REVOLUTIONIZE THE WAY YOU SCHEDULE YOUR SHOP

LEARN HOW TO USE DBR SCHEDULING TO DELIVER ORDERS ON TIME AND ON BUDGET

Genius ERP

EXECUTIVE SUMMARY:

Years of working with custom manufacturers has taught me one thing — scheduling is consistently a headache. And the more custom you are, the bigger the headache.

High mix, low volume manufacturing brings with it a lot of excitement as shops are always challenging themselves to create, engineer, and build new products. But the complex nature of custom manufacturing — never building the same thing twice — also creates its own problems.

Custom shops lack the consistent and reliable data needed to produce accurate schedules with traditional scheduling systems. This means that custom shops often abandon their scheduling software — software that needs accurate data to feed complicated algorithms — and use ad hoc methods to create shop-floor schedules.

What this means is that custom manufacturers often exist in a world of "best as we can manage", trying to juggle multiple jobs and priorities, and leaving them feeling like they are constantly playing catch-up.

But, there is a better way.

DBR, or Drum-Buffer-Rope scheduling tools will revolutionize the custom manufacturing industry. Based on Eli Goldratt's Theory of Constraints, DBR scheduling gives high-mix shops a new way to think about how they schedule their jobs, and a new, better way to create accurate schedules. These schedules will maximize efficiency and help you deliver jobs on time and on budget.

Scheduling in a custom manufacturing environment is exceedingly complicated as it involves not only trying to create an accurate schedule for a never-before-seen product, but it also involves many departments, components, and long lead-time items.

But with a DBR scheduling tool, the process is simplified. By identifying a plant's most limited resource, and then automatically generating a schedule around this resource, a DBR scheduling system creates an accurate, reliable, prioritized, and easy-to-follow schedule.

By doing so, you establish the heartbeat of a plant, so-to-speak. This produces a more efficient and effective schedule, which lets a manufacturer better plan and manage their shop, and meet their ultimate goal: to deliver more jobs on time and increase their throughput. Read on to learn how DBR scheduling can revolutionize the way you schedule your shop!

Dominic Vézina
General Manager, Genius ERP

TRADITIONAL SCHEDULING SYSTEMS – GOOD IN THEORY, BAD IN PRACTICE

Scheduling — it's one of the biggest problems manufacturers large and small need to solve. Poorly managed schedules lead manufacturers to struggle with delayed work orders, the ability to procure materials at the right time, cash flow management issues — and worst of all — lost deals and upset customers.

Most traditional scheduling systems, including those that are included in ERPs (enterprise resource planning systems) use historical data and algorithms to calculate accurate schedules. These scheduling systems can be great for repeat manufacturers, or other producers that build the same product over and over again, because these manufacturers have access to consistent, predictable, and reliable data — meaning scheduling systems can calculate and create accurate and reliable schedules.

But because custom manufacturers — those manufacturers who build new and unique products with every order — do not have the same type of reliable historical data to use, they end up using estimates (or more accurately 'guesstimates' and 'rules of thumb') in place of pin-point accurate data, and plug these 'best guess' numbers into their scheduling software.

Not surprisingly, the schedules that are generated are less than accurate, and custom shops end up missing deadlines — and losing business.

TRADITIONAL SCHEDULING DOESN'T WORK FOR HIGH-MIX, LOW-VOLUME MANUFACTURING, BECAUSE:

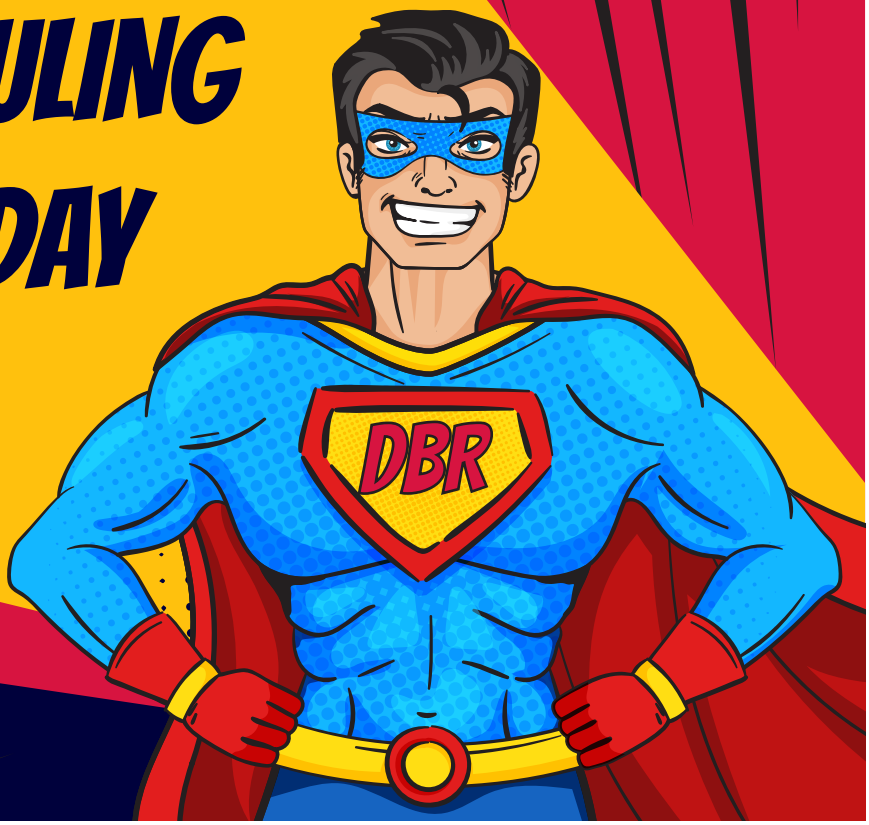
- ***It can't deal with shifting priorities***
- ***It doesn't help align your plant***
- ***It requires consistent data you don't have***
- ***And — worst of all — you lose jobs by misquoting at the bid phase***

Custom shops are put into a no-win position at the start of every job because traditional scheduling systems calculate bad start dates and end dates for custom manufacturers: There's no alignment throughout their shop, meaning the sales team gives customers delivery dates without knowing what the shop load is actually like — translating into frustrated customers waiting for delayed orders to be delivered.

Traditional scheduling also can't deal with shifting priorities, so one small change to a schedule leads to a domino effect — and very real consequences for delivery dates.

Traditional scheduling systems leave high-mix, low-volume shops scrambling to reschedule jobs over and over again — and more often than not — missing deadlines. Or worse, shops will lose jobs at the bid phase, because they can't accurately assess when a job can really be delivered.

DBR SCHEDULING SAVES THE DAY



But don't despair! There is a better way.

Custom manufacturers can deliver on time and on budget with DBR (or Drum-Buffer-Rope) scheduling systems.

DBR scheduling, based on Eli Goldratt's Theory of Constraints (ToC), is a completely different way to think about and create accurate schedules for a custom manufacturing shop — one that doesn't require the same type of data that traditional scheduling systems need.

ONLY

8%

OF MANUFACTURERS WITH A FULL SCOPE ERP USE THE SCHEDULING SYSTEM THAT COMES WITH THEIR SOFTWARE.*

*2019, Virginia Tech Department of Industrial and System Engineering Study

The underlying principle of DBR scheduling is that within any manufacturing shop there is a Drum — one, or a limited number of scarce resources — which controls the overall output of the shop. The performance of the system's constraint — or the Drum — determines the performance of the system as a whole.

RETHINK THE BOTTLENECK.

Bottlenecks are bad.

But they are also inevitable. The complex nature of custom manufacturing means that there will always be a work center or resource in your plant that is going to be a constraint, or bottleneck.

Understanding and accepting this fact — and then learning how to adjust your processes around your bottleneck — will change how you think about scheduling your shop, and will boost your shop's efficiency and productivity.

STEP 1
THE DRUM

The first step in creating a DBR schedule is to identify the Drum. The Drum is typically the most heavily loaded resource or work center in a shop. Once the Drum is identified, an ERP equipped with a DBR scheduling tool will automatically prepare a detailed schedule, accounting for the Drum.

Each job and task on a project will then be prioritized and scheduled. A DBR schedule squeezes the highest possible level of performance from the Drum, and, therefore, creates the most effective and efficient schedule for the shop as a whole.

STEP 2
THE BUFFER

To ensure that a custom manufacturer won't fall behind and that production won't be disrupted, a Buffer is put in place to guard against delays and problems. A Buffer is a period of time that is designed to protect the Drum from problems that occur upstream from the Drum operation.

What this means is that the Drum will never be starved for work, and that jobs will pass through to the Drum at the correct pace.

STEP 3
THE ROPE

And finally, Ropes, or mechanisms that allow jobs to flow seamlessly through the shop, are identified to ensure smooth production. While the Drum sets the master schedule, and the Buffer provides protection, the Rope communicates and controls the actions necessary to support the production system.

DBR SCHEDULING SYSTEMS IDENTIFY THE HEARTBEAT OF YOUR SHOP AND SCHEDULE YOUR WHOLE PLANT AROUND THAT HEARTBEAT — SO YOUR SHOP ALWAYS RUNS AT MAXIMUM CAPACITY.

DBR scheduling tools can also easily deal with changes and shifting priorities — whether from a customer request, a new order, or a late delivery from a 3rd-party vendor. Before a shop changes their schedule they can run simulations to see the impact of a change — and easily create the schedule that works best for the shop, balancing all priorities and ensuring on-time delivery.

Instead of creating a schedule based off of inaccurate data, DBR scheduling simplifies scheduling for custom manufacturers and creates a schedule based on the actual pace of a plant — with built in mechanisms to ensure that a custom shop always runs at its most efficient pace.

HOW DBR SCHEDULING ENSURES YOU ALWAYS DELIVER ON TIME AND ON BUDGET

With DBR scheduling, managers and supervisors will be better able to set and manage priorities as well as define and optimize the throughput of their shop.

Sales teams will be able to provide more accurate quotes and estimated delivery dates based on the actual load of their shop.

And production staff will always know what job to work on, what job needs to be done next, and will never have to question what their top priorities are.

If the priorities need to change, no problem. DBR scheduling automatically applies new priorities to every department, showing what the effects will be before committing to a change, and then can automatically update the schedule — keeping everyone in the loop and up-to-date.

DBR SCHEDULING MEANS:

- ***Better project management;***
- ***Decreased lead time;***
- ***Increased throughput;***
- ***A more harmonious and aligned shop;***
- ***Increased customer satisfaction;***
- ***Reduced WIP; and***
- ***Increased cash flow.***

DBR helps prevent costly delays and lets manufacturers deliver more products on time, as it gives custom shops an accurate, prioritized schedule to follow. Instead of building a schedule based off of guesswork, the schedule is developed around the actual pace of the shop — and is always designed to maximize the shop's efficiency.

As well, in a DBR schedule, the constraint receives top priority in terms of repairs, maintenance, and setups so plants won't have unexpected equipment downtime, and any delays that do pop up will be absorbed by the buffer time that is already built into the schedule.

DECREASE LEAD TIMES

DBR scheduling software keeps plants running at maximum efficiency, ensuring jobs progress through shops at the set pace. Custom manufacturers can give their customers more accurate estimated delivery dates — and then, more importantly, follow through and deliver jobs on time, making for happy customers and repeat business.

INCREASE THROUGHPUT

DBR scheduling will increase a shop's throughput because manufacturers are able to schedule their shop accurately, and to its actual capacity, meaning workflows are improved, problem bottlenecks are eliminated, equipment downtime is reduced — increasing a shop's throughput.

IMPROVE PRIORITY MANAGEMENT

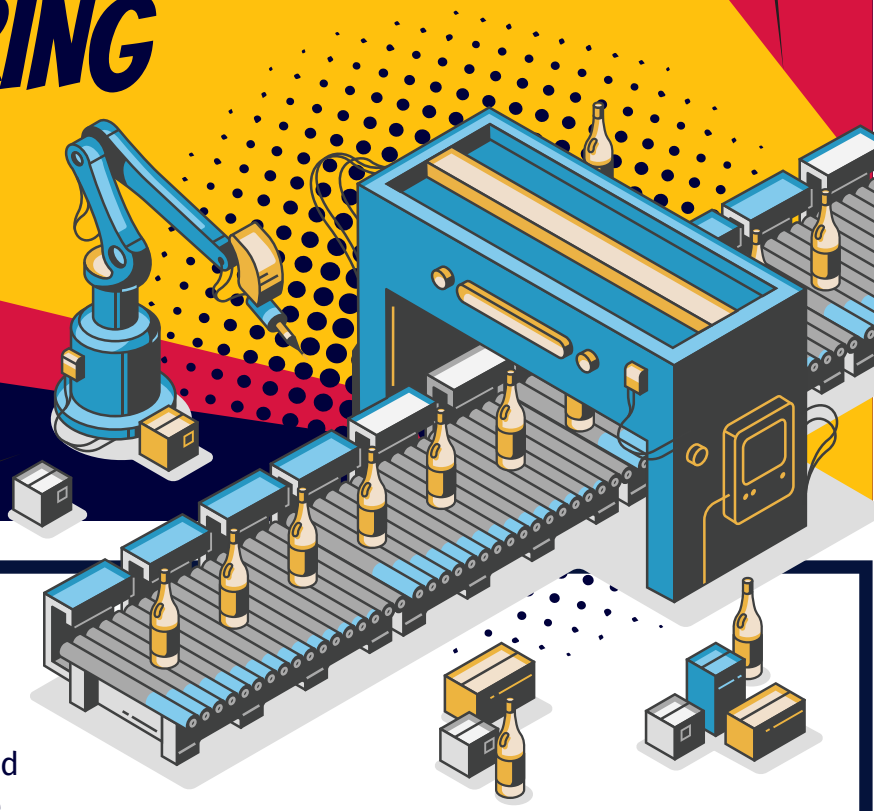
DBR scheduling creates a detailed schedule in which each job and task on a project is prioritized and scheduled in turn. Every role and department in a shop will always know what their priorities are, and miscommunications will become a distant memory — leading to a more harmonious plant.

DBR SCHEDULING IS THE REALISTIC, STRAIGHT-LINE SOLUTION TO SCHEDULE YOUR SHOP THE RIGHT WAY, EVERY DAY.

DBR scheduling drastically improves the flow of information and materials in a shop.

Custom manufacturers will be better able to plan jobs, order parts and materials in time, manage their cash flows and get more jobs out the door on time and on budget.

DBR SCHEDULING IS THE FUTURE OF CUSTOM MANUFACTURING



DBR scheduling will revolutionize the custom manufacturing industry because it throws away the algorithms and traditional scheduling practices that have become the industry standard — but in the end don't really help shops make accurate schedules, or run smoothly or efficiently.

DBR schedules, especially those that are coupled with the visibility that ERPs provide manufacturers, will help custom shops better manage their shops, improve efficiency — and ultimately grow their businesses.

No more lost jobs, jumbled priorities, or late deliveries.

Instead custom shops can be confident that they are always working on the right jobs, tasks, and priorities — and that they are connected to the heartbeat of their shop.

ABOUT GENIUS ERP

Genius ERP delivers a complete enterprise resource planning (ERP) solution, including software, implementation services, and field expertise, to small- and mid-sized custom manufacturers across the US and Canada. Genius ERP is built for SME manufacturers handling make-to-order, engineer-to-order, custom-to-order and assemble-to-order manufacturing. Accurate estimating, product engineering, inventory control, production planning, accounts management and complete oversight: one system that helps simplify complex manufacturing.

ABOUT SMART SCHEDULING

Genius ERP's Smart Scheduling is the only DBR scheduling tool available within an ERP system. Reduce lead times, increase throughput, and get everyone in your shop aligned and focused on the same priorities. Deliver on time, everytime with Genius ERP's Smart Scheduling.