

Development and Documentations of a Supply Chain
for the Production of Direct Mail

by

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ABSTRACT

Supply chains are not limited to either suppliers or manufacturers, they are found in all aspects of business and within other supply chains (Fisher, 1997; Chopra & Meindl, 2001; & Stevenson, 2005). The correct supply chain can allow a company to reduce cost, manage inventory effectively, and respond quickly to market changes, increase profits, and lower costs (Fisher, 1997; Chopra & Meindl, 2001; & Stevenson, 2005).

With companies building closer ties with their suppliers, the need for understanding one's own supply chain becomes even more critical. The wrong supply chain can lead to a company experiencing a lower profit margin.

This study helped Life Time Fitness lower costs and avoid financial impacts of a vendor error in the interpretation of postal requirements.

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Chapter I: Introduction

The Company:

Life Time Fitness, Incorporated (Life Time Fitness) was founded by Bahram Akradi on October 15, 1990 as FCA, Ltd, was incorporated in Minnesota, and started doing business under the name Life Time Fitness in July 1992 (Lifetimefitness.com, 2008). The current name of Life Time Fitness was put in place on December 8, 1998 to correspond with their brand name (Lifetimefitness.com, 2008). Life Time Fitness, Incorporated went public in the summer of 2004 and is traded under the symbol LTM on the New York Stock Exchange (Lifetimefitness.com, 2008). As of December 31, 2007 Life Time Fitness had 15,000 employees nationwide and revenues of \$655.9 million (Lifetimefitness.com, 2008).

Life Time Fitness, Incorporated's mission is to provide an educational, entertaining, friendly and inviting, functional and innovative experience of uncompromising quality that meets the health and fitness needs of the entire family (Lifetimefitness.com, 2008). The goal of Life Time Fitness is to help members and employees to live a healthy way of life.

Life Time Fitness's clubs range in size and offerings; however, the current club model is a 110,000 square-foot-facility offering multi-use, sports and athletic, professional fitness, family recreation and resort and spa amenities, programs and services (Lifetimefitness.com, 2008). As of February 2008 Life Time Fitness operated 71 centers, primarily in residential locations across 16 states, and one satellite center (Lifetimefitness.com, 2008). The typical club features a LifeSpa, LifeCafé, day care

services, indoor and outdoor pool, family locker rooms, personal trainers, and fitness classes.

Products and Services

Life Time Fitness offers the following services in most of its locations: salon, spa, café, personal training, day care, fitness classes and member activities. Each of these services operates either as a profit center or as a value-added service to the members of Life Time Fitness.

The salon spa and cafe operate within the clubs as LifeSpa and LifeCafé. LifeSpa sells hair care services, manicures, pedicures and therapeutic massages along with supporting products. LifeCafé sells a variety of freshly prepared health-conscious foods, shakes, bottled waters and juices, coffee, nutritional supplements and some personal care items.

Life Time Fitness has a dedicated staff of personal trainers who provide customized one-on-one and group personal training session to members for a fee.

Life Time Fitness offers up to two hours per day of day care services to its members. Cost of day care service is included in certain membership levels and availability and hours of operation vary by location. Day care is available for children from 3 months to 12 years of age.

Fitness classes vary by locations and most are free to members. The type of fitness classes vary in length and skill level. Member activities consist of classes and camps that are available to members and their children. Classes range from athletic to educational and the camps range from sports to education to general fitness for children.

Marketing

Life Time Fitness uses radio, television, newsprint, grass roots marketing efforts and direct mail to market to potential new members in one of two market types, open or presale clubs. An open club is that is open for business and a presale club are in the process of being built. In both presales and open clubs, memberships are sold to potential customers. The purpose of the marketing is to drive potential new members to the clubs. Once inside a club, potential new members will meet with a member advisor who will introduce them to Life Time Fitness, provide a tour and explain how a membership works. The advisor's intent is to convert a potential member into a new member.

The type, amount and frequency of the direct marketing that each club receives will depend on the life cycle or/and membership level of the club. Radio and television is targeted to a specific market area. Grass root efforts are coordinated with local marketing groups to create awareness of Life Time Fitness in new trade areas or of a special event in a current market.

Direct mail is the workhorse of Life Time Fitness's marketing communication efforts to drive new potential members to the clubs. Direct mail is club-specific and targeted to individuals and families who meet Life Time Fitness core target demographics. Direct mail is used for open clubs that are under capacity and for clubs that are in presales status. The amount and frequency of direct mail that is sent out is driven by seasonal, club capacity and life cycle factors.

The marketing tools (either broadcast or printed materials) are developed by an internal creative agency. There is also internal support from marketing managers, business analysts and production personnel.

Print Services

At the beginning of this study, there was only one print vendor who used sheet-fed presses to fulfill Life Time Fitness's direct mail needs. This vendor had no plans to increase current capacity or add web press capabilities. Life Time Fitness has been working with this vendor for the past four years. At the end of this study, Life Time Fitness worked with three vendors who had sheet-fed press capabilities and two vendors who used web presses for the production of direct mail. The current print production staff had provided more than three years of service to Life Time Fitness, and had a combined 30 years of various print production experience.

Statement of the Problem

There was no current documented or developed supply chain process for the production of direct mail for Life Time Fitness. As there was no documented supply chain process for how things were to be handled between Life Time Fitness and its vendors and internal clients, it was hard to know who was responsible for which functions in the supply chain process. This led to problems in the case of personnel changes or if a new vendor was used to produce direct mail. The lack of a documented supply chain process also made it difficult to identify qualified potential new vendors.

Purpose of the Study

The purpose of this study was to develop and document a supply chain process for the production of Life Time Fitness's direct mail, to help in the vendor selection process for print production of direct mail.

Scope of the Study

This study will focus specifically on Life Time Fitness's direct mail printing, with the development and documentation of a supply chain process for the production of direct mail and potentially for selecting new vendors.

Definition of Terms

1. *Coding Accuracy Support System (CASS)*. CASS is a service of the US Postal Services for evaluating the accuracy of address matching software with respect to zip codes and carrier routes. CASS certification requires achieving a specific accuracy level and provides discounted mailing rates (Marigoldtech.com, 2008).

2. *Direct Mail*. Mail, usually consisting of advertising matter, appeals for donations, or the like, sent simultaneously to large numbers of possible individual customers or contributors. Abbreviation: DM (Dictionary.com, 2008).

3. *Gantt Chart*. Chart used as visual aid for loading and scheduling purposes (Stevenson, 2005).

4. *Logistics*. The movement of materials and information in a supply chain (Stevenson, 2005).

5. *Sectional Facility Center (SCF)* is a processing and distribution center for post offices in a designated geographic area. A particular SCF serves the post offices that share the same first three-digits of their zip code. Some SCFs serve more than one three-digit zip code range (Marigoldtech.com, 2008)

6. *Sheet Fed Press*. Press that prints sheets of paper, as compared to a web press (Beach, 1993).

7. *Supply Chain*. A Sequence of organizations – their facilities, functions, and activities – that are involved in production and delivering a product or service (Stevenson, 2005).

8. *Web Press*. Press that prints from rolls of paper, usually cutting into sheets after printing (Beach, 1993).

Limitations of the Study

1. This project was an examination of business process and the development of a supply chain management plan for Life Time Fitness. Therefore, the results of this project can only be applied to Life Time Fitness and cannot be generalized to other companies.
2. The project does not take into account any exceptions to the process.

Chapter II: Literature Review

Introduction

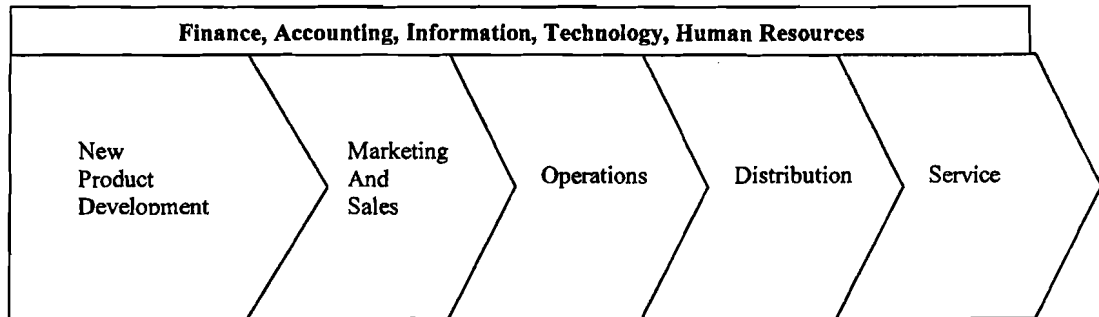
This chapter will discuss supply chain management and the impact it has on every aspect of business and type of business. This chapter will also review the importance of identifying the best supply chain for any type of product.

Supply Chain Management

Supply chains can be applied to a wide variety of businesses, anything from food manufacturing, grocery stores, clothing retailers, technology products, farms, bakeries to bicycle manufacturers (Fisher, 1997; Stevenson, 2005). Supply chains are not just limited to either suppliers or manufacturers; you will also find supply chains within a supply chain; they also include any functional area that is involved in filling a customer's request (Chopra & Meindl, 2001; Stevenson, 2005).

A supply chain can also be referred to as a value chain, a term that refers to the concept that a value is added to the product at every part of the process (Stevenson, 2005). In order for value to be added to the product, a close relationship needs to exist between internal and external customers to increase the profitability of everyone who is part of the value chain (Fisher, 1997; Stevenson, 2005; Chopra & Meindl, 2001). See Figure 1 for an example of a value chain (Chopra & Meindl, 2001).

Figure 1: The Value Chain in a Company



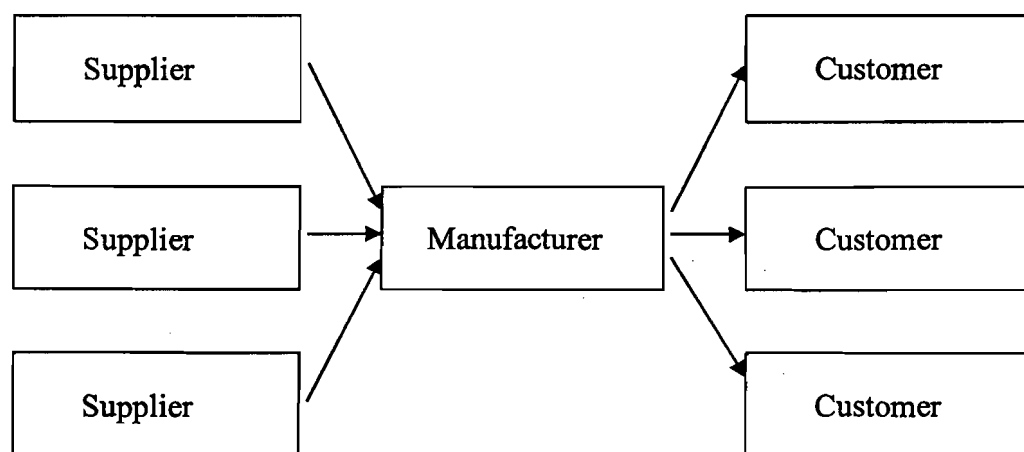
Understanding a company's supply chain and the role, it plays - including everything from profits to forecasting, planning and purchasing is a critical part of the business's success (Chopra & Meindl, 2001; Fisher, 1997; Seydel, 2005; Stevenson, 2005; Stimson, 2002). With so much riding on a company's supply chain, it is imperative that its effectiveness is examined and documented. Having the wrong type of supply chain can lead to confrontational relationships between supply chain partners (Fisher, 1997).

Every company has a supply chain, whether they recognize it or not, and each supply chain can differ. However, each supply chain has some fundamentally similar elements. The basic elements of a supply chain are customers, forecasting, design, capacity planning, processing, suppliers, locations and logistics (Stevenson, 2005).

Customers, either internal or external, are the motivating factor for the supply chain (Stevenson, 2005). Forecasting is the prediction or the understanding of the demand for either products or services (Stevenson, 2005). Design is the creation of a product customers want or materials needed to drive the customer to purchase products or services. Capacity planning is the process of matching the needs and wants of customers

with their demands. Processing is the act of controlling the quality of the product or service to be provided in addition to scheduling work. Inventory is either finished goods or parts are needed to make the final product. Scheduling can range from manufacturing to design and can be done with internal and external clients. Purchasing identifies and qualifies vendors and works with all parties to ensure that either services or products meet the requirements and needs of the customers (Stevenson, 2005). Suppliers are typically either a company or an individual who provide either supplies or services to the supply chain. Location is the physical location of either existing or future facilities, either of the company or its suppliers. The locations of a facility can vary in degrees of impact on the supply chain (Chopra & Meindl, 2001; Stevenson, 2005). The process of moving materials and information is referred to as logistics (Stevenson, 2005). See figure 2 for an example of a supply chain (Chopra & Meindl, 2001).

Figure 2: Example of a Supply Chain



Effective Supply Chains

The first step to developing an effective supply chain is to consider the nature of the product(s), either functional or innovative that a company supplies (Fisher, 1997). Once a company has established whether it offers a functional or innovative product, then it can develop the correct and effective supply chain for its product.

While considering the product type and supply chain, there is a need to ensure that the final supply chain will also be a, “strategic fit.” A strategic fit is found when capabilities of the supply chain match the needs of the customers (Chopra & Meindl, 2001). According to Chopra & Meindl, “There are three basic steps to achieving a strategic fit:

1. Understanding the customer. First, a company must understand the customer’s needs for each targeted segment. These needs help the company define the desired cost and service requirements.
2. Understanding the supply chain. There are many types of supply chains, each which is designed to perform different tasks well. A company must understand what its supply chain is designed to do well.
3. Achieving strategic fit. If any mismatch exists between what the supply chain does particularly well and the desired customer needs, the company will either need to restructure the supply chain to support the competitive strategy or alter its strategy (2001, p. 28).”

Functional Product

A functional product or service experiences very little change over time and satisfies basic needs. Furthermore, the demand is predictable and the life cycles are longer. With functional products come competition and low profit margins. To avoid lower profit margins companies introduce innovations to their products (Fisher, 1997).

The main purpose of introducing innovation to a functional product is to gain a competitive advantage and increase profit margins. An example of this is Century Products, manufacturer of child car seats. In the early 1990s, Century Products introduced a wide variety of colors and a design to allow the car seat to move in a crash to absorb energy of the crash to protect the child (Fisher, 1997). The car seats were so innovative that Century Products had to wait for the government to approve the new safety feature (Fisher, 1997). Innovation in a functional product can help increase profit margins; it does however, decrease the life cycle of the product and increase the volatility of its demand (Fisher, 1997). Functional products with innovation will also have a lower margin of error when it comes to forecasting and stock out rate.

With a functional product, a physically efficient process is required. Its primary purpose, according to Fisher, "is to supply predictable demand efficiently at the lowest cost (1997, p. 108)." Other key goals to a physically efficient process are, according to Fisher:

"Maintain high average of utilization rate, generate high turns and minimize inventory throughout the chain, shorten lead time as long as it does not increase cost, select primarily for cost and quality, and maximize performance and minimize cost (1997, p. 108)."

The main key to an efficient supply chain is to manage inventory (Fisher, 1997).

Innovative Product

Innovative products are the opposite of functional products. They have higher profit margins and unpredictable demand, which require a different type of supply chain. Even though innovation in products can allow a company to attain higher profit margins, this does cause uncertainty in demand and decreases the length of time in the life cycle. Due to the shortened life cycle, a company will have to continually introduce new innovative products (Fisher, 1997). According to Fisher, “Innovative products require a market-responsive process, with its primary purpose of being able to respond quickly to unpredictable demand in order to minimize stock outs, forced markdowns, and obsolete inventory (1997, p. 108).” Other key goals to a market-responsive process, according to Fisher, are:

“Deploy excess buffer capacity, significant buffer stock of parts or finished goods, invest aggressively in ways to reduce lead time, select primarily for speed, flexibility, and quality, use modular design in order to postpone product differentiation for as long as possible (1997, p. 108).”

A key to a successful responsive supply chain is to reduce the uncertainty of demand to increase the predictability of demand (Fisher, 1997).

Summary

In summary, to develop a successful supply chain, a company needs to first identify the type of product or service they offer. There are two types of products:

functional and innovative. This may seem straightforward and easy, but according to Fisher, “Although the distinctions between functional and innovative products and between physical efficiency and responsiveness to the market seem obvious once stated, I have found that many companies flounder on the issue. That is probably because products that are physically the same can be either functional or innovative (1997, p. 108).”

Once a product has been identified as either functional or innovative, the next step is to match up the correct supply chain with the product type. If the product is identified functional, the appropriate supply chain type is physically efficient process. A physically efficient supply chain’s main purpose, according to Fisher, is to “supply predictable demand efficiently at the lowest possible cost (1997, p. 108).” When a product is either innovative or functional with innovation, the appropriate supply chain is a market responsive process. According to Fisher, “the primary purpose is to respond quickly to unpredictable demand in order to minimize stock outs, forced markdowns, and obsolete inventory (1997, p. 108).” Successfully identifying the product and matching it up with the correct type of supply chain will help the company head down the path of success.

Chapter III: Methodology

At the time of the study, Life Time Fitness did not have a supply chain process for the interaction between the company and print vendors handling the production of direct mail. By not having a developed and documented supply chain process, Life Time Fitness opened itself to a score of problems. These problems ranged from incorrect in home dates, addresses, offers and even the wrong formats entering a specific market. The end result of the problems ranged from lost revenue to additional cost for destroying and reprinting the direct mail.

Identifying Product Type

The first step taken in the development and documentation of a supply chain for the production of Life Time Fitness direct mail was to identify the product type Life Time Fitness provided. There was a need to establish how Life Time Fitness compared to a typical health club. Life Time Fitness's product type would be either functional, functional innovative or innovative.

To compare Life Time Fitness product offering, there needed to be a base of what a health club was. To establish a standard base definition of what a health club is the use of two dictionary definitions was used. With these two definitions, it was easy to establish the product type for Life Time Fitness.

Developing the Supply Chain

Once the product type was identified, the next step was to match Life Time Fitness's product type with the correct type of supply chain. With the supply chain identified then began the process of laying out Life Time Fitness' process in the supply chain model. A gantt chart was used to assist with the process.

To help with the layout of the supply chain the needs of clients and vendors were taken into account. In addition, there were several revisions to the initial layout of the supply chain during the documentations process, due to missing items or the recognition of poor workflow.

Documenting the Supply Chain

Once the supply chain was mapped out, the next step was to document the process. This documentation provided more details than what was outlined in the supply chain. In addition, a job flow process for the production of direct mail was developed and named direct mail vendor process.

During the documentation process, one of the first things that was done was to record how information was currently being communicated to clients. The effectiveness of that communication process was also analyzed.

In addition, during the documentation process and the development of the direct mail vendor process, certain practices were adopted as a standard practice and all clients and vendors had to adopt these practices. This was done to establish uniformity and consistency throughout the process. A couple of examples of this were the recommended

record layout for mail files in the direct mail vendor process and the use of the project manager as a central person for tracking and coordinating the exchange of information between internal clients.

The supply chain and the documentation was and is consistently reviewed when a problem arose that could be contributed to either the supply chain or the documentation. Once a solution was found, it was included into a revised revision of the supply chain and documentation.

The direct mail vendor process was reviewed with the current vendors and any feedback and concerns were reviewed and taken into considerations when the final direct mail vendor process was developed. In addition, when a problem arose with the production of the direct mail, the problem was reviewed and the solution was added to the direct mail vendor process and a new copy was sent to all vendors involved in the process.

Chapter IV: Results

The purpose of this study was to develop and document the supply chain with and additional result of a direct mail vendor process for the production of direct mail for Life Time Fitness. With the development of the supply chain and the direct mail vendor process, it is possible that either any new or current Life Time Fitness employee, or print vendor that is a sheet fed or web printer can understand the workflow and expectations in the production of direct mail.

This chapter presents the results of the study including the product type, Gantt chart, overview of the supply chain and direct mail vendor process.

Product Type

According to Merriam-Webster Dictionary, a health club is “a usually commercial establishment having members who pay a fee to use its health and fitness facilities and equipment.” (Merriam-Webster.com, 2008) and Dictionary.com calls a health club, “a usually private club that offers its members facilities for exercising and physical conditioning (Dictionary.com, 2008). The above definition did imply that Life Time Fitness fits the functional product type. When the offerings of an on-site spa, café, day care, and specialty offerings were considered, the product type was an innovative functional product type. With Life Time Fitness offering a functional product, the best supply chain was an efficient supply chain. At the same time, the supply chain needed to have the ability to be responsive with addition of the innovative mix of the product types that Life Time Fitness offers.

The Supply Chain

The challenges of developing an efficient supply chain for an innovative functional product offered as a service was blending it into a system that was manufacturing-based for the production of direct mail. To get a better handle on the how the external manufacturing and internal development processes mixes together, a gantt chart was developed, followed by the development of the supply chain.

The development of the Gantt chart started at the end of the direct mail process, with what is called the Sectional Center Facility Date (SCF). The Sectional Center Facility is a clearinghouse where the United States Postal Service sorts the mail and sends it to specific post offices. Working backwards from the Sectional Center Facility Date, the process was analyzed to document the steps it took to get to that point. The analysis was a joint effort between internal staff and vendors because each functional area has direct input and impact on the process. See Appendix A for the Gantt chart.

Once the Gantt chart was developed, it helped put everything in perspective and gave all parties involved in the process a general understanding of the scope of data and information that is exchanged back and forth between internal sources and external vendors.

The components of Life Time Fitness' supply chain included creative services, marketing managers, project managers, desktop production specialists, analysts, mail list houses, print production coordinators, accounting specialists, purchasing representatives, print vendors, United States Postal Services, and finally, potential new customers. All of

these parts of the supply chain play a role in the successful delivery of the direct mail to potential new customers.

Overall, the general exchange of data and information flowed as follows.

Marketing managers would provide to creative services the marketing needs of the direct mail campaign based on seasonality, location, and offer and messaging. Creative services used this information to create new mail formats or modify existing formats. The marketing managers also provided quantities by market, targeted in-home dates and samples needs for clubs to the print production coordinator. In addition, the marketing managers provided quantity requirements to the business analysts based on which markets were in need of direct mail. These quantities were based on a club's membership levels. The marketing managers would also request postage checks and purchase orders from the accounting specialists and purchasing representatives.

The business analysts used the information provided to request mail lists from mail list houses, and the mail list houses would release the mail list to the print vendors selected to produce direct mail. The business analysts also reviewed and reported the results of in-home arrival performance of the direct mail.

Creative services provided production specifications such as size, number of colors and stock requirements of the direct mail that met the marketing and messaging needs established by the marketing managers to the print production coordinator. The print production coordinator supplied this information to the print vendors for estimating purpose. In addition, any new formats were presented to the United States Postal Services to ensure that the format could be mailed with no problems. If any issues arose

from the print vendor or United States Postal Service, this information would be communicated back to the team and corrective actions would be taken.

The project manager would track and coordinate the exchange of information between the creative services department, marketing managers, production coordinator and desktop production specialists. The project manager would also route internal proofs between creative services and marketing managers and directs desktop production specialists for changes.

Desktop production specialists would take the initial rough approved creative file and produce file versions according to the markets that would be receiving direct mail. Desktop production specialists worked with the print production coordinator to ensure that art file specifications would match the originally estimated specifications. If there were changes, they would be addressed at this point. The desktop production specialists would release the final art files to the specified print vendor.

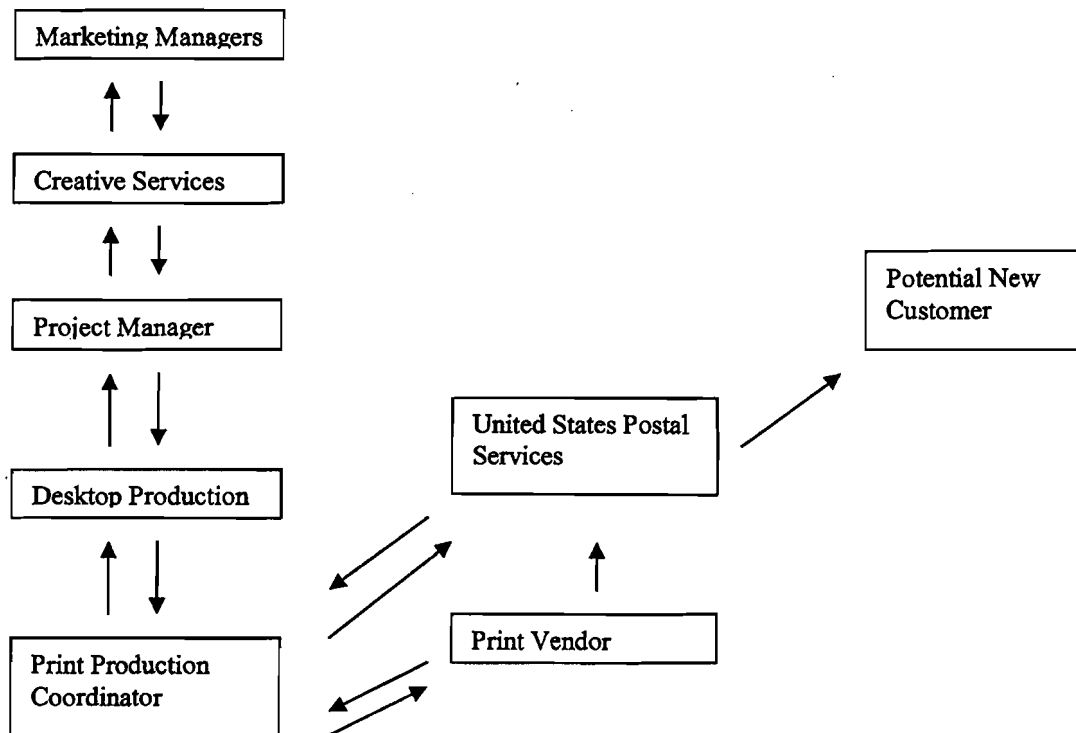
The accounting specialists and purchasing representatives managed the internal requests for funds to pay for the postage and final payment for the production of direct mail.

The print production coordinator worked with all areas that were involved in the process to collect and disseminate the needed information to everyone involved in the production of the direct mail campaign. The information consisted of timelines, specifications, quantities, mail regulations and requirements, production questions and issues, postage estimates, production estimates and final invoicing. The print production

coordinator managed the exchange of information and process of the interaction with the print vendors and United States Postal Services for Life Time Fitness.

The print vendor's function was to work with the print production coordinator to produce direct mail and deliver the to mail the sectional center facility of the United States Postal Services that met the timing and needs of Life Time Fitness. The United States Postal Service's function was to accept the direct mail into its process stream and deliver the direct mail to potential customers.

Figure 3: Direct Mail Supply Chain



Direct Mail Vendor Process

The following information was established as guidelines for the production of direct mail by print vendors. All vendors have a copy of this and it would be sent to any potential vendor who is interested in being considered to produce direct mail. Any time there was a change and/or update to this vendor process, the process would be resubmitted to current print vendors.

Schedule

There will be a yearly schedule that outline when art and mail files will be released to the print vendor. This schedule will also include in-home and SCF dates as a general guide. The final in-home dates and SCF dates will be on the Final Plan Summary.

Plan Summary

The Plan Summary consists of an excel document that will act as a print order. The Plan Summary contains the manufacturing specifications, quantities, in-home dates, mailing type and SCF Dates. The preliminary Plan Summary would be used for providing Life Time Fitness with a quote for the production of direct mail. The preliminary Plan Summary would be ready roughly six weeks before the Final Plan Summary was ready to be sent to the vendor.

The final Plan Summary would be sent on the first or second business day of the month in which production is to occur. Once the print vendor received the final Plan Summary, they would need to provide a final production estimate to the print production

coordinator. The Final Plan Summary would be color-coded to indicate which vendor would produce which formats.

New Creative & Mailability

When new creative would be considered, the Print Buyer would work with a designated vendor or vendors on production options and mailability of the concept. The Print Buyer and vendor or vendors would communicate and agree on whom would deal with the post office regarding the mail ability of the new creative.

Vendors would need to work with either their in-house postal representative or the postal facility they drop mail with to ensure that the proper amount of fugitive glue would be used to securely close all direct mail pieces. The vendor would also be double-checking the overall mailability of direct mail.

Art Files

When art files would ready, they were to be loaded to Life Time Fitness ftp-site in a folder with the print vendor's name. Life Time Fitness would load the working files only. FTP information is below.

FTP Information

To connect:

1. Point a browser to: Life Time Fitness FTP address.
2. Type in username. This is the two-character department code.
3. Type in the password. According to the password list.

To upload files: Drag files to the Internet Explorer window.

To download files: Right click a file and select “Copy to folder” and select location.

To disconnect: Close browser.

Proofing of Art Files

Art files would be turned within 24 hours of receiving the files. If this were not possible, the print vendor would need to let the print production coordinator know as soon as possible. When proofing, the print vendor would need to provide a contract color proof and Dylux mock-up for each format. If there were multiple versions per format, the print vendor would need to provide only one contract color proof and a Dylux mock-up for each format version. The print vendor would need to provide a sign-off sheet for each format. This sheet would need to have an area where changes would be documented. In addition, ink drawdown of any Pantone Matching System color used must be provided at this time.

When proofing corrections, either with hard proofs or with PDFs, the print vendor would need to include the original marked-up proof for comparison. The print vendor would need to make sure to label the proofs as to which proof it was (first proof, second proof, etc.). In addition, anytime there was a change to the original file that was made by the print vendor, a copy of the changed file would need to be sent back to Life Time Fitness via FTP or CD.

Mail Files

The mail files would need to be released two days prior to the art files. There would be times when both files would need to be released on the same day. Always refer to the schedule. Mail files would need to be loaded directly to the print vendor company's FTP-site from the mail list houses.

Upon receiving the mail files, a postage estimate would need to be passed on to the print production coordinator as soon as possible; this would be done within 48 hours. Print vendors would need to fill out the postage tab of the direct mail pricing workbook. The print vendor would add at least two percent to the estimate to ensure there would not be a postage fund shortage. Once the print vendors have filled in the needed information in the direct mail workbook, the direct mail workbook would then forward it to the print production coordinator who would then process the postage request. It would take five to six business days for postage checks. The print vendor would need to reconcile the estimated postage and actual postage in the end on the DM pricing workbook. Any excess postage would need to be credited back to Life Time Fitness on the invoice for the month of production in which the excess has occurred.

The following were some general guidelines for mail files for print vendors to follow: 1) Versions – mail files would need to be set up and given, so that the data files are based on print (litho) version. 2) All mail list houses would need to be providing the data files with the same record layout (See Figure 4.). 3) Printer would need to CASS Certify all mail files and sort all mail lists to SCF level. 4) PLANET Codes – printers would need to assign PLANET barcodes based on each Life Time Fitness club code. 5) Printer would need to supply PLANET barcodes for every piece or first and last of each

tray via Life Time Fitness vendor center with Track My Mail. 6) Cost for the planet barcodes/file and SCF sortation would need to be included in the estimate. Should the total quantity change from original estimate a change order would need to be issued based on the new total

Figure 4. Recommended Record Layout

Field	length	start	end	type
CLUBCODE	4	1	4	c
MAILCODE	12	5	16	c
PREFIX	10	17	26	c
Firstname	30	27	56	c
Midname	1	57	57	c
Lastname	30	58	87	c
SUFFIX	10	88	97	c
current_resident	40	98	137	c
line1	40	138	177	c
line2	40	178	217	c
CITY	30	218	247	c
STATE	2	248	249	c
ZIP	5	250	254	c
ZIP4	4	255	258	c
Eor	2	259	260	b

Inkjet Sign Offs

As soon as the mail file have been processed, the print vendor would need to email a low resolution PDF of the address and/or variable data inkjet sign-off proofs to

the print production coordinator. Life Time Fitness would need to make sure that the record matches the internal mail lists. Life Time Fitness would not signing-off on the mailability of the record. It would be the print vendor's responsibility to make sure the address layout met postal regulations for mailability.

SCF and In-Home Dates

Life Time Fitness does not use a window drop for either SCF or in-home dates. We would assign a specific date for SCF Date. The mail must arrive at the SCF on that date. If print vendor could not deliver the mail on that date, the print vendor would need to let Life Time Fitness know as soon as possible. The SCF date is critical and cannot be changed unless Life Time Fitness changes it or agrees to a change. If a print vendor would drop mail early at the SCF without Life Time Fitness' permission, that print vendor would not be considered for either the next month or future direct mail production. The length of time that a print vendor would not be considered would be determined after a review of the situation.

Expedited trucking would not necessary to achieve the SCF Dates. The best way to achieve SCF dates and keep a low cost for shipping would be to have the print vendor work with their trucking company and let them know what date the mail needed to have the mail at the SCF. The trucking company would need to let the print vendor know when they would have to have the mail ready to pool with other mail to deliver on Life Time Fitness' assigned SCF date.

Samples

Life Time Fitness required 20 collated shrink-wrapped packs for each month of direct mail sent to the print buyer at the corporate office. A collated pack would consist of each version of direct mail that each individual print vendor produced. The samples would be of the best possible quality and should have been hand-inspected and not glued shut. These samples needed to be sent to the print production coordinator as soon as possible. The samples called out for the clubs, should not have the indicia printed on the piece. In addition, the clubs do not have loading docks and cannot receive pallets.

Final Invoicing

The print vendor needed a purchase order number in order to submit the final invoice. To receive a purchase order each print vendor will have to complete the direct mail price workbook. The workbook consisted of three tabs. The first tab was an overview, recap of estimated costs and actual costs, the second tab was postage, and the third tab was a line item breakdown per club. Print vendors needed to complete all three tabs and have submitted the workbook within five days of when the last piece of mail that the vendor produced was dropped at the SCF.

Chapter V: Discussion

Summary

The purpose of this project was to develop and document a supply chain for the production of direct mail for Life Time Fitness. So far, it was established that Life Time Fitness provided an innovative yet functional product, which is best served by an efficient supply chain, but needed to be responsive.

Limitations

The limitations of this project were that it pertained specifically to Life Time Fitness and the data could not be interpreted directly for other companies. In addition, this project did not take into account any exceptions to the process.

Conclusions

When the supply chain was developed, the relationship between a functional product with the demand that was predictable and the demand for direct mail production was very apparent. The process for the manufacture of direct mail required a long lead-time and tight adherence to the production schedule. The print production coordinator has mapped out the timing and rough quantities of direct mail a year in advance to tie into the print vendor's schedule. However, there was a need for flexibility due to changes that have occurred because of market conditions. Another correlation between the research in chapter two and Life Time Fitness' supply chain, was that a functional product required a physically efficient process with the purpose of producing something at the lowest cost,

which is a major driving factor in considering formats, paper stock and quantities for direct mail even vendor. The main goal of the print production coordinator was to produce the best quality piece of direct mail at the lowest possible cost per piece.

While a health club was functional, Life Time Fitness was an innovative health club and innovation does lead to a shorter life cycle. The short life cycle was demonstrated by how quickly direct mail is either viewed or simply thrown into the garbage by the potential customer of the direct mail piece.

When looking at Fisher's (1997) key components of a supply chain, it was easy to relate it to Life Time Fitness direct mail production: shorted the amount of time to produce direct mail, lowered the production and postage costs, provide quality product and increased performance of direct mail. The result of the above keys was to drive potential new members to each individual club so they would be converted into paying members of Life Time Fitness.

The development and documentation of the supply chain has helped Life Time Fitness lower the overall cost per piece of direct mail, even with the increases in paper and postage costs. In addition, the direct mail vendor process led to Life Time Fitness saving over \$18,000 dollars in postal fines due to vendor errors. If the process would have not been documented, there would have been no guideline for assigning responsibility for the cost or who was responsible for remedies.

Recommendations

With the changes in technology, competition, marketing strategies, increase in paper and postage, it was key that Life Time Fitness continue to maintain efficient supply

chain practices for the production of direct mail. The documentation would be reviewed on an annual or as-needed basis to ensure any changes that have occurred in the process was taken into account. In addition, when changes have occurred either in the documentation or the process, all parties involved would be updated with the new information. It was also recommended that any new employee or vendor receive copies of the documentation of the supply chain and that it would be reviewed with them to ensure they understood the information and to help avoid any mistakes or confusion in the production of direct mail.

In conclusion, this research was focused on the production of direct mail for Life Time Fitness and was not relevant to other company's production of direct mail. Any future research should look at expanding this process to production of other types of printed materials for Life Time Fitness.

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