In the typical organization, the procurement of maintenance, repair, operating and production supplies (MROP) represents only about 20% of the total spending for materials, but consumes about 80% of the time, effort and expense involved in the purchasing process. For many reasons, detailed in this book, very few organizations have properly analyzed and identified improvement potentials in MROP procurement beyond getting price quotes. The Author's experience with hundreds of entities over 50 years has demonstrated that cost savings in excess of 35% of MROP spending are obtainable without significant investment or risk. Applied to the estimated annual spend of $450 billion to $500 billion in the U.S. for MROP products, this equates to an astounding potential cost savings of $150 billion or more across the American economy. The 20% Solution shows in easy-to-absorb detail how to analyze, identify and obtain these savings within your organization. This book is written for those individuals responsible for indirect materials procurement in for-profit and non-profit entities, their suppliers, students and faculty of business and industrial technology and others seeking dramatic cost reduction opportunities in an often overlooked function.

What the Professionals say

"This book provides valuable insights into one of the last untapped profit opportunities in distribution."

Al Bates, President, Profit Planning Group Inc.

○

"The practical ideas and deep industry knowledge can significantly impact your bottom line. For buyers; real-world strategies and creative cost-saving tips. For distributors: ways to improve internal processes and profitability, as well as deepen key customer relationships. For both: how to create long-term win-win relationships based on continuous improvement."

Thomas P. Gale, Publisher, Modern Distribution Management

○

"One of the few places where buyers can find a practical guide to help them partner with their suppliers to lower costs. The 20% Solution: A Practical Guide to Dramatic Cost Reduction in MROP Procurement, is a terrific resource for anyone who makes a living in the MROP world, either on the buy side or the sell side of the table. I highly recommend it as an easy-to-read and useful tool."

Rich Vurva, Publisher/Editor, Progressive Distributor Magazine

○

"Joel Roth has given much thought about the relationships between purchasing and its uppliers and is looking to start a conversation on ways to take costs out of the MRO buying process with his book, The 20% Solution. From my experience interviewing both urchasing professionals and executives at supplier companies for Purchasing Magazine, his suggestions make sense. The solution doesn't have to be complex, nor does it have to cost a lot of money to work. Start small. And talking.

Susan Avery, Senior Editor, Purchasing Magazine

"Increasingly, the (supply-chain) managers in our focus groups said, it's more important to examine the total cost of the deal. Purchasing from suppliers with a lower price may not be the smartest move…….if that supplier ends up bringing in higher additional costs, including waste in the production process, or high expenses for storage, transportation and packaging. Supply managers must also be able to understand—and take advantage of—the benefits they can derive from supplier relationships to achieve organizational goals. For example, they must know when to turn to suppliers for help with developing new products and standardizing parts and processes to lower production costs.
We…can free up a great deal of creative energy from the suppliers in terms of contributing to solutions that can reduce costs….supply-chain managers must learn to be more transparent in their dealings with suppliers—a big change from the days of keeping critical information close to the vest to get leverage for price cuts."

The Wall Street Journal

○

- Joel Roth is on the money with The 20% Solution.
- In today's business environment allocation of resources is critical.
- MROP procurement is not a core competency of manufacturing companies.
- Integrated supply programs provide opportunities for year over year cost savings with little investment or risk and can be a key to operational excellence.
- The book is not based on theory—every aspect of this guide is illustrated by real experiences of the author during his 50 + years in business.

Lee Heusinger, former Operations Manager, Jos. T. Ryerson Co.

The 20% Solution

A Practical Guide To Dramatic Cost Reduction In MROP Procurement

by

Joel Roth

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DEDICATION

IN LOVING MEMORY OF CAROL,

WHO MADE ME THE MAN I AM TODAY;

TO VALERIE NICOLE,

WHO TAUGHT ME THE MEANING OF FATHERHOOD;

AND TO SHEBA AND CHEDDAR,

WHO HAVE SAVED ME A SMALL FORTUNE

IN PSYCHIATRY FEES.

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FOREWORD

I have worked with hundreds of organizations over a long career and the pattern is clear. The most successful organizations are those that innovate, change, question things and seek continual improvement. Those enterprises that strive to maintain the status quo, choosing not to "rock the boat," usually fall behind. This book will provide a path to some benefits for the status quo organization. But the most dramatic gains will accrue to those who have the drive, will and capacity to change.

Many companies are faced with increased operating costs and fewer sustainable competitive advantages. Unless we change how we do business i.e. innovate, the result will be lower profitability. In contrast, those who find new approaches achieve a sustainable competitive advantage as well as higher profitability.

Why is this relevant to a book on MROP procurement? First, because this is a function long-neglected as an opportunity area for innovation. Second, for many enterprises it is their suppliers who become a major source of innovative solutions.

I wrote this book out of frustration—the frustration expressed to me by countless purchasing and other professionals I've known who "can't get our arms around the MRO problem." The MRO problem is

endemic; it affects organizations big and small, well- managed and not so well managed, for-profits and non-profits. It spans manufacturing, mining, government, transportation, health care, military and defense, education, charity, construction and every other type of entity that buys and uses materials.

Moreover, the MRO issue is a dynamic, never-ending one. It constantly mutates from one commodity, vendor, plant or database to others in the organization. Even when great efforts are expended to solve the problem, it soon appears anew. That's the downside. The upside is that MRO procurement can offer a substantial untapped opportunity for improvements in cash flow, cost reduction and other key elements of operations without investment, risk or substantial workload.

I have worked for over 50 years as a consultant, employee, manager, executive, Board member, owner, customer and supplier dealing with MRO issues—and have owned ten industrial distribution companies. *IN ALMOST EVERY INSTANCE, THE IDENTIFIED SAVINGS POTENTIAL IN MRO PROCUREMENT, including direct and indirect costs, EXCEEDED 35 % OF CURRENT EXPENDITURES.* This translates into tens of billions of dollars annually across American industry and commerce.

The purpose of this book is to show you how to unlock these savings in your organization, regardless of budget constraints or staff limitations and without significant risk or investment. This is not a

theoretical treatise on supply chain management or globalization of trade and procurement. It is a practical guide to dramatic MRO cost reduction at the nuts-and-bolts (no pun intended) level. This book is replete with actual examples of MRO cost analyses and cost reductions, drawn from hundreds of diverse organizations. I have chosen not to identify them to avoid disclosing confidential information, causing embarrassment or implying criticism.

My purpose is to provide a framework for you to achieve positive results. There are very few references or notes in this volume. The reason is that when I undertook this project I found very little research and few publications on MRO procurement—another reason for writing this book. There is far too much material in this book to apply in any one enterprise or program. Regard it as an extensive menu, where you are not expected to order everything, but rather pick and choose what satisfies your appetite and objectives. So, if you are ready, let's get to work.

Joel L. Roth

Atlanta, Georgia

I WHAT IS MRO PROCUREMENT?

Almost every organization buys materials in one or more of these categories: raw materials, purchased components, capital goods, packaging materials (large volume), and supplies for maintenance, repair, operations and production—referred to as MRO or MROP (terms that we will use interchangeably). It is MRO that this book addresses. In most entities, the first four classes above represent at least 75 to 85 percent of total dollars spent on physical goods. MRO typically represents no more than 15 percent to 25 percent of the total spend.

So why differentiate MRO procurement from other categories of purchases? Why devote an entire book to a relatively small category of spending? (Note: The U.S. market for 136 MRO industrial product groups is estimated at $450 billion to $500 billion per year, according to Industrial Market Information, Inc.) The reason is that the characteristics of MRO buying are so different from other types of goods that entirely different methods of analysis, sourcing, negotiating,

stocking and tracking are required-- with an entirely different cost structure.

To illustrate, imagine an appliance manufacturer that buys $50 million annually in a few grades and sizes of hot-rolled carbon steel sheet. The buyer can readily check market prices and trends in market reports. He can deal directly with the available mills, foreign and domestic. He can easily identify the handful of vendors who can supply his requirements on quality, price, availability and freight equalization. He can negotiate a competitive price because he is able to offer an attractive volume of business. And he can easily verify the deal by contacting a few colleagues. In other words, this company can complete an effective buy on $50 million of raw material with minimal time, money or effort (probably one experienced buyer).

Now imagine the same appliance manufacturer addressing its MRO purchase requirements. It may be purchasing 15,000 different SKU's (stock-keeping units) across nine different plants. One of these SKU's is a six-inch Phillips screwdriver. Each plant buys a different brand, from a different vendor, with a different specification, at a different price and calls it by a different name or description or identifier. And this pattern will apply to most of the 15,000 SKU's . Moreover while one central buyer is probably handling the steel procurement, the MRO buying is being done by a multitude of people in the various plants including storeroom attendants, maintenance mechanics,

plant engineers, production foremen, safety engineers, quality control technicians, office managers, buyers and, yes, even janitors. And the janitor and maintenance mechanic may be emotionally attached to their brands and suppliers of mops and drill bits, respectively.

Appendix I shows a typical, though not complete, list of MRO commodity classes. A universal listing of MRO products could include hundreds of thousands, if not, millions of SKU's. This is very different than getting bids on a machining center or office copier. While MRO supplies account for only 15 percent to 25 percent of total material spend, they represent, in most organizations, a highly disproportionate ratio of total procurement efforts and expenses. MRO usually involves 75 percent to 85 percent of line items bought; man-hours expended in purchasing, receiving, storeskeeping and intra-company materials movement; purchase orders issued; invoices processed; accounts payable checks; cost and material accounting; data entry; database maintenance; bidding, sourcing and negotiating; inventory obsolescence and overstock; expediting and tracing of open orders; missed or late deliveries; errors and quality deviations. Usually, freight and handling charges on MRO supplies are also disproportionately high.

Most purchasing professionals have analyzed and re-analyzed their costs for raw materials, packaging and other high-volume buys, down to the penny or mill per unit. Most organizations diligently research

and competitively bid their major capital expenditures and calculate their justification or payback period.

However, it is a rare purchaser who has a good comprehension of the true potential improvements obtainable in the MRO arena. Moreover, even that rare individual who has evaluated his MRO expenditures has generally concentrated on invoice prices, which are less than 40 percent of the savings opportunities.

Here is an example, and not an unusual one: A Class I railroad provides lighting and signal lanterns to all train and track crew. The lanterns are incandescent and supplied with rechargeable sealed lead-acid batteries. The carrier was buying approximately 18,000 replacement batteries annually for about 8,500 personnel. The only time that the spending on this item, which totaled about $180,000 annually, was reviewed was when the supplier asked for a significant price increase due to a sharp spike in lead prices. The vendor did some research on the application and discovered that the crew were discarding batteries early in their useful life because the batteries did not last a full shift before recharging was required. By switching to an L.E.D. bulb, which draws less power, the battery cycle was extended from 5.5 hours to 10 hours, permitting recharging at the end of shift. Battery purchases were reduced by $145,000 per year or 80 percent. Battery savings covered the one-time cost of converting to L.E.D. bulbs within 5 months. Additionally, no replacement bulbs were required

due to longer life, and the railroad was further insulated from volatile commodity prices and shortages in the supply chain from abroad. If you think, "something like that couldn't happen in our organization," think again—it happens everywhere all the time.

This pattern spans the spectrum from Fortune 100 companies and multinational conglomerates down to very small enterprises. Appendix III is a letter from one of the largest automotive manufacturers in the world to its suppliers discussing this very problem. As a consequence, the potential for cost savings and cash flow improvements in MRO may equal or exceed that in higher-volume goods such as raw materials. Why this anomaly in a profession as well-developed and mature as purchasing? There are many reasons:

1. It is simply too daunting a task to deal with MRO, particularly with limited staff, budget and man-hours.
2. Corporate databases usually cannot provide the necessary data, in a meaningful format.
3. Decentralized operations (almost always the case with MRO) make it difficult to get the total picture.
4. The tremendous diversity and sheer number of line items, as well as the relatively small spend on each item, masks the recognition of savings potentials.
5. There is a strong proprietary (or emotional) component to current and local practices at each facility.

6. There is a lack of responsibility and accountability for MRO because of the large numbers of personnel involved in buying, or in buying decisions.
7. Many cost factors that dramatically affect MRO are either unknown or unrecognized. For example, tooling specs were adopted many years ago and never reviewed. Min/max storeroom criteria were never updated. The railroad trainmen were not using rechargeable lantern batteries the way they were intended. Or new technology has overtaken the original purchasing criteria.
8. Top management does not pay attention to MRO expenditures, which are buried deep in the budgetary variance accounts, and therefore neither does middle management.

For all of these reasons, MRO spending in most organizations is never, or rarely, rigorously analyzed. Consequently, the savings potential may be much greater than for materials that are regularly or constantly evaluated.

In this book, we will show you how to deal with issues one through seven, whether you have one assistant and no budget, or a staff of hundreds with a very large budget. Regarding issue eight, we pledge to make you a hero in your own lifetime.

Why is this book titled "The 20% Solution"? In 1906, an Italian economist named Vilfredo Pareto observed that 20 percent of the population in Italy owned 80 percent of the country's property. This

became known as Pareto's Principle of Maldistribution or, more famously, the 20/80 Rule. This concept is extremely useful as an analytical tool because it enables one to concentrate efforts on a small number of items, yet achieve valid results for the entire universe being studied. We will use this concept frequently in the chapters that follow. You will find that the 20/80 Rule is ideally suited to analyzing and resolving the MRO problem (the 20 % or so of total spend).

Many would say that the 20/80 approach is simply applied common sense. It has been our experience that, when it comes to MRO procurement, common sense is not always so common.

We propose to do something that you never thought possible—take the drudgery, frustration and grunt work out of MRO and make it a profitable, controllable and positive undertaking.

Some readers may be surprised that there are no chapter or section headings on integrated supply, one of the more publicized movements in MROP over the last fifteen years or so. The reason is that the term "integrated supply" is a semantic nightmare. If you ask six proponents to define it, you will likely get eight different answers.

Integrated supply is often confused with one or more of its individual techniques. For instance, many people identify integrated supply with outsourced storeroom management. Others liken it to electronic, on-line catalogs or even on-line order placement.

In fact, integrated supply is a conceptual approach to the MROP procurement cycle or supply chain in its totality, covering all of its cost elements and their inter- relationship—rather than simply merchandise cost, purchase order processing, storeroom management or other individual aspects. As you will observe in the chapters ahead, the total integrated approach is exactly what this book is all about.

IDEAS FOR OUR ORGANIZATION

QUESTIONS AND COMMENTS FOR JOEL ROTH
(jroth@the20percentsolution.com)

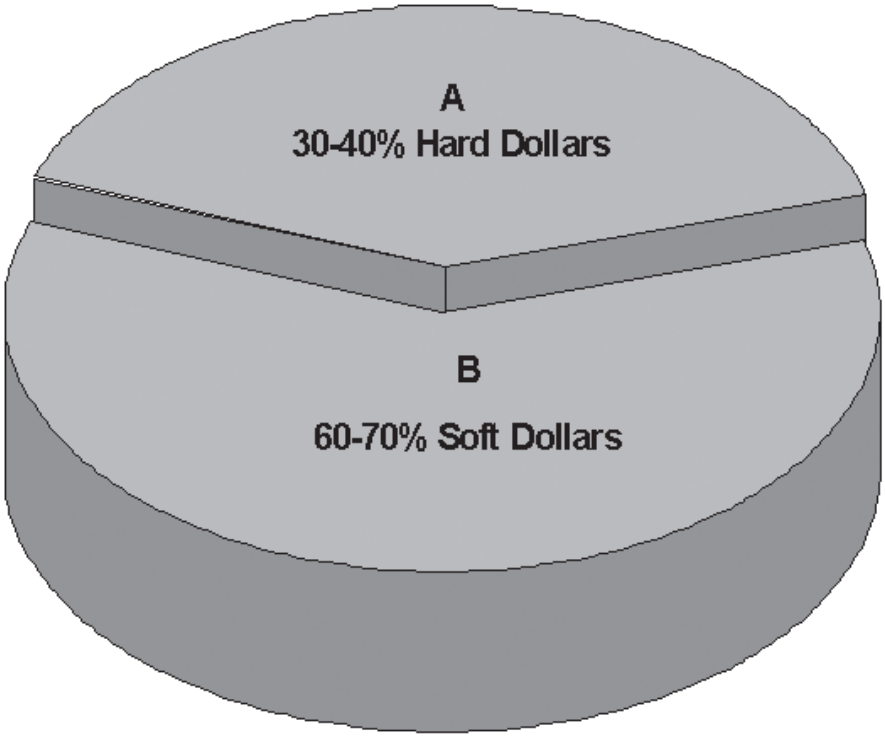
II PREREQUISITES FOR SUCCESS

Before we discuss specific techniques of MRO cost reduction, there are several preconditions that must be present to assure success. These include a mutual understanding (between buyer and seller) of MRO costs and profitability; properly stated goals, standards and benchmarks; a sound database; assignment of responsibility for planning and execution; a climate of partnering or teamwork, rather than adversarial relationships; and feedback and control of the process.

The MRO Cost Profile

The potential to dramatically reduce MRO procurement costs is greatly enhanced by a proper understanding of the profile of such costs. Most purchasers think of MRO costs in terms of supplier-invoiced amounts or hard dollar spend. However, in most organizations, the merchandise cost shown on the invoice is no more than 40 percent of the total cost structure, as shown in figure 2-1.

Figure 2-1
MRO Cost Profile
for Typical Customers



Moreover, hard dollar costs are both variable and elastic. They vary based upon levels of operating activity or production. And even at a given level of activity, they can be dramatically altered by changes in purchasing criteria such as brand selection, standardization and consolidation, as well as other characteristics described in Chapter V.

Soft dollar costs, on the other hand, tend to be rather fixed in nature and are mostly comprised of labor, overhead, administrative and financial costs associated with buying, receiving, storing, moving and paying for MRO materials. (See Chapter VI.)

A proper understanding and appreciation of the nature of these cost elements, and how they behave, is essential to impacting them favorably. Without this insight, the buyer is limited to driving down prices by negotiating with vendors, or competitive bidding, and eking out reductions in the range of three percent, four percent or maybe 10 percent at best. By thoroughly reviewing and attacking all of the cost elements, the savings potential immediately grows to 35 percent or more. In other words, we change the entire MRO cost paradigm.

How many ways can you reduce the price paid? A few. How many ways can you reduce total operating costs? Hundreds. Nor is hundreds of ways an exaggeration. Strategic Business Solutions conducted a survey with Purchasing Magazine and the Distribution Research and Education Foundation. They identified 187 different ways that companies were working with suppliers to reduce operating costs.

Let's examine these MRO cost elements more specifically. First, it is important to understand that MRO procurement activities reflect a mirror image between the customer and supplier. You place an order, the vendor enters the order. He delivers, you receive. He bills, you pay (hopefully). Therefore, each partner's costs are directly affected by the other. For instance, a purchaser who buys "hand to mouth," placing many small orders instead of less frequent large orders, is more costly (and less attractive) to the supplier. A supplier who creates too many back-orders will multiply the costs of his customer in receiving, expediting, stock-outs, bill paying and other areas.

For the end user, the majority of MRO material procurement expenses are hidden. Typically, over 60 percent of the total costs are buried in departmental budgets and accounts, rather than shown on an invoice. For the supplier, the operating costs are paramount, since the merchandise cost from the manufacturer is, for the most part, fixed and he makes his profit from how well he manages his operating expenses. That is why there may often be conflict between the demands of the customer—such as 100 percent service level, frequent deliveries, extended payment terms or substantial sales and technical support—and the willingness of the supplier to comply.

Shown in Figure 2-2 is the composite cost profile of hundreds of typical MRO suppliers nationally. As you can see, the typical MRO distributor earns about 2 percent before taxes on sales. (Note: Even

Figure 2-2
Cost Profile for a Typical MRO Distributor

Net Sales	**100%**
Cost of Goods Sold	75.6
Gross Margin	**24.4**
Payroll Expenses	
Executive Salaries & Bonuses	2.5
Outside Sales Salaries & Commissions	4.1
Inside/Counter /Sales Wages	2.8
Purchasing Wages	0.6
Warehouse & Yard Wages	1.3
Delivery Wages	0.2
Data Processing Wages	0.3
Office/Administrative Wages	1.3
All Other Employee Wages	0.1
Total Salaries, Wages & Bonuses	13.2
Payroll Taxes (FICA, unemp., workers' comp.)	1.0
Group Insurance (medical, hospitalization, etc.)	0.9
Employee Benefits (profit sharing, pension, etc.)	0.3
Total Payroll Expenses	**15.4**
Occupancy Expenses	
Utilities: Heat, Light, Power, Water	0.2
Telephone	0.4
Building Repairs & Maintenance	0.2
Rent or Ownership in Real Estate	1.1
Total Occupancy Expenses	**1.9**
Other Operating Expenses	
Advertising & Promotion	0.2
Vehicle Expenses	0.8
Insurance (business liability & casualty)	0.2
Depreciation	0.5
Bad Debt Losses	0.1
Outside Carriers	0.2
All Other Operating Expenses	2.8
Total Other Operating Expenses	**4.8**
Total Operating Expenses	**22.1**
Operating Profit	**2.3**
Other Income	0.3
Interest Expense	0.5
Other Non-Operating Expenses	
Profit Before Taxes	**2.1%**

Courtesy of The Profit Planning Group, Boulder, CO.

the top quintile earns only about five percent.) Therefore, if you seek price reductions from such suppliers, **without allowing any other changes**, they cannot make such cuts without losing money. That is why the major portion of MRO cost reduction has to come from other methods than price reduction. And to the sophisticated supplier, the argument that your large volume of business makes up for his price cuts simply means that he will lose money at a faster rate.

Goal Setting

An old axiom states that "If you don't know where you are going, any path will take you there." Most organizations have no specific objectives for MRO activities. When asked for their MRO goals, many procurement managers offer vague statements like "lower costs, better service, higher quality." Or, "I'd like to cut prices by 10 percent." Goals that are general are useless; they must be specific and measurable. And objectives that are pulled out of thin air, with no realistic basis, may be counterproductive. Moreover, goals must be related to activity levels; it is probably unrealistic to expect a 20 percent cost reduction if production volume is increasing by 20 percent.

An important first step in setting objectives for MRO purchasing is to identify the key unit of activity that affects MRO spending. In a steel company, it might be tons of metal processed; in a brick works, number of bricks produced; in an insurance company, number of policies written; and at Habitat for Humanity, square feet of rooms built.

The second step is to approximate the cost levels that might be achieved using best practices. This benchmark might be obtained from industry trade associations, review of competitors' financial statements, or a comparison of costs among your own operations. You can also obtain valuable input from your key MRO suppliers regarding cost reduction potentials.

A large Southern electric utility asked six major MRO suppliers to estimate the potential cost savings they could achieve within their functional area if they were free of constraints. Their estimates ranged from eight percent to 30 percent, and averaged 19 percent. As a result, a key objective for the power company's program was to achieve a reduction of 19 percent in MRO costs, per million KWH produced, over three years. (Note: Utilizing suppliers in this manner not only provides valuable planning data and cost reduction ideas, but also yields excellent insight into the caliber of your suppliers and their capabilities.)

Many other suitable objectives might be considered besides reduction in MRO procurement costs per unit of production. Here are some typical examples:

- Reduce the number of SKU's by 35 percent over 18 months through product and brand consolidation.
- Reduce the number of purchase orders by 35 percent over 24 months by vendor and product consolidation.

- Reduce the number of invoices by 70 percent within six months through consolidated billing.
- Reduce MRO inventory investment by 75 percent over three years with vendor-consigned stock.
- Streamline the MRO transaction cycle by eliminating non-productive tasks and automating remaining tasks to reduce cycle time by 50 percent within 12 months.

The Database—A Necessary Foundation

The details of database construction and maintenance, as well as its importance, are treated comprehensively in Chapter III. We mention it here because, if you should feel the inclination to proceed without a strong database, you are omitting a major precondition of success.

Leadership Responsibility

It is well-said that "A great plan poorly- executed is much inferior to a mediocre plan that is well- executed." Execution—that is, analysis, planning, implementation, measurement and control—does not happen by chance. It requires strong leadership.

The leadership of an MRO cost reduction program is an excellent vehicle for the growth and development of an individual(s) who are deemed to have potential for greater responsibilities. The qualities required are not necessarily technical or product knowledge but rather intelligence, resourcefulness, intellectual curiosity, persistence and persuasiveness. Such

an individual might come from purchasing, accounting, maintenance, engineering or even production.

The assigned program leader should be given clear goals and a firm timetable. He may choose to form an inter-functional team within the organization, rely heavily on outside vendors or employ a mix of both.

A large contractor operated a major nuclear facility for the U.S. Department of Energy. The contract was coming up for renewal and an important criterion was the ability to reduce operating costs per kilogram of fuel produced. The contractor formed an MRO team composed of eight vendors (non-competitors) representing about 40 percent of its $24 million annual MRO spend, under the leadership of an impressive young procurement analyst. The team was given very specific and aggressive cost reduction goals and a one-year time frame.

While the suppliers were offered no financial inducements, the assignment to the team was considered prestigious and would help to cement their position should the contract be renewed. Within the one-year time frame, the MRO team identified $2.5 million of potential cost reductions and implemented $1.8 million of that total. So successful was the approach that another group of vendors was assigned to the program each year to continue the program, with continued impressive results. The cost to the contractor—zero. As a bonus, a number of strong managers were developed through the program.

Partner or Adversary?

It is unfortunate that a substantial segment of the procurement community has been conditioned (either by their predecessors or in various training venues) to regard their suppliers as adversaries intent on taking advantage where possible. It is also an economic fact that the end user holds an economic advantage over the supplier and can dominate the relationship. Sometimes, the buyer will impose unreasonable demands upon the relationship without regard to the impact on the vendor. An example is the practice of many large corporations to demand 75 to 90 day payment terms from many smaller suppliers with limited capital, on a take-it or leave-it basis.

When you treat suppliers as supplicants, rather than equal partners, you may get their grudging acquiescence instead of the maximum contribution of which they are capable. And often that maximum potential contribution can far exceed what was demanded.

Another aspect of this issue is the predilection in MRO procurement to use the "mushroom method." Mushrooms are grown in manure under dark conditions; hence the expression "just throw some manure at them and keep them in the dark." All too often, the procurement process is nothing more than an RFQ or price quote, with a request to quote only what is specified.

By limiting suppliers' access to data, personnel or operations, the buyer sharply constrains the available benefit. Permit an analogy: Would you go to the doctor to cure an ailment, but refuse to give him a medical history or permit him to conduct a physical examination or medical tests? What do you think the physician's response would be?

If you have competent, professional and supportive vendors, you must treat them as partners and make them a part of your team to achieve full success. If you lack such suppliers, you need to make changes in your vendor base as a prerequisite to success.

Feedback and Control: Closing the Loop

It is an academic exercise to start an MRO cost improvement program without the means to measure and control its progress. It is essential to measure progress periodically and make course corrections as necessary. Part of the process is learning what works, what does not, and why. To accomplish this requires clear objectives, a database and a management information system. None of these needs to be complicated or elaborate. The measurement and reporting can be derived from your internal and operating reports, compared against your objectives and database. Alternatively, progress reports containing quantitative data may be requested from key MRO suppliers involved in the program.

Conclusions

The prerequisites for success discussed in this chapter must be present to assure achievement of MRO cost reduction objectives. Conversely, the absence of these pre- conditions will likely result in an unsatisfactory experience.

IDEAS FOR OUR ORGANIZATION

QUESTIONS AND COMMENTS FOR JOEL ROTH
(jroth@the20percentsolution.com)

III DATABASE CONSTRUCTION AND MAINTENANCE

This subject appears dry as dust. But it is the absolute precondition to any meaningful improvements in MRO procurement. The database is the foundation upon which rests all of the other activities, tasks and techniques presented in this book. Just as you cannot build a sound, stable building without a proper foundation, so too you cannot "get your arms around the MRO problem" without a sound database.

A database is a collection of files and records that contain information such as what was bought, how much, from whom, at what price, under what terms and and conditions, for what purpose and so on. Databases take many forms, ranging from card files and Rolodexes to purchase order files, vendor invoice files, packing list files, receiving reports, requisitions and other documents. Since most organizations are computerized, these records may reside on personal computers, laptops, file servers, central processors or more elaborate Enterprise Resource Planning (ERP) systems.

Unfortunately, the existence of a computerized system in your organization in no way assures an adequate database for MRO procurement analysis, planning and control efforts. A suitable database depends upon what data is filed, how frequently it is updated, what programs are available to manipulate the data, how integrated the system, what record identifiers exist and the like. These capabilities are often referred to by names such as data warehousing, data mining or "slicing and dicing."

A strong MRO database is frequently lacking because smaller organizations do not have the staff or budget available and larger enterprises have many higher priorities awaiting the information technology department well into the future.

There are several ways to address this problem. One approach is for purchasing or materials management, using the techniques in this book, to project MRO cost reductions or cash flow improvements to sell upper management on making this a higher priority project or approving a budget to do the work within the procurement function.

A second approach is to free up sufficient manpower or staff time within the materials management function, again utilizing some of the techniques in this book, to build the database internally without initially involving other corporate departments.

Still another way is to enlist your MRO suppliers in providing the database from their own records, which is the fastest, most accurate and least cost solution.

Ideally, a useful MRO database might include all or most of the following:

1. Plant or facility
2. Department or cost center
3. General ledger and subsidiary accounting code
4. Commodity or product class
5. Specific line item identifier (item code)
6. Complete product description
7. Manufacturer
8. Manufacturer part number
9. Vendor
10. Vendor part number
11. Unit-of-measure
12. Standard package quantity
13. Quantity purchased last 12 months
14. Number of purchases last 12 months
15. Last price paid
16. Annual spend at last price paid
17. Freight delivered?
18. Payment terms
19. Rebates?
20. Critical item?
21. Projected annual purchase quantity
22. Projected price

23. Projected annual spend
24. Projected annual savings
    a) Dollars and b) Percent
25. Inventory balance on hand
26. Number of months' supply on hand
27. Inventory surplus

To be frank, we have never seen a single database this complete or comprehensive. However, each of the records shown above can be quite useful— depending upon your objectives—in analyzing, planning, negotiating, installing and controlling a strong MRO cost reduction program.

The records shown can be sorted, manipulated, ranked and adapted to a wide array of uses. We will discuss some of these applications in the rest of this chapter.

1. Plant or Facility

We can measure total MRO spend by location, or plant expenditures for a particular item or product class. We can also compare prices and usage across the organization to determine "best practices." Inventory surpluses at one location can be transferred to others who would otherwise be buying the same merchandise. This record is also useful for budgeting, variance and operating reports and ratio and trend analyses.

2. Department or Cost Center

This record is essential for budgeting, variance and operating reports and trend and ratio analyses. It also highlights best and worst practices. For instance, why does the paint department in one plant use three times as many gloves as the paint department in another plant?

3. General Ledger and Subsidiary Accounting Codes

By making this a permanent part of the line item record, all billings and payments can be automatically uploaded to the accounts payable ledger and other books of account resulting in a sharp reduction in accounting workload. Furthermore, this practice eliminates a high incidence of errors caused by improper manual coding of invoices.

4. Commodity or Product Class

This record enables you to zero in on common items across the organization that can be standardized or consolidated. It also provides a subset of the database for use in selecting and negotiating with vendors and manufacturers.

5. Specific Line Item Identifier or Item Code

For the system to work, each discrete line item must have its own SKU code, and the same item must have the same SKU code throughout the organization. If there is any difference between two like items such

as brand, package quantity or price, then each will carry a different item code. Hopefully, this redundancy will later be eliminated when item analysis and consolidation are completed.

It is important that the item numbering system is well thought-out and not assigned randomly. Each digit in the item code should be significant. For instance, the class code for high speed steel-cutting tools might be 104. Within this class the item code for a 3/8-in. jobbers length drill bit with a 118 degree split point might be 67842 where 6= jobbers length drill bit, 78=3/8-in, 4=split point and 2=118 degree. The next like item should follow the same nomenclature and follow in sequence. In this example, the same drill bit, with a 135 degree split point, might be numbered 67843.

The reason that the numbering scheme is important is this: in order to implement many of the recommendations in this book, it is essential to sort and group items and product classes in a way that the computer can recognize. Otherwise, meaningful analyses will be difficult to impossible.

6. Complete Product Description

The description should be sufficiently detailed and complete that the user or the supplier can go to a catalog, manual or price list and find the item without further identification. For example, instead of "wrench," or "ratchet wrench" or" 6-in. ratchet wrench," a proper

description might be "wrench, ratcheting box type, ½" x 9/16" opening, 6.86" OAL, 12 point, black oxide." (Note: depending upon the exact description and specs, the price can vary as much as 300 to 400 percent).

7. Manufacturer

Often, this field contains the name of a private brand, distributor, importer or some one other than the manufacturer. Where the manufacturer is not designated, the vendor should be required to provide it. Otherwise, you do not know what you are buying. Is it a cheap import or a premium domestic product, for example? Without this knowledge, you cannot make a valid comparison to other sources or offerings.

8. Manufacturer Part Number

This pinpoints the exact item and specification, again assuring comparability to other offerings. It also helps to assure that the item is current, and not obsolete.

9. Vendor

This field identifies the source of the product, whether a manufacturer, distributor, retailer, manufacturer's representative, importer or other source. It can also be used to determine the amount and type of business transacted with various vendors.

10. Vendor Part Number

Most vendors maintain their own nomenclature and parts numbering systems, which are opaque to outsiders and may serve to obscure the original source of the merchandise. By linking this number to the manufacturer and manufacturer part number fields, transparency is restored.

11. Unit-of-Measure

A major cause of errors in bidding, bid analysis, ordering, receiving and billing is the use of inconsistent units of measure. To complicate things further, some suppliers use different units of measure for selling, shipping and billing. The selected unit of measure must be consistent throughout the customer's organization, and between the customer and supplier, and must be specific enough to avoid confusion. For example, what is a carton quantity? A case quantity? A roll quantity? If it is not clear, then the U-O-M detail should be amplified in the description.

12. Standard Package Quantity

This information enables the buyer to avoid broken or irregular package counts, which can carry a higher unit price and may be unreturnable.

13. Purchase Quantity Last 12 Months

This datum is necessary to calculate and rank MRO spending by item. It also flags items which are no longer active.

14. Number of Purchases Last 12 Months

An analysis of purchase quantity vs. number of purchases will reveal order quantities either too large and infrequent or too small and frequent.

15. Last Price Paid

Commonly the benchmark against which to measure cost reductions due to price improvements.

16. Annual Spend At Last Price Paid

This is used to calculate and rank MRO spending by item, product class, vendor or other criteria. It is also a benchmark from which to measure annual cost reduction. It is calculated by multiplying purchase quantity last 12 months times last price paid.

17. Freight Delivered

This field is normally set to yes (vendor pays the freight) or no (customer pays the freight). A review across the organization can indicate the best freight terms available. This datum also aids in comparison of bids and provides a basis for negotiation over freight charges.

18. Payment Terms

For a larger organization, this may represent a significant source of funds. Payment terms may vary from net due upon receipt of invoice to two percent ten days, net 45 days or more.

19. Rebates

This field is usually flagged yes or no. It is useful in comparing bid proposals, negotiating with suppliers and following up to assure receipt of rebates due.

20. Critical Item

This field is usually flagged yes or no to allow for extended reorder lead time and higher than normal safety stock.

21. Projected Annual Quantity

This datum assists projection of savings due to proposed reduction in consumption, as compared to price reductions. It is also useful for budgeting and for comparing proposed consumption to actual consumption.

22. Projected Price.

This record permits projection of savings due to lower pricing. It is also useful for budgeting and for comparison of quoted prices to actual prices paid.

23. Projected Annual Spend

This is calculated by multiplying the latest pricing, or selected bid, times the quantity purchased last 12 months (or alternatively the projected annual quantity). *When subtracted from the annual spend at the last price paid, it becomes the basis for calculating total hard dollar savings and a major control for the MRO cost reduction program.* It is also useful for budgeting.

24. Projected Annual Savings— In Dollars and Percentage

Again, a key parameter for projecting the results of the program and for measuring the results actually achieved.

25. Inventory Balance on Hand

This is extremely useful in controlling MRO inventory investment, inventory carrying costs, inventory turnover and inventory reduction. If the system does not provide a perpetual inventory balance, these

data may be obtained by periodic cycle or physical counts done by storeroom personnel or by the suppliers.

26. Number of Months' Supply of Inventory

The balance on hand is divided by the average monthly usage (or purchases for convenience). For example, the balance on hand equals 48; last 12 months of usage equals 12, which divided by 12 yields a monthly average usage of one. Forty- eight divided by one equates to a 48 months' supply on hand. *Anything in excess of three months' supply should be considered excessive, since virtually all MRO items can be obtained within this lead-time.*

Vendors may be asked to return the surplus for credit, or other corrective action— such as transfer to another facility—considered.

27. Inventory Surplus

This is the number of months' supply on hand in excess of three months times the last price paid. This can be ranked and totaled to develop and maintain a productive inventory reduction and control program.

Figure 3-1 shows a partial view of an actual database download for a typical industrial organization.

Clearly, no organization will maintain an MRO database as elaborate or comprehensive as described in this chapter. This presentation

Figure 3-1

Abbreviated View of a Typical Database

ALT	DEPT	GL	Part Numbe	Item Description	Ann Use	UOM	Old Price	Extended Old	MFG	MFG PN	New Price	Extended	Dollar Diff	Percent Dif
96	420	542370	148-0100	ABRASIVES WH	50.00	EA	$2.08	$104.00	UNITED	20063	$1.55	$77.50	-$26.50	-25.48%
97	420	542370	147-2008	ABRASIVES 1 1/2	4.00	EA	$25.41	$101.62	STAR	4715180	$11.55	$46.20	-$55.42	-54.54%
97	420	542370	147-2010	ABRASIVES 1 1/2	4.00	EA	$25.00	$100.00	STAR	4715220	$11.55	$46.20	-$53.80	-53.80%
97	420	542370	147-2020	ABRASIVES 2" X	11.00	EA	$29.83	$328.17	STAR	4720240	$15.55	$171.05	-$157.12	-47.88%
96	420	542370	147-2018	ABRASIVES 2"X1	2.00	EA	$27.49	$54.98	STAR	4720150	$11.15	$22.30	-$32.68	-59.44%
88	420	542370	147-2003	ABRASIVES 50 F	2.00	EA	$13.00	$26.00	STAR	4701100	$6.95	$13.90	-$12.10	-46.54%
88	420	542370	147-2004	ABRASIVES 50 F	2.00	EA	$13.00	$26.00	STAR	4701120	$6.95	$13.90	-$12.10	-46.54%
88	420	542370	147-2001	ABRASIVES 50 F	2.00	EA	$13.00	$26.00	STAR	4700180	$6.95	$13.90	-$12.10	-46.54%
96	420	542370	147-2025	ABRASIVES DISC	8.00	EA	$8.05	$64.40	SAIT	73480	$6.15	$49.20	-$15.20	-23.60%
99	420	542370	147-2012	ABRASIVES EMO	3.00	EA	$36.17	$108.51	STAR	4720060	$18.50	$55.50	-$53.01	-48.85%
90	420	542370	147-2006	ABRASIVES HAN	4.00	EA	$26.66	$106.64	STAR	4715080	$12.50	$50.00	-$56.64	-53.11%
95	420	542370	147-1502	ABRASIVES SAN	40.00	EA	$7.69	$307.60	NORTON	78072722580	$5.15	$206.00	-$101.60	-33.03%
99	420	542370	147-1504	ABRASIVES SAN	6.00	EA	$33.00	$198.00	STAR	1435180	$19.95	$119.70	-$78.30	-39.55%
93	420	542370	147-2016	ABRASIVES SAN	2.00	EA	$31.34	$62.68	STAR	4720100	$11.15	$22.30	-$40.38	-64.42%
99	420	542370	147-1505	ABRASIVES SAN	12.00	EA	$62.00	$744.00	STAR	1435320	$22.50	$270.00	-$474.00	-63.71%
88	420	542370	147-1507	ABRASIVES SAN	2.00	EA	$4.01	$8.02	STAR	1440100	$3.35	$6.70	-$1.32	-16.46%
97	420	542370	147-1500	ABRASIVES SAN	10.00	BX	$31.00	$310.00	NORTON	66261101155	$27.50	$275.00	-$35.00	-11.29%
98	420	542370	147-1506	ABRASIVES SHE	500.00	EA	$0.68	$340.00	STAR	1435600	$0.35	$175.00	-$165.00	-48.53%
98	420	542370	147-2023	ABRASIVES SHO	8.00	EA	$24.85	$198.80	STAR	4720400	$15.55	$124.40	-$74.40	-37.42%
98	420	542370	147-2014	ABRASIVES SHO	4.00	EA	$24.87	$99.48	STAR	4720080	$12.35	$49.40	-$50.08	-50.34%
93	401	542230	451-3405	ABSORBING DRU	10.00	CS	$49.00	$490.00	SORBEN	DTA25	$43.40	$434.00	-$56.00	-11.43%
93	401	542230	451-3410	ABSORBING MAT	10.00	EA	$146.00	$1,460.00	SORBEN	MRO30P	$99.00	$990.00	-$470.00	-32.19%
93	401	542230	451-3407	ABSORBING MAT	24.00	CS	$50.74	$1,217.76	SORBEN	MRO100	$44.70	$1,072.80	-$144.96	-11.90%
95	401	542230	451-3417	ABSORBING OIL	200.00	EA	$0.35	$70.00	SORBEN	UN1113	$0.31	$62.00	-$8.00	-11.43%
88	401	542230	451-3415	ABSORBING SOC	16.00	EA	$78.58	$1,257.28	SORBEN	OIL430	$55.95	$895.20	-$362.08	-28.80%
99	401	542230	451-3400	ABSORBING SOC	55.00	CS	$53.13	$2,922.30	SORBEN	AW430	$37.50	$2,062.50	-$859.80	-29.42%
93	401	542230	451-3413	ABSORBING SOC	8.67	CS	$46.16	$400.03	SORBEN	OIL412	$33.10	$286.87	-$113.16	-28.29%
98	401	542220	455-2022	BAGS 12x15 ZIPL	6.00	EA	$58.97	$353.82	LAGASS	DRK94605	$38.50	$231.00	-$122.82	-34.71%
99	401	542220	455-2049	BAGS 30 X 37	112.00	CS	$22.57	$2,527.84	ESSEX P	EPH37CLR	$15.65	$1,752.80	-$775.04	-30.66%
98	401	542220	455-2044	BAGS 6"X8" POLY	6.00	EA	$12.01	$72.06	BEST PA	6X82MIL	$12.00	$72.00	-$0.06	-0.08%
95	401	542220	455-2046	BAGS PARTS 4X	2.00	PKG	$6.27	$12.54	BEST PA	4X64MIL	$5.75	$11.50	-$1.04	-8.29%
95	401	542220	455-2048	BAGS PARTS 4X4	2.00	PKG	$5.43	$10.86	BEST PA	4X44MIL	$5.00	$10.00	-$0.86	-7.92%
99	401	542220	455-2052	BAGS PLASTIC S	12.00	M	$177.11	$2,125.32	BEST PA	22X303MIL	$176.00	$2,112.00	-$13.32	-0.63%
98	401	542220	455-2054	BAGS POLY 16X2	4.00	EA	$33.08	$132.32	BEST PA	16X20 2MIL	$26.00	$104.00	-$28.32	-21.40%
91	401	542220	455-2027	BAGS POLY 43 X	740.00	CS	$18.97	$14,037.80	ESSEX	HDH45CLR	$16.45	$12,173.00	-$1,864.80	-13.28%
91	401	542230	451-4005	BAGS SPEEDY D	2.00	EA	$5.75	$11.50	OIL DRY	OIL 107125-L4	$4.15	$8.30	-$3.20	-27.83%
99	501	542630	240-1233	BANDING FILM A	6000.00	LB	$1.24	$7,440.00	ARMIN	6-1/2	$1.11	$6,660.00	-$780.00	-10.48%
99	501	542630	240-1230	BANDING FILM A	3000.00	LB	$1.27	$3,810.00	ARMIN	7-1/2	$1.11	$3,330.00	-$480.00	-12.60%
92	401	542470	151-0001	BATTERIES 6V	24.00	EA	$3.35	$80.40	EVERRE	509	$2.65	$63.60	-$16.80	-20.90%
97	401	542470	151-0015	BATTERIES 9V	11.67	PKS	$10.13	$118.22	RAYOVA	RAYAL9V	$8.48	$98.93	-$19.29	-16.31%

is intended as a template for your guidance, to be adapted to your objectives and resources.

You may find the workload implicit in the construction of such a database to be daunting and overwhelming, given your staff and resources. If so, consider this approach. Construct a template in the form of an Excel spreadsheet, Access database or similar widely used program, listing the columnar data that you require. E-mail it to each of your significant vendors with an explanation of your objectives and a request that they supply the requested data for the product items that you purchase from them. Any competent, professional supplier should be able to provide this information. If they do not or cannot comply, you have gained valuable insight into your current vendor base.

Using The Database

Once the database has been constructed, it can be used in many other ways throughout your organization, besides the obvious uses for purchasing.

- It can be used for vendor solicitations or RFQ's. Employing the format shown in this chapter, you can print or e-mail solicitations to any group of vendors, for any group of products or for any parameters desired.
- It can be used for feedback, control and measurement of results obtained.

- It can be used for reporting and documentation of savings to mid-level or top management.
- It can be used as a catalog by the entire organization—showing standard products, sources, specifications and costs—reducing workloads and the proliferation of SKU's, vendors and prices.
- It can be used as a standard to hold suppliers accountable for the brands, specs and prices they furnish.
- It can be used by quality control, safety and other functions to assure compliance with their standards.
- It can be used to train procurement specialists throughout the organization in best purchasing practices for MRO.

The importance of the database cannot be overstated. To embark on a successful journey to MRO cost reduction, the database becomes your map, flight plan, compass, radar and landing lights rolled into one. Have a good flight!

Joel Roth

IDEAS FOR OUR ORGANIZATION

QUESTIONS AND COMMENTS FOR JOEL ROTH
(jroth@the20percentsolution.com)

IV PARTNERING YOUR WAY TO SUCCESS

Trying to maximize MRO cost reduction without enlisting your suppliers as partners is like trying to clap with one hand—it doesn't work very well and makes little sense. A study by the Supply and Value Chain Center at Texas Christian University found that companies which excelled at collaboration with their suppliers achieved "strikingly better results." In a study published by Harvard Business Review, researchers reported that the most innovative companies developed solutions at ten times the rate of the average organization. Even more surprising, as many as 60% of the solutions developed by the more innovative companies came from their suppliers.

3M, a company built on innovation, financed a study with Purchasing Magazine on MRO purchasing that found four key characteristics distinguish the best performers from the rest:

- Collaboration with Suppliers
- Measurement of Supplier Performance
- Information System Technology Applied to MRO
- Skilled Purchasing Professionals

So why do many purchasing professionals treat their suppliers and prospective suppliers as adversaries? It seems to reflect a widespread belief that, by keeping vendors off balance and in the dark, you can extract the maximum advantage from them. Yet, such thinking defies both logic and reality. No matter the technology, organizational success is based upon relationships, communication, teamwork and shared values—within the organization and with outside stakeholders such as suppliers and customers.

If you are working with vendors who are competent, knowledgeable and honest, why not make them partners in achieving your objectives? They are at least as interested and motivated in your success as anyone else on your team, since their growth and profitability depend upon your relationship and they must continually earn their place at the table by producing for you. In other words, your suppliers share with you a strong community of interest.

We are talking here of true and intensive collaboration, not simple cooperation. The difference between true collaboration, or partnering, and simple cooperation is like the difference between casual dating and getting married. Under a cooperative arrangement, a company might agree to sole source a particular product to achieve economies of scale and lower pricing. Both supplier and customer come out ahead but they have only scratched the surface of potential gains. By contrast,

here are some of the characteristics of a true collaborative effort that can change the MRO cost paradigm.

- There must be a willingness to engage each other including open sharing of information and expertise, face to face meetings between all key people, joint decision making and resolution of conflicts, clear understanding of common objectives, mutual trust and no hidden agendas.
- Management of both organizations must assign responsibility to people who are willing to focus on common goals, operate without ego or prejudice, share their knowledge and expertise, involve and listen to other experts and specialists as needed, and be open to new ideas and approaches.
- The partnership team must be able to monitor progress against goals and have clear targets for cost, timing and quality.
- There must be free and frank communication about the costs and benefits to all partners.
- There must be a recognition and acceptance of knowledge from outside the organization and that much can be learned that was "not invented here."
- Both partners must be willing to carry their weight in terms of cost, time, expertise and commitment to the program.
- Where organizational resistance or opposition occurs, top management must be willing to provide forceful leadership to overcome it rather than allow the the program to founder.

- All participants must be willing to make a long-term commitment to the program. Otherwise, a lot of cost will be incurred without fully realizing the potential benefits.

As shown in Figure 4-1, there is an enormous array of services and added values that you can obtain from a progressive MRO supplier—far more than any one organization could ever utilize. Moreover, the cost of these services—when you do need them—is remarkably low compared to your internal cost of performing the same work. The reason is that such services are within the core competency of the MRO supplier whereas your core competency lies elsewhere.

The key to maximum benefits and value in MRO procurement cost reduction is to determine your needs and objectives; then find a supplier-partner(s) whose core competency matches those needs and objectives. This is far more important than seeking competitive bids and the lowest price. It is also the reason that a negotiated partnership is almost always the most productive arrangement.

Here is an approach to partnering that is worth consideration. First, select two or three potential or current suppliers who appear capable of meeting your needs. The selection criteria might include reputation, product lines and coverage, reference checking, vendor recommendations, previous track record, length of time in business and so on. (Note: Restricting your list to large national chains is not recommended. Some local or regional companies do a superb job, are

Figure 4-1
Value-Added Services and the Total Cost of Ownership Categories they Impact

	Revenues	Assets	Processes	Expenditures	Services	Other
Revenue Focused						
Back On-Line Quicker	●	●	●		●	
Efficiencies in Output	●	●	●		●	
New Products/Markets	●		●		●	
Reduced Turn-Around Time	●	●	●		●	
Unit Cost Reductions	●	●	●			
Asset Focused						
Consignment	●	●	●			
Elimination of Equipment		●	●			
Improved Equipment Efficiency		●	●			
Just-In-Time Delivery	●	●	●			
Product Standardization	●	●				
Reallocation of Building Space		●				
Reallocation of Land		●				
Surplus Reduction	●	●				
Vendor Managed Inventory	●	●	●			
Warehouse/Storeroom Management	●	●	●			
Process Focused						
Internet Purchasing			●			
Location Trailer	●	●	●			
New Product Technology	●	●	●			
Production Efficiencies			●			
Reduce Maintenance/Repair			●			
Savings from Bar Coding			●			
Savings from Credit Cards			●			●
Savings from EDI			●			
Savings from ERS			●			
Savings from EFT			●			●
Shelf Management		●	●			
Summary Billing			●			●

	Revenues	Assets	Processes	Expenditures	Services	Other
Expenditure Focused						
Alliances		●		●		
"Bad" Buy-Out Reduction		●	●	●		
Freight Reduction				●		
Integrated Purchasing		●	●	●		
Lead Time Impact			●	●		
Plateau Pricing				●		
Price Protection				●		
Rebate Savings				●		
Savings from ABC				●		
Substitutions				●		
Tier Pricing			●	●		
Service Focused						
7/24 Service						
Engineering Support	●		●		●	
Kiting/Pre-Assembly		●	●	●	●	
Material Staging			●		●	
MSDS Management			●		●	
Predictive Maintenance		●	●		●	
Product Quality Evaluation					●	
Reports/Information	●	●	●	●	●	
Supplier Coordination					●	
System Design	●	●	●	●	●	
Technical Support	●		●		●	
Training Provided			●		●	
Warranty Work		●	●		●	
Other						
Electric Usage Analysis						●
Environmental Cost Reduction			●			●
Legal Cost Reduction			●			●
Life-Cycle Costing		●	●			●
Like Equipment Exchange		●				●
Safety Cost Reduction			●			●

Courtesy of Underhill & Associates, Tulsa, OK.

highly motivated, know your people and operations, and can bring a top management or ownership commitment to the venture. Moreover, you are important to them. Some national firms may adopt a canned, cookie cutter approach and may have weak local branch management at your sites. The commitment and competence in the program will be determined at the local level, where "the rubber meets the road," not at the corporate level. If you are concerned about a nationally-homogeneous program, you can prove the program at one or more sites, then replicate it at your other locations.)

Next, have the prospective partners sign a proprietary information or confidentiality agreement. Then provide them a request-for-proposal including the database representing the top-ranked 20 percent of the items representing 80 percent of the MRO purchase dollars, as described in Chapter V. Also, the RFP should list your five or six key objectives/services that are most important to you. Ask the bidders to source and price the market basket, letting them specify the products they would propose to supply. The point is to get their ideas rather than impose your own. Also request their detailed proposals on how they would achieve your specific objectives, with what expected results and at what cost.

If you allow the selected partners to apply their knowledge, creativity and resourcefulness, it is very likely that the best prospective partner will become quite evident. At the same time, you will gain

some excellent ideas and insights that you can incorporate into your program and negotiate with the finalist.

Suppose, for the sake of illustration, that the market basket represents a current annual spend of $1 million. The most attractive proposal is priced at $750,000, or a 25% cost reduction. The proposal includes an attractive offer to meet your other objectives viz. consigned inventory, consolidated billing and a management information system. These services will involve an up charge of 10% or $75,000 per year. The supplier indicates prospective added savings can be identified once the program is underway, and agrees to share documented savings at 50% the first year, 25% the second year and 10% the third year.

The economic benefits to you might look something like this:

Current Spend	$1,000,000
New Spend	750,000
Service Fees	(75,000)
Consigned Inventory Reduction	125,000
Share of Documented Savings	50,000
Inventory Carrying Cost—18%/year x $125,000	22,500
Reduction of Accounting Workload—One Person	30,000
Increased Cash Flow Due to Consolidated Billing	31,000
Total First-Year Cash Flow Improvement	$433,500

While these figures are used for illustration only, the point is that considerable benefits can be obtained by partnering or collaborating

with your top suppliers. An actual proposal demonstrating these benefits is shown in Appendix IV. These results are available with minimal time, effort, risk or investment on the part of you or your organization, since your partner is providing most of the resources.

CONCLUSION

Collaboration or partnership with your key suppliers can and should be a preferred way of doing business, since it is mutually advantageous and all upside with virtually no downside. It can substantially multiply your effectiveness with little input of your resources.

IDEAS FOR OUR ORGANIZATION

QUESTIONS AND COMMENTS FOR JOEL ROTH
(jroth@the20percentsolution.com)

V SAVING HARD DOLLARS

There are many paths to reducing "hard dollar" invoice expenditures for MRO materials, as indicated in Figure 5-1. This chapter will illustrate these methods, with examples of each.

Competitive Pricing

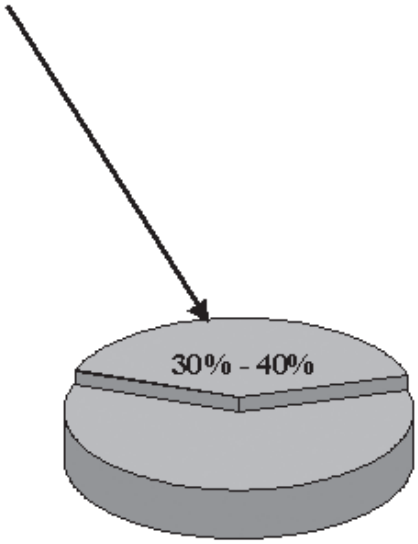
This is the area that everyone starts with—and where most MRO procurement efforts stop. The buyer will often compile a market basket of items, either selectively or in total, and broadcast it to as many prospective suppliers as possible. —a process sometimes referred to as "a dozen bids in a cloud of dust." The RFQ may include 100 items or 10,000, but there is no distinction among them. There are several problems with this approach:

1. The database (or market basket) represents a great deal of work by the bidders to identify, source, cost and price. And it also represents a considerable effort by the purchaser to analyze, compare and derive valid

Figure 5-1

Savings in Indirect (Invoiced) Material Costs - Hard Dollar Savings

1. Competitive pricing.
2. Special negotiated additional discounts.
3. Avoidance of unnecessary purchases.
4. Standardization/Consolidation of items & suppliers.
5. Simplifications and methods changes.
6. Substitutions.
7. Reduced consumption.
8. Changing packaging or U-O-M's.
9. Rebates and shared savings.
10. Conversion of waste into profit.
11. Changing specifications.
12. Sole and OEM sourcing.
13. Shipping and handling.
14. Waste and theft.
15. Imports vs. domestics.
16. Brand name vs. private label vs. generic.



conclusions. Accordingly, many prospective bidders will not respond due to the cost of bidding vs. the odds of being successful. And even when they do respond, you may not get their best efforts.

2. The database invariably contains a high proportion of items that impede valid decision-making, namely items that are obsolete, not identifiable, wrong specs or description, very low volume or infrequently bought. (See Figure 5-2). Why waste everyone's time and effort on these types of items?
3. Most bidders do not quote the same line items, or do not quote the same thing for a given line item, making comparisons very difficult.
4. Few bidders offer exactly the same brands, product lines and specs. As a result, many bidders quote alternative products and brands (whether they disclose it or not). Accordingly, reviewing a spreadsheet analysis across many line items is not meaningful. Even when the purchaser allows for alternative items to be quoted, he has no practicable way to evaluate a large number of alternates in a competitive bid situation.

The most effective way to obtain competitive (and comparable) pricing is to first identify the relatively few items that will make a significant dollar difference in annual spend.

Here's how:

From the computerized database print all active MRO items (or a category at a time) with the annual expenditures ranked

Figure 5-2
Typical Profile of a RFQ Market Basket
(Per Thousand Items)

Not Bought In Over a Year.....200

Inadequate Description or Identification
(Private label, obsolete style, incomplete description, etc.) 150

Duplications (with or without different numbers or descriptions) ...50

Annual Expenditure Under $500 400

Sub-Total 800

Meaningful Items for Analysis* 200

*These items should be "scrubbed" for completeness and accuracy before distribution.

> from highest dollar value to the lowest. When the cumulative expenditures reach 80-85 percent of the total, stop and print. The listing will be short, perhaps 15 or 20 percent of the total items in the database. This is the 20/80 Rule at work—the 20 % Solution.

Starting with the highest dollar value item (in annual spend), compile e-mails to the top manufacturer(s) and distributor(s) of the product. Indicate the total annual dollar value of purchases, as well as potential dollar value if like items are standardized or consolidated. If the dollar value is significant, the manufacturer will often grant special, unpublished pricing. Such pricing will usually be lower than the distributors. However, the distributors will be able to offer alternative manufacturers' products, as well as competitive pricing if the dollar value is not sufficient to interest the manufacturers. If the manufacturer offers an attractive value in price, terms and conditions, you can then negotiate a mark-up with the appropriate distributor who will handle the business.

This procedure can be followed for each of the top-ranked items in the approximately 20 percent of items that represent 80 percent of total spending. The analysis can include best pricing, price freeze, freight terms, payment terms, service levels, tech support and other parameters. With few exceptions, it is not productive to devote time and effort to the other 80 percent of line items purchased. The approach

on these is to negotiate a total package arrangement with a reputable distributor(s).

In all of these dealings with suppliers, it is fruitful to request their recommendations on alternative products, specs, packaging, applications or other changes, with an estimate of the potential savings from such changes. These additional savings potentials can then be explored in detail by assigning them as projects to trainees, interns, local college coop students, or even the supplier itself.

Example: A large wood furniture manufacturer consumed about $2 million per year in abrasive belts from several suppliers. A direct approach to the manufacturers led to contract pricing from one of the leading producers, with a 15 percent margin allotted for local distributor stocking and technical support. The weighted average cost reduction was 12 percent, or $240,000 per year.

Special Negotiated Discounts

A common mistake made in procurement is to tell the supplier what the purchaser needs, without considering what the seller needs. Some examples are shown in Figure 5-3.

To negotiate the best possible deal, it is essential to understand the needs, problems and objectives of the other party. Invariably, when this is done a common meeting ground can be achieved that is attractive to both sides. Moreover, this partnering approach will usually lead to results that exceed your expectations.

Figure 5-3
Buyer vs. Seller Comparison

Buyer Wants		Seller Wants
Lowest Price	⟷	Highest Profit
Immediate Availability	⟷	Economic Order Quantities
Emergency Shipments	⟷	Uninterrupted Production
Firm Prices	⟷	Recovery of Cost Increases
Exact Quantity Needed	⟷	Full Standard Packages
Long Payment Terms	⟷	Immediate Cash Flow
Freight Delivered	⟷	Avoidance of Freight Cost
Maximum Tech Support	⟷	Minimum Field Support Cost
Highly-Differentiated Products	⟷	Minimum SKU's
Minimum Commitment	⟷	Long Commitment To Allow Production and Capital Plans
No Inventory Responsibility	⟷	No Return of Product or Tie-Up of Capital

Example: An earth products processor required special cartridge filters for its calcining and grinding equipment. These filters were ordered 20 at a time, at a cost of $450 each, plus freight and emergency premiums due to long lead times and lateness in reordering. And the customer tied up about $10,000 in inventories.

Upon inquiring, the distributor learned that these patented filters were custom- made to order in small lots by hand and were a costly nuisance. The distributor agreed to buy in economical lot sizes of 65, stock the filters and deliver next day at no charge. The manufacturer gave the distributor an added discount and dated terms to defray his additional costs. The customer's price dropped to $398 with freight and emergency charges eliminated, inventory virtually eliminated, and lead-time cut from 8-10 weeks to next day. This was a three-way win because each party's needs were considered.

Avoidance of Unnecessary Purchases

Amazingly, many buyers have never considered the cost of unnecessary purchases, possibly because they have no practicable way to identify them.

What is an unnecessary purchase? We define it as any purchased goods that will not be consumed in necessary organizational activity within three months (the longest lead time on almost all MRO items) and that is not essential emergency back-up for maintenance or production. Is it a significant cost factor? Here is an example:

A multi-plant manufacturer of automotive anti-friction bearings was ready to close down a plant suffering heavy foreign competition. Top management demanded an aggressive cost reduction plan to avoid shutdown. A long-time MRO supplier was asked to identify savings potentials which he estimated at $2 million annually for indirect materials, of which $605,000 (30 percent) was ascribed to unnecessary purchases and better utilization of surplus inventories. The plant stocked many components for equipment such as screw machines and grinding machines, using min/max criteria based upon an ancient machine census. As a result, the storeroom was buying expensive replacement parts for many more machines than were in use.

Incidentally, the alert reader might well ask why the supplier waited for a major crisis to offer his cost reduction ideas. The reason was that he was never asked for them and every time he offered new ideas he was discouraged from pursuing them. Can't happen in your organization? Want to bet?

Standardization and Consolidation of Items and Suppliers

This is one of the most significant cost reduction areas in MRO procurement, dwarfing the savings available from reduced pricing. Despite the savings potential available through consolidation and standardization, often exceeding 30 percent, it is rarely attacked in a consistent or comprehensive manner. The reasons are many.

1. Every operation identifies its materials with a different part number, supplier, description, unit of measure and so on. Therefore, the database cannot provide meaningful information.
2. Personnel in each facility often have strong preferences for current brands, suppliers or specs that are not necessarily rational or consistent with corporate objectives. We call this the Congressional Syndrome because it resembles the actions of Congressmen and lobbyists to impede legislative improvements.
3. It is difficult for the purchaser to determine if the standardized product or the consolidated supplier is "equal to or better" than presently exists. This is a risk that most purchasers do not wish to confront.

A containerboard manufacturer—with 15 mills and over 100 converting plants— maintained a raw database of more than 12,500 MRO items. A sample analysis of three randomly-selected product types was initiated to identify the potentials for standardizing or consolidating the number of SKU's, as well as possible dollar savings. Here are the results:

- Measuring Tapes—73 different SKU's from seven different sources were cut to10 SKU's from one high-quality supplier (who also made three of the other brands being bought from current sources on a private-label basis). Weighted average savings were 30 percent.

- Mops, Brooms, Heads and Handles—138 different items from 30 sources were consolidated into 13 heads and one universal handle from one top quality manufacturer. Weighted average cost reduction totaled 35 percent. Additionally, the product was shipped knocked down (heads and handles unassembled) which reduced freight cost, handling, storage space, inventory investment and stock-out.
- Paint—There were 161 SKU's bought from 17 vendors. This was reduced to 88 items from four vendors, one of which supplied over 90 percent of the items. Weighted average savings equaled 19 percent, not including the reduction in inventories, stock-outs, purchasing costs, obsolescence and spoilage, and reduction of hazardous material transit charges and MSDS issues.

Simplification and Methods Changes

In the past, this activity was called industrial engineering, methods engineering, work simplification, value engineering or analysis and other nomenclature.

In fact, it refers simply to the collection, measurement and analysis of data regarding any task, process or event, and then applying critical questioning and logical thinking.

A good example of this technique is afforded by one of the largest commercial bakers in the U.S., at the time operating 48 large bakeries on three shifts, six days a week. Production lines included long ovens

(130 company-wide) through which product moved on racks and conveyors. The conveyors required graphite lubrication to withstand the continuous high heat conditions.

A supplier measured the volume and frequency of lubrication at four of the plants and found that monthly usage ranged from 4.5 gallons per month per oven to over 30. (Note: The Company had never measured this consumption. It is remarkable how few organizations measure consumption, or benchmark it, of indirect materials in key functions.) The "best practices" bakery had a chief maintenance engineer who was very experienced, analytical and well organized. His maintenance crew were well-trained and supervised. The vendor did two things: he recommended that the maintenance engineer with the "best practices" conduct training sessions for the entire company in oven lubrication practices and recommended consolidation of all graphite lubricants with one vendor at a special negotiated price. The results were an annual reduction in graphite lube consumption of 17,000 gallons and an annual savings of almost $275,000 in material cost (hard dollar savings), not including the labor savings from reduced frequency of applications (soft dollar savings).

Substitutions

One of the greatest deterrents to MRO cost reduction is the insistence of end users on "no substitutions."

There are some sound reasons for this dictum, including factors that affect tolerances, dimensions, finishes, environmental operating conditions, customer specifications, quality and safety standards.

However, this insistence on "no substitutions" is vastly overdone, to the detriment of MRO cost reduction. This is similar to the practice of government officials to classify everything they can as top secret, whether or not truly necessary, just in case—making access very difficult for those who could benefit from it. It is likely that no more than five to ten percent of all MRO items are so mission critical as to require no substitution. Most often, this restriction is due to inertia or a personal preference by end users for certain suppliers or brands. Since many procurement personnel do not invite or consider substitutions (most RFQ's prohibit substitutions in their terms and conditions), they may not be able to evaluate the cost of this policy.

A truck body manufacturer bought a specific brand of drill bits because plant operators insisted that all other brands produced inferior results. Unknown to them, and to the buyers, the owner of the brand manufactured nothing—the original manufacturer had gone out of business a decade earlier—and sourced the product around the globe wherever he found the best deal. Another cutting tool supplier documented the facts to management and offered a superior, domestic line of tools at a substantial savings of 20 percent of invoice price (hard dollars). When the supplier conducted objective tests of the two

brands, the recommended brand outlasted the incumbent brand by another 20 percent (soft dollars).

The fact is that most organizations are receiving substitutions without even realizing it and without reaping the savings. Time and again, a comparison of the items specified in the database with the physical items in the storeroom will show discrepancies on 20 percent or more. (Note: This also causes invalid comparisons on RFQ's between bidders who quote the material specified, and those who don't.)

Reduced Consumption

Very few organizations measure the consumption of MRO materials, whether pencils, copy paper, gloves or power tools. In fact, they do not have standards or trends to compare against, even if usage were measured. Some companies have gone so far as to install vending machines to inhibit excess use and to identify the users. This can be effective, but also costly.

There are numerous ways to identify excess consumption, which may stem from wasteful practices, intentional or inadvertent; from problems in the system or the process; from theft and pilferage; or from characteristics of the purchased product such as durability or packaging. But until excess consumption is identified, no corrective action is possible.

A major manufacturer of auto and truck tires spent over $100,000 annually for absorbent pads in just one of its plants. A supplier conducted an engineering study to determine the reasons for the large expenditure. He found that the majority of pads were used to clean up water on the plant floor. The plant was also using a very expensive pad, intended for chemical spills, to clean up water and oil spills. The vendor recommended that a few shop vacs be purchased for water clean-up, and that a less expensive but more absorbent pad be used for oil spills. Consumption of pads dropped about 70 percent and annual spend declined about 80 percent (hard dollars). Moreover, a substantial additional sum was saved in remediation costs, since the pads could not be disposed of in ordinary waste due to contamination (soft dollars).

Remediation costs alerted another supplier—supporting a large network of steel processing/metal service centers—to reduced material consumption. Drums of spent coolants and lubricants were removed from the plants at a cost of about $1,500 per truckload. The vendor initiated a review of all fluids applications including sawing machines, plasma cutters, cut-to-length lines and even gearboxes and pumps. The results are shown in Figure 5-4. He provided a simple, portable filter cart at each plant, which permitted recycling of fluids while the equipment remained in operation. Consequently, the purchase and consumption of coolants and lubricants fell by more than 90 percent; remediation and disposal costs were virtually eliminated; equipment

Figure 5-4
Glannon Filtration Cost Analysis

EQUIPMENT	PHILADELPHIA	FAIRLESS	EASTON	LIC	CHATTANOOGA	CHAR. RYER.	CHAR. THY	BUFFALO	PITTSBURGH	BRITE LINE	BIRMINGHAM	CAMBRIDGE	CLEVELAND
BAND SAW	5 ea.	0	3 ea.	4 ea.	2 ea.	4 ea.	1 ea.	7 ea.	3 ea.	0	1 ea.	3 ea.	3 ea.
annual fluid cost per unit	$ 1,251.00		$1,251.00	$1,251.00	$ 1,251.00	$ 1,251.00	$ 1,251.00	$ 1,251.00	$ 1,251.00		$ 1,251.00	$ 1,251.00	$ 1,251.00
extended cost	$ 6,255.00		$3,753.00	$5,004.00	$ 2,502.00	$ 5,004.00	$ 1,251.00	$ 8,757.00	$ 3,753.00		$ 1,251.00	$ 3,753.00	$ 3,753.00
LASER	1 ea.	0	0	0	0	0	0	0	0	0	0	0	1 ea.
annual fluid cost per unit	$ 2,565.00												$ 2,565.00
extended cost	$ 2,565.00												$ 2,565.00
PLASMA	1	0	1 ea.	0	1 ea.	0	1 ea.	3 ea.	1 ea.	0	1 ea.	1 ea.	0
annual fluid cost per unit	$ 1,276.00		$1,276.00		$ 1,276.00		$ 1,276.00	$ 1,276.00	$ 1,276.00		$ 1,276.00	$ 1,276.00	
extended cost	$ 1,276.00		$1,276.00		$ 1,276.00		$ 1,276.00	$ 3,828.00	$ 2,063.00		$ 1,276.00	$ 1,276.00	
FLAME CUT	2 ea.	0	1 ea.	0	2 ea.	3 ea.	0	4 ea.	3 ea.	0	1 ea.		2 ea.
annual fluid cost per unit	$ 231.00		$ 231.00		$ 231.00	$ 231.00		$ 231.00	$ 231.00		$ 231.00		$ 231.00
extended cost	$ 462.00		$ 231.00		$ 462.00	$ 693.00		$ 924.00	$ 693.00		$ 231.00		$ 462.00
Cut to Length Line		2 ea.				1 ea.				1 ea.			
annual fluid cost per unit		$ 7,055.00				$ 3,527.00				$ 3,572.00			
extended cost		$ 7,055.00				$ 3,527.00				$ 3,572.00			
Misc. Oils, Fluids	$ 500.00		$ 500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00		$ 500.00	$ 500.00	$ 500.00
Disposal Cost	$ 3,270.00	$ 6,127.00	$1,750.00	$1,400.00	$ 1,750.00	$ 2,450.00	$ 700.00	$ 4,900.00	$ 2,450.00	$ 750.00	$ 1,150.00	$ 1,150.00	$ 2,100.00
P.M. Labor/Shutdown	$ 2,400.00	$ 640.00	$1,280.00	$1,280.00	$ 1,600.00	$ 2,560.00	$ 640.00	$ 4,480.00	$ 2,240.00	$ 320.00	$ 960.00	$ 1,280.00	$ 1,920.00
Total Cost	$ 16,728.00	$ 13,822.00	$8,790.00	$8,790.00	$ 8,090.00	$ 14,734.00	$ 4,367.00	$ 23,389.00	$ 11,699.00	$ 4,597.00	$ 5,368.00	$ 7,959.00	$ 11,300.00
									***est. Total annual cost of fluids , disposal and labor				$ 139,633.00
							Projected savings through reduction of fluid consumption and disposal cost						$ (106,230.00)
							Projected savings through reduction of labor cost and down time						$ (6,480.00)
										** annual filter cost			$ 16,000.00
							Projected net annual savings after initial investment						$ (96,710.00)

down- time for fluid changes was eliminated; maintenance man-hours required to change fluids and clean sumps were sharply reduced; purchase and storage of barrels became unnecessary; and more. The hard dollar savings in just one division—there were six in all—was $97,000 per year.

Changing Packaging or Units of Measure

Sometimes, substantial savings can be realized without changing the method, the brand or the product specs, but merely adopting a different package or a different unit of measure. For repetitively-purchased items, the difference in unit price between a standard package quantity and a broken package quantity can be 15 percent or more. This is usually hidden in the invoiced price, rather than shown as a surcharge or premium. A simple way to address this is to ask each vendor for the standard package quantity and broken (or less than bulk) pack differential for each item that you purchase from that vendor.

One example is provided by a large electronics manufacturer who annually bought thousands of 11-ounce aerosol cans of a well-known lubricant. The cost was about 26 cents per ounce. The storeroom supplier adopted an alternative approach. He bought the same product in 55-gallon drums, filled 16-ounce plastic spray bottles (at no charge from the manufacturer) from the drums and placed them in the storerooms. Empty sprayers were collected in a plastic garbage

bag and a full bottle obtained. Periodically, the supplier retrieved the empties, rinsed and dried and refilled them, repeating the cycle. The cost per ounce became 18 cents, a reduction of 31 percent (hard dollars). In addition, the disposal of thousands of aerosol cans per year was eliminated, the waste product left in spray cans became useful product, and plant personnel required fewer trips to the storeroom (all soft dollar savings).

Another illustration is buying batteries in bulk. The difference in cost, at the time of this writing, ranges up to 17 percent, simply by changing the U-O-M.

Rebates and Shared Savings

Some manufacturers or distributors will consider a rebate, based upon volume of purchases or other criteria. The reason is that increased volume permits the apportionment of fixed costs over a larger base, thereby lowering the unit costs and increasing the unit profits.

To illustrate, imagine two comparable suppliers; one receives a weekly order averaging $500 and the other averaging $5,000. Each vendor has to enter the order, pick the merchandise, pack it, deliver it, unload it, bill it, reorder from his vendor, record the payment when received, and so on. The fixed costs for each supplier will be about the same. But the larger supplier can spread his costs over ten times the volume, which is far more cost effective and profitable.

Typically, a rebate can be negotiated for annual purchases over a certain base volume e.g. two percent of everything over one million dollars. Or a sliding scale may be used e.g. one percent on purchases of $500,000 to $750,000; two percent from $750,000 to one million; and 2-1/2 percent over one million dollars spent. The rebate may be in the form of cash or a credit against future purchases.

There are many types of rebate arrangements, of which volume rebates are but one example. This is one of the many potential advantages to consolidating suppliers. If the rebates are credited to each operating location, rather than corporate, it encourages the operating personnel to support the program and utilize it as fully as possible.

In a similar vein, canny purchasing professionals will seek to induce their key suppliers to find and implement MRO cost reductions by sharing the savings with the vendor. A typical arrangement might be a 50/50 split (customer/supplier) of documented savings for the first 12 months, 75/25 the second 12 months and 90/10 the third year.

It is remarkable how many buyers balk at such a program, believing that all savings belong to them. It does not seem to register that 50 percent of something that is real, significant and ongoing is worth a lot more than 100 percent of nothing. Nor does it register that the only reason that a supplier can develop substantial savings in a particular instance is because the buyer's organization has not done so.

Turning Trash Into Profit

Most operations produce MRO waste that has a recovery value. Sometimes it takes some imagination or resourcefulness to find these hidden assets and convert them into profit (or cost reduction). For instance, what happens to all those broken, damaged or worn mechanics' hand tools that you spend so much to replace each year? Virtually all of the major manufacturers offer a lifetime warranty. Why not accumulate them in a container and turn them in for credit once or twice a year? Here are other examples:

Many industries, from electric wire and cable to steel coil processing, use specialized and costly cores, spools or spindles. Recovering these from the customer saves him the inconvenience and cost of disposal and may earn the customer a bounty.

A steel coil processor bought 4,000 cores per year at an average price of $12.00. For every core returned to the steel company from its customers, a $4.00 credit was given. Since the cores were reusable, the cost was reduced by 67 percent. There was no additional freight cost because the steel processor's trucks were delivering to the customer plants anyway.

The same steel company was buying expensive, customer-specified pallets ranging in cost from $30 to $150. A similar customer return program was instituted, with the customer receiving a $10 credit for

each pallet accumulated for return. The pallets were inspected, if necessary given moderate repairs at a local pallet yard for a $15 fixed charge, and then returned to inventory. Pallet use went from single use to an average of five cycles before discard. Pallet costs were cut almost in half, from an average cost of $50 x 5 purchases ($250) to $50 + 4($25) recovery cost or $150.

Another example is the earth products processor mentioned previously. All kilns in the eleven plants were operated with thermocouples, which were discarded and replaced when degraded. An OEM (original equipment manufacturer) parts supplier was asked to reduce the substantial costs for replacement thermocouples. The vendor negotiated a credit of $1,200 per ounce for the precious metals (platinum and rhodium) contained in the spent units returned to the OEM.

A leading manufacturer of jet aircraft engines bought a large volume of expensive carbide cutting tools for machining high alloy metals. These tools ranged in price from less than $25 to several hundred dollars, averaging about $85. Due to close tolerances and hard materials, tools had to be replaced frequently. The manufacturer asked its primary tooling supplier to develop a program to recover the value in its discarded tools. The supplier purchased a CNC tool grinder and related equipment, hired an experienced toolmaker, developed a PC-based tool registry and control system and adopted the engine maker's

inspection standards. By regrinding/ resharpening the tools, average tool life was extended to an average of five cycles— the original use and four regrinds. The resharpened tools—including labor, overhead, machine amortization and supplier profit—cost 45 percent of the new tool cost. In three years, the engine maker saved over one million dollars from the program.

Specifications

Many MRO material specifications are based upon tradition, historical usage or standards that are no longer relevant. Yet, because the product has always worked, it is assumed that any change in specifications will lead to disaster. However, a simple change in specifications, properly tested before adoption, may completely change the cost paradigm. Furthermore, many items that are custom-made, expensive and long lead time, can be replaced with an off-the-shelf commodity that is functionally equal and available at a fraction of the price.

For instance, a licensee was building helicopters and fixed wing aircraft for the U.S. Air Force, which had given the contractor its standard mil spec recommendations for mechanical and electrical tool kits. Due to extremely tight contract deadlines and very long lead times to obtain the Air Force recommended tools, the contractor turned to its tool supplier for help. The tool supplier was able to find

tool cabinets and tools from commercial sources that fully met all functional requirements of the job, and was able to assemble the kits, including shadowboxing and laser etching, in one-fourth the lead-time and at one-third the cost of the original requirement. Total cost savings were $60,000.

A national poultry processor used vinyl sleeves (12,000 pair annually) and vinyl aprons (5,300 per year) at just one plant. Due to sanitary requirements, the vinyl was discarded at the end of daily operations. The specs were changed to polyolefin in a slightly thinner gage. The polyolefin could be washed and reused. Even though the new product was more expensive; usage was reduced to 4,300 pairs of gloves annually (52 percent dollar saving) and aprons were reduced to 670 per year (78 percent saving).

Finally, a manufacturer of piston rings for the automotive industry used an aluminum oxide slurry to achieve final tolerance and finish requirements. The supplier recommended a different concentration and formulation from a different manufacturer. The required testing was performed and the new product was accepted. Usage declined by 66 percent and total annual cost, including freight, went from $147,000 to $39,000— a 75 percent reduction in a single plant.

Sole Sourcing and OEM Sourcing

As noted in a previous section, the stipulation against changes in product, brand, specification or source may be outdated, unnecessarily restrictive and very costly.

If a meaningful, repetitive expenditure has not been critically reviewed or analyzed for a long time, it can be fruitful to reexamine the justification for such restrictions.

Further, it is commonly assumed that—in the case of equipment parts and supplies—the material can only be obtained from the original equipment manufacturer or that sourcing elsewhere will breach the manufacturer's warranty. More often than not, the equipment is long out of warranty, and the original manufacturer may have been acquired or merged into a successor company. *Moreover, most equipment makers outsource many, if not most, of the components that they assemble.* Accordingly, buying replacement parts directly from the part manufacturer will generally avoid OEM mark- ups of as much as 100 percent, as well as cut the lead-time appreciably. To facilitate these cost savings, all equipment purchase agreements should require the OEM to provide a complete list of parts and supplies showing the manufacturer and part number of each. Alternatively, the components may be replaceable with standard off-the-shelf products.

A large machine shop operated many old automatic screw machines, whose original manufacturer had gone bankrupt and been bought by

another company. The expenditure for replacement parts had greatly increased, but the owner could not cost- justify replacing the machines. An equipment supplier found that the parts were bought from an independent machine shop, marked up 100 percent and resold to the end users by the successor OEM. The parts supplier made a deal to buy the parts at the same price as the OEM, less a resale discount, resulting in a savings of about $25,000 annually.

Shipping and Handling

Many buyers pay attention to merchandise invoice costs without accounting for shipping and handling, which can be a sizeable cost addition. This factor has increased as fuel cost increases have led to higher delivery charges and fuel surcharges and as more sourcing is done from national catalog houses for convenience, but at high shipping and handling fees.

While a typical range of shipping cost—across the spectrum of MRO buying—is probably about three to four percent of merchandise value, lack of attention to this area may add 20 percent or more to landed cost.

Here are two examples:

An automotive rubber parts supplier ordered three carbide end mills costing about $20 each from a catalog house. Due to back orders, the end mills were shipped from three different warehouses.

Total shipping and handling totaled about $63 on a $60 order, or 105 percent for transportation.

A coal mining company ordered three hoist trolleys on a rush basis for a construction project. Overnight air delivery, which the customer requested, was almost $900 due to the weight involved. The vendor determined that the shipment would arrive the day before a three-day holiday weekend and not be used until after the holiday. With the customer's approval, the supplier changed the delivery to standard two-day truck at a cost of $75.

Many companies have never examined how their MRO purchases are rated for freight tariff purposes, although they regularly do this for raw material or finished goods shipments. Accordingly, they may be charged a much higher rate classification than necessary, or they may pay the highest-rated classification for any item in a mixed shipment that could be rated freight-all-kinds (f.a.k.).

If your accounting system can provide it, calculate your annual freight and handling costs for indirect materials. Multiply by 25 percent. If you consider the result to be a significant number; it may be worth some attention.

Waste and Theft

It has been estimated by a number of economists that the annual cost to American business and industry from theft and waste exceeds one hundred billion dollars. These losses vary greatly, but are significant in most organizations. While some of these losses—certainly theft and pilferage—are intentional, the bulk of such loss is probably inadvertent.

Although most people have no use, or ready market, for raw materials or purchased components—and capital goods are difficult to remove—many MRO products lend themselves to personal use outside the enterprise. Think flashlights, batteries, gloves, paper, power tools, lumber and so on. In a plant making electrical distribution apparatus, the storeskeeper removed enough lumber, screening and other materials over three years to build a substantial poultry breeding business.

A facility cutting plate steel with oxy-fuel flame cutters was constantly out of electrodes, and paying a penalty for emergency shipments. Investigation revealed that operators were hiding electrodes in their toolboxes to make sure of their supply, in the belief that other shift operators were doing the same.

Maintenance mechanics in a printed packaging operation ordered new power transmission belts whenever they needed one, even though there was a huge inventory of belts in the storeroom and around the plant. It was too much time and trouble to find what they needed due to poor housekeeping and product identification.

It is neither practical nor reasonable to search employees leaving the premises or to examine peoples' toolboxes. *The answer to controlling theft and waste is to maintain a good database and reporting system capable of pinpointing excess usage.* Only then can management go to the supervisor or operator and ask why, for example, their glove usage is triple other like operations. When people know that usage is being scrutinized, waste and theft tend to diminish.

Imports vs. Domestics

We live in a world of increasing globalization, where products and services are sourced in the location of greatest economic advantage. These sources are changing with increasing frequency. Production that moved to Mexico a few years ago has now been sent to China and may move elsewhere in ten or fifteen years. Professional engineering and call centers have located in India, then moved on to places like Costa Rica or the Philippines. This great mobility, unmatched in human history, stems from a number of important world-wide trends:

- The creation of capital and currency markets well beyond Wall Street or The City in London.
- International digital communications in telephony, the Internet, satellite and microwave transmissions.
- Greater speed and capacity for movement of people and goods by air and water than ever before.
- Improved educational levels in more and more countries.

- Increased expectations by customers and investors for lower costs, faster response and higher returns.
- The pervasiveness of information technology and data processing globally.
- The growing number of countries that have adopted a form of representative government and/or capitalist economy in recent decades.

What does all of this have to do with MRO procurement? It means that "Made in the U.S.A" or "Buy American" can no longer provide a valid basis for decision- making. In fact, numerous products in the MRO market basket are no longer made in the United States.

Accordingly, best buying practices cannot be based upon country-of-origin, but rather upon acceptable quality, delivery and landed price. Moreover, many of the foreign sources of MRO products are owned by American companies.

Brand Name Vs. Private Label Vs. Generic

At one time, brand names conveyed meaningful information and values to a buyer including such characteristics as quality, durability, features and functions, guaranteed satisfaction, resale value and so on.

Today, many brands are not made by the brand owner and are nothing more than a marketing tool. They are often purchased from private label or generic manufacturers for resale. Also, some brands

are assemblies from multiple manufacturers, foreign and domestic. For instance, Frigidaire is now an AB Electrolux of Sweden brand and Morse Cutting Tools is owned by a distributor.

To illustrate: One of the most popular brands of mechanics' hand tools is made by a competing manufacturer. Both brands are made from the same material by the same personnel on the same production equipment. And both offer a lifetime warranty. The only difference is in the product marking and packaging. The "name" brand costs an average of 30 percent higher than the manufacturers' own brand.

It is estimated that as much as 25 percent of merchandise sold in the U.S. is private label; and those private labels average about 25 percent less in cost than name brands. For a commodity product such as petroleum jelly or baking soda or degreaser, even a private label product may represent a higher cost than a generic equivalent that will do the job properly.

Conclusion

We have shown in this chapter, fifteen major opportunity areas to achieve dramatic hard dollar savings in MRO procurement. Most of these techniques offer potentially greater cost reduction than just price reductions alone. The next chapter will discuss similar savings in soft dollars.

IDEAS FOR OUR ORGANIZATION

QUESTIONS AND COMMENTS FOR JOEL ROTH
(jroth@the20percentsolution.com)

VI SAVING SOFT DOLLARS

It has been estimated by the Center for Purchasing Studies that the cost of a purchase order in a Fortune 500 corporation approximates $150. This represents not just the cost of the purchase order document. It includes the entire procurement cycle such as requisitioning, sourcing, placing the order, expediting, receiving, transporting, stocking, paying and so on.

While the purchase order cost for smaller end users, and some suppliers, is somewhat less, that cost is nonetheless appreciable—probably in the range of $50 to $125. Question: If his order processing cost is $50 per transaction, how can a supplier make a profit, regardless of his profit margin, if your purchase is less than $50? And how cost effective can your MRO procurement be if your purchase order costs more than the merchandise being purchased? Yet, hundreds of thousands (if not millions) of such small purchases are placed every day.

Obviously, these costs are mostly labor-related. The nature of these costs, and the means to reduce them, are the subject of this chapter (See Figure 6-1).

There are basically two ways to approach this problem—consolidate purchases into larger transactions, reduce the transaction costs or both.

Consolidated Purchasing

Over the years, many different models have been developed for consolidated purchasing including blanket purchase orders, commodity contracts, integrated supply agreements and others.

The basic premise of such programs is to reduce the high volume and high transaction costs inherent in many small purchases. These transactions add cost, but not commensurate value, to both the customer and the supplier—to the detriment of both and the benefit of neither.

A well-known hospital purchasing group was placing 40,000 individual purchase orders annually for MRO (non-medical) products for its 26 members. Each item was bought on a separate purchase order, creating a blizzard of paperwork and an army of clerical personnel. A vendor who questioned this method of buying was told that accounting required it for internal control and audit purposes.

Figure 6-1
Savings in Indirect Materials (Non-Invoiced) Costs - Soft Dollar Savings

Consolidate purchasing.

Consolidated invoicing.

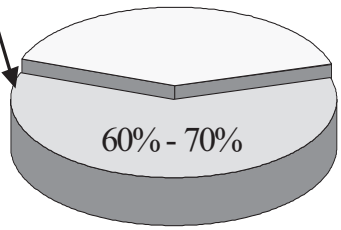
Database construction and maintenance.

Inventory reduction, consigned inventory, vendor-managed inventories, inventory transfer and disposal.

Benchmarking, best practices and standards.

Value engineering and analysis.

Management information systems.



The vendor requested a meeting with the CFO's of the four largest members, who were unaware of the issue. After reviewing the costs, they decided to convert all MRO buying to blanket orders with key suppliers. The number of purchase orders dropped to about 10,000 per year, the average purchase order rose from less than $100 to more than $400, and the purchasing/accounting clerical staffs were virtually cut in half—equivalent to a combined annual savings of $4 million.

Moreover, the CFO group went back to the vendors and obtained an additional two percent discount across the board for the improved efficiencies due to larger orders.

In another case, a national metal service center network asked a vendor to develop a prototype integrated supply program in a 12-plant division. The division was buying MRO materials from 810 suppliers and issuing about 10,000 purchase orders annually. The customer received about 12,000 invoices annually, including back-orders.

The integrated supplier placed 98 percent of the MRO orders under one annual blanket order, and provided division-wide, semi-monthly consolidated billing, reducing the number of invoices to 24 per year. Total annual documented savings in purchasing and billing totaled $445,000. An extremely high error rate in coding invoices to the correct account was discovered and eliminated as a secondary benefit.

Consolidated Invoicing

The vast bulk of workload performed in most accounting/accounts payable functions is directly related to MRO procurement. In many cases, the amount of approvals, checking, coding, data entry, uploading, check preparation and mailing and other tasks is staggering. It is also very labor-intensive and error-prone, with discrepancies and deviations a major occurrence. Some organizations have full-time personnel focusing exclusively on resolving apparent billing discrepancies. What this amounts to is that most enterprises are "spending a dollar to save a nickel".

Figure 6-2 shows an actual invoice from a multi-plant printed packaging company. The number of required checkpoints and approvals stretches the imagination. These approvals involve not only accounting clerical, but department heads and plant managers. (Note: One plant manager complained that he had to take MRO invoices home to review and approve because he had higher priorities during the business day.) Moreover, the same tortuous procedure is required for a $5 broom as for a $50,000 truckload of ink. The true cost of such nonproductive activities is incalculable but very substantial.

The packaging company had installed a very expensive and sophisticated ERP data processing system. However, the MRO procurement application was ignored in the planning and implementation phases. From a procurement viewpoint, it was the equivalent to having a brand new Mercedes sitting in the driveway with no engine.

<u>FIgure 6-2</u>
Invoice Sample

P.O. Box 7882
2020 SURRETT COURT
High Point, NC 27264

Voice: 336.886.8533
Fax: 336.886.5179

Invoice Number: 40601
Invoice Date: Jan 10, 2000
Page: 1

FEB - 4 2000

Sold To:

Ship to:

Customer ID	Customer PO	Payment Terms	
2437	PD014403	Net 20 Days	
Sales Rep ID	**Shipping Method**	**Ship Date**	**Due Date**
	UPS Ground	1/10/00	1/30/00

Quantity	Item	Description	Backorder	Unit Price	Extension
4.00	422C-072	SCRUBS HAND CLEANER TOWEL		73.00	292.00

Correct price
Paying price
DB 2/1/00

FINANCE APPROVED
J. HINES, JR.

DANVILLE				
PLT	DEPT	ACCT	COST CTR	AMOUNT
233				
233	401	542100		
233				
233				
GROSS		DISCOUNT		INITIALS
309.50				TBW

A/P KEYED
FEB - 3 2000
TBW

MANUFACTURING APPROVED

Subtotal	292.00
Sales Tax	~~13.14~~ ~~17.52~~
Freight	17.50
Total Invoice Amount	~~327.02~~
Payment Received	0.00
TOTAL	~~327.02~~

309.50

Check No:

VA SALES TAX
FEB - 3
PAID $ 13.14

An integrated supplier designed a completely new paperwork process, utilizing the the existing ERP computer system, that completely eliminated all paperwork in the MRO procurement cycle with the exception of one document—a signed packing list/ bill of lading for system verification and audit (See Figures 6-3 and 6-4).

Here is a simple way to achieve consolidated invoicing. Ask the vendor(s) to present a consolidated invoice monthly, or semimonthly, showing charges by general ledger and subsidiary accounting code. (Note: This information can come from the database—see Chapter III—or be included on the purchase order. Alternatively, the applicable codes from your chart of accounts can be provided to the vendor.) The consolidated invoice, on e-mail spreadsheet or disc, can be uploaded directly into the books of account, without manual coding or approvals. Accompanying the billing should be a complete file or printout detailing all charges by line item, sorted by plant, cost center or other required breakdown. A copy of the detail file should go to each facility (its portion only). The billing can be reviewed after the fact, on a sampling or inspection basis. Any errors can be debited back to the supplier at any time. If the error rate in billing is deemed significant for any particular vendor, this should be handled on an exception basis, instead of treating all invoicing as though it were erroneous. Furthermore, if the database is well-constructed, a merge and match between the billing and the database files will highlight any price discrepancies.

Figure 6-3
Old Order Flow

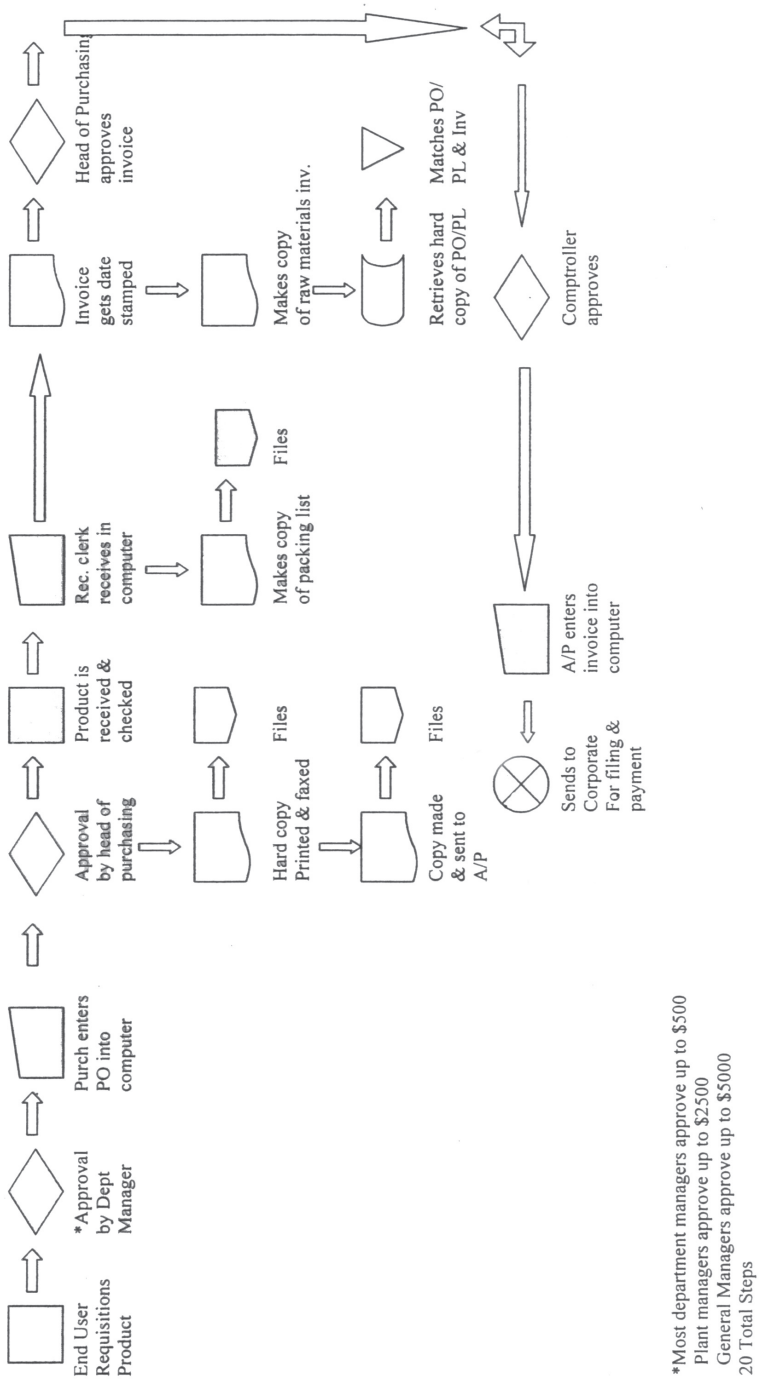
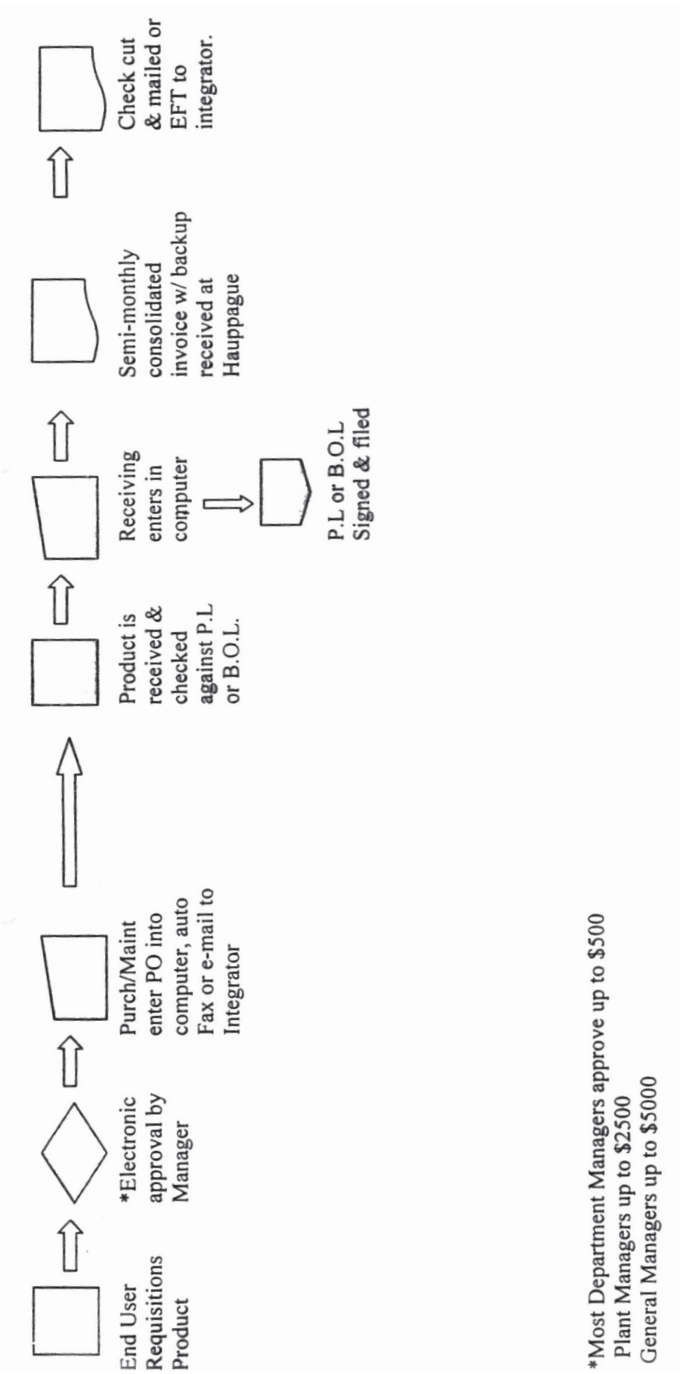


Figure 6-4
Proposed Paperflow -
Integrated Supply Agreement



While we have demonstrated that a sound database can provide the platform for substantial hard dollar savings, the preparation of the database by the supplier is in itself a major soft dollar savings source, compared to the cost of building it in-house.

Inventory Reduction

This is such a critical parameter in MRO improvement efforts that it could easily justify a separate chapter in this book.

The vast majority of organizations pay little or no attention to MRO inventories, other than to replenish stocks that have run low. The reason for this inattention is that almost all enterprises expense their MRO purchases through the profit and loss statement, rather than capitalizing MRO inventories—as they do for raw material, work-in-process, finished goods or capital equipment—on their balance sheets. This is the accounting equivalent, when it comes to MRO inventories, to "out of sight, out of mind".

Additionally, a significant ratio of entities do not maintain a perpetual inventory record for MRO materials and those that do, usually fail to perform an inventory ageing or similar analysis.

The result of these conditions:

- The company may have millions of dollars of MRO inventory, but fails to regard or treat them as an asset.

- *In most organizations, 20 percent to 50 percent or more of MRO stocks (in dollar value) are surplus or dead (See Figures 6-5 and 6-6).*
- Few enterprises recognize the opportunity cost in reducing their investment in non-working inventories, their total MRO inventory investment or the annual cost of carrying these inventories.

Most companies do not believe that there is an MRO inventory problem. And, those that do assume that nothing can be done about it. (Note: Some stockrooms appear to be nothing more than indoor scrap yards.)

The truth is that every dollar recovered from inventory investment is a dollar of income (or cost reduction) and a dollar of cash flow. Moreover, the annual cost of carrying this unneeded inventory typically averages about 18 percent of purchase cost—for interest, space, record-keeping, loss and obsolescence, insurance, property taxes, handling, disposal, etc. Therefore, if you put a dollar of unneeded inventory on the shelf, over five years the cost of that merchandise will double, on a compound basis. Here are some of the ways that MRO inventory savings can be achieved:

Figure 6-5
Analysis of Storeroom Inventories
Bearings Manufacturer

TOOL ID	ITEM DESCRIPTION	VENDOR	MIN/MAX	REORD. POINT	ANNUAL USAGE	QTY ON HAND	MOS. SUPPLY	$VALUE ON HAND	RECOMMENDED $ VALUE	$ DIFF
23PNA3V2	PUSHER PAD	26536	14.00/15.00	4	44.00	9.00	2.45	$ 1,539.00	$ 684.00	$ (855.
CB40165/F	FORM TOOL	78857	0.00/0.00	1	2.00	10.00	60.00	$ 1,536.00	$ 153.60	$ (1,382.
10PNA25/8	PUSHER PAD	26536	19.00/20.00	13	148.00	12.00	0.97	$ 1,536.00	$ 1,664.00	$ 128.
W04702D014	GRIND WHEEL	80901	0.00/0.00	129	1537.00	383.00	2.99	$ 1,535.00	$ 517.01	$ (1,017.
0620D003	INSERT FORM	82647	0.00/0.00	2	22.00	59.00	32.18	$ 1,531.00	$ 51.90	$ (1,479.
G-022-D1	ROD	82868	2.00/3.00	1	2.00	9.00	54.00	$ 1,530.00	$ 170.00	$ (1,360.
W00465D270	HONE STONE	79193	0.00/0.00	20	236.00	615.00	31.27	$ 1,525.00	$ 49.59	(1,475.
P58042D101	WORK LOCATOR	82868	2.00/2.00	1	1.00	4.00	48.00	$ 1,520.00	$ 380.00	$ (1,140.
11SNA25/8	PUSHER, SOLID	26536	7.00/12.00	1	6.00	11.00	22.00	$ 1,518.00	$ 138.00	$ (1,380.
W00465D222	HONE STONE	14142	0.00/0.00	19	222.00	279.00	15.08	$ 1,517.00	$ 103.31	$ (1,413.
445	SEAL HOUSING	23983	1.00/2.00	1	2.00	2.00	12.00	$ 1,516.00	$ 758.00	$ (758.
0597D003	INSERT, FORM	82647	0.00/0.00	8	90.00	66.00	8.80	$ 1,514.00	$ 183.52	$ (1,330.
1758S31	SHOE	82868	4.00/6.00	1	2.00	9.00	54.00	$ 1,512.00	$ 168.00	$ (1,344.
886411	FINGER	77078	13.00/13.00	5	51.00	20.00	4.71	$ 1,510.00	$ 377.50	$ (1,132.
P05347D28	JAWS, CLAMPING	83944	4.00/4.00	1	3.00	4.00	16.00	$ 1,504.00	$ 376.00	$ (1,128.
B-049-C	SEGMENT	82868	2.00/3.00	1	1.00	4.00	48.00	$ 1,500.00	$ 375.00	$ (1,125.
	GRAND TOTALS							$ 2,852,661.88	$ 947,713.12	$ (1,904,948.

Figure 6-6
Efficiency Profile-Supplies & Tooling
Inventory Auto Parts Manufacturer

Non-Returnable Inventory	(15/741 SKU's)	166,291
Returnable Inventory	(8,112 SKU's)	9.572.133
Gross Inventory		9,738,424
Less Obsolete Inventory		
(No movement in 24 months)		(2.850.075)
Active Inventory		$6,888,349
Gross Purchases-2000		$7,451,000
Exclusions (1)		(2,394,000)
Net Purchases-2000		$5,057,000
Total Number of Months' Supply In Inventory		16.3
Total Indicated Annual Turnover Rate		0.73 X

(1) Oils & Greases, Packaging, Paint & Thinner, Rep. Furn. Supplies, Rep. Auto Supplies, Bldg, Main! Supplies, Office Supplies, Procurement Cards,

Consigned Inventory

Adopting a consigned inventory program for MRO can eliminate most or all of your investment, since the supplier owns the inventory until the customer uses it. This is a great advantage because it may free hundreds of thousands, perhaps millions, of dollars in low-productivity capital for redeployment at a much higher return without cost.

So why don't more organizations utilize consignment for MRO materials? Typical reasons given: "It's too complicated or requires too much bookkeeping," "It's against our company policy," "It causes too many disputes with the vendor." These are indicative of a status quo organization. If you are seeking competitive advantage, or free capital to fund new programs and growth, why would you tie up large sums in inventory unnecessarily?

There are numerous ways to handle consignment. Sometimes the vendor will buy back the merchantable portion of the current inventory and provide a credit as a starting point. In other instances, the customer will deplete the current inventory, as the supplier brings in replacements. Generally, the stock withdrawn from consignment is either paid for automatically by the user, usually monthly, or the supplier will bill for withdrawals based either on the customer's reported usage or a bin count. Periodically, a physical count is conducted and any shortages are billed to the consignee.

A food products producer with several dozen plants spent about $18 million per year for MRO merchandise. While records were sketchy, it was estimated that total MRO inventory was also about $18 million, indicating annual turnover about one time. Corporate management was in disbelief, so a respected supplier was asked to perform a more detailed and reliable analysis. Sample results are shown in Figures 6-7 and 6-8.

Transmission belting inventory totaled about $85,000 in four plants studied, with a turn rate of 0.38 times per year. The customer stocked 15 brands of V-belts and other transmission belting. Total belt inventory company-wide was about $750,000. The vendor consolidated all drive belts with two manufacturers—resulting in a large price reduction—and negotiated a consignment program with the major manufacturer. The manufacturer agreed to provide three month's supply of standard belts with regular movement and bill for them on 90-day terms. As a result, inventory investment in belts were reduced by about $600,000.

A similar program was undertaken with electric motors, which were turning at 0.675 times annually. In addition to consolidating 17 brands into three, the supplier also reduced the number of emergency back-up motors kept in stock.

Figure 6-7
Inventory on Hand-Belts Combined Analysis

PLANT	QTY ON HAND	QTY USED	TURNOVER	VALUE ON HAND
SUMMARY				
HOUSTON	*332*	101	0.30	$18,047.56
VILLA RICA	*259*	120	0.46	$28,272.89
TUSCALOOSA	*182*	119	0.65	$11,897.67
JACKSONVILLE	544	137	0.25	$26,353.22
TOTAL	1317	477	0.36	$84,571.34

Figure 6-8
Inventory on Hand-Motors Combined Analysis

PLANT	QTY ON HAND	QTY USED	TURNOVER	VALUE ON HAND
SUMMARY				
HOUSTON	163	100	.61	$53,356.71
VILLA RICA	93	100	1.08	$67,557.26
TUSCALOOSA	105	110	1.048	$36,254.79
JACKSONVILLE	180	55	.306	$51,306.21
TOTAL	541	365	0.675	$208,474.97

By consolidating motors by spindle speed and frame type, one larger horsepower motor could replace six motors for emergency purposes. These consolidations, along with a well-designed consignment, reduced motor inventories by about $1,250,000.

Vendor-Managed Inventories

Another value-added MRO cost saving may lie with vendor-managed inventory, where the supplier determines balances on hand, often using a hand-held computer, a bar code reader or similar device. A requisition for replenishment is generated. The end user may or may not require requisition approval. The vendor then prepares the order, delivers it and places the merchandise in stock. This technique is also referred to as bin management. The supplier relieves the customer of these labor-intensive tasks, thereby affording savings in manpower.

Inventory Transfer and Disposal

Most organizations lack the knowledge, staff or means to effectively and consistently identify and dispose of non-working MRO inventory. The problem is outside their core competency. At the same time, suppliers who possess this competence are generally reluctant to offer assistance because it is a thankless job—unappreciated by the customer, time-consuming, difficult and unprofitable. And, pragmatically, the recovery of inventory investment may cannibalize new sales for the

manufacturer or distributor. This is a major reason why billions of dollars of surplus and dead inventories molder in countless storerooms. Moreover, most operating managers do not consider non-working MRO inventory a responsibility and are reluctant to assign any manpower to the task—not even to ship them to another company site.

The cash flow improvement can be large, but an extraordinary effort may be required. Here is one case study featuring dramatic results.

A vendor negotiated an MRO supply agreement covering 35 facilities in North America owned by a European manufacturer of electrical products. The contract required the supplier to identify and dispose of non-working MRO inventory. As the database was developed across the country, the vendor eventually identified about $12 million in surplus and inactive commodities. However, the plant personnel were reluctant to support the program, considering it a diversion from their key duties.

The supplier created a new "warehouse" in its computer system to track this large inventory. The surplus merchandise was transferred to a central warehouse location and credited to its plant of origin as the owner in the supplier's computer system. (Note: This became an off-site asset ledger of the client company.)

The supplier then went through an iterative process to empty the central depot. First, it took all merchantable product, consolidated by brand, and requested an inventory return for credit (with or without

restocking charges). Because the full purchase volume was now identified in the database, the manufacturers were under considerable inducement to cooperate, and their response was excellent. Next, the integrator offered the remaining merchantable product to distributors, dealers and specialists throughout the country, at an attractive discount and payment terms from the manufacturers' current prices. Many of these resellers were able to resell the products and book a profit before even paying for the merchandise.

In the meantime, all customer plant MRO purchase orders were first compared to the central inventory. If the same or a like item was available, it was shipped to the ordering plant at full current price and credited to the originating plant at 50 percent of the current price. (Note: There was no paperwork involved; the supplier made these debits and credits electronically and reported them on the monthly reconciliation of the central inventory.) Finally, the bulk of the remaining merchandise was donated to a non-profit clearinghouse for government agencies, schools, universities, hospitals and the like, resulting in a charitable tax-deductible contribution. The merchandise that could not be donated was sold to a scrap dealer. Figure 6-9 shows the financial impact of the program over a period of three years.

Figure 6-9
Disposal Program for Non-Working MRO Inventory

Original Amount of Non-Working Inventory		$12,000,000
Returns to Manufacturers—Net Realized Amount		(3,800,000)
	Sub-Total	8,200,000
Sold Through Other Channels: Dealers, Specialists, Distributors		(2,600,000)
	Sub-Total	$ 5,600,000
Resold Within the Client Company		(1,800,000)
	Sub-Total	$ 3,800,000
Donated to Non-Profit for Tax Deduction (2,800,000 x 40 %)		(1,120,000)
	Sub-Total	$ 2,680,000
Sold for Scrap Value		(500,000)
Net Cash Recovery To Customer		$ 9,820,000
Net Profit To Supplier		$ 1,800,000

Notes:

1) The supplier's costs to implement the program were offset by surcharges on factory returns, distributor sales, etc.

2) The total recovery of customer and supplier almost equals the original cost of the non-working inventory. This high recovery rate was due to the low costs of the original inventory compared to current prices.

3) Each plant received financial credit for its portion of the disposed goods, creating more incentives to support on-going improvement efforts.

Benchmarking Best Practices and Standards

Throughout our personal lives, as well as our professional ones, we judge things relative to something else—a standard of comparison. Something is fast or slow, tall or short, expensive or inexpensive, easy or difficult, light or heavy, strong or weak only in comparison to something else. Without such standards of comparison, or benchmarks, it would be most difficult to make meaningful judgments or decisions; it would be like functioning in a vacuum.

Yet most organizations operate their MRO procurement activities with no standards or benchmarks to determine their effectiveness. They may occasionally compare prices for some purchased items, but as we have already demonstrated throughout this book, invoice price is a small component of the MRO cost paradigm.

In the past two decades, many enterprises have sought certification of their business practices through ISO or similar programs. Many mistakenly believe that these "seals of approval" assure the existence of best practices. They don't. They merely attest to documentation and repetition of current practices, good or bad. Time and again, we have seen different facilities within an ISO-certified company, or even different departments within a given plant, perform the same task or activity with completely different methods or materials. Obviously, they cannot all be using best practices.

The status quo organization tends to believe that it already employs best practices and does not seek benchmark comparisons. The innovative enterprise assumes that there are better ways to do things and constantly seeks the better way.

A professional supplier can be invaluable in providing MRO benchmark comparisons from his own experiences, from within your organization, from within your industry, from within general industry and from his supplier base.

Figures 6-10 and 6-11 show examples of MRO benchmarks within a national steel company. The first exhibit compares cost per ton for operating and maintenance supplies among seven plants in one division. Each plant has similar operations, except Plant E. At the outset of the program, MRO supplies ranged from $2.26 per ton to $7.59, excluding Plant E. There were many reasons for this broad range.

The supplier methodically determined the differences and applied best practices across the entire division. At the end of three years, there was still a wide divergence in cost per ton among the plants. But the overall result was a 47 percent reduction division-wide in MRO supplies' cost per ton.

Having proved the efficacy of the program in one division, the steel company management sought to extend it to the entire company.

Figure 6-10
Supplies Cost / Ton Furnished Under Integrated Supply

Plant	1996 Annual Supply Spend	1996 Tons	1996 Supply Spend/Ton	1999 Annual Supply Spend	1999 Tons Ann.	1999 Supply Spend/ Ton	Change/Ton
A	$395,777	52,162	$7.59	$293,981	78,535	$ 3.74	-59.90%
B	$103,227	36,721	$2.81	$50,556	36,703	$ 1.38	-50.90%
C	$345,047	71,048	$4.86	$95,591	68,539	$1.40	-71.20%
D	$110,227	48,808	$2.26	$58,596	64,507	$0.91	-59.70%
E	$418,055	14,375	$29.08	$300,628	15,180	$19.80	-31.90%
F	$133,737	48,521	$2.76	$107,542	53,230	$ 2.02	-26.80%
G	$95,058	32,903	$2.89	$79,591	38,089	$ 2.09	-27.70%
DIV /TOT	$1,601,178	304,538	$5.26	$986,485	354,764	$ 2.78	-47.13%

Figure 6-11 shows the graphic effect of using the Eastern division as a benchmark to sell the program to the much larger Central division. It is difficult to mount a rational objection to improvement efforts when the benchmarks are both stark and objective.

Value Engineering and Analysis

Imagine that you could employ top-notch experienced consultants to regularly evaluate your MRO procurement activities and recommend improvements—all without spending a dime. Sound fanciful? It isn't. These resources are available to you through the suppliers that sell to you, and those that don't but would like to do so. They are anxious to provide more value to you to strengthen their relationship and earn more of your business. Unfortunately, too few organizations permit their key suppliers to make the contribution of which they are capable and even fewer ask for more value-added efforts.

In any sizeable organization, there are hundreds of opportunities every day for vendors to identify and implement cost savings. Here is a simple example, drawn from the national commercial baker cited previously.

The supplier and chief maintenance engineer were touring the plant when chaos broke loose. The production line stopped, the paging system came alive and the engineer raced to the site of the problem. As the engineer later explained to the supplier, each line had automatic

Figure 6-11
Cost/Ton Analysis
East & Central Divs.

Operating & Maintenance Supplies
(Codes 6011 land 6012)

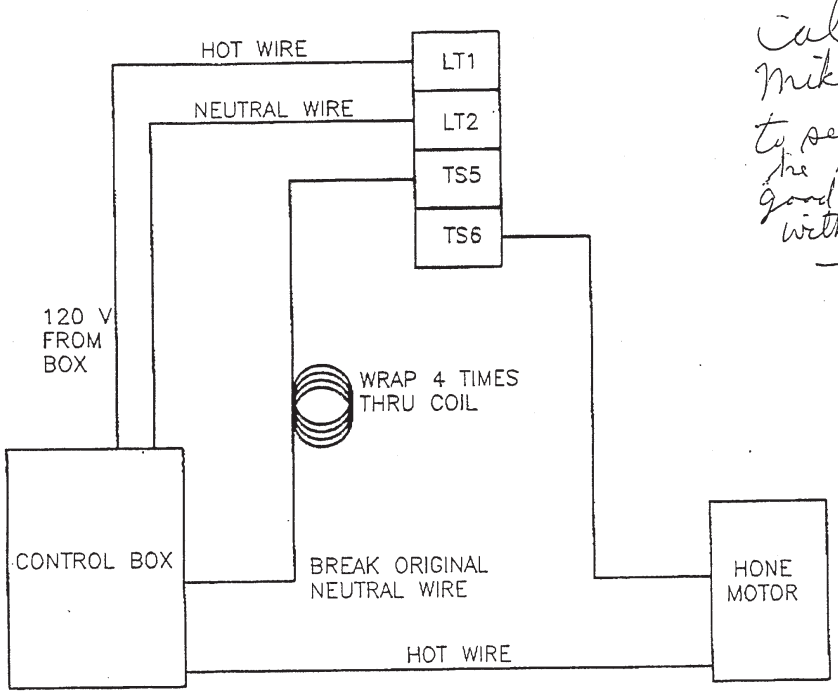
East				Central
1997	1998		1998 Reported	1998 Adjusted
365.7M	353.5M	TONS	1,034.3M	1,034.3M
3.458MM	3.257MM	SPEND	12.410MM	13.714MM
$9.46	$9.21	COST/TON	$12.00	$13.26
	($.40)	Potential Savings/Ton	($3.19)	($4.45)
	$141,400	Potential Savings	$3,299,417	$4,602,635

hones, driven by a special fractional hp motor, to keep the slicing blades sharpened. Gluten from the baked goods builds up on the blades like glue and eventually creates enough torque (back force) on the hones to freeze the system and burn out the motor. On this particular occasion, there were no replacement motors on hand or locally available and the engineer was desperate. The supplier was able to find the motor at the manufacturer who provided them to the OEM and had it air expressed the same day.

The vendor learned that the problem occurred repeatedly in bakeries across the company. He contacted the president and the chief design engineer at the original equipment manufacturer for their recommendations. He was informed that the problem had been solved at another company bakery by installing (at no charge) a simple overload relay circuit to sense excessive resistance on the hone drive, shut down the system, activate an alarm and permit the operators to clean off the blades and resume production (See Figure 6-12).

Most enterprises have no mechanism to communicate and implement best practices throughout the organization, so they keep reinventing the wheel. However, alert and motivated suppliers can fill a crucial role to fill this gap, particularly in an indirect function such as MRO procurement and practices.

Figure 6-12
Overload Relay Circuit Automated Hones



Call Mike Craig to see if he has good experience with this.

Management Information Systems

As noted in chapter III, many companies have failed to develop a meaningful database for MRO procurement because it is not a high priority. The same thing is true of an MRO management information system. This is not surprising because a good management information system is dependent upon the database.

There is an old expression that "if you can measure it, you can control it." But to measure it, you require an information system.

Many procurement managers do not know the amount spent on MRO materials; who makes up their MRO vendor base; what the trend is in MRO spending; how much they spend per purchase order; or whether their spend on MRO purchases is high, low or just about right. This lack of knowledge would be unacceptable in the area of raw materials, for example. But it is common when it comes to MRO.

There are some straightforward solutions to improving MRO information systems. One approach is to determine what you want to measure, and ask your suppliers to provide the information to you periodically (monthly or quarterly) in hard copy, E-mail or on disc, as you prefer. The chances are that your suppliers have all or most of the information that you need on their own computer systems.

There are well-designed P.C.-based systems on the market, with excellent and comprehensive software for MRO applications in

Microsoft, Macintosh or Linux programs. They are inexpensive and easily installed. They can operate as stand-alone systems in purchasing or the storeroom, or integrate with the central processing system.

Conclusions

We have presented, in this chapter, seven areas in which you can obtain substantial soft dollar savings in MRO procurement. There are numerous other soft dollar savings techniques that we could discuss including bar coding, purchase (credit) cards, storeroom management, vending machines, training programs, e-commerce, electronic customized catalogs and others. But they are all variations on the same theme: use your best suppliers to take you to the next level and beyond.

Many purchasing professionals consider soft dollar savings less desirable than hard dollar savings—probably because they are harder to measure or less certain—but we do not. First, a dollar is a dollar is a dollar, regardless of source. Moreover, potential cash flow and other improvements in this area may very well exceed hard dollar savings potential. And finally, all of these ideas can be implemented at little or no cost by utilizing your supplier-partners.

IDEAS FOR OUR ORGANIZATION

QUESTIONS AND COMMENTS FOR JOEL ROTH
(jroth@the20percentsolution.com)

VII SELLING THE PROGRAM

The greatest impediment to successful MRO procurement cost reduction is not technique or technology, which are relatively straightforward. Rather, the big obstacle is resistance or indifference within your organization. (Note: There may be some initial resistance from suppliers who fear a loss of business, but this is relatively easy to overcome.)

There are numerous reasons why people would resist a program that can provide such substantial benefits.

- They fear that it will increase their workload or make their job more difficult.
- It is regarded as an encroachment on their "turf".
- It is seen as a disruption of their present relationships.
- They do not believe that the benefits are worth the effort.
- They think that they may look bad.
- It represents unwelcome change.
- It was "not invented here".

Regardless of where the resistance is coming from, or why, the program must be sold to the organization to have a chance of succeeding. Which means that you may need to develop your selling skills. The essence of selling is to learn what your internal customer objectives are, and then find a way to help achieve them. To that end, you might consider surveying the needs or objectives of your customers as shown in Figure 7-1. Obviously, the most common or predominant goals should be incorporated into the program.

Another way to gain acceptance and support for the MRO cost reduction effort is to acquire influential allies who will co-champion the program so that it is not regarded as a parochial interest of one department, such as purchasing. Among the biggest supporters will often be the chief financial officer for two reasons—cost reduction is usually considered a part of the accounting/finance portfolio and a major clerical reduction in accounting can result from streamlining MRO activities.

A third way to sell the program is to create a team represented by several functional areas –such as maintenance, purchasing, industrial engineering and accounting --or representatives from different plants or divisions. In this manner, the program becomes a company-wide effort with numerous vested interests, rather than the pet project of one department or individual.

Figure 7-1
MRO Organization Survey

From: Fred Jones, Purchasing Manager

To: Manufacturing Manager; Shipping/Receiving Supervisor; Maintenance Planner; Storekeeper; Finance Manager; Controller; Safety Engineer; Quality Assurance; Plant Engineer; Industrial Engineer; Design Engineering; Purchasing Supervisor; Cost Analyst.

C.C. V.P. Finance; V.P. Materials Management; V.P. Manufacturing; Exec. V.P.

Subject: Proposed Improvements In Indirect Materials Procurement.

We are reviewing our MROP procurement process to identify potential for cost reduction and service improvement. To incorporate your objectives into our decision-making, please indicate which of the following areas are most important to you by marking one, two and three.

- Reduction of costs.
- Reduction of inventory.
- Reduction of stock-outs.
- Reduction of back-orders.
- Faster deliveries.
- Higher quality.
- Better management information.
- Less paperwork.
- Faster order handling.
- More product and application training.
- Consolidation of products or specifications.
- More technical support or problem solving.
- More information about new products and technology.
- More (or fewer) salesperson calls.
- Other (specify)_____

A fourth technique for selling MRO cost reduction is to document the savings identified or obtained in a particular area of the enterprise and to use this as a sales tool to project the potential cost reductions in other areas using similar standards or benchmarks (refer to Figure 6-11).

Finally, there is the opportunity to communicate directly with fellow managers and supervisors—one-on-one, in small groups or otherwise—to portray the program's advantages to them and the entire organization. The rest of this chapter is a brief overview of this approach.

PURCHASING

The most obvious advantage of an MROP procurement cost reduction program is the opportunity to sharply reduce departmental workload while improving cost effectiveness. Moreover, there should be a significant change in job responsibilities from routine, repetitive drudgery, such as requesting multiple quotes, to more creative and professional efforts like qualifying suppliers or evaluating program accomplishments. Also, the program is likely to earn the department accolades and rewards for taking an initiative that yields substantial unexpected benefits to the entire organization

PRODUCTION

Advantages to the production department might include favorable budgetary variances and cost trends for operating and production supplies and equipment, as well as reduction or elimination of stock-outs. Another area of potential gain might be the introduction of more training, problem-solving, application engineering and quality improvements through better utilization of supplier know-how.

SHIPPING/RECEIVING

This function is not usually identified with MROP procurement. However, opportunities abound for reduction of costs for materials and equipment such as film, containers, strapping, tape and packaging equipment, along with introduction to more efficient or advanced practices. Additionally, volume of receipts and paperwork may be sharply reduced by an overall approach to MRO procurement.

MAINTENANCE

The maintenance department is directly impacted, favorably or not, by MRO procurement practices. Most obvious is the availability of tools, equipment and supplies when needed—despite an inherent difficulty in predicting usage or need. Second is the cost of MRO supplies and the potential reduction in the number of SKU's to get the job done. Finally, there are substantial opportunities to improve

departmental performance in predicting, diagnosing and resolving maintenance issues with more help provided by suppliers in trouble-shooting and training.

STORESKEEPING

This is the nexus where MRO procurement comes together. It is also a function that is often outsourced to integrated suppliers. All of the storekeeping activities including record-keeping and data input, inventory management and control, proliferation or reduction of SKU's, receipts and disbursements of product are directly impacted by MRO procurement system changes.

FINANCE

As will be shown in Chapter IX, parameters such as cash flow, cost reduction and inventory investment will be materially influenced by MRO procurement cost reduction efforts. Accordingly, such efforts will directly affect the financial management of the enterprise.

ACCOUNTING

We have shown elsewhere in this book the ways in which MRO purchasing practices can affect the accuracy of accounting records, such as the proper accounts to be charged, the volume of accounting transactions (including accounts payable and cash disbursements) and

the workload and size of accounting staff. Purchasing and MRO billing practices may also be influenced by internal financial controls.

INFORMATION TECHNOLOGY/DATA PROCESSING

The availability, construction and maintenance of a useful MRO database is normally the responsibility of the I.T. function. Moreover, the data management activity and the generation of the necessary reporting will often require the assistance of I.T. staff.

SAFETY

The safety engineering function is responsible for safe and legal transportation of hazardous materials (and MSDS sheets for such) and adherence to current OSHA and state safety standards, use of products properly meeting such safety standards, safe intra- company practices and procedures and minimization of costs to achieve these objectives. A sound MRO procurement program can facilitate these efforts. Common safety- related items in an MRO market basket, include gloves, respirators, masks, earplugs, safety glasses, work boots, rainwear, fall protection equipment, hard hats, disposable protective clothing or flashlights.

QUALITY ASSURANCE

MRO procurement generally encompasses sourcing and purchasing of the supplies and equipment utilized in quality control activities—everything from graph and chart paper to chemicals and reagents to height gages and dial calipers. MRO partners can provide technical support and training on best practices, latest equipment and techniques, consolidated pricing and standardization of practices to conform to current quality control protocols.

INDUSTRIAL (METHODS) ENGINEERING

Chapters V and VI discuss at length a number of cost reduction avenues to identify and achieve both hard dollar and soft dollar savings. Many of these approaches will involve industrial engineering, methods engineering or value engineering and analysis disciplines. Logically, the industrial engineering department should be informed or deeply involved with the MRO procurement cost reduction tasks.

PLANT ENGINEERING

MRO procurement typically covers the sourcing and buying needs of plant engineering ranging from janitorial and sanitary supplies to building and grounds maintenance to rack, shelving and material handling equipment. This function depends upon MRO

sourcing for repetitive perishable supplies as well as spot-buy or project procurement.

DESIGN (PRODUCT) ENGINEERING

Design engineering is often overlooked as a beneficiary of cost-effective MRO procurement. However, most design engineering staffs are overwhelmed in keeping up with design and production timetables, while remaining current on latest design practices, materials, methods and applications. What better technical support and input— as well as sources and samples of products, materials and components—than the MROP suppliers who are highly knowledgeable in the availability and use of these products?

In essence, such vendors can provide a large-scale, diverse and no-cost design consulting service to the organization, if properly utilized. Here are some examples.

- What are the best value abrasives for grinding a particular profile on a bearing race?
- What sensors should be used in a new alarm system?
- What motors will be most durable in a new machine application?
- What wiring is available for harsh operating conditions?
- How will maintenance personnel be able to access a new piece of equipment? With what tools?

CONCLUSION

The MROP procurement system is a neural network that affects, and is affected by, every functional area of the organization. Accordingly, a strong MRO procurement system can positively impact virtually all departments, which means that everyone has a stake in the outcome.

IDEAS FOR OUR ORGANIZATION

QUESTIONS AND COMMENTS FOR JOEL ROTH
(jroth@the20percentsolution.com)

VIII DOCUMENTING SAVINGS

A significant problem faced by most organizations that seek to implement a far-reaching, aggressive MROP cost reduction program is the difficulty in measuring the total cost impact. This leads to skepticism and a lack of commitment and support. It also, impedes sound decision-making due to inadequate data. After all, how do you determine whether one supplier or solution provides greater value than another without the ability to measure results?

In recent years, considerable effort has been expended by consultants, vendors, professional organizations and large companies to better measure and document the total cost impact of various MRO-related activities. For instance, manufacturers have developed product calculators to measure the savings attainable by product substitution. Distributors use these calculators, as well as standardized worksheets to document and report savings in hard and soft dollars, including price reductions, value-added services and product substitutions. Customers

are developing new tools to track, compare and select suppliers who can best reduce total cost.

ITC Transmissions, a utility company, is a perfect example of this. They require their suppliers to log on to their system and report every solution that results in cost savings, improved safety and improved customer reliability. The software they use, SourcingStrat, allows every solution that is entered to be documented in an auditable format. This ability to have auditable results is critical because they have to prove lowest total cost to the utility commission.

The result is over $30 million in documented savings. While this $30 million is far more than any price focused savings they could achieve, the solutions provided by their suppliers also resulted in a number of other benefits that are equally as important as cost savings: a significant reduction in the number and duration of outages (loss of electricity to their customers) and improved safety.

ITC Transmission is not alone in achieving these additional benefits. In fact, utilizing the supplier's help in accomplishing the organizational objectives (collaboration leading to innovation) often allows companies to achieve their goals and reduce their operating costs. This is exactly what happened with British Petroleum (BP).

In an effort to reduce fugitive emission and improve upon their environmental goals, BP worked with suppliers to reduce the leaks in their plants. Fugitive emissions were drastically cut, but a side benefit

was millions of dollars in reduced power consumption and increased output of the product.

Accomplishing organizational goals is often as compelling a reason for supplier collaboration as achieving cost reductions. Key areas beyond cost savings where companies focus on involving the supplier include:

1. Production enhancements and project/product development
2. Organizational goals such as: environmental impact, customer satisfaction, cash flow, and operational efficiencies
3. Reduced Risk: including safety and business disruptions
4. Improved performance

While the benefits can be accomplished whether you document the value provided or not, failure to measure and document the benefits a supplier provides may result in your organization making financially based decisions without supporting data. This means that you may be paying too much for the solutions or not getting enough when you select the lower priced supplier. Measuring, tracking and selecting suppliers on a Total Cost basis are critical. Remember: if you cannot measure Total Cost, it becomes very difficult to control it. There are a number of different methods companies can utilize to document the

value provided by a solution. Most of these methods can be broken down into three formats:

1. Memo Format
2. Worksheets
3. Questionnaire Calculators

The first two of these can be either paper based or some form of software based tools. However, the Questionnaire Calculator is almost always a program of some sort. Below, each of the three methods will be discussed and an example of a paper based and software based solution using a software program called SourcingStrat will be illustrated.

Memo Format

This is the simplest method to use, as it only requires the person writing up the solution to describe what took place and then assign a value. While simple and easy to document, it does limit the effectiveness in "proving" the value added by the solution, as it does not provide any equations or calculations for determining the Total Cost impact.

Companies often use this method because anyone in the organization can quickly and easily document a solution. The benefit is a higher rate of submission for both potential solutions and solutions that were provided.

However, for companies concerned that the solution actually achieves the savings estimated, the person writing up the solution would need to make the write- up very detailed or move to a more comprehensive format. The increased detail needed to explain the savings often negates the primary benefit of this method being easier (now it can take a great deal of time to write up the solution).

Because of this, companies that truly want to see the total cost impact should only use this for simple solutions such as emergency deliveries, simple price changes, training or other solutions that require little or no calculations. In writing up a solution there needs to be three key areas that the solution addresses:

1. Situation: Explain why there is a need for the solution. People throughout the customer's organization have to see the need for the solution in order for it to be seen as valuable.
2. Solution: Explain the "value added" actions the supplier took to meet the customer's need beyond simply providing the asked for product or service. What action did the supplier take that solved the need and resulted in a reduced operating cost?
3. Results: Outline the benefits provided by the solution. The benefits should include any enhanced customer satisfaction (the improvements to the customer's customer), improvements in production, reduced operating costs, reduced risks, and objectives achieved.

A fourth section can be added that outlines the details. Details need to be kept to a minimum in the first three sections. Generally less than three sentences for each section should suffice. The idea is to keep it hard hitting, but enough to let anyone reading the first sections to understand the need, solution and the benefits. An example of a Memo Format report is shown in Figure 8-1.

One of the toughest issues in measuring the value provided is what to include as a "real" savings. Some companies would not look at an emergency delivery as a "value added" solution. After all, suppliers are supposed to provide this type of support. While this may be true, not all suppliers are created equal. Some would wait and get it the next day instead of driving after normal business hours, and others might have it hot shot in the next day. In this case a delay would have resulted in downtime. So the "real" savings is the lack of downtime the supplier's actions helped to forestall. If the downtime was not critical, the savings might only be $50 to $500 dollars (depending on how the supplier procured the part), and not the $8,000 shown in this example.

Worksheets

Worksheets can provide a solid platform for measuring and recording the Total Cost impact provided by various solutions. Typically these worksheets come pre-loaded with calculations around four primary cost drivers:

Figure 8-1
Memo Format

Customer: ABC Manufacturing **Date**: 2 / 12 / 20xx

Division/Plant: Des Plaines, IL **Primary Contact**: Harry Hardrocks

Commodity/Service Category: Power Transmission

Event: Emergency Delivery **Descriptor**: Line 3 went down

Description of Solution (Situation, Solution, Results):

Situation:
At 4:00 PM Monday, the Line 3 processor started to over heat and maintenance was called in to determine why. Upon inspection it was determined that a critical bearing had failed and needed to be replace. The bearing that was needed was not in stock and we needed to replace it to avoid downtime for the morning shift.

Solution:
Bearings R Us was called at 6;00 PM, but they did not have this bearing in stock at the local warehouse. They drove to another location 3 hours away to get it and had it to us by 1:00 AM. We were able to install it without an delay in production.

Results:
- No production delays
- No premium freight charges

Notes: production delays on Line 3 cost us $2,000 per hour.

Estimated dollar savings to customer: $8,000

1. Material/service expenditures
2. Freight
3. Inventory
4. Processes (people)

These four are the most commonly recorded savings categories. However, there is one profit category that is left out in these worksheets: revenue enhancements (reduced downtime, increased production rates, reduced rejected output...). Another factor that differentiates worksheets is the level of detail allowed. This can include the use of multiple lines for each of the savings categories, but also attributes such as hard/soft savings and on-going/one-time savings. Some companies create a unique worksheet for each solution in order to provide the means to capture specific savings involved in a given solution.

Figure 8-2 shows a simple worksheet focused on Vendor Managed Inventory (VMI). This is a service some suppliers provide their customers that entails the supplier providing support in managing the inventory at the customer's location. The only reason a customer should allow for this service is when the supplier can provide greater inventory control and management than the customer can currently do himself.

With MRO supplies this is a fairly common need for customers. Their operating systems often do not support MRO purchases in a way

Figure 8-2
Standard Worksheet

Standard Worksheet

Customer: ABC Manufacturing **Date**: 2 / 12 / 20xx

Division/Plant: Des Plaines, IL **Primary Contact**: Harry Hardrocks

Commodity/Service Category: Pipe, Valves and fittings

Event: Vendor Managed Inventory (VMI) **Descriptor**: High turn/usage items

Description of Solution (Situation, Solution, Results):

Situation: Software system not designed for MRO products. Result is less than 1 turn annually on the inventory and still experiencing a number of stock outs, and considerable time to manage/order supplies.

Solution: Supplier offered to implement a VMI program. They provide the software and expertise, and we set min/max levels together on each item.

Results:
- Elimination of stockouts
- 33% reduction in inventory
- Eliminated significant number of express shipments and delivery charges
- Reduced inventory management, ordering and invoicing time

Material Cost Savings: (_____ - _____) * _____ = _____

Current Price; New Price (or 0 if no change); Annual Usage (or quantities reduced); Annual Material Cost Savings

Freight Savings: (*$65* * *36*) = *$2,340*

Freight Reduction; Number of Shipments Impacted; Annual Freight Savings

Process Savings: (*1,500* - *0*) * *$32* = *$48,000*

Past Man Hours; New Man Hours; Wage Rate; Annual Process Savings

Inventory Savings: (*$25,000* * *18%*) = *$4,500*

Amount ($) Reduced; Carrying Cost (%); Annual Inventory Savings

Other Savings: $_____

Total Savings: ***$54,840***

that keeps inventory low and eliminates stock-outs, which can result in downtime.

Using VMI, Freight Savings can be achieved through two issues: eliminating emergency orders due to stock outs and/or consolidated freight that reduces the number of deliveries for which the customer pays.

Process savings can be accomplished in part because the supplier physically manages the supplies, shelf counts, stocking and receiving. But in addition to managing the inventory they can help place the order resulting in saving in purchasing time, and reduce the number of orders thereby saving accounts payable time. In this case the combined time of all of these activities was estimated at 1,500 hours.

Inventory savings includes two components—the one-time savings from eliminating non-working inventory balances and the continuing savings in inventory carrying cost. There are a number of costs that go into determining the carrying cost, including:

1. Cost of money: usually the rate the customer pays for borrowing money: what percentage interest do they pay on their debts or what is the current market rate?
2. Insurance: generally a minor cost, but most companies pay for insurance based on total assets. As the amount of total assets decreases, so can insurance premiums.

3. Taxes: not applicable in all states, but many states charge a tax on "property". Reducing inventory reduces the taxable property for the customer.
4. Shrinkage: missing inventory.
5. Spoilage: products in inventory that became unusable.
6. Obsolescence: products that are no longer needed (utilized).
7. Storage: cost for housing the products.
8. Handling: personnel costs to maintain and manage the products.

When added together most companies will find these to be costing them somewhere between 13% and 35% of the value of their inventory annually. So if the supplier helped their customer reduce $25,000 in inventory and there was an 18% cost for carrying this inventory, the savings to the customer would be $4,500 annually.

In addition to standard worksheets, companies can also create custom worksheets that have the user focus on specific cost drivers (reminders of the costs to consider when measuring a solution). You can create these worksheets around any number of cost drivers you determine important for your company, as shown in Figure 8-3.

The key criteria in selecting a standard versus a custom worksheet are the degree of documentation, or put more simply: the level of "auditability". For companies concerned about Sarbanes-Oxley or are involved in Six Sigma, there is a greater need for auditability or proof

Figure 8-3
Custom Worksheet

Contacts | Documentation Guide | Value Added

Value Added

- Level 1
- Level 2
- Level 3
- Impact Diagram
- ABC Manufacturing: Worksheet
- Worksheet by Event

Events Documented

Add/Edit Value Added - Level 3

Supplier	ABC Manufacturing	Start Date	11/19/2007
Commodity/Service Group	Power Transmission	Status	Savings Accepted
Location	Consumer Products	Date Changed	11/19/2007
Event	VMI (Vendor Managed Inventory) Add/Edit	Supplier Contact	Ben Fisher: Sales Manage

Describe the Benefits to the Customer

```
Situation: Software system not designed for MRO products.  Result is less
than 1 turn annually on the inventory and still experiencing a number of
stock outs, and considerable time to manage/order supplies.

Solution: Supplier offered to implement a VMI program.  They provide the
software and expertise, and we set min/max levels together on each item.

Results:
 Elimination of stockouts
 33% reduction in inventory
 Eliminated significant number of express shipments and delivery charges
 Reduced inventory management, ordering and invoicing time
```

Revenue Enhancements Add Remove

TCO Component	(A)Annual Unit Improvement	(B)Unit Value	(C)Increased Cost	Profit Improvement A*(B-C)	Dollar Type (Hard/Soft)	One Time/ On Going	Used/ Not Used
Reduce Downtime	0.0000	$0.0000	$0.0000	$0.00	Hard Dollar	On Going	Used

Asset Improvements Add Remove

TCO Component	(A)Quantities Reduced	(B)Asset Value	(C)Possession Cost(%)	Profit Improvement (A*B)*C	Dollar Type (Hard/Soft)	One Time/ On Going	Used
Inventory	0.2000	$125,000.0000	18.0000%	$4,500.00	Hard Dollar	On Going	Used
Storage Equipment	0.0000	$0.0000	0.0000%	$0.00	Hard Dollar	On Going	Used
Storage Facilities	0.0000	$0.0000	0.0000%	$0.00	Hard Dollar	On Going	Used

Expenditures Reductions Add Remove

TCO Component	(A) Annual Quantities Impacted	(B) Price Differences	Annual Savings (A*B)	Dollar Type (Hard/Soft)	One Time/ On Going	Used
Express Freight	36.0000	$65.0000	$2,340.00	Hard Dollar	On Going	Used
Freight	0.0000	$0.0000	$0.00	Hard Dollar	On Going	Used

Process Improvements Add Remove

TCO Component	(A)Past Process Cost	(B) Frequency of Past Use	(C) Current Process Cost	(D) Frequency of Current Use	Process Savings (A*B)-(C*D)	Dollar Type (Hard/Soft)	One Time/ On Going	Used
Inventory Management	$32.0000	1,500.0000	$0.0000	0.0000	$48,000.00	Hard Dollar	On Going	Used
Order Entry Process	$0.0000	0.0000	$0.0000	0.0000	$0.00	Hard Dollar	On Going	Used
Payment Process	$0.0000	0.0000	$0.0000	0.0000	$0.00	Hard Dollar	On Going	Used

Services Provided Add Remove

TCO Component	(A) Value of Services (or Training)	(B) Time Involved (or People Trained)	Value Added (A*B)	Dollar Type (Hard/Soft)	One Time/ On Going	Used

Other Savings Add Remove

TCO Component	Value of Saving	Dollar Type (Hard/Soft)	One Time/ On Going	Used

Total Profit Improvement $54,840.00

of savings. Not only do some worksheets provide specific cost drivers to consider, the one above provides drill down reviews to determine "how" the value was calculated. The example in the next section will show you this detail.

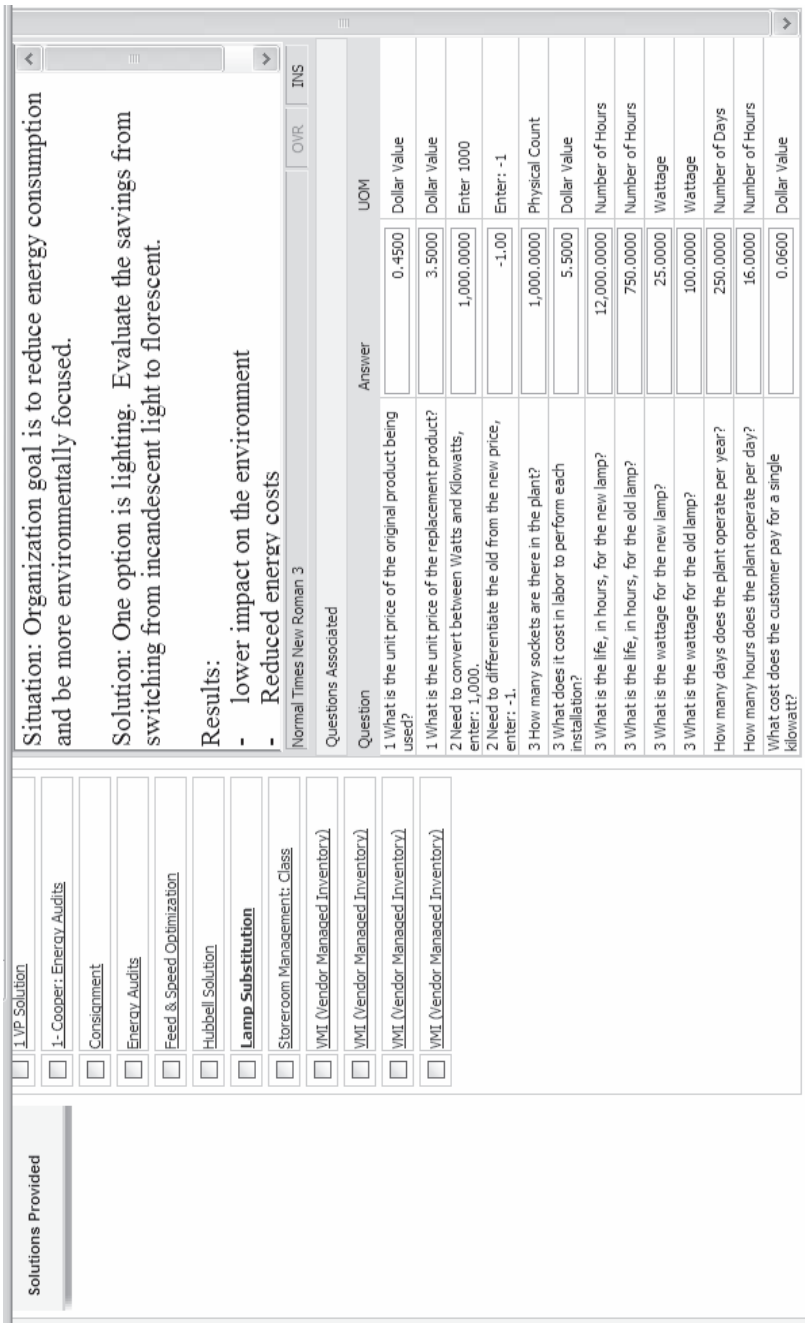
Questionnaire Calculators

Calculators are generally very specific in measuring a single solution, and are almost always in the form of a software program. The program can be something as basic as an Excel spreadsheet, or as robust as a stand-alone program. Unfortunately, most of these calculators are not tied into a database to be able to compare suppliers and product/ services across a wide range of solutions. So most companies end up doing double entry: once to determine the savings and a second time to put it into some form of a report across all solutions (discussed more fully in the next section).

The calculator shown in Figure 8-4 was developed in SourcingStrat. SourcingStrat, and its sister program SalesStrat, allow companies to develop questionnaires around both product and services solutions. In the case below, the calculator is used to determine the value of switching from the common, or incandescent, light bulb to either a Halogen or Florescent light.

The calculator is set up to ask easy- to- answer questions. Once the answers are entered, click on a save button and the solution is

Figure 8-4
SourcingStrat Questionnaire



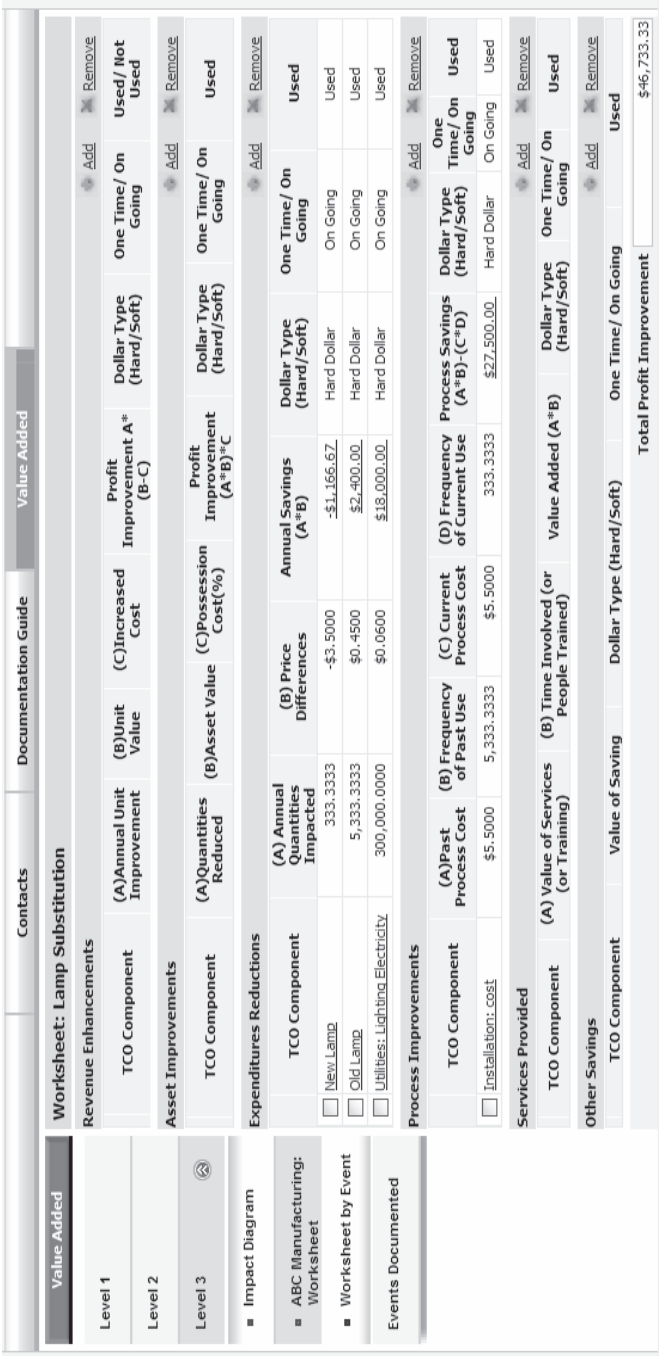
automatically documented in the custom worksheet. The worksheet shows the savings from the answers provided in Figure 8-5.

The savings for switching to florescent lighting amounts to $46,733.33. Most companies realize there will be savings, but would question how this savings was achieved. As such, both increased costs and savings need to be included. In the example above the increased cost (or negative savings) for the new lamp is included: $1,166.67. This number is shown with a negative sign to show that it is an increase cost the customer must pay for and is subtracted from the savings other wised achieved. Since the old lamp will no longer be purchased, the entire annual spend is shown as a savings.

Because energy savings is the most critical in this example, based on the goals of the organization explained in the write up, we will drill down into how this was calculated. By clicking on the $18,000 in energy savings we can bring up the detail that shows how the questions and answers given helped to determine the savings in energy (see Figure 8-6).

To help understand the information shown, we will start with the top line (formula). By multiplying the operating days with the operating hours per day, we determine the annual operating hours (how long the lights are on for). We then multiply by the number of light sockets to determine the annual hours of consumption. This is then multiplied by the difference of the old wattage to new wattage to

Figure 8-5
SourcingStrat Calculator



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Value Added
- Level 1
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- Impact Diagram
- ABC Manufacturing: Worksheet
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Worksheet: Lamp Substitution

Revenue Enhancements (Add / Remove)

TCO Component	(A)Annual Unit Improvement	(B)Unit Value	(C)Increased Cost	Profit Improvement A*(B-C)	Dollar Type (Hard/Soft)	One Time/ On Going	Used/ Not Used

Asset Improvements (Add / Remove)

TCO Component	(A)Quantities Reduced	(B)Asset Value	(C)Possession Cost(%)	Profit Improvement (A*B)*C	Dollar Type (Hard/Soft)	One Time/ On Going	Used

Expenditures Reductions (Add / Remove)

TCO Component	(A) Annual Quantities Impacted	(B) Price Differences	Annual Savings (A*B)	Dollar Type (Hard/Soft)	One Time/ On Going	Used
New Lamp	333.3333	-$3.5000	-$1,166.67	Hard Dollar	On Going	Used
Old Lamp	5,333.3333	$0.4500	$2,400.00	Hard Dollar	On Going	Used
Utilities: Lighting Electricity	300,000.0000	$0.0600	$18,000.00	Hard Dollar	On Going	Used

Process Improvements (Add / Remove)

TCO Component	(A)Past Process Cost	(B) Frequency of Past Use	(C) Current Process Cost	(D) Frequency of Current Use	Process Savings (A*B)-((C*D)	Dollar Type (Hard/Soft)	One Time/ On Going	Used
Installation: cost	$5.5000	5,333.3333	$5.5000	333.3333	$27,500.00	Hard Dollar	On Going	Used

Services Provided (Add / Remove)

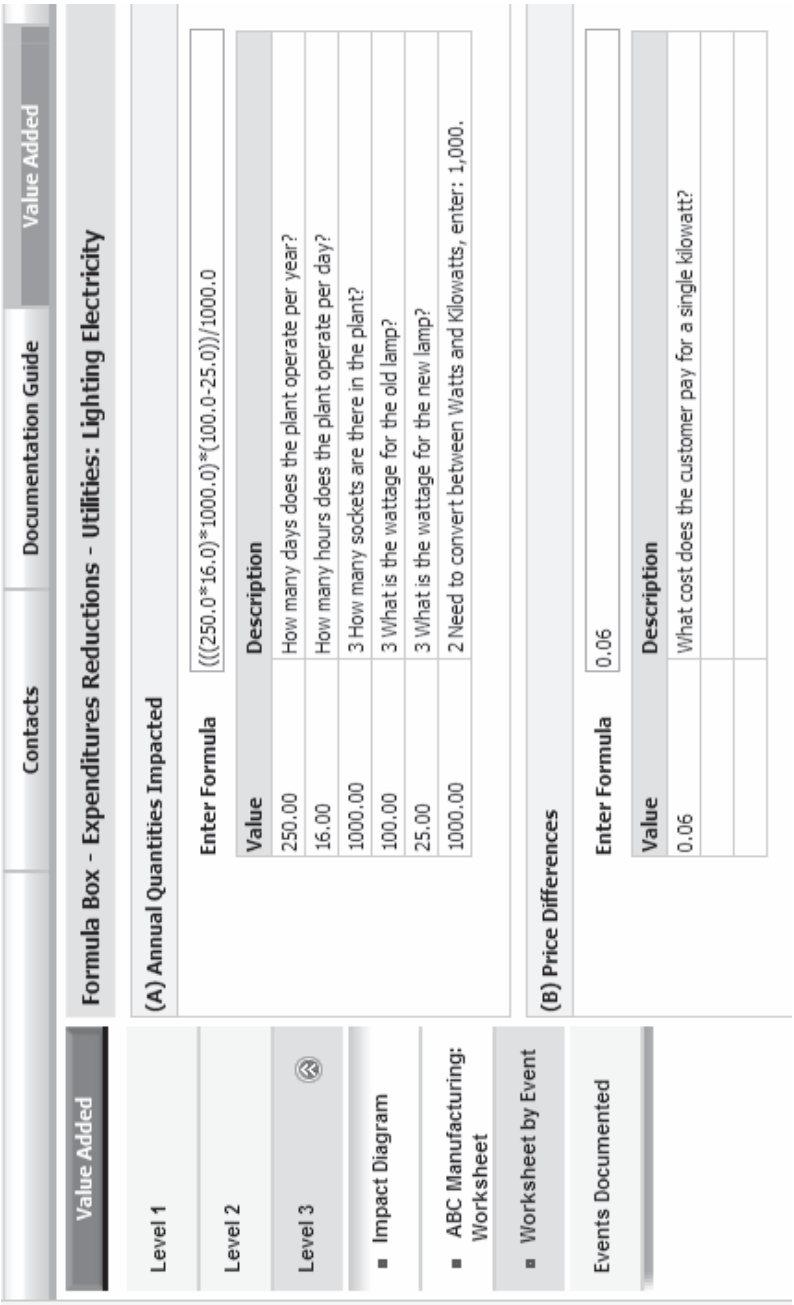
TCO Component	(A) Value of Services (or Training)	(B) Time Involved (or People Trained)	Value Added (A*B)	Dollar Type (Hard/Soft)	One Time/ On Going	Used

Other Savings (Add / Remove)

TCO Component	Value of Saving	Dollar Type (Hard/Soft)	One Time/ On Going	Used

Total Profit Improvement $46,733.33

Figure 8-6
SourcingStrat Calculator Detail



determine annual wattage consumption, and then divide by a 1000 to allow for the difference between wattage hours consumed and the kilowatt cost we pay (the .06 in the second box). In effect, we can see and evaluate how the savings were derived to verify its accuracy.

It is this level of detail that allowed ITC Transmission to evaluate just how they were reducing costs in order to take advantage of it quickly and easily. Proof of savings helps allow you to make sound purchasing decisions based on Total Cost.

Using Total Cost to Achieve a Competitive Advantage

Companies obviously should not document Total Cost savings just to document savings. The real benefit of measuring solutions comes from using the information to make both sound purchasing decisions that help you to reduce Total Cost and to use the information to select suppliers that can help you to achieve your organizational goals.

This brings up the issue of solution comparisons versus supplier comparisons. With solutions you evaluate each event to determine how to reduce your overall operating cost. In such a case, paper worksheets and spreadsheets work well. But when comparing a supplier on a total cost basis, you will need to look across the various solutions they offer.

When measuring individual solutions you need to work with the supplier to help them gather the needed information, but it should be their responsibility to measure the value they bring. And you need to be comfortable with the calculations they bring. Not just a memo of what they are offering or already provided, but the numbers of how they generated the savings. An example is provided in Figure 8-7.

Too often the promised "savings" never materialize because the numbers used in the calculations were incorrect. A solution, documented well, should allow you to make sound decisions based on reasonable estimates of the savings you should achieve.

The savings estimated from a potential solution should be evaluated as part of the determination process as to whether it should be pursued, and should include the increased cost for implementing it as well as the savings. It is the combined savings coming from multiple solutions that illustrates the savings the supplier brings.

Companies that use their suppliers to help create a true competitive advantage do not want one, two or even twenty solutions from a supplier. They want every possible solution that results in their being more profitable or that allows them to accomplish specific objectives in order to achieve a competitive advantage. The combination of these many solutions can then be used to determine if the higher price the supplier may charge is worth it.

Figure 8-7
SourcingStrat Total Cost Savings Calculator

SOURCINGSTRAT

Value Added

Report Date: 2/11/07

ABC Manufacturing

Supplier: ABC Manufacturing

Level 2 Summary Information

Event Name:	Storeroom Management	Commodity/ Service Group:	Pipe, Valves and Fittings
Location:	Power Systems	Supplier Contact:	Jake Conley: Sales Manager
Savings	$ 161,375.00	Start Date:	2/11/07
Status:	Proposed	Date Changed:	2/11/07
Saving Type:	On Going	Dollar Type:	Hard Savings

Notes:

Situation:
ABC Manufacturing was experiencing stockouts around specific items. At the same time they were given an inventory reduction goal of 10%, potentielaly leading to additional stockouts.

Solution:
We evaluate the inventory and identify those items that could present stockout risks jointly. Utilize our storeroom software better manage those MRO items that are creating the greatest risk and cost to manage.

Results:
- Achieved inventory reduction goals
- Eliminated stockouts
- Reduced warehouse operating costs

Freight Savings:

Freight Reduction	*	Number of Shipments	=	Savings
$ 125.00		85		$ 10,625.00

Process Savings:

(	Past Man Hours	-	New Man Hours	)	*	Wage Rates	=	Savings
	7.00		4.00			$ 45,000.00		$ 135,000.00

Inventory Savings:

Amount Reduction ($)	*	Carrying Cost (%)	=	Savings
$ 75,000.00		21.00 %		$ 15,750.00

But getting suppliers to provide continuous opportunities to save does not just happen. You have to build the relationship to foster this type of behavior. One approach to making this happen is to hold quarterly business reviews with the supplier.

In these reviews you can include other key points of interest to you, but in terms of collaboration and solution development you need to include these points:

1. What has been accomplished over the last 3 months and the previous 12 months?
2. What problems/barriers have you and the supplier encountered and what needs to be done to correct the situation?
3. What additional opportunities have you or the supplier identified? What is the initial estimated savings? Does it warrant further evaluation?
4. What additional benefits can you bring the supplier? (Why should the supplier continue spending resources to save you money when it costs them money to do it? This can be pay for services, additional business opportunity/ sales or ways to reduce their costs).

The key to making this a success is to manage the relationship you want with the supplier and to actively work with them to make improvements. But you also want proof that you are moving in the right direction. How are savings "stacking up" over time? Are you

continuing to see the type (degree) of savings expected? Is the trend moving in the right direction?

Is the supplier creating savings at all locations? Are some locations not participating? How much have we signed off on in terms of savings, how much is being implemented now and how much do we have waiting to be implemented?

The key to measuring solutions is to determine what information is important to you in making decisions and then make sure you have it. Having a single system that covers the solutions that all suppliers provide will allow you utilize Total Cost more effectively. How? If every supplier reports savings in a different format, you will have to learn to evaluate savings in numerous ways or just accept the savings on faith. Documented savings is about proving the real impact. Remember: In God we Trust, all others must provide proof.

Material in this chapter courtesy of Underhill & Associates, Tulsa, OK. For more information about SourcingStrat and SalesStrat, contact Strategic Business Solutions. info@sbs4me.com or 918-494-8085.

IDEAS FOR OUR ORGANIZATION

QUESTIONS AND COMMENTS FOR JOEL ROTH
(jroth@the20percentsolution.com)

IX A TOP MANAGEMENT VIEW

We have devoted almost all of this book looking at MRO cost reduction from a "worm's eye view," that is, from the operating level. It is time to step back and take a "bird's eye view," from the Board of Directors, top management, or owner's perspective.

You will almost never hear top management talk about MRO procurement costs in magazine or newspaper interviews, press releases, financial statement management discussions, stock analysts' conference calls, Board of Directors' meetings or anywhere else. First, top managers come from the ranks of sales, production or finance, not from MRO functions. Second, they don't think about MRO procurement. Third, they are generally unaware of the financial impact or significance that MRO procurement might have on overall organizational performance. Imagine the positive impact that you might create if you identified substantial MRO cost savings and communicated them persuasively to top management. Following are two examples where that happened.

Figure 9-1 shows a summary of a study of MRO cost reduction potentials at two representative plants in a fifteen-plant packaging company. Detailed cost analyses were performed by a supplier working with supervisors at the two plants; and the results were extrapolated to the entire company.

Figure 9-2 projects a total program savings of almost $4.4 million. These savings had the following first-year impact on corporate financial performance:

- An increase in pre-tax earnings and cash flow of $4.4 million;
- The equivalent profit and cash flow impact that would be generated on $42 million of additional sales (at current profit margin) with no sales or marketing expense;
- The equivalent profit and cash flow that would be generated by investing an additional $39 million of capital (at current return on investment) without borrowing, paying for, or risking that capital.

The President and Board of Directors enthusiastically endorsed the program, and the purchasing manager who initiated it was promoted to Vice President, Purchasing and Supply Chain Logistics in less than three years.

The second example is from a public steel company.

Figure 9-1
Packaging Company MROP Savings

Commodity Code	Brief Description	Total Previous Annual Spend	Proposed New Annual Spend	Annual $ Savings	Annual % Savings
120	PAINT & MISC PAINT SPL	$ 14,978.00	$ 9,179.00	$ (5,799.00)	-38.72%
122	FILTERS	$ 49,735.00	$ 34,417.00	$ (15,318.00)	-30.80%
123	CASTERS	$ 6,131.00	$ 3,972.00	$ (2,159.00)	-35.21%
124	CHEESECLOTH	$ 14,485.00	$ 10,589.00	$ (3,896.00)	-26.90%
131	SAW BLADES & MISC	$ 6,991.00	$ 6,367.00	$ (624.00)	-8.93%
132	HAND FILES	$ 449.00	$ 303.00	$ (146.00)	-32.52%
140	HAND TOOLS	$ 17,215.00	$ 13,224.00	$ (3,991.00)	-23.18%
146	CUTTING TOOLS	$ 25,968.00	$ 18,748.00	$ (7,220.00)	-27.80%
147	ABRASIVES	$ 5,499.00	$ 3,475.00	$ (2,024.00)	-36.81%
148	GRINDING WHEELS	$ 104.00	$ 77.00	$ (27.00)	-25.96%
150	KNIVES & SLITTER BLADES	$ 233,386.00	$ 143,234.00	$ (90,152.00)	-38.63%
151	FLASHLIGHTS & BATTERIES	$ 2,839.00	$ 1,869.00	$ (970.00)	-34.17%
152	TAPE	$ 540,693.00	$ 475,825.00	$ (64,868.00)	-12.00%
153	NYLON SLINGS	$ 1,180.00	$ 863.00	$ (317.00)	-26.86%
155	HAND MEASURING TOOLS	$ 3,941.00	$ 2,842.00	$ (1,099.00)	-27.89%
156	PRECISION MEASURING TOOLS	$ 6,121.00	$ 5,042.00	$ (1,079.00)	-17.63%
180	LUBRICATION PRODUCTS	$ 35,965.00	$ 25,804.00	$ (10,161.00)	-28.25%
239	LABELS & RIBBONS	$ 121,638.00	$ 94,705.00	$ (26,933.00)	-22.14%
240	STRETCH WRAP, SHRINK FILM, TOP SHEETS	$ 158,416.00	$ 135,438.00	$ (22,978.00)	-14.50%
242	BALING WIRE, STITCHING WIRE	$ 135,025.00	$ 94,173.00	$ (40,852.00)	-30.26%
243	EDGEGUARD	$ 53,406.00	$ 43,930.00	$ (9,476.00)	-17.74%
245	LUMBER	$ 24,848.00	$ 18,000.00	$ (6,848.00)	-27.56%
247	STRAPPING	$ 157,535.00	$ 132,636.00	$ (24,899.00)	-15.81%
440	SAFETY - MISC	$ 21,231.00	$ 20,832.00	$ (399.00)	-1.88%
445	GLOVES	$ 39,250.00	$ 36,439.00	$ (2,811.00)	-7.16%
446	WIPES	$ 13,150.00	$ 10,609.00	$ (2,541.00)	-19.32%
447	LOCKS	$ 4,658.00	$ 3,104.00	$ (1,554.00)	-33.36%
450	SOAP	$ 19,388.00	$ 15,316.00	$ (4,072.00)	-21.00%
451	CLEANERS	$ 29,560.00	$ 21,269.00	$ (8,291.00)	-28.05%
452	BROOMS, BRUSHES, ETC	$ 20,190.00	$ 15,648.00	$ (4,542.00)	-22.50%
453	SAFETY CANS, MATS, ETC	$ 64,795.00	$ 54,682.00	$ (10,113.00)	-15.61%
455	TRASH LINERS, BAGS	$ 41,334.00	$ 32,453.00	$ (8,881.00)	-21.49%
456	HYGIENE, TISSUE, TOWELS	$ 62,426.00	$ 43,810.00	$ (18,616.00)	-29.82%
457	BREAK ROOM ITEMS	$ 6,616.00	$ 5,226.00	$ (1,390.00)	-21.01%
599	CABLE TIES	$ 1,685.00	$ 1,080.00	$ (605.00)	-35.91%
698	SPRAY POWDER, ETC	$ 48,962.00	$ 38,041.00	$ (10,921.00)	-22.31%
706	ENVELOPES	$ 179.00	$ 148.00	$ (31.00)	-17.32%
707	DR BLADES	$ 214,398.00	$ 191,103.00	$ (23,295.00)	-10.87%
248	CORRUGATED	$ 309,739.00	$ 282,013.00	$ (27,726.00)	-8.95%
248	LAGRANGE CORRUGATED	$ 693,814.00	$ 556,722.00	$ (137,092.00)	-19.76%
190	BEARINGS	$ 130,118.00	$ 111,544.00	$ (18,574.00)	-14.27%
456	SPONGES	$ 985.00	$ 530.00	$ (455.00)	-46.19%
699	MISC PRESS SUPPLIES	$ 68,979.00	$ 57,174.00	$ (11,805.00)	-17.11%
703	SUCKERS, ETC	$ 2,382.00	$ 1,869.00	$ (513.00)	-21.54%
705	ZAHN CUPS, TINSEL ETC	$ 7,320.00	$ 6,735.00	$ (585.00)	-7.99%
815	MISC DIE CUTTING SUPPLIES	$ 62,614.00	$ 51,457.00	$ (11,157.00)	-17.82%
500	UNIFORMS	$ 391,111.00	$ 276,088.00	$ (115,023.00)	-29.41%
501	SHOP TOWELS	$ 422,613.00	$ 285,682.00	$ (136,931.00)	-32.40%
502	LAUNDERED MATS	$ 19,100.00	$ 13,702.00	$ (5,398.00)	-28.26%
600	LAMPS	$ 53,046.00	$ 36,102.00	$ (16,944.00)	-31.94%
	SUBTOTAL	$ 4,366,191.00	$ 3,444,090.00	$ (922,101.00)	-21.12%
700	BLANKETS	$ 2,084,516.00	$ 1,840,068.00	$ (244,448.00)	-11.73%
		$ 6,450,707.00	$ 5,284,158.00	$(1,166,549.00)	-18.08%

Figure 9-2
Packaging Company

SUMMARY OF CASH-FLOW IMPROVEMENTS PROJECTED (BEFORE TAXES)

PRICING	(1,166,549)
INVENTORY INVESTMENT	(1,198,360)
INVENTORY CARRYING COSTS	(299,591)
TRANSACTION PROCESSING COSTS	(977,000)
VALUE ENGINEERING & ANALYSIS	(710,000)
TOTAL	(4,351,000)

EQUIVALENT IMPACT ON CORPORATE:

EARNINGS B.T.	4,351,500
SALES	42,076,000
ASSET INVESTMENT	(39,292,000)

Figure 9-3 is a summary of this company's MRO procurement cost reduction program. The assumptions or planning data were based upon a combination of actual corporate statistics and benchmark data supplied by the vendor. The first year cash flow from this program was quite significant—almost 50 percent of total corporate cash flow in the prior year.

From a top management viewpoint, what would make MRO cost reduction any more attractive than any other corporate cost reduction or profit improvement program? Most such undertakings involve considerable time, effort, investment and risk. As we have shown throughout, MRO cost reduction does not require these inputs, especially if you choose to utilize your suppliers as recommended.

Here are some typical profit improvement programs: designing and launching a new product line; building a new production facility; converting to a direct sales force; developing a national advertising campaign; implementing an MRO procurement cost reduction program. All of these require substantial effort, capital and risk, except for the MRO project.

One of the basic precepts of corporate finance is risk and risk-reward relationships, which can be quantified and calculated. Essentially, the more capital that is invested, and the higher the risk of achieving your objective, the greater should be the return or profitability of the venture. As we have demonstrated, there is virtually no risk or

Figure 9-3
Estimated First Year Improvement in Profits and Cash Flow for XXXX Steel Company

Assumptions:

------Annual Purchases of Supplies	$50 MM
------Average Inventory	$286 MM
------Average Inventory (Liquidatable) Inventory (Excluding Equipment Spares, Critical Parts, Obsolescence, etc.)	$95 MM
------Annual Inventory Turns	0.5 x
------Average Number of Orders	64,500
------Average Order Value ($100 MM/64,500)	$1,550
------Annual Number of Line Items Ordered	156,000
------Average Number of Lines Per Order	2.4
------Annual Number of Backorders	12,500
------Annual Inventory Carrying Costs	18%
------Average Handling Cost Per Transaction	$185
------Average Error or Exception Rate	10%
------Average Gross Margin in Current Pricing	22%
------Delivery Costs Charged Separately or Embedded in Product Price	3 1/2%

Continued on next page

First Year Net Cash Flow*

Purchase Price of Goods (22%-18% X $50 MM)	$2,000,000
Stores Inventory Reduction ($95,000,000 x 50%)	47,500,000
Inventory Carrying Cost ($47.5 MM X 18% X ½	$4,275,000
Order Handling Cost (64,500-21,500) $185	$7,955,000
Back Order Cost (4,150 - 715) $155	$532,000
Automation of Remaining Transactions ($185-$18) 21,500	$3,590,000
Reduction in Errors/ Discrepancies (6,450 - 650) $370	$2,146,000
Inbound Freight/Delivery (3 1/2% -1 1/2%) $50MM	$1,000,000
Improvements in Sourcing, Negotiating, Packaging, Standardizing, Consolidating, Substituting, and Methods Changes. (2% X $50 MM)	$1.000,000
Grand Total	$69,998,000
Less Estimated Service Fees and Licenses	$1,250,000
Less Incentive Profit Sharing	$1,250,000
Net Positive Cash Flow *	$67,488,000

**These norms are based upon our experience with other Steel and Metal Processing Industries.

*Before Income Taxes or Investment Cost.

investment required in MRO cost reduction, yet the financial rewards can be substantial. Moreover, the planning and implementation of an MRO program is almost totally within your control—not constrained by markets, customers, competitors, government or other outside forces. The only outside element is your present or prospective vendor base, and they are highly motivated to support your needs.

For all of these reasons, an MRO cost improvement program represents a unique and significant opportunity for the organization. Consequently, if properly designed and presented, it should prove highly attractive to top management.

IDEAS FOR OUR ORGANIZATION

QUESTIONS AND COMMENTS FOR JOEL ROTH
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APPENDIX I

Typical MRO Product Categories

Description	Description
ABRASIVE GRAIN GRIT SHOT	MOTORS MRO
ABRASIVES BONDED	MOTORS OEM
ABRASIVES COATED	OFFICE & PAPER PRODUCTS
ABRASIVES SUPER (DIA&CBN)	OFFICE & SHOP FURNITURE
ADHESIVES MRO	O-RINGS ALL
ADHESIVES OEM	O-RINGS MRO
ADHESIVES PACKAGING	O-RINGS OEM
ALL-ALL	PACKAGING SUPPLIES
ALL-MRO	PACKAGING TAPE
ALL-OEM	PAINT ADHSV SEALNT PETRO ALL
BEARINGS ALL	PAINT ADHSV SEALNT PETRO MRO
BEARINGS MRO	PAINT ADHSV SEALNT PETRO OEM
BEARINGS OEM	PAINT MAINT MRO
BEARINGS BALL MRO	PAINT OEM
BEARINGS BALL OEM	PAINT SPRAY-EQPT MRO
BEARINGS MOUNTED MRO	PAINT SPRAY-EQPT OEM
BEARINGS MOUNTED OEM	PAINT SUPPLY-& EQPT-MRO
BEARINGS ROLLER MRO	PETRO HIGHLY-REF LUBS&SYNT
BEARINGS ROLLER OEM	PETRO HYDRAULIC OILS
BELTS-& SHEAVES MRO	PETRO INDST-OIL &-GREASE
BOTTLES CANS&DRUMS ALL	PETRO METAL CUTTING
BRUSHES ALL	PETRO METAL FORMING
BRUSHES GENERAL MAINT	PETRO SURFACE COATINGS
BRUSHES INDUSTRIAL	PKG-BAGS INDUSTRIAL PAPR&PLSTC

BRUSHES PAINTING &-PREP
BUILDING & CONTRACTOR SUPPLIES
CASTERS MRO
CHAIN LINK MRO
CHAIN ROLLER ALL
CHAIN ROLLER MRO
CHAIN ROLLER OEM
CHEMICALS
CIRCUIT PROTECTION DEV-MRO
CIRCUT PROTECTION DEV-OEM
CLUTCHES &-BRAKES ALL
CLUTCHES-& BRAKES MRO
CLUTCHES-& BRAKES OEM
COMMUNICATIONS SUPP. & ACCESSORIES
COMPONENTS MODULES MRO
COMPONENTS MODULES OEM
COMPRESSOR INDST MRO
COMPUTER-& PERIPHRALS OEM
COMPUTERS BUSINESS MRO
COMPUTER & PRINTER SUPPLIES
COMPUTERS PROCESSING MRO
COMPUTERS TELECOM ALL
COMPUTERS TELECOM MRO
COMPUTERS TELECOM OEM
CONST-SUPL ROPE-LDRS SHVL
CONTR0LS GEN-INDST EQPT-AL
CONTRLS GEN-INDST EQPT-OEM
CONTRLS GEN-INDST P/C-MRO
CONTRLS SPECIALTY INDST-ALL
PKG-PLASTIC CONTAINERS X-BOTTLES
PKG-SHIP CONTAINERS PAPER
PKG-SPCLTY BOXES PAPER
PLAST FLEXBL TUBE MRO
PLAST FLEXBL TUBE OEM
PLAST SPCL SHAPES OEM&PKG
PLASTIC FELX_FILM&SHT OEM
PLASTIC FLEXBL TUBE ALL
PLASTIC FLEX_FILM&SHT ALL
PLASTIC FLEX_FILM&SHT MRO
PLASTIC FLEX_FILM&SHT PKG
PLASTIC INJECTION MOLDING
PLASTIC PVF ALL
PLASTIC PVF MRO
PLASTIC PVF OEM
PLASTIC RIGID SHT&PLATE ALL
PLASTIC RIGID SHT&PLATE MRO
PLASTIC RIGID SHT&PLATE OEM
PLASTIC RIGID SHT&PLATE PKG
PLASTIC SHAPES TUBE_ROD_BAR ALL
PLASTIC SHAPES TUBE_ROD_BAR MRO
PLASTIC SHAPES TUBE_ROD_BAR OEM
PLASTIC SHAPES TUBE_ROD_BAR PKG
PLASTICS ALL
PLASTICS MRO
PLASTICS OEM
PLUMB-FIXT FITTINGS TRIM
PLUMB-FIXT FTGS-TRIM MAINT_MRO
PLUMB-FIXT FTGS-TRIM NEW-CONST

CONTRLS SPECIALTY INDST-MRO
CONTRLS SPECIALTY INDST-OEM
CONTROLS GEN-INDST EQPT-MRO
CONTROLS MOTOR-& DRIVE-MRO
CONTROLS MOTOR-& DRIVE-OEM
CONTROLS PROCESS INST-MRO
CONTROLS VARI-SPD DRVS-ALL
CONTROLS VARI-SPD DRVS-MRO
CONTROLS VARI-SPD DRVS-OEM
CONVEYOR BELTING ALL
CONVEYOR BELTING FLAT-MRO
CONVEYOR BELTING FLAT-OEM
CONVEYORS &-CONVEYG EQPT
COPIER SUPPLIES
COUPLINGS FLEX-HYD-U ALL
COUPLINGS FLEX-HYD-U MRO
COUPLINGS FLEX-HYD-U OEM
ELECTRICAL ALL
ELECTRICAL MRO
ELECTRICAL OEM
FASTENERS ALL
FASTENERS ALL
FASTENERS MRO
FASTENERS MRO
FASTENERS NON-THRDED OEM
FASTENERS NON-TRHDED MRO
FASTENERS OEM
FASTENERS OEM
FASTENERS SPECIALTY OEM
PNEUMATIC CLYINDERS MRO
PNEUMATIC CYLINDERS ALL
PNEUMATIC CYLINDERS OEM
PNEUMATIC TUBE-&-FTG ALL
PNEUMATIC VLVS-FRL'S ALL
PNEUMATIC VLVS-FRL'S MRO
PNEUMATIC VLVS-FRL'S OEM
POWER TRANS ALL
POWER TRANS MRO
POWER TRANS OEM
PRODUCTION SUPPLIES
PUMPS INDUSTRIAL MRO
PVF HVAC REFRIG ALL
PVF HVAC REFRIG INDL-MRO
PVF HVAC REFRIG NW CONST OEM
QUALITY CONTROL & METROLOGY
REFRIGRATN COM'L_IND MAINT-MRO
REFRIGRATN COM'L_IND NEW_CONST
REFRIGRATN COMMERCIAL INDUSTRIAL
RUBBER GOODS, BELTS & HOSES
SAFETY ALL
SAFETY PERSNL PROTECTN
SAFETY TEST-EQPT &RESPRATRS
SAW BLADES
SEALANTS MRO
SEALANTS OEM
SEALS MECH AUTO-MRO
SEALS MECH AUTO-OEM
SEALS MECH INDST-MRO

FASTENERS THREADED MRO
FASTENERS THREADED OEM
FILES
FILTRATION
FLUID POWER ALL
FLUID POWER MRO
FLUID POWER OEM
GASES ALL
GASES-INDL NON-WELDNG
GASES-INDL WELDING
GASKETS-& PACKING-ALL
GASKETS-& PACKINGS MRO
GASKETS-& PACKINGS OEM
GAUGES INDST INST-ALL
GAUGES INDST INST-MRO
GAUGES INDST INST-OEM
GEAR DRIVES-& SPD-RDUCRS
GEAR-DRIVS &SPD_REDUS OEM
GEAR_DRIVS &SPD_REDUS MRO
GENERATR SET-POWER SPPLY-MRO
GENERATR SET-POWER SPPLY-OEM
HARDWARE
HOISTS
HOISTS CRANES-& MONORAILS
HOSE&FTGS ALL
HOSE&FTGS HYD/H-P ALL
HOSE&FTGS HYD/H-P MRO
HOSE&FTGS HYD/H-P OEM
HOSE&FTGS NON-HYD/PN ALL
HOSE&FTGS NON-HYD/PN MRO
SEALS MECH INDST-OEM
SEALS-MECH INDST-ALL
SECURITY & LOCKS
SHEAVES ALL
SHEAVES MRO
SHEAVES OEM
SHELVG RCKS-LKRS BNCHS
SPILL PROTECTION
SPROCKETS &-CHAIN MRO
SPROCKETS ALL
SPROCKETS MRO
SPROCKETS OEM
STEEL ALLOY MRO
STEEL ALLOY OEM
STEEL CARB_ALL MRO
STEEL CARB_ALL OEM
STEEL CARB_BARS MRO
STEEL CARB_BARS OEM
STEEL CARB_PIPE MRO
STEEL CARB_PIPE OEM
STEEL CARB_PLATE MRO
STEEL CARB_PLATE OEM
STEEL CARB_SHEET MRO
STEEL CARB_SHEET OEM
STEEL CARB_TUBE MRO
STEEL CARB_TUBE OEM
STEEL CBN-STRCTL MRO
STEEL CBN-STRCTL OEM
STEEL STAINLESS MRO
STEEL STAINLESS OEM

HOSE&FTGS NON-HYD/PN OEM
HOSE-& FTGS-MRO
HOSE-& FTGS-OEM
HVAC
HVAC MAINT-MRO
HVAC NEW-CONST
HYDR PUMPS-& MOTORS-ALL
HYDR PUMPS-& MOTORS-MRO
HYDR PUMPS-& MOTORS-OEM
HYDR-PUMPS VLVS CYL-MRO
HYDR-VALVE FLTRS MISC-ALL
HYDR-VALVE FLTRS MISC-MRO
HYDR-VALVE FLTRS MISC-OEM
HYDRAULIC CYL-ALL
HYDRAULIC CYL-MRO
HYDRAULIC CYL-OEM
JANITORIAL ALL
JANITORIAL SUPPLIES
LAWN & GARDEN SUPPLIES
LIGHT BULBS(W/O TRANS)-MRO
LIGHT BULBS(W/O TRANS)-OEM
LIGHT-BULB TRANSPRTN MRO
LIGHT-BULB TRANSPRTN OEM
LIGHT-FXTR TRANSPRTN MRO
LIGHT-FXTR TRANSPRTN OEM
LIGHT-FXTR W/O-TRANS MRO
LIGHT-FXTR W/O-TRANS OEM
LINEAR AC"SORIES MRO
LINEAR AC'SORIES OEM
LINEAR ACT & POSITNRS ALL
STRIKING IMPLEMENTS
SWITCHGEAR EQUIPMENT MRO
SWITCHGEAR EQUIPMENT OEM
TAPE
TELECOMMU- NICATION EQPT-MRO
TELECOMMU- NICATION EQPT-OEM
TEST-INSTR ELEC PRTBL-BNCH
TOOL BOXES-& CHESTS
TOOLS ASSMBLY FOR ELETRONICS
TOOLS CUTTING CARBIDE
TOOLS CUTTING H.S.-STEEL
TOOLS GENERAL HAND
TOOLS HAND& POWER
TOOLS MECHANICS HAND
TOOLS POWER AIR
TOOLS POWER ELECTRIC
TOOLS-HAND PRECISN MEASR
TOOLS-PWR ALL ELECT & AIR
TOOLS TRACK
TRANSFRMRS POWER MRO
TRANSFRMRS POWER OEM
TRANSMSSN BELTS ALL
TRANSMSSN BELTS MRO
TRANSMSSN BELTS OEM
UNIFORMS, MATS & RUGS
VALVES CONTROL
VALVES INDUSTRIAL
VALVES PIPE FTGS-MRO
VEHICLE PARTS & COMPONENTS
WELDING EQUPT & GASSES

LINEAR_ACT & _POSITNRS MRO
LINEAR_ACT & _POSITNRS OEM
MACHINERY COMPONENTS & PARTS
MACHINE TOOL ACCESS'RES
MAINT SUPPLIES
MARKING EQUIPMENT & SUPPLIES
MATERIALS HANDLING ALL
MATERIALS HANDLING MRO
MATERIALS HANDLING OEM
METALS PRIMARY ALL
METALS PRIMARY MRO
METALS PRIMARY OEM
MONITORNG PANEL EQPT/IND MRO
MOTORS ALL
MOTORS FRACTIONAL HP-MRO
MOTORS FRACTIONAL HP-OEM
MOTORS INTEGRAL HP-MRO
MOTORS INTEGRAL HP-OEM
WELDING EQUPT ALL
WELDNG_EQU CSTN&MAINT MRO
WELDNG_EQU PRODUCTION ONLY
WIDGETS ALL
WIDGETS MRO
WIDGETS OEM
WIRE COMMUNICA- TIONS-MRO
WIRE COMMUNICA- TIONS-OEM
WIRE ELECT/PWR X-COMM-MRO
WIRE ELECT/PWR X-COMM-OEM
WIRE MAGNET OEM
WIRE SMALL-DIAM MRO
WIRE SMALL-DIAM OEM
WIRE-ROPE SLINGS CHAIN-FTG
WIRING-DEV CURRENT MRO
WIRING-DEV CURRENT OEM
WIRING-DEV NON-CUR'NT MRO
WIRING-DEV NON-CUR'NT OEM

Courtesy of Industrial Market Information, Inc., Minneapolis, MN.

APPENDIX II

WORKSHEETS FOR DOCUMENTING MRO COST SAVINGS

Cover Sheet

Customer:

Event:

Date:

Location:

		Notes
Revenue Enhancement:		
Asset Improvement:		
Process Improvement:		
Expenditure Reduction:		
Special Services:		
Other Savings:		
Total Profit Impact:		

Courtesy of Underhill & Associates, Tulsa, OK.

Revenue Enhancement Worksheet

Revenue Impact Explanation	A) Annual Unit Improvement	(B) Unit Value	(C) Increased Costs	Profit Improvement = (A*B) - C
			Total Profit Improvement	

NOTES:

Asset Improvement Worksheet

Assets Affected	(A) Quantities Reduced	(B) Value of Asset	(C) Possession Cost (%)	Dollars Freed (A*B)	Asset Savings = (A*B)*C
				Total Dollars Freed	Total Possession Cost Savings

Note: Possession costs; interest, taxes, shrinkage/spoilage, maintenance, storage and other possession costs as an annual percentage of the purchase price of the asset.

NOTES:

Process Improvement Worksheet

Processes Improved	(A) Past Process Costs	(B) Frequency of Past Use	(C) Current Process Costs	(D) Frequency of Current Use	Process Savings = (A*B) - (C*D)
				Total Process Savings	

Note: Process savings should be annualized to reflect the savings for one year.

NOTES:

Expenditure Reduction Worksheet

Items Impacted	(A) Annual Quantities Impacted	(B) Price Differences	Annual= Savings (A*B)
		Total Expenditure Savings	

NOTES:

Special Services Worksheet

Services Provided	(A) Value of Services (or Training)	(B) Time Involved (or People Trained)	Value Added = (A*B)
		Total Value Added	

NOTES:

APPENDIX III

Major Automotive Company
Worldwide Purchasing
NAO - Indirect

CONFIDENTIAL

November, 2003

Dear Mr.

Last year our Company began a benchmarking study to discover the industry best practices for identifying, ordering, buying, receiving, storing, delivering, using and paying for Maintenance, Repair, and Operating supplies. This study is not complete...it never will be. Benchmarking is an ongoing and continuous process of investigation and learning experience that ensures that best industry practices are uncovered, analyzed, adopted, and implemented.

This continues to be a journey focused on understanding and implementing best practices in the area of Maintenance, Repair, and Operating supplies (MRO). The project included the entire procurement cycle from need identification through payment and use. The scope of the study assessed best practices in terms of:

- Customer Needs
- Optimal Facility Layout
- Material Receipt, Storage and Distribution
- Supplier Management
- Procurement Method
- Supplier Payment
- Total Cost Driver Analysis (ABC)
- Process Measurement and Improvement
- Elimination of Waste

Within industry in general, and in particular, MRO has never been considered a strategic support resource, resulting in:

- **Squandered Leverage**
- **Poor Support to User**
- **Long Lead Times**
- **High Lead Time Variability**
- **Higher Inventories Than Necessary**
- **High Administration Costs**
- **Dysfunctional Processes and Outdated Systems**
- **Focus has been on Piece Price, ignoring the:**
    - **High Cost of Acquisition**
    - **High Transaction Costs**

Today's economy demands a company-wide effort to control costs, improve productivity, quality, and service levels. As a result of this study, we are providing an initial blueprint which will allow us to achieve an exceptionally high level of customer satisfaction utilizing synchronous processes that will result in moving MRO procurement from being perceived as a "roadblock," to a value-added and cost effective opportunity to improve quality, reduce total cost, and integrate effective purchasing techniques. Other tangible benefits include:

- **Consolidation of the Supplier Base**
- **Standardization of Parts**
- **Inventory Reduction**

- **Improved Cash Flow**
- **More Effective Use of Resources**
- **Defined Training and Communication Needs**

An initial strategy will be to identify our best allies to help us lower our total indirect procurement costs for MRO supplies. These allies will be a very select number of distributors with the capability to become integrated into our process and capable of performing many of the procurement, inventory, distribution, and record keeping functions more effectively than we can as well as provide on-site technical assistance.

Even more importantly, with our guidance, these select distributors, in concert with the OEM manufacturers, can best determine the ultimate way to get material from the originating manufacturer to the end user on the plant floor with the least amount of effort, paperwork, inventory and cost. The transition to an integrated supply concept will be a managed evolutionary plant-specific process directed by a specific implementation team.

Our immediate focus is to reduce our current cost of acquisition (spot buys and releases). Doing so, our emphasis shifts from "piece price" to "value added" and "total cost". Total cost is made up of:

- Lead time
- Lead Time Variation
- Inventory Level

- Storage Space
- Shipping
- Proliferation
- People
- Obsolescence
- Search Time
- Shortages
- Lack of Technical Resources
- Wait Time
- Suppliers per Buyer
- Lack of Communication
- Paperwork (Transaction)
- Unit Price
- Nonconformance

In most cases, a dedicated distributor can perform services better than we can ourselves. The difference lies in our core competencies and the ability to effectively reduce cost. The best suppliers have the ability to stay current with the market elements of their commodity and provide value-added services. Such services include applications engineering, in-service training on new products, development of special parts, etc. Key distributors have the innate ability to be imaginative, set specific strategies, and implement continuous improvement initiatives.

Although this process is Central Office driven, it cannot be managed like the old "Regional Purchasing." That concept kept purchasing too far removed from daily reality and light-years behind the needs of our

customers. The integrated supply process will provide methods that will enable us to have blocks of plants working together across platforms, sharing data, experiences and working as teams, yet maintaining a focus on the specific needs of each plant or site location.

There will be no need for a "salesperson" to enter our plants any more. Instead, the skilled trades person will have an Commodity Supplier as a partner with problem-solving skills who could have the capability to select and coordinate the right part for individual applications, kits, schedule deliveries, manage the stores and so on.

This is a winning concept for all parties involved. We win with drastically reduced acquisition costs, with the employment of industry best practices, improved quality, service and more valuable use of resources which all go hand in hand to reduce the overall cost of the supply cycle. Our skilled trades customers win by having someone in the plant to focus on satisfying their needs and coaching them on the most cost effective parts and equipment. The surviving suppliers win with increased volume of sales and a predictable long term forecast, creating the opportunity to negotiate better terms with their suppliers. Equal partner suppliers will have opportunities in each of our site communities.

The foundation of this new relationship between us and the Commodity Supplier must be built on trust and cooperation for mutual gain. We will all be required to share certain financial information, previously considered confidential, that will now be mutually

beneficial to the success of both parties. The role of the Commodity Supplier will be to:

- Become a strategic source for a given commodity
- Meet customer requirements for:
    1. Quality
    2. Delivery Performance
    3. Technology Development / Support
    4. Inventory Management
    5. Cost Containment
- Monitor performance

The supplier will be expected to participate in what we call a Natural Work Group (NWG), validate reorder triggers, provide on-site technical expertise and customer focus, coordinate obsolescence disposition programs, facilitate overall inventory programs within a commodity grouping, eliminate variation and help the plant standardize on parts, reduce lead time variation and contain costs.

You are invited to participate in an Commodity Supply opportunity at a location in . All of the "i's" have not been dotted, and all of the "t's" have not been crossed in defining our new process. We are asking for your help if you are interested in becoming a player in this endeavor. The Commodity Supplier will have to put resources and materials in position to support this location; therefore, we will need

to make sure we do not place you in a cash-poor position before we get started. This is a team process, not a one-sided arrangement.

Because of the substantial investment of human and physical resources involved, it is imperative to have a complete and comprehensive statement of work stating the objectives, the business arrangements, and the responsibilities of both parties. Unfortunately, we do not have those complete yet. In fact, we would like your input to further define and develop the process that will satisfy everyone's needs.

We hope this introduction has sparked your interest in the process. It will require a lot of "give and take" over the long term to make it work. The focus of the process should be on the continuous improvement of our Company and the Commodity Supplier's cost of doing business in order to maximize the benefits for all.

ATTACHED IS A PRE-SELECTION QUESTIONNAIRE WHICH SHOULD BE COMPLETED AND RETURNED BY NOV. 15TH.

The questions should relate and be answered by your local office which will be servicing the plant. These will be used as a tool in identifying recipients of more detailed questions. Both questionnaires and meetings with the NWG will be used to select our best partner. Industrial Supplies Commodity Management Program includes the following:

ABRASIVES
FASTENERS
HAND TOOLS
POWER TOOLS
LABORATORY SUPPLIES
HARDWARE
MARKING DEVICES
PACKAGING
MATERIAL HANDLING (EXC. CONVEYORS & FORK TRUCKS)
LAUNDRY/APPAREL
INDUSTRIAL SAFETY & GLOVES
PLASTIC (SHEET, ROD, TUBES)
TAPE
FUSION WELDING ITEMS
INDUSTRIAL GASES
FIRE PROTECTION
COMMODITY RELATED SERVICES

Other items such as Electrical, HAVC, Cutting Tools, Fluid Power, etc, are not included in the scope of this project. ***IMPORTANT*** **Your response must be in writing!!!** Write down each question followed by your written response to each question. You may include any attachments to support your response. If you have any questions, I can be reached at

Joe Rivera
Sr. Buyer
World Wide Purchasing

APPENDIX IV

September 4, 2002

Mr. XXXX
General Manager
S.A. De C.V.
Prolongacion Ave. Uniones
Parque Industrial Del Norte
H. Matamoros, Tamps. C.P. 87316

Dear Mr. XXXX

Thank you for the opportunity to submit this proposal to design, install and operate the supply chain for plant operating and maintenance materials at the Matamoros plant.

Objectives

The purpose of this program is to achieve the maximum reduction of costs (both direct and indirect) in the procurement, transportation, storage and use of all plant maintenance, repair, operating and production (MROP) materials - consistent with minimal investment by and minimal risk/ disruption to current plant operations.

Corollary objectives include the reduction of staff, inventory, number of vendors, number of purchase transactions, average lead times and incidence of stock-outs.

Based upon our investigation, we project a reduction of at least 20% annually in hard dollar costs i.e. purchase price and usage or cost per ton, in MROP materials, achieved over a three-year period.

Additionally, we project a savings in indirect costs or soft dollars — reductions in staff, inventory, freight, paperwork, methods and material changes, quality and safety issues, technical support, personnel training and development that would range from $100,000 to $200,000 per year.

Should throughput volume increase over present levels, these projected hard and soft dollar savings would increase as well.

Findings and Observations

Physical Facilities - The storage areas and supply rooms are poorly-organized, congested and inefficient. Items are hard to find and identify. Considerable space is devoted to materials that are clearly dead or slow-moving.

The main storeroom should be cleaned out, double-decked with stairs and a mezzanine. Bins and shelving should be reorganized, remarked and bar-coded. A purchasing-inventory system on a P.C. should be installed (which we can furnish at nominal cost). Satellite storeskeeping should be placed in each department in locked cabinets under the control of production supervisors in burning, machining, welding, etc.

Data Base - The foundation of any sound supply chain or materials management program is the completeness, accuracy and currency of the data base. At the data base is not presently adequate to support any meaningful improvement program. For example, it has been quite difficult to identify many of the items that purchases, or even how much is being spent on MROP materials.

We would recommend that a detailed, computerized data base - in the form of an electronic catalog - be constructed and installed on the storeroom P.C. (Note: This data base could also be accessed by Engineering, Maintenance, Accounting, Work Completion-Expediting,

etc.). Every item in the data base (including replacement machine parts) would be identified by: Accounting code, part code, cost center/ department code, full description and specification, manufacturer, manufacturer part number, price, unit of measure, standard package quantity, import permit number or status, usage rate, reorder point and reorder quantity, and vendor.

The data base would not only run the indirect materials procurement function, but also provide all necessary reporting for the Management information system.

Volume of Purchases - It has been quite difficult to determine present spending levels for MROP materials. The original spread sheet that we priced out totaled $640,000. During our plant visit, we identified MROP purchases from vendors at a 2002 annualized rate of $511,000 (U.S. Vendors) and $357,000 (Mexican vendors). However, these totals must be adjusted for the following:

1. Materials bought in the first half of 2002 that will no longer be used due to
   loss of customers.
2. Mexican-supplied product that cannot readily be imported.
3. Smaller vendors that supply product outside the scope of this project e.g.
   copier supplies or building repairs.

On the other hand, we were unable to access purchase data on: lubricants and coolants; slings, hoists and lifting equipment; OEM machine replacement parts; and maintenance consumables.

Our best estimate is that the annual spent on MROP, going forward, is about $600,000 to $650,000 annually. This is well below the volume needed to justify a full-blown integrated supply program including on-site management.

Vendor Base - The present vendor base totals 1,025 - including about 146 vendors of MROP consumables. Assuming that we were managing the supply chain for we would expect to reduce this vendor base to about 20-25.

Transaction Volume - The number of MROP purchase order transactions in 2002 is running at an annual level of about 1,076. Assuming that we were managing the supply chain for we would expect to reduce this to about 100-150 per year.

(Note: The average p.o. equals $806.)

Inventories - We are unable to determine how much MROP inventory exists, either in total or by item. Nor can we determine a functioning inventory replenishment or control system. At present, the storekeeper takes a daily physical inventory of a couple of dozen items - primarily paint, welding wire and steel shot. However, a review of these limited data suggests an extremely unbalanced inventory. Some examples;

	Annual Usage	Inventory on hand
Steel Shot	192,000 lbs	0
Diesel Fuel	51,400 liters	700
Trirnsol	662 gal	0
Flux 880	2,820 lbs	0
PPM Gray Paint*	0 gal	38
Cat/Case Catalyst	338 gal	0

*Discontinued

The storeroom system suggested earlier would maintain perpetual inventories of all MROP items and print out a periodic e.g. weekly or semi-monthly report of items to buy and recommended quantities, for management approval.

There is unused or dead materials in stock e.g. Devilbiss spray outfits, Hypertherm burning consumables, etc., that could be returnable to vendors.

Paperwork Flow - The present paperwork system for indirect materials procurement is awkward, labor-intensive, time-consuming and does not provide either management information or control. For example, as many as eight management/supervisory signatures or approvals may be required to complete a purchase transaction, regardless of the amount spent. At least eight forms are required for some purchases. Every purchase requires manual entry of an accounting code. Every purchase requires a separate purchase order, check payment, etc.

There is no consolidation of activities. While the system gives the appearance of tight control, the reality is different e.g. numerous approvals to purchase a small value item but no information on the overall amount of spending or where the spending in concentrated.

We recommend a simplified system where a periodic purchase order is generated on a storeroom computer, with requirements geared to monthly usage. The general manager can approve the proposed p.o. on the computer, using an authorization code, and release the order to the indicated vendor or integrated supplier via e-mail. Upon receipt, a copy of the p.o. is printed out and matched against the packing list and merchandise. The p.o. (which already has the accounting codes in the data base) is then forwarded to A/P via e-mail for payment by either check or wire transfer. The storeroom computer will generate periodic reports showing all purchases/receipts by vendor, item code, cost center, etc. There is no need to obtain three quotes on each item because the pricing will be preset in the computer data base.

This approach will not only eliminate much labor, paperwork and management time, but will cut the average cycle time from several weeks to about 3-4 days.

Quality Assurance - The present procurement system is not adequate to meet ISO9002 or any other quality standards. It is extremely difficult to determine the manufacturer or specification on many indirect materials and supplies, even after specific review or inquiry. Many items do not even have markings as to their content or source.

It appears that many items are bought repetitively without any review or investigation as to their value, durability, or suitability for their intended use.

Safety Issues - We noted numerous unsafe practices or conditions in the plant. Some examples: lubricant or coolant spills on the floor (also indicating equipment maintenance problems); large gaps in the floor and floor joints; lack of MSDS and tech. bulletins for chemical products; lack of adequate guards and controls on forming machines e.g. Press brakes.

Most of these conditions could be corrected with minor cost.

Value Analysis and Engineering - The potential savings in the area dwarf the savings in direct invoice costs and indirect procurement labor. Some examples:

1. Maintenance personnel are doing inspection of lifting equipment such as hoists and slings. Worn items are discarded and replaced. We would perform periodic inspections with the manufacturer and rework/recertify all items that are repairable.
2. Press brake tooling (as well as other tooling) appears to be manufactured in- house, by the Engineering Department. We would suggest a make vs. buy analysis to determine if it is cheaper to buy it from outside vendors.
3. In reviewing machining operations, we question the criteria used to determine which equipment is selected to do a specific job e.g. Some work done on CNC's might better be done on automatics and vice versa (based on tolerances, size of runs, shapes, and tooling requirements.)

4. We question the tooling specifications (and related costs) doing used for particular jobs and material grades. For example, there are some relatively expensive carbide inserts being used on jobs where less expensive high speed steel might be more appropriate.
5. Recycling of coolants, lubricants and other fluids might be considered.
6. There appears to be no training or criteria in oxy-fuel flame cutting (plate burning) to ascertain when nozzles should be changed. Moreover, worn nozzles are discarded rather that re-used for rough cutting.
7. The amount of money (labor and supplies) spent on plate finishing (grinding, deburring, etc.) is substantial. Much of this work is dictated by the amount of kerf, slag and burrs from flame cutting and surface marks occurring during forming operations. Better training and controls in burning and changes in forming tooling might substantially reduce secondary operations required.
8. Considerable costs are incurred in removal of scale and rust from plate inventory, in part due to outdoor storage of raw materials. Since substantial space is available in the plant, with overhead crane capability, we suggest investigation of inside storage (with exhaust fans in roof or walls) to improve storage conditions and reduce surface preparation requirements.
9. There is no evidence of standardization or consolidation of materials to gain the advantages or quantity buying. An example is the multitude of air grinders in the grinding area.

Machinery and Equipment - Much of the equipment and machinery is very old, obsolete, non-functional or out-of-service. We are not certain as to which is owned by and which by Mitsubishi. It will become increasingly difficult, expensive and time-consuming to acquire critical replacement parts when needed.

We have recommended to the Maintenance Manager that he complete a list of all equipment that will be retained for continuing use, and that he identify the model number, manufacturer, serial number and critical wear parts for each. We would then go to each manufacturer of each machine to determine the availability/lead time, current cost, and obsolescence of each item. We would obtain drawings, or samples for obsolete parts to find outsourcing machine shops. We then could set up a data base and supply chain for critical machine components. We could also identify commercial, off-the-shelf, inexpensive sources for components bought by the OEM's for resale e.g. bearings, drives, controls, gears, hydraulic and pneumatic parts, etc.

Labor - Based upon the manner in which we would design and operate the supply chain for indirect materials at Matamoros, we would expect to eliminate three positions - in purchasing, accounts payable and traffic - through substantial reduction in workload. The limited remaining functions of these positions could be distributed to remaining staff. Since we have received no payroll or fringe benefit data, we cannot currently calculate the savings involved, but estimate it at $70,000 to $100,000 per year.

Training and Development - We found very little evidence that present suppliers, either U.S. or Mexican, are providing technical support, employee training or development at the Matamoros plant. We would expect to require, manage and schedule vendor training and support in all areas of plant operations including burning, welding, painting, machining, forming, material handling, maintenance, storeskeeping, etc.

Management Information and Benchmarking - At present there is a dearth of information or data on MROP materials procurement. For instance, there is no meaningful data on item usage or history, and existing min./max. levels are inappropriate. We would expect to create the benchmark (starting) data points against which to measure progress. We would also provide periodic reporting of direct and indirect costs per department or cost center, general ledger account, unit of production, type of commodity, etc. This would provide the basis for evaluating progress and performance, as well as planning, budgeting and budgetary variance control.

Organization - At present, the functions involved in supply chain management of indirect materials are split between the service manager, the Division III Superintendent and the Sales Manager. We recommend that a redesigned supply function be centralized under the Division III Superintendent.

Financial Analysis

We are prepared to design, install and train your personnel to operate the indirect materials supply chain as described above. We believe that such a program can be operational within approximately three months. The risk/reward relationship for appears quite attractive and is shown below.

Compared to Base Year 2002

	Year I	Year II	Year III	Three Year Cumulative
Reduction in Price/ Consumption*	$78,000	$110,500	$130,000	$318,000
Reduction in Labor	$70,000	$70,000	$70,000	$210,500
Documented Savings in inventory, paperwork, Value Engineering, Safety, Quality, Freight, Brokerage, Etc.	$30.000	$45.000	$60.000	$135.000
Sub-Total	$178,000	$225,500	$260,000	$664,000
Less				
Fees (@$2,500/mo)	$ 30.000	$ 30.000	$ 30.000	$ 90.000
Totals	$148,000	$195,500	230,000	$574,000
% of current Ann. Spend	22.8%	30%	35.4%	88.3%

Note: The only outlay required by for this program would be storage equipment (shelving, cabinets, mezzanine, etc.) for reorganized storeskeeping and p.c. and software (which we will supply at nominal cost.)

*Based upon current estimated spend of $650,000/yr.

Option A - Co. to staff and manage storeroom facilities. We should observe that, based upon the current annual spend for MROP supplies at Matamoros, site management by an outside integrator would not normally be considered. However, should this be an important consideration for management, we would be willing to provide this service at the following charges.

We would employ a site manager plus two storeskeepers (first and second shift), probably existing personnel. We would charge on a monthly basis, for all costs of such employment including salaries, wages, bonuses, fringe benefits, payroll taxes, recruiting, compliance with U.S. and Mexican labor laws and regulations, communications and EDP, plus a mark-up of 25% for supervision, training and profit.

Conclusion

Based upon our extensive experience in indirect materials supply chain management, as well as our review of your operations, we believe that the program and financial projections presented herein are quite practical and achievable. If anything, we believe that they are conservatively stated, particularly if business volume is increased as Management expects. Moreover, if ultimately decides to expand this program to its other plants, we can leverage the projected savings to higher levels than shown here.

We look forward to working with you on this important project, and are available to discuss this proposal at your convenience. Thank you again for the opportunity.

Very Truly Yours,

President

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