

# **Achieving World Class Levels of Performance through Lean Manufacturing**

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People are still talking about World Class Performance. But what does World Class really mean? The very best? High performance businesses? Businesses with worldwide markets? Perhaps World Class is easier to define by example, by pointing to companies such as Ford, Toyota, Dell, Canon, Hitachi, Allen-Bradley or Square D – companies with global dominance in their markets.

Today, a growing number of far smaller companies are also setting their sights on achieving World Class Levels of Performance – even companies that do not manufacture and distribute globally. These companies recognize that their World Class competitors are not only in Asia or Europe, but as close as a few miles down the road.

## **The Role of the Customer**

Any improvement effort that does not focus on the customer is going to fail. The Customer has been, is today, and always be KING.

## **Balance of Key Business Management Systems**

In the quest for World Class performance, the ultimate goal is to achieve a balance between the three essential business management systems:

- Empowered People
- Rapid Response Manufacturing
- Effective and Efficient Asset Utilization

Balance between these three business management systems provides the foundation for World Class Performance. Our experience has been that any time one of these business management systems overshadows the others, performance drops.

To get them started and drive them toward that goal, most companies implement programs that initiate change to raise performance. For many businesses, it is a JIT/Lean Production program which establishes a firm base on which to build additional performance improvements. Our experience has been that embracing the JIT/Lean Philosophy provides a very powerful set of tools that a company can use to achieve the individual objectives of each of the three key business management systems:

- The Rapid Response Manufacturing objective in a World Class company is to establish a very flexible manufacturing environment. This means shortening the time line from customer order to cash dramatically.
- The Empowered People objective in a World Class company is to develop flexibility and encourage continuous improvement through its people – both management and workers – to be aware, to think, to accept change, to voice suggestions for change and improvement, and to implement them. To create the capability for rapid improvement.
- The Effective and Efficient Asset Utilization objective is to correctly apply the limited resources of the business – proper equipment, materials, people and time – very carefully. This may mean reorganization from traditional functional disciplines to “flow” approaches in order to maximize the effective and efficient use of resources.

When we work with a company that is striving to become World Class, we look to put these three business management systems and each of their four elements in balance.

## **The Empowered People Elements**

Looking at the Empowered People business management system, we begin with Work Place Organization. Do the problem areas call attention to themselves? For example, we have suggested that pieces of equipment be fitted with flashing lights and sirens. When a machine goes down, the flashing light goes on. When it is down for more than ten minutes, a siren goes off that only the plant manager can turn off. Such techniques make problems instantly visible.

From visibility, we proceed to the other key people elements.

- *Quality at Source* – is everyone also responsible for quality?
- *Focused Problem Solving*– are we nurturing the attitude of continuous improvement through small group improvement activities?
- *Skill Diversification* – are we developing multi-function workers?

This last element – diversification – has become so essential to high performance businesses that many now pay their people on the skills mastered rather than on seniority. They have learned that when the same person runs the same piece of equipment for years and years, managers get few suggestions for improvement. The opposite is true when people learn multiple jobs in different functional areas of the business.

## **Rapid Response Production Elements**

In the Rapid Response Production business management system, we look at the element, “One-Piece Flow,” and ask: What does that mean in this environment? How do we get there? Then we proceed to probe the other elements.

- *Flow Production* – can the process be organized from a functional to a flow mode?
- *Fit-to Pass* – how can we maximize it?
- *Quick Changeovers* – can be get set-ups into less than ten minutes?

In short, we work the Rapid Response Production mind set to fine-tune it for maximum performance.

## **Effective & Efficient Asset Utilization Elements**

When we move over to the Effective & Efficient Asset Utilization business side, we look first at Uniform Load/Balanced Flow and ask: Are all the production efforts synchronized to meet the required output -- not just the company's own internal efforts, but also those of the suppliers? The goal is to establish a drum beat within the business that regulates and synchronizes flow.

From working to establish the drumbeat, we move to the other elements.

- *Preventive Maintenance* – Is everything in a constant state of readiness, not just equipment, but also the tooling and the people doing the work?
- *Supply chain networking* – Are the vendors lined up to support our objectives?
- *Pull System* – Can we pull production through rather than pushing it through?

## Cost-Added Versus Value-Added

One of the first steps in working toward World Class performance is to figure out the difference between non-value added and value-added in your business. What is non-value added? One example is inventory that's not being worked on. Another is moving material without adding value to it. So is any material that's rejected or reworked or requires a deviation. It also includes looking for things that should be located right where you work.

In short, anything that doesn't add direct value to the product is non-value added. Non-value added consists of two elements: WASTE and COST-ADDED. In nearly every business, as much as 80 percent of all of the things that are going on add cost, not value. A World Class manufacturer must first identify and then eliminate as much of the cost-added as possible.

How much waste and cost added do you have in your business? Perform a short mental exercise. Imagine taking a can of red spray paint and walking through your production process. Anywhere you see waste or cost-added activities rather than value-added, mark it with a big red **X**. How many red **X**'s would you make? How much red paint would you need? How many cans?

## First Step: Evaluation

There are three steps a company must follow in preparing to undertake the quest for World Class performance. The first step is to evaluate their existing business. The three basic business management systems – Empowered People – Rapid Response Production – Effective & Efficient Asset Utilization are each comprised of four elements, so there are a total of 12 elements. You can ask a series of questions about each element. By asking those questions and rating them in terms of importance to the business, you can focus on which elements are going to help you to attack the non-value added in the business and which elements should be pursued first.

Let's take one element: *Quality at Source*. Let's work through the first few questions together.

1. First question: Does production accept responsibility for and actively work toward high quality?

Not the quality control department. Not quality inspections. But production – Yes or No? If it's Yes, go on to the next question.

2. Second question: Have Standards been established for all processes? Is there a comprehensive SPC program throughout the business?

Not just in the factory, but throughout the business. A tremendous amount of waste in the factory is caused by waste in other areas of the business. Errors in order entry, for example. Again, use the same process as in the first question – stop, rate the value, and develop the actions it will take to make that a reality.

3. Are there ongoing reliability assessments and correction/improvement programs in place for plant products? Yes or No
4. When quality problems are identified during the production process, is the process shut down and the problem fixed? Yes or No

We should take a moment to take a closer look at this last question. Six Sigma quality is currently an important goal in many American manufacturing plants. Quality banners abound in factories and offices and quality mottos appear on notebooks and notepads. But when it gets to the end of the month, what happens to quality? We send the inspectors on a holiday and the real goal becomes shipping and billing – plain and simple. Despite all the banners and mottos, that sends a message to everyone that quality really isn't all that important.

You're not really serious about quality until you're willing to impact the revenue stream and fix the problems causing poor quality.

This is a sample of an in-depth assessment of just one element of World Class Manufacturing – Quality at Source. It introduces you to the type of evaluation that must be performed for all 12 elements. We would be happy to provide you with a copy of the full evaluation checklist if you request it from our office.

### **Second Step: Performance Measurements**

Once you have used the evaluation criteria to assess the elements and have developed action plans to implement each element not in place, you are ready to establish some performance measurements.

Most companies have measurements, but they are usually financial and they reflect performance after the fact. To assure that one is performing at the World Class level in the present, you need operating performance measurements taken on a hourly, daily, weekly, and monthly basis. These measurements, reported continually on a performance report card, give a company the opportunity to define responsibility in each functional area and express achievements in a manner that ties the entire business together.

The important thing to consider in establishing measurements is that they trigger behaviors that will move the company toward continuous improvement. An example of a bad measurement is measuring the efficiency of direct labor. A department can earn a high efficiency rating even if it doesn't have the material that the assembly process needs. Measuring efficiency alone sends the wrong message. Efficiency must be coupled with being on schedule to achieve the attitude and behavior that you are really seeking to achieve high performance.

### **Third Step: Waste Elimination Profit**

As the World Class program proceeds, an overall reduction in cost-added practices and waste should be highly visible and quantifiable.

The first step in calculating waste reduction – and eventually the profit gained from it – is to do some base-line studies to understand current conditions. This gives you a starting point for tracking improvements. We recommend baselining at least the following information:

- Cumulative cycle times for each product
- Manufacturing cycle times for each product
- Inventory turns in total and for each product
- The number of quality-related rejects in a given time frame
- The amount of floor space used by product (distance traveled)
- The number of non-value-added moves by product
- The number of transactions (inventory/move-employee) per product by production run.

In a company that is striving to be World Class, all of the above items must be targeted for reduction. The method that we recommend is to begin by aiming to reduce waste by at least 50 percent. Then, reduce it again by 50 percent. Then make it ten percent of what it was – a total reduction of 90 percent. A World Class manufacturer is someone who has eliminated 90 percent of the waste in the business. And that company is still working on that last 10 percent.

Once the process is under way, you can calculate the impact of reducing waste on the bottom line. It's actually very simple. Let's calculate an example using inventory.

- Suppose Company A chalked up the following for 2000: Cost of Sales: \$100 million; Inventory: \$50 million with two turns against sales.
- In 2001, cost of sales went up, and because of an aggressive waste elimination program, inventory went down. The result was: Cost of Sales: \$150 million; Inventory: \$25 million with six turns against sales.
- If there had been no improvement in inventory turns over 1986, inventory would have grown to \$75 million. Thus, the reduction of inventory represents a Waste Elimination Profit (WEP) of \$50 million.

Waste Elimination Profit can be calculated for all of the wastes and cost-added activities in the business.

### **The World Class Attitude**

Does your company have a vision of World Class Performance? It's a vision that must be grounded in your own desire to improve, not on comparing yourself to other companies and trying to best them. It's a vision that must be internalized by everyone in the company and reinforced with continual communication, feedback and support. The end result is balance and harmony between the key business management systems and an atmosphere and commitment that builds pride, performance and profitability.

Remember, if you keep doing the same things, you'll keep getting the same results. Companies that really want to be World Class have to change and learn to love change. They can no longer delay. In the World Class arena, continuous improvement beats postponed perfection every day.