



## Using Technology to Unleash the Profitable Growth of a Manufacturing Enterprise

### Introduction

It used to be that as typical mid-sized manufacturing plant had 100 shop-floor workers making products managed by a front office staff of 20 or so people. Now, due to automation, we often only have 10 people making products using highly automated machines but the front office staff has grown to 30 or more people.

If you want to double the sales/throughput of a manufacturing plant, you can typically add more automation to make more products without a major increase in the production work force. But you may well find that, as a result, you have to more than double the number of front-office staff needed to manage and control the manufacturing processes. As a result, the inability to hire, train, and retain staff members with the appropriate skills quickly becomes the limiting factor in the growth of the organization.

Some reasons for the growth in the overhead cost of the front office staff are:

1. Change from long-run manufacturing of a few standard products to the need to deliver semi-custom products made-to-order on a quick-turn-around basis. This requires much more complex scheduling and planning of operations.
2. Need to prevent mistakes. The probability of making mistakes increases dramatically with the number of different semi-custom products being made at the same time within a manufacturing plant. This can require many more people to monitor and control the manufacturing operations.
3. Need for collecting and analyzing job cost data so that semi-custom products can be accurately priced to make a profit on each job. This becomes much more complex when many different products are being made in small quantities in a manufacturing plant.
4. Need for regulatory and standards compliance to ensure product safety. This requires collecting and analyzing large volumes of data to ensure that mistakes have not been made and that all appropriate procedures have been followed.
5. Need to exchange data with supply chain partners. This includes sending data about shipments, as well as production and inventory status, to customers, as well as to 4PL and 3PL managers and Distribution Centers to which products are shipped. It also includes providing appropriate data electronically to suppliers so that needed materials will be available when needed.

If we are to unleash the profitable growth of a manufacturing plant, we have to provide the tools to enable the existing staff to perform these overhead tasks when sales double or even quadruple.

In this white paper we examine how technology can enable fewer people to efficiently manage and control larger manufacturing throughput volumes.

## **Using Technology to Enable Profitable Growth**

The first step in solving this problem is to implement an automated data collection system, using technologies such as barcode scanning and mobile data collection, to track the real-time status of jobs and materials as they flow through the manufacturing plant, from the receiving dock to the shipping dock.

This eliminates the need for the use of paper forms and time consuming manual keyboard data entry. More importantly, it gives all staff members a real-time view of the status of production and inventory on which they can base their decisions without the need to ask other people or "walk-the-floor" to find out what is going on. It also enable customer service people to respond to customer inquiries about the status of their order without the need to contact someone in production to find out what is going on.

The tracking system can automatically analyze the data being collected and warn material handlers and machine operators when they are about to make mistakes, such as using or picking the wrong materials for a job. The tracking system can also monitor production and inventory status and automatically alert managers, supervisors, and production workers when an action needs to be taken, such as the need to replenish floor stock inventory.

Based on the data collected, the tracking system can then automatically schedule work in each work center in real-time so as ensure that each customer order gets out on time. The system can also monitor available inventory levels and automatically generate requisitions for future purchases to be acted on by the supply chain manager. This can dramatically reduce the number of people required to manage production operations.

The data collected can be automatically analyzed to determine the cost of each job, as it is being manufactured, as well as to produce recommended minimum bid costs for new jobs. This can enable sales people to be much more accurate in their bidding so as to ensure that new business is profitable business that has been bid with appropriate margins based on prior cost data.

Finally the data collected can be automatically exchanged with supply-chain partners, thus eliminating the need for people to prepare and submit this data to customers and other supply chain partners.

### **Commentary**

Implementing a system to perform all the overhead tasks described above can typically cost between \$50,000 to \$150,000, including software, equipment, training, and implementation support. But this is much less than the cost of one or two additional support staff, when you take into account the cost of salary, taxes, and fringe benefits.

Using such technology, a number of our clients have found that they have been able to double or even quadruple their sales without any increase in their overhead staff. Others have found that they can support their current volume of sales, more profitably, with fewer overhead staff.

For most organizations, the biggest impediment to automating many of these overhead functions is that their existing staff is too busy with handling current business to be able to devote the time needed to implement an automated solution.

Solution integrators, such as BellHawk Systems, form a team with clients to manage the implementation process such that there is an incremental changeover from current manual processes to a high level of automation without negatively impeding existing business flow. Typically this transformation can take about one year for end-to-end implementation with benefits being felt incrementally as the implementation progresses.

### **Author**

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