Logistics

商务英语名品案例系列

国际市场物流高手案例分析

王欣梅　刘昕蓉　主编

南开大学出版社

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南开大学出版社
天　津

图书在版编目(CIP)数据

国际市场物流高手案例分析：英汉对照 / 王欣梅，刘昕蓉主编. —天津：南开大学出版社，2010.1
（商务英语名品案例系列）
ISBN 978-7-310-03332-4

Ⅰ.国… Ⅱ.①王…②刘… Ⅲ.①英语—汉语—对照读物②国际市场—物流—案例—分析—世界 Ⅳ.H319.4:F

中国版本图书馆 CIP 数据核字(2009)第 242436 号

南开大学出版社出版发行
出版人：肖占鹏
地址：天津市南开区卫津路 94 号 邮政编码：300071
营销部电话：(022)23508339 23500755
营销部传真：(022)23508542 邮购部电话：(022)23502200

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河北省迁安万隆印刷有限责任公司印刷
全国各地新华书店经销

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2010 年 1 月第 1 版 2010 年 1 月第 1 次印刷
787×960 毫米 16 开本 17.25 印张 307 千字
定价：28.00 元

如遇图书印装质量问题，请与本社营销部联系调换，电话：(022)23507125

前 言

在经济全球化日益发展的今天，现代物流作为“第三利润源泉”和提高企业竞争力的重要手段，受到经济界和企业界的广泛关注。发展现代物流产业，建立高效而快捷的物流体系，对于优化资源配置、增强综合国力和企业竞争力、提高经济运行质量与效益具有重要意义。

我国开展物流理论研究二十多年来，特别是世纪之交的这几年，随着“物流热”的升温和对外交往的扩大，许多专家学者从不同角度对什么是物流这一最基本的概念作出了不同解释。有的从管理学出发，把物流看作是企业管理的一部分；有的从营销学的角度考虑，把物流作为商品流通的一部分；有的从系统论的角度，把物流看作是供应链的一部分；有的从工程学角度强调物流的技术性、网络性；还有的从宏观经济的角度，把物流看作是经济运行的模式。随着各国物流理念的引入和我国物流实践的发展，人们对物流基本概念的认识在不断深化。我国国家标准《物流术语》给“物流”下的定义是：物流是“物品从供应地到接收地的实体流动过程，根据实际需要，将运输、储存、装卸、搬运、包装、流通加工、配送、信息处理等基本功能实施有机结合”。由此可见，物流科学是管理工程和技术工程相结合的综合学科，它以物的动态流转过程为主要研究对象，以系统科学的理论为指导，揭示了运输、储存、装卸、包装、流通加工、配送、信息处理等各物流活动的内在联系。随着跨国公司进入我国和我国物流界跨出国门，国外物流的研究逐步成为物流研究的一个“热点”，给我国物流实践的发展以有力的推动，而物流科学的强大生命力就在于它的实践特性。

本书选取了一些优秀的物流案例，着重介绍了星巴克、惠普等知名企业物流运作的成功之处，反映了不同地区、不同行业物流管理的经验，具有广泛的代表性。本书共分为十章，即总结分析了十个企业的物流体系，读者可以了解各个企业的物流体系，以及物流管理方式对企业经营的影响，在遇到问题时，各企业如何改进、完善其物流操作模式。

本书编写过程中参考了大量的相关书籍和论文，并引用了其中的有关概念和论点，由于篇幅较多，不一一介绍，在此对所引用书籍和论文的作者表示衷心的感谢。由于编者学识水平有限，书中不当之处敬请读者批评指正。

编　者

2009 年 9 月

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I. Case Study:

Three years after Meditech was spun off from its parent company, Meditech captured a majority of the endoscopic surgical instrument market. Its primary competitor, National Medical Corporation, had practically invented the $800 million market just over a decade ago. But Meditech competed aggressively, developing new, innovative instruments and selling them through a first-class sales force. The combination paid off, and Meditech had become a phenomenal success in a short period of time.

Despite the success, Dan Franklin, manager of Customer Service and Distribution, was concerned about growing customer dissatisfaction. Meditech had recently introduced several new products that were central to the entire Meditech product line. New product introductions, which were critical to Meditech's strategy of rapid product development, needed to be introduced flawlessly to protect Meditech's reputation and sales of other products. But Meditech consistently failed to keep up with demand during the flood of initial orders. Production capacity became strained as customers waited over six weeks to have their orders delivered. Poor delivery service, which is fatal in the health care industry, was jeopardizing Meditech's reputation.

Company Background

Endoscopic surgical techniques fall under a class of surgical procedures described as minimally invasive. Minimally invasive surgery, as opposed to

traditional open surgery, requires only small incisions to perform an operation. As a result, procedures using endoscopic techniques often provide substantial benefits for the patient both physically and financially. The procedures often shorten patient recovery, which can translate into reduced surgical expenses overall. Despite the benefits and the multidecade history of endoscopic technology, the procedures have only become popular in the last 10 years.

Only three years ago, the market for endoscopic surgical instruments was expected to double its size in five years. Growth beyond five years also looked promising. Largo Healthcare Company, Meditech's parent company, decided to spin Meditech off as an independent company focused solely on producing and selling endoscopic surgical instruments. Largo management hoped that the new company would prosper without the distractions of other Largo businesses and capture market share of endoscopic instruments as quickly as possible.

Since its inception just over six years ago, Meditech has produced innovative, low-cost products. New products were brought to the market quickly and pushed by an aggressive sales force. Old products were updated with innovative features and presented to the market as new products. Consequently, the competition between Meditech and National Medical centered on the continuous development and introduction of new products by both companies. A dozen or more new products would typically be introduced by Meditech in any given year.

While the development strategies were similar, the sales strategies differed dramatically. National Medical concentrated on selling to surgeons. Meditech's sales force concentrated on selling to hospitals' material managers as well as to surgeons. Material managers tended to be more concerned with cost and delivery performance. The surgeons, on the other hand, focused on product features. As the pressures increased on health care costs, the importance of the material manager's purchasing position also increased. Meditech was well positioned to take advantage of this important shift.

The success of Meditech's strategy quickly became evident. Within six years, Meditech had captured the leading share in the endoscopic surgical instrument market. This was no small feat by any market's standards, but with surgical instruments this was especially impressive. Market share changes in the professional health care industry tended to take place gradually. Surgeons and doctors often held

onto preferred manufacturers. Hospitals frequently used group purchasing organization (GPOs) that took advantage of extended contracts with suppliers. The process of "converting" a hospital to new supplier often took months of negotiation and convincing.

Most endoscopic surgical instruments are small enough to fit into the palm of a surgeon's hand. They are mechanical in nature, typically having several intricate mechanisms to provide the required functionality. Materials used to produce the instruments include plastic injection-molded parts, metal blades, springs, and so forth. In all cases of use, surgeons use the instrument for one operation and then immediately dispose of it. Instruments are never resterilized and reused for another patient. All in all, the Meditech product line consists of over 200 separate end-products.

Meditech distributes all its goods from a central warehouse, using two primary channels—domestic dealers and international affiliates—to distribute its products from the central warehouse to end-customers (i.e., hospitals). The first channel, for domestic sales only, uses domestic distributors, or dealers, to ship to hospitals. The dealers order and receive products from multiple manufacturers, including Meditech, typically stocking hundreds of different products. Stocked products range from commodity items, such as surgical gloves and aspirin, to endoscopic surgical instruments. By using dealers to supply products, hospitals do not need to order directly from manufacturers for their diverse needs. Additionally, since dealers maintain regional warehouses all over the United States, the distance between dealer warehouses and most hospitals tends to be quite small. The short distance permits frequent replenishments of hospital inventories; in some cases, trucks from dealers drop off supplies once or twice per day. Hospitals enjoy the frequent replenishments, which reduce hospital inventory and, consequently, reduce material costs.

The regional dealer warehouses act as independent entities, autonomously determining when to order new supplies and how much to order. Therefore, while Meditech only uses four or five major distribution companies, it still receives orders from, and ships to, hundreds of regional, individually run warehouses. Each warehouse in turn ships to about a dozen or more hospitals, resulting in thousands of hospitals that receive Meditech products.

The distribution channel for international sales uses Largo Healthcare's

international affiliates. International affiliates are wholly owned subsidiaries of Largo Healthcare residing outside of the United States. As with domestic dealers, affiliates distribute to hospitals in their regional area. However, in contrast with domestic dealers, which may locate within just a few miles of customer hospitals, an affiliate ships product throughout an entire country. From Meditech's point of view, affiliates' orders essentially look no different than dealers'—international affiliates submit orders to Meditech and Meditech fills them with available product.

Internal Operations

The production processes to manufacture endoscopic instruments are composed of three major steps: assembling of component parts into individual or "bulk" instruments, packaging one or more bulk instruments into a packaged good, and sterilizing the packaged goods. Each of these steps is described below.

Assembly: The assembly process is manually intensive. Component parts arrive into the assembly area from suppliers following a brief inspection by Quality Assurance (QA). The parts are placed into inventory until ready for use by one of several assembly lines. Each assembly line is run by a team of cross-trained production workers who can produce any of several instruments within a product family. Line changeovers within a family are quick and inexpensive, merely requiring a warning from the production team leader and a supply of the appropriate component parts. The typical cycle time for assembly of a batch of instruments—the time required to schedule assembly of batch of instruments and then actually assemble them, assuming that component parts are available in component parts inventory—is on the order of two weeks. Lead time for component parts is on the order of 2-16 weeks. Assembled instruments are moved from the assembly area into bulk instrument inventory, where they wait to be packaged.

Packaging: The packaging process makes use of several large packaging machines. The machines direct bulk instruments into plastic containers and then adhere a flexible sheet of material over the top of the container. The entire plastic container is then placed into a finished cardboard container and shipped immediately to the sterilizer. Capacity at the packaging area has not restricted output.

Sterilization: The sterilization process uses a large Cobalt radiation sterilizer. After batches of packaged instruments (cardboard container, plastic container, and

instruments) are placed into the sterilizer, the sterilizer is turned on for about an hour. The radiation penetrates cardboard and plastic to destroy any potentially harmful contaminants. The sterilizer can sterilize as much product as will fit inside its four walls. Capacity limitations have not been a problem thus far. Sterilized instruments are immediately moved into finished goods inventory.

The Operations Organization

The entire operations organization reports through the vice president of Operations, Kenneth Strangler. Functions immediately reporting to Strangler include several plant managers (one for each of Meditech's four manufacturing facilities), a director of supplier management, and a director of planning, distribution, and customer service. Other vice presidents exist for marketing and sales, product development, and finance. All vice presidents report to the highest officer in the company, the president of Meditech. The plant managers in the organization have responsibility for production personnel, engineering technicians, quality assurance, support services, and material supply for their respective facilities. Reporting directly to the plant managers are several business units. Each business unit has full responsibility either for the assembly of a particular product family or, in the case of packaging and sterilization, for an entire production process. The most important job of each assembly business unit is to meet the production schedule every week. Meeting the schedule ensures a constant supply of bulk instruments to the packaging/sterilization process. The process of determining assembly and packaging/sterilization schedules will be discussed below.

Also reporting to the vice president of Operations are Supplier Management and Planning, Distribution, and Customer Service. Supplier Management works on relationships with suppliers, including establishing purchasing contracts and finding new suppliers if necessary. The Planning, Distribution, and Customer Service department does everything it can to ensure that customers receive product when needed. The positions within the Customer Service department include the manager of Customer Service and Distribution, Dan Franklin; the manager of Central Planning; the manager of Inventory; and a manager of Logistics. Customer Service deals with everything from occasional customer complaints to establishing strategies to improve delivery service to customers. Customer Service representatives work with dealers and affiliates to keep them updated on product

delivery schedules and problems. Often this responsibility places the Customer Service representative in direct contact with hospital personnel.

While Customer Service handles issues concerning the movement of product out of finished goods inventory, Central Planning ensures that adequate finished goods are available to meet incoming orders. They develop monthly production plans that are used by the business units to determine weekly and daily schedules.

Charles Stout, the Inventory manager, determines the finished goods inventory policy and establishes parts and bulk inventory guidelines for the business units. When a mandate to reduce inventory is passed down from higher levels of management, the Inventory manager must determine where inventory can be reduced and then begin enforcing those reductions. Through recent efforts, Stout had successfully eliminated several million dollars obsolete and slow-moving inventory.

Production Planning and Scheduling

The production planning and scheduling process is broken down into two parts: planning, based on monthly forecasts, of assembly and component parts orders and daily scheduling of packaging and sterilization based on finished goods inventory levels.

During the fourth quarter of each fiscal year, the marketing and finance organizations determine an annual forecast. The annual forecast is then broken down proportionately, based on the number of weeks in the month, into monthly forecasts. As the year progresses, the Central Planners work with the Marketing organization to make forecast adjustments according to market trends and events. At the beginning of each month, the months forecasts are adjusted and agreed upon by the Marketing organization and the Central Planners.

The planning of assembly for a particular instrument begins with the monthly demand forecasts. Based on the month's forecast, the Central Planners determine the amount of product that needs to be transferred from bulk inventory into finished goods inventory to "meet" the expected demand. This amount, termed the finished goods "transfer requirement," is determined by subtracting the current finished goods inventory level from the demand forecast for the month plus the required safety stock (The current safety stock policy is to maintain three weeks' worth of demand).

The transfer requirements, once completed for all 200-plus product codes, are passed throughout the organization for approval. This process typically takes place one to two weeks into the current month. While not actually used to schedule assembly or to alter the packaging and sterilization processes, the transfer requirements provide an estimate of the required overall production for the month. Any problems in being able to deliver to the plan can then be identified and resolved.

Assembly schedules and replenishment orders for parts are based on the monthly demand forecasts and current inventory levels. By mid-month, the completed monthly plans, which contain the monthly forecasts, are sent to the assembly business units. A planner in the business unit plugs the forecasts into a Materials Requirement Planning (MRP) system, which determines weekly production schedules and component parts orders for each finished product. The MRP system determines assembly schedules and parts orders based on (1) the monthly forecasts; (2) the lead times for assembly, packaging, and sterilization, and (3) current parts, bulk, and finished goods inventory levels. Although the MRP calculation may be run several times each week, the planner is careful not to change weekly production schedules with less than a week's notice (A schedule change often requires rescheduling workers and procuring more component parts. One week's notice for responding to scheduling changes, therefore, has been deemed adequate by the business unit managers).

In contrast to the forecast-based scheduling of the assembly operation, the packaging and sterilization operations are scheduled based on as-needed replenishment of finished goods inventory. For purposes of scheduling, the packaging and sterilization operations are considered one operation because bulk instruments flow through packaging, into the sterilizer, and into finished goods without being inventoried. The entire packaging/sterilization process can be completed for a batch of instruments in about one week. The scheduling of packing/sterilization is done on an order point/order quantity (OP/OQ) basis, i.e., when finished goods inventory drops below the predetermined order point (OP), a replenishment order for more packaged/sterilized product is initiated. The size of the order in terms of number of instruments is always equal to the predetermined order quantity (OQ).

Another way to view the scheduling process is to think of material as being "pushed" through assembly into bulk instrument inventory and as being "pulled" through packaging/sterilization into finished goods inventory. The push through assembly is based on the monthly forecast determined before the month's demand actually arrives. The pull through packaging/sterilization simply replenishes what was sold from finished goods the day before.

New Product Introductions, High Levels Of Inventory, and Poor Service Level

Over the past several years, Meditech has introduced dozens of new products into the market, mostly by updating existing products. Meditech plans to continue this strategy of continuously obsoleting its own products by constantly introducing innovations. While the innovative products have been well accepted by the marketplace, each new product introduction has resulted in a nightmare of supply problems. Dan Franklin felt that customers were beginning to tire of the poor service resulting from each introduction. Through many meetings with hospital material managers, Dan began to realize the full scope of his customers' frustrations.

Franklin could not figure out why Meditech consistently had shortages with each introduction. Forecasting had definitely been a problem, but determining its extent was difficult. Data to measure forecast accuracy had not previously been tracked, nor had forecasts and demand information been kept. Data gathering requires a lengthy process of going back through hard copies of prior monthly plans and entering the information by hand into a computer. Even if a better methodology could be determined, forecasts can only be improved by so much.

In addition to new product introduction problems, finished goods inventory levels appeared to be remarkably high. A consultant had recently been hired to study Meditech's inventory. Her findings indicated that overall inventory could be reduced by at least 40 percent without an impact on the delivery service level. Despite the high levels of inventory, the actual service level over the past year was disappointing and below corporate objectives. Management feared that reducing inventory would further damage the already subpar level performance.

Another possible cause of the problem is "panic ordering" from dealers and affiliates. Panic ordering occurs when a dealer or affiliate is unsure of whether or

not product will be received in time and therefore increases the size of its orders hoping that Meditech will deliver at least part of the order. The increased orders would cause demand to temporarily rise, helping to explain Meditech's problems with demand consistently exceeding supply. Familiar with past delivery problems, dealers and affiliates had every reason to want to panic order. In one conversation with a representative from Meditech's largest dealer, the representative had indicated that panic ordering was a possibility. Given the decentralized nature of the regional warehouses, the dealer has little control over what an individual warehouse actually orders. Warehouses could therefore panic order without the knowledge of the central dealer. On the other hand, the possibility of panic ordering does not mean that it actually occurs. To make matters worse, data proving or disproving its existence had been hard to find.

Dan asked one of his staff members to investigate the new product introduction problem and inventory/service level paradox. The staff member spent several months compiling information on demand patterns, production rates, and forecasts. Consistent with Meditech's decentralized nature, the information existed on many different systems in several different areas of the organization. There was no routine way to see incoming demand, inventory, or production rates for a particular instrument. Developing a common format for the data had also been difficult. Some data were expressed in terms of calendar months, other data in terms of weeks, and still other data in terms of the corporate financial calendar (alternating 4-week, 4-week, and 5-week months). Once put together, the information conveyed the following:

- New product demand after an introduction followed a consistent pattern of reaching a high peak during the first few weeks, but becoming relatively stable immediately afterward.
- Variation in production schedules often exceeded variation in demand.
- Monthly forecasting could be improved substantially using a simple statistical method: generating a linear regression through past data.

With this information in mind, Dan Franklin began thinking about how to fix Meditech's delivery problems.

II. Key Words and Expressions:

annual	*adj.* 年度的
affiliate	*n.* 分公司，子公司，联号
assemble	*vt.* 组装
bulk instrument	散装器械
capacity limitation	容量限制
central warehouse	中央仓库
Cobalt radiation sterilizer	钴辐射消毒器
corporate objective	公司目标
cross-trained	*adj.* 经过交叉训练的
Customer Service and Distribution	客户服务与配送
cycle time	周期
decentralized	*adj.* 分散的，非统一管理的
delivery service	交货
domestic dealer	国内经销商
end-customer	*n.* 最终客户
endoscopic surgical instrument	内窥镜外科器械
end-product	*n.* 终产品
engineering technician	工程技术人员
financial calendar	财年月历
forecast accuracy	预测准确性
group purchasing organization (GPO)	团购组织
health care industry	医疗保健业
independent entity	独立运营实体
innovation	*n.* 创新，新品
international affiliate	国际子公司
inventory	*n.* 库存清单，库存量
inventory guideline	库存政策
Largo Healthcare Company	拉戈医疗保健品公司
lead time	交货周期；订货到收货时间间隔
logistics	*n.* 后勤；物流
mandate	*n.* 指令，命令