

Chinese Home Appliance Manufacturing: A Case Study of TCL Corporation

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INTRODUCTION

For most American manufacturing managers, Asia still holds many mysteries. A vast land area with different cultures, the region's governments continue to become assertive in economic and world affairs. APICS was instrumental in the first understanding of Japanese manufacturing systems during the early 1980's. Several books and research projects influenced a generation of American managers to rethink methods of production and quality.

Recently, China has gained importance as a manufacturer of a wide range of products. With a large internal market, and ample supplies of labor, the country is moving forward with political change that will further stimulate manufacturing. The demographics of China are overwhelming. Of the total population, nearly 600 million people are under the age of 25. Improved agricultural methods have reduced the incidence of hunger. This makes possible a shift toward urbanization. Each year, 20 million people migrate from rural areas to cities for manufacturing and construction jobs. In comparison, the United States employs just 16.5 million people for all of its manufacturing activity.

With these large demographic shifts, China is experiencing the increasing importance of manufacturing in the national economy along with a higher per capita income. However, much of the output is basic by American standards. Investment from Taiwan in high technology is just now happening. Western investment also is taking place in the areas of automobile production, telecommunications, pharmaceuticals and consumer goods.

Besides manufacturing, logistics plays a continuing important role in the overall development of the Chinese economy. In general, it is hard to correlate the contribution of effective logistics systems to manufacturing output. Even Western economies have a difficult time in understanding the importance of logistics.

The discipline comprises five basic areas: transportation, inventory management, warehousing, customer service and purchasing. In China, transportation is the most important aspect of logistics.

AN UNDERDEVELOPED TRANSPORTATION SYSTEM

During the past twenty years, China has experienced impressive economic growth. However, in spite of this growth, the development of transportation infrastructure remains a serious concern. The average annual growth rate of the country's gross domestic product (GDP) is about 8% for the past ten years. The growth rate for railway and highway

construction during this period has never reached 5% per year. Total demand for transportation exceeds the capacity of road, railway and waterway systems. The World Bank estimates that China will not be able to meet its transportation requirements until at least the year 2020.

Complicating matters, Chinese statistics show that for 2000 nearly 14.6 billion passengers used air, road, rail and water transportation systems. This produces a unique situation where passenger demand significantly competes with commercial freight flows. During a holiday such as Chinese Lunar New Year, up to 400 million people travel to see relatives, clogging roads, railway systems and causing great economic disruption.

In addition, much of the transportation industry is fragmented. For example, there are about 2.0 million tractor/trailers in China, and nearly 1.0 million individual owners/operators. About 76% of the total freight in China moves by truck. Typically, small transportation firms operate only several trucks and serve limited areas. Because of this overall competitive situation, poor service in terms of equipment availability and dependable transit times often result. At times, unreliable telecommunication systems make the task of coordination difficult.

Both commercial firms and the Chinese government agree upon the need to alleviate transportation problems and to improve the overall logistics environment. Though China is in transition to a market economy,

the Central government still uses a series of five-year plans for economic development. The ninth five-year plan period (1995-2000) resulted in improvements to the Chinese transport infrastructure with large amounts of road and railroad construction. Currently, the Central government is focusing on construction of warehouses across the country as a means of improving the logistics infrastructure. The tenth five-year plan calls for 30 of these “logistics centers” to be established along with 10 new national transportation companies. The Central government is allowing foreign companies to establish privately owned logistics centers and national carriers.

This type of detailed logistical analyses, linked to five-year investment plans, is a recent development. Though the study of logistics has existed in China for fifty years, it was in 1984 that the first Chinese academic received foreign training in logistics through an exchange program with Japan. About three years ago, the Chinese Central government and commercial firms began to realize the importance of logistics as a means of increasing competitiveness. This awareness resulted from China’s admission as a member of the World Trade Organization. On a worldwide basis, studies show that logistics expenditures account for 16.9% of Chinese GDP, compared with an average of 10% for the United States and Europe. This places China at a significant internal and external competitive disadvantage. Low labor costs tend to counter the high logistics costs making the final price of

manufactured products competitive on the world market. If national logistics costs experience further reduction, China will emerge as the unchallenged world price leader for a number of manufactured products.

Early in the process of moving to a market oriented economy, one company in China did realize the importance of logistics in manufacturing and marketing success. Taking a bold move, the company invested in a privately controlled logistics system that runs in parallel to the state owned system.

THE TCL CORPORATION

Established in 1981 with a \$1,500 loan, TCL Corporation has grown to become one of the leading durable goods manufacturers in China. The firm is involved in four basic industries; home appliances, telecommunication equipment, information technology and electronics. With annual sales of \$3.6 billion, the company has total assets of \$1.8 billion, and paid \$285 million in taxes for 2002. According to Mr. Dongsheng Li, Chairman and CEO, four practices are responsible for the 50% average annual growth rate experienced by the company during the past 20 years. These include, 1) gaining advantage by resource integration, 2) the combination of marketing with strategic planning, 3) stressing speed along with effectiveness, and 4) striving for innovation from practice.

In 1990, TCL entered the Chinese color television market by acquiring a small Hong Kong company. Using the practice of “marketing with strategic planning” TCL decided to build a proprietary distribution network separate from the existing state-owned companies. TCL used this approach because the state-owned distribution channels limited the ability to do mass marketing.

In 1991, TCL established its first privately controlled warehouse in Shanghai. Managers quickly discovered that having control over the distribution network shortened the market channel between manufacturing plants and end customers, giving TCL an unequaled advantage over other Chinese state and privately owned manufacturers in the home appliance market. With demand signals traveling through the private warehouse network, TLC found it could offer more product variety, allowing opportunities to experiment with different models of television sets to determine what pleased the customer. This was in contrast to the traditional “planned economy” approach of state owned manufacturing facilities with production levels centrally planned, independent of consumer demand. TCL is one of the first examples of China’s shift to a market economy.

TELEVISION PRODUCTS

With the private distribution network in place, television production has become the mainstream business for TCL during the last 12 years. In

2001, the product line accounted for 40% of sales. Currently, four fully owned plants and two OEMs are manufacturing four product lines of televisions under the brand name "TCL KING." Pricing ranges from \$110 to \$480. In total, there are 24 sku's distributed among seven different sizes of picture tubes. The 21", 25", 29", and 34" are the most popular. TCL has some of the fastest television production assembly lines in the world. On average, its Huizhou plant can produce 5.5 color television sets per minute.

THE DISTRIBUTION NETWORK

TCL divides Mainland China into seven large business regions: Northeastern, Northern-China, Northwestern, Eastern-China, Central-China, Southwestern, and Southern-China. The firm has subsidiary sales companies located in 27 of 30 provincial capital cities, along with 23 regional distribution centers (RDCs). TCL also operates 179 branch warehouses (BWs) that receive products from the RDCs. The BWs are scattered throughout China. All TCL products are stored in privately controlled DCs or RDCs. Televisions are delivered to a BW by the TCL's private fleet of trucks or by external freight forwarders. Usually a BW is assigned to a specific RDC, but products can also be shipped from a plant directly to a BW. TCL has more than 30,000 dealers nationwide in all major cities and towns of China. The dealers pick-up products at the BW

and distribute to local shops using their own means of transportation. For 2002, TCL produced and sold seven million television sets.

PROBLEM DESCRIPTION

The high expenditures for television distribution, accounting for 8% of total sales, recently forced the company's management to consider a re-design of the private network. The aim was to understand if costs savings result from:

- 1) Closing some of the RDCs and reallocating the assigned branch warehouses
- 2) Moving the safety stock from BWs to RDCs
- 3) Fixed assignment of plant DCs shipment to RDCs
- 4) Optimizing the amount of direct shipments from plant DCs to BWs

The focus is on the minimization of distribution costs, the inventory carrying cost at the RDCs, and the fixed and variable costs of maintaining the RDCs. This constitutes a basic approach to distribution network modeling that has wide application in the United States beginning in the 1980's. The study did not consider plant assignment of production or any aspect of focused manufacturing. It was assumed that each plant would continue manufacturing the full line of products.

RESULTS OF THE STUDY

In total, the initial modeling effort shows that distribution costs can be reduced by about 35% from closing five RDCs and reducing safety stock at the BWs. Most of the savings are in transportation and inventory cost. Though this analysis is a crude first step, it shows that large potential exists to decrease logistics costs in China by the application of optimization techniques developed in Western economies. As this process unfolds, China will reduce logistics costs making the manufacturing segment of the economy even more competitive on a worldwide basis.

OTHER FINDINGS

During the course of the case study, other important aspects of Chinese manufacturing management became clear. Though the typical structure of Chinese firms is complex, most do not employ adequate internal integration. Each department operations autonomously with little cross-functional cooperation, much like American manufacturing before the re-engineering wave of the early 1990's. This is especially true for the logistics function that is often part of the marketing department with no link to manufacturing.

Like Japanese firms, human resource management is the most important part of manufacturing companies. The HR strategy determines

the management structure. In state-owned company's, this is even more the case. For both state and privately owned firms the CEO has little power in personnel decisions.

Financial investment also takes a different direction. Many projects are over budget and out of control. Often managers are looking for investments that will create a giant leap forward rather than incremental advances based on product/process improvements. For example, large investments in IT infrastructure seldom include suitable employee training. In another case a state-of-the-art production line, imported from a high profile foreign manufacturing company, was installed ten years ago with no subsequent improvement and minimal maintenance. The Chinese company plans to operate the line until obsolescence, and then replace with new assets. This is a common pattern of managing capital assets.

In general, several elements dominate manufacturing strategy for Chinese firms:

1. Most firms have an intense focus on productivity at the exclusion of sales, profit or return on investment. Often this results in high finished goods inventory, low cash flow and poor bank credit ratings.
2. The external focus is on government and bank support rather than customer satisfaction.

3. There is an emphasis on increasing market share, with a tendency toward price wars and short-term decisions to keep production levels high. Less attention is directed toward product differentiation and market segmentation.

TCL has overcome many of these obstacles to introduce Western style methods of marketing and management. Not a typical company by Chinese standards, TCL has enjoyed the success of sound management. Other companies will seek to emulate the practices of TCL within the Chinese market.

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