Logistics Organization Structures and Corporate Strategy

by

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B.S. Chemical Engineering
University of the Philippines (1995)

Submitted to the Department of Civil and Environmental Engineering in partial fulfillment of the requirements for the degree of Master of Science in Transportation

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

September 1997

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Abstract

This thesis is a study of the link between logistics organization structures and corporate strategy, including corporate organization.

To analyze the link between the three topics, frameworks for analysis were developed for each. Corporate strategy was divided into three types: cost leadership, differentiation, and focus. Corporate organization structures were divided into two frameworks: amount of decentralization and types of structures (functional, product, area, and matrix). Seven logistics organization structures were discussed: traditional, functional, program, matrix, channel management, partnership and third-part or contract logistics.

Four basic hypotheses on the organizational fit between the three topics were discussed: the fit between logistics and corporate organization structures, and the fit between the logistics organization structure and each of the three strategic options.

The hypotheses were tested, covering all strategic options, through five case studies of firms engaged in different industries. The evidence from the cases support all of the hypotheses.

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Acknowledgments

Many persons have contributed to the completion of this thesis. Throughout the thesis process I have benefited from their support and insights. It is my pleasure to acknowledge their contribution to this work:

- My thesis advisor, Yossi Sheffi, for his support and insightful comments into the research process and the logistics field,
- Prof. Peter Klaus of the Friedrich-Alexander University at Erlangen-Nuremberg, Germany, for aiding me in developing the framework for this thesis and always being ready to provide valuable feedback,
- All of the interviewees: Kathleen Strange of Staples, John Faldetta of Gillette, Dr. Abbott Weiss of Polaroid, Anthony Olender of Lucent, and Donald Cameron of Bose -- without whom this thesis would not have been possible.
- Jim Rice for introducing me to this wonderful field and aiding me with my case analysis,
- Jonathan Byrnes for laying the groundwork for this thesis both inside and outside the classroom,
- The many faculty and students at the Center for Transportation Studies for making this work and my studies at MIT truly enjoyable.

Finally, I would like to thank my family and friends, and especially Christine, for all of their continual support, understanding, and encouragement.
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1.0 Introduction

1.1 The Problem

This thesis analyzes the link between logistics organization structures and corporate strategy. Inseparable from these two is the organization structure of the corporation as a whole. Scholars have already established a link between corporate strategy and corporate structure. A classic book on organization design by Alfred Chandler [1962], Strategy and Structure, discusses this link. Since that time the literature has discussed the notion of a “fit” between the logistics organization structure, and corporate strategy and structure. Still, this area of study has not yet been fully developed. A logistics organization has to complement and support the rest of the corporation to support the overall corporate goals. The relationship between the logistics organization and the corporate structure is the subject of this thesis.

Within this thesis the two aspects of corporate strategy and structure are taken as established parameters. Based on these parameters, an “optimum” type of logistics organization may be found. Through company interviews as well as examples from the literature, the “best” type of logistics organization is explored.

1.2 Definitions

The terms “corporate strategy” and “logistics organization structures” have no fixed, precise definitions, but some working definitions are proposed for use in this thesis. “Corporate strategy” is described by Porter as “a combination of the ends (goals) for which the firm is striving and the means (policies) by which it is seeking to get there” [Porter 1980, xvi].

Most commonly, “logistics” encompasses the fields of inbound transportation, materials management, and outbound distribution (or physical distribution management). “Organization structures” are arrangements that determine the assignment of tasks to people and groups to achieve a common goal. Therefore, a “logistics organization structure” is a sub-unit within an organization that controls the fields described above.

1.3 Motivation for the Study

Companies today are continually looking for new ways to get a competitive advantage in their respective environments. More and more companies consider logistics as a weapon for delivering that edge. Even if corporations do not see logistics as a core competency, the efficient operations of logistics can radically aid them, no matter what logistics strategy they choose to employ. Ideally, it does not matter how logistics is carried out,
much less how it is setup organizationally -- companies do not care about the method of getting results as long as they have these results. However, experience has shown that there is a strong link between the structure of a corporation and how efficiently it can operate. Many different people have wondered about how to get the best performance out of logistics through the creation of an effective logistics organization structure.

Galbraith [1986, 9] states that organization structure is a skeleton that allows for the movement of an organization. An ill-designed structure may function adequately, but a properly designed structure will act like a well-oiled machine. For example, take a corporation wherein logistics plays a very important role, such as a company that relies on the speedy delivery of its goods. If the logistics organization within this corporation is placed low in the hierarchy and in several conflicting departments, then it is safe to say that there is a “bad fit,” i.e., the way logistics is organized does not help in meeting the company’s overall goals. This thesis will look at what combinations of corporate strategy and structure and logistics organizations offer a “good fit.”

The organization structure is only one part of creating an efficient logistics process within an enterprise. Other factors are: incentive system; measurement system; information system; and senior management support. However, the organization structure is the key to creating efficient logistics.

“A good organization structure does not by itself produce good performance - just as a good constitution does not guarantee great presidents, or good laws, or a moral society. But a poor organization structure makes good performance impossible, no matter how good the individual managers may be. To improve organization structure...will therefore always improve performance.” [Drucker 1954, 225]

1.4 Methodology

To determine an optimum type of logistics organization for a company, three parameters are used: corporate strategy, corporate organization structure as a whole, and the logistics organization. As mentioned earlier, the first two are taken as “set” or given parameters, by which the logistics organization structure is optimized.

Before any analysis is made, each parameter is first discussed. Typical corporate strategies are reviewed in Chapter 2, Chapter 3 discusses the characteristic corporate organization structures, and Chapter 4 provides a review of the scope of logistics and the general ways of managing the logistics needs of a corporation.

Chapter 5 then establishes the possible combinations between these parameters. First, a description of the measurement criteria that determine whether there is a good fit between the different dimensions is given, followed by hypotheses about which type of logistics organization is better suited to a given mix of corporate strategy and structure.
Chapter 6 presents five actual organizations in case studies that test the hypotheses presented in the previous chapter. It is important to remember that real-world corporations do not fit into ideal classifications. With this in mind, certain aspects of these companies that do fit into the classifications are considered, in the hopes that meaningful and applicable insights may be generated from the analysis.

Chapter 7 enumerates the lessons learned from the case studies by revisiting the hypotheses and generating conclusions on the findings. The final chapter, Chapter 8, summarizes the entire thesis and presents recommendations for further study.
2.0 Corporate Strategy

This chapter discusses corporate strategy. First, the chapter discusses basic definitions of corporate strategy in order to better understand what it is. Second, the different levels of strategy within an organization are noted. Third, the goals that the strategy tries to achieve are described. Last, categorizations of the different strategy types are proposed, which will be used for the analysis of organizational fit.

2.1 Terminology

Strategy can be defined as follows:

Galbraith and Kazanjian point out that the word “strategy” originates from the Greek word for “art of the general,” and define the strategy as “the fundamental pattern of present and planned resource deployments and environmental interactions that indicate how the organizations will achieve its objectives” [Galbraith 1986, 3].

Chandler views strategy as “the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals” [Chandler 1989, 21].

Christensen gives an example of the Stanford Research Institute’s definition where strategy is the collection of ways in which the firm reacts to its environment, and deploys its resources in pursuit of its purpose [Christensen 1973].

Michael Porter defines strategy as the offensive or defensive position taken by a company to position itself within an industry and create a superior return on investment for the firm [Porter 1980, xvi].

Treacy and Wiersema, on the other hand, discuss strategy as a means to create customer value, which they have defined as the sum of benefits received minus the costs incurred by the customer in acquiring a product or service [Treacy 1995, 20].

These definitions all point out that strategy is a reaction to the environment, determining the position and course of action the company will take to attain its goals.

2.2 Goals of Corporate Strategy

A strategy for any organization is the means to attain a set of goals. When looking at what these goals may be, there seem to be four major ones that any strategy can and should address: profit, growth, flexibility, and social responsibility.
Profit reflects the need for an organization to make money for its long-term survival. Any firm that wants to survive must be able to pay for its expenses and give a healthy return on the investment. Otherwise, the opportunity costs for any investments in the firm are lost and the money is better placed in other ventures. Even non-profit organizations may have profit as a goal, because any money made over their expenses can be either reinvested into the organization or placed towards other goals of the firm (i.e., social responsibility).

E.D. Bowman [1973] argues that growth can be a substitute for profit. He argues that it is simpler to define and measure growth than profits, and growth is directly correlated with profit maximization. Many ventures will reinvest a portion of profits back into the firm to develop growth.

Flexibility is related to the finance theory of a company incurring risk-return tradeoffs. For instance, a risk-averse company will limit itself in terms of profits and growth. Ansoff [1965] distinguishes between external and internal flexibility. External flexibility tries to minimize the dependence on outside factors such as product, supplier, market, industry, technology, and country. Usually, diversification of a company will allow for maximum external flexibility. Internal flexibility, on the other hand, minimizes dependence on internal factors. Here, such items as choosing an appropriate structure, and financial checks, are looked at.

With regards to social responsibility, even if a corporation is setup expressly for the purpose of generating profit, and many are, there is no denying that a corporation, especially today, is part of a larger community. Although some corporations will not expressly state a social goal, they are constrained by their communities, nonetheless. One should note, however, that having a social responsibility does not necessarily contradict profit maximization goals [Bowman 1974].

2.3 Levels of Strategy

Strategy is not limited to the top level of corporate management. The basic levels of an enterprise are: corporate, division, and department/function. Vancil and Lorange [1975] use this breakdown and maintain that there are different strategies for each level. The differences between them lie in the scope. Corporate strategy is concerned with the portfolio of businesses of the company. Division strategy deals with just that single business. Functional strategy focuses on a single function. Each of these are clearly inter-related, and will generally influence each other from the top down: the corporate strategy is the basis for the division or business strategy, which in turn will generate the functional strategy.

For example, an audio equipment manufacturing corporation's overall strategy may be to generate profit by providing innovative products in the electronics field that no other
competitor in the marketplace can provide. One division's strategy may be to provide innovative consumer audio equipment while another's strategy focuses on designing and manufacturing professional audio equipment designed for buildings. At the functional level, the logistics department may support the overall corporate and division strategies with its own strategy of providing fast and reliable service, ensuring that the innovative products are available even if the logistics costs are not at a minimum.

As shown by the above example, there is also a link between the lower levels of strategy, because all are aligned towards achieving the same goals. Therefore, by transitivity, since logistics organization structure and corporate strategy are linked, there is also a link between the logistics strategy and the logistics organization structure. However, this thesis will focus mainly on corporate strategy as the main influencing factor in logistics organization structure.

2.4 Classifications of Strategy

There are few actual texts that deal with the classifications of strategies, although many abound in describing how to generate a strategy. Some of the texts that do classify strategies are mentioned below.

Chandler [1962] discussed four growth strategies: expansion of volume, geographic dispersion, vertical integration, and product diversification. Expansion of volume refers to increased sales within an existing market. Geographic dispersion is characterized by entry in geographically distinct markets with an existing product or service. Vertical integration, on the other hand, is the movement up and/or down the value chain through the absorption of supplier or buyer tasks. Lastly, product diversification is the development of new products or services.

Porter [1980] describes three generic strategies that are mutually exclusive. These are: overall cost leadership, differentiation, and focus.

Porter's framework will be used throughout the thesis. Even today, 15 years after he published his book on competitive strategy, most graduate business schools teach Porter as the first introduction to corporate strategy.

There are, of course, drawbacks to employing a simplistic framework such as Porter's. Most companies today will try to focus on providing a more detailed strategic intent than espoused by Porter. These detailed strategies, however, still fit within one of Porter's three strategy types.

New examples for Porter's strategies are added from Treacy and Wiersema, who generated a similar framework to Porter's (See Table 2.4.1 for a comparison.). The similarities between Porter's and Treacy and Wiersema's works are discussed to show how their examples may be used to illustrate Porter's framework. They saw that market
leaders fell into three basic strategic categories. These are product leadership, operational excellence, and customer intimacy. As Porter did, they contend that a successful company employs one of these three strategic choices while most mediocre companies try to emphasize more than one.

<table>
<thead>
<tr>
<th>Porter</th>
<th>Treacy and Wiersema</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost leadership</td>
<td>Operational excellence</td>
</tr>
<tr>
<td>• minimize costs subject to quality, service requirements</td>
<td>• low-price, quality, hassle-free products and services</td>
</tr>
<tr>
<td>Differentiation</td>
<td>Product leadership</td>
</tr>
<tr>
<td>• product/service uniqueness</td>
<td>• offer the latest product innovations</td>
</tr>
<tr>
<td>Focus</td>
<td>Customer intimacy</td>
</tr>
<tr>
<td>• focus on a particular market segment</td>
<td>• focus on a particular customer</td>
</tr>
</tbody>
</table>

Table 2.4.1 Comparison of the strategy classification frameworks of Porter and Treacy & Wiersema [Porter 1980 & Treacy 1995]

2.4.1 Overall Cost Leadership

The primary focus of this first strategy is to effectively implement efficient-scale processes, and measure and reduce costs as much as possible. Management’s attention is directed towards controlling costs. Maintaining the low-cost position relative to other competitors is paramount to this strategy, but other factors such as quality, service, and other areas are also maintained at a minimum acceptable level.

With cost leadership, the company is not susceptible to price wars waged by its competitors, because it can maintain lower prices and still manage a profit, while its competitors have already erased their margins. The low-cost position defends well against both powerful suppliers and powerful customers because of the difference in costs to the next most efficient competitor. Low-cost leaders usually maintain relatively large market shares, and cater more towards high-volume customers in order to achieve scale economies.

In Treacy and Wiersema’s terminology, companies that are operationally excellent are those that deliver a quality, low-price, hassle-free product. They do not focus on having the best product, nor cater to an individual customer’s needs. They essentially deliver the best overall cost, wherein the service “hassle” is considered as part of the cost. Typical characteristics of leading companies in this strategy are: business processes that stretch over the entire supply chain, optimized for minimizing costs; operations that are standardized and centrally planned; and a company culture that strives for efficiency.

Both Porter’s and Treacy and Wiersema’s strategy classifications aim at delivering the lowest cost product at acceptable service levels and are placed under one category because of this.
The following are examples of companies excelling in cost leadership strategy:

"The cost leadership strategy seems to be the cornerstone of Briggs and Stratton's success in small horsepower gasoline engines, where it holds a 50 percent worldwide share, and Lincoln Electric's success in arc welding equipment and supplies. Other firms known for successful application of cost leadership strategies to a number of businesses are Emerson Electric, Texas Instruments, Black and Decker, and Du Pont." [Porter 1980, 36]

Another example would be Dell Computer:

"Dell Computer is [a] master of operational excellence. Dell has shown PC buyers that they do not have to sacrifice quality or state-of-the-art technology to buy personal computers easily and inexpensively... Dell realized that he could outperform PC computer dealers by cutting dealers out of the distribution process altogether. By selling to customers directly, building to order rather than to inventory, integrating his company's logistics with its suppliers', and creating a disciplined, extremely low-cost culture, Dell undercut [competitors] in price while providing high quality products and services." [Treacy 1995, 32]

Price/Costco warehouse stores carry only a limited number of high-volume, best-value products, typically one brand per category. Therefore, it carries a small fraction of the SKUs (stock: keeping units) that a competing store would have. What the firm does exceptionally is to use the large volumes to negotiate better prices, which it passes on to the customer, and manage its information system well in order to monitor product flow, and maximize floor usage [Treacy 1995, 35].

The major risks in choosing cost leadership strategy are that focusing strictly on cost may blur management's vision from seeing necessary market and product shifts, and that the cost edge may dissolve through either technological advances or cost inflation.

2.4.2 Differentiation

The primary focus of this second strategy is to create a service or product that is considered unique industrywide. Differentiation creates brand loyalty, and less sensitivity to price, leaving the company protected against competitive rivalry. This loyalty also becomes a barrier to competitor entry. The high margins typical to the strategy allow firms to deal with supplier pressure. Customers lack substitutable alternatives precisely due to the firm’s differentiation. Overall, differentiation places a company in a defensible position within an industry.
Treacy and Wiersema’s product leaders again are similar to Porter’s differentiated companies. Product leaders are companies that offer the latest, newest innovations. This requires that the companies be creative, have very fast new product development cycles, and a mentality that does not rest on present successes with a product, but strives to look forward towards the next one. These companies have a culture that is results-driven and allows for experimentation, fully knowing that not all experiments will be successful. Speed in decision making is necessary; therefore, an ad-hoc business structure that allows for autonomy of the different units is typical of product leaders.

Porter gives some examples of companies effectively employing this strategy:

“[Differentiation can come in many forms:] design or brand image (Fieldcrest in top of the line towels and linens; Mercedes in automobiles), technology (Hyster in lift trucks; Macintosh in stereo components; Coleman in camping equipment), features (Jenn-Air in electric ranges); customer service (Crown Cork and Seal in metal cans), dealer network (Caterpillar Tractor in construction equipment), or other dimensions.”

Porter 1980, 37

It is easiest to see product leaders in the high-tech computer industry, where the hottest product today becomes almost obsolete in a year. The Intel Corporation has led the charge in product leadership with its Pentium line. Within the corporation, even as the newest product is being launched, there are teams that have long been working on an even newer product that will replace it [Treacy 1995, 37]. Product leaders do not stick to simple improvements on old designs, but provide breakthrough changes in their products that give customers an anticipation of their new line, and generate brand loyalty. The Ford Motor Company has created this with their Taurus line, as did Nabisco with their SnackWell cookies [Treacy 1995, 84].

Again, the focus on differentiation does not preclude an unlimited cost expenditure but puts differentiation as the main focus, while the other aspects of strategy are secondary. In general, companies focusing on differentiation cannot focus on being a cost leader at the same time. Intensive activity in areas such as research and development, customer support, and purchasing high-grade materials are all cost generators.

The major risks in selecting differentiation as the corporate strategy is that the cost differential becomes too large, that customers no longer value brand loyalty, and that typically, as markets mature, imitation leads to a diminished perception of differentiation.
2.4.3 Focus

The focus strategy centers company activities on one particular market segment in an industry, whether it is a buyer group, geographical market, or product line. The first two strategies focus on the entire industry, while this strategy concentrates only on serving a small portion of the industry extremely well. It is because of this focus on just a small portion of the total market that the firm will differentiate itself or create a lower cost for the segment it targets.

The customer-intimate companies of Treacy and Wiersema can be compared with Porter’s focused ones. Companies that excel in the strategy of customer intimacy strive to build a very close bond with their customers. They customize their offerings towards what an individual customer wants. Because this takes a lot of effort, firms using this strategy do not, and can not, cater to the entire market for their products and services. A customer-intimate company focuses on perfecting the processes of solution development, results management, and relationship management. The culture of the company emphasizes long-lasting client relationships. The business structure allows decision-making to be done by employees who deal most closely with the customers.

Porter gives some examples of companies effectively employing this strategy:

“Illinois Tool Works has focused on specialty markets for fasteners where it can design products for particular buyer needs and create switching costs. Although many buyers are uninterested in these services, some are. Fort Howard paper focuses on a narrow range of industrial-grade papers, avoiding consumer products vulnerable to advertising battles and rapid introductions of new products. Porter Paint focuses on the professional painter rather than the do-it-yourself market, building its strategy around serving the professional through free paint-matching services, rapid delivery of as little as a gallon of needed paint to the worksite, and free coffee rooms designed to provide a home for professional painters at factory stores.” [Porter 1980, 39]

Another example of a focus strategy company is Caliber Logistics. Caliber is a third-party logistics provider that, for instance, handles inbound logistics at two Ford assembly plants. Caliber coordinates the vendor management, inbound transportation, and warehousing to achieve a just-in-time delivery for Ford. Caliber employs the focus strategy because it devotes a lot of internal resources towards its relationship with its clients, so it can not create the same kind of partnership with many other companies, but must select which ones to work with.

One more example is Baxter International’s hospital supply unit, which provides a service wherein they manage inventory for a hospital for a fixed fee. It manages even those products that are not manufactured by Baxter, striving to provide what the customer would like and not merely pushing product [Treacy 1995, 124]. Baxter uses the focus
strategy because it picks and chooses which hospitals to create this relationship with, and which ones not to.

The major risks of this strategy are that broader-strategy companies can begin serving the company’s target market efficiently, or that another competitor can begin targeting a sub-market within the firm’s target market.

On the whole, a company must choose to excel at one of these strategies. It is very rare that a successful company is a leader at more than one. Companies that try to do all of the strategies become “stuck in the middle.” For instance, it is nearly impossible to be a cost leader and yet provide innovative products not offered by others in the marketplace. Because a product is unique, the company can place a price premium on their products, which goes against being an overall cost leader. Table 2.4.2 shows how these three strategies interact.

<table>
<thead>
<tr>
<th>STRATEGIC TARGET</th>
<th>STRATEGIC ADVANTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Uniqueness Perceived by</td>
</tr>
<tr>
<td></td>
<td>the Customer</td>
</tr>
<tr>
<td>Industry wide</td>
<td>DIFFERENTIATION</td>
</tr>
<tr>
<td></td>
<td>OVERALL COST LEADERSHIP</td>
</tr>
<tr>
<td>Particular Segment Only</td>
<td>FOCUS</td>
</tr>
</tbody>
</table>

Table 2.4.2 Framework for Porter’s three generic strategies [Porter 1980, 36]

Many companies are trying to excel at everything. Although this goes against the dictates of Porter for an effective strategy, some companies state that they are leaders in more than one category. Porter claims that these companies will not excel to the degree they could have, had they chosen just one.

This chapter generated a framework for analyzing the strategies of different corporations. Strategies can now be classified as being geared towards cost leadership, differentiation, or focus. This classification is used as a first dimension in determining the fit between logistics organization structures and corporate strategy.
3.0 Corporate Organization Structure

The preceding chapter discussed the first parameter, strategy, for determining an “optimal” logistics organization structure. Intimately linked with both corporate strategy and the logistics organization structure is the corporate organization structure as a whole. Corporate organization structures will be the focus of this chapter.

The chapter consists of three main parts. First, the term “organization structure” is defined and differentiated from the term “organization.” Second, a review of the theory behind organization structures is given. This serves as background for both the corporate and logistics organization structures, and leads to the linkage between corporate strategy and corporate organization structure. Last, the chapter discusses the different dimensions of analysis that are used for corporate organization structures.

3.1 Terminology

Theorists have come up with different definitions for “organization structure” or simply “structure.” Two of the more widely accepted definitions are from Chandler and Child.

Chandler [1962, 14] defines structure as the design of organization through which the enterprise is administered. He also states that there are two aspects to an organization structure. “It includes, first, the lines of authority and communication between the different administrative offices and officers and, second, the information and data that flow through these lines of communication and authority.”

Child [1972, 2] and other organization theorists define structure as the formal allocation of work roles and the administrative mechanisms to control and integrate work activity, including those that cross formal organizational boundaries [See also Galbraith, 1986].

The organization has many other elements apart from its structure, such as its environment, strategy, culture, and human resources. All of these elements are tied to the goals of the enterprise, which have been described in the previous chapter.

3.2 Perspectives on Organization Structure

This section briefly traces the major schools of thought in organization theory leading up to the link between corporate organization structure and corporate strategy. There are 6 major movements in organization theory: the mechanistic school; the human relations school; the resurgence of the mechanistic school; the decision-making school; the contingency school; and the movement concerning the link between strategy and
structure. This section is important as it establishes the shift in theory on organization structure from a static decision to a dynamic one.

This first major school of thought on organizations emerged at the turn of the last century, and is the mechanistic management or scientific management school, led by Frederick Taylor [1991, reprint] and his successors. They approached organizations by treating humans as machines. Charlie Chaplin's movie "Modern Times" exemplifies such a company. Taylor espoused ideas on planning ahead, policy decision-making, specialization, and limiting the span of control to six people, which led to very hierarchical structures. At this time there were few large organizations to model oneself after; two examples were the Catholic Church and the military.

Corporations followed this hierarchical model for a while, and then started changing their structures, for many reasons. First, labor became more critical in the firm. This was due to increases in technology requiring more skilled labor. This went against viewing workers as mere machines. Second, the increasing changes in technology, markets, and products required a more adaptive structure. The mechanistic theory was a static model and could not account for a changing environment. Last, political and social standards changed with regards to worker's rights, placing pressure on enterprises to treat their employees better and give them more mental stimulation [Perrow in Wright 1987, 4-5].

The next major movement was to counteract the human machine mentality through the human relations school. One of the first proponents, Chester Barnard, proposed this new school of thought in 1938. He viewed organizations as cooperative systems, stressing natural groups within the organization, upward communication, authority from below rather than from above, and leaders who functioned as a cohesive force. The human relations school came about because of strong reactions to the mechanistic school. This also came at the time of the Great Depression, when firms were forced to use a smaller workforce, therefore expanding the responsibilities of its employees, generating these informal, cooperative relationships among the workers [Perrow in Wright 1987, 6].

At the same time the mechanistic school was in a resurgence. The work of Max Weber [1978, first printed 1890], popularized in the 1940's, helped revive the idea that bureaucracy/hierarchy was an effective means of organizing. Weber showed that bureaucracy was the most effective means for eliminating embezzlement, nepotism and favoritism, discrimination, and incompetence. The strict rules of the organization ensured that objective measurements were used to evaluate employees. This organization, though, would be dynamic, and would allow rules to change, as opposed to sticking to one static structure, as espoused by Taylor. Weber explained that the reasons why many bureaucracies were ineffective was that humans were human in nature; they could not perfectly follow the bureaucratic principles. If humans were completely rational and "mechanistic," then bureaucracy would be effective.

Still, the mechanistic theory seems narrow in scope, given its basic assumptions. It assumes that the number of tasks are given and are unchanging, and can be optimally
assigned throughout the organization. This eliminates the problem of coordination of
different tasks because a proper assignment will lead to each task being fulfilled and the
goal of the organization accomplished. The theory also does not take into account any
changes in the environment, which occurs in all enterprises. Therefore, there is no
framework for the analysis of requirements for new activities generated by a changing
environment.

After the mechanistic school, theorists began to consider the dynamic nature of the
environment and its effect on the organization structure.

March and Simon [1958] were two of the first theorists to consider environment as a
factor in determining an effective organization structure, through what is now called the
“decision-making” school. They argued that because not all tasks can be predicted
deterministically, the set of alternatives to handle a situation is contingent on what that
situation is. Moreover, human beings cannot wholly process all of the information
presented to them to accomplish a task. Instead of truly optimizing decisions, people use
the cognitive limits of rationality to determine the “best” course of action. The authors
called this “satisficing” as opposed to “optimizing.” Therefore, organization structures
need to recognize the constraints placed on individuals by this capacity to process
complex information, their differences in cognitive styles that affect performance and
decision-making, and their ability to design conflict resolution mechanisms to solve
problems of interdependencies which arise in the process of grouping tasks into
administrative units.

The viewpoint of an employee in the decision-making school is that he will choose an
option that is acceptable, not waiting to find the optimal choice, and then will stick to this
decision unless a crisis occurs. This notion leads to a certain predictability in the actions
of a worker.

March and Simon believed that by controlling the premises of an employee’s decision, a
rational worker could be expected to respond to these premises in a smooth and stable
manner. The authors suggested some methods to manage these premises. First would be
to control the information flow within the corporation. By controlling the environment,
workers can be led to a decision. Another method of control is the incentive structure. If
a company hands out bonuses for low inventories, then workers will naturally strive to
accomplish this result. There are many more, but these two suffice to give an good idea of
what the authors wanted to impart.

The significance of the decision-making school was that it placed less emphasis on the
strict hierarchical structure of the firm, and the dealing with human machines, and
showed that there are other ways of assigning and monitoring tasks, by taking into
account the rational nature of humans.
Extending this train of thought is the contingency theory school whose basic premise is that, first, there is no best way to organize and, second, although there is no best way, some ways of organizing are better than others. Three works stand out in this school.

Burns and Stalker [1961] identified two types of organizations: organic and mechanistic. Mechanistic organizations are characterized by a rigid breakdown into functional specialties, precise definition of duties, responsibilities and authority, and a well-developed command hierarchy through which information filters up and decisions and instructions flow down. Organic organizations are more adaptable, with less formal job definitions and greater exchange of information between different levels of the hierarchy beyond giving and receiving orders. Burns and Stalker suggested that either could be effective depending on the environment they were in. Mechanistic firms were effective in stable markets, while organic firms were similarly effective in dynamic markets and technologies.

Woodward [1965] conducted an empirical study of organization structures, and noticed that firms generally had different structures based on the “technological” environment that they were in. These different technologies imposed different demands on the organization, which had to be met by an appropriate organization structure. Firms with similar production systems tended to have similar organization structures. The job-shop firms had many specialists in the field catering to individual orders, and therefore used the flexible relationships of the organic structure. Mid-range mass production firms could create more order and so were mechanistic. Continuous process firms were many times led by “management councils,” leading to a decentralized, organic firm [Woodward 1965, Ch.4].

Lawrence and Lorsch wrote a landmark book Organization and Environment in 1967. The authors argue that the best organization structure is affected and determined by the various economic and market conditions surrounding that organization. They analyze the organization along two different dimensions: differentiation and integration. Differentiation is defined as the state of segmentation of the organization into subsystems. Segmentation here refers not only to the activities but also to the behavioral attributes of the members of each sub-system. Integration is defined as the process of achieving unity of effort among differentiated sub-systems.

The works of the contingency school have very important implications. The school recognizes the relationship between the external environment and the structure of the organization, and the importance of this relationship to overall performance. This notion will play a big role in the next school of thought: the link between strategy and structure.

In 1962, Alfred Chandler wrote Strategy and Structure, which investigates the link between strategy and structure. Based on his survey of over seventy of the largest U.S. industrial organizations, he concluded that the organization strategy (mainly the growth strategy) is central to the definition of the structure. A company responds to population and economic growth by expanding its production volume, and as the markets begin to
saturate, it turns to other markets, either geographic or product, to continue its growth. When it expands into new markets, the company's structure often becomes divisional in nature, reflecting either the geographic or product aspects of its focus. In the alternate case, when the market begins to mature and the company does not expand, it requires a more efficient use of resources and becomes more centralized and hierarchical.

The importance of Chandler's work is that it establishes that structure follows strategy and how critical this is to the success of the firm.

Summing up these perspectives, organization theories have moved from their origins in the mechanistic school, dealing with a static theory of the organization, to the contingency theory, which focuses on the relationship between an enterprise's market environment, and its strategy and organization structure. Many organization design frameworks today are now based on the belief that market opportunities (the external environment) shape a firm's strategy and that the strategy is the basis for a corporate structure [Galbraith 1986, Ch. 1].

3.3 Dimensions of Organization Structure

The previous section established the history of organization theory leading up to establishing the link between strategy and corporate structure. This section will develop a framework for categorizing organizations. Certain categorizations or dimensions of organization structures found in the literature are described.

There are three main dimensions of organization structures: (1) decentralization, the extent to which various types of power and authority are dispersed throughout the hierarchy; (2) layers of management, the number of hierarchical levels between the top manager and lowest-level employee; and (3) departmentalization, which focuses on how the various primary tasks of an organization are grouped [Steers 1994, 335-342].

Two other dimensions that are well known will also be discussed for completeness. However, these dimensions are not central to the development of this thesis. These other dimensions are: division of labor or functional specialization, which is the manner of allocation of work functions into specialized activities [Steers 1994, 339-341]; and transaction costs, the costs of mediating exchanges between individuals [Ouchi 1980].

3.3.1 Decentralization

Decentralization is the extent to which power and authority are dispersed throughout the organization. As decentralization increases, more responsibility and decision-making authority is passed on to the rank-and-file employees. These decisions include not only corporate topics but also decisions about their jobs and their roles in the organization.
There is a general correlation between increasing size, in terms of employees, and the increasing centralization of the corporation in the higher levels of the hierarchy. Alfred Sloan, former president of General Motors, was one of the first CEOs to create a central office. The GM central organization was assigned policy decisions, while operational decisions were left to the operating units [Chandler 1962, 7-11].

Among the differences between a centralized and decentralized organization is the degree of control. A centralized organization has greater control over its entire enterprise, while a decentralized organization is more flexible, and employees can make more efficient use of their resources, creating positive feedback throughout the organization.

One major advantage of decentralization is that greater autonomy and responsibility lead to greater employee involvement, satisfaction, and performance. On the other hand, with extensive decentralization, the sharing of resources of certain departments, such as human resources and logistics, becomes difficult. This is true of the distribution of any pooled resource [Steers 1994, 336-7].

Overall, centralization or decentralization is neither good nor bad. An optimal balance should be attained between control (centralization) and freedom (decentralization). This balance is affected by the strategy and the culture of the organization.

3.3.2 Layers of Management

Here, the focus is on the number of hierarchical levels in the organization, making it either a "tall" or "flat" structure. A tall organization is typified by having small spans of control, while flatter organizations have wider ones. Span of control is the number of employees under direct control of a supervisor. Two organizations may have the same number of employees, but one may have more levels of hierarchy, and therefore be "taller" than the other.

Tall organizations allow for more personal contact between a supervisor and subordinate, something not possible with large spans of control. However, this personal relationship rarely extends beyond a few layers of management. Flat organizations, by necessity, will allow greater delegations of responsibility to lower echelons, creating some of the benefits discussed in decentralization.

The benefits of either type of organization are not clear, and are contingent on the type of environment and the task of the organization. Typically, research and development groups work better with flatter structures, while military organizations have traditionally been strongly "tall". Research and development works better with more responsibility passed on to lower echelons, allowing for creativity and possible failure. Many R&D organizations will have more project failures than successes. Military organizations can less afford any failures and so need tighter control over all levels in the organization. The
need for tight control measures also applies to safety-oriented organizations such as transportation companies.

Strongly aligned with this dimension is the division of organization types into horizontal and vertical ones. Vertical organizations have communication systems wherein the management coordinates activities among the organizations’ sub-units by knowing each sub-unit’s requirements a priori, giving management stronger control over the sub-units. Horizontal organizations allow semi-autonomous sub-units to coordinate amongst themselves, because there is an uncertainty about the requirements of each sub-unit; the semi-autonomy allows for quicker reactions to changes in the environment. Generally, horizontal organizations are much flatter than vertical structures. Horizontal structure encourages employees to learn and to see the whole picture, through communication with people in other functional areas [Aoki 1986, 971-3]. Employee goals for a horizontal organization must be defined broadly, ideally to encompass the whole process in which the employee is engaged, while goals in a hierarchically coordinated organization may be defined quite narrowly [Hammer 1993, 77-79].

3.3.3 Departmentalization

Departmentalization focuses on how the various primary tasks of an organization are grouped. There have been many approaches to these arrangements. Steers [1994, 341-6] discusses three main types: product, function, and matrix. Galbraith [1986, 6-8] details four types: function, multi-division based on product, area or market, holding, and matrix. Kramer [1995, 7] outlines seven types: function, product, regional, mixed, matrix, front-end/back-end, and process. Mahler [1975, Ch.7] also discusses seven types: function, product, customer, process, knowledge, geographic, and matrix.

The list would not be complete without other newly developed types such as: network [Powell 1990]; organizational learning [Fine 1986, Senge 1990]; lean production and enterprise [Womack, Jones and Roos 1990]; and total quality management [Deming 1988]. Brief descriptions of each of these organizational types are given here, along with reasons for not considering them as a type of departmentalization. Many of these types are applicable to all organizations regardless of departmentalization, and therefore are not useful in this thesis.

Network organizations are composed of individuals engaged in reciprocal, preferential, and mutually supportive actions. The basic assumptions of network relationships are that one party is dependent on resources controlled by another, and there are gains to be had by the pooling of resources. Here, individual units within an organization or between different organizations do not exist by themselves, but in relation to other units. Benefits and burdens are shared [Powell 1990, 300-305]. Some examples of network organizations include joint ventures, strategic alliances, equity partnerships, and satellite organizations [Powell 1990, 315]. Each of these are inter-firm structures and not as useful within the organization, and therefore will not be taken up further in this thesis.
The learning organization is "an organization that is continually expanding its capacity to create its future" [Senge 1990, 14]. It is an organization where "new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually earning how to learn together" [Senge 1990, 1]. All organizations should strive to become learning organizations, and this categorization is irrespective of the type of departmentalization an enterprise uses; therefore it will not be covered further.

Lean production contrasts traditional mass production. In mass production, narrowly skilled professionals design products to be manufactured by unskilled or semi-skilled workers using single-purpose machines. These produce standardized products in high volume. Lean production is "lean" because it uses less of everything mass production uses: space, capital resources, labor, development time, and inventory -- all of this while providing greater variety and quality in its products. To accomplish this, lean production calls for a larger delegation of responsibilities to lower echelons, and requires workers with greater skills [Womack 1990, 12-15]. The lean enterprise is the organization that accomplishes lean production throughout the entire value chain. It is a conference of all firms involved in the chain, assisted by technical staff from "lean functions" in the participating firms, that periodically analyzes and generates improvement actions for the lean enterprise. The lead firm of the lean enterprise is the one that brings all of the designs and components together into a single product [Womack 1996, 276]. Again, lean production and enterprise can give a general idea of an organization structure, but are not helpful in determining the logistics organization structure that will fit such an organization.

Total quality management, led by Deming, is a general treatise on improving the quality of products or services produced by an enterprise. Deming [1986, Ch.6] describes quality as not simply the product itself, but how the customer uses it, and how well the customer is trained to use it. This differs from the old thoughts on quality that merely focused on improving the product itself. A small part of this main thesis is an organization structure that incorporates total quality [Deming 1986, Ch.16]. He proposes a leader of statistical methodology, responsible for quality throughout the enterprise, reporting directly to top management. All other parts of the organization will have dotted-line relationships to the quality leader. This categorization of organization structure is not helpful in determining the best fit for the logistics organization structure of the firm, and is therefore not discussed further.

The departmentalization arrangements that will be described in detail and used further in this thesis are the following: function, product, area, and matrix. These cover typical organization structures and are each discussed in turn.

In practice, there are very few cases of a clear-cut departmentalization that fits within one of these four types. Generally, there will be elements of more than one type within an
organization. However, one type will also generally be dominant and, therefore, the organization will be classified as that type.

**Function.** The functional organization design groups people and activities according to their business functions, such as marketing, engineering, manufacturing, finance, and administration [Galbraith 1986, 6]. Steers and Black [1994, 341] define a function as a specialized activity that is central to an organization’s continued survival. The functional organization is the “most logical, simple, and fundamental form of business structure” [Kramer 1995, 11]. A typical functional organization chart is shown in Figure 3.3.1 below.

![Figure 3.3.1 Simple functional organization structure. [Steers 1994, 341]](image)

Only the general manager has the profit and loss responsibility for the enterprise. The functional heads run cost centers and are measured by productivity, volume, quality, cost control, market share, and response time. Functional structures maximize specialized interests, in terms of efficiency, but coordination between departments is difficult because there is simply a “hand-off” between them and requires highly centralized decision making. The functional structure is most effective when “an enterprise has only a few product lines, when its technology is relatively stable, and when there is a low need for interdependence across functional units” [Kramer 1995, 11]. When there are too many product lines, or a lot of interdependence between functional units, there is too much responsibility placed in the General Manager, who is the only one with an overall view of the enterprise, and the functional organization fails.

The advantages of this structure are the benefits of specialization, economies of scale, and ease of control. Many times a company will attain world-class functional excellence but sometimes at the expense of overall enterprise excellence. A typical disadvantage is the “silo-mentality”: the sub-optimization of the enterprise efforts because individual functions are optimizing merely their own “silos,” and difficult communication and cooperation across the functions usually result from the generation of silos [Steers 1994, 345].

The Dictaphone Corporation has a typical functional organization structure. Dictaphone manufactures micro-cassette recorders for personal and professional use. The company is
divided into typical functional departments: engineering and production, which manages manufacturing; sales and service; advertising and public relations; legal; and financial accounting and budgeting. Its structure is illustrated in Fig. 3.3.2.

![Diagram of organizational structure](image)

**Figure 3.3.2 The Dictaphone Corporation organization structure [Galbraith 1986, 7]**

A strength of this structure is that, since the firm has basically one product line, there is no need to share resources. It also encourages functional excellence. However, the Dictaphone Corporation is operating in a maturing market, and is focusing on geographic expansion. This focus is not reflected in its organization structure.

**Product.** The second method of departmentalization is product organization. Here, instead of organizing a corporation through functions, the organization is divided into distinct product groups, with each unit having responsibility for the entire product or product line. Each product line or product family essentially becomes a cost center [Steers 1994, 332]. Figure 3.3.3 shows a generic product organization chart. This structure is widely used among European and U.S. businesses and, is prevalent in organizations that grow by acquisition. It is suitable for organizations with diverse product activities, non-routine technology, and extensive R&D because it allows for direct accountability for each product line, and easily shows the contribution each product line contributes to the enterprise. As the functional areas for each product line are grouped together, there is greater and easier coordination among them. The general manager then only deals with inter-product decisions, and therefore can increase the speed and quality of these decisions [Kramer 1995, 18-19].
Some advantages of this structure are that the division manager is given more responsibility than the functional heads in a functional organization. This makes it easier for each product division to concentrate all efforts on one business, allowing better control and coordination among the different functional areas. Accountability is also more visible than with the functional organization. On the other hand, some apparent disadvantages are that skills and resources are used inefficiently. There is also a loss in economies of scale due to the duplication of some efforts in different product units.

One example of an enterprise that uses the product organization structure is Sandvik AB, the world’s largest manufacturer of cemented-carbide products, which are mainly tools used for chip-forming metalworking, rock drilling tools, and wear parts and unmachined cemented-carbide blanks. Sandvik is organized along six separate business areas, supported by nine corporate staff groups and four regional companies [Kramer 1994, 16-18]. Figure 3.3.4 shows its group organization structure.

Figure 3.3.4 Organization structure of Sandvik AB. [Kramer 1994, 17]
Each business area is responsible for the design, manufacture, and marketing for that group's products. Each has its own profit and loss accountability and is restricted only in that it cannot sell its own stock and has to follow group (corporate) policies on personnel, finance, and technology. The business areas manage sales through their own subsidiaries in their major markets. The regional companies aid the business areas by providing sales and marketing for geographic areas that are outside the business' major markets [Kramer 1994, 18-19].

Among the strengths of this structure is that the high level of decentralization in the firm allows for quick decisions and actions. Also, the product focus complements the strength of Sandvik in materials technology and marketing. However, the enterprise operates in a mature market, and competes with other large multinationals for market share. This creates pressure for cost reductions, which are more difficult to come by with the company's decentralized, product structure [Kramer 1994, 19].

**Area.** The area or geographic organization is the third approach. Here the organization is divided into regions, each of which report directly to the CEO. Each unit has full responsibility for all business activities in its geographic area. The central office will still handle strategic planning and control [Kramer 1995, 22-23]. An illustration of a typical organization chart is provided in Fig. 3.3.5 below.

![Diagram of a simple geographic organization structure](image)

**Figure 3.3.5 Simple geographic organization structure.** [Kramer 1995, 22]

Typically, global corporations, and many American firms as well, use this format, carving up the world or United States into regions. Kramer [1995, 23] suggests that businesses that select this framework operate in mature markets offering standardized products. The focus of the organization will be on downstream activities such as sales and marketing, and distribution.

The advantages of the geographic organizations are that each unit can rapidly respond to the particular needs of a market. Each unit is a profit center and the product mix can be adapted to the specific area. The area manager benefits from generalist experience in
managing an enterprise, similar to a product manager. The disadvantages are that regional groups sometimes fail to make use of central staff, and thereby double some efforts, allowing costs to increase. Lack of communication between different units results in a loss of knowledge and learning transfer. New product innovations, new market opportunities, and the like may be missed if corporate-wide information is not kept up to date, and accessible to all units. This may lead to a loss of functional/product expertise [Mahler 1975, 76-77].

The Colgate-Palmolive Company is an example of an organization that has a geographic organization structure. Colgate-Palmolive (CP) produces products in the personal care and household markets. It is organized into five regional divisions and an international business development group which make up the core of the CP line organization. The regional division presidents have staff functions, such as finance, marketing, and manufacturing, and supervise the country subsidiaries located within each of their areas of responsibility. The company values the entrepreneurial nature of the country organizations and allows for a lot of decentralization of power down to the country managers. To leverage the global nature of the firm, CP has added the business development group which is responsible for the worldwide coordination of product development, manufacturing, and marketing of the four groups of products: detergents, liquid cleaners, oral care, and soaps. This group has no direct power over the regional divisions, but is composed of employees that can exert influence over the divisions. Many in the group were former country managers [Kramer 1993, 29-30].

The organization structure is illustrated in Figure 3.3.6.

Figure 3.3.6 The Colgate-Palmolive corporate organization structure. [Kramer 1993, 30]
The Colgate-Palmolive organization structure allows for a quick dispersal of ideas across the regional areas. The overlay of the business development group gives the country managers the benefit of global exposure, which is helpful as the consumer market that CP operates continues to become more global, with fewer companies competing. CP's managers of the future will have to be able to act not just locally, but globally. However, these managers will have to learn to balance the global and local objectives of the firm, which is different from their completely autonomous responsibilities in the past; the autonomous responsibilities are common to purely geographic firms [Kramer 1993, 31].

**Matrix.** The last departmentalization approach is the matrix organization. As implied by the name, this type of organization matrixes two or more of other types of approaches. It is a grid-like structure employing multiple chains of command. Mid-level managers will report to two bosses. Typical matrixes are the product-area matrix and the product-function matrix [Galbraith 1986, 77]. A typical organization chart is shown in Fig. 3.3.7 below.

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**Figure 3.3.7 Typical matrix organization structure, showing a product-function matrix.** [Steers 1994, 344]

In matrix organizations, typically one element is emphasized over the other. For instance, the product group may have direct responsibility for an activity, while the regional group
has structural accountability for that activity. Still, some organizations prefer to have a more balanced structure [Kramer 1995, 33-35].

As mentioned before, many organizations have product, functional, and/or geographic elements and, strictly speaking, would be classified as matrix organizations. However, a true matrix organization has more balance between its elements. If an organization places too much emphasis on one element, it will be classified as such.

A matrix organization is advantageous in that it allows specialized knowledge to be easily dispersed throughout the organization, wherever it is needed. Ideally, the resources are better allocated throughout the organization. Redundancies are eliminated because, unlike a mere product organization which may duplicate functional responsibility work, resources are shared. Greater communication occurs between the different elements, giving better exposure for employees, and allowing lower-level managers to get general management experience outside their specialized areas.

The largest disadvantage of the matrix organization is the difficulty in applying the structure. Sometimes the goals of the two lines of authority are not aligned, and the middle manager is caught between them. Organization theorists sometimes speak of direct and “dotted-line” control; direct has greater control over an employee, such as job review, bonus, and promotion consideration, while the dotted-line authority is typically an advisory or monitoring role. Such disparities are usually resolved by the manager depending on for which group the direct line of authority exists. Decision-making is slowed because a consensus among the different groups must be reached. Political skills become more important than technical expertise [Steers 1994, 334-5].

The Memory Products Unit of Texas Instrument’s Semiconductor Group has a matrix organization structure. Texas Instruments (TI) manufactures a variety of products in the electrical and electronics industry for industrial, government, and consumer markets. The Semiconductor Group is the main business of TI, and is composed of three business segments, each managed globally with profit and loss (P&L) responsibility. The three units are: Application Specific Products, which customizes chips for microprocessors and digital signal processors; Mixed Signal and Logic Products, which combines analog and digital mixed signal devices on one chip for the telecommunications industry; and Memory Products, which supplies the chips that are used as the main memory of computers. The Memory Products Unit (MP) has a function/product matrix. There are four line functional departments: marketing; operations, which handles all technical and manufacturing operations; quality & reliability assurance; and Application Specific Memory (ASM) design. MP also has a staff support function for planning and control. The other side of the matrix are the six product lines, which have global P&L responsibility for the products to the MP unit. Each product line has a team composed of members of the four functional areas, creating a true matrix [Kramer 1995, 38-39]. The MP organization structure is shown in Figure 3.3.8.
The cross-functional product teams provide a distinct strength for MP by giving a global product focus for the firm. These teams are able to break down functional silos a simple functional firm would have by generating a complete focus on the product line across the firm. The product and functional areas are in balance with one another, with one area becoming dominant as required by the firm. MP also does not lose functional excellence through matrix interactions between the different product lines. However, the unit does lose a bit of speed in decision-making because the functional and product requirements have to be met and a larger consensus reached [Kramer 1995, 39].

3.3.4 Division of Labor

The main proposition of this fourth dimension of organization structures is that the greater the division of labor, the greater the degree of specialization, which leads to greater effectiveness in the area of expertise. As an illustration for the above statement, Henry Ford developed assembly line production precisely for the added productivity resulting from specialization in labor. A drawback to too much specialization is the monotony generated by the work, which leads to job dissatisfaction and poorer performance. There is no clearly better way to divide labor, whether through high
specialization of work duties through creating general, cross-functional work [Steers 1994, 339-341].

3.3.5 Transaction Costs

The final dimension for analyzing organization structure is transaction cost analysis. This dimension has been mentioned in the literature, and is added for completeness.

Transaction cost analysis focuses on the interactions or relationships between people within an organization. This method treats the relationships as transactions, and analyzes the costs of the interactions. There are four organization structures types created by the different transactions, where the type of interaction prevalent throughout the organization determines the type of organization. These four types are: market, bureaucracy, clans, and adhocracy. Williamson [1975] identified the first two types, Ouchi [1980] discussed the third, and Quinn and Hall [1983] proposed the fourth type. These transaction cost models and the four organization forms will be briefly discussed.

The developers of this dimension argue that the choice of organization type is generated by the least transaction model costs. There are two basic parameters for evaluating the transaction cost model: goal congruence and performance measurement ambiguity. Goal congruence (GC) measures the alignment between the personal goals of the employee and the goals of the organization. Performance measurement ambiguity (PMA) is a measure of trust between the employee and the organization. A high PMA means that the employee is not sure as to what he is measured by, and low GC means that there is little alignment between personal and organizational goals.

Market organizations are characterized by low PMA and low GC [Ouchi 1980, 135]. They have short-term employment, rapid evaluation and promotion, explicit control mechanisms, individual decision-making, and individual responsibility. Commitment and performance flow from individual goal setting, not from the organization [Quinn 1983, 287].

Bureaucratic organizations occur in situations when PMA is high and GC is low. They operate with hierarchical surveillance, evaluation, and direction. Members of the organization submit themselves to a relationship with the organization that allows it to submit the individual to a superior, who will determine the tasks within a certain range, and monitor performance. The commonality of purpose allows an atmosphere of trust to develop [Ouchi 1980, 134-5].

Clans are the opposite of Market organizations, having both high PMA and GC. [Ouchi 1980, 135]. The clans operate by holding members to a sense of tradition and common values and beliefs as part of a common culture. Clans typically will have slow evaluation and promotion, non-specialized career paths, implicit control mechanisms, and collective decision-making and responsibility [Quinn 1983, 288].
Adhocracy has the primary characteristics of low PMA and high GC [Quinn 1983:290]. These types of organizations arise in newer “emerging networks” [Tichy 1981], a “temporary system,” “organic system,” or “flat system,” where many times rules are supplanted by trust [Quinn 1983:290].

These four forms together cover all ends of the spectrum defined by high and low goal congruence and high and low performance measurement ambiguity as shown in Figure 3.3.9.

<table>
<thead>
<tr>
<th>Performance measurement ambiguity</th>
<th>Goal congruence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Market</td>
</tr>
<tr>
<td>High</td>
<td>Adhocracy</td>
</tr>
<tr>
<td>Low</td>
<td>Bureaucracy</td>
</tr>
<tr>
<td>High</td>
<td>Clan</td>
</tr>
</tbody>
</table>

Figure 3.3.9 Framework of transaction cost model organization relationships.

The organizations are effective when they create relationships that generate the least transaction cost. For instance, bureaucracies fail when their performance measurement ambiguity becomes so high that the transaction costs are lower for a market model. Ouchi summarizes this line of thinking as follows:

“Bureaucratic organizations exist because under certain specifiable conditions, they are the most efficient means for an equitable mediation of transactions between parties. In a similar manner, market, <adhocracy> and clan organization exist because each of them, under certain conditions, offers the lowest transactions cost.” [Ouchi 1980, 140]

This thesis will primarily focus on the three main dimensions of decentralization and departmentalization, which are easily obtained from an organization. These will also give the greatest impact on how logistics “fits” into a corporate structure. The last two dimensions, division of labor and transaction cost, do not say much as to how the structure of the logistics organizations is chosen. For instance, all transaction cost models may be present in an organization, and therefore this says little about how a logistics organization should be structured.

Now the reader should have a clear understanding of two of the three parameters of analysis for this thesis. Initially, strategy was discussed, and a framework developed for this parameter. This chapter started out with the history of organization structure theory leading up to the link between strategy and structure, and wound up by generating the analysis framework for structure. The next chapter will now cover the third dimension: logistics organization structures.
4.0 Logistics Organization Structures

The two previous chapters discussed corporate strategy and corporate organization structure, explaining each and developing a framework for analyzing them. This chapter focuses on the third and last topic: logistics organization structures.

The chapter is composed of five main parts. First, logistics is defined for the purposes of this thesis. Second, a brief discussion on the importance of logistics in a corporation is taken up. Third, the major logistics activities are listed and described. Fourth, the dimensions for analyzing logistics organization structures are described. Last, the different types of logistics organization structures for managing logistics activities are listed and described.

4.1 Terminology

The logistics process is composed of many activities, such as transportation and warehousing. These have been identified in the organization for many years. However, applying the term “logistics” within an enterprise is relatively new. Previously, logistics referred to “the branch of military science dealing with procurement, maintenance, and transportation of materials, personnel, and facilities” [Webster 1980]. This thesis deals with business logistics, or logistics within the firm. Because business logistics is a new term, there are many different definitions. The most relevant ones are shown below.

The Council for Logistics Management (CLM), a professional organization of logistics managers, educators, and practitioners, defines logistics as:

“the process of planning, implementing, and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements.” [CLM 1985]

This definition covers the most important parts of logistics. The logistics system includes the movement and storage of product flows, and the information that goes with them.

Another definition, by Heskett, is less explicit in terms of information flow, but adds some of the purpose of logistics. He defines logistics as “the management of all activities which facilitate movement and the coordination of supply and demand in the creation of time and place utility in goods.” [Heskett 1964, 21].

Johnson and Wood offer a simple look at the term. They say that logistics describes “the entire process of materials and products moving into, through and out of the firm” [Johnson 1993, 4].
Rose's definition also shows some of the ambiguity that arises from the term logistics. He defines it as "the management of the physical and informational flows of products and of all activities related to these flows" [Rose 1979, 3]. The ambiguity arises from the part of the definition "all activities related to these flows." It is only convention that determines the line between what is considered related enough to the flows to be considered part of the logistics system. The elements of the logistics system are discussed later in this chapter.

The logistics organization structure refers to the placement of the different logistics activities or elements into the corporate structure, whether within or without a logistics department. The main objective of the logistics organization structure is to coordinate the logistics activities of the firm.

4.2 Importance of Logistics in the Corporation

Efficient logistics is important to the company in two aspects: first, it can provide increased revenues and, second, decrease costs.

Increased revenues are generated when, due to logistics, the seven R's are fulfilled. That is that logistics ensures the availability of the right product, in the right quantity, and the right condition, at the right place, at the right time, for the right customer, at the right cost [Coyle 1988, 5]. The key to this explanation is that logistics provides both spatial and temporal value to the customer. For example, the customer may have home delivery of a newspaper. If it is not at his doorstep by 6:30 AM, the paper holds no value to the customer and is worthless. Logistics ensures both the temporal and spatial aspect of a product's value. The customer satisfaction that follows results in increasing customer loyalty and the spread of positive feedback regarding the product, thereby generating increased revenues.

Cost reduction comes from an efficient management of the storage and flow of goods. Usually this results from a trade-off between different parts of the logistics system. One general example of this tradeoff is between transportation and inventory. If a company wants to hold no inventory, it requires expedited service to move the goods. This leads to no inventory costs and very high transportation costs. On the other hand, the least expensive transportation modes are typically slower and less reliable; therefore, large amounts of inventory must be kept. Here the inventory costs are high, while transportation costs are low. Efficient logistics management can lead to an optimal balance between tradeoffs of the different elements, reducing total costs for the corporation [Johnson and Wood: 1993, 10].

4.3 Elements of Logistics (Logistics Activities)

As discussed earlier, there is a certain ambiguity in the term "logistics." Companies differ on what they themselves consider as logistics, and what is considered part of logistics. Ambiguity, therefore, also follows in the determination of what activities are considered elements of the logistics system. The author reviewed four textbooks in the field: Ballou [1992]; Coyle [1988]; Johnson and Wood [1993]; and Lambert and Stock [1993], and the following elements were mentioned at least once:

1. Customer service
2. Traffic and transportation
3. Inventory control
4. Order processing
5. Distribution communications
6. Demand forecasting
7. Warehousing and storage
8. Plant and warehouse site selection
9. Material handling
10. Procurement
11. Parts and service support
12. Packaging
13. Salvage and scrap disposal
14. Return goods handling
15. Production scheduling

Ballou [1992, 7-10] talks about key and support logistics activities. He considers customer service, transportation, inventory control, and order processing as key elements of logistics, while the rest are supporting activities. These key activities are not only essential in almost every logistics channel, but are a significant part of the total logistics cost.

1. Customer service. Customer service is not an activity, per se, but a result of other logistic activities. In fact, most logistics decisions are made because of customer service considerations [Coyle 1988, 18]. Customer service acts as the binding an unifying force for all other logistics activities [Lambert 1993, 13]. One method of optimizing logistics cost is to minimize the costs subject to customer service level standards.

2. Traffic and transportation. Transportation refers to the physical movement of raw materials and products over the transport network. The transportation activity typically involves selecting the mode of transportation (e.g., rail, truck, air, intermodal), the routing, the service (e.g., regular or expedited), claims processing, and rate auditing [Ballou 1992, 7]. In many firms, this activity is the primary cost factor in the logistics system [Lambert 1993, 16].
3. **Inventory control.** In an ideal world, where goods can be produced and transported instantaneously, inventory would not be necessary. It provides no inherent value, apart from dealing with fluctuations in the system, either inbound to the plant or outbound to the customer. The capital tied up in inventory could be put to other use. However, inventory is necessary as these fluctuations do exist. Therefore an optimal balance in the inventory level must be met. This optimum inventory level is the minimum amount necessary to handle both customer demand and production changes [Lambert 1992, 15].

4. **Order processing.** This is the activity that manages the input of a customer order, determines the requirements of the process, and ensures the command for product delivery. This activity is considered part of the logistics system because of its importance in the order-to-delivery cycle time (the time it takes between when a customer order is placed and the item ordered is delivered to the customer), wherein logistics plays a major role [Ballou 1992, 9]. A good order processing system can significantly cut down the order-to-delivery cycle time and/or reduce the logistics costs. For instance, with short customer delivery time requirements, if the order processing time is reduced by two or three days, then the transportation mode can be shifted from premium to regular means, generating overall savings for the company.

5. **Distribution communications.** Information is vital to an efficient logistics system. The communication between the firm and both its suppliers and customers, and within the firm, must be managed. Lambert and Stock [1993, 14] state that: “accurate and timely communication is the cornerstone of successful logistics management.”

6. **Demand forecasting.** This activity is the concern of many departments within the firm. Marketing generates a sales forecast which affects its promotion schemes, pricing strategies, and allocation of sales force efforts. Manufacturing forecasts affect production schedules, materials requirement planning (MRP), and just-in-time (JIT) requirements. Logistics uses both of these forecasts in order to generate their own forecasts, in order to determine the appropriate amount and location of inventory inbound to manufacturing and outbound to the customers [Lambert 1993, 15].

7. **Warehousing and storage.** Inventory needs to be placed somewhere. The warehousing and storage activity handles this requirement, by determining space needs, the layout of storage space within the warehouse, dock design, the warehouse configuration, and stock placement [Ballou 1992, 7-8]. This activity is not the same as inventory control, because it merely takes the data from that activity and uses it to determine how to store the inventory.

8. **Plant and warehouse site selection.** The locations of the plants and sites, and their link to the logistics function, should be readily seen. Any changes in the locations affect the travel times and rates from the sources of goods to their destinations [Coyle 1988, 18]. The locations can therefore affect customer service levels and logistics costs. Typically these decisions are not made by logistics alone, but in concert with manufacturing (for plants) and marketing (for distribution centers).
9. Materials handling. "Materials handling is concerned with every aspect of the movement or flow of raw materials, in-process inventory, and finished goods within a plant or warehouse" [Lambert 1993, 16]. Materials handling consists of equipment selection, equipment replacement policies, order-picking procedures, and stock storage and retrieval [Ballou 1992, 8]. It is important to logistics in that it deals with the movement of goods. Handling provides no value, and finding ways to minimize this is a goal of the logistics manager.

10. Procurement. Procurement is the acquisition of materials and services in order to feed them into the efficient flow of production and distribution. Procurement involves selection of the supply source, timing of the purchase, and the amount to be purchased. This element can be considered part of the logistics system because the activities involved affect overall logistics costs and service levels [Ballou 1992, 8-10]. For instance, order quantity and frequency affect inventory levels, and supplier locations affect transport costs. In many cases, most logistics activities are even managed by the procurement department of a firm.

11. Parts and service support. Logistics activities do not only cover the finished goods, but the support for parts and repair services that are necessary for many products. There is a need, as part of the marketing strategy, for this support capability. Products will not sell well if no spare parts are available to repair them, or even if these parts are hard to come by. Logistics is concerned with the availability of parts when and where customers need them.

12. Packaging. Packaging is important to logistics in that it may facilitate easier handling and storage of parts and products. Packaging also protects the product from damage and loss during handling and storage [Lambert 1993, 17-18]. The marketing function also has an interest in packaging because it may serve as a form of advertising, catching the eye of a customer, or creating product association (e.g., the cow-spot motif of Gateway's computer boxes are readily recognizable).

13. Salvage and scrap disposal. Production methods are typically not efficient in their uses of material, and create waste and by-products. Logistics is sometimes tasked with the efficient handling, recycling, and/or disposal of this material [Lambert 1993, 18].

14. Return goods handling. Return goods handling, sometimes referred to as reverse logistics, is another support activity of the logistics system. Some examples of goods that flow in reverse are defective or replaced goods, packaging material, and transport materials (e.g., pallets). In an increasingly environmentally conscious world, both return goods handling and scrap disposal have become more important. These need not be viewed as merely costs, if the materials recovered can be recycled. Xerox, for example, has created an Asset Recycle Management organization that manages this area, and is committed to using recycling to provide competitive advantage for the company [Xerox 1995].
15. Production scheduling. Production scheduling involves the timing of the production of a specific product. This activity is important in multi-product firms that use shared resources. Often this activity is managed by the manufacturing function. However, to ensure that raw materials are present when needed, and that inventory is controlled efficiently, close coordination between logistics and manufacturing is required. Large corporations such as Kimberly Clark are moving in this direction by integrating production scheduling into logistics [Coyle 1988, 18].

Again, not every company has a need for all of these activities. For instance, a garments distributor will have little need for parts and service support. That will generally be in the realm of the retailer who may do alterations. An auto manufacturer will have need for the parts and service support, but not for the finished goods packaging activity.

Even though two companies may have the same logistics elements, there is no generalized organization structure that will manage these activities. The responsibilities for each activity are sometimes shared between different departments or functions. For instance, inventory control is considered part of marketing in one firm, while in another it is considered as part of a separate logistics organization. It is these various ways to organize the logistics system within a corporation that this thesis addresses.

4.4 Dimensions of Logistics Organizations Structures

Now, with some understanding of the different activities that are part of the logistics system, the discussion turns to the different methods of organizing them within a firm. Before delving into the types of logistics organization structures, note that, similarly to corporate organization structures, logistics organization structures have certain dimensions with which to describe them. These are line versus staff, centralization versus decentralization, and strategic versus operational.

4.4.1 Line Versus Staff

Line management is concerned with the daily operations of the logistics activities. The line manager has the authority and responsibility for the operation of his particular function, in this case logistics. Some activities typically placed under line management are: traffic and transportation, inventory control, order processing, warehousing, and packaging. Staff management, however, acts in a supporting role, providing information and advice to the line managers. Some staff activities are warehouse and plant location analysis, cost analysis, and customer service strategies [Coyle 1988, 532-3].
4.4.2 Centralization Versus Decentralization

Just as in the overall corporation, a centralized logistics organization indicates that the corporation controls all logistics activities within one body. On the other hand, a decentralized logistics organization implies that decisions on logistics activities are made in different parts of the organization: division, product group, or geographic area [Johnson 1993, 498].

There are many advantages to using a centralized logistics organization. First, centralization allows for tight control over the activities, therefore maintaining low costs. Secondly, economies of scale may be derived. For example, instead of having each division contract transportation carriers individually, a corporation will be able to gain volume discounts by offering up the entire corporate transportation volume as a whole. There are also some advantages for using a decentralized logistics organization. As mentioned in the last chapter, decentralized organizations are able to respond quicker to local market changes. Decentralization is therefore useful when few economies of scale are present, and the different divisions have different logistics needs [Ballou 1992, 626].

4.4.3 Strategic Versus Operational

A strategic organization will deal with the extent to which logistics is considered important in the corporation - its relative order compared with other functions such as marketing or manufacturing. An operational organization has responsibility for ensuring that the logistics activities are consistent with corporate goals [Coyle 1988, 532].

4.5 Types of Logistics Organization Structures

The logistics organization structure dimensions help explain the different logistics organization structure types. Writers of logistics textbooks have come up with the following main types of logistics organization structures that create this coordination: Lambert and Stock [1993] and Coyle [1988] (traditional, function, program, matrix); Ballou [1992] (informal, semiformal, and formal); Rose [1979] (logistics within traffic, logistics within marketing and/or production, and logistics as a separate department); and Johnson and Wood [1993] (status quo, linking-pin, unified department, matrix management).

Seven logistics organization structure types will be discussed in this thesis. The first four types discussed are espoused by both Lambert and Stock [1993] and Coyle [1992], and are the most common types. These types were based on a study by DeHayes and Taylor [1972]. The other types mentioned in the other textbooks generally fit with the DeHayes and Taylor model, and their similarities will be discussed after the four types have been described. The last three types (channel management, partnerships, and third-party or contract) are newer structure types that have recently surfaced.
4.5.1 Traditional

A traditional logistics organization structure has all of the logistics activities dispersed throughout the organization. There is no separate logistics department. There are some companies which can create efficient coordination without the need for a formalized logistics department, and therefore can use this "structure." The coordination is accomplished through formal and informal operating procedures that guarantee that the departments that control the various logistics activities coordinate. One informal method is to create incentives such as joint cost sharing for the heads of the pertinent departments. A formal method would be to have a coordinating committee composed of members of departments involved in logistics activity [Ballou 1992, 618]. An example of a traditional organization structure is shown in Fig. 4.5.1 below.

![Location of Logistics Activities]

- Customer service
- Demand forecasting
- Warehouse site selection
- Outbound traffic
- Warehousing
- Order processing
- Communication
- Procurement
- Inventory policy formulation
- Capital budgeting for warehouses, plants, and other logistics assets
- Inventory control
- Materials handling
- Parts and service support
- Packaging Plant site selection
- Inbound traffic
- Production planning

Figure 4.5.1 An example of a traditional logistics organization structure. [Coyle 1988, 529]

Since the 1960s, there has been a trend within many corporations to abandon this structure for a more integrated approach, wherein logistics becomes a department unto itself [Lambert 1993, 628]. The function, program, and matrix structures all are integrated departments.

4.5.2 Function

A logistics functional organization structure isolates logistical responsibilities in one area, just as is commonly done with other corporate areas such as marketing, manufacturing, and finance. The primary advantage is that functional excellence is bred, and people become logistics experts. Some of the drawbacks are that there is usually not a high degree of integrated decision-making among the different functions, resulting in a sub-
optimization of the entire corporation [Coyle 1988, 534-5]. An example of an organization chart with a functional logistics organization is given in Fig. 4.5.2 below.

![Organization Chart](chart1)

Figure 4.5.2 An example of a functional logistics organization structure. [Lambert 1993, 634]

### 4.5.3 Program

Logistics can be organized as a program, in which the entire company participates. This makes all other functions subservient to the logistics program [DeHayes 1972, 42]. Here, the various other corporate areas are sensitive to effects on the logistics system. This method is successful only if top management views logistics activities as being of high strategic importance and almost equate logistics performance with overall firm performance. The resulting coordination should result in an overall systems approach and should have a more efficient logistics system than a mere functional organization [Coyle 1988: 535]. If the management support is not visible, then the functional departments may not have incentives for supporting the program, leading to less efficient logistics than in the functional case. Fig. 4.5.3 shows the organization design for logistics as a program.

![Organization Chart](chart2)

Figure 4.5.3 An example of an organization structure with logistics as a program. [Lambert and Stock 1993, 635]
This structure is not successful today. For example, the quality function was managed many times as a program. A quality manager was directly reporting to the CEO, with everyone else in the firm reporting to him. Unfortunately, many problems occurred. Communication and functions were not clear, with everyone assuming that someone else was working on quality while in actuality no one did the work. Many times, there was insufficient training on quality principles so that adequate knowledge and skills on this topic were not present within the organization. In this case, managing quality by program was a good idea but a difficult one to implement.

4.5.4 Matrix

The matrix logistics organization recognizes that logistics activities cut across various functions within a firm. The logistics manager has to coordinate projects that involve logistics crossing several functional areas. In this type of organization, the logistics manager has responsibility over all logistics activities, but has no direct ("line") authority over the component activities. Logistics is an overlay over the present corporate organization structure. Figure 4.5.4 illustrates the matrix organization structure type.

![Diagram of matrix organization structure]

Figure 4.5.4 An example of a matrix logistics organization structure. [Lambert 1993, 635]

The benefit of the matrix organization is that, since both functional departments and the logistics organization have responsibilities over a component activity, coordination is
necessary. Problems do arise as the lines of authority and responsibility blur [Ballou 1992, 620]. There is a problem with reconciling conflicting goals, and then generating accurate performance reviews for employees who report to both a functional area and to the logistics manager [Coyle 1988, 535]. For example, in Figure 4.5.4, the production scheduling manager must balance the needs of manufacturing and logistics. The product schedule generated for production may have to be altered in order to benefit the needs of logistics. Manufacturing knows what has to be produced within a time period, and wants to optimize its production runs for maximum efficiency. Logistics, on the other hand, has a delivery plan and wants to satisfy demand while minimizing inventory costs. These production orders and delivery orders will rarely match, and herein lie the conflicts of interest.

The above four structure types have also been mentioned in other textbooks, just under other labels. The similarities between them are discussed briefly.

Ballou [1992, 617-24] has three structure types: informal, semiformal, and formal. His informal type is similar to the traditional logistics organization structure. The semiformal is identified as a matrix organization structure. The formal structure is the same as the functional organization type described above.

Rose [1979, 241-3] also created a framework composed of three structure types. The first two, logistics within traffic and logistics within marketing and/or production, are similar to the traditional organization structure discussed. The first assumes that there exists a separate traffic department, which typically has responsibility for only outbound transportation. Placing logistics within marketing and/or production will generally create greater integration, but still retain a traditional organization. The last type, logistics as a separate department, can be seen as either a function, matrix, or program.

Johnson and Wood [1993, 491-505] developed a framework involving seven organization structure types. Some of these are similar to the ones discussed previously. The similar types are (1) the status quo organization, which corresponds to the traditional structure; (2) the linking-pin organization, wherein individuals are assigned the responsibilities of coordination, similar to a program organization; (3) the unified department, which is the functional logistics organization; and (4) the matrix management organization. The last three structures have recently been recognized, and will be detailed.

They are new ways of coordinating logistics activities and will be discussed more deeply. Each involves an outside firm aiding the coordination of logistics activities for the company. Johnson and Wood argue that the "optimal" logistics organization structure type is affected by the logistics channel in which a company operates.
4.5.5 Channel Management

The channel is comprised of individual firms and people working together to move raw materials and components through processing and manufacturing to retailers and customers. For example, in the textile industry, the channel consists of the fiber provider, yarn manufacturer, textile manufacturer, apparel manufacturer, distributor, and retailer, plus supporting firms (for example, suppliers of transportation and information). Channel management deals less with the internal structure of the firm, and more with inter-company operating ties.

One method of channel management would be to vertically integrate as Ford did in the 1920's. With total control of the channel, efficiency can be gained. For instance, a manufacturer will give a larger than necessary lead time to a customer, because it will want to ensure that it can meet the delivery times. The manufacturer is hedging because it needs raw materials from the supplier and the supplier has hedged its lead time, to cover the lead time for materials from its supplier. The combined hedging leads to excess inventories, which raise total channel costs, which in the end must be borne by the final consumer. The theory is that, with vertical integration, hedging is no longer necessary, and channel costs decrease, leading to a more competitive environment for the larger firm [Johnson 1993, 501-2].

Another method involves a strategic alliance between channel members. A strategic alliance is “a contractual relationship between two independent firms in a logistics channel to achieve specific objectives and benefits” [LaLonde 1989, 6]. The strategic alliance typically involves the sharing of information, assets and risks.

4.5.6 Partnerships

Partnerships describe positive, long-term relationships between a firm and its suppliers and customers. Partnerships will involve sharing the risks and benefits, as well as involving cooperation between the involved firms [Johnson 1993, 502].

4.5.7 Third-Party or Contract Logistics

This last coordination method involves outsourcing some or all logistics activities to an outside firm, called a third-party logistics firm. The manufacturer may consider this option to be advantageous when logistics is not a source of competitive advantage, when the necessary logistics expertise is not available in-house, and a specialist logistics firm will be able to provide sufficient or better than required service at the same or less cost. The third party may be able to create efficiencies by combining the logistics activities of the firm with those of its other clients. The reduced costs may be generated from more efficient use of warehouse space and reduced carrier transport rate from combined transportation volumes [Johnson 1993, 504-5].
The third-party firm typically owns the physical assets of logistics activities such as the warehouse, materials movement equipment, and sometimes the transport carriers (e.g. trucks, rail cars). The manufacturer maintains ownership of the inventory.

In summary, the following ideas were presented in this chapter. First, logistics was defined as the movement and storage of goods and information pertaining to the goods in a firm. Second, the importance of logistics within a firm was discussed to underline the importance of looking at logistics organization structure. Third, fifteen basic activities of a logistics system were described to get a better understanding of what logistics is all about. Not all firms will have all fifteen activities, or consider them part of the logistics system. Fourth, three dimensions for analyzing logistics organization structures were discussed. These were: line versus staff; decentralization versus centralization; and strategic versus operational. Last, the types of logistics organization structures were discussed. The four main types discussed were traditional, function, program, and matrix, and examples were presented for each. Three more methods of coordinating logistics activities of the firm with other companies were then described. These were channel management, partnerships, and third-party logistics.

The next chapter develops hypotheses on the fit between the three topics discussed so far: corporate strategy; corporate organization structure; and logistics organization structure.
5.0 Organizational Fit Hypotheses

All of the parameters (corporate strategy, corporate organization structures, and logistics organization structures) affecting organizational fit have been discussed. These parameters now need to be linked to establish the relationships between them, creating an organizational fit hypothesis. This chapter will generate and examine hypotheses answering the question: ‘Based on the corporate strategy and organization structure, what logistics organization structures make sense or ‘fit’?’

This chapter has three main sections. First, the fact that a relationship or concept of fit does exist between the three parameters will be shown. Second, the measurement criteria that serves as the basis for determining this “organizational fit,” or simply “fit,” will be detailed. Last, different hypotheses on the linkage between strategy, corporate organization structure, and logistics organization structure will be examined. The next chapter will test these hypotheses by examining company case studies.

5.1 Support for Existence of Organizational Fit

Before going into the fit, it has to be established that there is a link between these three factors. Chapter 3 discussed shortly the link between corporate strategy and corporate organization structure, based mainly on Chandler’s work. This gives the premise for extending the link to encompass the logistics organization structure as well.

Chandler [1962, Ch.1] showed that a company responds to population and economic growth by expanding its production volume and, as the markets begin to saturate, the firm turns to look for other markets, either geographic or product, to continue its growth. Also, when the company expands into new markets, the firm’s structure often becomes divisional in nature, reflecting either the geographic or product aspects of the firm’s focus. In the alternate case, when the market begins to mature and the company does not expand, it requires a more efficient use of resources and becomes more centralized and hierarchical.

The notion of a fit between corporate strategy and structure is also supported by other organization theorists who consider the fit of the organization structure to the corporate strategy as the primary consideration for determining that structure’s effectiveness [Uytterhoeven 1977, 76].

The fit between corporate strategy and structure also extends to the logistics organization structure. In fact, some logistics thinkers consider the two most important steps in designing an effective logistics organization structure as: first, researching the corporate strategy and goals, to ensure the directions of the logistics organization structure fit with the overall company direction; and second, making sure the logistics organization structure is compatible with corporate organization structure [Falk 1980, 181-99].
Therefore, by 1980, it was already established that a link existed between the corporate strategy, the corporate organization structure, and the logistics organization structure of an enterprise.

5.2 Measurement Criteria

Organizational fit will be determined through two main criteria: tangible and intangible measures. Tangible measures are objective measures, generally financial, of either the entire firm's or of the logistics system's performance. Intangible measures are subjective measures, such as personal opinions or "feel."

A CLM study conducted by Stock [1980] identified several factors that characterized an effective logistics organization. These included cost efficiency, flexibility, management orientation, employee turnover and morale, communication, coordination, and conflict within the organization. Among these factors, the only one classifiable as hard data is cost efficiency.

The listed factors serve to show that organizational fit is not a hard science. There are many factors affecting fit, and only a few are "hard" measures. Much of the work in this field involves "softer" issues.

5.2.1 Tangible/ Hard Criteria

Tangible factors are generally financial data whose performance indicates the fit of the organization structure. Some examples of hard data are the overall financial performance and the logistics performance.

When examining the corporate financial performance, this thesis will look at simple measures, such as the percentage sales increase and the percentage profit increase against both historical data and the firm's major competitors. This thesis will take into account that different strategies by competitors lead to different expected performance results.

The logistics performance is measured by, for example: the inventory turns, which is calculated by dividing the revenues by the assets in inventory; the cost of logistics as a percentage of total product cost; and the order-to-delivery cycle times. Each is compared against both historical and competitor data.

Lambert and Stock discuss an A.T. Kearney study [1984] that lists the following logistics management evaluation measures: logistics cost as a percentage of sales, compared both internally and externally; costs of individual logistics activities as a percentage of sales; adherence to budget; productivity measures such as on-time delivery, order cycle times, and customer service levels [Lambert 1993, 655-6].
Note that each of the three strategic options have differing priorities for the performance of each logistics measure. For instance, customer service metrics are more important for differentiated and focused firms than for cost leaders.

The predicament in using hard data as a measurement criteria for fit is that, although the hard data is available and easy to obtain, it is a stretch to attribute the success or poor performance of the logistics department to the logistics organization structure.

If a firm has both a strong overall financial performance and a strong logistics performance, it does not prove that there is a good fit between strategy and structure. What can be said, though, is that no bad fit exists. Similarly, if the firm performs poorly, there may be many causes, apart from an inadequate organization structure, such as a failing strategy or the management’s unresponsiveness to a turbulent environment [Uyttenboven 1977, 77].

It stands to reason, however, that the organization structure is linked to the performance of the firm. This exact relationship between these two (hard criteria and organization structure) is still ambiguous. Drawing any generalizations on the relationship between these two is tenuous at best [Dalton 1980, 60]. Therefore, much of the test for organization fit is based on intangible criteria or “feel.”

5.2.2 Intangible/ Soft Criteria

Softer measures, such as those mentioned earlier, will be taken into consideration. The following method for analyzing the soft criteria will be used in the cases. First, the impression of the interviewee on the degree of fit between corporate strategy and the logistics organization structure will be examined.

This establishes factors such as the degree of communication, conflict, and cooperation between groups managing different logistics activities as well as functions not involved in the logistics process, but affected by them. Communication involves the transfer of logistics work information throughout the firm. Conflict involves the amount of friction over the responsibility and authority for logistics activities. Cooperation involves the amount of joint work engaged in by different groups with interests in a particular logistics activity.

Based on these factors, the strengths and weaknesses of the organization structure will be examined. Since the organization structure is dynamic, some companies will have an idea of where their logistics organization structure is headed. This indicates both: problems with the present structure where there is an insufficient fit between corporate strategy and structure; and the vision of a better fit in the future structure.
The advantage of using these criteria is that they give a better picture of the organizational fit than hard data can. The disadvantage is that soft data is very hard to obtain and normalize across different companies, and even within the same corporation.

5.3 Fit Hypotheses

This section of the chapter will draw some hypotheses on the “fit” between different corporate strategies, corporate structures, and logistics organization structures. These are based on the literature review provided in the three previous chapters, and an examination of which combinations are better suited for each other because of their natures. The hard data will be discussed for each case company in the next chapter.

5.3.1 Fit between Corporate and Logistics Organization Structure

The logistics organization structure should closely parallel the corporate organization structure.

For instance, if the firm is has a product organization structure, then the logistics organization should also be organized by product line. This is most important with respect to groups having operational responsibility for logistics activities. In terms of centralization and decentralization, the two organization structures should also complement each other. For instance, if a firm is decentralized into market areas, then the logistics organization should be decentralized into market areas [Coyle 1988, 539]. The supporting staff responsibilities may be carried out centrally if there is a synergy created by doing so.

This method of consolidating to a centralized staff function, while maintaining decentralized line operations, allows for computer and data economies without burdening operations with the management of different logistics networks [Reilly 1970, 29-30]. However, the separation is difficult to implement because it is hard to separate staff and line functions [Coyle 1988, 539]. Therefore, this split should only be done in cases where it is necessary.

Stank et al. conducted a study of 345 firms from the Council for Logistics Management membership roster, researching, among other topics, the link between corporate organization structure and logistics integration. Logistics integration is one method of separating the logistics organization structures. A traditional structure is not an integrated form, while the program, function, and matrix structures are. The findings of Stank’s study showed that firms with centralized corporate organization structures better fit with integrated logistics organization structure than did firms with decentralized corporate organization structures. Also, the centralized firms were able to spend a lower percentage of net sales on product costs than decentralized firms. There were no conclusions on the
effectiveness of the centralized and decentralized firm structures because they had similar ratings in goal fulfillment [Stank 1994, 41-52].

A 1985 study [Farrell 1985] showed that firms with functional corporate organization structures tend to have integrated logistics departments and move away from dispersing them throughout the firm in the traditional structure type. For divisional firms, whether by area or product, the dominant logistics organization form was a separate logistics function for each division. There was a trend, though, for divisional firms to consolidate staff responsibility at the corporate level, leaving line responsibility within the divisions.

This study supports the assertion that the logistics organization structure follows the corporate organization structure. The study also shows that it is not a hard and fast rule, for there were also examples of leading corporations in which logistics and corporate organization structures differed.

5.3.2 Fit for Cost Leadership Strategy

A firm using cost leadership strategy should centralize the logistics organization structure where possible, and decentralize when necessary.

For cost leadership strategy, the corporate organization structure that fits well is a centralized one. Similarly, the logistics organization structure should also be centralized. However, as the firm grows in size, and organizationally must be split into either product or geographic divisions, the central logistics body may have to divest some line functions to the divisions, while maintaining staff responsibility for managing the logistics costs and the performance of the divested activities.

The work of Treacy and Wiersema supports this hypothesis. Their studies show that cost leadership firms employ a large centralized staff, controlling costs through regimented and standardized processes. These companies rely heavily on information technology, and use strong measurement systems to help control the costs and move toward continuous improvement [Treacy 1995, 42].

This relationship is one reason why large military organizations are very hierarchical. There is a very strong centralization of power because command control is imperative for this organization. In fact, during Operation Desert Storm, there was one person in charge of logistics for all the US forces in the Persian Gulf, Gen. Gus Pagonis. He was responsible for providing all logistics support for the war effort there, whether it was the efficient delivery of supplies for food, or the movement of troops, vehicles, or armaments. Gen. Pagonis reported directly to Gen. Schwarzkopf, the commander of the US forces.

Corporate organizations employing cost leadership strategy will also have a strong centralization tendency, this time based on controlling costs.
5.3.3 Fit for Differentiation Strategy

Firms employing differentiation strategy generally concentrate a lot of effort on their research and development, which creates their innovative products. Therefore the majority of product costs comes from this function. Consequently, the logistics costs are relatively unimportant. This gives more leeway, organizationally, for going above the minimum costs for logistics performance, and therefore the logistics organization structure may be decentralized.

The role of logistics shifts from being a cost minimizer to one that ensures customer service. Customers are willing to pay for new, innovative products at a premium, but only if there is product availability.

Here, logistics may still be a competitive weapon, but need not necessarily be placed into an integrated function, and a traditional logistics organization structure can be used. As long as the customer service performance is satisfactory, then integration is not needed. The integration of logistics activities under one group, whether with staff or line responsibility, aids in the visibility of the overall supply chain performance.

If visibility is not present because the logistics activities are dispersed in a traditional form, then integration should take place. Many times a good information system can substitute for the organization structure shift.

If logistics is considered a source of competitive advantage, and this differentiates the firm from its competition, then it is important to have at least a central staff function that monitors logistics performance. Line responsibility may still be placed with the individual functions or divisions.

5.3.4 Fit for Focus Strategy

Focused companies generally fit a highly decentralized corporate structure [Treacy 1995, 42]. This structure should be organized according to the customer focus, which may be either geographic areas or specific products. From the first hypothesis, the logistics organization structure should also be decentralized.

This hypothesis is, however, very simplistic, and many times not the case. For focused firms, both cost and service are important, and this must be reflected in the logistics organization structure. The logistics organizations structure will not exactly parallel the corporate organization structure. It should be centralized where common logistics networks exist between different groups, creating some cost savings. Service is not sacrificed by maintaining dotted line relationships with the different groups involved.
There are also other factors that need to be considered for focused firms. Van Amstel and Starreved [1993, 53-55] conducted an empirical study to determine effective logistics organization structures, relating the structures to three separate factors: logistical complexity; logistics task predictability; and autonomous logistical areas. Logistical complexity, according to the authors, is determined by the number of customers, the percentage of international shipments, the manufacturing process (batch or continuous), the extent of third-party involvement, and the extent of customer service demand. Logistics task predictability is a measure of the fluctuations in logistics requirements, based on the production schedule process (make-to-order or make-to-stock), the variability of customer logistics requirements, and demand forecast accuracy. With respect to autonomous logistical areas, if the firm is able to separate the procurement and the physical distribution sides, or has separate divisions with individual logistics requirements, then autonomous logistical areas exist within the firm.

There are similarities between the van Amstel factors for designing effective logistics organization structures and the factors used in this thesis. Logistical complexity is a measure of the dynamism of the corporate external environment and the corporate strategy to compete in that environment. Logistics task predictability is also related to both strategy and environment. A dynamic external environment will always lead to low logistics task predictability. A company using customer intimacy or innovation strategies will also have low logistics task predictability. Only firms using the cost leadership strategy in a mature environment will have high logistics task predictability.

The number of logistical areas reflects the corporate organization structure. A divisional firm will generally have many logistical areas, while a matrix organization will not. Functional organizations may or may not have autonomy. However, in today’s environment, it is unlikely that autonomous decision areas exist for any functional organization.

The van Amstel and Starreved [1993, 55-56] study continues by theorizing on the location of the logistics executive within the firm. The basic framework is a factor of the importance of customer service to the firm, and of the logistics performance to supply chain costs. Figure 5.3.1 shows this framework. The basic idea is that, if both customer service performance and logistics costs are high, then the logistics executive should report directly to the CEO. If customer service performance is more strategically important, then the logistics executive should report to the marketing/sales head. Alternatively, if logistics costs are a main driver of competitive advantage, not customer service, then logistics should be placed under manufacturing. In the cases where neither is important, then there is no need for a logistics executive, and the traditional logistics organization structure is appropriate.
This theory has implications for the hypotheses given about the links between strategy and structure. For a customer-intimate firm, both customer service and costs are important, and it follows from van Amstel that the logistics department should be separate. Innovative firms are more concerned with customer service performance and so may place logistics under marketing. The cost leaders will clearly focus more on the impact of logistics on logistical costs or production, and so will place logistics under the manufacturing organization.

The van Amstel study is helpful in determining how logistics should be placed at the top level. The study tested this theory on fifteen Dutch organizations, matching whether the companies fit the relationships of the theory and, if so, were their logistics performances good? The theory held up to that scrutiny [van Amstel 1993, 56]. However, the article does not describe how the logistics performance was measured. This again supports the contention that it is difficult to pinpoint a general direct measure of logistics performance.

This chapter has established that there is a link between the three parameters of corporate strategy, corporate organization structure, and logistics organization structure. Two basic measures of fit were introduced: hard and soft.

Four basic hypotheses were proposed. First, that the corporate and logistics organization structures should parallel one another. Second, that for cost leadership firms, a centralized organization structure, with as much centralization of the logistics network under one integrated department as possible, generates the best fit for this type of strategy. Third, that for differentiated firms, a decentralized product or geographic corporate organization generates the best fit. Many times, because logistics is a small part of the total product cost, the activities can remain dispersed throughout the organization. Last, for focused firms, a market-oriented (either area or product, or both, in a matrix) corporate organization structure fits. Because generally both cost and service are of paramount importance to focused firms, the logistics organization structure should have a centralized staff to monitor the individual and total logistics performance, while maintaining the operational side of logistics decentralized within the individual product or geographic units.
Most importantly, the chapter has made it clear that there is no single solution for creating an ideal logistics organization. Different contingencies require different organizational arrangements. Although it is still unlikely that any study will be able to create a general metric for determining a truly “ideal” logistics organization structure for a firm [Bowersox 1994, 783], these hypotheses should be helpful in giving guidelines for enterprises in creating a fit between their logistics organization structures and corporate strategy.

The hypotheses will be tested in the next chapter through five case studies.
6.0 Analysis of Case Studies

This chapter tests the hypotheses on organization fit; it is time to test these hypotheses in real-world situations. Five cases illustrate the linkages between corporate strategy, corporate organization structure, and logistics organization structure.

The choice of the companies for the cases was based on three main criteria:

First, the companies cover the three strategy types discussed in chapter 2. Further work would look into corporations employing every possible combination of strategy, corporate organization structure, and logistics organization structure.

Second, the companies were chosen from differing, non-competing industries, to demonstrate that organizational fit is applicable to any company that has logistics activities. Also, this permits a freer exchange of ideas with each corporation. Major competitors of each company are evaluated based on public information.

Third, the proximity of the case companies to the university was considered, so follow-ups were easy.

The five companies’ case studies are shown in Table 6.0.1.

<table>
<thead>
<tr>
<th>Company</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staples</td>
<td>the number two office supply superstore corporation in the US, selling</td>
</tr>
<tr>
<td></td>
<td>primarily office products, business services, and personal computers.</td>
</tr>
<tr>
<td>Gillette</td>
<td>the world leader in male grooming products, writing instruments, oral</td>
</tr>
<tr>
<td></td>
<td>care appliances, and alkaline batteries.</td>
</tr>
<tr>
<td>Polaroid</td>
<td>the dominant market leader in instant photographic imaging products</td>
</tr>
<tr>
<td></td>
<td>worldwide.</td>
</tr>
<tr>
<td>Lucent</td>
<td>one of the largest manufacturers of network and communication systems and</td>
</tr>
<tr>
<td>Technologies</td>
<td>software.</td>
</tr>
<tr>
<td>Bose</td>
<td>one of the best known names in the audio equipment world, and the</td>
</tr>
<tr>
<td></td>
<td>world market leader in loudspeaker equipment</td>
</tr>
</tbody>
</table>

Table 6.0.1 List of company case studies.

Each of the case studies follows the same format involving five sections. The first section provides a brief background on the corporation. The next three sections examine the company’s corporate strategy, corporate organization structure, and logistics organization structure, respectively. The last section analyzes the organization fit in the firm. An overall discussion on the research hypotheses is left for the next chapter.
6.1 Staples Case

Note: The primary information is based on an interview with Ms. Kathleen Strange, Director of Logistics implementation and strategy at Staples, on Feb. 21, 1997. All other information has been taken from public sources.

6.1.1 Staples: History/ Background

Staples, Inc. is the number two office supply superstore corporation in the United States with almost 4 billion dollars in annual sales (through January 1997). Staples sells office products, business services, office furniture, and personal computers through about 450 stores in the US (primarily in the East, and California), about 100 stores in Canada (under the name Business Depot), and 50 stores in Europe (Germany and the UK) [Staples 1997a]. The superstores offer over 8,000 brand name office products. There is an agreement with rival Office Depot, the number one corporation ($ 6.1 B in 1996) in the office supply superstore category, for a merger, but this has been blocked by the Federal Trade Commission (FTC) for anti-trust issues, and is currently stalled [Staples 1997d].

Staples is headquartered in Westborough, MA. It was founded in 1986 with one store in Brighton, Massachusetts. Since then, the company has pursued an aggressive expansion plan, opening 115 stores in 1996 alone. Thomas Stemberg, one of the co-founders, is still the CEO of the firm. Currently, Staples employs a labor force of approximately 25,000.

The office supplies market Staples operates in is split into two types of firms. There are now the office superstores such as Staples which provide firms with the “staples of the business” (Staples’ slogan), and smaller stores which focus on the boutique business. The entire office supplies market has revenues of $185 billion [Staples 1997d].

The superstore market is relatively new and there is a large growth in sales generated mainly from expansion into new geographic markets. Staples experienced a 29% overall increase in sales and 43% increase in net income from the prior year for the fiscal year ended February 1, 1997 [Staples 1997a]. For stores open for more than one year, a moderate growth of 14% over the previous year was experienced. Table 6.1.1 below shows some recent financial data of the firm:

<table>
<thead>
<tr>
<th>Fiscal year ending January</th>
<th>1997</th>
<th>1996</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales (millions of $)</td>
<td>3,968</td>
<td>3,068</td>
<td>2,000</td>
</tr>
<tr>
<td>Change over previous year</td>
<td>29.3%</td>
<td>53.4%</td>
<td>52.8%</td>
</tr>
<tr>
<td>Net income ($ millions)</td>
<td>106</td>
<td>74</td>
<td>40</td>
</tr>
<tr>
<td>Change over previous year</td>
<td>43.4%</td>
<td>85.0%</td>
<td>105.3%</td>
</tr>
</tbody>
</table>

6.1.2 Staples: Corporate Strategy

The goal of Staples is to become the leading low-cost supplier of office products to small- and medium-sized businesses in targeted markets [Mahmood 1995, 1].

"Staples pioneered the office superstore industry...aimed at providing the same deep discounted prices to the small-business person that previously had been available to only large corporations." [Staples 1997a, emphasis added]

Of course, innovation is important in that good innovation supports Staples’ cost leadership. Customer service is an essential function in its business as well. However, cost leadership is the primary driver at Staples [Staples 1997b].

All major competitors in the superstore market are in the overall cost leadership position. The three main competitors are: Office Depot, Staples, and OfficeMax (1996 revenues of $3.2 billion [OfficeMax 1997]). The next paragraph concerning the merger between Office Depot and Staples illustrates Staples’ use of the cost leadership strategy.

It is the anti-trust issue that blocked the merger plans between Staples and Office Depot. The FTC was concerned that, after the merger, an area with just one supplier would be caught in a monopoly situation and be subject to higher prices than in a competitive environment. On the other hand, Tom Stemberg argued that the merger would lead to lower prices, because of the economies of scale that would be present. A vendor supplying both Office Depot and Staples would be asked to give volume discounts, which could then be passed on to the consumers [Staples 1997c]. Mr. Stemberg went on to say that it would be completely against their strategy to use the merger to gain monopolies and then raise prices on their customers [Staples 1997d].

The superstore market operates in a promotion-based atmosphere, creating fluctuations in demand. Trying to maintain a least cost logistics system, while still catering to the stochastic demand fluctuations, is a challenging task. Staples feels that it cannot eliminate promotions entirely, and try to create everyday low prices in general. It tries to offset the added cost due to generated sales fluctuations with the savings from volume discounts they receive from their vendors. Therefore, although the logistics costs may rise above the lowest amount possible, the cost of the delivered goods is still the lowest in the industry [Staples 1997b].

The promotions pricing strategy varies across product lines. In areas with smaller margins, there is little room for creating a massive promotion. It is with products where the margins are not so tight that Staples can make the money, and also engage in promotion schemes.
6.1.3 Staples: Corporate Structure

Staples has recently reorganized its corporate structure into two main business divisions: retail and business direct. The retail division consists of the office superstores and the Staples Express stores, which are smaller stores located in downtown areas with smaller inventories but faster service. The business direct division operates a door-to-door delivery service for small and large businesses. Separate from these two divisions are the international operations in Canada and in Europe, which operate mainly retail stores. The international operations in Europe, within Germany (Maxi-Papier) and the UK (Staples UK), were started as joint ventures with Kingfisher plc, a U.K.-based firm. Recently, Staples announced that it will acquire Kingfisher's interests in those firms [Staples 1996b]. All four groups report to the CEO.

Matrixed into the organization are certain corporate staff functions. Some of these are Human Resources, Finance, and Merchandising. Of interest to this thesis is the Merchandising, which controls both the merchandising function itself and the corporate logistics group. A Senior Vice President (SVP) of Merchandising and a SVP Logistics report to an Executive Vice President Merchandising.

Staples operates under extremely low costs and extremely low margins. This is reflected in the logistics strategy as well. Ms. Strange commented that, in an organization such as Staples, logistics is absolutely important to the performance of the firm. The merchandising function is another important function. Merchandising coordinates with Staples' vendors to get the right product at the right time, and at the right purchase price. Logistics coordinates with merchandising and the vendors to create an efficient flow of goods.

Other important functions are promotions, financial management, and real estate management. The promotions function keeps the visibility of Staples high, mainly through inserts in newspapers, showing the low costs of Staples products. Financial management is self-explanatory. Real estate management focuses on being able to roll out new stores speedily. Staples looks at maintaining excellence in all of these areas.

A schematic of the organization chart is provided in Figure 6.1.1 below:
6.1.4 Staples: Logistics Organization Structure

As discussed in chapter 4, the logistics field consists of many elements (activities). Not all firms consider each element as part of logistics, and Staples in particular has no need for those which manufacturing firms would normally have.

To gain more insight into logistics at Staples, what follows is a discussion, based on the list of elements from chapter 4, about whether Staples considers each to be a part of the logistics field. The discussion also addresses which group within Staples has responsibility for managing the activity.

Traffic and transportation, and packaging (for distribution, for example pallets), are considered logistics activities at Staples, managed by a transportation manager within the corporate logistics function, who reports to the SVP Logistics. This group, apart from the inbound transportation management, which is operational, aims at providing strategic support for logistics within the firm. There are two other main sub-groups within corporate logistics: logistics strategy & implementation and demand chain management. Figure 6.1.2 shows the organization structure of Staples’ corporate logistics group.
Logistics strategy looks at developing the logistics network and distribution center of Staples as it grows. It aids in the determination of the location and size of distribution centers (DCs), including their layout and construction. Once a DC is constructed and operational, it is turned over to the division distribution managers.

In line with being a low cost leader, Staples uses a centralized distribution strategy. This saves them money by reducing labor costs and floor space in their retail stores. The centralized warehousing also affords savings in transportation costs without sacrificing inventory replenishment time. Most products are replenished within 48 hours after the order is placed [Mahmood 1995, 3]. Consolidated movements allow Staples to generate full truckloads and reap the savings from these economies of scale. The company is continually striving to control the entire transportation segment to gain economies of scale and scope. Staples is moving towards purchasing the majority of its products via FOB (freight-on-board) vendor's dock [Staples 1997b].

Demand chain management aims at working with Staples' merchandisers and vendors to create a smooth flow of goods from vendor to the final customer. The director looks at how long the goods stay in Staples' part of the demand chain. Demand chain management is an alternative term for supply chain management, with the change made to emphasize that the product is being pulled by demand through the channels, as opposed to being pushed by supply. The focus of the cooperation ties into changing the corporate procurement strategy.

Inventory control, demand forecasting, and procurement are also parts of logistics but under the authority of the merchandising function. The merchandisers determine what products to purchase, how much to purchase, and when to order them. Staples has an efficient inventory control system that aids in the development of a demand forecast and the centralized procurement strategy.

The close relationship between merchandisers, people working closely with the vendors, and logistics is seen by the placement of both functions under the EVP Merchandising.
Warehousing, order processing, and materials handling are managed by distribution managers within the divisions. Each division maintains its own distribution network and centers. The distribution managers report to a VP (Vice President) Distribution, who in turn reports to the head of his division. The VP Distribution of the Retail Division also has a dotted line relationship to the SVP Logistics. The dotted line relationship entails that the SVP Logistics give strategic and high-level advice. This dotted line relationship is not necessary for the Business Direct Division. Figure 6.1.3 illustrates this dotted line relationship.

![Diagram of organizational structure](image)

Figure 6.1.3 Logistics organization structure for the operational logistics within the divisions. [Staples 1997b]

Customer service is not considered part of logistics. It is the responsibility of the personnel in the superstores or at call centers for the retail and business direct divisions respectively.

Parts service and support, salvage and scrap disposal, return goods handling, and production scheduling are not core logistics activities in a non-manufacturing corporation such as Staples.

Table 6.1.2 summarizes the breakdown of logistics activities at Staples.
<table>
<thead>
<tr>
<th>Logistics element</th>
<th>at firm?</th>
<th>group responsible for activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. customer service</td>
<td>X</td>
<td>personnel in retail stores &amp; call centers</td>
</tr>
<tr>
<td>2. traffic and transportation</td>
<td>✓</td>
<td>corporate logistics</td>
</tr>
<tr>
<td>3. inventory control</td>
<td>✓</td>
<td>merchandising</td>
</tr>
<tr>
<td>4. order processing</td>
<td>✓</td>
<td>division distribution group</td>
</tr>
<tr>
<td>5. distribution communications</td>
<td>✓</td>
<td>corporate logistics and distribution</td>
</tr>
<tr>
<td>6. demand forecasting</td>
<td>✓</td>
<td>merchandising</td>
</tr>
<tr>
<td>7. warehousing and storage</td>
<td>✓</td>
<td>division distribution group</td>
</tr>
<tr>
<td>8. plant &amp; warehouse site selection</td>
<td>✓</td>
<td>corporate logistics provides input</td>
</tr>
<tr>
<td>9. materials handling</td>
<td>✓</td>
<td>division distribution group</td>
</tr>
<tr>
<td>10. procurement</td>
<td>✓</td>
<td>merchandising</td>
</tr>
<tr>
<td>11. parts and service support</td>
<td>X</td>
<td>N/A</td>
</tr>
<tr>
<td>12. packaging</td>
<td>✓</td>
<td>corporate logistics (distribution packaging)</td>
</tr>
<tr>
<td>13. salvage and scrap disposal</td>
<td>X</td>
<td>N/A</td>
</tr>
<tr>
<td>14. return goods handling</td>
<td>X</td>
<td>N/A</td>
</tr>
<tr>
<td>15. production scheduling</td>
<td>X</td>
<td>pull system, doesn’t apply otherwise</td>
</tr>
</tbody>
</table>

Table 6.1.2 The logistics activities at Staples.  [Staples 1997b]

There is both formal and informal communication that exists between the different groups managing the logistics activities that help provide coordination.

As mentioned before, the relationship between the corporate logistics group and the distribution group is generally as follows: corporate logistics handles the strategic aspects of the logistics realm, such as determination of the network, sizing and locating the distribution centers, designing the layout of the DC, and managing the tenders for equipment and construction suppliers. Logistics turns over the responsibility for the DC once it is operational. During the strategic phase, corporate logistics does not work in a vacuum, but also consults with the operational distribution group.

Corporate logistics and merchandising are undertaking joint strategic initiatives such as with the demand chain management group. This initiative examines issues such as the floor space layout, which directly impacts the inventory holding capacities, and the relationships with the vendors, which aims to optimize the demand chain.

6.1.5 Staples: Organizational Fit

Staples is a low-cost provider. Its corporate structures are based on a product business divisions matrix overlaid by some corporate functions that give strategic support to the divisions. The logistics organization structure reflects the corporate structure by having most of the operational side of logistics within the two divisions, and the logistics strategic support at the corporate level.
The organizational fit for Staples is determined based on the financial data which establishes whether the firm is performing well, and then determining if the logistics measurements are also performing similarly well. Then it can be at least asserted that the poor or good performance is based on an effective logistics organization structure. The other main criteria for fit are the opinions of members of the firm and hypotheses from literature.

The most important measures for Staples as a whole are the daily sales figures as compared to historical numbers, and the adherence to budgets by the departments. These make sense for a low-cost firm because it wants to minimize costs; maintaining budget is important, and it closely monitors at sales figures because margins are low and the only way for Staples to make more money is to generate more sales. Firms using other strategies may be able to make more profit with less revenue by shifting sales to products with higher margins and smaller prices.

The data for daily sales are proprietary but annual figures have been discussed above and are very competitive. Comparing historical data, the annual revenue has risen by 29.3% at Staples, which compares to 14.2% for Office Depot for the same time period. Adherence to budget is very good and is watched very closely by senior management [Staples 1997b].

For logistics, the most important measure is the per unit costs; based on total delivered cost for a product (this includes materials, labor, movement, and storage). As these figures evolve, there is still room for improvement [Staples 1997b]. One step Logistics is taking to improve its unit costs is to purchase its products FOB (Freight-on-board) vendor’s dock to leverage the larger freight volumes for better rates.

Overall, the company is performing well, and the logistics function is competitive but not world-class [Staples 1997b]. Staples’ goal is to become a world-class organization with the full implementation of their logistics strategy. Staples has recently opened a DC in Maryland and is currently building another DC in Connecticut, serving the Northeast region. These new DC will help decrease Staples’ overall logistics costs.

Ms. Strange feels that there is a strong correlation between the logistics organization structure and the corporate strategy because logistics is a core competency. When there is any discussion about how Staples will change its financial performance, distribution and logistics are key components. Having a corporate logistics group manage the strategic aspects as a corporate function, while leaving the operational aspects to be managed by distribution within the divisions, works well [Staples 1997b].

The logistics organization structure at Staples has evolved with the changing importance of logistics to the corporation’s strategy. The corporate logistics group is presently concentrating on developing the physical logistics network, and therefore the group is still important.
Ms. Strange said that the present structure is appropriately organized for the current state of the business, knowing that the company and logistics are changing. Since the company is in a state of flux, and with the business expanding so quickly that it is playing catch-up all the time, the flexibility of a centralized strategic logistics organization is necessary [Staples 1997b].

Almost more important than the structure is the senior management support for logistics, which bridges any deficiencies in the formal linkages of the structure. Currently there is a lot of teamwork between the merchandising, corporate logistics, and distribution groups, which makes the structure at Staples effective.

According to the proposed hypothesis, a low-cost provider should centralize the organization structure as much as possible to lower costs. At Staples, the logistics strategy is made corporate-wide. The transportation moves are also done centrally. Distribution is divisional but placed in large national distribution centers, because of the different natures of the business units. For instance, the retail group’s transportation involves large consolidated truckload shipments, while the business direct group handles smaller shipments.

Another proposed hypothesis stated that at any firm the corporate structure and logistics organization structure should parallel one another. At Staples, both corporate and logistics structures are matrixed, with both strategic corporate and operational divisions aspects.

Overall, the organization structure at Staples complements the firm’s strategy, and there is a fit that works between the two. The case at Staples supports the hypotheses proposed about the fit between corporate and logistics organization structures, as well as the hypothesis about which logistics organization structure fits the cost leadership strategy.

6.2 Gillette Case

Note: The primary information is based on an interview with Mr. John Faldetta, Director of Distribution & Logistics at the Gillette Company, on January 22, 1997. All other information has been taken from public sources.

6.2.1 Gillette: History/Background

The Gillette Company is the world leader in male grooming products, a category that includes blades and razors, shaving preparations, and electric shavers. Gillette is also number one in the world in selected female grooming products, such as wet shaving products and hair epilation devices. The company is the world’s top seller of writing instruments and oral care appliances. With the recent acquisition of Duracell, the company is also the world leader in alkaline batteries [Gillette 1997c, 2].
Gillette conducts manufacturing operations at 64 facilities in 27 countries. Its products are distributed through wholesalers, retailers, and agents in over 200 countries and territories [Gillette 1997c, 1-2]. Its corporate headquarters are in Boston, Massachusetts. The company generated $949 million net income on $9,698 million sales in 1996. Table 6.2.1 below shows some recent financial data of the firm:

<table>
<thead>
<tr>
<th>Fiscal year ending December</th>
<th>1996</th>
<th>1995</th>
<th>1994</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales (millions of $)</td>
<td>9,698</td>
<td>8,834</td>
<td>7,935a</td>
</tr>
<tr>
<td>Change over previous year</td>
<td>9.8%</td>
<td>11.3%</td>
<td>N/A</td>
</tr>
<tr>
<td>Net income ($ millions)</td>
<td>949</td>
<td>1,069</td>
<td>919</td>
</tr>
<tr>
<td>Change over previous year</td>
<td>(11.2%)</td>
<td>16.3%</td>
<td>N/A</td>
</tr>
<tr>
<td>Inventories ($M)b</td>
<td>1,358</td>
<td>1,268</td>
<td>941c</td>
</tr>
</tbody>
</table>

Table 6.2.1 Selected financial data of the Gillette Company. Unless noted, the data presented includes Duracell information. Source: Gillette annual reports. (a) Without Duracell the sales figure is $6,072 M. (b) Inventories are stated as first-in, first-out. (c) This data does not include Duracell figures.

The company was founded in 1901 by King Camp Gillette as a firm selling safety razors with disposable blades. In 1955, Gillette began diversification out of the razor blade arena with the acquisition of Papermate, a maker of ball point pens. In 1967, the company acquired Braun, a large manufacturer of small electrical appliances.

Today the firm is made up of six businesses: blades and razors, toiletries and cosmetics, stationery products, small electric appliances, oral care products, and alkaline batteries.

Blades and razors produces such brands as Sensor and Atra, and accounts for most of the profits of the firm. Toiletries and cosmetics produce products such as shaving cream (Foamy), antiperspirants (Dry Idea, Soft & Dry, Right Guard). Stationery products include writing implements (Paper Mate, Parker, Waterman) and correction products (Liquid Paper). The Braun division makes small appliances under the Braun name, and instant thermometers (Thermoscan). The oral care group manufactures the Oral-B brand. In 1996, the company purchased Duracell, an alkaline battery manufacturer [Gillette 1997c]. Product specific sales and operations information is shown in Table 6.2.2.
<table>
<thead>
<tr>
<th>Business Segment</th>
<th>Net sales</th>
<th>% total</th>
<th>Operating income</th>
<th>% total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blades &amp; razors</td>
<td>2,836</td>
<td>29</td>
<td>1,062</td>
<td>65</td>
</tr>
<tr>
<td>Toiletries &amp; cosmetics</td>
<td>1,375</td>
<td>18</td>
<td>300</td>
<td>18</td>
</tr>
<tr>
<td>Stationery products</td>
<td>915</td>
<td>14</td>
<td>87</td>
<td>5</td>
</tr>
<tr>
<td>Braun products</td>
<td>1,773</td>
<td>10</td>
<td>122</td>
<td>7</td>
</tr>
<tr>
<td>Oral-B products</td>
<td>548</td>
<td>6</td>
<td>58</td>
<td>4</td>
</tr>
<tr>
<td>Duracell products</td>
<td>2,251</td>
<td>23</td>
<td>142</td>
<td>9</td>
</tr>
<tr>
<td>Corporate Adjustments</td>
<td>-</td>
<td>-</td>
<td>(135)</td>
<td>(8)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>9,698</td>
<td>100</td>
<td>1,636</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 6.2.2 Business segment financial information for fiscal year ending December 31, 1996. Values are in millions of dollars. Source: Gillette annual reports.

Gillette also has a significant international presence. In terms of international segments, the breakup of 1996 sales is as follows: 37% in the United States, 32% in Western Europe, 11% in Latin America, and the remaining 20% throughout the rest of the world [Gillette 1997c, 40]. More than two-thirds of Gillette revenues come from outside the US.

6.2.2 Gillette: Corporate Strategy

Gillette corporate strategy aims to bring high technology products in its chosen fields to the consumer. In its marketing efforts it always seeks to differentiate itself from the competition by showing that its product is more innovative, and therefore better. It is primarily a technology company, and second a marketing company.

The blades and razors business is a good example of Gillette innovation. Razor blades are the most highly-engineered item in most household bathroom cabinets, as the products are produced to very tight tolerances. Gillette has continually capitalized on opportunities to improve its design and production technology. The company has continually pioneered most of the major innovations in the field. Competitors typically imitate Gillette’s new products within a year or two of its launch [Esty 1991, 5].

The recent purchase of Duracell, another high-technology firm, is in line with their overall corporate strategy of differentiation.

Even when competitors imitate Gillette’s innovations, Gillette’s primary advantage is that they can manufacture the product with consistently high quality [Gillette 1997a]. The firm has spent over $600 million in equipment and manufacturing technology on their newest line alone. For the launch of Sensor in 1989, the firm spent $50 million for new equipment [Esty 1991,1].

6.2.3 Gillette: Corporate Structure
Gillette's organization structure is composed of 4 business divisions with geographic elements to the divisions. The four divisions are organized along the business lines and geographic elements. There are the Gillette North Atlantic Group, International Group, Duracell North Atlantic Group, and a Diversified Group [Gillette 1997c].

The North Atlantic Group manufactures and markets the company's personal grooming products in North America and Western Europe. The International Group makes and markets the company's personal grooming products and writing instruments throughout the world except for North America and Western Europe. Duracell North Atlantic manufactures and markets the Duracell brand in North America and Western Europe. The Diversified Group consists of Braun, Oral-B and Jafra Cosmetics, each of which are organized on a worldwide product basis [Gillette 1995, 1997c]. Figure 6.2.1 illustrates the corporate organization structure just discussed.

![Organization Structure Diagram]

Figure 6.2.1 Gillette corporate organization structure schematic diagram. [Gillette 1997c]

This report will focus mainly on the North Atlantic Group, because it contains the company's largest logistics organization. The North Atlantic Group is organized by function and geographic area. Figure 6.2.2 shows the Group's organization structure. There are: a sales/marketing group (business management); a manufacturing & technical operations group; a European group; and a North American group. Manufacturing & technical operations handles the design, production, and distribution of personal care products and blades & razors for the North Atlantic region.
The company tries to use the North Atlantic Group as the sales and marketing arm for some of their diversified products. The personal grooming products manufactured and distributed by the North Atlantic Group include the oral care lines. The Group also distributes products through North America for Braun, and will integrate Braun’s distribution in the near future. This is one point where a matrix between the business division and geographic region occurs.

6.2.4 Gillette: Logistics Organization Structure

At Gillette, the logistics organization structure is primarily functional. For the North American operations, there is only one logistics and distribution group that handles logistics for all business lines. This is the logistics and distribution group under manufacturing and technical operations.

As discussed in chapter 4, the logistics field consists of many elements (activities). Not all firms consider each element as part of logistics for their cases and Gillette is one of these firms. The 15 activities described are managed by two main groups within the firm: the logistics department and the sales and marketing organization. The reader should refer to Table 6.2.3 below and Figure 6.2.2 above for this discussion.

At Gillette, the following activities are clearly in the logistics field, and placed under the logistics and distribution department: traffic and transportation, inventory control, distribution communications, warehousing and storage, and materials handling and special packaging for made-to-order products.

The sales and marketing department manages order processing, demand forecasting, and parts and service support. The reason for placing parts and service support in that group
is because most of the products are very small and will rarely need replacement parts (i.e., disposable razors, cosmetics).

The production department handles production scheduling, and packaging for products that are made-to-stock. The planning/materials management department controls most of the procurement for the group.

Customer service is handled by both sales/marketing and the logistics department. The logistics group ensures that products are at the retail location when necessary, and the sales/marketing group ensures customer satisfaction through a customer response center.

<table>
<thead>
<tr>
<th>Logistics element</th>
<th>at firm?</th>
<th>group responsible for activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. customer service</td>
<td>½</td>
<td>some logistics, some sales/marketing</td>
</tr>
<tr>
<td>2. traffic and transportation</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>3. inventory control</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>4. order processing</td>
<td>X</td>
<td>sales/marketing</td>
</tr>
<tr>
<td>5. distribution communications</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>6. demand forecasting</td>
<td>X</td>
<td>sales/marketing</td>
</tr>
<tr>
<td>7. warehousing and storage</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>8. plant &amp; warehouse site selection</td>
<td>✓</td>
<td>logistics (warehouse selection)</td>
</tr>
<tr>
<td>9. materials handling</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>10. procurement</td>
<td>✓</td>
<td>planning/material management</td>
</tr>
<tr>
<td>11. parts and service support</td>
<td>X</td>
<td>sales/marketing</td>
</tr>
<tr>
<td>12. packaging</td>
<td>½</td>
<td>logistics &amp; production</td>
</tr>
<tr>
<td>13. salvage and scrap disposal</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>14. return goods handling</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>15. production scheduling</td>
<td>✓</td>
<td>production</td>
</tr>
</tbody>
</table>

Table 6.2.3 The logistics activities at Gillette. [Gillette 1997a]

The distribution and logistics department moves about 700 million pounds a year using 100% contracted carriers. The firm feels that owning the transportation vehicles is not core to their business. Its goal is to ensure constant improvement in its performance, which is monitored in terms of its cost and service performance as well as benchmarks set against world-class companies to see where improvements can be made. The department was able to reduce the distribution costs of the Braun division from $6.7 down to $4 million a year [Gillette 1997a].

Currently, the logistics department is separated into three main functions. There is a manager for distribution and logistics operations who oversees the warehouse facility managers. There is a transportation manager who coordinates all movements. Finally, there is also a distribution systems and services group that acts as a liaison with sales and
marketing, and manages the IT support system for logistics. Figure 6.2.3 illustrates the department organization structure.

![Organization Chart](image)

**Figure 6.2.3 Logistics organization structure for the logistics and distribution department.** [Gillette 1997b]

With the acquisition of Duracell, the logistics group plans to integrate that product line into their distribution system. Because of the increase in volume, new warehouses are needed. With the change of warehouses also comes a change in the logistics model. The logistics strategy is to give the best support service to the firm. It is willing to outsource the logistics activities to a third-party firm that may be able to combine its freight with others and achieve greater economies of scale and scope than what Gillette has accomplished on its own.

By the end of 1999 all warehouses will be leased. This enables Gillette to be flexible in adapting to changing environments. Its notion of the future logistics system uses leased warehouses managed by Gillette using Gillette systems, using a logistics contractor for day-to-day operations in the warehouse. This will make a transition to a full-service third-party logistics provider easier. Right now Gillette has not found a third-party provider capable of handling their operations more efficiently to themselves. Mr. Falldetta is confident that Gillette will be able to find a suitable third-party logistics provider, or help one meet Gillette's standards in the near future. These third-party providers can have smaller locations placed close to the customer and consolidate Gillette shipments with other suppliers. This improved supply chain integration will increase efficiency and reduce transit times. [Gillette 1997b]

### 6.2.5 Gillette: Organizational Fit

The Gillette company has a differentiation strategy, uses a divisional organization with geographic elements, and has a functional logistics organization that cuts across the divisions for the North American region. As discussed in the previous chapter the fit is determined based on the financial data which establishes whether the firm is performing well, and then determining if the logistics measurements are also up to standard. The
other main criteria for fit are the opinions of members of the firm and hypotheses from literature.

The overall financial data of the firm is respectable. Company-wide, the firm's growth rate has averaged above 10% for the past two years. Net income has dropped from 1995 to 1996 because of merger transaction and restructuring costs. However, the actual numbers are still healthy.

The main metric for logistics is customer service subject to cost efficiency. There is a lot of contact and information exchange with customers with regards to the group's logistics activities. Many customer suggestions are taken into account in their planning. This is one method Logistics uses to ensure good customer service. The customers of Logistics are both internal and external to the firm [Gillette 1997a]. Inventory turns (net sales over inventories) have steadily increased from 6.9 to 7.3 per annum [Gillette 1997c].

Comparing the Gillette financial performance to some of its major competitors gives some perspective on how good these numbers actually are. Warner-Lambert's Stick brand is Gillette's largest U.S. competitor in the blades and razors industry. Warner-Lambert produces consumer products and prescription drugs. Stick is only a small part of the organization, representing about 10% of the corporate revenue. Most of its business is in the pharmaceutical sector, in which Gillette does not participate [Esty 1991, 2].

Overall, Warner-Lambert reports $7.3 billion in 1996 revenues, only a 2.7% increase over the previous year's. However, it has far higher inventory turns of 11.7 a year. This can be partially attributed to the pharmaceutical products which cost a lot more per SKU and therefore are not kept in large volumes of inventory [Warner-Lambert 1997].

Comparing the data is difficult because only corporate-wide information is given, and the overlap in business lines is not very large. However, the results of Gillette are such that the financial and logistics performances are acceptable.

Turning to the coordination side of organizational fit, a challenge for the firm is to work across the current business division and geographic organization structures. This challenge must be overcome in order to develop a single global business [Faldetta 1996, 39]. Global logistics organizations are complex. There are specific needs in the different regions of the world, such as metric vs. US systems, electric current, and languages. The firm is trying to meet these challenges by postponing the differentiation of a product. For example, in the case of the Sensor blades, they are manufactured at the plant, but not packaged until they have arrived at regional pack warehouses, which customize the product to their regions. This allows for global control of the product availability without sacrificing customization to regional specifications, as well as generates inventory reductions [Faldetta 1996, 35].

For the North Atlantic Group's logistics department, the integration of distribution activities for all business lines is possible because most of the products go through the
same distribution channels. Over fifty percent of Gillette’s customers are mass merchants and service merchants. Integration is also an advantage for the customers because less paperwork is involved, and there are less points of contact with Gillette.

Another issue is the possible perception of other divisions that the logistics department is prioritizing the North Atlantic Group because there are no direct reporting relationships between the logistics group and the other divisions. The only common superior for both is the President. This issue comes up especially during the quarter end, when products are being pushed out and distribution capacity may be tight. The divisions worry that with the integration of their distribution into the NAG logistics organization that they will lose control over customer service. Mr. Faldetta states that there is no bias at the firm.

Mr. Faldetta states that: “Overall, the small problems go away, and only the important issues are brought up by the divisions. The key for the logistics group is to maintain good relationships with the sales people” [Gillette 1997a].

It may seem odd that a distribution department within one division is managing distribution for all other divisions in that geographic region. Mr. Faldetta believes that the department may move out of the division at some time in the future from technical operations into commercial to accommodate the concerns of some of the other divisions about bias.

According to literature, an innovation-based company would like to get products to the market as fast and reliably as possible. This may lead a firm to decentralize. Gillette has done some decentralization on a geographic basis. The firm has centralized the logistics operations within the geographic areas with the promise that service will not suffer.

Chapter 5 hypothesized that the corporate and logistics organization structures should parallel one another. At Gillette, these two complement each other because both are setup with business division and geographic elements.

Having logistics outsourcing as a possibility is a good idea. An efficient third party should be able to cut the costs of logistics without sacrificing service. However, Gillette will not make the shift until it has confidence that the third party logistics provider has these capabilities.

Since logistics handles not only the Personal Care & Grooming distribution throughout NA, but for all the business lines, it may make organizational sense to move it out from under the NAG and make it independent.

Overall, the linkage between strategy and logistics organization structures at Gillette is sound. The firm prioritizes speed of products, and looks at managing costs afterwards, and has created a structure that supports this.
6.3 Polaroid Case

Note: The primary information is based on an interview with Dr. Abbott Weiss, Vice President - Logistics at Polaroid, on Feb. 11, 1997. All other information has been taken from public sources.

6.3.1 Polaroid: History/ Background

Polaroid is engaged primarily in the design, manufacture, and sale of instant photographic imaging products around the world. It is the dominant market leader in this field, and this field generates more than 90% of the company’s revenues. The instant photography products are used in professional photography, business, industry, science, medicine, government, and education settings [Polaroid 1996a, 44]

Other products of Polaroid include: electronic imaging products such as government and commercial identification photography, document photography, and document image management; graphics imaging products for the graphic arts industry; medical imaging products such as the Helios dry laser imaging system; and holography and polarizers, whose products include holographic images on stickers and sunglasses [Polaroid 1996a, 12-18].

The $2.3 billion firm is based in Cambridge, MA. Since its founding, Polaroid has almost exclusively concentrated on the instant photography business invented by the firm’s founder Edwin Land in 1948. In 1979, Polaroid made a strategic decision to shift its focus from the amateur to the technical and industrial business, because the amateur market was subject to high fluctuations in demand.

Table 6.3.1 below shows some recent financial data of the firm:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales (millions of $)</td>
<td>2,275</td>
<td>2,237</td>
<td>2,312</td>
</tr>
<tr>
<td>Change over previous year</td>
<td>1.7%</td>
<td>(3.2%)</td>
<td>N/A</td>
</tr>
<tr>
<td>Net income ($ millions)</td>
<td>15</td>
<td>(140)</td>
<td>117</td>
</tr>
<tr>
<td>Change over previous year</td>
<td>I/R</td>
<td>I/R</td>
<td>N/A</td>
</tr>
<tr>
<td>Inventories</td>
<td>549</td>
<td>616</td>
<td>577</td>
</tr>
</tbody>
</table>

Table 6.3.1 Financial data of Polaroid. The change in net income is considered irrelevant, because there was a restructuring charge of $247 million in 1995 that generated the swing. [Polaroid 1996b for 1994, 1995 data; Polaroid 1997e for 1996 data]

6.3.2 Polaroid: Corporate Strategy

The company is focusing on market expansion to their target customers using the focus/customer intimacy strategy. The company is trying to control its costs and innovation is a
core competence, but the focus is on getting closer to the customer. The company has scaled back many development projects, focusing its efforts on those products that are closer to commercialization.

"As [Polaroid's target] markets change and technology evolves, Polaroid will increase its customer attention, providing economical products, systems or solutions that meet customer requirements." [Polaroid 1996b, 4]

Polaroid is pursuing this focus strategy through four fundamental strategic objectives. First, the firm aims to revitalize the instant photography business in its mature markets through more aggressive advertising and product development. Second, Polaroid wants to accelerate and broaden its expansion into new global markets. It has had recent successes in Asia and Latin America. Third, the company will focus on serving their commercial markets better. These markets include government, educational, commercial, and technical sectors. Last, the company is looking for other growth areas in the broader imaging market where Polaroid's expertise can also be applied, especially digital imaging [Polaroid 1996b, 4-5].

6.3.3 Polaroid: Corporate Structure

Polaroid has reorganized to support the four growth strategies listed above. The company is composed of three business divisions, based on market group segments, supported by corporate functions. Each division has full responsibility for setting its strategy, developing its product line, marketing to its customers, and each has P&L responsibility. The three divisions are Consumer, Commercial, and New Business.

The Consumer Imaging Group targets family and business consumers who purchase Polaroid products through traditional retail channels. This group's strategic focus is on revitalizing the strong Polaroid brand, developing a vigorous stream of new products, and expanding into new product categories. Within the group are three general managers with responsibilities over North American, European, and International geographic areas. These general managers have P&L responsibility for their respective geographic areas.

The Commercial Imaging Group's mission is to offer total integrated imaging solutions, focusing on those commercial markets throughout the world where Polaroid has a market, customer, or product advantage. Within this group are five business units measured by their strategic P&L: Professional & Technical Imaging; Photo Retailing Systems; Identification Systems; Business Imaging; and Digital Products. A regional structure has also been created that will be measured by operational P&L. These regional areas are: North America; Domestic Europe & Russia; Japan; Latin America; and Asia/Pacific and Europe Export [Polaroid 1996b].
The New Business Group covers products as widely-ranged as holography products, photography, graphics imaging, and sunglasses. This Group is organized into four units: Polaroid Graphics Imaging Business; Holography; Polarizer and Sunglasses; and a "New Business Programs" organization that focuses on developing other growth opportunities [Polaroid 1996b & 1997b].

The corporate structure also has corporate functions that support the three business units. These are: G & A, Global Supply Chain; Research & Development; Developing Markets; Legal; Business Development; New Ventures; and Human Resources [Polaroid 1996b].

Among these groups, the one of interest to the thesis is the Global Supply Chain group, which manages purchasing, manufacturing, and logistics. Given its size and impact, it is an important part of the company [Polaroid 1997b].

The Global Supply Chain group (GSC) is made up of five groups: consumer manufacturing, commercial manufacturing, component manufacturing, logistics, and purchasing. Consumer manufacturing and Commercial manufacturing work closely with their respective business divisions and maintain a dotted line relationship with the head (executive vice president, EVP) of those divisions. They report directly to the EVP of GSC. Component manufacturing produces the chemical operations and negatives that feed the two film operations (commercial and consumer), and it acts as an internal supplier to the company. Some divisions have a little manufacturing within their own units (especially the New Business Group) but most of it is controlled by GSC. The logistics and purchasing parts of GSC are discussed in the next section.

A schematic of the organization chart is provided in Figure 6.3.1 below:

![Organization Chart](image)

Figure 6.3.1 Polaroid corporate organization structure schematic diagram. [Polaroid 1996b, 1997b]
There still is a large geographic component, because of the global nature of the firm. There are different government pressures, different consumer cultures, so it is impossible to have a single type of organization that will do it all well. There is a need to give the people in the field enough latitude to make decisions.

### 6.3.4 Polaroid: Logistics Organization Structure

At Polaroid, there is a separate logistics function under the Global Supply Chain organization that has accountability for all logistics activities. Polaroid considers all of the elements listed in Chapter 4 as part of the logistics field. Accountability indicates that the group is answerable for the performance of these activities. The logistics function directly manages most of the logistics activities and has dotted line responsibility for all of the others.

The assignment of direct responsibilities to groups is many times a matter of historical responsibilities and geography; for example, at the Massachusetts warehouse, for space considerations raw materials are not processed by logistics, and the warehouse uses local trucks to bring in materials inbound from vendors. Another example is in Scotland, where Polaroid does not have a distribution center but a manufacturing plant. Therefore, Scotland uses its own people to manage transportation. But items moved from MA to Scotland pass through Polaroid’s DC in Massachusetts and are managed by the logistics department. Table 6.3.2 shows the breakdown of logistics elements and the groups that are responsible for each activity.

<table>
<thead>
<tr>
<th>Logistics element</th>
<th>at firm?</th>
<th>group responsible for activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. customer service</td>
<td>✓</td>
<td>marketing organizations (business unit)</td>
</tr>
<tr>
<td>2. traffic and transportation</td>
<td>✓</td>
<td>logistics (most)</td>
</tr>
<tr>
<td>3. inventory control</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>4. order processing</td>
<td>✓</td>
<td>marketing organizations (business unit)</td>
</tr>
<tr>
<td>5. distribution communications</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>6. demand forecasting</td>
<td>✓</td>
<td>marketing organizations (business unit)</td>
</tr>
<tr>
<td>7. warehousing and storage</td>
<td>✓</td>
<td>logistics (whse.), manufacturing (plant)</td>
</tr>
<tr>
<td>8. plant &amp; warehouse site selection</td>
<td>✓</td>
<td>logistics (whse.), manufacturing (plant)</td>
</tr>
<tr>
<td>9. materials handling</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>10. procurement</td>
<td>✓</td>
<td>purchasing</td>
</tr>
<tr>
<td>11. parts and service support</td>
<td>✓</td>
<td>marketing organizations (business unit)</td>
</tr>
<tr>
<td>12. packaging</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>13. salvage and scrap disposal</td>
<td>✓</td>
<td>manufacturing</td>
</tr>
<tr>
<td>14. return goods handling</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>15. production scheduling</td>
<td>✓</td>
<td>production schedulers in manufacturing (with a strong dotted line to logistics)</td>
</tr>
</tbody>
</table>

Table 6.3.2 The logistics activities at Polaroid. [Polaroid 1997a]
The logistics strategy is four-fold: to integrate the logistics network and plan and track it as one system; to rationalize the number of stocking locations/ DCs, freight services, duties, and logistics networks worldwide; to create flexibility and agility by developing logistics processes that are demand driven, fast cycle, and ready to deal with unexpected customer requirements; and to differentiate the networks where necessary according to products and customers. Integration includes the world-wide coordination of transportation, distribution, production planning, inventory management, and the standardization of information systems.

The integration and differentiation objectives are not opposed to each other. By integration, the logistics organization wants to have control (or at least visibility) over all aspects of the field. In differentiation, there are some partnerships with large customers such as WalMart, where closer coordination is necessary due to WalMart’s importance to the firm. The strategy is basically to differentiate as is appropriate, by customer and/or product, and consolidate where possible [Polaroid 1997b].

The logistics department itself is organized into geographic and functional areas. There are logistics managers for the American, European, and Asia/Pacific regions. The functional areas aim to provide overall support for the operational groups. These areas include: logistics architecture and strategy; inventory management and production planning; transportation; distribution; trade & regulation duties; and performance metrics [Polaroid 1997b].

Figure 6.3.2 shows the logistics department organization structure. It only lists the groups with direct reporting relationships to the VP Logistics. Dotted line relationships with the VP Logistics exist in all other groups. For instance, the production schedulers report directly to the plant managers (manufacturing function) and report on a dotted line basis to the Director, Demand / Supply & Inventory Management.
Figure 6.3.2 Logistics department organization structure. [Polaroid 1997b]

There are differences in the management of operations at different distribution centers by region. In the United States, anything that has to do with a customer order is under the direct centralized control of the Americas logistics manager. Europe follows the same general model, with a central European distribution center (EDC) in Holland. There are national logistics networks in Eastern Europe that report directly to the national subsidiary organizations. Recently, the logistics managers of the Eastern European networks have a shared responsibility with the EDC manager for cost controls. The reporting relationship is even more remote in the Asia Pacific region. The corporate logistics department has no direct control over any logistics activities, but tracks their costs.

The performance metrics group provides for a worldwide set of measures for the entire firm, not just for the logistics area, then gets the data that tracks the performance. Having performance metrics under logistics is advantageous to the company, because logistics is seen as a neutral organization, and differences in objectives between other functional areas such as marketing and production can be avoided. Also, there is no history of where this activity should be so no changes in culture are necessary.
The information management group aims to have complete visibility over the entire supply chain. Total visibility is not present today but the group is moving in that direction. The group is able to measure about 80% of the global market and about 80% of the products. The 20% of the data that is difficult to measure is from areas such as the Asia/Pacific region.

The overall logistics costs are $79 million per annum in moving over 260 million pounds for over 800,000 orders. Logistics manages 39 storing locations in 20 different countries, totaling over 640,000 sq. ft. of warehouse space.

The three main objectives of the logistics organization are to improve customer service, increase inventory turns, and reduce logistics costs. The goals for customer service performance are to increase the order fill rate to at least 95% for “A” customers and 90% for all others, and to reduce extended backorder items by 50%. Polaroid aims to double the total inventory turns over the next three years. The company’s logistics cost reduction goal is to improve gross operating efficiencies by an average of 8% over the next three years.

6.3.5 Polaroid: Organizational Fit

Polaroid employs the focus strategy through a business unit corporate structure based on market segments. This structure is overlaid with functional areas such as the Global Supply Chain group and geographic areas as well. The logistics organization structure is mainly a functional one which has direct control over most of the logistics elements, and accountability for the others.

The most important measures of the firm’s logistics performance are the customer service goals, followed by inventory levels, and costs. According to Dr. Weiss, the service levels are “OK, but not world class.” The inventory levels are “not competitive.” In terms of costs, the numbers are “a little high, but not too bad.” Important to remember, however, is that everyone is confident in the accuracy of this data, and therefore can move forward to make improvements where necessary [Polaroid 1997b].

The most important measure for the logistics function is the line fill rate. Its present worldwide line fill rate is 85%, with the largest cause of the failures attributed to forecasting errors. Most of the important logistics measurements, such as line fill rate, inventory, and customer service levels, are common goals for all senior managers throughout the organization.

Comparing the financial and logistics performance data between Polaroid and its main competitor, Eastman Kodak, gives a perspective on Polaroid’s relative standing. Eastman Kodak is aggressively growing its digital imaging products and services in the US and its film products in the developing world, while continuing to defend its lucrative but mature US film business. Similar to Polaroid, the company’s strategy is focused on the
customer. George Fisher, the CEO, stated “Total customer satisfaction is the overriding objective of this corporation” [Kodak 1997b].

Kodak’s sales for 1996 were $16.0 billion and it reported $1.3 billion in net earnings. The sales were a 6.6% increase over the previous year [Kodak 1997a]. As stated before, Polaroid’s $2.3 billion sales and $15 million earnings show that the company is a lot smaller, and the 1.7% sales increase indicate that its growth is not as fast.

In terms of inventory, Polaroid held $549 million worth of inventories compared to Kodak’s $1.575 million at the end of 1996. This translates into 4.1 inventory turns a year for Polaroid, and 10.1 turns for Kodak. In this case, Kodak clearly has an advantage, and explains the goal of Polaroid to double their inventory turns in the next three years.

A strength of the logistics organization at Polaroid is that it is a new one, with a lot of support from management. People understand that, although logistics is not a competitive weapon for the firm, it plays an important part. The people at Polaroid view the new structure as an opportunity for the firm to improve its efficiency and in turn better serve its customers.

As all structures have their weaknesses, the logistics organization at Polaroid has to deal with many different organization types having a stake in what the organization does. There are geographic, business unit, and functional organizations. This originates from the fact that many of Polaroid’s products overlap among different target sectors and geographic markets, creating a lot of interdependency among the business units.

The approach of the logistics organization in determining its organization structure is first to gain visibility throughout the supply chain of its important performance measures, such as customer service and costs, which come directly from their corporate strategy. The group will then determine how a specific logistics activity is best handled. If the present performance is acceptable, then there is no need to shift the organization structure. If, on the other hand, the performance is sub-par, then the logistics group may have to take direct control. Either way, the logistics group will assume functional responsibility for the performance of all logistics activities.

Because of the many different organizational units having a stake in all activities, it is sometimes best to leave things as they presently are. The logistics group is able to get some control over the logistics performance in areas not directly controlled by it by showing the other group the performance data. Both parties have joint objectives linked to that performance, and therefore come up with a joint plan for a solution. The joint solution may involve shifting the organization structure, or changing incentive or performance measurement. At the end there is only one person placed in charge of that activity and given responsibility for it. All of the others will have the performance measurement of that activity as part of their shared goals.
An example of the coordination that exists between the different groups managing the logistics activities is the production scheduling for consumer manufacturing. There is a master production scheduler who reports directly to the head of consumer manufacturing, and has a dotted line relationship with the VP Logistics. The logistics group wanted to discuss how production scheduling would work best: should the relationship stay as it was, or should the production scheduler be directly under logistics? A meeting was held involving all concerned parties: the master production scheduler from the consumer manufacturing group, the head of consumer manufacturing, the manager of material management (the supervisor of the production scheduler, and the finance manager), the VP Logistics, and the global production planner from the logistics group. What drove the discussions was that both the heads of logistics and consumer manufacturing and their boss, the EVP of GSC, had identical goals about customer service levels and inventory levels. After the discussions, it was decided to leave the organization structure as it was.

Overall, the structure at Polaroid is very new, and still has to be tested for its effectiveness within the firm. In terms of the linkage between corporate strategy and logistics structure, there is the needed focus created by the new centralized structure on improving both service and cost performance generated from the focus strategy.

6.4 Lucent Technologies Case

Note: The primary information is based on an interview with Mr. Anthony Olender, Materials Management Operations Director at Lucent Technologies, on February 3, 1997. All other information has been taken from public sources.

6.4.1 Lucent Technologies: History/Background

Lucent Technologies Inc. designs, builds, and delivers a wide range of public and private networks, communications systems and software, consumer and business telephone systems, and microelectronics components. The company’s tagline is “We make the things that make communications work.” Bell Laboratories is the research and development unit of the company. Lucent was formed as a result of AT&T’s restructuring, becoming an independent entity on September 31, 1996. Lucent annual revenues for 1995 were $21.4 billion. With the restructuring, Lucent’s fiscal year switched to the end of September. The nine-month revenues through to the end of September 1996 were $15.8 billion. The company estimates that it is now a $23 billion firm [Lucent 1996a].

Henry Schacht, Chairman and CEO, and Richard McGinn, President and COO, oversee the Murray Hill, NJ based company’s 121,000 employees worldwide. Lucent has offices or distributors in more than 90 countries and territories around the world.
Although the financial community considers Lucent a $23 billion start-up, the firm has roots over 125 years old through its Bell Laboratories unit. The company’s breakthrough innovations have included the transistor, laser, solar cell, communication satellite, cellular telephony, touch-tone dialing, and many more innovations.

Table 6.4.1 below shows some recent financial data of the firm:

<table>
<thead>
<tr>
<th>Nine-months ending Sept. 31</th>
<th>1996</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales (millions of $)</td>
<td>15,859</td>
<td>13,986</td>
</tr>
<tr>
<td>Change over previous period</td>
<td>13.4%</td>
<td>N/A</td>
</tr>
<tr>
<td>Net income ($ millions)</td>
<td>224</td>
<td>150</td>
</tr>
<tr>
<td>Change over previous period</td>
<td>49.3%</td>
<td>N/A</td>
</tr>
<tr>
<td>Inventories</td>
<td>3,288</td>
<td>2,851</td>
</tr>
</tbody>
</table>

Table 6.4.1 Financial data of Lucent Technologies Inc. [Lucent 1996a]

Lucent is part of the $280 billion per year global communications industry. The market as a whole is expected to grow to about $425 billion by the year 2000. The communications industry will be increasing at an expected 10% per annum rate for the next few years [Lucent 1996a, b].

6.4.2 Lucent Technologies: Corporate Strategy

Lucent is a company focused on innovation. The strategy is written in the company name: “Lucent Technologies, Bell Labs Innovations,” and is spread all over their annual report.

“Innovation is the engine that drives Lucent Technologies. Constant innovation will continue to be the lifeblood of our business, generating the new products and services that customers demand and that will distinguish us from competitors worldwide.” [Lucent 1996a, 5]

As mentioned before, the company has generated many innovations. In fact, since March 1996, Lucent patents have been issued at a rate of more than three per business day. This compares with the one patent per business day from 1925 through 1995. Lucent is committed to research and development efforts that will enhance Bell labs' tradition of technical excellence [Lucent 1996a, 17].

6.4.3 Lucent Technologies: Corporate Structure

Lucent has a business unit/ division corporate structure based on its four distinct but interrelated lines of business (Systems for Network Operators, Business Communication Systems, Microelectronics Products, and Consumer Products-currently forming a joint venture with Philips) and Bell Laboratories. All work together to provide innovative and cost-effective solutions for customers.
Systems for Network Operators designs, develops, manufactures, and services systems and software which enable network operators to provide wireline and wireless local, long distance, and international voice, and data and video services. The unit’s products include switching, transmission, fiber and cable systems, and optical networking systems that are packaged with applications software, operations support systems, and associated professional and other services [Lucent 1996b, 1].

Business Communication Systems designs, develops, manufactures, and services communications systems and products for large and small business customers, home offices, and government agencies. These systems are primarily customer premises-based private switching systems and products, call center systems, voice processing systems, which include voice messaging and voice response systems, and the associated application software and professional support services [Lucent 1996b, 5].

Microelectronics Products designs, manufactures, and sells integrated circuits, electronic power systems, and optoelectronic components for communications applications. These microelectronic products are important components of many of Lucent’s own systems and products. The unit also offers products critical to communications applications, including digital signal processors (DSPs) for digital cellular phones [Lucent 1996b, 7].

Consumer Products designs, manufactures, services, and leases communications products for consumer, small office, and home office use. These products include corded, cordless, and cellular telephones, and stand-alone and integrated telephone answering systems [Lucent 1996b, 8].

Bell Laboratories conducts research and development focused on software and information sciences, digital signal processing, communications science and networking technologies, microelectronics, and photonics. Its aim is to support the entire company by providing expertise in the communication field as one of the world’s foremost industrial research and development organizations. Bell Labs’ recent areas of research include: networking software; lightwave transmission; electronic switching technology, which enables rapid call processing, increased reliability and reduced network costs; and microelectronics components, bringing in the latest in the field of very large scale integration [Lucent 1996b, 9]. Lucent has agreed to merge its consumer products unit with the customer communications product business of Phillips Electronics N.V. creating a jointly owned venture company.

The Network Systems Group is the largest unit at Lucent, with 54% of the revenues. This unit is the worldwide market leader for switching systems, transmission systems, wireless networks, and networking software [Lucent 1996a, 14-16]. This group is organized into four primary areas of focus. There are three customer business units: North America; the International Region; and AT&T, which is this group’s largest customer. Lastly, there is a product realization function that handles the technical operations of the firm including manufacturing, product marketing and business management [Lucent 1996a, 8].
A schematic of the organization chart is provided in Figure 6.4.1 below:

![Organization Chart](image)

Figure 6.4.1 Schematic of the Lucent corporate organization structure. [Lucent 1997a]

### 6.4.4 Lucent Technologies: Logistics Organization Structure

Each Division coordinates its own logistics activities. To gain more insight into logistics at Lucent, the discussion in this chapter focuses on the logistics activities in the Network Systems Group. The data for this section reflects the logistics organization from the time just before the spin-off. The spin-off had no effect on how this organization was setup, but there were other factors that caused a change. This discussion will show the situation at the time, and some of the reasons for creating a change.

The Network Systems Group formed a Global Logistics Organization (GLO) that managed all logistics activities. Prior to this, logistics activities were decentralized throughout the Division. GLO would now matrix logistics requirements and operations across the different Customer Business Units, which were primarily sales and marketing organizations, but would, in the present group’s organization structure, be resident under the product realization organization which also contains the manufacturing operations (MO) [Van Saun 1995, 2].

The goals of GLO were to simultaneously reduce order cycle times, logistics expenses, and increase asset velocity via a centralized global logistics organization.

GLO consisted of three basic groups: Global Logistics Planning Organization (GLPO), Customer Logistics Managers (CLM), and Global Product Support (GPS). Figure 6.4.2 illustrates the organization structure.
Figure 6.4.2 Schematic of the organization structure for the former global logistics organization (GLO) of Lucent’s Network Systems division. [Lucent 1997a]

GLPO was charged with strategic planning for material handling, inventory control, distribution, transportation, and import/export. The Customer Logistics Managers’ (CLM) responsibilities were to implement the goals of GLO with the help of the other functional organizations. The Global Product Support (GPS) group provided support in terms of a customer information center, the repair of products for reuse, and installation maintenance support [Olender 1995, 27 & Lucent 1997a]. The breakdown of their responsibilities into logistics elements is shown in Table 6.4.2.

<table>
<thead>
<tr>
<th>Logistics element</th>
<th>at firm?</th>
<th>group responsible for activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. customer service</td>
<td>✓</td>
<td>CBU/ MO</td>
</tr>
<tr>
<td>2. traffic and transportation</td>
<td>✓</td>
<td>GLPO/ MO</td>
</tr>
<tr>
<td>3. inventory control</td>
<td>✓</td>
<td>CLM/ MO/ CBU</td>
</tr>
<tr>
<td>4. order processing</td>
<td>✓</td>
<td>CBU/ MO</td>
</tr>
<tr>
<td>5. distribution communications</td>
<td>✓</td>
<td>GPS</td>
</tr>
<tr>
<td>6. demand forecasting</td>
<td>✓</td>
<td>CBU/ CLM/ MO</td>
</tr>
<tr>
<td>7. warehousing and storage</td>
<td>✓</td>
<td>GLPO/ MO</td>
</tr>
<tr>
<td>8. plant &amp; warehouse site selection</td>
<td>✓</td>
<td>GLPO/ MO</td>
</tr>
<tr>
<td>9. materials handling</td>
<td>✓</td>
<td>GLPO/ MO</td>
</tr>
<tr>
<td>10. procurement</td>
<td>✓</td>
<td>GLPO</td>
</tr>
<tr>
<td>11. parts and service support</td>
<td>✓</td>
<td>MO</td>
</tr>
<tr>
<td>12. packaging</td>
<td>✓</td>
<td>MO</td>
</tr>
<tr>
<td>13. salvage and scrap disposal</td>
<td>✓</td>
<td>GPS</td>
</tr>
<tr>
<td>14. return goods handling</td>
<td>✓</td>
<td>GPS</td>
</tr>
<tr>
<td>15. production scheduling</td>
<td>✓</td>
<td>MO</td>
</tr>
</tbody>
</table>

Table 6.4.2 The logistics activities at Lucent Technologies’ Network Systems Division. [Lucent 1997a]

| CBU | - customer business units | CLM | - customer logistics manager |
| GLPO - global logistics planning organization | GPS | - global product support |
| MO | - manufacturing operations |
As shown in the table above, there are times when more than one group has responsibility for an element. Most often, in the cases where GLPO and MO are listed, the GLPO or CLM manages the strategic aspects, while the MO handles the operational side.

Since the Customer Logistics Managers were stationed at the manufacturing locations, they really had two supervisors to report to: the local plant managers as well as the GLO. Further matrixing into the structure, the MOs are placed globally -- therefore, the geographic business units at times also have an interest in managing logistics activities at the GPCs. For instance, it is both the responsibility of the CLM, the MOs and the Customer Business Units (CBU) to manage demand forecasting jointly. This is a serious weakness of the organization structure: the complexity of it. These many layers were the cause of a great deal of confusion and unclear accountabilities.

6.4.5 Lucent Technologies: Organizational Fit

Overall, Lucent is experiencing excellent growth. The market is very large and expanding, and therefore there is much room for further expansion of the company. The most important measure for the logistics function is accounts receivable, which are as 13 months DSO (days of sales outstanding). For the three months ending March 31, 1997, Lucent reported quarterly earnings of $5,149 million, an increase of 12.5%. For that date, their inventories were pegged at $2,733 million. In terms of inventory turns, a measure of the velocity of goods flow, the firm had an annual inventory turn of 7.54 [Lucent 1997b, 3].

To check the level of performance the above data represents, a comparison with one of the firm's main competitors is useful. Telefonaktiebolaget LM Ericsson (Ericsson) is one of the world's largest producers of consumer products, mobile phones and terminals; mobile voice, data communication paging systems; and information communication systems, network solutions, products and services for operators of dedicated networks and operators and users of business communication networks. Ericsson is based in Stockholm, Sweden. Similar to Lucent, the company has recently reorganized to focus more on research and development and create a more effective marketing organization [Ericsson 1997].

Ericsson reported 1996 sales of $18.3 billion, an increase of 22.7%. It also reported one billion dollars in net income for 1996. The inventory turns of 6.3 for Ericsson are about 20% less than those for Lucent [Ericsson 1997].

The above data shows that Lucent is competitive in the communications industry. The recent reorganization may have slowed growth a bit, but as was stressed often in the annual report, the growth potential is enormous [Lucent 1996a]. In terms of logistics, the company performs better than one of its main competitors.
Another reason for the shift to GLO in Network Systems was that centralizing logistics activities would decrease the cycle times. Previously, cycle times were long because the different logistics departments were not coordinating and making up for each other’s inventories when necessary. Centralization would give the firm control over the products and generate consolidated inventory savings in the process.

The logistics organization is process-oriented. The goal of GLO is to move products as quickly as possible through the organization. This reflects the importance of the velocity of products through the firm, and fits with the innovation strategy; which is key to the firm. The advantage of an innovation-based firm is that their products are first to the market, and the firm uses this uniqueness to differentiate itself from competitors.

Lucent Technologies is clearly an innovation firm, with business units focused on products, within which geographic and functional matrixes exist. The logistics organization was placed within a Global Logistics Organization, but the different functional organizations continued to exert significant influence on logistics activities.

The complexity of the matrix organizations is a weakness for the firm. With too many people having a stake in logistics’ operations, many conflicts between authority and responsibility were generated. Also, the culture of the company was not attuned to the shift in power to an integrated and centralized logistics function. It required an adjustment in the culture for the new logistics organization structure to work.

Robert Van Saun, then head of GLO, lists 10 conditions that must exist for a transformational change to be achieved, similar to the one needed to a GLO [Van Saun 1996, 12-13]. These are:

1. committed top leaders
2. written description of the changed organization
3. conditions that preclude maintenance of the status quo
4. likelihood of a critical mass of support
5. awareness of resistance and the need to honor it
6. a medium- to long-term perspective
7. awareness of the need for education
8. the conviction that the change must be tried
9. willingness to use resources
10. commitment to maintain the flow of information

Mr. Olender stated that the first five requirements were not met enough in their attempt to change to a centralized logistics organization structure. The firm needed greater alignment and accountability. Although the CLMs were resident at the factories, the GLO really had no influence over the factories who had many of the operational levers of logistics. Everyone was looking for immediate success on the goals GLO aimed for, and it could not happen without wide support. With the spin-off taking place, and the embedded
culture as it was, there were too many changes happening at one time, and the shift to the GLO structure was not successful at Network Systems.

The Network Systems Unit has since disbanded GLO. There are now three new roles for logistics people at Network Systems. First, the plant managers now run Global Provisioning Centers (GPCs) and are in charge of operational logistics. Under them are logistics physical distribution managers who manage the export function, the physical side of warehouse planning, the third-party logistics support of the GPCs, and IT support for these activities. Second, The GPCs are supported by a small logistics planning organization which is part of the product realization staff. Last, Local Customer Service Operations are placed in the geographic customer business organizations and coordinate with the GPCs on the movements of their products, but only in a dotted line relationship.

On a final note, Mr. Olender feels that the overall goal of the Global Logistics Organization, which is minimizing the overall cycle time and to increase asset velocity by sub-optimizing any individual piece(s), is still the correct path to follow regardless of the organization structure employed. The cultural maturity and the complexity of the supply chain made the implementation difficult via the GLO organization structure. Accountability and decentralization was necessary to make immediate improvements in the supply chain. Again, this does not suggest that the integrated supply chain concept is not the correct goal. In fact, the next step in Network Systems’ continuous movement toward BIC (Best-In-Class) Logistics will be to implement the approach more completely. However, as Network Systems moves forward, they are now taking the match between the maturity in the supply chain and their culture into consideration in their decision-making process for creating any organizational change to improve logistics [Lucent 1997b].

6.5 Bose Case

Note: The primary information is based on an interview with Mr. Donald Cameron, Logistics Manager at Bose, on March 14, 1997. All other information has been taken from public sources.

6.5.1 Bose: History/ Background

Bose is one of the best-known names in the audio equipment world. Bose loudspeakers are the largest sellers in both the United States and throughout the world [Bose 1997a]. The firm is based in Framingham, Massachusetts, with manufacturing facilities throughout North America (Massachusetts, Michigan, Arizona, South Carolina, Quebec, and Mexico) and one in Europe (Ireland).
Bose was founded in 1964 by Amar Bose, a professor of electrical engineering at the Massachusetts Institute of Technology. Dr. Bose is still the CEO of the firm and, despite repeated recommendations to go public, according to managers, he has steadfastly kept the company private [Jorgensen 1990]. Sherwin Greenblatt, a former student of Dr. Bose in the 1960's, was the company’s first employee and is now its president [Bose 1997a].

Since the firm is private, there are no reports of the earnings or an annual report. However, the estimated 1996 revenues of Bose range from $650 M [Bose 1997b] to $800 M [Hoover’s 1997a, through to March 1997]. There was a 14.3% sales increase over the previous year [Hoover’s 1997a]. This is respectable growth in a market that has been relatively flat [Jorgensen 1990].

The firm has three main product lines: retail, automotive supply, and professional systems.

The retail segment focuses on marketing both integrated sound systems (AM/FM stereos, CD players, and loudspeakers) and simply loudspeakers by themselves. This is the largest part of the business. The firm primarily setup its distribution network through retail chains such as Lechmere, Circuit City, and Sears. In the mid-1990s Bose widened its distribution options, by opening its own stores, and using direct marketing [Bose 1997b].

Bose is an OEM (original equipment manufacturer) supplier to many automotive firms in Japan, the US, and Germany, manufacturing high-end sound systems for premium vehicles. Bose systems are available in luxury vehicles from Cadillac, Chevrolet, Oldsmobile, Acura, Nissan, Infiniti, Audi, Mercedes-Benz, and Mazda [Bose 1997a]. This product line accounts for about 20% of Bose’s Sales [Jorgensen 1990].

The professional market serves customers requiring specialized equipment. Customers in this group are typically buildings, stadiums, airports, orchestras, bands, and houses of worship.

Bose also has some smaller product lines such as noise reduction headsets for military and aviation needs, a joint venture with PictureTel Corporation (incorporating Bose speaker systems into video conferencing systems), and a joint venture with Gulfstream Aerospace (installing Bose music systems in custom corporate jets).

Bose has a presence in almost every country in the world. In comparison to other much larger companies such as Sony, Bose has a proportionately wider market. They have the same broad distribution but with a smaller firm. Bose manages most of the subsidiaries that distribute its products outside the US. There are some outside distribution agents that are used, especially in areas with small sales volumes, but as much as possible the company tries to keep all aspects of the products within the firm. For instance, Bose owns the distribution throughout Canada and Japan, but uses agents in many South American and Asian countries.
6.5.2 Bose: Corporate Strategy

Clearly, the firm is using an innovation/differentiation strategy. They produce high-end products that use their uniqueness in the market to attract customers interested in the latest in technology and willing to pay the premium to have it.

"Through technology and innovation, Bose aims to provide unique products to the marketplace." [Bose 1997b]

The company is committed to create products that combine high technology with simplicity and small size, manufacturing sound systems that are easy to use and accessible to all consumers [Bose 1997a]. The focus on innovation is found not only in Bose's products, but the mentality is present throughout the whole company. All departments are encouraged to continually find new, innovative ways of doing business [Bose 1997b].

As mentioned earlier, the company values research into product innovation. The company invests 100% of its profits into research and growth development. In fact, "Research is our reason to exist," states Dr. Bose [Jorgensen 1990]. Also, many of the original design engineering team members have remained with the company. Some have remained in research, while others have moved into management roles in marketing, manufacturing, and administration. Therefore, Bose is run by a management team that understands and values the research and design of its products [Bose 1992].

6.5.3 Bose: Corporate Structure

Bose has a functional corporate structure with business division elements. Reporting directly to the President are functional Vice Presidents (manufacturing, sales & marketing, finance and engineering).

The three main product lines - retail, automotive and professional - also have business division heads, which are based mainly along sales and marketing lines. The business heads also report to the President.

A schematic of the corporate organization chart is provided in Figure 6.5.1 below:
The relationship between the functional engineering department and the three divisions is typical of the firm. The VP Engineering has the primary responsibility for the overall research and development of new products. There are also engineers within each functional group, and an engineering group for each division which takes on specific tasks for its functional/product area. They have a dotted line accountability to the VP Engineering. For instance, the manufacturing engineering group is run separately from the engineering department and works on improving the manufacturability of products.

With regards to the international operations, there is no one structural pattern. There is no head of international operations. The president of the Japanese operations reports directly to Amar Bose, while other smaller units report to the VP Sales and Marketing.

6.5.4 Bose: Logistics Organization Structure

At Bose, generally all of the elements discussed in chapter 4 are considered part of the logistics field. The only exception is parts and service support. While logistics covers the distribution of the products and parts, the servicing/product repair aspects are under manufacturing.

Bose uses a traditional method of assigning logistics activities to different functions of the firm, mainly manufacturing and sales & marketing. The specifics of the logistics organization structure are discussed below and summarized in Table 6.5.1 and Figure 6.5.2.
There is a business logistics group within manufacturing. The responsibilities of the group are two-fold: production scheduling and "logistics." From here on, the logistics group will be referred to as the "logistics" sub-group of business logistics. The logistics group is responsible for all transportation moves. It provides direct guidance to all plants and distribution centers in monitoring the transportation moves and transport costs. Bose has a private fleet of trucks that it uses to distribute its products. On the inbound side, the logistics group coordinates and chooses the transport carriers. Logistics also arranges for all documentation, including writing the procedures on customs documents necessary to move goods internationally.

The other half of business logistics is a production scheduling group which does just that.

The manufacturing facilities arrange their own procurement. The system is decentralized, with each group choosing their own vendors.

Sales and marketing control demand forecasting, customer service, inventory control, and the order processing activities. This function also has the primary responsibility for finished goods warehousing. The logistics group does manage some warehousing, but only for consolidated movements of goods.

Plant and warehouse site selection is a joint activity among many departments. Finance, manufacturing, logistics, and sales provide input on this issue, since the criteria for site selection is multi-faceted, dealing with issues such as taxes and local governments, apart from purely logistical considerations.

<table>
<thead>
<tr>
<th>Logistics element</th>
<th>at firm?</th>
<th>group responsible for activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. customer service</td>
<td>✓</td>
<td>sales/marketing</td>
</tr>
<tr>
<td>2. traffic and transportation</td>
<td>✓</td>
<td>logistics</td>
</tr>
<tr>
<td>3. inventory control</td>
<td>✓</td>
<td>sales/marketing</td>
</tr>
<tr>
<td>4. order processing</td>
<td>✓</td>
<td>sales/marketing</td>
</tr>
<tr>
<td>5. distribution communications</td>
<td>✓</td>
<td>logistics (includes customs documents)</td>
</tr>
<tr>
<td>6. demand forecasting</td>
<td>✓</td>
<td>sales/marketing</td>
</tr>
<tr>
<td>7. warehousing and storage</td>
<td>✓</td>
<td>sales/marketing</td>
</tr>
<tr>
<td>8. plant &amp; warehouse site selection</td>
<td>✓</td>
<td>inter-functional, logistics provides input</td>
</tr>
<tr>
<td>9. material handling</td>
<td>✓</td>
<td>sales/mktg. (at whse.), mfg. (at plant)</td>
</tr>
<tr>
<td>10. procurement</td>
<td>✓</td>
<td>factory (manufacturing, decentralized)</td>
</tr>
<tr>
<td>11. parts and service support</td>
<td>✓</td>
<td>manufacturing</td>
</tr>
<tr>
<td>12. packaging</td>
<td>✓</td>
<td>manufacturing</td>
</tr>
<tr>
<td>13. salvage and scrap disposal</td>
<td>✓</td>
<td>sales/manufacturing</td>
</tr>
<tr>
<td>14. return goods handling</td>
<td>✓</td>
<td>sales/marketing</td>
</tr>
<tr>
<td>15. production scheduling</td>
<td>✓</td>
<td>production scheduling</td>
</tr>
</tbody>
</table>

Table 6.5.1 The logistics activities at Bose. [Bose 1997b]
For the international distribution facility in Belgium, there is a separate logistics manager for Europe who reports to the General Manager of Europe. He is responsible for the movement of all goods throughout Europe. There is little coordination between the European group and the logistics group at headquarters.

The logistics group coordinates with sales by conducting joint studies with it to improve the inventory management performance. Logistics does not have the direct responsibility for warehousing, and so uses this approach to improve its inventory numbers.

There is a direct link between the logistics group and the material managers at the plant. They coordinate not only the production schedule, but also inbound and outbound movements. The plant materials managers report to the plant manager.

The logistics group acts as a crisis solver. The company cannot deal with stock-outs at their customer (both internal and external) sites. In line with this, the group has a transportation vendor on-site in Bose offices through a program called JIT II. There is a vendor for freight forwarding, one from a major LTL trucking firm, and one from a major steamship line. These three vendors help monitor all shipments. When there is a problem, all help to solve it.

For example, on one occasion, a shipment was needed by Monday morning at the manufacturing site or the production line would be shut down. The product was arriving at Friday 4:00 PM at the port of Seattle. The freight forwarder arranged to customs clear the needed items over the weekend. The steamship line made sure that the container was off-loaded and the shipment extracted. The LTL line arranged for air shipment of the goods. Within 15 minutes the crisis was handled. Without the JIT II people this would have been impossible. The logistics people monitored the situation over the weekend, kept the plant manager informed, and stayed with it until the shipment was delivered [Bose 1997b].
This is very important for the supply to the automotive industry. People both within the firm and at the customer site appreciate what the logistics department does to ensure the timely arrival of goods. See Isaacson [1994] for further information on the original JIT II program.

6.5.5 Bose: Organizational Fit

One of Bose's main competitors is Harman International, a Woodbury, NY based firm that produces the JBL brand. Similar to Bose, the firm produces consumer products, professional products, and OEM products for automotive use, and aims at the high end of the market. Harman is a public firm, and financial data from the firm was available. The firm has annual sales of $1.3 billion dollars through to June 1996. This was an increase of 16.3% over the previous fiscal year [Harman 1996]. The data shows that the two firms are comparable in financial data, with JBL experiencing better numbers.

In terms of logistics performance data, Bose does not release inventory data, and so no exact statement can be made on this. Harman recorded $308 million in inventories, meaning approximately 4.2 inventory turns a year [Harman 1996].

Mr. Cameron states that the organizational fit at Bose works very well. As an example, he pointed out that there is a lot of informal coordination that takes place between the different departments. For an innovation-based corporation, new product rollouts are very important. Here the departments do not work in a vacuum, and everyone participates in the planning process.

As mentioned before, the company is primarily concerned with providing excellent service. This service comes at a cost, but the total supply chain costs are kept to a minimum. As the earlier example of JIT II in action showed, one aspect of the logistics organization is to ensure that the product gets to where it is needed, when it is needed.

The Logistics Group has followed the corporate strategy of innovation. They adopted the use of EDI (Electronic Data Interchange) in 1987 with their major transport providers, implemented the JIT II concept of having full-time transport provider personnel working at Bose, and developed a supply chain application to a specific part of the business that has resulted in faster transit times and a major reduction in inventory levels.

Since the integrated logistics concept is not a core competence to Bose, it could be possible to outsource some aspects of the logistics activities, such as warehousing and transportation management. Other firms, such as automotive firms and consumer organizations, have done this. Outsourcing is not used extensively at Bose for several reasons: (1) Bose is a privately held corporation and they continually seek to develop internal strengths thus maintaining control over many of their business processes; (2) Mr. Cameron feels that many third party providers lack the experience and the trained
personnel to implement new and innovative solutions. He sights the example of trying to outsource the qualification of Bose products for the North American Free Trade Agreement (NAFTA). A number of attempts were made without success. Finally, the Logistic Group took on the assignment of this tasks and was successful, bringing cost and service improvements to the firm [Bose 1997b].

In a corporation that focuses its corporate strategy on differentiation, it makes sense that logistics is not given paramount importance, since logistics accounts for only a small portion of the costs. With this in mind, logistics has to function effectively. Therefore, there is no real current need for an integrated logistics department to coordinate all logistics movements. The logistics costs at Bose are controlled by a number of departments in the corporation but as the company grows the associated logistics activities may become integrated into one department. Presently, at Bose, the traditional logistics organization embedded into functional areas is an example of a fit that works.
7.0 Conclusions

This chapter examines the different cases together, generating lessons learned based on the information the cases have provided. Table 7.0.1 below serves as a brief summary of the different situations encountered in the five case studies discussed.

<table>
<thead>
<tr>
<th>Company</th>
<th>Strategy</th>
<th>Corporate OS</th>
<th>Logistics Organization Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staples</td>
<td>cost leadership</td>
<td>product divisions with corporate support staff</td>
<td>matrix: corporate staff function supports the operational groups within the divisions</td>
</tr>
<tr>
<td>Gillette</td>
<td>innovation</td>
<td>product divisions with geographic elements</td>
<td>functional; one logistics group handles physical distribution for the whole North American region</td>
</tr>
<tr>
<td>Lucent Technologies</td>
<td>innovation</td>
<td>product divisions with corporate support staff</td>
<td>the case covers the old LOS, which was centralized and functional; it is now a traditional LOS with a small corporate support staff</td>
</tr>
<tr>
<td>Polaroid</td>
<td>focus</td>
<td>matrix: product divisions with support staff</td>
<td>matrix: corporate staff function supports the operational groups within the divisions</td>
</tr>
<tr>
<td>Bose</td>
<td>innovation</td>
<td>functional with product division elements</td>
<td>traditional, logistics activities dispersed throughout the firm.</td>
</tr>
</tbody>
</table>

Table 7.0.1 List of the different parameters for each of the case studies conducted.

7.1 Fit Between Corporate and Logistics Organization Structures

The hypothesis for the fit between the corporate and logistics organization structures is that they should parallel one another. The evidence from the five cases is as follows:

At Staples, there was a match because for both the corporate and logistics groups, the staff responsibilities were managed by corporate staff functions, while the line or operational responsibilities were managed by the product divisions.

At Gillette, there was a slight mismatch in the two structures. This resulted from having one logistics group within the North American region managing all physical distribution operations for all products of Gillette in that region. At the corporate level the products were separated into different divisions. However, the discrepancy was made because it was more efficient, due to of economies of scale, for this logistics group to manage the movement of goods for Gillette in North America. There is a possibility that the logistics group will be separated from its regional affiliation and operate independently. If that
situation occurs, then there will be a better match because of the matrix structure generated.

At Polaroid, both the corporate and logistics organization structures were matrixed. At the division level, there were product groups that were further sub-divided into smaller product groups or geographic units. The logistics organization structure was mainly a centralized support function for these units, and it subdivided its monitoring into geographic groups as well. The logistics organization managed some of the logistics activities itself, but much of it was managed directly by the divisions. This led to a good match between the two.

At Lucent Technologies, the case discussed a previous organization structure where there was a definite mismatch between the corporate and logistics organization structures. The corporate organization structure was based mainly on product divisions with a very large integrated support staff. One of the product groups, the Networks Systems Group, was discussed in more detail. This division was further organized by geographic regions. On the other hand, the centralized logistics function managed directly all logistics activities for the product group. This caused a lot of complications in the relationships between the various groups: product line, geographic, and functional.

At Bose, there was a match between the organization structures. The overall corporation was mainly functionally organized, and the logistics organization was traditionally structured, with the different logistics activities managed by different functions throughout the firm.

Overall, the evidence from the cases shows that the hypothesis is valid. Four of the cases showed that the logistics and corporate structures matched, while one showed a mismatch that was unsuccessful.

7.2 Fit to Cost Leadership Strategy

The hypothesis for a logistics organization structure that uses the cost leadership strategy is to have one that centralizes its structure as much as possible. This centralization generates cost efficiencies. Decentralization is done only in the areas where these efficiencies cannot be gained.

Staples, Inc. was the lone case company employing this strategy. Its logistics organization structure matched the hypothesis by having the transportation function managed centrally, while having only a dotted line relationship with the distribution centers controlled by the product divisions. The two product divisions were retail and business direct, which have different logistics needs, and therefore are managed separately.
Within the firm there was a lot of coordination between the corporate logistics function and the operational logistics groups, which further enhances the fit. The entire firm was focused on delivering the lowest total cost to the consumer, and the organization structure supported this. Senior management focused on cost per unit numbers and adherence to budget for the divisions, which sent the message for cost leadership clearly to the entire organization.

With only one data point, it is difficult to conclude that the hypothesis is valid. However, the case discussed does not invalidate this hypothesis. Further work is still necessary to verify the hypothesis.

### 7.3 Fit to Differentiation Strategy

The hypothesis for a logistics organization structure that uses the differentiation strategy is that a traditional structure fits if logistics is not a competitive advantage of the firm. If the service performance or costs are above acceptable levels, then a centralized organization is necessary to monitor the performance.

There are three case companies for the differentiation strategic option: Gillette, Lucent Technologies, and Bose.

Lucent Technologies had a highly centralized functional organization matrixed with the product and geographic divisions. This was a mismatch in the fit between the two organization structures, and with the strategy as well. The main focus of the firm was on creating innovative products, wherein the product lines should have been of the utmost importance to the firm. By creating another layer with the Global Logistics Organization, Lucent went away from this focus, creating complexity and confusion. The present logistics organization structure with the logistics activities managed by the divisions, with only a very small central support group, makes more sense and is a better fit.

The Bose Corporation had a traditional logistics organization structure that matched the differentiation strategy, because the logistics costs were only a small percentage of the total costs. The corporate logistics function, which managed traffic and transportation, was completely focused on providing excellent service levels. Service levels were a primary concern for senior managers.

The Gillette Company had a fit that was sound. The firm considers logistics important, but not a core competency. As such, it is poised to contract the function out to a third party. If this happens, then the hypothesis proposed does match, in that although logistics activities will be managed in an integrated manner, they will be not managed by the firm, thereby detracting attention from the innovation focus. The present logistics structure was functional within a specific region. This was being done partly in preparation for possible contracting of the function. It also allowed for synergy among the logistics
activities. Still, the logistics organization knew that it merely played a supporting role in the firm and its primary purpose was to serve the divisions.

Overall, the hypothesis has been validated by the case studies. Although the firms each operate in different industries, and have different corporate organizational arrangements, their logistics organization structures support the hypothesis: Lucent, by showing an example of a fit that did not work, and Bose and Gillette, by showing examples of fits that worked.

7.4 Fit to Focus Strategy

The hypothesis for a logistics organization structure that uses the focus strategy is that it should have a centralized staff function to monitor overall costs and service, but have, as well, the operational side of logistics decentralized within the individual product or geographic units.

The Polaroid Corporation is the case study for the focus strategy. Its logistics organization structure matched the hypothesis. The logistics structure was a centralized corporate function that monitored all of the logistics activities. The firm did manage some operational activities directly in the cases where the division was unable to perform to acceptable levels.

This is a recent development, as the Vice-President of Logistics position has only been created last year. Before this, the logistics activities were dispersed throughout the organization. The position was made to create visibility for supply chain costs and performance.

Again, with only one case to support the validity of this hypothesis, no strong conclusions can be made, only that there is some evidence to support it.

7.5 General Comments

During the interview process, each company representative was asked if he or she believed that there was a concept of fit between logistics organization structures and strategy. Four out of five supported this theory. Only one felt, that if there was a link it wasn’t very strong. When they were asked if there was a strong fit at their companies, all felt that, in the present situation, there was. Some mentioned that the organization structure is evolving but that, for the current environment, the structure is appropriate.

Also noticeable from the interviews is the issue of what individual firms consider as logistics activities and which functions within the firm control them. There were companies that considered certain activities part of the logistics function but did not have them managed or supported by a logistics organization. In the case of Bose, this is
understandable since it has a traditional logistics organization structure, wherein logistics activities are dispersed throughout the firm. In other firms where there is an integrated logistics function, that function does monitor those logistics activities. The only exceptions are activities, such as customer service and production scheduling, which are traditionally placed within the marketing/sales and manufacturing departments respectively.

The next chapter will summarize the entire thesis and give some recommendations for further study.
8.0 Summary and Recommendations

8.1 Summary

This thesis discussed the organizational fit between three different parameters: corporate strategy, corporate organization structure, and logistics organization structure. Chapter 1 introduced and discussed the motivation for this study. A primary driver for conducting the study was that many people within the logistics field have wondered how best to organize the logistics activities within an enterprise to generate enhanced performance, and only a limited amount of work has been done in this area.

Each of the three parameters was discussed in turn. Chapter 2 focused on corporate strategy, discussing its meaning and laying down a framework composed of three strategic options: cost leadership, differentiation, and focus. Chapter 3 concentrated on corporate organization structure, starting with a discussion of the development of organization theory in order to understand how strategy and structure are linked. The chapter also discussed different dimensions of corporate organization structures. Two of these dimensions - centralization; and structure types (function, product, area, matrix) - were the main dimensions used throughout the thesis for this parameter.

Chapter 4 examined logistics and logistics organization structures. The field of logistics was discussed, explaining the scope of logistics and what activities are generally considered as part of it. Logistics organization structures were shown to be the different ways of organizing these activities within an enterprise. The chapter continued by discussing different dimensions for analyzing logistics organization structures. Seven major types of logistics organization structures were discussed. These were: traditional, functional, program, matrix, channel management, partnership, and third-party or contract logistics.

Chapter 5 looked at the fit between these three topics. Evidence from literature supports the notion that a fit exists. In order to determine if there was a good fit between the three parameters, measurement criteria were given. The rest of the chapter was devoted to developing four basic hypotheses on organizational fit. The four hypothesis are: (1) corporate and logistics organization structures should closely parallel one another; (2) for a cost leadership enterprise, the logistics organization structure should be highly centralized, decentralizing activities only when necessary; (3) for differentiated firms placing a very low importance on logistics, the logistics activities can remain traditionally dispersed throughout the organization. Only if the costs or service suffers is there a need for integration of the activities into one department; and (4) for focused firms, the logistics organization structure should have a centralized staff function to monitor overall costs and service, but have the operational side of logistics decentralized within the individual product or geographic units.
Chapter 6 examined five companies operating in different industries to test the hypotheses proposed. One firm used the cost leadership strategy, three used the differentiation strategy, and one used the focus strategy. The firms were Staples for cost leadership; Gillette, Bose, and Lucent Technologies for differentiation; and Polaroid for the focused strategy. Each case study presented the firm’s corporate strategy, corporate organization structure, and logistics organization structure. Then the organizational fit for each was discussed, and compared to the proposed hypotheses.

Finally, Chapter 7 discussed the lessons learned from the cases on the organizational fit. The general conclusions were: that the first hypothesis on the link between corporate and logistics organization structures was validated based on all of the five cases. The other three were supported by the evidence but cannot be generalized to be true as there was insufficient supporting data.

### 8.2 Recommendations

This thesis has covered case studies with companies using all three strategic options. A future study could further look at case studies wherein an examination of all possible combinations between corporate strategy, corporate organization structure, and logistics organization structure is done.

Based on the framework developed in this body of work, that would mean looking at the following: the three strategic options (cost leadership, differentiation, and focus); centralization or decentralization as well as the four main organization structure types (functional, product, area, and matrix); and the seven major logistics organization structure types listed in the previous section.

Examples of certain combinations may not be found even through extensive study of industry. This is a strong indication that those combination exhibit a bad fit between the three elements.

Another recommendation is to conduct a study that will examine the link between the hard criteria and organizational fit. As described in Chapter 5, linking the quality of the logistics activities and overall performance directly to the organization structure of the entire firm or its logistics activities is tenuous at best. Further study may provide insight into this relationship.
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