

LEAN-MRP INTEGRATION ¹

Material Requirements Planning (MRP)

The MRP evolution took us down the road of computer sophistication. It was to be the panacea for solving all manufacturing problems. Little did we know that when we finally arrived at the final phase---ERP/MRP---we would still be facing daily parts shortages, shop floor chaos and end-of-the-month scrambling. What happened to all those "salesmen" promises?"

When it comes to detail scheduling, marginal data input integrity and inside-of-lead-time orders cause MRP systems to create far too many rescheduling actions that causes purchasing and production to lose control of day-to-day activities. This schedule instability is human driven and not a system design problem. (So stop listening to salesmen, while bank clerks may perform their duties flawlessly, stressed-out purchasing and production planners, processing inside-of-lead-time orders, will never achieve perfection.)

The MRP Explosion Process

MRP at first look, is not a complicated systems. We input a master schedule that uses bills of material and parts procurement lead times to calculate gross requirements. These requirements are then balanced against the aggregate of on-hand inventory, lead times, work-in-process and open purchase orders to determine the net, time phased requirements. The resultant is subjected to lot size algorithms and planned orders are created. (The final output is notification to buyers and planners in the form of action messages to either reschedule, reorder, or cancel shop and/or purchase orders.)

If we go deeper into what is happening in the gross to net requirement process, we find that most master schedules that are driving MRP contain inside-of-lead-time sales orders that exceed production capacity and ignore procurement lead times. In addition, the gross to net process is based on data and parameters supplied and maintained by planners. While a computer is flawless in its ability to calculate the answers, the data supplied by stressed-out buyers and planners is not. Consequently, MRP reschedules are so many that buyers and planners can't effectively process the take action volume.

Accuracy of MRP Input Data

An effective method for evaluating how well a company is doing in managing their MRP input data is to ask questions as to how accurate are their bills of materials, how accurate is their purchase order and shop order status, how accurate are their inventory records, etc.

If the answers you get are vague, like...good, OK, not too bad... with no historical percent-age data, then you know that this is a company that needs help in stepping up to the problems of poor information integrity.

If a company tracks MRP input data and does a simple calculation of statistical probability of MRP accuracy: Master schedule 99%, BOM = 98%. Shop Order Status = 90%, P.O. Status = 92%, Inventory = 92% it will find that its MRP scheduling accuracy is 74%. In this case, if buyers and planners followed the MRP scheduling take actions, the order launch error would be 26%. How does your calculation compare?

The End-of-the-Month Syndrome

For a measure of MRP shortcomings, one needs only to spend some time in a manufacturing facility... especially during the last weeks of the final financial quarter. In a typical company, you'll find that converting the quarterly financial forecast into reality still requires internal/external expediting, last minute on-the-run product changes and even a little smoke and mirrors. Results are overtime, scrap, rework and warranty claims (all non-value-added costs) that negatively impact a company's bottom line performance.

In addition, marginal quality and late shipments deliver less than acceptable customer satisfaction. Companies that have spent thousands of dollars in pursuing MRP/ERP are devastated when they experience a business decline due to noncompetitive pricing caused by uncontrolled non-value-added costs. Is there a solution? Certainly, I call it Kaizen Based Lean Manufacturing.

Kaizen Based Lean Manufacturing™

Kaizen Based Lean Manufacturing (KBLM) is a proven methodology that employs practical tools and techniques that help manufacturers gain control of their operations, optimize their performance, eliminate non-value-added cost and consistently exceed goals/expectations.

KBLM involves arranging and defining manufacturing resources so that products flow most efficiently through the manufacturing process. Today, most manufacturing companies are still organized for functional manufacturing... mechanical assemblies, electronic boards, cables, machined components and purchased parts are produced or purchased in lot sizes and received, inspected and moved to stockrooms.

This "old school" MRP process includes the "picking-of-parts" to fill shop orders and the movement of shop orders to the production machining and assembly

build areas. When the parts are completed, they are returned to the stockroom to be "picked" for the next higher assembly shop order. Finally the end product is "picked", assembled, tested and accepted.

Kaizen Based Lean Manufacturing eliminates all the non-value-added tasks in the MRP "order launch and expedite" system... the result: A significant increase in speed, quality, and profits. And, work becomes fun again!

No matter how much computer sophistication is added to your purchasing and production systems, if you fail to master the 8-Basics of Kaizen Based Lean Manufacturing, you will never optimize your lean efforts and never reach our full growth and earning potentials!

Concerned about your company's future ? Your future?

Whether you answered YES or NO to the above questions, stay connected and you'll discover how a focus on the 8-BASICS of Kaizen Based Lean Manufacturing can change your company's future and your professional life for the better. Believe this... for you and your company to reach your full growth and earning potentials you need to accomplish two things:

1. You need to identify, implement and master the BASICS of your business and profession.
2. You need to develop a process for obtaining "top-to-bottom," company commitment to the flawless execution of these BASICS. This commitment becomes a launching pad for achievements beyond all expectations.

If you're pursuing a computer hardware and/or software solution to your problems; you may have the "cart before the horse!" If you're not focused on identifying and mastering the BASICS presented in a Manufacturing Training Program, no level of system sophistication will get you to where you want or need to go.

Bill Gaw's favorite sayings is: "It's the BASICS, friend!"

A while back, the Aberdeen Group, published their "Lean Benchmark Report." Of close to 300 manufacturers that participate in this study, 90% reported that they are committed to Lean. However, further analysis found that less than 20% of these companies can be considered best-in-class. The report went on to say: "Companies that have achieved operational excellence through the deployment of a lean strategy share this important characteristic:

"Dedication to basics such as streamlining processes, creating a well ordered work environment, and ongoing continuous improvement programs (Kaizen)."

And here's the Aberdeen Report's conclusion:

"Best-in-class companies tackle Lean by mastering the basics."

So let's get the word out... "It's the BASICS, friend!"

I realize the word "BASICS " is not very sexy. But it is a very important thing to understand.

Many years ago Vince Lombardi led the Green Bay Packers football team to unprecedented success by having an almost obsessive focus on doing the **BASICS** very well.

It's amazing how many individuals and companies have great visions yet fail to achieve their full growth and earning potentials. They're a lot like the Green Bay Packers' football team before the arrival of Vince Lombardi... all the potential in the world but with no focus on executing the basics of their business and profession.

The fact is, business basics... the things that serve as a solid foundation for growing and enduring success have not changed since before I was born... and won't change after you're dust.

It's tempting to think that they do... that the introduction of change initiatives like Enterprise Resource Planning (ERP), Customer Relations Management, (CRM) and Six Sigma can change the BASICS.

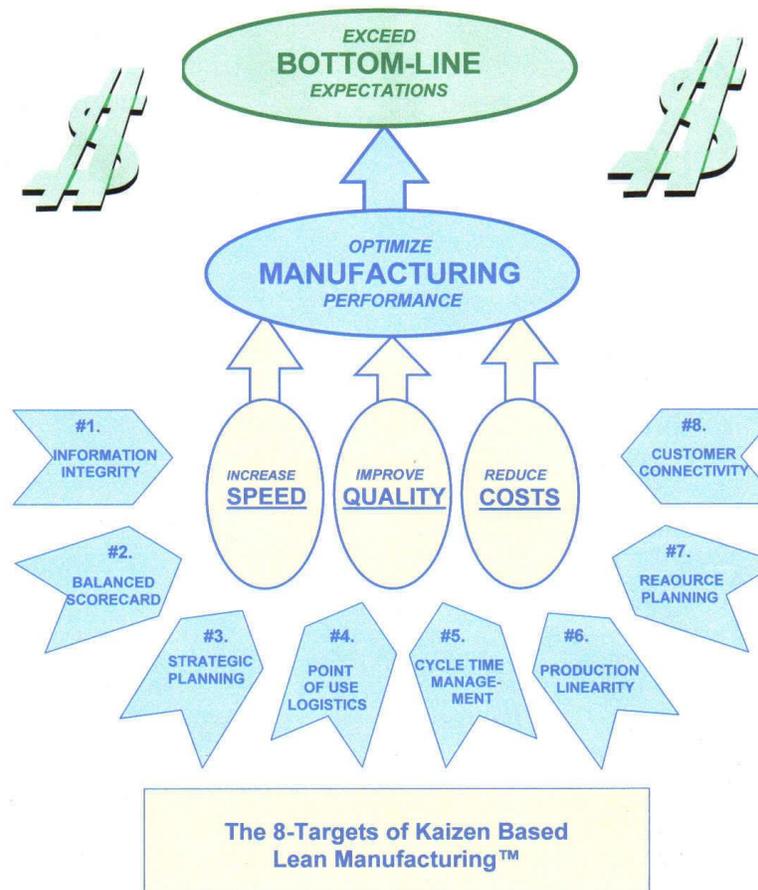
I understand the temptation. I can only caution against it.

Mastering the proven basics of what has worked in the past will establish the foundation needed to successfully implement and optimize the change initiatives of today and tomorrow. Best of all, work will become fun again

**If you've ever said, "There must be a better way."
... there is, and it's not more computerization!**

The 8-Basics of Kaizen Based Lean Manufacturing™

Kaizen (ky' zen) is a Japanese word meaning gradual, continuous improvement. Kaizen Based Lean Manufacturing™ (KBLM) is a methodology that employs proven tools and techniques that optimize manufacturing performance and helps companies exceed bottom line expectations.



Kaizen Based Lean Manufacturing™ (KBLM) does not replace the MRP system but rather optimizes its shop floor and purchasing sub-systems. KBLM methodology can generate two to three times the original MRP results.

Below is a graphic that shows the impact of optimizing MRP shop floor and purchasing sub-systems with KBLM methodology:

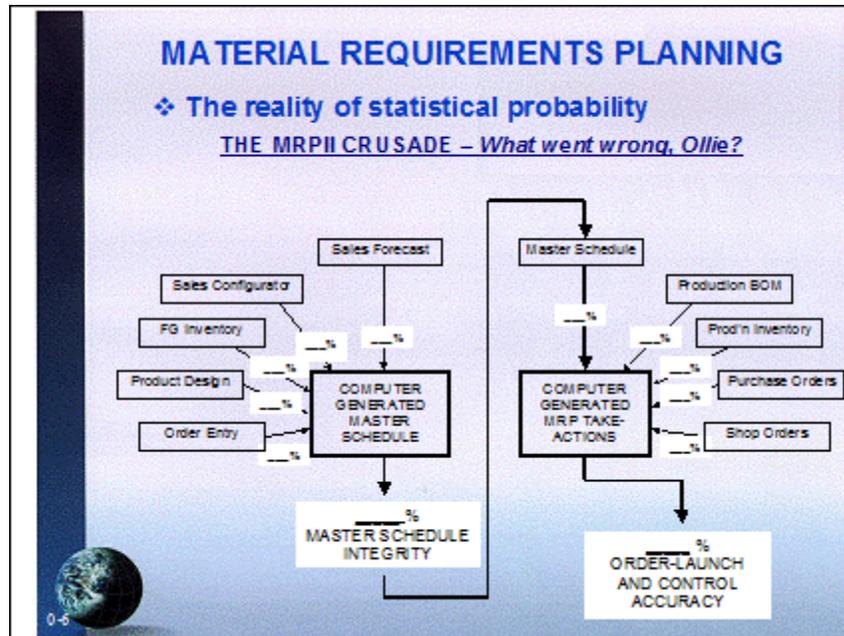
TYPICAL RESULTS: MRP + KBLM

Results Displayed as Range of Percent Reductions



A CLIENT'S ACTUAL KBLM RESULTS





Note Page:

This chart displays the inputs required to generate a master schedule and then feeds that master schedule into the MRP module along with the other required inputs to calculate net requirements and generate take actions.

Let's fill in the blanks with percentages that are pretty common in industry today. One thing we know about SALES FORECASTS is that they are always wrong... that said let use 95% accuracy. A sales configurator is used to define a highly engineered product. They are usually very accurate so lets give them a 99%. Finish goods inventory... let's use 97%. Product design, if its new its low if old its high so let's use 92%. Order entry is usually good so we'll use 99%. To arrive at the percent integrity of the master schedule you must multiply each of its decimal inputs (it is not the averaging of the decimals, as most people think). In this case it calculates to .83 or 83%. This resultant decimal is the input to the MRP module based on the other inputs we can then calculate the shop order *launch and control accuracy*. Let's take a look at these inputs. Production Bills of Materials usually have problems let's give it 95%. Production inventory let's say 98%. Purchase order status let's say 96% and shop order status we'll give it 94%. So what do we have? Our order launch and control accuracy is 70%. In a typical case the purchasing and shop floor activities are being driven by system error of 30 percent. Is there any wonder why MRP and ERP are not the panacea we once thought them to be!

An effective method for evaluating how well a company is doing in managing their MRP database data is to ask questions as to how accurate are their bills of materials, how accurate is their purchase order and shop order status, how accurate are their inventory

records, etc. If the answers you get are pretty vague, like—good, OK, not too bad—then you know that this is a company that needs help in stepping up to the problems of poor information integrity.

As an exercise, pause the presentation and mentally fill in the blanks with what you know or think the percent accuracy of your company's data input to be. Then calculate your company's order launch and control accuracy.

Believe this---If we're not measuring company's data and documentation integrity, nor in pursuit of continuous improvement, our manufacturing performance will always be marginal.

Let's review the 8-Basics of Kaizen Based Lean Manufacturing.

Information Integrity: MRPII/ERP and lean manufacturing expectations will be achieved only when day-to-day production and manufacturing/material control systems are driven by accurate and timely data and documentation.

Motivational Measurement: While financial numbers may tell us we're winning the war, it takes a motivational measurement to focus our energy and efforts to win each of the battles along the way. Balanced scorecards is the choice of winners.

Sequential Production: Effective shop floor control has proven elusive as we have upgraded our manufacturing control system from MRP to MRPII and then to ERP. To capture control of shop floor activities, we need to stop beating a "dead horse" and implement flow technology or as I call it Sequential Production. All the winners are!.

Point-of-use-Logistics: Companies will never achieve their MRPII/ERP lean manufacturing expectations as long as business leaders continue to talk about value-added supplier partnerships, while continuing to deal with their suppliers as adversaries. And its time for operations leadership to realize the stockrooms are a non-value added expense and it's time to move most inventory to point of use.

Cycle Time Management: If your manufacturing team can handle only one kaizen project at a time, then let it be the reduction of total cycle time. There just isn't any other more important control factor in our pursuit of lean manufacturing success.

Production Linearity: Companies will never achieve their full growth and profit potential if they produce more than 25% of their monthly shipment plan in the last week of the month or more than 33% of their quarterly shipment plan in the last month of the quarter. As companies struggle to remain competitive, one of the strategies by which gains in speed, quality and costs can be achieved is to pursue and achieve linear production.

Resource Planning: The inadequate and untimely availability of resources is a major cause of manufacturers' failure to meet their delivery schedules and profit margin forecasts – material shortages, low productivity and poor planning are not always the only causes.

Customer Connectivity: The reality of Customer responsiveness is in the eyes of the beholder – the Customer. The sooner we realize and accept our customers' perceptions of our products and services as reality, and accept it as our challenge, the sooner we will earn their confidence and become their permanent supplier of choice. And isn't that what business is all about?

1. Artículo publicado por Bill Gaw en Business Basics, LLC