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MBA核心课案例教学推荐教材

# Coordinating and Managing Supply Chains (Reprint)

# 供应链管理

(英文版)

 中国人民大学出版社



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Coordinating and Managing Supply Chains (Reprint)

**供应链管理 (英文版)**

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# 出版说明

随着 MBA 教育逐渐走向成熟，人们对于案例教学已不再陌生，很多院校，特别是首批 MBA 试点院校已经比较普遍地采用案例教学这种模式。案例教学、案例编写也成为全国 MBA 教学指导委员会十分重视并大力推广的重要工作。为满足教学需要，中国人民大学出版社与哈佛商学院出版公司达成了引进出版哈佛商学院案例的协议，围绕 MBA 教学选择了十门课程，包括：战略管理，人力资源管理，营销管理，公司财务管理，领导学，组织行为学，供应链管理，技术与运营管理，财务报告与控制，企业、政府与国际经济，中文版和英文版同时推出。先由哈佛大学教授从其数千个案例中进行选择、推荐，再由中国教授从推荐的案例目录中遴选，在翻译的过程中又作了进一步的调整，最终确定了目前的案例。

多年来，中国人民大学出版社一直在不懈地打造经管类图书的品牌，特别是，作为高等教育教材出版的市场领先者，我们一直希望能为中国的管理教学和实践提供更多、更好的产品。随着中国 MBA 市场规模的扩大，学生人数的增加、素质的提高，教师队伍的成熟，我们发现，案例教学教材的数量不足及质量不高成了一个比较大的问题，基于大量的市场调研，哈佛商学院的案例便成了我们针对 MBA 教学引进案例的首选。毕竟，哈佛大学是最早开始 MBA 教育的，其 MBA 学位计划有近一百年的历史。哈佛案例每年能销 600 万份，其案例教学法也在逐渐为世界上各大学校所熟悉和借鉴。作为一家以为高等教育服务为己任的大学出版社，我们深感哈佛案例的引进对于我国工商管理教育理论和实践的提升具有十分重要的意义，事实上，我们在 2002 年曾引进出版了一套哈佛商学案例，分商务基础系列和实务系列，共 21 种，在当时引起了很大的反响，只是囿于条件，案例没能根据课程设置选取，不便于教师在教学中使用，基于此，便有了我们这套针对 MBA 核心课程的案例。

在运作这套案例的过程中，我们广泛听取了老师们的意见和建议，我们发现，单是引进一些案例并出版不能满足教学的实际需要，对于很多老师来说，如何讲授哈佛案例才是一个难点。同时，我们在前期调研和筹备工作中也深感案例的推广不再局限于传统意义上的图书推广工作，它已超出了传统单纯出版图书的概念，变成了一种教学理念和教学方法的推广，它需要我们提供更多、更长期的后续服务，并改变传统的出版模式。

就在我们策划出版这套案例书之际，哈佛商学院酝酿已久的 PCMPCL (Program on

Case Method and Participant-Centered Learning) 培训计划正式启动。为配合 PCMPCL 项目, 哈佛商学院出版公司邀请包括中国大陆、香港、台湾等地区和新加坡在内的 16 所大学的商学院选派一些教授到哈佛商学院参加哈佛案例教学的培训。首次培训定于 2005 年 8 月, 同年 12 月还将在中国举办第二期有关案例教学与写作的培训。

同时, 为帮助广大教师更好地使用哈佛案例, 中国人民大学出版社还将配套引进案例的教师用书、教学录像等辅助资料(出于授权限制, 仅向使用本案例教学的教师提供)。在案例出版后, 我们还将提供教学支持, 帮助中国教师更好、更便利地使用案例。

运作案例出版的过程是艰苦的, 但结果是美好的、令人难忘的。在和哈佛商学院出版公司的合作中, 我们一次又一次地听到他们虔诚地谈及他们的使命: 改善管理实践。在案例出版的过程中, 很多人做了辛苦的工作, 我们感谢哈佛商学院高级副院长、贝克基金教授史蒂文·C·惠尔赖特(Steve C. Wheelwright)先生, 他为我们的案例出版写了序, 他在这套案例书 10 门课的选择中起了决定性的作用, 没有他的努力, 这套书的出版是不可能的。感谢 John Quelch、Michael Tushman、Debora Spar、Pankaj Ghemawat、David Hawkins 以及 David Upton 等教授, 他们在我们初选案例的过程中给予了建议和指导; 感谢哈佛商学院和哈佛商学院出版公司的下列人员, 他们为案例的挑选做了许多工作: Paul Andrews、Tim Cannon、Tad Dearden、Mike Derocco、Pat Hathaway、Amy Iakovou 和 Carol Sweet; 感谢哈佛商学院出版公司国际部总经理陈欣章先生, 他促成了案例最终出版协议的签订和执行, 并完成了整个过程中的协调工作。最后, 也要感谢所有参加案例中文版翻译的教授, 他们都有自己繁重的教学任务, 在出版时间紧迫的情况下, 各位教授都保质、按时地完成了翻译工作。

我们希望这套案例书的出版以及后续的培训工作需要影响几百、几千乃至上万个 MBA; 我们希望他们能用一种新的视角, 适应国际化的大趋势, 理解现代企业的管理方法, 理性地接受信用经商的理念, 推动中国经济的更大发展; 我们希望能通过我们的出版物来引导中国的管理实践。如能做到此, 那么其间的各种辛苦努力也就值得了。

感谢您选用或关注我们的这套案例书, 对您的任何反馈我们都十分珍视。我们的联系方式: 010-62510566 转 551 或 541; E-mail: rdcbsjg@crup.com.cn 或登录: <http://www.rdjg.com.cn>。

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## ChemBright, Inc.

"How do you stop a price war? How do you fight it?" With these words, Steve Vitale, president of ChemBright, Inc., pondered what steps might be necessary to foster the survival of the company he had started 15 months previously. One of three companies engaged in the manufacture and bottling of private-label household chemicals for the New England market, ChemBright's product line consisted of bleach, ammonia, and fabric softener. In September 1986, R.J. Poulson Company, the largest of ChemBright's competitors, had informed New England grocery chains that it would supply bleach for a delivered price of \$2.20 per case, compared to ChemBright's price of \$3.24 f.o.b. the manufacturer's dock.<sup>1</sup> Because bleach constituted the major portion of ChemBright's sales, this action threatened the very existence of the company.

### Company History

ChemBright, Inc., was formed in April 1985 by Stephen Vitale, a 36-year-old former industrial chemist, and was the third company he had founded. The first company, Vitale International Chemical, had been formed in 1979 to exploit one of Vitale's inventions; it manufactured proprietary products for metal finishing. The company proved a success, and in 1981 Vitale sold out to Allied Research Products, Inc. for a substantial profit, placing the entire proceeds of the sale in a trust fund for his children.

After rapidly advancing to district manager of Allied, Vitale resigned in order to exploit another of his inventions by starting a company for the production of rotary screens for textile printing. This company encountered difficulties in locating a U.S. manufacturer willing to make an essential piece of machinery. At the end of the contract with his backers, Vitale left the company, although a German company had been found that would make the part to specification.

The idea for manufacturing private-label bleach was given to Vitale by the mother of one of his children's friends, an executive vice president of Pellman's, a New England supermarket chain, while the two parents were watching their daughters play soccer. The friend explained that Pellman's had been forced to sell private-label bleach at close to breakeven for some years, due to the high price charged to the New England market by the dominant supplier, New Jersey-based R.J. Poulson, Inc. At the time, Poulson sold bleach in other parts of the East for \$3.64 per case but charged \$4.40 per case in New England. More typically, private-label bleach was sold in markets outside the Northeast for \$3.24 per case. The friend had suggested that Vitale investigate the situation and consider setting up his own private-label bleach manufacturing operation.

<sup>1</sup> "F.o.b. (free on board) the manufacturer's dock" indicates that it is the customer's responsibility to collect the merchandise from the manufacturer. Thus, the quoted price does not include delivery.

*Professor Janice Hammond prepared this case as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.*

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Vitale was convinced that the underlying economics of locating such an operation in New England to sell to the New England market were sound. He saw distribution as the key to private-label bleach manufacture because transportation costs were a high portion of the cost of this bulky, low-value product. Since the major supplier shipped from New Jersey, a local operation should have a cost advantage. **Exhibit 1** compares the estimated wholesale costs of bleach purchased from the manufacturer of a nationally-branded product, a prospective New England-based private-label manufacturer, and Poulson.

Next, the firm had to be formed and capitalized. Vitale explained:

I knew what I needed to succeed. First, I had to have a contract from a major chain; the most obvious candidate was Pellman's. The contract would provide me with a base from which to build. I got a contract for 30,000 cases of bleach, fabric softener and ammonia per month from Pellman's, and they would have liked to have obtained a piece of the action. That, however, would have created legal problems. Instead, I got them to put up a \$300,000 loan at 3% over prime which I then took to the bank and used to get another \$300,000 at 2% over "small-business prime." With that and my own investment of \$2,000, I was in business.

Because Vitale did not want the expense and complication of operating a delivery fleet, he established a policy of selling f.o.b. the manufacturer's dock. Plant location was established by observing the locations of the warehouses of local supermarket chains, studying the traffic patterns of their fleets, and choosing a location which would be on the "backhaul" routes of their trucks.<sup>2</sup> Such a location was expected to minimize out-of-pocket costs to the chains, compounding the logistics cost advantage that ChemBright might enjoy. ChemBright purchased a facility in Norwood, Massachusetts, in August 1985. Almost all chains had stores in the Norwood-Canton area in which ChemBright located. **Exhibit 2** depicts the location chosen by ChemBright in relation to the locations of the supermarket chain warehouses.

## Market

The growth of private-label household chemicals in New England had been rapid in the 1970s and early 1980s, paralleling a national movement in consumer acceptance of private-label products generally. The growth in consumer acceptance was believed to be based on lower costs, good quality comparable to national brand products, availability of a broad range of products, and aggressive merchandising programs by supermarket chains. Also, consumers tended to trade down to private-label products during periods of general economic decline, and often they remained loyal afterwards.

The net profits of the 49 largest publicly held supermarket chains had declined from over 2% of sales in 1967 to less than 0.5% in the early 1980s. This profit squeeze encouraged them to turn to higher margin private-label products. Retailers regarded selling private-label brands as a means of cultivating store loyalty and of gaining more control over the specification and production of the merchandise they sold. In addition, private-labeling enabled chains to diversify supply sourcing, and thus endowed them with a better bargaining position with respect to margins and terms.

<sup>2</sup>A supermarket chain reaching sufficient size (anywhere from 10 to 20 stores) typically established a distribution center. This enabled the chain to order all but highly perishable items for shipment in truckload or rail-carload quantities from manufacturers for delivery to the chain's distribution center where they could be stored and picked up with other products for delivery in truckload or near truckload quantities to individual retail stores. Store deliveries typically were made on trucks owned or leased by the supermarket chain organization. For most supermarket chains, trucks returned empty from the stores to the distribution center. This empty movement was called the truck's "backhaul" movement.



The New England market for private-label household products was relatively concentrated with approximately 20 retailers representing 80% of the volume. The remainder was accounted for by brokers who distributed to smaller retailers. The total New England retail market for three major household chemical products is given in **Exhibit 3**. Annual sales of the larger prospective customers are given in **Exhibit 4**.

## Product Line

Private-label household chemical products sold by large retailers were typically purchased from suppliers in groupings of products. Bleach, fabric softener, and ammonia comprised one such group; laundry and dish detergent comprised another. Specialty goods, such as toilet cleaners and window cleaners, formed a third group; and wintergreens and alcohols comprised a cleaning products group. Finally, health and beauty aids such as shampoos and mouthwash were grouped together. Generally, a chain purchased an entire product group from one supplier, but might farm out different groups to different suppliers.

The primary product for which ChemBright established its operations was bleach. Vitale requested specifications from a number of large New England grocery chains for private-label bleach, and was dismayed to discover that they all varied. However, he determined that he could produce a single product of higher quality than that required by any set of specifications at a competitive cost, and decided to sell such a product at a single published price to all customers. This decision was counter to normal practice in the industry, which was noted for the "special deals" often made by a supplier with various grocery chains, and for having unpublished prices.

In addition to bleach, ChemBright soon began manufacturing ammonia and fabric softener, completing one product group (sales by product line for September 1986 are shown in **Exhibit 5**). ChemBright manufactured four so-called "flavors" of ammonia, two flavors of fabric softeners, and one flavor of bleach. Four sizes of each product were produced: one and one-half gallons, one gallon, one-half gallon, and one quart.

The margin obtainable on bleach, at 9% to 11%, was low relative to those obtainable on other private-label products. Fabric softeners, for example, yielded ChemBright 19% to 23% when sold at \$4.20 per case; and ammonia yielded 15% to 19% when sold by ChemBright at \$3.00 per case. A beachhead was established in bleach because of the Pellman's contract. Once its reputation was established, ChemBright expected to expand into other private-label products bearing higher margins. "We will have a name," explained Vitale, "and since our customers' trucks will be stopping here anyway, it won't cost them much to add cases of other products to the load. That's when our leverage will begin to show."

Vitale saw other household chemicals and health and beauty aids as logical lines into which to expand because, like bleach, they were characterized by a low value-to-weight ratio. Since transportation costs dominated the cost of these products, the products could not be shipped economically long distances, thus Vitale believed the country could be divided into regions in which regional production would be feasible. **Exhibit 6** lists potential future products considered by ChemBright.

## Competition

The R.J. Poulson Company, a New Jersey-based firm with annual sales close to \$40 million, was the main competitor of ChemBright. With a single plant in Passaic, New Jersey, Poulson served both the New England marketing area and the New Jersey, New York City, and Eastern Pennsylvania areas. In the New England market, Poulson sold through a broker, which was normal industry practice. Brokers' commissions varied by product but were approximately 2% on bleach

and 3% on fabric softener. Poulson's total New England sales were estimated to be \$18 million, which included sales of \$7 million that were thought to be directly competitive with ChemBright. Food Bazaar, Associated Grocers, Best Stores, New England Markets, Buy Rite, and Boston Marts were accounts served by Poulson.

The S&J Chemical Company, with \$8 million sales (all in products similar to ChemBright's) marketed mainly in New Jersey and Eastern Pennsylvania. However, for 10 years it had supplied Berkshire Markets and Upland Marts.

Empire Products, Inc., which had \$2 million of its total \$12 million sales in the New England market, was located in Rochester, New York, and was considered to be decreasing in importance because of its distance from the New England market.

The Yankee Company in Holbrook, Massachusetts, had \$10 million sales and would be competitive with ChemBright in two product lines, fabric softener and winter products such as antifreeze; it also marketed detergents and health and beauty aids.

## Operations

ChemBright's production process consisted of mixing chemicals (currently, four bulk chemicals and about 150 other chemicals were used), making plastic bottles, and filling the bottles with the various product formulations. All of the equipment employed by ChemBright was purchased second hand, and was installed by Steve Vitale, vice president of Operations Mike Derenzo, and three assistants (see Exhibit 7). It represented a replacement value of \$990,000, a fair market price of \$620,000, and an auction sale value of \$390,000.

With ingenuity, ChemBright had realized substantial savings on other equipment. For example, when storage tanks costing \$32,000 commercially were required, Vitale bought eight used gas tanks for \$600 apiece, cut off the ends, and lined them with swimming pool liner costing \$9,600, thereby saving \$17,600.

Unlike Poulson, which had seven production lines, ChemBright employed only one line for all bottle sizes. The single production line gave ChemBright greater flexibility with a minimum investment, because it was custom designed by Vitale to allow quick changes. Product-to-product changes took an hour, and changes within a product group, e.g., flavor changes, could be performed within half an hour.

By manufacturing to inventory, rather than to order, ChemBright was able to offer a 3-day leadtime on delivery, as compared to Poulson's 10-day delivery period. ChemBright had leased a PC-based order-entry system that it could use to process incoming orders transmitted on General Electric's Information System Network. Retailers could place an order by transmitting order information to ChemBright's "mailbox" on the GE network. ChemBright then downloaded the orders to its order-entry system, which in turn generated a simple "pick list" for the ChemBright warehouse. Typically, orders could be packed and ready for shipment within the three-day window.

Although not absolutely needed, Vitale expected the shorter leadtime to result in the following benefits:

First, with stable-demand products such as bleach, customers can live with a 10-day leadtime. However, they like to feel that they can get three days and leave themselves some leeway. It's a good selling tool for us. Second, having to make three days consistently keeps us on our toes and allows us to be sufficiently geared to meet emergency orders the same day. We can almost always do this.

Vitale thought that variable costs were high at the time due to inevitable start-up problems and a few mistakes. However, he saw improved productivity resulting from realigning the production process and changing the order of performance of certain operations. Improved productivity was expected to increase capacity from the present 35,000 cases per month level to one of 60,000 cases per month, with no increase in fixed expenditures. Also, these changes were expected to result in a decrease in variable costs from their current levels. In Vitale's view: "As we bring up our volume, we should increase productivity and lower our labor and manufacturing overhead other than depreciation, rent, and supervision, perhaps by as much as 40% or so."

## Potential Customers

Vitale plotted the future:

At this point, our first priority is obviously to find new customers. We are approaching the volume of operation whereby we can fulfill our contract with Pellman's of 30,000 cases per month and still have capacity left over. Consequently, I have been out meeting with the other potential customers.

I tell the buyers immediately that we do not deliver, but point out our locational advantage over our competitors. It can be quite a sophisticated selling job to persuade potential customers that we are, in fact, cheaper for them, despite the fact that our list price does not include delivery. I get very involved with getting the customers to "charge" themselves appropriately for the transportation expenses they incur with their own trucks. For example, there was one customer that we delivered to ourselves, using third-party trucks and hired drivers. We were charging him 36¢ a case for delivery. Eventually we went to him and said to him that he should consider picking up our product himself with his own trucks. His traffic department examined it, and said they could do it at a cost of 30¢ a case. Then we showed them our true costs, which were only 18¢ a case, and we were using leased trucks which had to be more expensive than his operation! His traffic department reviewed the situation and finally agreed that they would pick up our product at a transfer price of 20¢ a case, which they now do. We deliver approximately 5% of our total sales ourselves, but it's a percentage that's getting smaller all the time.

Next, I promise that we will give good service, maintaining an inventory of the customer's product, already branded with their label. I show them our "spec. book" and tell them straight out that we will not supply a low-quality product. They are usually quite surprised, because they are not used to that kind of talk, nor the fact that we won't even discuss discounts or "deals."

I give them the results of the lab tests on our product, but if they ask for samples, I just hand over a \$100 check and tell them to go and buy some from Pellman's shelves. That also surprises them, but it shows I stand by my product.

The accounts I am really aiming for are Shop and Save, Friendly Food Fare, and Berkshire Markets. I am pretty sure they are interested and willing to give our approach a try. Standard procedure is for them to give a supplier the account for a small part of the chain. Then, if you perform, they add on more and more stores.

However, I have encountered one major problem. A lot of the retailers think that I am owned by Pellman's and they don't believe me when I say we're not. But I think I can get over that, one way or another.

## Future Growth

In the longer run, apart from expanding by proliferating the private-label product line within the region, ChemBright considered growth by duplicating the whole operation in other parts of the country. Vitale tentatively identified at least six areas in which an operation such as ChemBright made sense. In many areas, stores purchased their private-label goods from a major-brand manufacturer. Usually, this was unsatisfactory to the stores because it was thought that the manufacturer tended to use the best quality of material for its own brands, using whatever was left over for private-label products.

Another avenue of growth that Vitale had been considering was to integrate his operations more fully with the retailers that he served. For example, if he could tie into the data processing system of a retail store in such a way that he could monitor sales directly, then he could automatically determine appropriate replenishment quantities and schedule shipments directly to the stores. This approach would have the advantage of bypassing the chain warehouse distribution centers and the associated warehousing costs. However, doing so would conflict with a growing retailer desire to consolidate a large portion of their stores' needs at a central distribution center in order to reduce the complexities of store deliveries and create a volume sufficient to support frequent truckload deliveries from the central distribution center to individual stores. In addition, Vitale was uncertain about how he would establish enough credibility with the retailers for them to allow him to take over the replenishment decision-making process.

## The Price War

Vitale knew that four previously established New England-based manufacturers of private-label bleach had failed to withstand price wars initiated by R.J. Poulson soon after each began operation. Two firms found themselves at a disadvantage because they were not integrated, and thus they were forced to pay 36¢ per bottle (ChemBright was able to make bottles for 20¢). A third closed down because its bottles were made of a weaker material that allowed the bleach to spoil easily. The fourth firm was bought by Poulson, who closed it down and moved all of its equipment to Poulson's New Jersey plant. Exhibits 8 and 9 show the Operating Statement and Balance Sheet, respectively, for ChemBright for the nine months ending on September 30, 1986.

Vitale reflected on his situation:

At this point, things look pretty good if we can survive our embryonic stage. Every day we survive, the stronger we become, because we can establish our "franchise" and make our reputation for service and quality. That's why Poulson's action is such a threat to us. Poulson's mission, as with the others, is clearly to destroy us. But I firmly believe there is a place for a New England-based bleach plant, and there must be a way to fight Poulson.

The situation is simple. Our price is \$3.24 a case for bleach. Poulson, who charges \$3.64 to its customers in the New York area, has offered our customers a price of \$2.20 delivered. Poulson cannot be making a profit at that price, so this is a clear attempt to drive us out of business. In fact, based on my estimates, Poulson's breakeven must be about \$3.00. We have a good reputation and good relations with our potential customers, but I don't think I can capture the accounts if they can get the product that much cheaper.

Whatever I do, I had better do it quickly. When you lose a customer, it reschedules its fleet and makes other organizational changes to adapt to the new supplier, so it is tough to win that customer back. As I said before, "How do you stop a price war?"



**Exhibit 1** Estimated Economics of Bleach Purchased by New England Retailers

	National Brand	Prospective New England-based Private Label	New Jersey-based Private Label
Base wholesale price/case	\$6.46	\$3.24	\$3.74 <sup>b</sup>
Freight	delivered	\$0.26 <sup>a</sup>	0.66 <sup>b</sup>
Stocking and distribution	0.36	0.36	0.36
<i>Net Shelf Cost</i>	<i>\$6.82</i>	<i>\$3.86</i>	<i>\$4.76</i>
<i>Cost/Unit</i>	<i>\$1.136</i>	<i>\$0.644</i>	<i>\$0.793</i>
Selling price	1.140	0.810	0.810
<i>Unit Profit</i>	<i>\$0.004</i>	<i>\$0.166</i>	<i>\$0.017</i>
<i>Case Profit</i>	<i>\$0.024</i>	<i>\$0.996</i>	<i>\$0.100</i>
<i>Net Margin %</i>	<i>0.35%</i>	<i>20.49%</i>	<i>2.06%</i>

Note: All figures are based on a case of 6 one-gallon bottles.

<sup>a</sup>The cost is borne by the customer.

<sup>b</sup>Poulson's delivered price was \$4.40 per case. The breakdown into price plus freight charge was estimated by Vitale.

**Exhibit 2** Map of Boston Market Area, Showing the Locations of Supermarket Chain Warehouses and ChemBright

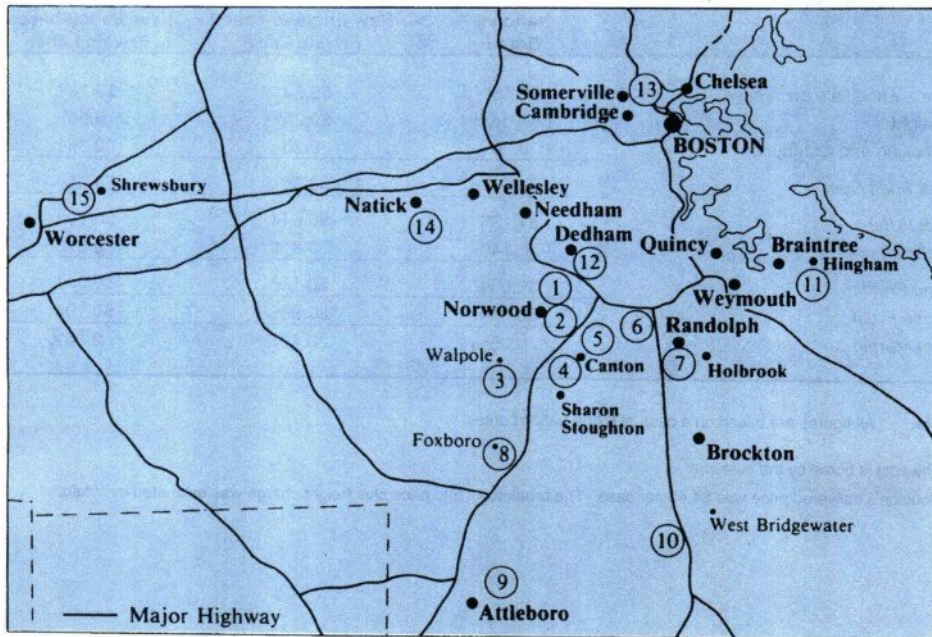


Exhibit 3 Estimated New England Market Sales Volumes for Three Major Household Chemical Products, 1985 (\$'000)

Product Type	Total New England Market	New England Private-Label Market	Percent Private Label
Bleach	\$18,800	\$ 8,060	43%
Fabric Softener	19,094	10,692	56
Ammonia	2,428	874	36
Totals	\$40,322	\$19,626	

Exhibit 4 Projected 1986 Private Label Retail Sales of Bleach, Ammonia, and Fabric Softener by Major New England Retail Chains (in thousands of dollars)

Chain	Annual Sales
Pellman's	\$ 1,600
Food Bazaar	1,440
Associated	1,200
Produce Supreme	1,056
Shop and Save	690
Berkshire Market	650
J & M	432
Suburban Markets	360
Galaxy	288
Best Stores	264
Friendly Food Fare	240
New England Markets	192
Buy Rite	180
Upland Marts	180
Other <sup>a</sup>	12,240
Total	\$21,012

<sup>a</sup>Includes fringe areas such as Southern Connecticut and Western New England, as well as institutional sales.



Exhibit 5 Sales by Product Line, September 1986

Sales (in cases)	
Bleach	11,873
Fabric softener	5,011
Ammonia	3,216

Note: A case consisted of 6 one-gallon bottles.

Exhibit 6 Potential Future Products

	New England Market	Private-label Market	Gross Margin <sup>a</sup>
Heavy duty liquid laundry detergent	\$ 6,730,000	\$ 1,500,000	35%
Liquid drain cleaner	1,320,000	360,000	40
Bubble bath	986,000	750,000	52
Window cleaning products	2,800,000	1,540,000	18
Liquid dish detergent	47,788,000	15,700,000	23
Toilet bowl cleaners	2,770,000	800,000	35
Self-polishing floor wax	17,406,000	5,222,000	30

<sup>a</sup>These figures are estimates provided by Vitale.



Exhibit 7 Organization Chart

