

## Cost per Part

### A Tool to Reduce Automotive Manufacturing Cost per Part and Improve Operational Performance

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#### Introduction

Automotive supply chain managers and purchasing departments have long spent significant time and effort reducing the cost of acquired/purchased automotive related goods and services. This has meant focusing on reducing the per unit costs of raw materials and finished goods while minimizing inventory, transportation and other associated costs. The strategies associated with these traditional supply chain management objectives are well known and have been implemented successfully in a number of different industries.

Just when it seems we have done everything we can do to minimize costs, (or in most companies we still have too much to do to minimize costs), there remains a significant area of cost reduction that has been largely neglected by automotive cost managers: that of reducing manufactured cost per part. This is an area that involves multiple disciplines: operations, engineering, purchasing and finance. Despite the multiple disciplines involved we have found that it is the automotive supply chain/purchasing manager that drives change and cost reduction in this area. Cost per part provides the manager with a process to reduce manufactured cost per part. We have seen that this in turn drives increases in corporate wide market share as well as increases in cash flow.

## The Opportunity

The cost of a automotive manufactured part/product is made up of the following general cost categories:

- Raw Materials 50%
- S, G&A\* 20%
- Operating Labor 15%
- Maintenance 8%
- Capital Equipment 7%

(S, G & A is a catch all category that includes traditional accounting S, G & A as well as depreciation and other corporate costs.)

The cost associated with these various categories are driven by different forces within the company and the market:

<u>Cost Category</u>	<u>Cost Driver</u>	<u>% of Total</u>
Raw Materials	Market forces	50%
S, G & A	Corporate structure	20%
Operating Labor	Manufacturing Process	15%
Maintenance	Manufacturing Process	8%
Capital Equipment	Manufacturing Process	7%

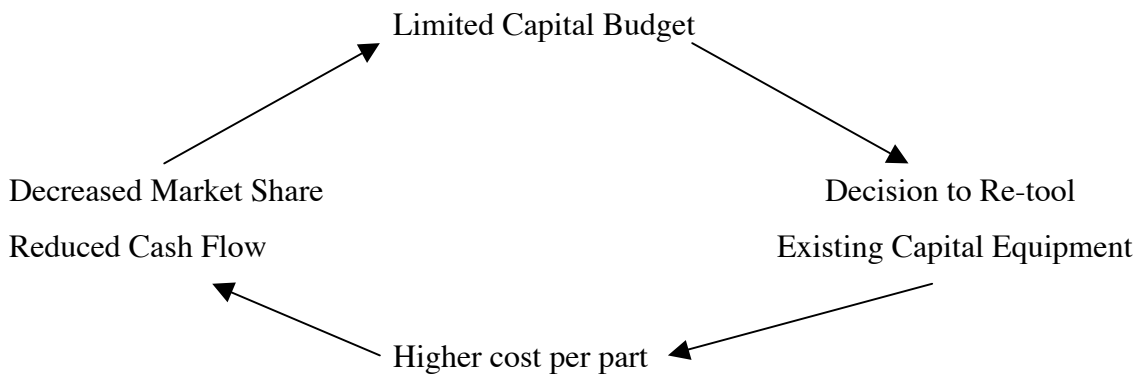
To date the majority of the automotive supply chain managers' time has been spent on minimizing costs driven by market forces. This involves primarily minimizing inventory and transportation costs while negotiating with suppliers to create "partnerships". These "partnership" relationships focus on working with a select group of suppliers and driving per unit costs down by using the prospect of adding increased volume to raise the overall total of the suppliers' revenue.

It is logical for automotive supply chain managers to focus their efforts on the raw material portion of the costs of manufactured products. "That's where the money is."

The methods and techniques of reducing raw material inventories, developing supplier partnerships while lowering per unit raw material costs as well as the reduction transportation costs are well developed and are continuously being improved. Yet, it is time for purchasing and supply chain managers to now focus on the second largest component of automotive manufactured product cost: those costs that are manufacturing process driven. This “new frontier” of cost reduction and process improvement can produce significant results improving margins as well as return on equity and return on assets.

### The Capital Equipment Dilemma

A large number of US based automotive manufacturing companies are locked into the Capital Equipment Dilemma.



The Capital Equipment Dilemma locks auto manufacturers into a cycle of declining cash flow and reduced competitiveness. The result is a reduction in overall corporate value as the company is unable to compete on a global cost per manufactured part basis.

Productivity in all industries and corresponding cost per part reduction is driven by the addition of modern, state of the art manufacturing technologies. The Cost per Part program allows the automotive company to break the capital equipment dilemma cycle by implementing new technology, supplier provided in-plant maintenance to insure

outcomes and financing for new manufacturing technology. The result is a company that focuses on reducing total automotive manufactured cost per part allowing it to increase market share, corporate cash flow and overall corporate value.

### Cost Per Part

For any program to be successful it must address the needs of senior management. In our discussions with senior automotive managers we have found that they are looking for the following:

1. “Parts in the Box” What is most important is the ability of the manufacturing process to put completed parts or products in the box of sufficient quality that they can be shipped to the customer. There is nothing to sell unless the products are produced. Unfortunately, companies locked into the capital equipment dilemma have a difficult time achieving this in that they are working with older, inefficient technology.
2. “Competitive Cost Structure” In order to compete and build market share while maintaining corporate value the manager must have a cost structure that allows the company to compete on a global basis.
3. “No variances” The process implemented must eliminate all production variances. Predictability of results allows for future planning and the ability to lock-in margins.
4. “Finance Department” The finance department has three major concerns with regards to the implementation of new manufacturing technology:
  - a) It must be able to provide for sufficient capital to allow the acquisition of technology.
  - b) It must allow the company to be able to match its capital acquisition costs with its revenues.
  - c) It must provide for the disposal of existing technology at no loss to the company.

The Cost per Part program consists of the following components together, which allow the automotive manager to satisfy the requirements of senior management.

- Manufacturing Technology
- Production Support
- Finance

### Manufacturing Technology

There continues to be a great deal of discussion in the business press on the cost of labor and its effect on a company's manufactured cost per part. We have seen that what drives automotive manufactured cost down is a focus on the implementation of state of the art manufacturing technology. Although labor cost is a significant component, especially in highly unionized facilities with inflexible work rules, it is the process that drives down overall cost per part and allows companies to compete successfully. Most of the outsourcing movement to low wage countries is driven by the fact that the automotive firm's existing manufacturing equipment is so antiquated that managers would rather move and start all over again than try to fix the existing problem. This combined with unionized facilities that have inflexible work rules has forced automotive managers to move off-shore in order to implement new manufacturing processes.

By providing state of the art manufacturing technology and aligning the number of laborers with the new technology automotive companies are able to achieve significant cost reductions. Companies implementing modern technology are finding that they are able to compete worldwide with low wage countries that are using more manual processes to manufacture products especially when transportation, quality, inventory, timing and other costs are factored into the equation. The ability to automate, reduce the overall number of laborers, while maintaining quality and volume is the key to driving down the manufactured cost per part and increasing corporate value. This creates a cost

structure that allows the company to compete on a worldwide basis. In addition, it creates certainty that products will be produced quickly and efficiently allowing the company to satisfy demand.

### Production Support

The complexity and sophistication of most modern state of the art automotive manufacturing technology has surpassed the expertise of the maintenance departments in most facilities. If one is fortunate enough to own a Mercedes, BMW, Porsche, Ferrari, Mustang, Corvette and Rolls Royce one does not take all these cars to the same mechanic. The sophistication of these autos requires specialists to maintain each one. In most automotive manufacturing plants we ask the maintenance department to maintain multiple brands of sophisticated computer controlled equipment. The result is that in many facilities maintenance costs are out of control as maintenance people throw spare parts at problems and are unable to efficiently address maintenance issues. The resulting variances increase automotive costs per part and add to the uncertainty of the manufacturing process.

The Cost per Part Program requires that the vendor of the manufacturing technology provide in plant production support. This provides the following benefits to the automotive manufacturer. First, it provides individuals who are knowledgeable and trained specifically to maintain the technology provided. Second, since these people are on the manufacturer's site it insures that scheduled and unscheduled maintenance problems are addressed promptly before they turn into major problems. Third, when done on a fixed cost per part basis, maintenance and spare parts costs are fixed for the duration of the contract eliminating production variances. Finally, in plant production support changes the dynamic and relationship between the manufacturer and the supplier of the production technology. We have seen many cost per part contracts contain "penalty" clauses should the technology fail to perform as originally engineered by the supplier. Thus the technology provider has a strong incentive to insure that the technology provided puts "parts in the box" as it was originally engineered. The interests

of the manufacturer and the technology provider are now aligned as both work together to minimize costs and insure the production objectives are achieved.

### Finance

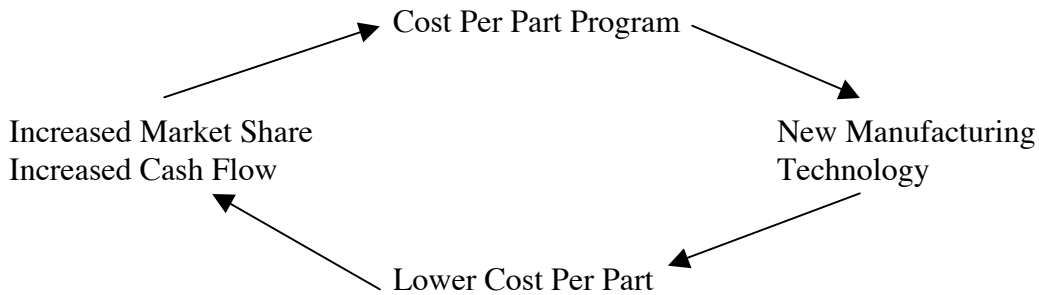
The capital equipment dilemma usually starts with finance and particularly a limited capital budget. The lack of resources forces automotive managers to “make the best with what they have.” The Cost per Part Program provides financing for the manufacturing technology. We have seen in many companies that this financing is outside of the normal capital budget allowing firms to “preserve” their capital budgets for other projects while insuring that they are able to compete on a global basis.

In addition, the Cost per Part program provides for payments on the capital equipment to be made on a per part basis. This allows the automotive manufacturer to align his capital equipment costs with the revenues generated from the parts/products produced. This alignment of cash flows significantly increases working capital reducing overall cost per part while increasing cash flow.

Return on Assets or economic value added is used by many companies to evaluate capital equipment projects. “Why should we buy new technology if we have an existing factory full of older manufacturing technology?” The thought of selling older technology at a loss versus its existing book value also eliminates the provision of new manufacturing technology. The Cost per Part program also provides for the acquisition of existing technology at its book value and the substitution of new, state of the art technology on a cost per part basis. The result is usually an increase in ROA as well as EVA and corresponding corporate valuation.

## Breaking the Cycle

The Cost per Part program allows the automotive manufacturer to breakthrough the capital equipment dilemma allowing the company to reduce its manufactured cost per part resulting in increased market share and corporate cash flow.



We have seen numerous companies reduce their overall cost per manufactured part while significantly increasing cash flow and corporate valuation utilizing the cost per part program. The complexity and the multi-discipline aspect of the automotive manufacturing process does not lend itself to easy fixes. It requires “buy in” from operations, engineering, finance as well as purchasing. The Cost per Part program provides a framework and a tool to enable the supply chain/purchasing manager to manage the various disciplines and make a significant contribution towards increasing overall corporate value by reducing manufactured cost per part.