focusing on the dry shaving market and ensures that its product line will return greater than its cost of capital. Product performance and price are some of the demand driving factors of this segment.

4.3.5 Personal Care

Gillette's personal care may be one of the most dynamic segments among Gillette's five operating segments as the market is highly segmented with numerous competitors. In 2004, the personal care division generated $961 million in sales, which is 9% of the company's total revenue. Some of the products in this segment includes, shaving preparation products, skin care products, deodorants, and antiperspirants. This paper will cover a detailed analysis of the supply chain of products in the personal care division, and more specifically the supply chain of deodorants and antiperspirants.

4.4 Sales Channels and Customer Segments

According to the 2004 10K report, Gillette's products are sold directly to retailers and to wholesalers for resale through retail stores. For certain products such as oral care products or Braun personal diagnostic appliances, health care professionals are used as their distribution channels. Distributors and sale agents are used for smaller geographic markets, but no specific figures were provided by the company. Wal-Mart is Gillette's largest customer, with 13% of net sales.

4.5 Top Competitors and Positioning Over Time

In the blade and razor segment, Gillette holds more than five times the market share than the nearest competitor Schick. One of Gillette's newest male product Mach3 family holds more than 31% of the total market, while Gillette's newest women product Venus family holds 39% market share. The 2004 10K states that the market share of Venus is higher than all competitive female blade and razor products combined. Gillette's major competitor in the razor market is Energizer Holdings, Inc with its Schick product line. In 2003, Energizer purchased Schick-Wilkinson Sword from Pfizer for $930 million to become the second largest razor and blade maker in the world.

Energizer is also Gillette's major competitor in the batteries market, with 22% market share with net sales of $2 billion in 2003. Gillette holds 37% of the batteries market share. The batteries market has seen 2.6% growth since 2002, and almost 8% growth from 1999 to 2003. Although the alkaline batteries contribute to more than 55% of the market share, the rechargeable batteries market is growing at an extremely fast pace, with more than 80% growth of sales since 1999. Growth in demand of cellphones, PDAs, laptop computers, and other wireless electronics contributed to the growth of rechargeable batteries.

Gillette is also the market leader in both the manual and power toothbrush markets, followed by Colgate. P&G, Unilever, Colgate-Palmolive Co, and Church & Dwight Co are some major players in the personal care industry, and details about these players' positioning will be covered in Chapter 5.

Chapter 5 Gillette's Personal Care Supply Chain

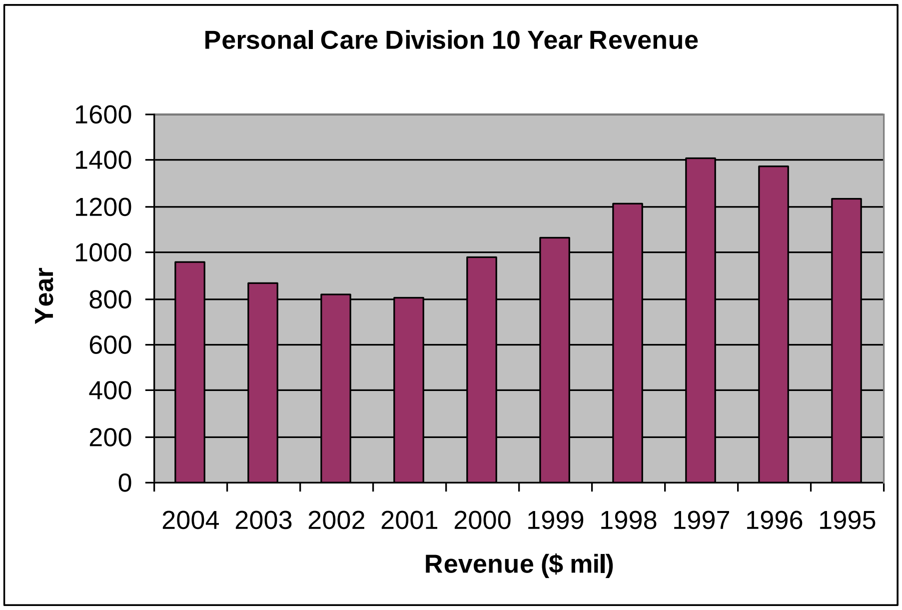
This chapter presents a general overview of Gillette's personal care business unit, the business unit's top competition, and its supply network structure. A detailed analysis of the business processes, including the supply-side, inside, and customer-side business processes, will be done in this section. The last section of this chapter will cover some future supply chain opportunities, as well.

5.1 Overview of the Personal Care Business Unit

Gillette's personal care may be one of the most dynamic segments among Gillette's five operating segments, as the market is highly segmented with numerous competitors. In 2004, the personal care division generated $961 million in sales, which is 9% of the company's total revenue. Some of the products in this segment include, shaving preparation products, skin care products, deodorants, and antiperspirants. This market is highly competitive and fragmented with relatively short product life cycles. Frequent introduction of new brands and packaging, innovative marketing concepts and promotions are crucial factors that drive demand and enable Gillette to stay competitive in this market.

In 2004, net sales in personal care increased 11% from the previous year, and the sales growth is primarily due to strong demand of its new products and trade-up in shaving preparations. Gillette Complete Skincare, Right Guard Cool Spray deodorant, and Mach3 Gel are some new products that were introduced during 2004. The profits increased from $73 million to $95 during 2004, resulting in a 9.9% operating margin. In 2003, the operating margin of the Personal Care division was about 8.4% compared to the 6.2% in 2002.

Figure 8: Personal Care Division 10 Year Revenue



5.2 Sales Channels and Customer Segments

Discounters, supermarket stores, and drug stores are the major distribution channel for deodorants. Those channels accounted for more than 90% of sales in 2003. By offering low prices to attract customers, discounters have the most market share in deodorant distribution of 42%, followed by supermarket or hypermarket stores of 32% market sales. Figure 9 shows the deodorant market sector's average consumer profile. Majority of the male and female consumers of deodorants are light users who used the product less than seven times in the last six months.

Figure 9: Deodorant Consumer Profile (% used within the last six months)

sectors/categories	Deodorants/ Antiperspirants	Scented	Unscented	Antiperspirants/ Deodorant
All men	90.5	53.9	21.6	48.0
All women	93.9	55.0	27.6	56.0
Men heavy users (15+ times in	3.40			
Men light users (0-7 times in	63.3			
Men medium users (8-14 times i	23.8			
Women heavy users (15+ times i	4.00			
Women light users (0-7 times i	63.7			
Women medium users (8-14 times	26.1			

Source: Euromonitor

5.3 Top Competitors and Positioning Over Time

According to Euromonitor's market survey [21], the US deodorant market grew about 5.3% since 2002 resulting in about $2 billion of revenue in 2003. Although the market is quite mature, the market size is growing as many companies have been continuing to launch value-added, higher margin products into the market. With five global consumer products companies dominating more than 80% of the market share, the market is highly competitive with a high level of brand switching, which emphasizes the importance of product development. "Although the antiperspirant/deodorant market is mature, it is a dynamic one as consumers are still searching for the perfect product form and optimum combination of benefits aesthetics and efficacy [22]."

Figure 10: Deodorant Market Share

%

Companies (brands)	avg. sales growth	market share
Procter & Gamble Company	2.9	27.0
Gillette Company	2.5	19.0
Unilever	4.6	15.6
Colgate Palmolive Company	0.9	11.5
Church & Dwight Co.	11.2	6.9

Source: Euromonitor

The top five consumer packaged goods companies in this sector are Procter & Gamble, Gillette, Unilever, Colgate-Palmolive Company, and Church & Dwight Co, in order of market share in 2003. With a 27 % market share and $532 million in sales of the deodorants in 2003, Procter & Gamble is the market leader. Gillette and Unilever closely follow the leader with around 19% and 16% market share, respectively [23]. Most recently, P&G and Unilever have successfully launched new male-specific cream deodorants and spray deodorants, which increased their brand shares by 10% and 3%, respectively. In order to respond to this new demand, Gillette has also launched new product lines with improved formulas, new packaging designs and promotions.

In the market place, Gillette competes on shelf presence and packaging. Price plays an important role in this as well, but it is more marketing and more visual than the content itself. Even though Gillette's personal care division has spent a fortune on developing new formulations, which is highly technology-driven, at the end of the day, it is more of an emotional marketing business. A manager at Gillette explained that this is because no customer will sit and count how long the deodorant or the batteries last, but rather decide on a product by the emotion and connection they feel when they view the advertisements or choose the products in the stores.

5.4 Operating Model and Supply Chain Network

5.4.1 Operating Model and Supply Network Structure

Along with the main manufacturing factory in Andover and seven other manufacturing sites across the United States, Gillette owns three distribution centers in the US and one in Toronto, Canada. Gillette's orders are made-to-forecast and products are held as inventory in the supply warehouse to cover volatility and variability in demand and supply. As the demand signal comes in, they replenish from the supply warehouse to the distribution centers, where the products will be shipped to the customers' distribution centers. Once the inventory reaches a certain threshold at the supply warehouse, a trigger is sent to the factory for manufacturing more products. The system consolidates the distribution demand up to the supply warehouse and sends a trigger to the factory.

Within Gillette's control, for a deodorant to become a sellable product from raw materials takes about seven days for manufacturing. With an average distribution time of seven days to the Gillette's distribution centers, it takes about three weeks for all raw materials to be manufactured as a deodorant and stowed away in the distribution center. Typically, they already have inventory (safety stock) in the distribution centers, and they are constantly replenishing to reach target inventory, to keep them in stock.

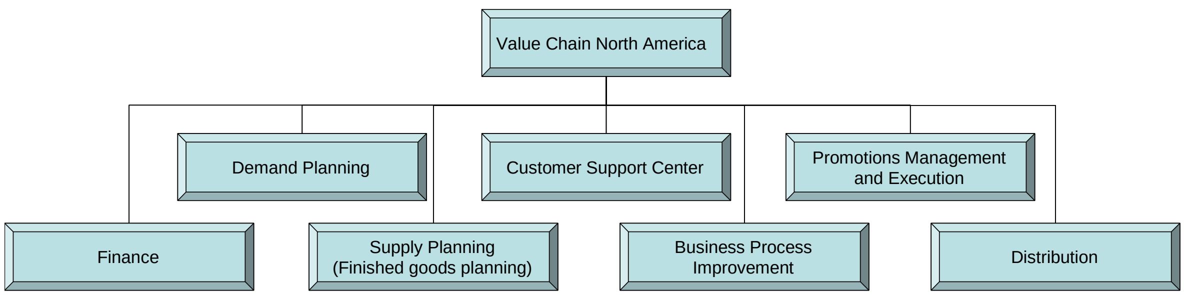
5.4.2 Overall Strategy of the Value Chain Organization

Together with their 29,400 employees and numerous supplier and retailer partners, Gillette is continuing to improve its performance in its supply chain management group. Historically, Gillette has been known as a sales, marketing, and research and development firm, but in the past couple of years, the company has changed its focus to improving its supply chain performance, and aligning the company's strategies with the impact of supply chain performance. Some of the main goals of Gillette's supply chain strategy include the increase in service level, reduction of inventory levels at distribution centers, and lower cost, with several business processes tailored to support the strategy.

5.4.3 Value Chain Organization Structure

Prior to the supply chain reengineering efforts, Gillette was vertically fragmented with little or almost no communication between different functions within the supply chain: procurement, manufacturing, supply chain, commercial operations, and customer. In order to increase communication among these functions and focus on its customers, Gillette combined and aligned the previous supply chain and commercial operations function under one management group, the Global Value Chain Organization. Figure 11 shows the structure of Gillette's North America Value Chain Organization.

Figure 11: Gillette's Value Chain Organization Structure (Source: Gillette)



This restructuring allowed Gillette to be collaborative within the entire global value chain, across the Gillette matrix within functions, customers, and other players within the industry. The organization serves as checks-and-balances to find business processes to benefit the entire supply chain, rather than have a narrow focus of finding the local optimal solution. They reorganized the objectives and incentives to align the employees to Gillette's goal, and changed their bonus system to reflect this goal. The following key metrics are included in their performance metric in order for the company to reach its performance goals collectively:

Figure 12: Gillette's Key Metrics

Customer Service: - Case fill rate - On-time delivery - Order to delivery cycle time	Cost to Serve: - Warehousing, freight, order processing, cash application - Excess cost (promotional build out and logistics)
Working Capital: - Days inventory on-hand - Accounts receivable (DSO)	Functional Metrics: - Forecast accuracy - Inventory accuracy - Data accuracy

After the reengineering of its supply chain, Gillette has integrated supply chain management into the business strategy by including the Value Chain Organization in its operating committee to contribute its knowledge of the possibilities and limits of supply chain, and how it could benefit its business operations.

5.5 Supply-Side Business Processes

5.5.1 Source/Make Decision-Making

According to a Gillette manager, about 80~90% of the personal care products are made at Gillette's production facilities in Andover, MA and Redding, England, and the rest is outsourced to various subcontractors. The sourcing department collects data on manufacturing, procurement, cost savings, and sourcing requirements, and compares this with the volume and annual production requirements of the products. In general, Gillette will outsource production of products when the volume is low, and the competitive activity of the specific product is uncertain. Personal care is a highly competitive industry with very low margins, so they take a "wait-and-see" approach for new products. This means they will purposely outsource the production and have it earn its way into the factory, to avoid re-capitalization for every new product launches. For example, if the product shows a sustainable amount of volume and potential growth after a couple of years, then they will bring it in-house and put it on highly automated equipment. Because of the highly proprietary nature of the product and because nobody else has the manufacturing ability, production of blades are never outsourced, and only packaging is outsourced a to third-party partner.

The sourcing decisions of existing products are reviewed regularly to match the capacity and technology of factories, their fit in the factory production line, and the potential need for new capital investment. All of these elements are balanced with the overall sourcing strategy of the company and the cost of investment. Review meetings are held with a cross-functional team represented by manufacturing, a planning group, finance, program management, and the technical departments, who input information about the cost benefit of keeping the products in the existing factories versus outsourcing them. Procurement and manufacturing departments constantly review potential cost saving opportunities, and once they find an opportunity, they will gather up this cross-functional team to evaluate the change of decisions.

The sourcing decisions of new products are reviewed during the new product launch evaluation process. Program management is in charge of the evaluation of all new product launches, and during the second stage of this process, a cross-functional team will review the sourcing decision. They will evaluate each stage of the product's life cycle and make sourcing decisions for those individual stages. The guiding principles are the same as existing products, where every function has an ownership and input into the sourcing decision.

The evaluation is done under a cross-functional team because Gillette wants to balance cost, what manufacturing may push, and total inventory level balanced with service, with what the value chain organization may push. Volume, capacity, overall strategy, and cost benefit analysis are the key elements that go into the sourcing decision process. They review total network cost, which balances all of these key elements mentioned above; namely cost, inventory, and service.

In order to be responsive to the rapidly changing market demand, the organization increased the run frequency of most SKUs. This enabled them to be more responsive and flexible. Previously, some products were manufactured every eight weeks, under a very inflexible production schedule. This led to unnecessary inventory build up in the supply chain, and poor ability to respond to the changing customer demand. Implementing half-batch productions, and reduction in change over time at the factories are some areas they are currently working to improve. Because the cost of inventory is relatively small in the personal care business, justifying the cost of capital investment to implement these changes to reach optimal inventory levels is still a challenge.

5.5.2 Supplier Selection

Quality of product and service offered, as well as competitive pricing are two of the most important aspects of Gillette's supplier selection process. Volume, capacity, technology, strategic positioning and future potential, and cost are some additional elements that Gillette also considers when selecting its suppliers for raw materials. There is a supplier evaluation audit form that takes into account these key elements. However, if materials are single sourced or Gillette's products were designed for only one source, the evaluation process is less straightforward and is evaluated on a case by case basis.

5.5.3 Supplier Management and Purchasing/Procurement

Gillette always had very good visibility of its suppliers, one level up, but only recently after the strategic sourcing initiative started, is when they were able to look into two or three tiers up the supply chain from Gillette. This was all driven by cost savings opportunities. For example, if the supplier of the supplier is buying the same material as its suppliers, Gillette would develop a global contract to bring cost benefits to all suppliers up the supply chain, by leveraging its buying power.

The five business units in five geographies together purchase about $4 billion in raw material each year. Gillette takes a global category management approach in purchasing in order to consolidate its purchasing processes. The company may consolidate purchasing of packaging materials, marketing services, or plastic resins. They are also looking into product standardization opportunities. For example, they found cases in which the blades and razors group was purchasing packaging material from one source, while the oral care division was purchasing similar materials from another supplier. The Strategic Sourcing Initiative was implemented to look into opportunities where they can reduce the number of suppliers by consolidating and standardizing materials, and purchasing globally. In order to take advantage of the local suppliers and its better responsiveness, Gillette also puts effort into building relationships with its local suppliers, and maintaining existing relationships with them.

5.6 Inside Business Processes

5.6.1 Product Portfolio Management

Gillette plans and manufactures to a forecast and looks at orders as they come in. According to a Gillette manager, approximately 80 to 85% of their orders are made-to-forecast and satisfied with inventory at the distribution centers, while the remaining small percentage of the orders are pack-to-order. The average customer order fulfillment time of its products is approximately six days. Since the system cannot see orders that extend outside of those six days, its eighteen-month forecast horizon drives replenishment in the distribution centers. However, within those six days, they will compare actual demand and forecast data, and take the greater of the two to plan to the higher level. The forecast horizon is eighteen months, but the planning departments will still receive a forecast every month and do continuous review of the forecast.

The small portion of the orders that are pack-to-order are special display and packages that are done for specific customers, rather than building special SKUs or products that are engineered-to-order. These are the products one would usually see at the cash registers, and other display products. The personal care division has about 150 foot prints of different display packs, which is available for order and can be turned around in less than fifteen days. An order that comes in for a display pack, draws from open stock inventory that is forecasted. If a customer requests any configuration outside of the pre-defined template, the lead time may be longer. The display cost is embedded as part of the product order cost, and is only made once the order is received by a specific customer.

5.6.2 Inventory Management and Inbound Order Process

All of Gillette's inbound pallets are marked by a license plate bar code label, with quantity, SKU, lot ID, and manufacturing date information. Once the pallets arrive at the receiving dock, the bar code is scanned and pallet information is stored in the warehouse management system and enterprise resource planning (ERP). The system will generate storage information and provide the worker with information on the put away location. Once the pallet is stored in the appropriate location, the system will be notified the inventory level, which will be available for order promise.

5.6.3 Production Management

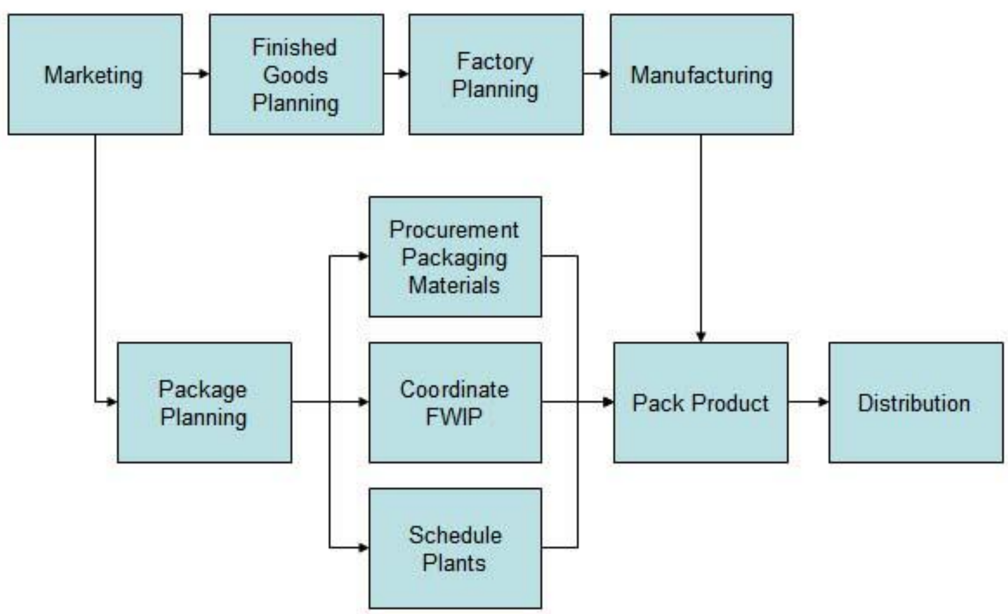
Gillette's master production schedule covers around eighteen months, on a rolling basis. Together with the factories and other planning teams under the Global Value Chain organization, the supply planning team will generate the production plans. Gillette divides its production plan into three periods: firm period, slush period, and liquid period. The firm period is the last three weeks of production, in which the production plans cannot be changed unless the planning team negotiates with the factory. During the slush period, the planner spends time adjusting the schedule to variability in demand and supply. During the liquid period, the system plans freely. The factory has a general idea of the orders expected to come in, based on the eighteen-month forecast, but they do not commit to vendors and suppliers yet. The factory continues to actively plan, move products around by grouping, batching sequencing depending on capacity constrains onto a tighter time frame. Visibility of this long horizon is available for suppliers to view, so the suppliers can plan long term raw material requirements.

Gillette's 1.5 million sq. ft manufacturing facility is divided into a component area and an assembly area. The component area is where the plastic and metal parts are manufactured and the assembly area is where the razors and blades are produced. Using an automatic guided vehicle (AGV), all raw materials are delivered to the assembly line just in time for manufacturing. Additionally, finished goods are transported to the warehouse or directly shipped to the packaging sites. [24]

5.6.4 Packaging Process

Since 1996, Gillette has outsourced its packing to a $2.8 billion packaging manufacturing and services company Sonoco Products Co. Sonoco manages the blades and razor pack centers in Devens, Mass, adjacent to Gillette's supply and distribution center.

Figure 13: Packaging Process



Once the products are produced at Gillette, they are brought to Sonoco's packaging facility. Sonoco sources the packaging materials, packs the packaged products and delivers the packaged products to an on-site Gillette owned distribution center (see Figure 13). "Stock is kept in bulk and only packaged against a specific customer need, thus increasing efficiency and improving service to customers [25]." The delay of packaging allows Gillette to be responsive to customer demand by using more reliable forecasts and saving cost. In addition, Gillette benefits from reduced working capital because Sonoco buys all of the packaging materials. Further development of electronic identification (RFID) tags will allow them to produce and package more accurately according to the real time demand information they receive at the time of consumer purchases.

This postponement packaging strategy is not used in the Personal Cares division, as deodorants and shaving preparation products can be less clearly disassociated with their package during manufacturing. The exception to this is the previously mentioned pack-to-order special displays.

5.6.5 Transportation Management

Gillette's transportation of raw materials and products is outsourced and contracted out to third-party logistics (3PL) providers. Gillette used to own private fleets, but since transportation was not one of their core competencies, they handed this over to third-party logistics carriers. Yellow Freight, DHL, Excel, and JB Hunt are only some of the 3PL providers that serve Gillette. Unlike the highly consolidated Gillette's retailers and suppliers, the 3PL market place hasn't consolidated as quickly, on a global level, so Gillette has many different contracts for different partners and companies, depending on the region. This is mainly due to the regionally strong players, who are not quite global yet. About 80% of the products are shipped inter-modal and around 20% are transported via trucks, says a Gillette planning manager.

Cross-docking is done for fast moving items at two of Gillette's production sites, Andover, Mass., and Iowa City, Iowa. Once the products move from the manufacturing line, they are labeled with a bar code license and sent to the cross-dock area. At the cross-dock area, the products are scanned and assigned to a put away location in the shipping dock. These products will only stay in this area until the truck if full, and will be shipped to the customers' distribution center or other delivery points, without being stored in the supply warehouse.

5.6.6 Warehouse Management

Gillette manages its warehouses and transportation processes with a highly integrated transportation and warehouse management system from Provia Software. It standardizes technology and order fulfillment processes across the distribution centers and production/package sites across North America. This allows them to have accurate inventory information at all times and gives them good control over finished goods inventory in the distribution centers. [26]

5.7 Customer-Side Business Processes

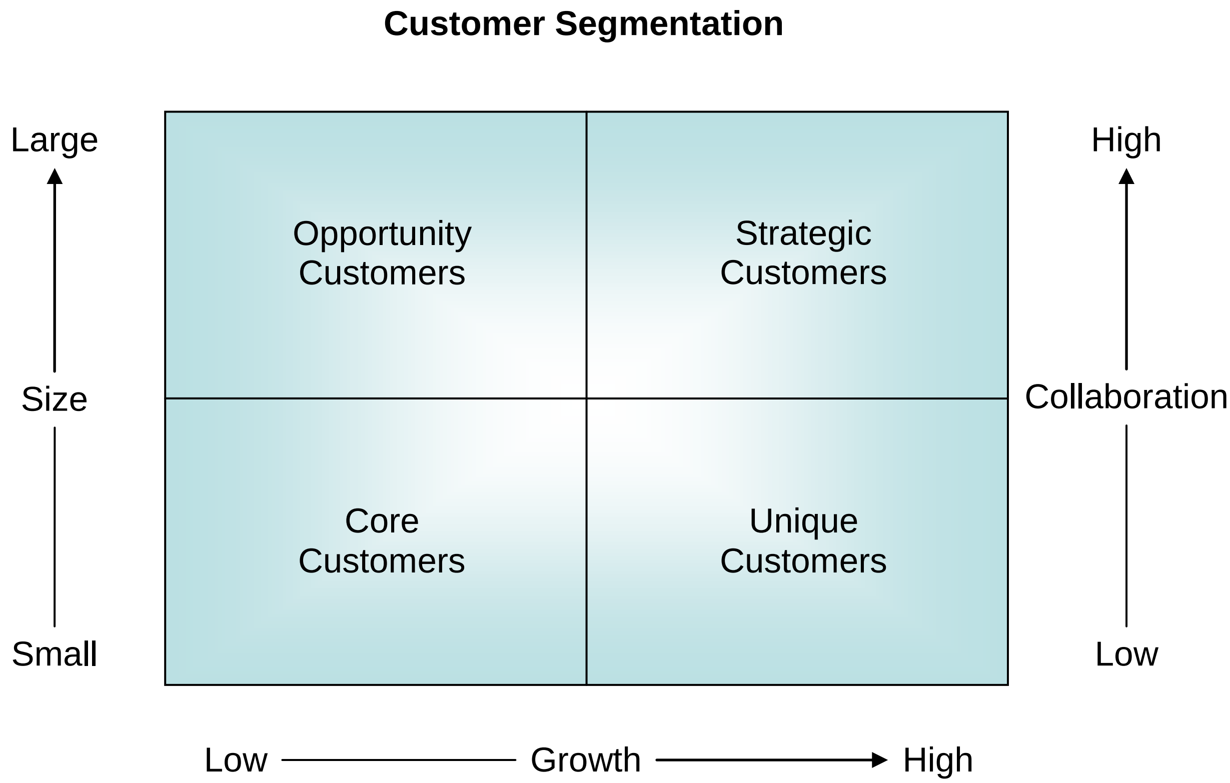
5.7.1 Distribution Channel and Customer Management

For its biggest customers and strategic customers, the value chain organization works with the customers to obtain POS data, share data, and communicate back and forth to receive information on inventory. With some key customers, Gillette does vendor managed inventory, where they look into the customer's inventories to use their intelligence to ensure Gillette has the right inventory, at the right place, at the right time. Entire teams of Gillette employees are located at its key customers' sites, (such as Wal-Mart, Target, K-Mart) to work as strategic partners by writing orders for them, and interfacing directly into the customers' systems.

5.7.2 Customer Tiering/Segmentation

The demand planning team divides its customers into four segments depending on the size, collaboration level, growth potential of its demand (Figure 14). Retailers such as Wal-Mart or Target are some customers in the strategic customers segment, where Gillette may place value chain team leaders at the customer sites to work with them as strategic partners. Although customers like Home Depot may not be one of Gillette's biggest customers, they are considered a "unique customer" because of the amount of sales in Duracell batteries. By segmenting the customers, Gillette is able to keep sight of customers that may not necessarily be its biggest across all of Gillette's products, as it could negatively impact the market share in all five of its business units. This chart assists them throughout the resource planning decisions to support its business with the customers.

Figure 14: Customer Segmentation (Source: Gillette)



5.7.3 Demand Planning and Forecasting

During its 18-month demand planning process, demand planners develop unconstrained demand plan by business units. They focus on supporting operations through detailed planning in the short run, while aggregated planning allows them to be flexible in the capacity planning over a longer period. Throughout the planning process, the demand planning group gathers market and business information, evaluate history, and review performance metrics and forecasting models to come up with an accurate demand forecast. Once an overall demand plan is established, supply and financial teams contribute to their intelligence to the forecasting model.

Demand planning is now done by a business unit planning approach rather than the previous top-down approach. By eliminating the financial pressure from demand planning and utilizing the existing software from Manugistics, Gillette improved the demand planning process. They also partner up with some key accounts to collaborate its demand forecasting process, using actual sales data. They are slowly moving towards a demand-driven planning environment, but forecasts still trigger production. However, they will compare actual demand and forecast data and take the greater of the two to plan its demand.

In order to improve the focus of the demand planners and build flexibility in the production process, Gillette consolidates SKUs by evaluating individual products and its performances, using its information technology resources, and eliminating those products that do not meet the standards of the company aggregating the forecast allows Gillette to improve its demand forecasting and production planning process. Inventory turns improved by 25 percent in less than 3 years, and the production process became much more flexible as the consolidation of SKUs allowed them to have fewer changeovers.

5.7.4 Order Fulfillment

The majority of the orders are received through electronic data interchange (EDI), and it takes about six days for them to turn around an order and ship to the customers within the United States. As long as there is inventory at the right distribution center, the orders could be turned around within 24 hours. However, the average lead time is about six days depending on the material availability date and other factors. Often times, customers may specify an arrival date when they want the products to arrive at their distribution center or where they are shipped to, so Gillette's distribution department will assess, based on that arrival date, inventory, and other customer requirements, when the products should be shipped. In this case, an order might not be sent to the distribution center until three days later to be picked, packed, and shipped. The transportation system will generate freight plans, and the warehouse management system will generate optimal order-filling plans.

5.7.5 Returns and Recycle Management

The return policy differs depending on the size and product, and all returns are done on a business-to-business level only, with policies in place to limit customer returns. Returns of full cases, which haven't been opened, are put back in the inventory. Depending on the status of the open cases, they will either be destroyed or redirected to other discount channels for sale. For Braun products, a third party vendor refurbishes the products and sells it to other channels such as on the Internet or to used lots. However, for personal care goods, all open case returns will be destroyed, or customers can destroy them in the field, depending on the contractual agreement.

With a reasonably long shelf life of 4 years for batteries and personal care products, there are very few incidences where the products are unsold from the retailers' shelves. In the case of unwanted products that were on the shelves for awhile, retailers will start their own promotions or coupons to increase the turn of the products. Gillette would rather help them push the product to the end consumers than have the customers return the products, so Gillette collaborates with customers to advertise, or lower prices. If Gillette introduces a new product, or new packaging or graphics, they will accept returns and send those old products to discount merchandisers or other distribution channels.

5.8 Supply Chain Opportunities and Challenges

5.8.1 Data Management

Together with the MIT Auto ID Center, Gillette has been developing radio-frequency identification (RFID) tags. These RFID tags are expected to save billions of dollars by not only preventing thefts in the supply chain, but also from loss of revenues when a product in not in stock on the retailers' shelves. However, unlike the early days when companies couldn't find the appropriate information needed for their planning process, the challenge today is to figure out how to deal with the floods of information they would receive from various sources. With the help of RFID and information system such as the enterprise resource planning software Gillette uses, managers are receiving more data than one can ever imagine. It is a new challenge to understand the process and to know what data is needed to support those processes because the enormous amount of data available out in the field. As AutoID becomes more readily available in the market, it will become more important to leverage the information they would receive to get a return on investment much quicker.

5.8.2 Manufacturing Flexibility

With their manufacturing and supply partners, Gillette is continuously looking for opportunities to improve manufacturing flexibility. Manufacturing flexibility will bring the most benefits in the personal care division, more so than forecasting accuracy. A couple of ways to achieve this is through shortening the firm period, mentioned in section 5.11.5, and reducing the minimum order quantity through smaller batch sizes. If they could take the current firm period of three weeks down to fourteen days, or even seven, then they can take a lot of safety stock out of the system. Every manager is trying to increase flexibility with the manufacturing centers or faster throughput in cycle time to allow them to take more inventory out of the system.

The biggest manufacturing constraint today is the minimum order size based on production batch sizes. This large batch size is mainly due to the existing equipment at the factories, which has been there from the time they were running longer manufacturing cycles. Most of the current capital is based on these large batch sizes, and if they are able to reduce those batch sizes, then they can reduce the inventory levels. However, in the personal care sector, the cost of inventory is relatively small, about 10%, which include warehousing and overhead costs to store it. They currently do not have a clean financial model that could tell them the revenue benefits that new capital investment may be able to bring them. Without a clear model, it is hard to justify millions of dollars in capital investment or a change in sourcing, to add flexibility and better responsiveness. However, some initiatives they have implemented are half-batches and reduction in change-over time (set-up time), and they are constantly trying to balance cost and optimal inventory level throughout the entire channel.

Chapter 6 - Procter and Gamble Company Overview

This chapter covers a general overview of Procter & Gamble, its history, financials, business segment, and competition information.

6.1 Company Overview

With sixteen billion-dollar brands and marketing over 300 branded products in more than 160 countries, Procter and Gamble is one of the strongest players in the household products market around the world. The main business goal of Procter and Gamble is "to focus on providing branded products of superior quality and value to improve the lives of the world's consumers," according to the 2004 10K report.

Through the merger of William Procter's candle company and James Gamble's soap company in 1837, the Procter and Gamble Company was formed, and was incorporated by 1905. In 1879, the more familiar brand Ivory, a floating soap, was introduced, followed by Crisco shortening in 1911. The first "differentiated and branded soap" Ivory helped P&G grow on a national scale "by learning and mastering new capabilities in chemical control, large-scale manufacturing and distribution, and advertising and promotion [27]." During its first 100 years of operation, the company initiated and developed new capabilities in R&D, manufacturing, market research, and branding to bring high-quality consumer goods to its consumers.

After the World War II and until the early 1980s, P&G rapidly diversified its portfolio through acquisitions, development, and marketing of its brands in foods and beverages, oral care, and paper markets. However, with pressure from the government to divest its business, the company started to grow through new product development and international expansion rather than mergers and acquisitions.

From the 1980's to the present, P&G expanded its business into new industries such as health care, feminine care, beauty care, and pet nutrition, while expanding its operations into many different regions around the globe. Within 8 years, P&G's international operation grew $10 billion dollars to reach $15 billion in sales by 1993.

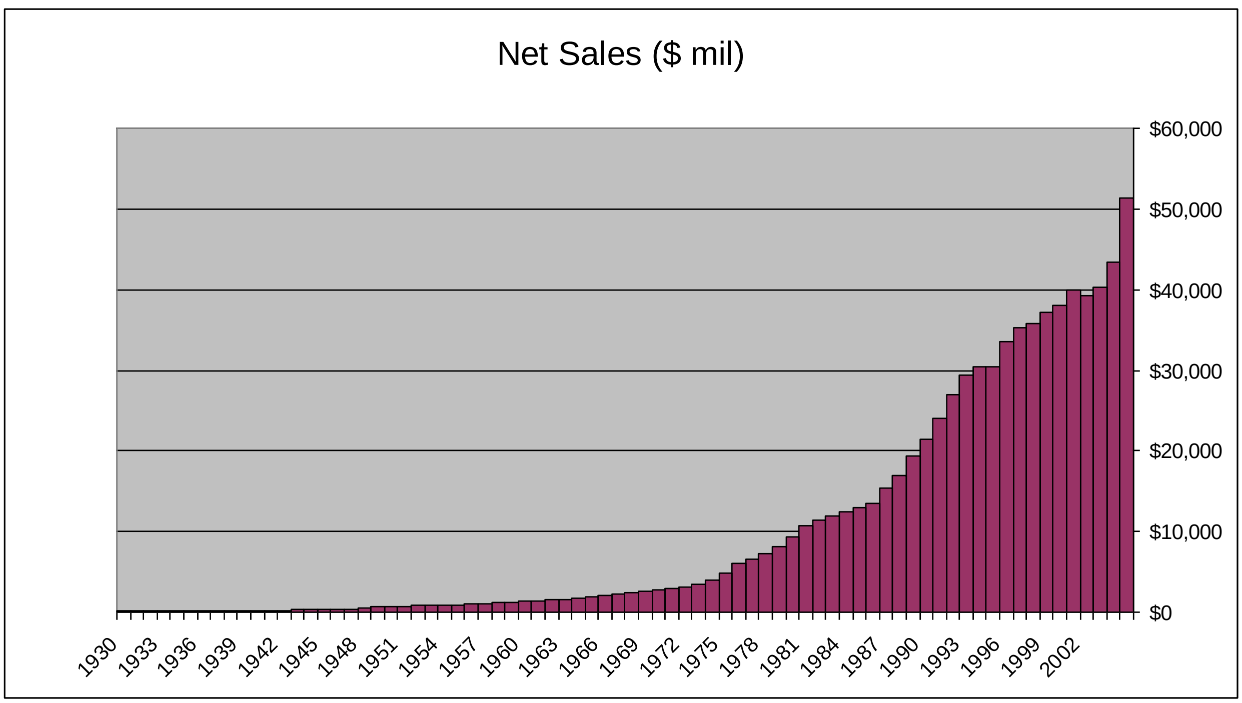
6.2 Historical Company Revenues, Operating Margins, and Employees

In the late 1990's P&G focused on maintaining its strong brands, entering new markets around the globe, and building relationships with its biggest customers such as Wal-Mart and

Target. With a new focus and change of management, P&G's revenue almost doubled from $24.1 billion in 1990 to reporting $43.3 billion in 2003. In addition to the restructuring of the company, the sudden growth of the Chinese and Eastern European markets in the early 1990's opened up enormous opportunities to P&G. In order to respond to these changes, Dyer et al [28] notes that P&G launched major initiatives to accelerate international growth, sort out the company's portfolio of businesses, restructure relations with suppliers and retailers, reengineer company's operations, and launch new approaches to innovation.

As Figure 15 shows, P&G's sales have grown exponentially over the history of the company and are continuing to grow. According to the 2004 Annual Report, unit volume for the 2004 fiscal year increased 17%, primarily due to the growth in Beauty Care and Health care, which each grew by 37% and 18%, respectively. The acquisition of Wella and growth in developing markets are the main contributors to this growth. More detailed information regarding specific business segments are covered in the Business Segments section of this paper.

Figure 15: P&G's Net Sales History



Operating margins have grown from 16.6% in 2002 to 19.1% in 2004, and the net earnings margin increased to 12.6% from the 10.8% in 2002. The volume growth, business shift to higher margin products, and the successful implementation of its restructuring program and supply chain initiatives are some major contributors to the growth in margins. P&G has more than 110,000 employees around the world, half of which are in the Global Product Supply organization.

In 1996, P&G eliminated a number of brands that did not fit into its long-term goal of increasing sales and profits, and in the early twenty-first century, P&G sold off one of its core businesses, the pulp and chemicals segment. More recently, P&G's effort to develop its beauty sector as the market leader led to the $7 billion acquisition of Wella and launching of Rejoice shampoo in India. Max Factor (1991), Rembrands (1997), Iams (1999), and Clairol (2001) are some of the brands P&G acquired to support the growth, as well. As the new health and beauty care segment continued to grow, P&G's core strength of fabric and home care products remained steady. Below is a brief timeline of P&G's major brand history and merger and acquisition history [29]:

- In 1905, The Procter & Gamble Company (P&G) was incorporated.
- In the 1940's and 1950's, P&G launched Tide detergent (1947), Crest toothpaste (1955), and Head & Shoulders shampoo and Pampers disposable diapers (1961). It also began a stream of acquisitions: Spic and Spac (1945; sold in 2001), Duncan Hines (1956; sold in 1998), Clorox (1957; sold in 1963), Charmin Paper Mills (1957), and Folgers Coffee (1963).
- In the 1980's, P&G entered the health care market by purchasing Richardson-Vicks and G.D. Sealer's nonprescription drug division. It also acquired Noxell: Cover Girl and Noxzema (1989) and Max Factor (1991).
- In 1997, P&G acquired Tambrands (Tampax tampons).
- In 1999, it bought The Iams Company.
- In 2001, P&G sold its Comet cleaner business, and purchased Clairol hair care company.
- In 2002, it sold its Jif peanut butter and Crisco shortening brands to J.M. Smucker, and several personal care brands to Helen of Troy.
- In 2003, it expanded its hair care segment by purchasing Wella.
- In 2005, P&G acquired The Gillette Company for about $57 billion in stock.

6.3 Business Segments

P&G's five operating segments in the FY 2004 included Fabric and Home Care, Beauty Care, Baby and Family Care, Health Care, and Snacks and Beverages. P&G's core businesses are Baby Care, Fabric Care, Feminine Care, and Hair Care. However, by 2005, the company will reorganize its operating segments into three business segments, in order to streamline its operating activities and management support. These three new global business segments are: Beauty Care; Health, Baby and Family care; and Household Care, which combines the current Fabric and Home Care segment and Snacks and Beverages segment. (The business segment information shown in Figure 16 is based on the financial data from the FY2004 10K reports.)

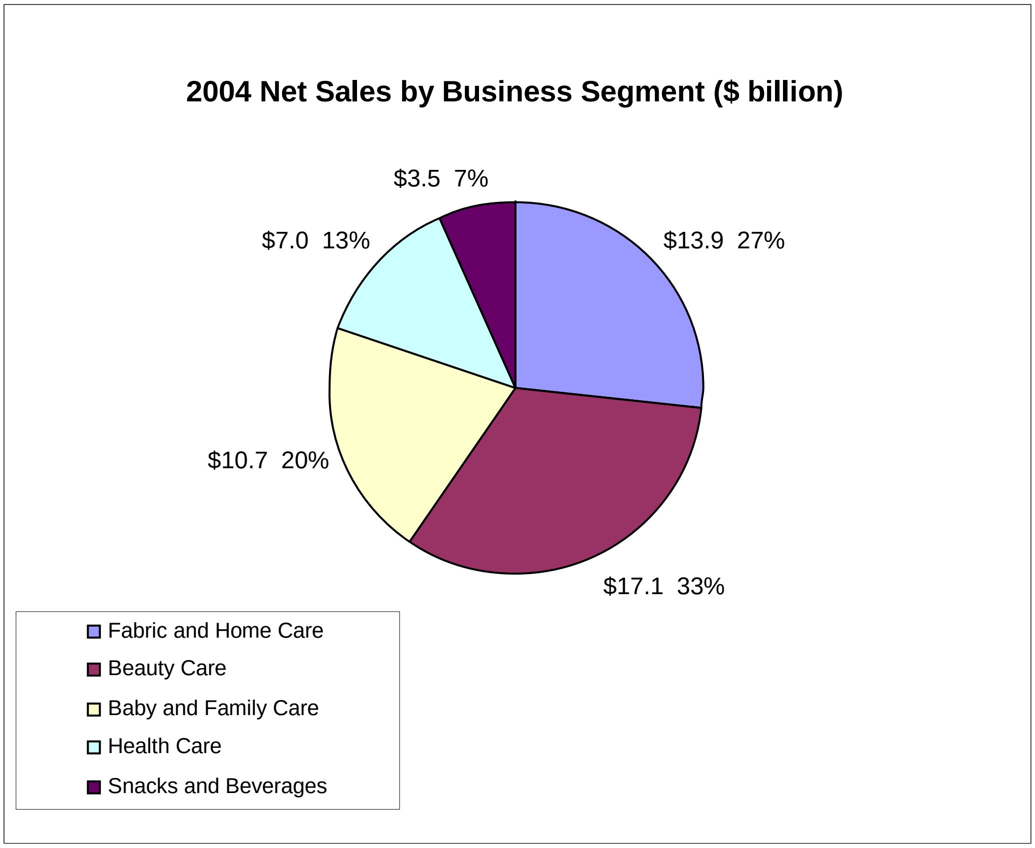


Figure 16: P&G 's Net Sales by Business Segment (Source: 2004 P&G Annual Report)

6.3.1 Fabric and Home Care

In 2004, this segment generated $13.87 billion in net revenue and $2.2 billion in net earnings, which comprised 27% of company's net revenues and 32% of its net earnings. Holding approximately 31% of the global market share in this $40 billion category, for most of the brands in this segment, P&G holds the market leader position. This segment is one of P&G's core business segments, which the company was built upon. Tide, Ariel, and Downy are three of the billion dollar brands of P&G. The sales volume increased 9% and net profit grew 7% since 2003, mainly due to strengthening of its existing categories, rapid growth in developing markets and lower-income consumers, and launching and leveraging new products. Some examples of new products launched recently are Mr. Clean Magic Eraser, Mr. Clean AutoDry, and Swiffer Duster.

6.3.2 Beauty Care

The Beauty Care division generated $17.1 billion sales, 33% of P&G's 2004 net sales, and $2.4 billion profit, 35% of its net earnings. Retail and professional hair care, skin care, feminine care, cosmetics, fine fragrances, and personal cleansing are the markets P&G is competing in within this business segment. With five billion dollar brands -- Pantene, Wella, Olay, Always, and Head & Shoulders -- P&G is the market leader in the hair care and feminine care markets. While P&G only holds about 10% market share in the global beauty care market, the company holds about 20% of the hair care market share and 35% of feminine care category. The recent acquisition of Wella contributed to the significant volume growth of 37% in 2004, by adding approximately $3.3 billion to the Beauty Care sales. Product innovation, brand extension, and holistic marketing are some of the demand drivers in the beauty care segment.

6.3.3 Baby and Family Care

Diapers, baby wipes, bath tissue, and kitchen towel are the primary markets this segment operates in. The five-billion dollar brand Pampers brings P&G into the market leader position, holding more than 36% of the global market share. Bounty and Charmin brands also generate more than a billion dollars of sales per year. In 2004, this business unit generated $10.7 billion in sales, which grew 8% from 2003.

6.3.4 Health Care

P&G's Health Care division is active in the oral care, pharmaceuticals, over-the-counter (OTC) medications, and pet health and nutrition categories. In 2004, this segment generated $7 billion in sales and $962 million profit. Its unit volume increased 18%, sales jumped 21%, and net earnings grew 36% since 2003, mainly due to product innovations and improving profit margins. This was the fifth consecutive year in which this segment has seen double-digit growth in both sales and net earnings. P&G's oral care category, with Crest as the leading brand, holds the second largest market share in oral care, after Colgate-Palmolive. Iams is the market leader among all pet nutrition brands in the US. Crest, Actonel, and Iams are the three million-dollar brands in this category. Acquisitions, product innovations, and continuous marketing support of existing products are some key elements that drive the demand in this category.

6.3.5 Snacks and Beverages

Salted snacks and coffee are the two main product categories in this business segment that generated $3.5 billion of net sales in 2004. With Frito Lay as the market leader, P&G's Pringles brand competes against many global, as well as US based companies in the salted snacks business. P&G holds the market leader position in the coffee category, mainly sold through grocery, mass merchandise, and club membership stores in the US.

6.4 Products and Service

P&G's core businesses are Baby Care, Fabric Care, Feminine Care, and Hair Care, and P&G is the global market leader in all of these categories, both in market sales and market share. Pampers, Tide, Ariel, Pantene, Wella, Always, Crest, Bounty, Charmin, Olay, Pringles, Iams, Downy, Actonel, Folgers, and Head & Shoulders are P&G's billion dollar brands, which generate over one billion dollars in sales each year. Together these billion dollar brands generated about $30 billion in annual sales in 2004, and they represent around 55% of the company's total sales volume.

6.5 Sales Channels and Customer Segments

Products are sold primarily through wholesalers, mass merchandisers, grocery stores, membership club stores and drug stores. More than half of P&G's sales volume came from retailers that operated their own distribution centers and warehouses, while the other half came from wholesalers who serve smaller chains and independent stores. Sales through mass-merchandisers and membership-only discount stores are growing, as they continue to offer products at a lower price due to their low-margin operations, and efficient distribution.

6.6 Top Competitors and Positioning Over Time

Although Procter and Gamble mostly competes in the premium and mid-tier market, the competition in the market place is getting fierce as more private labels and retailer brands are entering the market. The following sections review the top competitors and P&G's positioning against them for each of its business segments. As P&G competes in many business categories, the paper only reviews the top competitors of categories that the sixteen million dollar brands are competing in.

6.6.1 Fabric and Home Care

With 48.8% market share and strong performing brands such as Tide, Downy, and Bounce, P&G is clearly the market leader in the laundry care market. Unilever holds the second highest market share of 13.4%, in 2003. Dial Corp and Church & Dwight closely follow with both having 6.3% market share. The market is quite concentrated with five players dominating 76% of the market, and the sales of more convenient, higher margined products such as liquid detergent or products with added benefits grew significantly. [30]

6.6.2 Beauty Care

While P&G's Pantene brand was the largest hair care brand in 2003, P&G holds the third largest overall market share in the hair care category, after L'Oreal and Clairol who hold 18.3% and 15.3% market share, respectively. However, after the acquisition of Clairol, P&G is the market leader of the hair care category. P&G's Head & Shoulders is the leading anti-dandruff shampoo and Pert Plus is the leading 2-in-1 shampoo and conditioner. L'Oreal is the world's largest beauty products company, with brands for men and women, including L'Oréal and Maybelline (mass market), Lancôme (prestige market), and Redken and SoftSheen/Carson for retail and salon hair care. Unilever and Alberto Culver Company are also some top players in this category with each company holding 11.9% and 4.1% market share, respectively [31].

Although the sales of skincare category has been declining in the past five years, there has been a shift towards mass products with higher margin products, as consumers are interested in products with additional benefits, such as anti-aging products. L'Oreal is the market leader of this category, followed by Estee Lauder, Clinique, and Avon. These brands hold 9.7%, 8.6%, 7.5%, 6.9% of the market share, respectively. Procter & Gamble had the fifth largest market share in this category, with its Olay brand.

In 2000, with more than 40% market share of the sanitary protection sector, P&G was the ma rket leader of this category. Always and Tampax were two of P&G's strongest brands. Kimberly-Clark held 20% of the market share with its Kotex brand and Personal Products Co closely follows with 16% market share with its Stayfree and Carefree brands [32].

6.6.3 Baby and Family Care

Procter& Gamble's Pampers brand and Kimberly-Clark's Huggies brand are the top two market players in the $4 billion diapers category. In 2003, the market share of Huggies and Procter & Gamble were 39% and 42%, respectively [33]. The two continuously compete on innovative products and product line extensions. In 2002, P&G introduced a line of diapers for infants in various development stages and training pants, which was immediately followed by Kimberly-Clarke's innovative line of diaper that could be used as traditional diapers or training pants.

With Charmin as its leading brand and 31.6% market share, P&G is the market leader of the disposable paper products category. Kimberly-Clark holds 30.7% of the market share with Scott as its leading brand, while Georgia-Pacific's Quilted Northern brand brought Georgia-Pacific to be the third largest market leader in this segment, with 12.2% market share in 2004 [34].

6.6.4 Health Care

Colgate-Palmolive and P&G are the two major players in the toothpaste category. As of March 2004, P&G has 34.2% volume share, increased from 31.8% in 2003, while Colgate has about 35.3%, decreased from 37.7%. The successful introduction of Whitestrips and Night Effects by Crest, P&G gained about 70% of the at-home whitening category in 2003 [35].

The pet care market reached $19.1 billion sales in 2003, an increase of 4.7% since 2002. New, higher margin products, addition to various dietary supplements and pet accessories are some of the main causes for this increase in market size. Nestle Purina Petcare, Mars, Procter & Gamble, and Colgate Palmolive were the biggest manufacturers of dog and cat food. Nestle holds 30% market share, while P&G earned 14.2% in 2003. [36]

6.6.5 Snacks and Beverages

In 2003, Kraft Foods was the market leader of the hot drinks category. Its ownership of Maxwell brand and its alliance with Starbucks Coffee brought them 14.1% of the market share. P&G earned the second largest market sales of 13.5% with the Folgers brand, which was followed by Nestle SA and Unilever, who both hold 4% market share.

Chapter 7 - Procter and Gamble's Supply Chain

The business process analysis in this section is based on literature reviews and interviews with industry experts in the consulting firms and technology providers who work closely with Procter & Gamble. The research is purely done second hand and the validity of the implementation of actual business processes has not been confirmed by Procter and Gamble. This chapter will mainly cover P&G's supply chain initiatives and some analysis of the supply-side, inside, customer-side business processes.

7.1 Procter and Gamble's Supply Chain Overview

Historically, P&G has been known as a marketing and promotions company, where the demand was driven through promotional pricing and proactive marketing strategies. Rather than focusing on the consumer's needs, the company was pushing products through the retail channels with discounted prices and other promotional activities. Economies of scale and acquiring shelf space at the retailers motivated suppliers like P&G to push products out into the market even further, resulting in inventory buildup in the retail channels. The retailers would do as much forward purchasing as possible, because they knew the products will soon be discounted, and this led to huge amounts of product inventories sitting in the supply chain.

The huge number of SKUs on the shelves meant more choices of product, price, label, and package variations for the consumers. P&G's internal market study shows that such unnecessary variation did not add any value to their brand recognition, but was rather more distracting to its consumers. These types of non-value added elements contributed to the issues of an already complex supply chain. The decentralized supply chain caused sales representatives to deal with additional and unnecessary order, shipping, and billing activities.

Instead of focusing on their most important asset, their consumers, the P&G management team spent countless hours dealing with those non-value added elements. They didn't look at the entire supply chain as a whole, but only focused on their immediate suppliers and customers, on an individual business unit basis. There were multiple sales representatives for a single customer, as the business was run by business units, rather than a single entity representing the Procter & Gamble Company.

After recognizing these challenges and issues, P&G put enormous effort into reorganizing the company and rebuilding its supply chain to become the market leader it is today. Many business processes were redesigned to bring the company to the top.

7.2 Operating Model and Supply Chain Network

P&G's business strategy is to be the leader of innovative branded products to the consumer markets. P&G mainly focuses on building strong brand portfolios and introducing innovative products to the market place before its competitors. In order to successfully support this business strategy, P&G's operating model focuses on providing high on-shelf availability with guaranteed quality both when the consumer "chooses and uses" the products. They are also focused on providing innovative products through continuous research and development efforts and product extensions. P&G is a branded business, and its business model builds on brands that have high quality and high loyalty. They do not want consumers to buy simply on price, but on quality and brand, as well.

P&G's 300 brands are produced in 114 manufacturing plants around the world and distributed through its distribution centers. Although majority of the products are made-to-stock in the distribution centers until they are ready to be shipped to customers distribution centers or stores, P&G is slowly shifting its business model to be more responsive and efficient with the use of point-of-sales data or other customer specific demand data.

7.3 Supply Chain Organizational Structure

The reorganization effort, Organization 2005 (O-2005), initiated in the late 1990's, was designed to organize the company as a matrix with global product groups and geographically assigned market groups to be both global and local at the same time. These product groups are called Global Business Units (GBU) and they are responsible for manufacturing and marketing P&G's products, as well as product innovation. Section 6.3 covered details about P&G's individual GBUs. Market Development Organizations (MDOs) are responsible for local marketing, tailoring of the Company's global programs to local markets, and developing market strategies to support P&G's entire business with the knowledge of local retailers and consumers. MDOs are organized by geography. Corporate Functions covers upstream research and development working with innovative knowledge, and other areas not covered by GBUs and

MDOs, such as Customer Business Development teams who work with customers to improve both parties' business processes. More details about the Customer Business Development teams will be covered in section 7.7.

7.4 Supply Chain Strategy

P&G's main supply chain strategy is to deliver and win over the consumers at "two moments of truth." The first moment of truth is when the customer chooses the product at the retailer's shelf, and the second moment of truth defines the moment the customer uses the product. Delivering these two moments means the product must be at the shelf when the consumer is in the store, and that the quality of the product meets the consumer's expectation when they get it home. If the first moment of truth is not delivered, the second moment never occurs. Therefore, having an effective supply chain that could deliver the first moment of truth is critical in order to reach its objective.

Most recently, P&G implemented a Consumer Driven Supply Network (CDSN) initiative to focus efforts on delivering the right product, process, and supply differentiation by forming an efficient supply chain. (AMR Research's DDSN model emulates this concept.) CDSN moves away from a push to a pull by the consumers' demand environment by using real time sales information, which provides better responsiveness to consumer demands. P&G is aiming to improve its on-shelf availability and target customer satisfaction at the retail shelf.

7.5 Supply-Side Business Processes

P&G produces its 300 brands in 114 plants in 42 countries around the world. In 2004, P&G purchased more than $25 billion in materials and services to manufacture and market its products. Although the company is shifting towards a more global approach of acquiring materials and services, most plants acquire a majority of their raw materials within those regions where they manufacture its products. Smock [37] describes that P&G considers the following elements when they think about how it the company buys and how purchasing should be positioned within the company:

1. advanced information technology tools
2. a high level of training for all purchasing professionals
3. increased teaming between buyers and corporate research

4. growing efforts to build spend pool leverage across business units.

An electronic expressive bidding tool gives suppliers the power to change economic order quantities, product bundling, delivery routes and timing, or other variables. In the Beauty Care and Fabric & Home Care division alone there are more than 300 materials to be ordered from a number of suppliers. In order to coordinate the enormously complicated ordering patterns, P&G uses "the expressive bidding tool, developed by Pittsburgh-based CombineNet, allows suppliers to designate economic order quantities and lotting based on optimization of their price structures, production system and inventory management [58]."

P&G uses a number of different information technology tools to support its supply side business. One example of these is a desktop tool called Navigator. This allows the employees to view and manage quotes and proposals (developed through Procuri and CombineNet systems), transactions (from the SAP ERP backbone), planning (through its own material price forecasting system), and specifications. P&G uses Procuri's software broadly to collect data from its supply base.

Traditionally, manufacturers relied on the purchasing department to squeeze suppliers to get the parts or ingredients at the lowest cost. However, with global competition and the introduction of just-in-time manufacturing, sourcing has become more strategic. Rather than focusing on the lowest cost, P&G is focusing on building strategic partnerships with suppliers that could deliver, design, and produce high quality critical components. [39]

7.6 Inside Business Processes

About 10% of P&G's production is done through third-party manufacturers, and the rest is produced or assembled in P&G-owned facilities around the world. Compared to the 9% rate in 2001, the percentage of outsourcing has slightly increased, and they continue to evaluate opportunities to work with third-party production facilities.

In 1994, P&G launched the Streamlined Logistics program, which reorganized the highly complex and fragmented company structure into a single operating model. Due to the numerous mergers and acquisitions over time, many business segments were operated under different sets of requirements and measurements, causing unnecessary complexity in the system. All of the five business units had separate pricing and promotion strategies. Since each of the operating groups was managed separately, orders were not consolidated, and a single customer would often see more than one P&G delivery truck a day. Products from different operating groups would be delivered in different trucks with different invoices, building up unnecessary ordering cost and lower customer satisfaction.

Streamlined Logistics I (SL1) simplified pricing, standardized ordering, and reduced invoices and system errors for P&G and its customers by working with its channel partners. Another area P&G worked on during its SL I project was the implementation of a new distribution system. Under this new distribution system, all customers bought and received all P&G products through one point of contact and a single truck, rather than going through a number of different sales representatives for all the different P&G products and receiving several trucks at their loading dock each day. [40]

P&G still does forecasting, but with the consumer driven supply network (CDSN) and other ways to measure real consumer demand, forecasts no longer trigger the production. The concept of CDSN enables the act of a consumer buying a product to trigger the information flow throughout the entire supply chain. CDSN replaces unreliable forecasts with real time purchasing information and sends relevant data to all network partners, including stores, warehouses, retailers, manufacturers, and suppliers. P&G is reducing its cycle time and improving its production capability to produce any SKU, on any given day, which means it will no longer produce long runs of a single product. They used to believe longer production runs would increase efficiency, but now they realize it causes the inventory build up of products that are actually not needed. This also made it harder to reschedule its production schedule in order to produce products that were out of stock. Their goal is to have the ability to produce every item every day, but currently they are close to every item every week, which is a huge improvement from the previous monthly production of every item.

The manufacturing team evaluates the production plans daily, rather than the previous way of planning long production cycles, which created unnecessary inventory throughout the entire supply network. As the company improved its visibility within the company network, as well as its supply network, P&G is able to constantly communicate with its manufacturing plants to revise its site planning, supplier planning, and material delivery schedules. CDSN improves manufacturing flexibility and cycle response, and allows P&G to integrate its suppliers based on demand and provide speed and reliability of the supply system.

Pierce [41] explains that P&G uses a simulation-software called the Bottle Optimization Weight System (BOWS) to determine the best structural package design, using the least amount of plastic and other raw material. Through simulations, BOWS enables a package design team to accelerate the package design development process and meet the package strength requirements before actual production happens. Once the system determines the right material that meets the requirements generated, the team searches for the supplier with the ability to produce the containers.

P&G works with a number of different logistics partners to transport its raw materials and finished goods around the world. P&G endorsed DHL as a primary carrier both domestically and internationally, covering more than 37 different countries where P&G has operations. [42] DHL and P&G collaborate by aligning their management teams and business units globally. This collaboration enabled P&G to reduce transportation and logistics costs, improved customer service, and better supply chain visibility. With more than 600 drivers involved, Schneider National runs dedicated operations for P&G. Schneider also provides coordinated inter-modal services as well as its expertise trucking services.

Starting from its operations of an on-site distribution center for Procter & Gamble, Tibbett & Britten has a strong relationship with P&G by supporting warehouses at four manufacturing sites, two satellite warehouses and a regional distribution center that handles 2000 SKUs. Tibbett & Britten receives and stores raw materials until they are delivered to P&G for production. PBB Global Logistics services the North American region for P&G, providing them with customs brokerage, freight forwarding, and some transportation management for machinery and capital goods.

P&G has a contractual agreement with Jones Lang LaSalle Inc., who provides facilities management and project management services. Jones Lang LaSalle is in charge of strategic facilities planning, property management, remodeling and furnishing, and employee convenience services.

7.7 Customer-Side Business Process Initiatives

7.7.1 Continuous Replenishment (CRP) and Electronic Data Interchange (EDI) [43]

In 1985, P&G worked with a moderate-sized grocery chain to test the concept of using the retailer's daily data for replenishment ordering. P&G used electronic data interchange (EDI) for reliable capture of the customer's daily sales and to transmit the retailer's data to P&G which was used to determine the quantity of products to be shipped to retailer's warehouse. This was a "just-in-time" concept of supplying products down the pipeline. This enabled P&G to provide sufficient safety stock, minimize total logistics cost and eliminate excess inventory in the retailer's warehouse. In 1986, P&G worked with a larger mass merchandiser to revolutionize its diaper order and distribution processes. P&G received warehouse order data from the customer and determined appropriate warehouse replenish volumes.

This new replenishment process brought significant benefits to the overall supply chain. Retail prices were lowered due to lower logistics cost, which in turn increased sales. Inventory at customer's warehouses were reduced and customer service was improved due to greater product availability. However, though the CRP and EDI were heading in the right direction, with the right concepts in mind, P&G's management realized they could not result in the desired supply chain efficiencies by themselves, but needed the support of other players in the supply chain, as well as its competitors. This led to the Efficient Consumer Response strategy.

7.7.2 Efficient Consumer Response [44]

P&G's active practice of ECR set the standards for the continuous replenishment system and helped initiate just-in-time deliveries and computerized inventory management systems. In 1993, the Food Marketing Institute and the Grocery Manufacturers of America formed the Join Industry Committee to restructure supply chains and improve customer service. As P&G played a leading role in this committee, due to the prior experiences in continuous replenishment, the committee launched the Efficient Consumer Response (ECR) project to focus on the four E's:

1. *Efficient assortment*, to focus on reducing the number of SKUs, while maintaining the optimal product assortment to meet consumer's demand.
2. *Efficient product introductions*, to use market research and geo-demographic information to make better decisions about new-product development.
3. *Efficient promotion,* to maintain stable and predictable pricing and discourage special promotions to improve efficiency in the supply chain and build consumer's brand loyalty.
4. *Efficient (continuous) replenishment*, to shift to just-in-time inventory management.

7.7.3 Category Management [45]

In the late 1980's, P&G introduced the concept of category managers within the company, in order to eliminate unnecessary SKUs and simplify and standardize product lines. This avoids conflicts between similar branded products to compete for a single shelf space or other resources on the retailer's floors, and enables a single manager to evaluate all brands under a single category and eliminate the weaker brands. However, in the early 1990's, the number of SKUs remained about the same, as new SKUs were added as new products and innovative product extensions. This offered greater choice of products that met consumers needs better and eliminated unnecessary duplication of products that only differed in labeling or packaging.

7.7.4 Order Processes [46]

In 1987, P&G implemented a new ordering, shipping, and billing (OSB) system, that integrated all pricing, ordering shipping, invoicing and credit system activities related to serving channel customers. In order to use this new ordering system efficiently, P&G developed a common database for product pricing and product specifications. This allowed P&G to electronically provide data to the customer's own system. The ordering process benefited the customer teams by enabling them to focus on providing better service and marketing new products rather than spending time on unproductive order processes. This change in order processes reduced invoice deductions as well as costs throughout the entire ordering process.

In order to support this order process change, a simplified pricing structure was implemented: the value-pricing program. By implementing a value pricing strategy it allowed P&G to eliminate unnecessary inventory in the channel created due to retailers forward-ordering, caused by the typical promotion pricing issues. Historically, P&G provided incentives and periodic cash discounts to its retailers in order to increase the purchasing of their brands, while continuing to maintain high prices. However, by implementing value pricing, P&G provides low prices everyday, eliminating the need for promotional pricing.

Temporary price reductions or special promotions are only allowed to respond to significant competitive threats to P&G brands, and they have to be approved by the VP of Operations. When value pricing was first implemented, the sales were lower, due to the elimination of promotions, but overall, this brought stronger profit and better positioning to serve the brand-loyal customers more effectively.

7.7.5 Streamlined Logistics II [47]

P&G encouraged its customers to create a "Streamlined Logistics Price," a price that is around half a margin point lower than previous best prices, in order to take out non-value added costs from the supply chain. The main focus of SL II was to encourage customers to adopt best practices and improve the entire supply chain, while SL I was mainly focused on P&G's internal supply chain and its improvements. P&G focused on improving the delivery process in terms of delivery turnaround times, on-time customer pickup, and electronic purchase orders and invoicing. By 1999, more than 80 percent of P&G's volume had shifted to the Streamlined Logistics Price, and the majority of its orders and invoices are handled electronically.

7.7.6 Streamlined '97 [48]

The third part of the streamlined supply chain initiatives focused on the damaged merchandise in the supply chain. In 1996, P&G found more than eighteen million of its products were damaged in the supply chain, which would all be sent to the reclamation center to be counted for, in the existing practice. However, P&G developed a Logistics Development Incentive, which "replaced the old item-by-item damage inspection programs with flat-rate compensation to retailer customers. Compensation rate is based on statistical audits of the shipping and delivery processes from P&G's plants to the customer's distribution centers and on to the retail shelf."

7.7.7 Customer Business Development Teams [49 &50]

The Customer Business Development Team (CBD) is a cross-functional team from sales, product supply, marketing, finance, and systems designed to serve a single major customer. Started as a partnership relationship with Wal-Mart, Procter & Gamble now has more than 80 CBD teams to serve its most strategic customers. This allows P&G to face the customers as a single company, regardless of the business sectors. These teams enable customers to grow profitably in P&G's product categories by satisfying consumer demands more effectively. Instead of the traditional view of a win-lose relationship with the customers, they took a win-win approach to both drive out non-value added activities and processes from the supply chain.

7.7.8 Consumer-Driven Supply Network (CDSN)

P&G's Consumer-Driven Supply Network changes the view of supply chain. It considers the chain as a network rather than the linear image of a chain. It is designed to be flexible and demand based, and the network is driven by the consumers, rather than the manufacturer. CDSN encompasses all the previous initiatives that worked for Procter & Gamble. With CDSN, the replenishment of P&G's distribution centers and customer shelves are driven by POS information and P&G store-level visibility. Through the collaborative planning processes with its customers, P&G schedules a four week planning map to collaborate on event planning and improve its capacity planning accordingly. This capacity planning is more effective as it is based on real consumption rather than on a blind forecast.

By establishing a consumer-driven supply network, P&G is able to deliver an increased innovation rhythm, drive affordable products, and get flexibility of response to the market[51]. P&G is planning to integrate the business strategy with its supply network operating strategies, and hoping to reduce supply chain time and drive out inventory and costs by improving its supply network. It is hoping to understand consumer demand in the store and collaborate with its customers to plan key merchandising activities, or "events." The company is able to keep track of its out of stock levels, as they focus on working as a network with its retailers and focus on consumer buying patterns. Collecting this data is relatively easy with the development of information technology and bar code scanners. However, the real challenge is to have a good information system that transfers real-time sales data throughout the entire organization and reliable planning tools to update the systems rapidly.

Focusing on profit rather than cost forced managers to follow counterintuitive management rules to improve the overall performance of the supply network. For example, an agent-based computer modeling simulation might suggest that in some cases it is more advantageous to ship a less than full truck load in order to reduce the frequency of in-store stock-outs, even though this may result in higher transportation costs. This would be counterintuitive to a manager before implementing CDSN. Changing the mentality of managers and letting them understand where the real value comes from may have been one of the hardest aspects of managing P&G's supply chain.

7.7.9 Returns and Recycle Management

In 1997, P&G started paying retailers to dispose of unsold products at their site. This is comparable to the previous process of retailers shipping small amounts of unsold products to reclamation centers for reimbursement [52]. In order to reduce damaged goods and refused deliveries, P&G works with Universal Solutions, a manufacturer agent for processing unsaleable and returned products, to improve packaging design and quality, and transportation and shipping processes. They were awarded the 2004 Unsaleables Innovation Award for this joint project, and have seen more than 50 percent reduction in internal P&G quality incidents, since the implementation of the project.

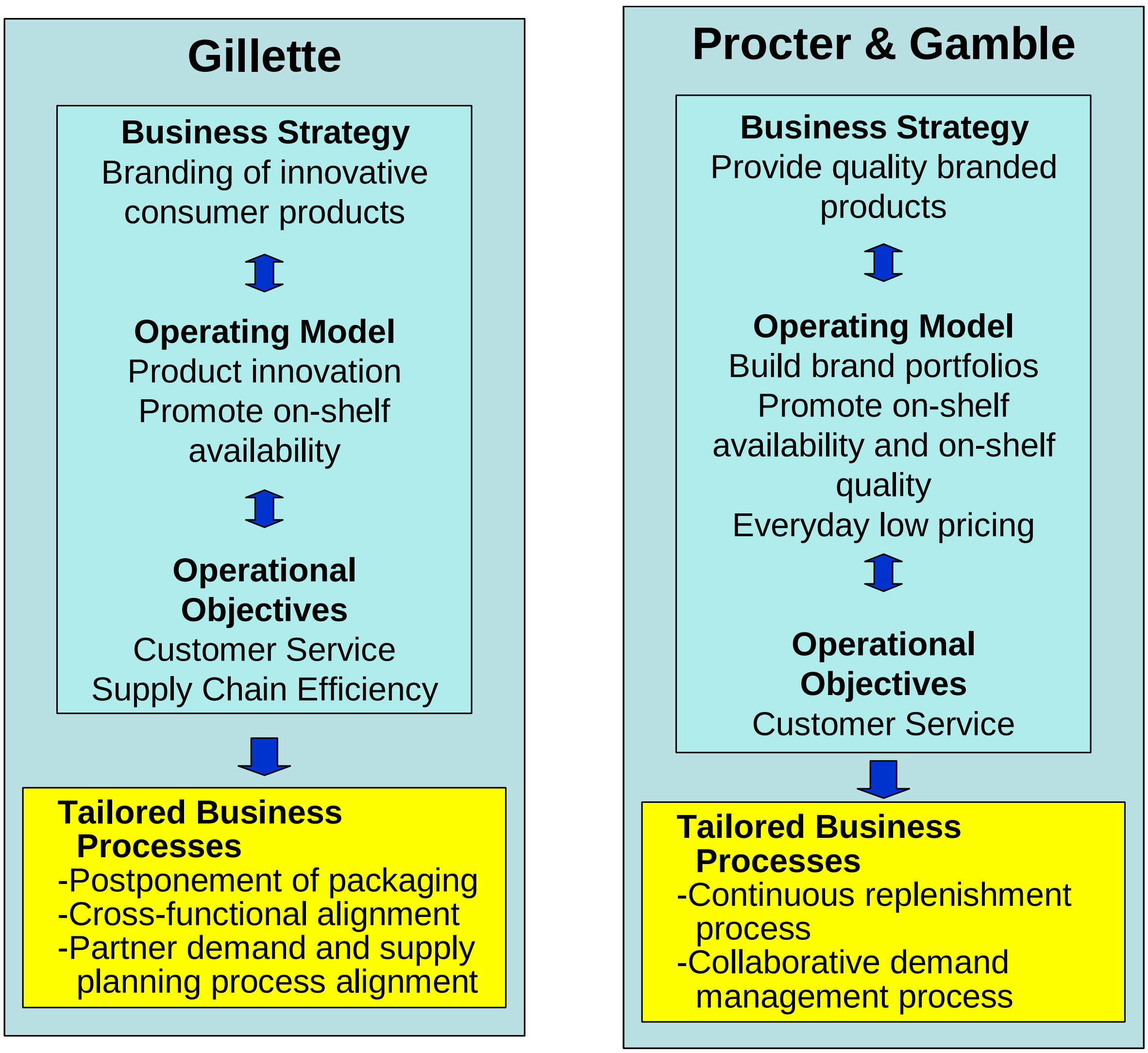
7.8 Supply Chain Challenges

"The goal for P&G is to move to a single, integrated system from store scanner back to the supplier." Although they do not have data at the shelf level, they are constantly comparing their forecast to the actual selling data, by reading demand. Their ultimate challenge is to become a truly demand-driven system, rather than a forecast-driven system. It is also important to align the entire organization to constantly focus on meeting the "first and second moments of truth" in whatever business processes they are working on. Another challenge for P&G's supply chain management group may be change management, more specifically, changing the way people think about supply chain management. Getting people to think about throughput rather than inventory, or profit rather than cost is going to take time.

Chapter 8 – Supply Chain Framework

This final chapter of the paper ties together each of P&G and Gillette's business strategy, operating model, and operational objectives into the SC2020 Project's framework. It then discusses the link between the tailored business practices and the operating model. Figure 17 below illustrates the framework for Procter & Gamble and Gillette that correlates the business strategy, operating model, and operational objectives to the tailored business practices.

Figure 17: Gillette and P&G Framework



8.1 Gillette's Business Strategy and Complementary Operating Model

Gillette's business strategy is to "build total brand value by innovating to deliver consumer value and customer leadership faster, better, and more completely" than its competition. They continue to work on securing its world leader position in male grooming, female grooming, alkaline batteries, and manual and power toothbrushes, while improving the supply chain to be more effective and responsive. They continue to improve brand image and consumer values by developing leading-edge products, and the company stays competitive with its significant amount of expenditure spent on research and development to keep the stream of new products going. In order to support the strategy, Gillette keeps close attention and continuous communication with its consumers, retailers, and suppliers to meet the strategic goals each year.

Gillette operates as a supplier to retailers and wholesalers, selling through these channels. Gillette's manufacturing orders are made-to-forecast, and products are held as inventory in the supply warehouse until the distribution centers are in need of replenishment. The four distribution centers Gillette owns enable Gillette to consolidate and distribute its products throughout its distribution channels, and cover volatility and variability in demand and supply. Depending on the nature of the products, some products are produced by third party vendors. However, all razors and blades are manufactured in-house, while packaging of these products are outsourced and postponed until the customer's orders are made.

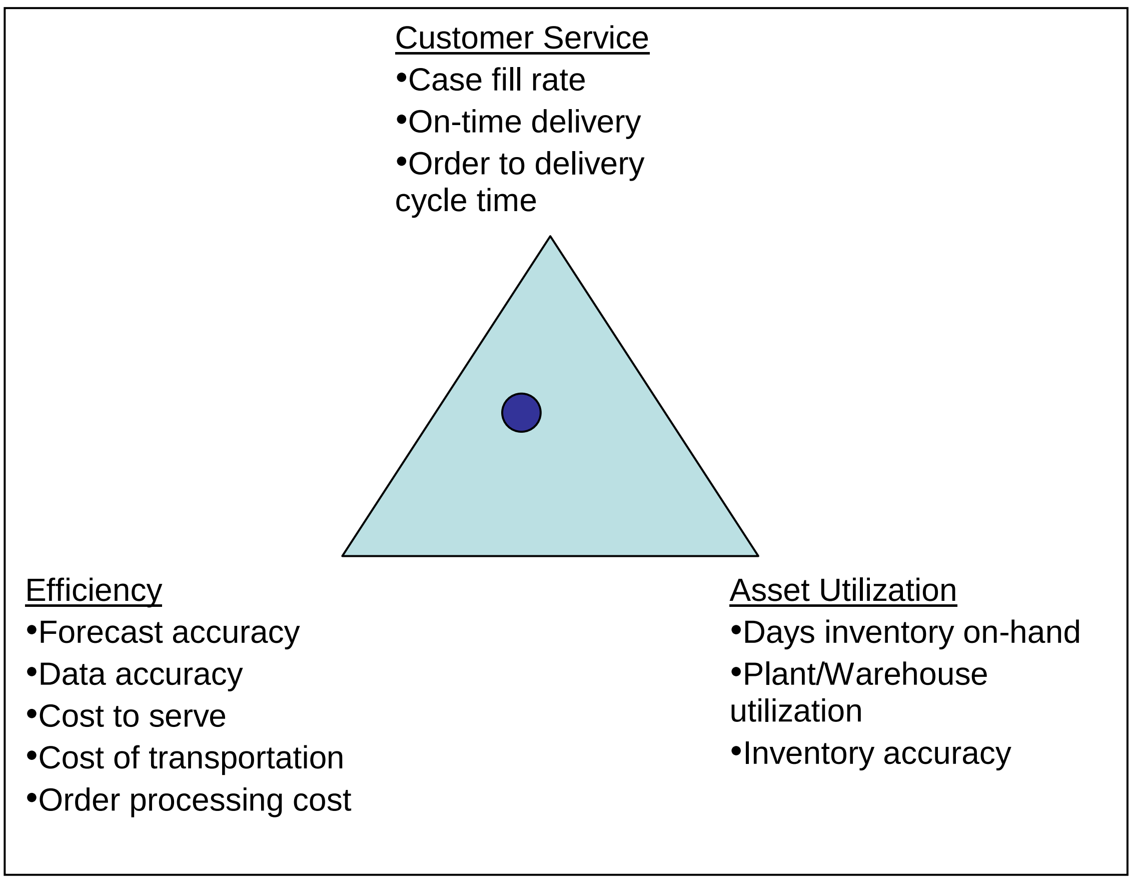
8.2 Gillette's Operational Objectives

Some major elements that Gillette's Value Chain organization focuses on are minimizing complexity, and improving demand and supply planning processes. However, even with the right objectives, without new performance metrics in place to support the operating model, the operational objectives will never be met. Without new performance metrics and compensation plans, employees will not change the way they work and continue to focus on tasks they are compensated for. Some of the new key performance indicators, which each business unit in each geographic location is in charge of balancing and improving each quarter, that were implemented under the new Value Chain organization are following:

Customer Service: - Case fill rate - On-time delivery - Order to delivery cycle time	Cost to Serve: - Warehousing, freight, order processing, cash application - Excess cost (promotional build out and logistics)
Working Capital: - Days inventory on-hand - Accounts receivable (DSO)	Functional Metrics: - Forecast accuracy - Inventory accuracy - Data accuracy

Gillette's Value Chain organization continues to work on balancing customer service, supply chain efficiency, and asset utilization, in order to support its business strategy of delivering goods faster, better, and more completely than its competitors. Figure 18 depicts the operational objectives of Gillette's interest.

Figure 18: Gillette's Operational Objectives



Although the business strategy seems to revolve around meeting customer service levels, only when supply chain efficiency and asset utilization are all balanced would Gillette be able to serve its customers effectively. Gillette is continuing to balance customer service levels, while keeping inventory low and the overall costs low, as the products served generate relatively low-margins. Since customer service level links directly with revenue and market shares level, customer service is one of the more important elements. To meet the customer service levels objectives, Gillette measures the case fill rate and on-time delivery rate to ensure that the shelves are in stock and available when the consumers choose the products on the retailer's floor. In order to be more responsive to changing demand and supply, Gillette also puts importance on forecast accuracy and other demand planning measurements. It does vendor-managed inventory and use point-of-sales data to plan its demand schedules. It is also constantly seeking opportunities to lower inventory in the entire supply chain, by effectively managing its various business processes.

8.3 Gillette's Tailored Business Processes

This section selects the packaging process, internal cross-functional alignment process, and demand and supply planning process alignment to take a closer look at those business processes. It will also explain how these processes link to the company's operating model and operational objectives to support the business strategy.

8.3.1 Postponement of Packaging

As Gillette decided the packaging process would not be one of its core competencies, the company made the decision to outsource its packaging to a third party packaging manufacturer, Sonoco Products Co. Once the products are produced at a Gillette's manufacturing site, they are brought to Sonoco's packaging facility, which is located adjacent to Gillette's distribution center. The close proximity allows Sonoco to be responsive to its customer's demand, as it is in charge of scheduling all the required supplies and managing associated inventories for Gillette. Postponement brought cost savings and created more flexibility in the supply chain, as "50 products can translate into 500 SKUs when the items are packaged differently [55]," and enables them to make the products customer-specific or geographic-specific. They can store only twenty pieces, which are held until the products are ready to be packaged. This supports the business strategy of providing a variety of SKUs and offering choices to the consumer.

This postponement benefits both parties with low inventory levels and faster turnaround times. Gillette ships the work-in-process inventory to a warehouse. The packaging partner will supply the raw materials in the pack center. Since Gillette leases the facility and owns the equipment, they are able to tightly integrate with its packaging suppliers and ensure that the suppliers respond quickly to changes in the company. This postponement strategy allows Gillette to be responsive and enables them to be more flexible by receiving continuous feedback from the supplier to improve existing capital and other business processes.

The weekly production and planning report given by Gillette allows Sonoco to plan its packing schedule and collaborate with its suppliers. The streamlined ordering cycle by its ERP systems enable Sonoco to arrange vendor managed inventory with its suppliers, as well.

8.3.2 Cross-functional Alignment Processes

In order for all the initiatives to work effectively and benefit the entire organization, it is crucial to have a checks-and-balances system, where all different functions work under one umbrella. Gillette organized the Global Value Chain organization to horizontally connect different functions. This helps Gillette to align its business strategy to its supply chain objectives. During its weekly review meetings, managers of all different divisions are informed about the progress of other groups and how their work is affecting the progression toward the common goals of the company. The Value Chain organization constantly balances its operational objective metrics of inventory, cost and service levels. It improved communication across all functions of the supply chain, and brought extra bargaining power by enabling Gillette to speak to the customers as one company, rather than five different business units.

Through the use of Manugistics and other software systems, Gillette has improved its visibility across the organization of all functions starting from demand to supply planning. By linking forecasting, manufacturing, sourcing, and a number of different processes, Gillette is able to serve its customers more effectively and reach its customer service levels within target cost and efficient use of resources. Merchant data allows them to predict sales by product lines and geographic regions, while internal data allows them to plan new product introduction or phase-out older products. This adds flexibility into the production system as Gillette now has visibility of the production schedule and inventory level controlled under one umbrella. Sharing master production data internally allows the company to reduce inventory levels and replenish products to meet customer service targets.

8.3.3 Partner Demand and Supply Planning Process Alignment

Addition to the internal alignment of processes mentioned in section 8.3.2, Gillette coordinates its planning processes with partners throughout the supply chain, including its suppliers and customers. By 2001, Gillette extended its ERP system to suppliers and customers to maximize leverage of information with its partners. Gillette expanded the linkage to the entire supply chain allowing decision makers to view information of its suppliers and customers, as well. This enterprise system enables Gillette to compare its forecast to the current order status, allowing them to plan effective promotional plans, packaging changes, or delivery methods, depending on the status of its orders. Similarly, retailers have more accurate information regarding its orders from Gillette and the replenishment level.

By segmenting its customers by the level of collaboration, size, and growth potential, Gillette puts importance on focusing its attention on the several key strategic customers. For example, supply chain teams are formed and sent near the Wal-Mart headquarters to work closely with the customer. This reduces the variability in demand and allows Gillette to receive more accurate demand information from a closer source, as they are able to directly look into the system. By forming these partnerships, Gillette is able to align the demand planning process with the supply planning process, and reach its customer service goals more efficiently. The supplier-retailer partnership is one of the most effective processes that support the company's key operational objectives of customer service and supply chain efficiency.

8.4 P&G's Business Strategy and Complementary Operating Model

Procter & Gamble's business strategy is to provide branded products and services of superior quality and value that improve the lives of the world's consumers. The company focuses on building existing core businesses into stronger global leaders, while continuously growing new portfolios of brands, developing innovative, higher-margin products, and establishing more asset-efficient businesses with leading brands around the world. P&G is a market leader in most sectors it operates in, and the main goal of all brands is to become the next billion dollar brand, with more than $1 billion annual sales. P&G currently has sixteen billion dollar brands.

P&G's products are distributed through retail and wholesale channels to reach its ultimate customers, the consumers. Most of the products are made-to-stock in the distribution centers until they are ordered and ready to be shipped to the customer's distribution centers or stores. With over hundred manufacturing plants and five different business units, P&G consolidates its outbound logistics to be distributed across its trade partners.

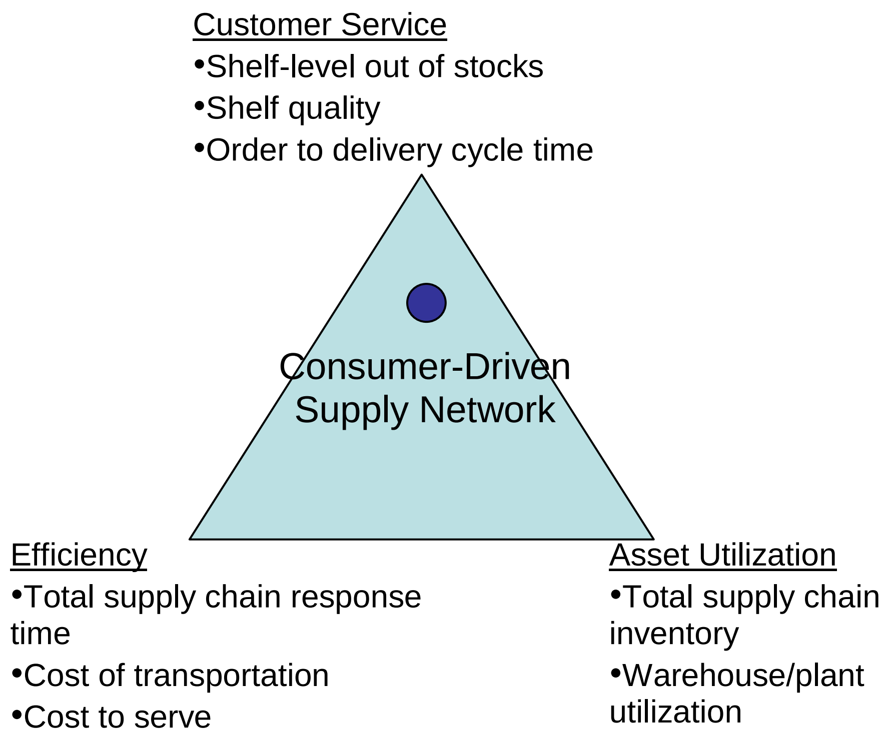
The global business units (GBUs) are responsible for manufacturing and marketing P&G's products, as well as overall business strategy and planning, brand development and management, R&D, Customer Business Development, IT, and product supply. The market development organizations (MDOs) are responsible for local marketing, market strategy and planning, and customer development. In a sense, MDOs are responsible for tailoring the companies' business to fit the local markets and retailers. The GBUs are grouped by businesses, while MDOs are grouped by geography. This allows P&G to be both local and global at the same time.

8.5 P&G's Operational Objectives

In order to maintain its brand image and win the consumer's demand, P&G focuses on winning two moments of truths. The first moment is the moment when the consumer chooses a product from the retailer's shelves, and the second moment of truth is when the consumer uses P&G's products. It is also important to note that if the first moment does not happen, the second moment will never happen. Therefore, P&G focuses on maintaining customer service levels through on-shelf availability and shelf quality that will win the consumer in both moments of truths. They are continuously balancing these key performance metrics to the traditional focus such as production quality and innovation, and customer (i.e. Wal-Mart or Target) order filling metrics. Even if the internal supply chain is flawless, without winning the consumers at the retail space P&G's business fails, and therefore, the company has extended its supply chain focus to the retailers' floor, as well. The retailer-supplier collaboration has enabled P&G to visualize its demand in real-time, which in turn allows them to optimize production schedules.

P&G's "Consumer-Driven Supply Network" shifts the company's focus from applying a cost mentality in managing the supply chain to serving the consumers. CDSN is different from the past supply chain strategy that it puts the consumer first, and it considers the supply chain as a network rather than a chain. [57] The company is shifting from concentrating on the supplier, the cost side of the equation, to concentrating on the consumers, the revenue and profit side of the equation. The new concept of a supply network will take advantage of real time data and have all players in the network work together to add value to the consumers.

Figure 19: P&G's Operational Objectives



In order to effectively change the organization to start focusing on responding to customers demand, rather than pushing products to the market, the appropriate metrics need to be implemented. No matter what kind of system and organization are in place to improve the supply chain, without the appropriate performance measurements, employees will not change the way they do their everyday tasks, and focus on what they are rewarded for. Some important key performance metrics P&G implemented are [58]:

1. Shelf-level out of stocks: The percentage of products that are out of stock on retailers' shelves at any given time. P&G has cut this to 5% from 10%.
2. Total supply chain response time: the time from when a cash register records the sale of a product to the purchase of raw materials to produce its replacement. P&G wants to cut this in half from 100 days to 50 days.

3. Total supply chain inventory: the hard count of all products flowing through the supply chain at any given moment, including store shelves, back of the store, warehouses, or in trucks.

4. Shelf-level quality: the percentage of packages damaged or otherwise unappealing when a customer sees them on a store shelf. Goal: zero

5. Pricing-design from the shelf back: determining an acceptable price point for an item and then working it back through manufacturing and distribution to see if that product can be delivered at a price acceptable to consumers and a profit acceptable to P&G.

8.6 P&G's Tailored Business Processes

8.6.1 Continuous Replenishment Process

In order to enhance the customer service level, P&G implemented a continuous replenishment process, which was enabled by value pricing and other continuous replenishment process initiatives. P&G shifted from the traditional promotional push tactics to everyday low prices, to maximize the pull from consumers. This prevents variation in demand, caused by the variation in consumer demand due to store promotions, and variation in manufacturer demand due to forward-buying. In order to improve quality in the ordering process, the complexity in the process of pricing had to be eliminated. The simple and stable pricing structure made it easier for customers to adapt continuous replenishment processes.

Frequent and complex promotions were hurting the P&G brand and customer loyalty, as well. Promotions only affected those few customers who were highly price sensitive and negatively impacted the brand-loyal customers. Therefore, value pricing increased brand loyalty, one of the company's most important business strategies. Additionally, this system encouraged retailers to adopt CRP systems, which improved the supply chain efficiencies and in turn reduced inventory levels. The large fluctuation in demand forced P&G to stockpile large inventories, and the inefficiencies complicated scheduling and increased manufacturing and logistics costs. Therefore, the improved replenishment process allows P&G to eliminate inefficiencies in the supply chain and improve consumer's brand loyalty. The combination of customer loyalty and improved channel efficiency and relationships enabled P&G to deliver better branded products to its consumers by increasing market share and decreasing the costs to serve every channel in the supply chain.

8.6.2 Collaborative Demand Management Process

One of the most important enablers of the P&G exceptional demand fulfillment process is the close relationship P&G has with its customers. P&G was the pioneer of building strategic supplier-retailer relationship. The company started working with Wal-Mart, by forming a customer team focusing on a single account. This later led to the establishment of its Customer Business Development teams. The cross-functional team is located in most of P&G's major customers' headquarters to serve their ultimate customers – the consumers. Instead of the traditional one point communication between the sales representative and store buyer, P&G takes a team approach where functional specialists meet directly with their counterparts from the customers' side. Understanding that both retailers and vendors are serving the same customer, and that their ultimate goals to provide better value for the consumers, help build a cooperative relationship.

During the planning process, P&G communicates with its retail partners about their merchandising plans. This reduces the number of unexpected events, in return reducing the number of stock-outs in the stores. As the company works closer with its customers, the planning teams are shifting from a forecast based planning to a response-to-demand planning. In order to respond to customer demand quickly, there are many aspects of the business that need to be tightly intertwined. Point-of-sale data must be entered into the purchase-order systems, and this triggers the procurement program. This then passes information down to the suppliers, which provides the raw materials for manufacturing. This tight integration, in a sense, allows CPG companies to replace inventory with information from customers and vendors. This also enables companies to quickly react to events of unforeseen customer orders, and passes the data onto the every player down the supply chain.

P&G does co-managed inventory, where P&G works together with the retailer to reach appropriate inventory levels. This benefits the customers by lowering the inventory level at the customer's warehouse and reducing the risk of unsold inventory, while P&G benefits by attaining real demand and inventory level information, which allows them to plan and schedule production and distribution, and better utilize their capacity. This significantly reduces the risk of stock-outs at the customers' sites, and in turn, increases the loyalty and ultimately yields loyalty on the consumer end.

8.7 Gillette vs. P&G

Gillette and P&G are both market leaders of most of the business categories they operate in, and both very strong players in the consumer packaged goods industry. As seen in Figure 17, Gillette and Procter & Gamble have very similar business strategies, operating models, and operational objectives, and these are supported by similar business processes, as well. Both companies are both looking to provide quality branded products that meet the consumers' demand and promote on-shelf availability, to be present when the consumer is choosing their products in front of the shelves at a store. However, Gillette's business strategy focuses more on providing leading edge, innovative technology to its consumers through continuous research and development, while Procter & Gamble provide an endless number of products and brands to target its consumers. P&G focuses on building brand portfolios and product extensions by providing a variety of SKUs and promoting on-shelf availability and on-shelf quality. Due to the enormous market power and size of its operations, P&G seems to be more focused on providing customer service and winning their consumers' loyalty more so than Gillette seems to be. In addition to its focus on providing excellent customer service, Gillette considers supply chain efficiency as a high priority as well, by continuously improving inventory levels at its warehouses and reducing cost. Although both companies are manufacturing products to be consumed in our everyday lives, Gillette and Procter & Gamble both have similar yet different business strategies and operating objectives. Therefore, the merger of these two companies – the power house of branding and marketing vs. the power house of innovative technology – is worth closely following to see how they can enhance and support each other's businesses in the future.

References

[1] Supply Chain 2020 Project Industry Advisory Council (IAC) Webcast, September 15, 2004.

[2] Lapide, Larry and Shen, Ting. "Proceedings of the Supply Chain 2020 Project's European Advisory Council Kickoff Meeting." MIT Supply Chain 2020, Sep. 8, 2004.

[3] Porter, Michael E. "What is Strategy?" Harvard Business Review, Nov-Dec 1996.

[4] Hammer, Michael. "Deep Change: How Operational Innovation Can Transform Your Company." Harvard Business Review, April 2004.

[5] Fisher, Marshall. "What is the Right Supply Chain for your Product?" Harvard Business Review, March – April, 1997.

[6] Drayer, Ralph. "Procter & Gamble's Streamlined Logistics Initiatives." Supply Chain Management Review. Summer 1999.

[7, 9, 11] Martin, Roddy. "Shifting to a Demand-Driven Agenda." 2004 Tech Trends Report. Consumer Goods Technology/AMR Research, Oct 2004.

[8] Anonymous. "CPG Companies Focus On Demand Planning, Trade Promotions." CPG Vertical, Oct. 2003.

[12, 13] Simchi-Levi, David. Kaminsky, Philip. Simchi-Levi, Edith. Designing and Managing the Supply Chain, 2000.

[14] Stelzer, John L. "Data Synchronization: What is Bad Data Costing Your Company?" Sterling Commerce, Inc. 2001

[15] "Distribution Center Replenishment Collaboration." Uniform Code Council, Inc. and Voluntary Interindustry Commerce Standards (VICS) Association, Feb 5, 2005.

[16] Waller, Matt. "Vendor-managed Inventory in the Retail Supply Chain." Journal of Business Logistics, 1999

[17, 33, 35] "Industry Surveys: Household Nondurables." Standard & Poor's, Jun 17, 2004.

[18] Briney, Claire. "State of the Industry." Global Cosmetic Industry. New York, Jun 2004. Vol 172. Iss 6, pg 26.

[19] 2004 US Census Bureau.

[20] Hoover's Gillette Company Report.

[21, 23] "Deodorants in the USA." Euromonitor, June 2004.

[22] Klepak, Philip. "The Antiperspirant/Deodorant Market Stays High and Dry." Global Cosmetic Industry: Nov 1999, 165, 5; ABI/INFORM Global pg. 24

[24] Maloney, David. "Gillette Ramps up for Flow-Thru Production." Modern Materials Handling. July 1, 1999.

[25] Anonymous. "Partnership in the Supply Chain." (www.fefco.org/index.php?id=82)

[26] Trbilcock, Bob. "Finding the Comfort Zone." Modern Materials Handling. Jun 1, 2002.

[27, 28, 44, 50] Dyer, Davis, and Dalzell, Frederick. Rising Tide: Lessons from 165 Years of Brand Building at Procter and Gamble. Harvard Business School Press, 2004.

[29] Hoover's Company Report: Procter & Gamble

[30] "Textile Washing Products in the USA: Laundry Care." Major Market Profile. Euromonitor. Jun 2004.

[31] "Haircare in the USA." Euromonitor. Jun 2004.

[32] "US Market for Disposable Paper Products." Euromonitor, Aug 2001.

[34] "Disposable Paper Products USA." Euromonitor's Market Share & Performance Indicators. "Household Nondurables." Standard & Poor's Industry Survey. Jun 17, 2004.

[36] Pet Foods and Accessories in the USA." Euromonitor's Market Report. Jun 2004.

[37, 38, 58] Smock, Doug. "P&G Boots Leverage." Purchasing. Boston, Nov 4, 2004. Vol 133, Iss. 18. pg 40.

[39] Johnson, Bradley. "Procurement: Get Use to It." Advertising Age. Chicago, Sep 29, 2003. Vol 74, Iss 39. pg 1.

[40, 47, 48, 49] Drayer, Ralph. "Procter & Gamble's Streamlined Logistics Initiatives." Supply Chain Management Review. Summer 1999.

[41] Pierce, Lisa M. "Customer Software Helps P&G Cut Container Weight." Food & Drug Packaging. March, 2002.

[42] Bernstein, Mark and Sowinski, Lara. "Supplier Profiles: World-Class Logistics Partners Keep the P&G Supply Chain in Top Form." World Trade Magazine, May 2004.

[43] Clark, Theodore. ""Procter & Gamble: Improving Consumer Value Through Process Redesign." Harvard Business School Case, Mar 31, 1995.

[45, 46] Clark, Theodore. “”Procter & Gamble: Improving Consumer Value Through Process Redesign.” Harvard Business School Case, Mar 31, 1995.

[51] Ciccone, Rick. “Supply Network Operations.” MIT CTL Crossroads Conference Presentation. Mar 1, 2005.

[52] Reese, Shelly. “New P&G Policy Marks Major Shift in Returns of Unsaleable Products.” Stores. New York, Jun 1997. Vol. 79. Iss. 6; pg. 39.

[53] Anonymous. “P&G and USI Win Unsaleables Innovation Award.” Supply & Demand Chain Executive. Jul 28, 2004.

[54] World Trade’s Manufacturer of the Year in Global Logistics.”

[55] Cottrill, Ken. “Cutting Edge.” Traffic World.
Anonymous. “Gillette Sharpens Collaborations.” Industry Week: Aug 13, 2001. 250, 11.

[56] Kallam, Larry. “P&G Rethinks Supply Chain.” Optimize. Oct 2003. pg. 35-37.

[57] Barreett, Larry and Steinert-Threlkeld, Tom. “Procter & Gamble: Delivering Goods.” Baseline. Jul 2004.

Anderson, Zelda. Company Interview, Apr 14, 2005.

Asgekar, Vinay. “The Demand Driven Supply Network.” Supply Chain Management Review. New York: Apr 2004. Vol 8, Iss. 3; pg 15.

Bradley, Stephanie. Company Interview, Apr 14, 2005.

Chiles, Colby R. and Dau, Marguarette T. “An Analysis of Current Supply Chain Best Practices in the Retail Industry with Case Studies of Wal-Mart and Amazon.com.” MIT Thesis, Jun 2005.

DeWilde, Jeroen. Industry Expert Interview, Jan 11, 2005.

Duffy, Mike. “How Gillette Cleans Up Its Supply Chain.” Supply Chain Management Review. New York: Apr 2004. Vol. 8, Iss. 3, p. 20-27.

Duffy, Mike. Company Interview, Feb 4, 2005.

Harris, Carol. Company Interview, Apr 14, 2005.

Lapide, Larry. “Supply Chain 2020 Project – Phase I: Excellent Supply Chains.” July 2004.

Laucka, Karen. Industry Expert Interview, Mar 3, 2005.

Gillette Company. 2004 Annual Report.

McKibben, Gordon. Cutting Edge: Gillette's Journey to Global Leadership. Harvard Business School Press, 1997.

Poirier, Charles C. The Supply Chain Manager's Problem-Solver. St. Lucie Press, 2002.
Swasy, Alecia. Soap Opera: the Inside Story of Procter & Gamble. Simon & Schuster, 1994.

Poirier, Charles C. Using Models to Improve the Supply Chain. St. Lucie Press, 2000.

Procter & Gamble. 2004 Annual Report.

Wehring, Bill. Company Interview, Apr 14, 2005.