The high tech and electronics industry has seen promising growth recently following the recovery of the global economy. However, industry experts expect to see shrinking revenue growth rates over the next few years. This means that manufacturers from all industries will need to discover new revenue opportunities with lower costs, especially in the face of rising competition from emerging markets in other countries.Just as growth can come from creating innovative products using the latest technology, so too can you apply technology to your manufacturing operations. The plant floor is probably the area that could benefit the most from thoughtful efficiency improvements; keeping your equipment fully operational and parts readily available, you will have addressed two critical factors for meeting demand. At a recent IDC Manufacturing Insights Summit, IDC reported that "The plant floor is the supply chain's weakest link."So, how can we strengthen our weakest link?

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Reduce movement to optimize task efficiency"Movement” is considered one of the Seven Wastes of lean manufacturing. According to Paul A. Myerson, Professor of Practice in Supply Chain Management at Lehigh University, waste of movement “occurs when temporarily locating, filing, stocking, stacking, or moving materials, people, tools, or information. ”Unnecessary or excess movement can be the result of a combination of factors, ranging from poorly laid out plant floors to placing tools and parts too far from the workspace, to inefficient working methods.To reduce movement, you need to increase operator efficiency, such as with an electronic Kanban system. In its simplest form, Kanban is considered a “scheduling system for just-in-time production.” Electronic Kanban automates the replenishment of inventory on the plant floor when needed. The result is a timely, even flow of inventory that eliminates bottlenecks and interruptions.Furthermore, consider locating inventory stock closer to production cells and strategically positioning production cells to maximize the efficient flow of products and subassemblies through production steps.

Improve supply chain scheduling to reduce bottlenecksThings don’t always go as planned. Production flow can be greatly impacted by the availability of material or by disruptions, such as late receipts of parts and materials, equipment breakdowns, quality rejects, and engineering changes after production has started.With early detection capabilities and real-time access to capacity, availability, and interdependencies of employees, equipment, and materials data, you have access to the information you need to adjust schedules and accommodate those disruptions. With the right systems in place, you can determine if change requests are feasible, estimate their impact on every aspect of your manufacturing process, and minimize their potential impact on production.It’s best to avoid making unplanned changes during production, and instead attack supply and equipment problems directly. If your scheduling system allows you to model what-if scenarios, you can simulate recovery alternatives so you can choose the best approach.

Improve equipment reliabilityWhen you don’t properly maintain your equipment, you put your plant floor operations at risk from unplanned equipment downtime. Poorly maintained equipment can adversely affect the quality of products being manufactured, which in turn reduces plant floor productivity further by creating rework hours.You need to look beyond traditional maintenance programs that focuson keeping equipment running. Instead, take a strategic approach to asset management that allows you to analyze equipment performance data for key trends and anomalies. With these capabilities, you can anticipate potential equipment reliability issues and determine optimum preventive maintenance schedules to extend the longevity of your assets. You’ll be able to make forward-looking decisions and establish contingency plans that help avoiddisruptions to production from unplannedequipment downtime.

Optimize inventory levels to reduce shortagesYour plant floor can’t be productive if you don’t have the materials you need for manufacturing. When you suffer from inventory shortages (whether it’s a result of late deliveries, unexpectedly high reject rates, or short counts), the proper response is not to increase safety stock levels. Not only does this reduce cash flow and increase inventory carrying costs, but research has shown that increasing safety stock levels isn’t even a sure guarantee against inventory shortages.Instead, having accurate and timely visibility into your inventory allows you to know exactly what components are running low in stock, detect potential issues, and rectify them before they become real problems. Also, establishing close working relationships with your suppliers can help speed up fulfillment requests. In fact, if you allow your suppliers to connect directly to your inventory system via online portals and related tools, the suppliers can then automatically determine when your inventory will run out of components and replenish them.Sometimes inventory shortages can’t be avoided. In those cases, the right planning system can help you quickly identify the impact of the shortages and determine how best to redeploy production resources in the interim. It’s also a smart idea to have contingencies built into your plan - such as alternate suppliers and substitute parts - that could be activated on short notice.

Automate processes with automated data collection.One way you can speed up plant floor operations is by automating your plant floor processes with automated data collection tools, like barcoding. With barcoding, key inventory and asset data (such as quantity and location) can be automatically captured and drive the flow of inventory and plant floor assets (such as totes, bins, racks, and pallets). Barcoding also helps speed up data collection and improve data accuracy by bypassing slow and error-prone manual data entry.Barcoding technologies, such as RFID, can also help reduce equipment downtime. With RFID technologies in place, you can automate the gathering and sending of asset information (such as location, meter readings, and maintenance status) without requiring a technician to have direct line of sight or contact with that piece of equipment. The types of information that RFID can gather can help you increase equipment longevity by identifying usage patterns and reduce costs by implementing a need-based maintenance schedule, rather than an arbitrary calendar-based schedule.

When you have complete visibility into yourplant-floor operations, you have access to the information you need to make the most effective usage of constrained resources, find areas where you can increase throughput and efficiency, and promote better material and asset management. Being able to see how all of the pieces fit together, in real time, ultimately helps you operate more efficiently and make better decisions. You can identify potential problems, analyze them, discover what’s driving them, and identify solutions before they create bottlenecks.