

**Jobscope**, the most comprehensive job costing and integrated business information system for your order-driven company, balances critical requirements, function, and technology while offering the comfort and confidence necessary to overcome your unique business challenges.



# THE POWER OF REALITY

## *Financial Benefits Guide*



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## Introduction

### *A Profitable Decision*

In the life cycle of a growing manufacturing concern, a point is reached where an automated job/cost system becomes necessary to properly manage all the resources at your disposal.

Because of your awareness of the need to implement such a system to maintain your profitability in the coming years, you are in the process of evaluating the potential benefits afforded by this new mode of operation.

Not only are these benefits sometimes difficult to quantify in real dollars, sometimes they may even be difficult to identify. The aim of these financial benefits guidelines is to assist you more accurately determining the financial impact of the JOBSCOPE software package as it applies to your business.

By following the procedures outlined in this document, you should be able to develop the proper financial justification required to support the installation of JOBSCOPE at your facility.

### *The Unique Custom Manufacturing Environment*

The single, most important reason for installing JOBSCOPE in a job shop is cost control. With the high

cost of capital today, the ability to properly manage your cash is also of utmost priority. One of JOBSCOPE's greatest assets is its ability to allow you to operate your business on less cash than you require today. All the necessary features included in JOBSCOPE to accomplish the various planning, production, and reporting functions, but the ultimate test of an integrated software system is how well it facilitates the increased profitability of your business. Since your business revolves around the central concept of unique projects or jobs, that's the way JOBSCOPE is designed. JOBSCOPE provides a way to monitor and control all the costs associated with each order you process. For the first time, you may find it possible to ensure the profitability of each order you choose to accept.

Although your operations probably differ greatly from the typical repetitive or process manufacturer, the areas for potential productivity gains and cost savings are similar. Savings can typically be found in the areas of estimating, labor utilization, proposal or bid replies, and plant throughput.

The major difference; however, is in the type of integrated software you should be considering for your business. While popular "MRP" or "MRPII" systems perform well in high-volume, repetitive manufacturing environments,

a specialized job/cost management system designed specifically for an engineered-to-order manufacturer may be better designed for your mode of operation. Its ability to be tailored to your dynamic product scheduling requirements and manufacturing processes can provide financial benefits in additional areas such as:

*A reduction of sub-assembly and spare parts inventory levels*

*Increased work center and labor productivity*

*Better information for critical management decisions*

*Cost reductions in the areas of:*

- tooling
- set-ups
- rework
- overtime
- change orders
- displaced service bureaus
- reduction of staff manpower requirements

### *Measurable Savings*

It is sometimes very difficult to gain formal approval for a project or a purchase requisition when there is not some type of payback or return that can be attributed to the investment.

Typically, we in manufacturing have done a relatively poor job of investment and opportunity analysis when it comes to computer

systems and manufacturing software. And even worse than that, when savings or productivity gains have been forecast due to the implementation of a new system, we seldom return later to measure exactly what financial benefits were actually realized.

To ensure proper results, we must view the potential investment in a manufacturing system in a different light. There are real dollar savings and productivity gains to be gained with the proper implementation of the correct manufacturing system. A good job/cost management system does not magically impact your bottom line profitability, but instead, provides you a way to more efficiently process jobs through your plant. A thorough evaluation of the impact JOBSCOPE can have on your business will allow you to forecast, with confidence, some significant financial savings.

## Financial Analysis and Goal Setting

There are many ways to approach the challenge of quantifying financial benefits from the installation of JOBSCOPE. The approach here is to review your company's operations in overall terms and compare them with companies with similar operations. This comparative data may be available from an industry association or from a publishing house such as the Robert Morris Association. Your banker probably uses such a service when evaluating your request for financial assistance. Your banker will probably be glad to supply you with the financial data used to make their comparisons. Some banks have a computerized service that calculates various financial ratios, and this information may be useful in making your analysis. The objective of this analysis is to identify that broad areas that can be improved, set goals for the improvements, and assign responsibilities for developing and implementing specific programs.

Today, we place a great deal of reliance on the overall measurement called return on investment, otherwise known as ROI. The terms return and investment can be defined in many ways. Most people define return as profit before taxes, and investment as the net worth of the company. Some companies make rather

sophisticated analysis adjustments, such as, adding back interest, depreciation, and lease payments, to the return side, and making a compensating adjustment in the investment side. These techniques have a certain value for sophisticated internal analysis. However, they are not particularly useful for making comparisons with other companies. You have to use the same base, although it may be flawed, when making external comparisons. Therefore, we suggest that you select the database against which you will be comparing and analyze your company on the same basis. You will find that these financial ratios fall into two large categories. These categories are useful in our quest for finding savings benefit justifications. Both have a direct impact on the ROI.

The first group deals with the operating statement ratios. They are: cost of sales, margin, and sales, general and administrative expenses. The overall measure of the operating statement performance is profit. One key measurement here is our profit percentage, which is the profit derived from sales divided by total sales. How effectively we control our cost and how effective we are in the marketplace in obtaining a profit is shown by this ratio. Some of us are in industries in which the margins are very low. Others are fortunate to be in industries where

their margins are relatively high. In any case, by comparing your operation with the industry standards, you can identify areas that have potential savings.

The other broad category of financial ratios deals with the balance sheet. The overall measure of balance sheet performance is obtained by dividing the total sales by the net worth. It tells how effective we are at using the capital at our disposal. This ratio is a number we call turnover. Turnover multiplied by margin gives us our ROI. You can achieve a 30% return on investment operating at a 3% margin turning over your net worth ten times a year, or you can operate at a 15% margin and turn over your net worth two times a year.

Some manufacturing companies find their products expanding rapidly and need to fully utilize their capital in order to meet their market demands. By making more efficient use of their capital resources, these companies can expand sales without new capital. Other manufacturing companies find themselves in the position that their markets are not expanding.

In some cases they may have excess capital, and their overall performance is not what it should be because they are not fully using the resources at their disposal. These companies should consider redeploying some of their capital into other activities to improve their ROI. The analysis of compa-

ny turnover will give you a good indication as to how you are doing in this area compared to similar companies.

To get a general idea of what your potential savings can be through the implementation of JOBSCOPE, we suggest that you complete the Financial Analysis Worksheet. After filling out the worksheet, you should set some goals and assign a person responsible for developing a specific plan for each of the major areas. The plans should identify the particular areas that will be addressed by the implementation of JOBSCOPE. These major sections are taken up in the following two sections.

# Goals Worksheet

Data	Year 1	Year 2	Year 3	Year 4	Year 5
Year ending:					
A. Sales:					
B. Net Worth:					
C. Profit before tax:					
<b>Basic Financial Analysis</b>					
Year ending:					
1. Margin (C/A) %:					
2. Turnover (A/B):					
3. ROI (1X2)%					
<b>Industry Comparison</b>					
Year ending:					
Margin :					
• Ours					
• Industry					
Turnover :					
• Ours					
• Industry					
ROI :					
• Ours					
• Industry					

## Goals Worksheet

<b>Goal for Return on Investment</b>	Year 1	Year 2	Year 3	Year 4	Year 5
Present ROI :					
Goal ROI :					
Change ROI :					
Net Worth:					
Total benefit :					
<b>Goal for Cost Saving</b>	*				
<b>Margin:</b>					
• Present:					
• % change in margin:					
• Sales:					
• Benefit:					
<b>Goal for Sales Increase</b>					
<b>Sales:</b>					
• Present Sales:					
• Sales Goal:					
• Margin Goal:					
• Benefit:					
<b>Goal for Capital Savings</b>	*				
<b>Turnover:</b>					
• Present:					
• Goal:					
• Increase in turnover:					
• Net worth:					
• Capital for redevelopment:					

*\*assume no sales increase*

## Justification Methodology

### *Potential Financial Benefits – Identification & Calculation*

There is a basic methodology to be followed in any financial evaluation process. The particular process we are going to use looks like this:

*Identify areas of potential improvement, productivity gains, or savings. Known, or supposed, problem areas are a good place to start looking.*

*Identify the various resources that are needed, to affect an improvement in that particular area. Check and see if a job/cost management system will provide you some of the needed resources, information, or modifications.*

*Estimate potential dollar savings that can be realized through the implementation of the recommended changes. You may have more than one figure for potential savings, due to uncertainties inherent to every manufacturer. These savings estimates can range from conservative to optimistic.*

### *How Do We Get Started?*

The first thing you need to do is gather some basic information about your company. Once all the required measurements and facts are obtained, they should be consolidated in a tabular format. For the sake of this discussion, we will call this table of pertinent company information the Company Composite. As a guide in obtaining the necessary information, we are including a skeleton Company Composite, complete with the outline of all the information items required. This table outline can be used to determine the potential cost savings and productivity gains available through the implementation of the proper manufacturing management system. For some items of information requested, we will provide some general instructions concerning how to locate the required data. These instructions will tell you such things as who to talk to, what department to query, and how to estimate a measurement when an actual figure is not available.

Once the information is compiled, we will begin to see what financial impact the four modules of JOBSCOPE may have on the measurements. By using the formulas and procedures outlined in this guide, we will be able to locate, and estimate, the financial benefits accrued to JOBSCOPE

against each key measurement. Different modules of JOBSCOPE will affect different financial measurements, but each will have some impact. This ability to pinpoint the areas, and amounts, of potential improvement, will be the basis for strong, fact-based decisions by you and your managers.

Throughout the calculations presented in this guide, you will see various subtitles in parenthesis. These subtitles are simply used to direct you back to a location where that bit of information should have already been listed. This should keep you from any duplication of effort in arriving at the needed figures.

In addition to the various functional areas discussed as places to look for potential savings or productivity gains, you may have additional departments or operations you feel could be streamlined. We encourage you to investigate and include in your justification any areas that you feel will benefit from the implementation of JOBSCOPE in your company. We have provided some space at the end of the Company Composite to list and quantify these areas that you identify. After all, no one knows your business better than you.

For a look at your Company Composite worksheet, view the following page.

# Company Composite

<b>1. Revenues for Fiscal year:</b>	<b>Enter Data</b>	<b>Source</b>
a. Annual Sales	\$	
b. Cost of goods sold	\$	
c. Gross margin	%	
<b>2. Inventory Values Date:</b>		
a. Sub-assemblies/components	\$	
b. Work-in-process	\$	
c. Spare parts	\$	
<b>3. Inventory Carrying Cost Rates/Date:</b>		
a. Sub-assemblies/components	%	
b. Work-in-process	%	
c. Spare parts	%	
<b>4. Annual Personnel Costs for fiscal year:</b>		
a. Direct labor	\$	
b. Foreman	\$	
c. Expeditors	\$	
d. Material handlers	\$	
e. Production control department	\$	
f. Engineering department	\$	
g. Cost accounting department	\$	
h. Customer sales order department	\$	
<b>5. Annual Cost (misc.) for Fiscal year:</b>		
a. Purchased materials/parts	\$	
b. Scrap	\$	
c. Tooling costs	\$	
d. Set-up costs	\$	
e. Rework costs	\$	

## Company Composite (cont.)

5. Annual Cost (misc.) for Fiscal year (cont.):	Enter Data	Source
f. Overtime costs	\$	
g. Costs for change orders	\$	
h. DP budget/service bureau cost	\$	
<b>6. Additional Areas/Potential Cost Savings (misc):</b>		
a. <i>you identify</i>	\$	
b. <i>you identify</i>	\$	
c. <i>you identify</i>	\$	
<b>7. Miscellaneous Measurements:</b>		
a. Average time a job is in process		
b. Turnover		
• A/R		
• Inventory		
• Working Capital		

## Company Composite Category Definitions

1. Gross margin:  
Annual sales minus cost of goods sold, divided by annual sales.  
Express as a percentage.
2. Inventory carrying cost rates should consider the following factors:
  - Obsolescence
  - Insurance and taxes
  - Dollar value for floor space
  - Material handling costs
  - Cost of capital
3. Personnel costs include salaries, benefits, payroll taxes, etc. Pay special attention to expeditor costs - these may be actual costs associated with a formal position of expeditor, or costs associated with those individuals performing the expediting functions.
4. Cost of purchased materials and parts: If no figure from purchasing department, use a best-guess estimate that is a percentage of cost of goods sold.

## Developing a Plan for Improving Cost Performance

When we think about improving cost performance, we are thinking about the operating statement. We are asking questions about how we can improve our sales margins, job cost performance, and how to control our sales, general, and overhead expenses.

For planning, we suggest that you think about cost control while holding sales at a constant level. This simplifies the process of estimating savings, then we can look at the benefits of increasing sales in the next section.

There are two major categories that should be examined. The first is cost of sales; the second is sales, general, and administrative expenses. JOBSCOPE has features designed to reduce cost in both of these areas. We will examine them separately.

The cost of sales is the largest cost item in most manufacturing concerns. Here we are considering such items as direct material cost, labor cost, labor productivity, and similar items.

Yours is a custom manufacturing or custom engineering business. Job cost becomes everyone's opportunity for saving. Many people in the organization have an impact on cost because each job is, to some extent, different. The

important principle in job cost is that everyone be firmly focused on reducing job cost. You start with a good estimate, follow it closely through the production process, minimize the time it spends in the shop, and let everyone know that they have a role in improving job cost performance. Your employees must be convinced that they have an impact on job cost. They must know what the job costs are, and the job cost data must be believable to them. The people responsible for various elements of job costs must have the specific information they need for control. For instance, if you wish to improve shop labor productivity, you must do the following:

- Supply shop management with efficiency data by work center and employee.
- Get drawings and instructions to the shop correctly and promptly.
- Schedule for maximum labor productivity.
- Get materials to the shop at the proper time.

JOBSCOPE has features that allow you to achieve all of these things. You really can't make an impact on improving performance in these areas unless your system has specific tools so that management and employees can get a grip on these problems.

If you decide that materials cost is a good area in which to start, you must do the following:

- You must develop an estimate with which to compare your performance.
- You must make the information available to the working level people that make buying decisions.
- You must report variances promptly. Don't wait until the end of the year or the end of the job.
- You must identify major items common to all jobs and make some person responsible for reduction of this cost item. For instance, in a business that has intensive steel use, you may wish to create a task force concentrating on the cost of steel.

These, in general, are the major areas to which you can look for savings in the cost of sales area. You should now write up a specific plan of action for coming to grips with some of the specific opportunities you have for saving in your plant.

The next major item of expense on the operating statement is generally called sales, general, and administrative expense. If you feel that there are opportunities for saving in this segment, you will

find the following features of JOBSCOPE particularly useful:

- The budgeting features built into the general ledger allow a precise way to forecast and control the sales, general and administrative expense.
- Task planning is also an important tool. Because most overhead is labor, this requires particular attention. Developing a systematic way to evaluate white collar productivity as well as blue collar productivity can have a major impact on your administrative expense.

You should now develop a detailed plan for reducing sales, general and administrative expense items.

## Cost of Sales

### *Labor Productivity and Cost Control*

Jobscope does an impressive job in having a positive effect on both production personnel and production control. Production Work Orders and Routings is the portion of JOBSCOPE utilized in the creation of work centers, as well as the creation of the actual production work orders. This organized method of getting production information to the shop floor correctly and quickly identifies the

part to be manufactured, what operations are required, and the bill-of-materials required to produce the finished product or component. The Production Scheduling module builds upon the base of information concerning what is to be manufactured, and produces a realistic manufacturing schedule that relates to when concerning product production.

By trusting the information generated from the parameters you input into JOBSCOPE, and by actually operating your facility based on the production schedules generated by JOBSCOPE, you have eliminated a large portion of the manual intervention required today to ensure that work is actually produced on time.

JOBSCOPE allows management a great degree of control over priority jobs by utilizing JOBSCOPE's ability to accept arbitrary job priorities and perform real or simulated production schedules to determine what work will be affected by a revised schedule. This capability allows you to see the results of critical management and production decisions before you actually make them. Situations such as the input of a hot job into the production schedule or the potential application of overtime labor to meet delivery requirements can be simulated to provide you greater insight into the consequences of various decisions. JOBSCOPE provides the

tools necessary for objective management direction and control.

As you will see, JOBSCOPE can positively affect the output of your production personnel and shop floor management. By providing complete information concerning what, when, and how something is to be manufactured, as well as insuring the proper allocation of labor and availability of material, JOBSCOPE affects everyone associated with production and production management – in a very profitable manner.

### *Savings Where They Count – in the Plant*

An automated job/cost management system, if properly implemented, can produce some positive financial benefits in your production area. This can be accomplished because of the system's ability to relieve the foreman, production personnel, and expeditors of a large portion of information and job chasing that keeps them from being as effective as they can. If you look at the least productive work performed by the people in these positions, it almost always involves locating materials, labor, or entire jobs that are not where they should be. Let's take a minute and estimate the percentage of time spent in performing tasks that should be unnecessary.

1. Production workers

*Estimate percentage of time spent on set-ups or tear-downs caused by interruptions for hot jobs and looking for materials.*

\_\_\_\_\_ %

2. Production control

*Estimate how much time is spent by production control on administrative and clerical activities.*

\_\_\_\_\_ %

3. Material Handlers/Expeditors

*Estimate time spent looking for materials and jobs.*

\_\_\_\_\_ %

4. Foreman

*Estimate time spent by foreman in meetings, trying to determine material and order status, and talking to expeditors and management.*

\_\_\_\_\_ %

JOBSCOPE produces visible benefits by allowing a reduction of time and effort required to perform the tasks associated with these four production positions. To estimate the potential cost savings for each of these four positions, take the percentages of potential time savings we estimated previously, and plug those percentages into the following equation. Do this for each and every employee assigned to any of the positions in question.

$$\% \text{ Time Saved} \times \text{Annual Labor Cost} = \$ \text{ Benefit}$$

An additional benefit of freeing up the foreman to do the work intended for them is the probability that production will increase due to the additional attention by the foreman to the production personnel and the actual work itself. This gain can be estimated through the use of another calculation:

$$\text{Estimated \% Increase in Direct Labor Productivity} \times \$ \text{ Direct Labor} = \$ \text{ Benefit}$$

The final benefit occurs if the increase productivity has an impact upon the price charged for the goods or services, or lead times reduced.

Either one of these logical and normal reactions should serve as a springboard to getting some additional orders and increasing sales volumes. If you, in fact, think this may be the case with your business, you can estimate the dollar benefit available to you.

$$\% \text{ Increase in Sales} \times \$ \text{ Annual Sales} \times \% \text{ Gross Margin} = \$ \text{ Benefit}$$

You should now transfer these dollar benefit figures to the last page of the this guide. This last page is titled Benefits Chart and is a compilation of all the dollar benefits arrived at in the various segments of this evaluation tool. You will be instructed to transfer your benefits to the Benefits Chart at the end of each section you complete. Instructions as to the use of the Benefits Chart will be given near the end of this guide.

Combine all the dollar benefits we have computed in this plant personnel productivity section, adjust them according to your confidence as to how achievable they may be, and write them down on the Plant Productivity Gains line in the Benefits Chart. You may be surprised to discover the potential savings JOBSCOPE can help you obtain.

### *Material Planning and Cost Control*

A computerized job/cost management system offers tremendous advantages in the area of material control. MRP and Purchasing work hand-in-hand to ensure that all material that is required for a job is available when it's needed, and that all the necessary components are available to the work centers and production personnel when required. Requirements and open orders can be matched by date on a stock status report, giv-

ing management a timely picture as to what materials will be required.

The Operations and Production modules of JOBSCOPE have a direct impact on the various inventory levels that you must maintain. The Inventory subsystem controls material receivings and issues (withdrawals and job charges), and maintains a record of current inventory balances. This information serves as a reliable base of inventory count authenticity and a means to accurately monitor special inventory situations. Slow-moving components and parts can be identified so that action can be taken to reduce obsolescence. Inventory level reports can be taken as factual, thus reducing the tendency to order unnecessary quantities of materials.

The MRP (Material Requirements Planning) subsystem works hand-in-hand with the Inventory subsystem. JOBSCOPE's job-oriented MRP emphasizes the early capture and communication to the Purchasing subsystem of material requirements for each order. These requirements and the production schedule are constantly verified against each other. This ensures that a change in the production schedule that alters material requirements – or a change in a vendor's material delivery schedule that will affect the production schedule - initiates the

proper action to ensure continued synchronization between material arrival and actual production. Therefore, required materials arrive just before they are required to be put into production, thus reducing your work-in-process inventory.

### *Additional Production Savings*

In every manufacturing business, there is the presence of some seemingly “necessary evils” that have been present for such a long time that we now accept their existence as normal. Included in this category are such items as scrap, costs associated with excess set-ups and rework for both tooling and the actual product, and administrative and production costs associated with change orders.

Probably the most prevalent problem is overtime. Overtime presents itself as a no-win situation. If you are not experiencing some overtime, then chances are good that your business is not what you would like it to be. And when business is excellent, and you need to increase your capacity for the short run without additional long-term capital investment in your plant, the high costs associated with large amounts of overtime become a seeming necessity.

JOBSCOPE assists in the reduction or elimination of these costs by providing some basic tools within the different modules.

Within the Operations module, the capability of having human intervention between purchase requisitions and actual creation of purchase orders reducing the chance of receiving incorrect or untimely materials due to schedule changes, production change orders, or product engineering changes. MRP and Inventory work together to make sure materials are on-site to meet the production schedule, and conversely, that work orders are not issued for jobs that require materials that are not available. This goes a long way toward avoiding unnecessary set-ups and premature tooling.

The relationship within JOBSCOPE between the Bill-of-Material module, engineering drawings, and estimating helps ensure an accurate product structure is created. The ability to transfer this structure automatically from the estimate to the job ensures that no pertinent information is lost or incorrectly transferred between departments. Therefore, the product actually manufactured is the same as the one that was designed and proposed. Although this seems like a given, how many times have we seen a large quantity of product turned into scrap, or extensively reworked, because what was produced was not what was required? JOBSCOPE will reduce the probability of this situation occurring.

Item 5 on the Company

Composite included with this guide details the items we have just been discussing. A reduction in all these cost items can be affected with the proper implementation and utilization of JOBSCOPE in your business. A typical reduction of these items will usually be between 5% and 20%, depending upon the category. Estimate your percentage savings for each of the listed categories, multiply that percentage by your annual costs, and total all the potential categorical savings into one figure. Transfer this figure to the Additional Production Savings line of the last page of this guide, the Benefits Chart. This figure could represent a significant amount of savings to your company.

## **Sales, General, and Administrative Expenses**

### *Financial Planning and Reporting*

Both internal and external reporting requirements dictate an extremely high degree of integrity for your financial measurements. The maintenance of this reliability level usually requires the application of large amounts of human resource to ensure the accurate recording, consolidation, and reporting of each financial transaction that occurs in your business. All of the standard accounting sys-

tems are integrated into JOBSCOPE. While most people agree that almost all computerized accounting systems are approximately the same, the most common features, plus JOBSCOPE's many extended features, reduce the amount of human resource required to get the job done, while at the same time, increasing the probability of accurate record-keeping. JOBSCOPE demonstrates these advantages in comparison to not only a manual system, but to many other automated systems. Some of JOBSCOPE's financial application features that facilitate these efficiencies are:

- automatic
- consolidations/eliminations
- easier posting
- cost allocation formulas
- budget creation subsystem
- multiple financial reporting formats
- fixed asset tracking system
- easy matching for both A/R and A/P
- statistical and management reporting

The utilization of JOBSCOPE's integrated financial subsystem will allow both cost savings and productivity gains. The cost savings will occur in the area of clerical time reductions stemming from automatic creation of many of the financial transactions as by-products of other entries into the JOBSCOPE software. Additionally,

productivity gains will occur within the management ranks due to improved planning and budgeting processes afforded by JOBSCOPE's presentation of the necessary financial data required to make important business decisions.

You may want to estimate a potential savings as a percentage of your fiscal planning, accounting, clerical, and management costs, and derive the resulting dollar figure to be saved.

### *White Collar Productivity*

The question here is really not whether or not JOBSCOPE effectively assists management in performing its day-to-day functions, but how much it helps. Obviously, if top management did not perceive that real benefits were being derived from the implementation of JOBSCOPE, the product would not be in such widespread use as it is today. However, many software packages are bought perceptions, and not on forecast financial benefits.

All vendors, including ourselves, are very pleased to sell software in this manner, for it means less work for the sale. This area of Management Decision-Making that we are in the process of discussing is one of those areas that most software vendors would rather not discuss because of the difficulty of forecasting and measuring any substantial dollar benefits. There is

no doubt that this is indeed the most Grey area of potential benefits, but, in keeping with the financial justification theme of this guide, we are pleased to present a list of thought-provoking questions dealing with areas of management responsibility that have historically proven to be productivity headaches. JOBSCOPE; however, provides some easily identifiable financial benefits in these areas.

1. If your purchasing department had at their disposal the information necessary to enable them to better control the grouping and timing of purchase requirements, would you see a positive effect on purchase prices and freight rates of necessary materials?
2. Would your profit margins increase by being able to make accurate estimates and bids based on more up-to-date and correct labor and material cost information? Would you accept as many unprofitable jobs due to a mistake in the estimate?
3. Would JOBSCOPE help you reduce product costs by allowing you to make better make vs. buy decisions for components and sub-assemblies?
4. Would JOBSCOPE's ability to maintain updated product, manufacturing, and financial records and files eliminate much of the manual filing and

searching for information as you know today?

This capability is important for a couple of reasons. First, the easy availability of current information assists you in heading off potential problems before they develop, and second, you can use this information as dependable input to quotes and bids for future jobs.

### *Task Planning*

In the area of production control, it is quite evident that we should direct and monitor the actual output of our shop floor personnel versus a predetermined standard. JOBSCOPE does quite a nice job of providing us this capability. When it comes to non-hourly personnel, however, we have a less concrete picture of what our people are, or should be, working on, and what they are actually accomplishing. For example, how often have you seen work on the manufacturing floor come to a halt for the want of an engineering drawing or numerical control (NC) tape? This situation infers a lack of control in two areas – direction and output of professional employees.

JOBSCOPE provides a Task Planning subsystem that enables salaried employees to plan and organize their work, with the goal of greater productivity. The subsystem allows a plan to be established for each employee which

involves his active participation. Managers can plan tasks for projects which may incorporate any number of associated employee tasks. The employee's progress toward the completion of each task may then be evaluated.

Some of the features of this Task Planning subsystem are:

- employee participation in organizing work
- stresses results and date completion expected
- work charged to job or account
- monitors non-work related time
- tracking of tasks by job
- reporting by employee or group of employees
- interfaces with Job Cost, Scheduling, and Payroll

### *Management/Clerical Benefits*

Take a look at all the areas we have mentioned in this section and estimate the time savings and productivity increases available to the departments and personnel affected. Estimate some reasonable percentage savings or gain and multiply it by the labor cost or annual salary of that person or department. The resulting figure should be the annual estimated dollar benefit that you would derive from the proper implementation of JOBSCOPE. Transfer this

figure to the Management/Clerical Savings line on the Benefits Chart at the back of this guide.

## Developing a Plan for Increasing Sales

Increasing sales of the right kind at the proper profit margins can make a major impact on the performance of any company. There are several features of JOBSCOPE that enhance your ability to increase your sales. Let's look at some of the items that have an impact on your ability to make profitable sales:

### 1. **On-time order performance.**

All of us know the impact of good on-time order performance. You have one customer who has increased his on-time order performance from less than 50% to over 90%. This can make a major impact on the amount of sales you can produce. Take a hard look at your on-time order performance and think carefully about the benefits that can accrue as a result of JOBSCOPE's unique features to schedule, track, and measure the performance on each individual job.

### 2. **Estimating.**

If you are in the custom manufacturing business, making a good estimate is an important part of the sales process. Many sales are lost or gained because

of estimating. A good estimate two weeks after the customer has bought is useless, and an either too high or too low estimate in relationship to what your actual costs are, can be disastrous in the marketplace. Give careful thought to how much your sales can be increased as a result of good estimating procedures.

### 3. **Scheduling.**

Scheduling has an important effect on all parts of your business. It makes a great deal of difference to labor productivity and to the process of reducing inventories. But, at this point, we want to consider scheduling from the point of view of increasing sales. Scheduling is an important tool for shortening your delivery or lead time and thereby gaining additional sales. Through scheduling, we can increase the output of our plant and gain additional sales without making additional capital investment or committing additional resources. JOBSCOPE's strong scheduling capabilities allow us to make maximum use of our plant capacity to help keep satisfied customers.

Now think carefully about how sales at your company can be increased through the use of JOBSCOPE. Make a specific plan for increasing sales and tabulate the benefits from it.

## *Customer Service and Sales*

In today's highly competitive manufacturing environment, there is increasing emphasis on improving areas of the business that have traditionally been left alone to take care of themselves, or were viewed as by-products of other resource constraints. Of course, the areas we are talking about are customer service and delivery schedules.

Inadequate emphasis has been placed on your opportunities to positively affect these two areas. This attitude developed because of the perception that customer service and delivery schedules traditionally related to those businesses that manufactured or sold stock items only. After all, most, or all, of your work is relative to a specific order that is unique unto itself. Customer service and delivery schedules usually pertain only to those manufacturers that sell standard off-the-shelf products. For those manufacturers, orders are normally taken over the phone by order clerks using a catalog. A sales forecast and master production schedule dictate the lead times quoted to their prospects for standard product lines.

While all the above is most certainly true, JOBSCOPE enables you to take advantage of some available efficiencies in these areas of which you may be unaware. Ask yourself some basic questions:

1. Your responsiveness to customer requests concerning order status and expected delivery creates a strong image among your present and prospective clientele concerning your ability to know what's going on in your plant. People do business with companies in which they have the most confidence. How do you respond to your customers' requests in this area?
2. If your order processing system were automated, both for new jobs and spare parts, what percentage reduction in the effort required from your customer service and order entry personnel would you expect?
3. What increase in sales would be possible if your customer service personnel had more time to spend with the customers rather than perform clerical chores?

While we will not attempt to provide an estimate as to how much benefit these two items may provide you, it is, worth a thought. If you so choose, estimate a dollar benefit for the customer service area, and transfer it to the Benefits Chart in back of this guide.

## *Delivery Schedules and Sales*

It's simply a fact – shorter delivery schedules help generate additional sales. Delivery schedules are really

wholly a result of manufacturing capacity, because with JOBSCOPE, the rest of the variables, such as outside material requirements, labor scheduling, and work center loading, can be managed with a great deal of control. The materials control affected by MRP and the production control exercised by Production/Scheduling go a long way toward giving your management a better method of getting work through your facility in a shorter amount of time than it takes today. These shortened manufacturing and delivery schedules can have a positive effect by helping you to avoid lost orders, reduce orders that can not be filled due to out-of-stock or unavailable materials, parts, or components, and reduce late shipments. If you could shorten your delivery schedule for most of your products by 20%, how much of a gain in sales do you think you could realize?

$$\begin{aligned}
 & \% \text{ Increase in sales} \\
 & \quad \times \\
 & \% \text{ Gross Margin} \\
 & \quad \times \\
 & \$ \text{ Annual Sales} \\
 & \quad = \\
 & \$ \text{ Benefit}
 \end{aligned}$$

Adjust the benefit to a figure with which you feel comfortable, and write it on the Improved Deliveries – Improved Sales line in the Benefits Chart.

## Developing a Plan for Improving the Use of Capital

In the section on Financial Analysis, we introduced the concept of turnover. The idea is how well and effectively we use the dollars available to us. For the purpose of analysis, it is probably best to assume constant sales volume and then see if there are some dollar resources that can be released for more productive uses. When we think about turnover and think about the balance sheet, we are thinking not about annual savings in dollars, but freeing up capital dollars. These capital dollars can then be committed to other, more productive uses. There are two major opportunities to free capital, inventory and accounts receivable.

First, let's think about inventory. Many businesses have increased their inventory turns from seven or eight times a year to twenty-six and twenty-seven times a year. You should recognize that under most accounting systems, the cost of carrying inventory does not impact line managers that, in many cases, have the say-so in determining inventory levels. They build inventory in many cases simply to maintain their labor productivity, an item on which they are constantly measured. In the custom manufacturing concern, engineers and planners often order materials well in advance of when

they are actually needed in order to make sure that they are on hand. These practices build excessive inventory. It is not uncommon to see custom manufacturing concerns with inventory turnovers of two or three times per year. JOBSCOPE gives the company management the tools necessary to control its inventory. Cash flow from each individual job can be estimated and controlled with the responsibility allocated to specific persons to see that inventories do not build to excessive levels. Good inventory control requires good scheduling and ordering based on actual requirements, not guesses. In most custom shops, so-called minimum stock levels can add tremendous inventory carrying costs. JOBSCOPE's material requirements planning features can make major reductions in this area.

Accounts receivable is another major source of freeing up excess cash. It takes good management, good follow-up, and good information to keep the accounts receivable at an acceptable level. Again, JOBSCOPE has the tools. Management needs to simply set the goals, and allocate the responsibility for achieving them.

Now you should develop a specific plan and come up with a definite amount of capital you can release by better inventory and accounts receivable management. Using published financial data compare your turnover with others in similar businesses.

## *Unique Inventories*

Because you are in the business of manufacturing custom products or providing special services, your various types of inventories differ slightly from those of other manufacturers. Typically, you will have a minimal finished goods inventory, due to the probability that you ship the product(s) as soon as the work is completed. Also, you probably have a small raw materials inventory due to the fact that you order materials specifically for each job.

The inventory classifications that remain are those that you deal with most frequently, and those which JOBSCOPE was designed to affect.

These inventory classifications are as follows:

- sub-assemblies and components
- spare parts
- work-in-process (job inventory)
- stock inventory (including expendables, supplies, some finished goods, etc.)

In your manufacturing environment, raw materials ideally arrive on the floor just before a job goes into production. Sub-assemblies and components may be made up prior to a job and placed in a stockroom, and work-in-process usually resides on the plant floor.

Other than raw materials, which can be affected by quantity buying and commodity pricing decisions,

reductions in the other inventory areas can be made with very little, or no effect on your desired service level. This should generate significant additional savings for your company.

### *Reducing Work-in-Process (Job) Inventories*

Many manufacturers do not recognize the significant reduction that can be gained in WIP by doing a better job of managing the flow of materials and work on the plant floor. Large quantities of staged materials and work-in-process have become the norm because of this situation.

In almost every operation, a large portion of the time that WIP is on the plant floor is spent in queue, or waiting, between operations or work centers. If a smoother transition and flow of parts, components, and sub-assemblies between operations could be obtained, less work-in-process materials would need to be on the floor at any one time. You probably do not want to eliminate 100% of the WIP wait time due to the fact that the production labor sometimes slows down if they don't have a visual reminder (i.e., additional work) queued up to remind them that there is plenty to be done.

The way to most accurately determine how much time is nor-

mally spent as wait time for a job is to compare two completed jobs of a similar size and product. The only difference should be that one is a rush order, and one is not. The differences in total lead time (time between production start-up and shipping) between the two jobs is representative of your typical job wait time.

Another method of determining your excess wait time is to look at your routing information for some key products and see how much time is actually consumed in manufacturing time (plus the minimum acceptable move and wait time between work centers) as compared to the current lead times you are actually experiencing and quoting to prospects for that particular product. The difference is the excess wait time.

By conducting some random measurements at your work centers, you should be able to arrive at some average wait times for your various work centers and products. You should also have a relatively good idea about what period of time you would consider acceptable for each work center. By taking that information from your key work centers, you can compute for each work center the potential savings to work-in-process inventories. The formula begins at the top of the following page:

$$\begin{aligned}
 & \text{Current wait time/backlog} \\
 & - \\
 & \text{Desired wait time/backlog} \\
 & / \\
 & \text{Current wait time/backlog} \\
 & = \\
 & \text{Potential \% Reduction}
 \end{aligned}$$

### *Work-in-Process Reductions – Dollar Benefits*

Obviously, the potential percent decrease in WIP calculated above has some positive financial impacts. The most obvious benefit is a pure dollar decrease in the amount of work-in-process inventories on the plant floor at any one time. To compute this benefit, use the following formula:

$$\begin{aligned}
 & \text{Potential \% WIP reduction} \\
 & \times \\
 & \text{WIP Value(Company Composite)} \\
 & \times \\
 & \text{WIP Carrying Cost} \\
 & \text{(Company Composite)} \\
 & = \\
 & \text{\$ Benefit}
 \end{aligned}$$

The theory is that less WIP means shorter lead times. This may or may not be true in your particular operation. If it is true, you may find that better lead times can eliminate some of the sales you have lost because you couldn't meet the customer's delivery requirements. If you so, choose you may want to take a

historical look at some of your lost orders and see which ones were lost for that reason. Or you may simply choose to make a "guesstimate" if that data is not available. In any case, it is safe to say that your sales could potentially increase by X percent. If you take this estimated percentage (X) and multiply it by your yearly sales revenues and multiply that by your percent gross margin, you will have additional potential dollar benefit from reducing your WIP inventories. The formula looks like this:

$$\begin{aligned}
 & \text{\% Sales Increase (estimated)} \\
 & \times \\
 & \text{\$ Sales(Company Composite)} \\
 & \times \\
 & \text{\% Gross Margin} \\
 & \text{(Company Composite)} \\
 & = \\
 & \text{\$ Benefit}
 \end{aligned}$$

### *Sub-Assemblies and Components/Spare Parts*

By definition, a jobshop manufacturer orders the majority of materials and components for a particular order. This should keep your inventories at low levels. However, in an attempt to take advantage of quantity buying opportunities and improve your responsiveness to customer's delivery requirements, many of you have attempted to standardize on certain high-use materials and

components. Your order quantities and inventories usually experience and increase when this occurs.

The above situation is normal and acceptable in many cases, but it also brings with it the risk of obsolescence due to engineering changes and new product development. This risk also applies to spare parts and sub-assemblies, whether purchased or manufactured in-house.

A good rule of thumb for these items is that your safety stock should not exceed five to seven days average usage. If your past experience with your suppliers leaves you uncomfortable with this amount of safety stock, you may want to increase this figure slightly. The formula for determining your safety stock investment in each of these areas is exactly the same. Select some key items from each area and conduct the following measurements:

$$1. \frac{1}{2} \text{ Order Quantity} + \text{Avg. on-hand balance at receipt} = \text{Avg. on-hand balance}$$

$$2. \frac{\text{Avg. on-hand balance at receipt}}{\text{Avg. on-hand Balance}} = \% \text{ Safety Stock}$$

$$3. \% \text{ Safety Stock inventory} \times \text{Inventory Value}_{\text{company composite}} = \text{Current Safety Stock Investment}$$

$$4. \frac{\text{Avg. one week's usage}}{\text{Avg. on-hand balance}} \times \text{Inventory value}_{\text{company composite}} = \text{Investment required for safety lead time}$$

$$5. \text{Current Safety Stock investment} - \text{Investment req'd for safety lead time} = \text{Excess inventory investment}$$

$$6. \frac{\text{Excess inventory investment}}{\text{Inventory value}_{\text{company composite}}} = \text{Potential \% reduction}$$

## *Inventory Savings Estimates*

The formula is the same for both sub-assemblies/components and spare parts. Make sure you calculate the benefit for each of these two areas using the final potential percent reduction figure you calculated on the previous page. The benefits formula is as follows:

$$\% \text{ Inventory Reduction} \times \$ \text{ Value Inventory}_{\text{company composite}} \times \text{Carrying Cost}_{\text{company composite}} = \$ \text{ Benefit}$$

## Conclusion

As you can see, inventories can be a significant factor in your quest for better cost control. Even though we in custom manufacturing typically have relatively small raw materials or finished goods inventories, there is quite a bit of savings to be gained in the other inventory areas that we do work with on a daily basis – sub-assemblies/components, spare parts, and work-in-process. Compile all the dollar benefits we have arrived at in this section and see what they total up to be – you may have a pleasant surprise. This figure should be entered on the Savings in Inventory Level Reductions line of the Financial Benefits Chart.

## Financial Benefits Chart

### *Benefits – How Do I Use Them?*

The Benefits Chart is at right. By now, you should have filled out the blanks beside the various benefit headings and titles with the benefit figures calculated in the various sections of this guide. Total all your benefit figures to arrive at the total projected annual benefits attributed to the implementation of JOBSCOPE.

The Annual JOBSCOPE Financial Benefits figure should be compared to the annualized cost of the hardware/software system under consideration using your company's normal investment evaluation criteria. Based on the history of previous JOBSCOPE prospects, you should see a rather healthy investment opportunity for your company. Do what the numbers tell you to do – install JOBSCOPE! It's the best way we know to get a profitable jump on tomorrow – today!

## JOBSCOPE Benefits Chart

**1. Plant Productivity Gains**

\$ \_\_\_\_\_

**2. Additional Production Savings**

\$ \_\_\_\_\_

**3. Management/ Clerical Savings**

\$ \_\_\_\_\_

**4. Customer Service Benefits**

\$ \_\_\_\_\_

**5. Improved Deliveries -Improved Sales**

\$ \_\_\_\_\_

**6. Savings in Inventory Level Reductions**

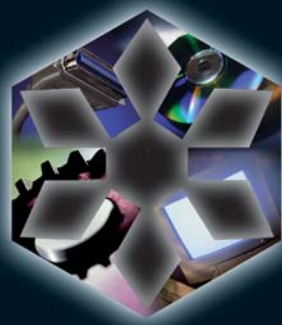
\$ \_\_\_\_\_

**Annual JOBSCOPE  
Financial Benefits**

\$ \_\_\_\_\_

**Notes:**

**Notes:**



# **JOBSCOPE<sup>®</sup>**

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