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A CAI SOFTWARE COMPANY

The KPIs — Key Performance Indicators — Manufacturers Should be Measuring & Why

Introduction

One of the most common misconceptions among small and mid-size manufacturers is that they are "too small" for an enterprise resource planning system, or ERP. That's understandable given recent industry information on average cost of such systems — between $75,000 and $750,000[1]. Not to mention average implementation times of 17 months[2].

But the fact is, there is no "too small," and those figures might be misleading. If you buy materials, and make products to sell, you need to manage your processes, people and resources to measure productivity and performance. Whether your revenue is $1 MM with a team of ten or $10 MM with a team of fifty, you need control over your entire operation. Control that will help you grow to the next level.

Implementing the right ERP system will not only help you control critical aspects of your business, it will also give you visibility and insight into ***key performance indicators***, or KPIs, essential to managing and growing your business. In a recent survey of companies who implemented ERP, 95% reported improvement in processes after implementation[3]. Another independent study found that not having an ERP led to redundant data, unaligned business systems and an inability to track processes in real-time[4].

Sustainable growth requires refinement of your entire operation. It also requires capital. If you're funding your own growth through your revenue/profit, you need visibility to understand how to best leverage every area of your business to maximize efficiencies. If you're seeking investment or traditional financing through banks, most sources will require financials compliant with Generally Accepted Accounting Principles, or GAAP[5], and accurate accounting to the penny, part and product of your entire operation.

Still think you're too small for an ERP? Implementing ERP will give you the control you need to improve productivity and performance for sustainable profitability. And your management, advisors and tax teams will love you for it.

Business leaders get acronyms thrown at them all day: KPI, ROI, IRR, and the list goes on. This White Paper was designed to help you understand how the right ERP can impact your operation and how to leverage your ERP to measure 10 KPIs manufacturers should be measuring (and why). We're not going to just throw more acronyms at you. We're going to explain what they mean and why they matter.

[1] Source: BetterBuys "How Much Does an ERP System Cost? 2020 Pricing Guide"
[2] Source: "Panorama ERP Software Report 2018"
[3] Source: Panorama Consulting 2018 ERP Report
[4] Source: The Aberdeen Group
[5] Generally Accepted Accounting Principles, or GAAP, are a set of rules that encompass the details, complexities, and legalities of business and corporate accounting.

Finance 101

AP Turnover
Accounts payable turnover ratio is an accounting liquidity metric that evaluates how fast a company pays off its creditors (suppliers). An *accounts payable turnover* ratio measures the number of times a company pays its suppliers during a specific accounting period.

AR Turnover
The *accounts receivable turnover ratio* is an accounting measure used to quantify a company's effectiveness in collecting its receivables or money owed by clients. The ratio shows how well a company uses and manages the credit it extends to customers and how quickly that short-term debt is collected or is paid. The *accounts receivable turnover ratio* is also called the *receivables turnover ratio*.

Cash Ratio
The *Cash Ratio* indicates the extent to which readily available funds can pay off current liabilities.

Current Ratio
The *current ratio* is a liquidity ratio that measures a company's ability to pay short-term obligations or those due within one year. It shows how a company can maximize the current assets on its balance sheet to satisfy its current debt and other payables.

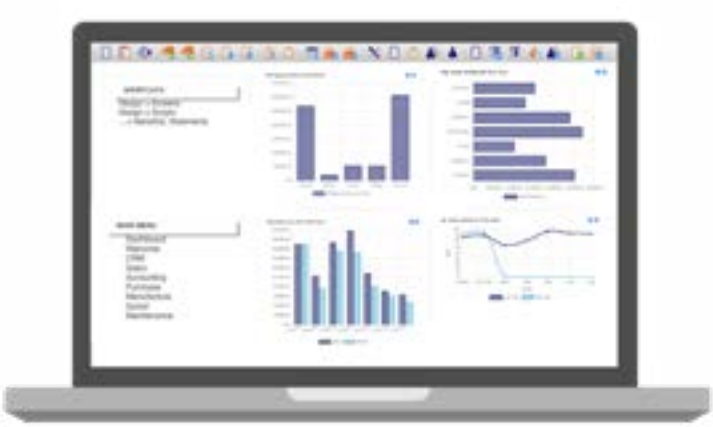
Debt to Equity Ratio
The debt-to-equity (D/E) ratio is calculated by dividing a company's total liabilities by its shareholder equity. These numbers are available on the balance sheet of a company's financial statements. It is a measure of the degree to which a company is financing its operations through debt versus wholly owned funds.

Generally Accepted Accounting Principles (GAAP)-compliance
GAAP is a combination of authoritative standards (set by policy boards) and the commonly accepted ways of recording and reporting accounting information. GAAP aims to improve the clarity, consistency, and comparability of the communication of financial information.

KPIs: What to Measure & Why

KPIs or ***key performance indicators*** are the most important metrics of business activity that show whether processes and people are delivering on expected results. Most importantly, KPIs should show you where your money is going, at-a-glance and in real-time. KPIs give you the visibility to see trends over time and quickly identify problem areas and avoid major pitfalls that can impact your business. Simply put, KPIs help you learn from mistakes, fix problems before they happen and at the end of the day, **make more money.**

Implementing an ERP system can give you the ability to effectively and accurately track all the information necessary to make smarter business decisions. Your ERP system should have built-in KPI Dashboards or the ability to quickly access key information. However, if managing your business on spreadsheets or a proprietary system is working for you, what really matters is that you measure the KPIs that positively impact your business.



Ultimately, everything you track, measure, and compare is to accomplish three things: Reduce Cost, Improve Efficiency, and Improve Quality — because each leads to sustainable profitability.

Top KPIs – What they mean and why they matter

Obviously, the primary indicator of your performance is revenue (sales). However, the ultimate test of a company's business model is: ***pro itability***. No matter how much revenue you generate there are costs associated. Increasing profitability is dependent on understanding and reducing costs-but naturally, not at the expense of the quality of your product or safety of your employees.

Generating top-line revenue is essential for staying in business, but your business will grow in direct proportion to how much you are able to reinvest. In order to increase profitability, measuring the following will give you the insight needed to adjust variables that directly impact your bottom line.

Gross Profit Margin

Gross profit margin is a metric used to assess a company's financial health and business model by revealing the amount of money left over from sales after deducting the cost of goods sold. The *gross profit margin* is often expressed as a percentage of sales and may be called the gross margin ratio.

Internal Rate of Return (IRR)

The *internal rate of return* is used in capital budgeting to estimate the profitability of potential investments. It is important for a company to look at the IRR as they plan for future growth and expansion.

Inventory Turnover

Inventory turnover is a ratio showing how many times a company has sold and replaced inventory during a given period. A company can then divide the days in the period by the inventory turnover formula to calculate the days it takes to sell the inventory on hand. Calculating *inventory turnover* can help businesses make better decisions on pricing, manufacturing, marketing and purchasing new inventory.

Monthly Recurring Revenue (MRR)

Monthly Recurring Revenue is income a company can reliably anticipate every 30 days.

Net Profit Margin

Also known as "the bottom line," *net profit margin* is equal to how much net income or profit is generated as a percentage of revenue. The net profit margin illustrates how much of each dollar in revenue collected by a company translates into profit. Also called net margin, the term net profits is equivalent to net income on the income statement, the terms are used interchangeably.

Operating Cash Flow

Operating cash flow (OCF) is the amount of cash generated by normal business operations. OCF indicates whether a company can generate sufficient positive *cash flow* to maintain and grow operations or whether it will require external financing for capital expansion.

Operating Margin

Operating Margin indicates how much profit a company makes after paying for variable costs of production – wages, raw materials, etc., but before interest and tax.

Reduce Cost & Improve Profitability

Production or product costs are the cost of manufacturing your products. These include a variety of expenses, such as labor, raw materials, consumable manufacturing supplies (boxes, bubble wrap, tape, etc.), and general overhead. Visibility into costs lets you see where / if you can reduce costs and how – such as securing volume discounts or scheduling high-performance employees in key production runs and reallocating or eliminating low performers.

- **Total Manufacturing Cost per Unit Excluding Materials (Unit Economics with cost of materials)**
  Total Manufacturing Cost per Unit Excluding Materials is the labor costs and overhead costs of producing a single unit, item or volume. This allows you to measure costs that are potentially controllable.

- **Average Unit Contribution Margin**
  This represents the incremental money generated for each product/ unit sold after deducting the variable portion of the company's costs. Measuring average contribution margin helps you understand the impact by unit, of additional sales to the bottom line.

- **Cash-to-Cash Cycle Time**
  This measures the time between the purchase of inventory and the collection of payments for the sale of the products that utilize that inventory. This is key to understanding your cash flow and allows you to plan accordingly. This helps seasonal business or those carrying net terms both with vendors and customers to see when / if they may require additional capital to manage business operations.

Profit Margin
The amount of each sales dollar remaining after all expenses have been paid.

Pro forma Forecast
Pro-forma forecasts are usually created from pro-forma financial statements and are forecasted using basic forecasting procedures. When making these forecasts, revenues will usually provide the initial groundwork for the forecast, and expenses and other items are calculated as a percentage of future sales.

Quick Ratio / Acid Test
The *quick ratio*, or *acid test*, compares a company's most short-term assets to its most short-term liabilities to see if a company has enough cash to pay its immediate liabilities, such as short-term debt. The acid-test ratio disregards current assets that are difficult to liquidate quickly such as inventory.

Return on Assets
Return on Assets shows the percentage of profit that a company earns in relation to its overall resources (total assets).

Return on Equity (ROE)
Return on equity is a measure of financial performance calculated by dividing net income by shareholders' equity. Because shareholders' equity is equal to a company's assets minus its debt, ROE could be thought of as the return on net assets. ROE is considered a measure of how effectively management is using a company's assets to create profits.

Return on Investment (ROI)
Return on investment is the performance measure used to evaluate the efficiency of an investment or compare the efficiency of a number of different investments. ROI tries to directly measure the amount of return on a particular investment, relative to the cost.

Working Capital
Working Capital is the capital a business uses in its day-to-day operations and is calculated as the current assets minus the current liabilities.

Improve Efficiency

Manufacturing begins and ends with efficient production. Production volume has to satisfy demand without leaving too much inventory in stock. Visibility into volume allows you to gauge the most impactful trends — scheduling, equipment, products — and make adjustments and contingency plans. It is critical to understand *how long it takes* to make your products and how that impacts your sales.

Understanding the capacity of your equipment can show you *exactly* the financial impact as a result of down-time and allow you to get ahead of potential issues and create a plan to manage unfortunate events. It will also help you make better decisions on planning for capex[6].

Measuring the above will provide invaluable insight into all the areas of your business that can be adjusted for greater profitability. The above inputs are key to feeding information into both actual and pro forma financials, specifically your balance sheet and profit and loss statement[7].

- **Throughput**
  Throughput measures volume on a machine, line, unit or by plant in a specified period of time. While *cycle times* measure the time between two points, throughput must be monitored in real-time for insight into issues on a production line. Throughput is impacted by many variables, among them: downtime, poor maintenance of equipment, too many steps in a process, and raw materials or tooling.

- **Capacity Utilization**
  This indicates how much of the total manufacturing output capacity is being utilized at any given time. This is key to understanding your ability to scale production.

- **Overall Equipment Effectiveness (OEE)**
  OEE allows you to measure the effectiveness of a piece of equipment or an entire production line by measuring *Availability x Performance x Quality*. This helps in yearly planning for capex and in production planning.

- **Schedule / Production Attainment**
  This measures the percent of time a target or production is achieved within a specified schedule of time. Measuring attainment allows you to examine everything from process to people for continuous improvement.

- **Yield**
  Referring to the non-defective units produced as a percentage of the total units produced, *yield* is one of the most critical indicators of quality and performance that directly impacts profitability. Like *yield, scrap,* materials discarded or rejected from the process, directly impacts the bottom line. While every manufacturer has their own definition of "scrap," tracking discarded items can lead to everything from refunds from vendors to increasing cycle times to focus on quality.

Improve Quality. Improve the Customer Experience.

There are many variables that make up the customer experience and metrics for quality. The following are the most vital to delivering excellence to your customers and increasing your repeat business, which should in turn increase revenue.

- **On-Time Delivery**
  OTD measures the percentage of orders delivered on-time. The goal should be 100%. Manufacturers know the #1 killer of a customer relationships is missing delivery dates. Tracking your OTD is key to maintaining happy customers, but likewise, tracking OTD from vendors can help ensure you're able to meet your customers' deadlines.

- **Rate of Return (RMAs)**
  This measures how many times customers reject products or request return merchandise authorization (RMA) based on the receipt of a bad or out of spec product. Selling is important, but keeping the product sold is equally important.

[6] Capital Expenditure or Capex are funds to acquire, upgrade, and maintain physical assets such as property, buildings, an industrial plant, technology, or equipment.
[7] See the Side Bar: Financial Reporting

Bonus Round

The following additional key performance indicators are also important to improving productivity, performance and profitability.

- **Work In Progress (WIP) Inventory / Turns**
  Critical in helping to reduce inventory, this ratio measures the use of inventory materials and is calculated by dividing the cost of goods sold by the average inventory used to produce the goods.
- **Changeover Time**
  Changeover is the time to reset a production line. Over time, this can help you evaluate equipment, processes and team for improved performance.
- **Manufacturing Cost as a % of Revenue**
  This ratio is the total manufacturing cost of the revenue produced overall by a plant, business unit or product.
- **Productivity & Profit in Revenue per Employee**
  These measure the revenue and profit generated by each employee.
- **Net Operating Profit**
  Net Operating Profit is the profit remaining after subtracting the cost of goods sold (COGS), operating expense, interest and taxes and is reflected on the Profit & Loss Statement (P&L). Dividing this number by total sales provides the *net operating margin.*
- **Inventory Accuracy**
  Critical to production scheduling and on-time delivery, the accuracy of inventory is critical to efficiently managing the supply chain to ensure the optimal quantity-on-hand (QOH).
- **DuPont Analysis**
  DuPont Analysis is one formula that allows you to connect all the components that drive the value of the company. It gives visibility into how return is generated (from margin and efficiency). It also gives you the ability to compare your business and economic strategy against peers.

The Top 5 Benefits of KPI Dashboards

1. Visibility
Dashboards provides in-your-face real-time insight into what is happening RIGHT NOW. This information means actionable items for managers and individuals.

2. Ongoing Improvements
In the immortal words of management Guru, Peter Drucker: "If you can't measure it, you can't improve it." Dashboards mean you don't wait until the end of the month and remote access KPIs mean you can change the velocity of the company. Imagine what that can do for customer service. Dashboards are a built-in tool for financial planning and analysis (FPA).

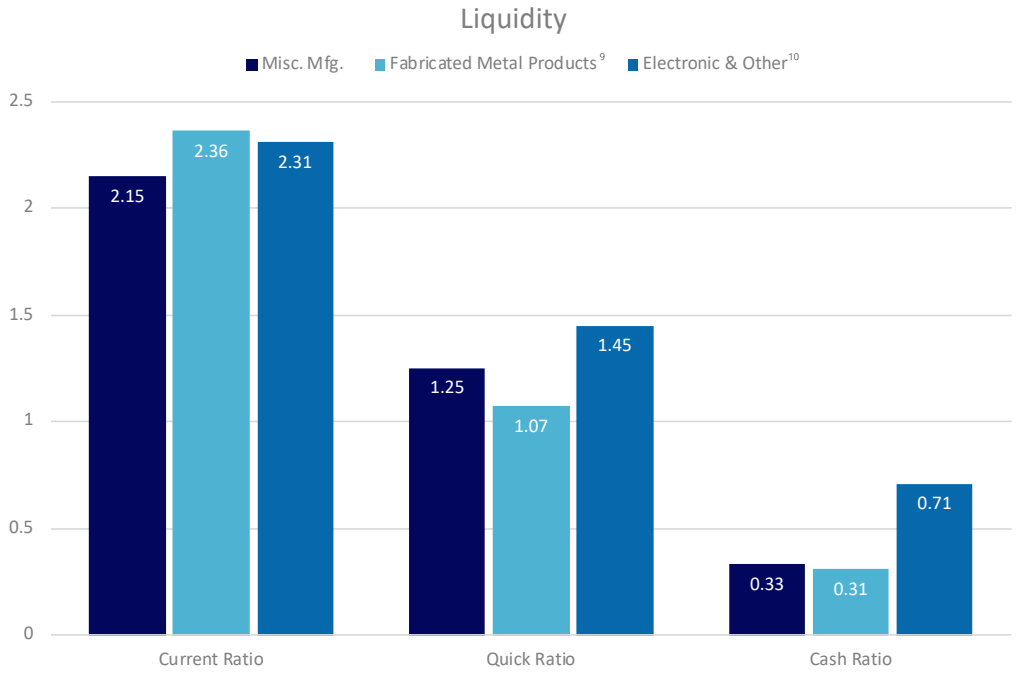
3. Time Savings
Managers and executives spend countless hours trying to make sense of data. Time merging spreadsheets, creating pivot tables and charts to understand and report performance is significantly reduced (if not entirely eliminated with the proper ERP). The time to create Board, Investor or Bank presentations is significantly reduced.

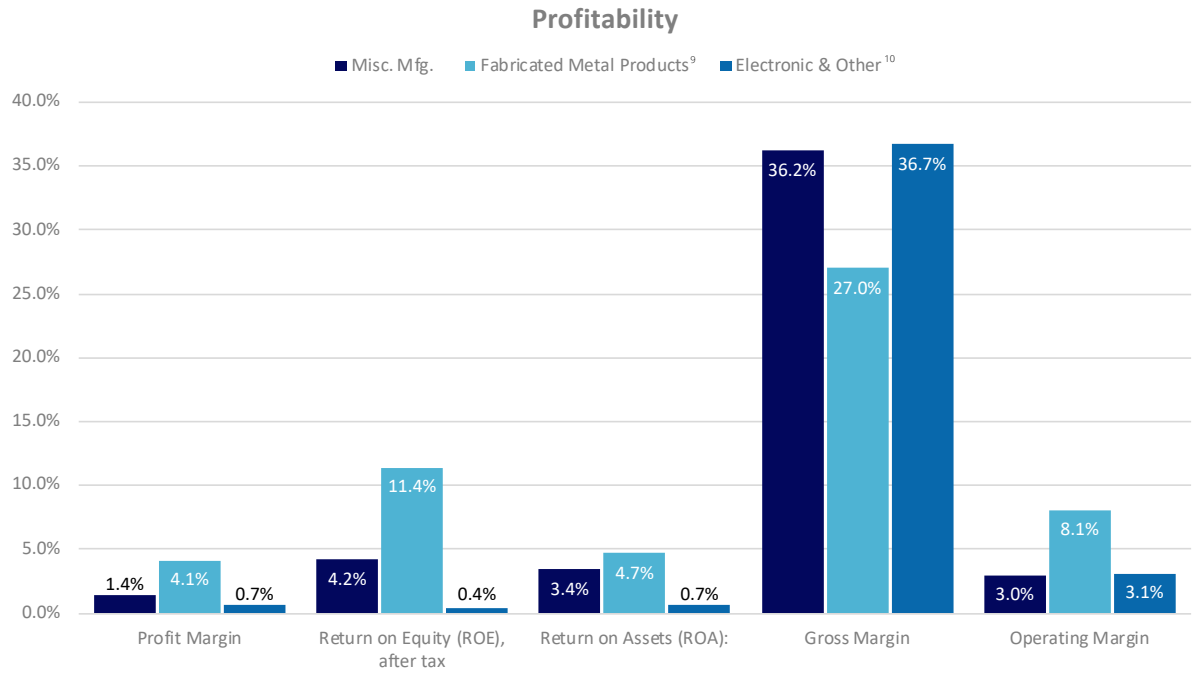
4. Measure Performance Against Plan
Dashboards show performance in real-time against targets, which means correcting the course sooner or speeding up execution.

5. Employee Performance Improvements
Dashboards allow Team members to see how they are performing as individuals AND teams, helping to modify individual behavior through ranking recent performance against peers. Where performance is measured, performance improves.

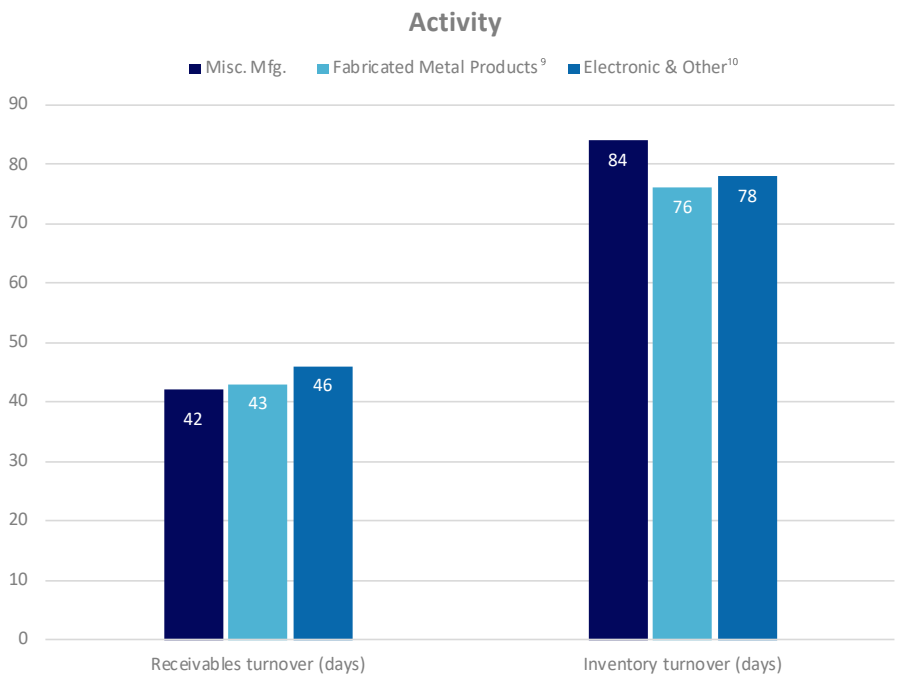
How does your company compare?

As the level of complexity and requirements vary by manufacturing industry sub-sector, so do financial ratios and expectations. The following are median financial ratios for a sample of industries[8]. Information on additional sub-sectors may be found at readyratios.com/sec/industry.





[8] Source: ReadyRatios, IFRS, Miscellaneous Manufacturing: Average Industry Financial Ratios 2018
[9] Source: ReadyRatios, IFRS, Fabricated Metal Products, Except Machinery And Transportation Equipment
[10] Source: ReadyRatios, IFRS, Electronic And Other Electrical Equipment And Components, Except Computer Equipment



Quick Tips

1. Make sure you have someone in house that understands these key metrics and is actively measuring. If you don't, make a strategic hire or find an advisor that can guide you.
2. Your Management Team needs to understand these metrics; everyone on your team is responsible for profitability.
3. Find a suitable Finance 101 class, or book that can help your team quickly get up to speed. We recommend the book: *Seeing the BIG Picture by Kevin Cope*.

[9] Source: ReadyRatios, IFRS, Fabricated Metal Products, Except Machinery And Transportation Equipment
[10] Source: ReadyRatios, IFRS, Electronic And Other Electrical Equipment And Components, Except Computer Equipment

Conclusion

No one knows your business better than you. However, if you aren't leveraging available technology for streamlined operations, accounting and reporting, you could be missing opportunities to take your company to the next level of growth. Whatever your reason for not making the move to ERP — whether it's because you think your company is "too small" and spreadsheets are working just fine, or you're letting any of the other myths about ERP[11] influence you — we hope this White Paper provides some insight into what to measure and why.

When you're ready to start the evaluation process to find the best ERP system for your needs, download our White Paper: *Avoiding the 5 Pain Points of Selecting & Implementing an ERP*.

The most important thing you can do is find a partner invested in your success, not just a software provider.

This White Paper is not intended to be a comprehensive guide to operations, accounting or finance, but rather an overview of some of the most important metrics to help improve profitability. For a more comprehensive look at accounting and finance for manufacturing, request a copy of our **eBook:** ***Finance 101 for Manufacturers*** at Info@xTuple.com.

[11] The Top 3 Myths About ERP: 1) My company is too small for ERP; 2) Implementing ERP takes an average of 17 months; and 3) The cost of ERP is so high I will never see the ROI. 1) Not true; 2) xTuple has Accelerated Onboarding; and 3) Not with xTuple. How does 90 days sound? See the Debunked Myths About ERP at xTuple.com/erp-myths

About xTuple ERP

xTuple, a CAI Software solution, is an ERP platform designed to address needs specific to manufacturing.

Leading with a commitment to customer success, xTuple helps manufacturers (and distributors) across industries and complexities improve processes and productivity. A comprehensive and scalable platform, xTuple ERP provides critical insight for better, more impactful decision to achieve **sustainable profitability.**

CAI Software is a technology company that thinks like a manufacturer; we know down-time kills. That's why xTuple ERP features accelerated onboarding to get our customers up and running with core functionality in as little as 90 days while you keep doing business as usual.

CAI Software helps manufacturers make it better.