

This successful Executive Summary was submitted in the 1998 MIT \$50K Entrepreneurship Competition. The CMS team has graciously allowed its use as an example for teams entering the MIT \$50K. The MIT \$50K Organizing Team thanks CMS and its members for allowing the use of this document.

Overview

Consolidated Machine Shops (CMS) intends to consolidate a portion of the highly fragmented machine shop industry, thereafter managing the group for superior service and value. Currently, this industry consists of more than 1500 small “mom and pop” companies sharing almost \$5 billion of business, growing at 7% per year. As the mid- and large-sized industrial OEMs (who depend upon machine shops as suppliers) struggle to increase their productivity and time-to-market, the fragmented nature of the machine shop industry has become a limiting factor. As such, these OEMs are hurriedly seeking a higher level of service, namely quality machining at a fair price with short lead times.

We will better serve the needs of these OEM customers in several ways:

- The consolidated entity takes advantage of economies of scale, present in sales, advertising, purchasing, accounting/payroll, and scrap management, yielding lower costs. In addition, consolidation allows load sharing between shops for optimal capacity utilization.
- The consolidated entity can provide traditionally unavailable resources to its member shops, including capital and training for new technologies (e.g. computer aided manufacturing) as well as expertise in operations, finance, and marketing.
- The consolidated entity will contain multiple services under one umbrella, thereby creating a one-stop shop and greatly reducing the burden on corporate purchasers.

Through careful selection of acquisitions, a competitive focus can be developed in both particular industries and specific geographic regions. By acquiring the best shops with customer lists appropriate for our focus, and subsequently building a strong brand name around these shops, we will secure a strong niche with significant barriers to entry.

Background

The Metalworking Industry

Metalworking shops supply fabricated metal components to numerous industries including automotive, aerospace, medical, and semiconductor fabrication. Machine shops form a subset of the metalworking industry and fabricate large varieties of precision machined components using flexible metal cutting machinery operated by highly skilled laborers.

The sector is highly fragmented, with more than 1500 shops classified as makers of “precision machined products.” In our research to date, we have located only 350 machine shops in the US with annual sales greater than \$5 million. Most shops are classic family owned operations in which owners possess little knowledge of business management. The median (typical) shop employs fewer than 20 people and has annual sales of less than \$1 million. Profits before taxes range from 10% in the automotive industry up to 30% for some portions of the medical devices industry. The following table provides a representative income statement for a typical machine shop:

Typical Income Statement

	<u>% of Sales</u>
Sales	100%
Materials	36%
Production Labor	22%
Other Labor	11%
Capital Expenditures	4%
Other	12%-17%
Profit Before Tax	10%-15%

Because of the high degree of fragmentation in the market, small machine shops have been extremely slow to adopt rapidly evolving computers, numerical-controlled machining equipment, information technology, and operations management theory. Small shops can rarely afford to hire qualified engineers or IT personnel to facilitate the integration of state of the art equipment.

The owner/managers of these small firms are the primary limitation to growth as they refuse to delegate responsibility and attempt to manage marketing, sales, and operations on their own. Further, these owners have no exit strategy from their companies. Upon reaching retirement age, their children often take no interest in the family business and they find few willing buyers for their profitable operations. To the owners, large cash-outs are not as important as a secure stream of income for themselves and their employees.

The Customer

There are many customers for fabricated metal products, including aerospace companies, automobile parts suppliers, medical device companies, and semiconductor equipment manufacturers. Customer demands vary depending on the quantity and lifetime of the parts produced. Aerospace manufacturers tend to require the same high quality, identical parts year after year. Consequently, companies such as Boeing use strict certification procedures to maintain quality while simultaneously demanding low prices. Conversely, the short product cycles and high margin of the semiconductor and medical industries cause them to focus on lead times and quality. High demand for products in the latter two industries has produced a shortage of supply in many areas of California. Many small shops have sprung up in the last three years, most achieving profitability immediately.

Value of Consolidation

Consolidation allows CMS to provide superior service (with high quality machining at low cost and with quick turnaround) in many ways:

Professional Management

CMS will become an industry leader by bringing financial discipline, professional management best practices, as well as strategic, operational, and marketing expertise to an industry dominated by small players. We will realize top-line growth by delegating sales and marketing - activities that are typically dealt with at the margins by an overextended shop owner/operator - to a committed and professional staff. To help reduce turnover, improve efficiency, and to increase loyalty, skilled tradesman will be offered concerted training and a share of the top-line growth. Payroll, H.R., and other back office tasks will be consolidated for improved efficiency and consistency. Problems related to operations and the integration of new technologies will be solved in real time by a corporate-wide staff of engineering consultants. As the organizational intelligence grows, best practices will be proliferated throughout the network of shops on a corporate-wide network of PCs.

Economies of scale

By increasing effective shop size by at least an order of magnitude, CMS will realize significant cost savings on all purchases and will more efficiently utilize existing assets. For example, material costs, which typically

comprise 36% of sales, will be reduced by an estimated 8%. This one change alone will add a full 3% to the bottom line, increasing the typical net by 20%. Reduction in the purchase price of capital equipment, lease rates, and equipment repair costs will similarly effect profound savings. Economies of scale also exist for inventory storage, management and administration, and advertising. In addition, by linking fifteen shops together into one integrated network, CMS can coordinate load sharing to increase asset utilization (currently below 80%). For large rush orders, CMS is uniquely positioned to divide work amongst a highly leveraged base. A detailed list of operational improvements is included at the end of this summary.

Building a Brand

CMS will increase customer willingness to pay by offering the stability, methodology, and capability of an industry-leading brand. Branded machine shops offer an attractive escape for today's risk averse buyer seeking a reliable manufacturer from the industry's sea of undifferentiated shops. CMS will aggressively build and maintain strict quality control standards and will institute on-time discipline. Electronic data interchange will build strong bonds with key customers. The branded stability that CMS offers will be rewarded with increased customer loyalty, significant top-line growth, reduced sales expenses, and decreased corporate financial volatility.

Timeline

First, we intend to develop a more detailed business plan throughout Spring 98. The core team hopes to research the idea over the upcoming summer as well, spending time with actual customers, developing an industry/geographic focus, and determining a list of acquisition targets. We also will spend a great deal of time with shop owners, understanding what financial arrangements would provide them with sufficient incentive to relinquish ownership, yet stay to work as part of our team.

We have set a preliminary goal of acquiring 20 shops, with cumulative sales of \$200 million by June 2000. We believe that we can manage these shops to attain at least at least a 15% profit margin (5% above current industry average) within the first two years. This first group of acquisitions would serve as a proof of concept, as well as a model for further expansion.

If successful in the first phase, CMS will begin to seek funding in 2002-3 from the public markets to continue toward a long-term goal of a building a national chain.

The Team: Looking Forward

At this time, there is no defined set of "founders". However, CMS is being pursued by a core group of four MBA students from MIT Sloan and Harvard Business School (see resumes). Three of the four members have engineering degrees and strong manufacturing backgrounds, having worked extensively with machine shops as buyers and coordinators. (They have also considerable experience operating the equipment found in machine shops.) The team is supported by five additional MBA students from both schools, with backgrounds ranging from marketing to consulting to law. We have already begun the process of customer segmentation and soliciting feedback. In addition, we have started to visit with machine shop owners. It is presumed that, as the concept is refined, the needs of the founding team will become clear. For now, having recognized an opportunity that is of great value, competitively sustainable, and timely, we will continue to pursue this venture plan with great excitement.

Summary of Operational Improvements

Short Term		
Improvements/Change	Examples	Impact
Improve working capital management	•Better management of cash cycle	Increased cash flow
Improve understanding of true manufacturing costs	•Introduce activity based costing	Increased EBIT
Renegotiate supplier contracts	•Reduce material and consumable costs	Increased gross margins
Centralize back-office tasks	•Outsource accounting and h.r.	Increased gross margins
Improve asset utilization	•Introduce inter-shop load sharing	Increased ROA
Medium Term		
Improvements/Change	Examples	Impact
Strengthen bonds with existing customer base	•Introduce Electronic Data Interchange	Barriers to entry created
Strengthen technical expertise	•Introduce corporate technical consulting staff •Proliferate CAD, CAM, CNC & High Speed Manufacturing	Increased gross margins through improved shop efficiency
Improve job turn-around time	•Divide jobs between shops	Satisfied customers & higher sales
Build brand image	•Standardize quality control •Improve on-time performance	Satisfied customers & higher sales
Replace critical activities currently performed at the margins with a committed & a professional staff	•Bring full time sales staff on-board	Increased revenues
Find new revenue sources	•High yield recycling of chips	Increased revenue
Standardize major capital equip purchases	•Purchase common equipment	Reduced purchase and repair costs
Long Term		
Improvements/Change	Examples	Impact
<i>Invest in employees</i>	•Provide concerted employee training	Improved shop efficiency
<i>Align employee compensation with company performance</i>	•Introduce E.S.O.P. •Introduce profit sharing	Higher employee morale, output, and retention
<i>Acquire and consolidate other shops</i>		Increased revenue & improved economies of scale