

Attenuate 'throughput' times

The problems that the machine building companies need to combat are several. Some of those include: reducing costs, customers' demands of machines with very short order to delivery times, long time taken to design special machines, customers asking for changes in the scope and specifications of the machines as the execution is in progress, variety of parts to be handled, etc. This scene is perhaps common to many companies...

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Many organisations find it hard to deliver products on time, let alone quickly. They are plagued with excessively long order-to-delivery throughput times and cannot seem to find a solution. Even though everyone is in a hurried rush to ship product, often more than 95 per cent of the order-to-delivery throughput time consists of 'waiting'. Waiting for sales orders to be processed. Waiting for engineering

documentation. Waiting for corrective actions to design information. Waiting for material. Waiting for a production process to be corrected. Waiting in a manufacturing bottleneck. Waiting for inspection. Waiting for transport and to be moved. Waiting for operation to be completed and the list goes on. All of this waiting just keeps stretching the order-to-delivery cycle time, ballooning inventories, increasing costs, and alienating customers. It also keeps adding unnecessary operating expense in the

continuous mad scramble to compensate for these problems.

Chain of circumstances

The causes and effects (some can be both) of long order-to-delivery throughput time vary widely and can have an immense cumulative impact on operating results. Identifying and correcting the root cause obstruction needs to be done in order to achieve significant improvements in order-to-delivery performance. Consider the following ten common problems as you evaluate your order-to-delivery process.

Poor delivery, unhappy customers and descending sales: On-time delivery and customer satisfaction go hand-in-hand. Throughput times that are very long cause delivery delays, which leads to customer dissatisfaction and eventually a loss of business and profits. Customers will begin to seek other suppliers as delivery times grow and become erratic

Overly complicated business processes: Processes that are ineffective and slow are usually because of discrete systems for handling sales orders, purchasing materials, production schedules and other information, which are often big contributors to excessively long order-to-delivery times. Complication



must be replaced with effectiveness to reduce cycle times and costs throughout the process

Bottlenecks: Think of the order-to-delivery process as similar to a highway. When you introduce any type of impediment on the highway, be it toll booths, construction or repairs, an accident, a breakdown, a jam at a road cross, a slow vehicle or poor weather, traffic begins to slow and queue up until it eventually stops completely. These bottlenecks can be fixed by taking action, like adjusting tollbooth capacity or adjusting flow to capacity. In manufacturing, too, much queue from work-in-process inventory will clog work centres slowing velocity and creating bottlenecks

Too much non-value-added (NVA) activity: Moving inventory, storing, waiting, rework, expediting orders, lots of paperwork, etc, increases operating expenses and account for a lot of the throughput time it takes to produce a product. The actual value added time is often less than 10 per cent of the total time

Poor quality: Much time is spent on correcting the defects, reworking the deviations, handling complaints, and trying to keep customers from going to your competitors. Perfect quality products and information should be a very high priority for manufacturers because it results in lower costs and higher customer satisfaction

Too much inventory: Excessive amounts of raw material, work-in-process and / or finished goods inventory are prime indicators that a company is not adequately and effectively balancing production input and output with customer demands. Furthermore, high work-in-process gets in the way and slows manufacturing throughput times

Low throughput: When cycle times are extended you can be assured that the causes are minimising or reducing your total production throughput, which reduces profits and impacts cash flow

Inadequate production scheduling: We know today that producing to a precast sales forecast is the surest way to build undesired inventory. Poor production scheduling logic and practices invariably lead to flow imbalances, which create bottlenecks, diminishing your ability to maximise your

output or manufacturing throughput.

Production scheduling is usually an area of great opportunity. Production scheduling is a significant opportunity and hence it should be high on top management's list of priorities

Poor supplier relations: Close ties and synchronised working with suppliers are critical to cycle time reduction. Suppliers must know your goals and needs and have production and business processes that can support nothing less than 100 per cent of your organisational needs. On-time delivery of quality materials is essential to reducing cycle times, decreasing inventories, and lowering costs

Improper performance metrics: Frequently, management rewards production practices that actually result in longer cycle times. For example, if the success of the shop floor is measured simply by efficiency, equipment utilisation and / or standard hours of output, you can be sure that parts will be produced even when they are not needed. The result: too much inventory of unneeded material and possibly shortages of what is needed.

Balance and flow

Paramount to reducing cycle times and increasing on-time predictability is to keep material and information flowing at high velocity through value added processes. This means eliminating time that is wasted in queuing that constrain flow and put a stop to balance through the various administrative and manufacturing operations. At the same time, get rid of the NVA tasks that are being performed in all functional areas. Those NVA tasks not only slow work flow velocity, increase cycle times, and decrease predictability, but these activities have swollen operating expenses that managements must not tolerate. It is often not recognised that critical to cycle time reduction is the need to improve the quality and velocity of information flow. Reducing lot sizes can cut cycle times but you should simultaneously, and at least proportionately, cut changeover times



to effectively reduce batch sizes.

Maintaining balance and flow is critical to reducing bottlenecks in every area of an organisation. Production bottlenecks usually occur because of a poor scheduling routine, which create them, they result in the need to expedite orders and cause a disruption in the production flow. Many systems in use today actually increase cycle times due to their 'illogical logic' about what the real schedule should be. Many managers mistakenly rely on systems that cannot provide accurate answers to critical questions like:

- When will it be dispatched?
- Which orders might get delayed?
- What is the right sequence of jobs to work on now?

When a company can easily and accurately answer these types of questions, they have a handle on cycle time.

Achieving excellence

Cycle time reduction can mean lower costs, reduced inventory levels, improved production predictability, increased customer satisfaction, and better quality. If a company had to pick a single operational issue to focus on, time compression across the entire company would be an excellent one to start with.

Many senior managers, believe that their organisations can do much better. These managers see the opportunity, but efforts that are not accurately planned hold back improvements. In addition, many organisations unknowingly limit how good they can be by setting goals based on immediate past performance. Dramatic cycle time compression, on the other hand, requires stretch goals in line with world-class performance. This means that goal-setting philosophies must undergo a fundamental shift by setting targets in line with the results necessary to be an industry leader. The fact is, companies that have pursued aggressive time compression have achieved dramatic breakthrough results such as:

- 50-95 per cent decrease in the order-to-delivery cycle times
- 50 per cent and more reduction in inventories
- 20-40 per cent reductions in costs
- 10-100 per cent increase in throughput

- 60 per cent plus reduction in cost of quality
- 30-80 per cent reduction in storage and production space
- 99 per cent on-time performance.

For many companies, the first phase of cycle time compression is comparatively easy to accomplish and offers substantial initial benefits. More significant results can only be achieved by compressing cycle times throughout the supply chain. This requires working a combination of the right issues to succeed at a breakthrough results rate. By setting aggressive, but achievable, targets and through process redesign, a company can rapidly accelerate the velocity of improvement and attain world-class performance levels. Achieving the results requires time compressed, high-quality performance in every internal and external aspect of your business.

Bringing it home

For some, myopic past efforts that focused just on 'hot spots' produced little or no lasting measurable results. Cycle time reduction must be a cross-company, cross-functional intent and effort. Cycle times must be compressed at every stage of the order-to-delivery cycle, from order processing, material procurement and production scheduling to engineering, marketing, shipping and receiving payments. It is certain that lasting, measurable results can only come from well-designed internal processes and, then, the entire supply chain. Process redesign activities must focus on what the customer wants: high quality products, delivered on time and quickly, and at a good price.

The number one success factor in achieving order to delivery speed is the management's compelling determination to achieve substantial cycle time reductions. Managements should base their action plan on a thorough opportunity assessment of the current situation. The assessment step is an essential task for defining and subsequently initiating what improvements should be done, when they should be done and what you should expect for results. **MMT**



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