

How High Tech Manufacturers Can Ensure Higher Quality and Optimize EBITDA



At a Glance

- Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) is a good measure of core profitability for a manufacturing business of any size.
- High tech manufacturing companies can reduce inventory and associated carrying costs, which reduces cost of goods sold (COGS) and increases EBITDA.
- Best-in-class manufacturing companies are using SaaS cloud ERP with built-in, closed-loop quality to bring new higher quality products to market by reducing inventory and waste—and increase EBITDA.

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EBITDA Optimization Through Closed-Loop Quality Management

Complying with standards and regulations like the DFARS/ FAR Anti-Counterfeiting Rule, SAE AS6496 Anti-Counterfeiting Standard, Conflict Minerals, RoHS & REACH, and FASB Revenue Recognition Rules put considerable pressure on your business.

While you need to show that you comply with these regulations, you also need to ensure the highest quality levels at the lowest costs. At the same time, rapid commoditization drives down prices that cut into Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA).

The good news is that SaaS Cloud ERP with built-in, closed-loop quality can help you not only meet these challenges head-on, but also gain a competitive advantage. A closed-loop quality management system gives you the agility and ability to bring unique and differentiated products to market and at the same time reduce waste, scrap, recalls and returns, thereby lowering costs and achieving competitive differentiation, high compliance, and increased profitability. By relying on a combination of modern technology adoption, streamlined manufacturing operations, and a relentless focus on quality, you can tackle external industry challenges and directly influence your business performance.

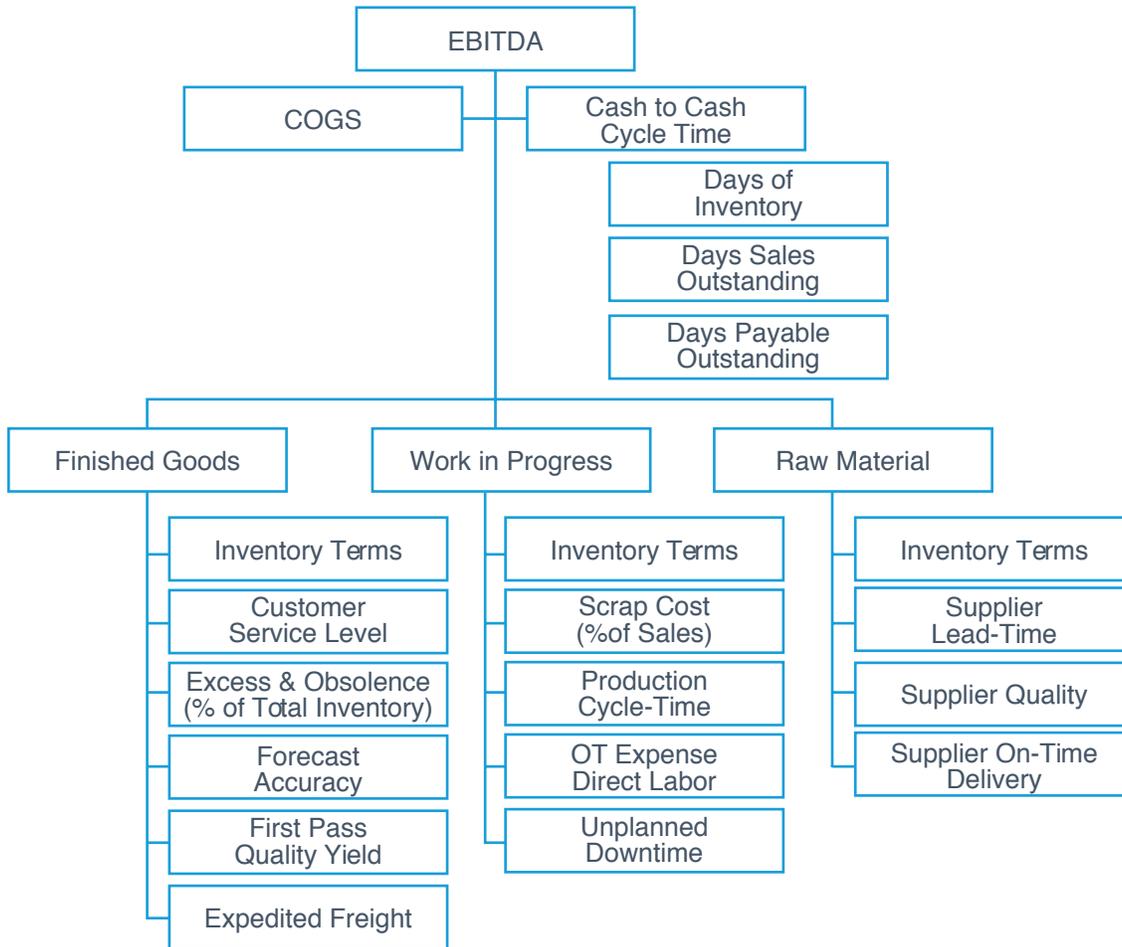
In this paper, we'll be looking at what Plex customers in high tech manufacturing are doing with cloud ERP to optimize their EBITDA.

Why EBITDA?

Earnings Before Interest, Taxes, Depreciation, and Amortization or EBITDA is a good measure of core profitability since it eliminates interest and taxes allowing a comparison of operational performance on an “apples-to-apples” basis, irrespective of the size of the manufacturing business. Like any other measure, EBITDA is only a single indicator, but one that has many levers that can be manipulated to drive improvement. To develop a full picture of the health

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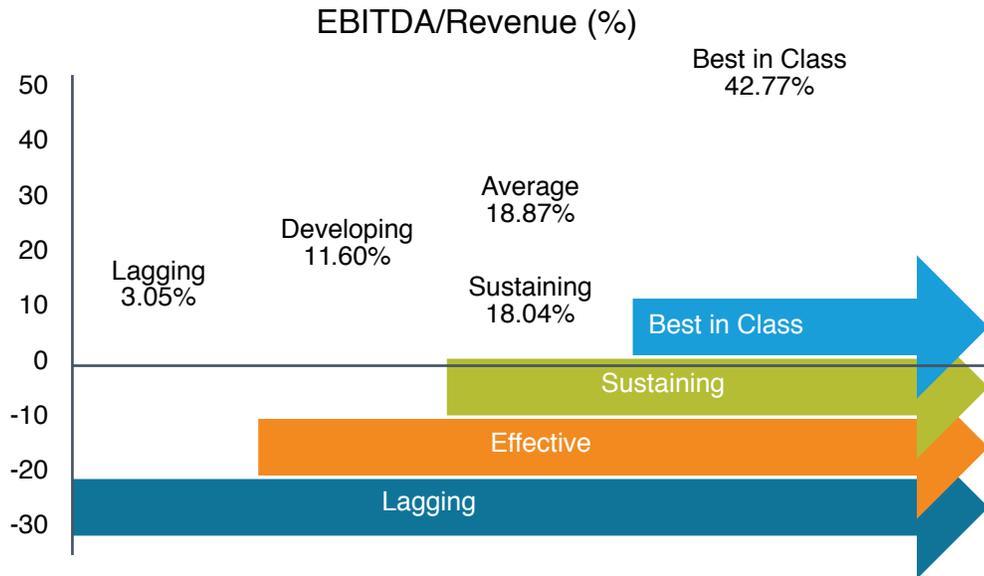
of any given firm, a multitude of metrics should be taken into consideration and evaluated for their cause and effect on EBITDA. The linkage map below provides a visual of various metrics that can impact EBITDA for a manufacturing company.



For our purposes, we are looking at Plex customers in high tech manufacturing and how they use a modern cloud ERP to optimize their EBITDA. Based on discussions with our high tech manufacturing customers, we identified five companies with an average three-year EBITDA growth rate of 45.18 percent. These same five manufacturers reduced their cash-to-cash cycle times at an average of 19.8 percent. While an EBITDA growth rate of 45 percent is much above the industry norm (best-in-class manufacturers average just under 20

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percent EBITDA as a percent of revenue, while developing companies average just over 6 percent), it does demonstrate the correlation between freeing up working capital by improving cash flow to allow for accelerated investment into R&D and EBITDA growth. One could come to the conclusion that high tech manufacturing companies seem to benefit from a compressed cash-to-cash cycle to grow EBITDA.



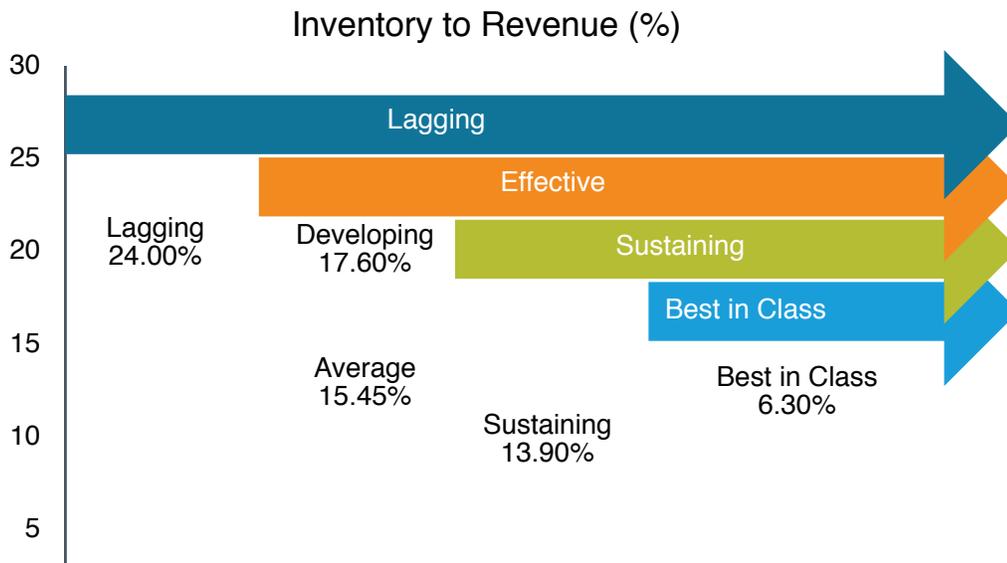
Setting Your EBITDA Target

For all manufacturing companies, Cost of Goods Sold (COGS) has the largest impact on EBITDA and of all the COGS line items, inventory is most likely the largest cost. Optimizing inventory is typically a low-hanging fruit and the first place to start when manufacturers are looking to improve EBITDA. Our high tech manufacturing customers have a COGS-to-revenue ratio as low as 47 percent, with the average being about 70 percent.

In order to lower inventory costs, it is important to understand how much inventory a high tech manufacturer needs to carry to support sales. Simply reducing inventory without a clear picture of forecasted demand will put the company at risk of not meeting its revenue goals, due to short supply. The ultimate goal is to balance or optimize inventory to meet demand with the

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minimum amount of safety stock while maintaining best-in-class on-time delivery times—easier said than done.



What Do Best-in-Class Companies Do Differently?

The table below shows each inventory category as a percentage of total inventory. We noticed that both sustaining and best-in-class companies are doing a much better job managing their work-in-process inventory and raw materials as compared to their developing counterparts. This is driving the overall reduction in inventory and associated carrying costs, which reduces COGS and increases EBITDA. The overall reduction of inventory also compresses cash-to-cash cycle times.

Inventory	Developing	Sustaining	Best-in-Class
Finished Goods	45.24%	33.61%	23.23%
Work in Progress (WIP)	48.12%	28.85%	14.48%
Raw Materials	44.71%	24.75%	10.10%

Best-in-class companies are using SaaS cloud ERP to reduce COGS and increase EBITDA in the following ways:

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1. Automate, Track, and Control Manufacturing Operations

Inventory control provides the ability to replace manual systems with sensor-based systems that scan and report inventory consumption in real time. This provides the ability to have real-time demand signals that will instantly track lead and replenishment times, which subsequently helps optimize inventory levels. The by-product of this type of solution is that it also provides more accurate data, which is required for detailed cost management analysis and supplier oversight.

2. Understand Future Demand and Causal Factors

A company's demand fluctuates due to seasonality factors, the economic climate and other internal and external business conditions. Understanding these conditions from a forecasting perspective will help balance inventory levels and establish the proper customer service levels (e.g. Inventory/Forecasted Revenue) over time. A solid forecasting capability, combined with customer forecasting and collaboration will help manufacturers better plan inventory and maintain the appropriate inventory levels, avoiding excess inventory or shortages.

In addition, best-in-class high tech manufacturing companies are using Sales and Operations Planning (S&OP) as a key process in their overall planning process. S&OP is an iterative business management process that determines the optimum level of manufacturing output. The S&OP process is built on stakeholder agreement and an approved consensus plan that the company will operate from. Stakeholders agree on the plan of action based on real-time data. S&OP software solutions provide demand and production data related to equipment, labor, facilities, material, and finance. The purpose of these data points is to provide the stakeholders with a single, consolidated view of the business, allowing them to make better inventory and production planning decisions.

3. Categorize Inventory Based on Cost and Impact to Production

Portions of finished goods inventory will move faster than others and also have varying cost impacts on the balance sheet. Best-in-Class high tech

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manufacturing companies leverage automated systems that help manage inventory based on inventory classification and stratification based on gross margin return on inventory investment. For example, fast moving, low-cost inventory should not be a huge priority when compared with slower moving, expensive inventory. Understanding how inventory is used and its associated cost requires a different inventory management approach. Manufacturers must make sure that they have a larger safety stock buffer for their fast-moving items. Concurrently, slower moving items may call for less scrutiny against stock-outs. This inventory management approach is also referred to as ABC analysis, but evaluating profitability is another way to prioritize.

Success in the electronic manufacturing services industry requires tight integration with many component suppliers. Firstronic uses the Plex Manufacturing Cloud to manage hundreds of supply chain communications and transactions each day.

New engineering change requests (ECRs) come in rapidly but the company can react quickly despite the huge volume. Firstronic handles EDI releasing to suppliers right off the shop floor. Also, suppliers and customers can use web-based portals to monitor plans and operations in real time, reducing the need for tedious phone calls and emails.

4. Focus on Product Quality and Time to Market

Balancing quality, cost, and price is an art and requires data and analysis to execute properly. Based on our industry research, some of the most successful companies in the High Technology Manufacturing industry have been using Six Sigma for years achieving the benefits below:

- Bottom line cost savings (5-20 percent of turnover per annum).
- Improved quality of product or service as perceived by the customer (internal and external customers).
- Reduction in process cycle times.
- Development of staff skills.
- Use of a common language throughout the organization.
- Meet world class quality standards.
- Establish a competitive edge.

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- Improved ROI.
- Sales growth.

5. Reduce the Cost of Poor Quality

The Cost of Poor Quality (COPQ) is often the least understood metric as it is comprised of much more than just warranty claims and rework / scrap costs. Most companies fail to understand the financial impact of COPQ which spans:

- Internal costs, such as downtimes.
- External costs, like billing adjustments and expedited shipping to replace defective products.
- Appraisal costs, such as inspections and quality training.
- Prevention costs, like quality improvement projects, costs associated with non-conformance, quality re-engineering and more.

To put all this in perspective: a \$100 million high tech manufacturing company with a first-pass quality yield of 94 percent would typically spend about 15 percent of COGS on poor quality. By improving their first-pass quality yield to 99 percent, that percentage will decrease to just about 6 percent of COGS, saving almost \$3 million in COGS, thereby increasing EBITDA.

To help improve COPQ, high tech manufacturing companies should be focusing on all aspects of quality. Quality cannot be an after-thought and its implementation should be a strategic initiative, which is to be planned and executed at every step of the manufacturing process. Companies need to invest in manufacturing operations and execution systems, where quality is intertwined with their production and extended supply chain operations.

The Plex Manufacturing Cloud helps Phoenix Logistics accelerate new product introduction with detailed inventory traceability, making it simple to comply with AS9100 requirements. The traceability tree tracks in real time the complete genealogy of all inventory containers, providing both an upstream and downstream trace. Due to improved traceability, the electronics manufacturer easily passed a quarterly manufacturing process audit recently conducted by Boeing.

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From an internal perspective, performing quality testing throughout the production process will address the activities where capital equipment and supply chain processes are maintained. For capital equipment, this means scheduling downtime, relocating production as needed to meet production demands during downtime, and coordinating all aspects of the downtime. For supply chain processes, this includes implementing process improvement activities defined during supply chain planning activities.

Externally, best-in-class companies are requiring their suppliers to guarantee that their products meet well-defined quality standards. Failure of a supplier to meet these quality requirements typically results in penalties and charges for non-conformance products. The adoption of standardized supplier performance management processes and scorecards ensures that key direct, indirect, and logistics suppliers understand the quality expectations and meet those requirements.

Optimizing EBITDA and Creating Competitive Advantage

While there are many ways to optimize EBITDA performance, adopting SaaS cloud ERP, streamlining manufacturing operations, and focusing on quality are powerful strategies to create competitive advantage. The key to success, is being able to capture the necessary data and analyze it to make timely decisions.

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About Plex

Plex is the Manufacturing Cloud, delivering industry-leading ERP and manufacturing automation to more than 550 companies across process and discrete industries. Plex pioneered cloud solutions for the shop floor, connecting suppliers, machines, people, systems, and customers with capabilities that are easy to configure, deliver continuous innovation, and reduce IT costs. With insight that starts on the production line, Plex helps companies see and understand every aspect of their business ecosystems, enabling them to lead in ever-changing markets. Learn more at www.plex.com.