OUTSOURCING MANUFACTURING GOODS AND SERVICES TO MEXICO: A CASE STUDY

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INTRODUCTION

This paper presents a case study of a San Diego based ship building company and its outsourcing practices with a Mexican subsidiary for the fabrication of small metal components and specialized services.

NASSCO, a subsidiary of General Dynamics Corporation, is one of three shipyards in the corporation's Marine Systems group. Since 1960 NASSCO has been designing and building ships for the U. S. Navy. It also develops oil tankers and dry cargo carriers for the commercial market. Located in San Diego, California, NASSCO employs more than 4,000 people and is the only major ship construction yard on the West Coast of the United States. TIMSA, also a General Dynamics Corporation subsidiary, provides fabricated steel products and 3D CAD design and engineering services in a 182,000 square foot facility located in Mexicali, just two hours away from the NASSCO shipyard in San Diego.

NASSCO - Background

Of the six major shipyards in the U. S. that produce 400 feet or longer boats NASSCO is the smallest. Yet, of the six, it is the only shipyard that is still in the commercial market. Even though commercial contracts are riskier and less profitable than Navy contracts, NASSCO has a strong desire to stay in the commercial market in order to not be overly dependent on government contracts. Building cargo ships for TOTE and oil carriers for British Petroleum have helped it in maintaining its workforce and preserving its design skills during the downtimes in Navy project cycles. Although the recently completed commercial contracts have not been profitable, NASSCO is looking for new commercial endeavors. The company has recently implemented a new infrastructure to increase both capacity and efficiency in an attempt to make it competitive and profitable in the commercial market.

Foreign Outsourcing

A variety of reasons lead a company to outsource a segment of its operations. According to a survey conducted by Accenture the four major reasons for outsourcing are: i) improving profitability, ii) improving management focus on core competencies, iii) increasing speed to market, and iv) increasing market share. Foreign outsourcing is preferred to domestic outsourcing only when the advantages offered by foreign outsourcing are substantial to justify the added risk. The most common benefit offered by foreign countries such as China, India and Mexico is an extensive workforce willing to accept low wages. According to U.S. Bureau of Labor Statistics, the average hourly compensation for a manufacturing worker in the U. S. was around \$20.84 in 2004. In comparison, a worker is paid around \$2.96 in Mexico and around \$0.72 in China to accomplish a similar task. Located just south of the border, Mexico is a natural business partner for the U. S. Mexico once the main outsourcing destination for U. S. based companies has relinquished this role to those in Asia for a number of years. Even though Mexico's labor costs are not as competitive as those offered by China and other Asian countries, it has unique advantages that make our southern neighbor attractive to American businesses seeking to outsource goods and services. Among them are a skilled and abundant labor force, proximity and inshore location, productivity, cultural and business environment. Despite a disparity in educational opportunities, Baja California, the Mexican state bordering California to the south, has reported literacy rates exceeding 95% in 2004.

CASE STUDY: NASSCO

Two factors contributed to NASSCO considering the option of outsourcing to Mexico. The first factor is NASSCO's commercial shipbuilding division. NASSCO is the only large U. S. shipyard that pursues commercial shipbuilding. Outsourcing is a requirement for commercial ship building due to the fierce worldwide competition within this industrial sector, which uses a completely different business model than the oligopoly system. The latter is highly regulated by U. S. government for its military contracts. The second factor for outsourcing to Mexico is the fact that NASSCO's shipyard is running at its maximum capacity. NASSCO cannot manufacture or build additional components in-house without displacing an existing function. Outsourcing non-critical components is a simple means of removing the bottleneck, accelerating schedules, and building more ships.

Low Labor Costs

According to Bill Cuddy, Director of Outfit Engineering at NASSCO and Senior Advisor at TIMSA, NASSCO "typically will subcontract to TIMSA high labor products because, when it comes to dealing with Mexico, the big savings is in labor costs." TIMSA employs approximately 519 people (including subcontractors). More than half of the employees are direct laborers, approximately 10 per cent are engineers, 20 percent are production and support staff and the remaining 12 per cent are subcontractors. While TIMSA labor rates have not been disclosed, if we use the hourly average wage in Mexico, of $1.47 and compare it to California's $16.60 we can estimate the savings from outsourcing to Mexico. Assuming an average work week of 45 hours, the gross estimated savings to NASSCO by outsourcing to TIMSA is almost $17 million annually. While labor is cheaper in China, NASSCO is adamant that the shipping times and costs would not be a good fit for NASSCO's required lead times (24 hours) and frequent design changes.

High Labor Quality

The Mexican labor pool is improving. High tech companies are finding that the workforce is motivated and highly educated. NASSCO's Bill Cuddy states that Mexicali was selected for the TIMSA site because of its technical university and the abundance of trained people in the city. Much of the work done by TIMSA requires a highly specialized labor force. Laborers in Mexicali exhibit a high learning curve with specialties in welding and 3D CAD services.

Proximity

The proximity of TIMSA, located approximately 120 miles from San Diego, is important to the supply chain logistics and real-time engineering processes of NASSCO. TIMSA makes two categories of parts

– standard and customized. Standard parts can be mass-produced because they occur in high volumes on a ship (low mix, high volume). Once the design is solidified and the production process approved, standardized parts are produced in bulk with little supervision from NASSCO. The proximity of TIMSA to NASSCO helps ensure parts are delivered to NASSCO within 24 hours to support NASSCO's just-in-time scheduling system.

Customized parts are unique and are constructed rather than manufactured. They undergo frequent design changes. Engineers must be in contact with TIMSA during this process. The proximity of the two plants is critical at this point and, if necessary, NASSCO engineers can be at TIMSA after a short drive.

FINAL ANALYSIS AND CONCLUSIONS

By offering a cheap but qualified labor force and attractive business incentives through NAFTA and the maquiladora program, Mexico has become an outsourcing hub for many U. S. companies. Seven hundred of the Fortune one thousand companies in the U.S. own facilities in Mexico or have a business agreement with a Mexican supplier. Even though Mexico cannot compete with China's low wages, it becomes a fierce challenger to the Asian countries when transportation cost and delivery time are important considerations for companies seeking an outsourcing relationship.

We have described the experience of NASSCO outsourcing the fabrication of metal outfit parts to a facility in Mexico named TIMSA. NASSCO has avoided many problems inherent to outsourcing because it has had, from the beginning, total governance on the statement of work, schedule, quality control and other requirements. It was able to select the management team, train the team in its facility in San Diego and perform continual hands-on supervision of the work. Being the only "customer" TIMSA has had to satisfy NASSCO and NASSCO in turn has never suffered from competing with other customers to get a premium service or first priority from TIMSA. However, the enviable position NASSCO is currently enjoying has its price. Massive capital investments were necessary to start the remote manufacturing facility. Many hurdles had to be overcome: quality problems and transportation inefficiencies brought up the overall cost in the beginning. The management of design changes remains a challenge, even though major progress has been made since TIMSA has live access to NASSCO's MRP system and design model.

References: Available upon request