



# Using configure-price-quote software to shorten lead times in aerospace & defense

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We all know that aerospace and defense (A & D) companies have **invented many technologies** that have changed the way we live, from the Internet to the GPS, from virtual reality to digital photography.<sup>1</sup> Behind the scenes, however, A & D business processes are nowhere near as advanced as the technologies those industries have developed. The way that A & D companies configure and price their built-to-order products, from a ship to a plane, is still cumbersome and often highly manual. The process of forecasting production time is also lacking. These organizations depend too much on spreadsheet-based data and one-off calculations, relying heavily on the knowledge of skilled staffers who will one day leave or retire—taking that expertise with them.

Thankfully, this situation is changing due to rules-based technologies that help expedite and fine-tune processes. Today's configure-price-quote (CPQ) solutions, in particular, can simplify, automate, and speed the process of configuration, bidding, and estimating delivery. CPQ software can help aerospace & defense companies meet their need to shorten lead times, assure delivery dates, increase revenue, and reduce costs.

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## How CPQ software can shorten lead times in aerospace & defense

Though conditions are different in aerospace and defense, both industries face a critical need to reduce lead times. In the aerospace industry, there's a growing demand for commercial planes, and backlogs are **running as long as seven years**.<sup>2</sup> Boeing® and Airbus® alone have orders on hand for **11,000 jets**.<sup>3</sup> The global defense industry, on the other hand, is **facing shrinking demand**, and companies are looking for ways to move into new markets, reduce costs, and improve earnings per employee.<sup>4</sup>

Cutting lead times not only helps improve customer satisfaction and increase revenue and earnings, it also helps minimize the risk that the technologies being produced will be obsolete before they are delivered. With a configuration engine built on business rules and data from past projects and forecasted quotes, A & D companies can maximize the reach of past work and free up time for other activities. With CPQ software, customers and manufacturers can also review each option under consideration to identify constraints, variables, and dependencies that will affect the schedule. It's possible to explore how switching to alternative options can accelerate the delivery date, or lower the cost for the project. Small changes, evaluated in advance, can go a long way toward building a more loyal customer base.

In one example, a global aerospace company implemented a software configurator and reduced lead times by an estimated 50%. The organization did so by standardizing part names across the enterprise and cleaning up data in general. The effort simplified material requirements and set up a highly repeatable process, which streamlined procurement and enabled a 62% work-in-process inventory reduction.

Still, making complex, manual estimates of turnaround times is the norm in many A & D companies. Insights about production timelines—accurate or not—reside only in the heads of senior sales and engineering staff. CPQ solutions allow organizations to codify much of this knowledge in business rules and automate it, so it can be shared more easily for use by various business units, from sales reps to distributors, and even end users. And if employees leave, their knowledge doesn't leave with them. When a question comes up about how a change to an airplane wing will affect the delivery timeline, CPQ software lets users explore the answer for every configuration, in real time.

CPQ also helps reduce lead time by identifying a customer order decoupling point (CODP), or the point beyond which a product is not repeatable because it is customized. The assembly steps that precede the CODP are highly repeatable (for instance, laying the keel when building a ship). When CODP points are identified, a manufacturer can confidently forecast and streamline the repeatable part of the process, gaining efficiencies that speed delivery.

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Although CPQ software is available as a standalone model, the technology can integrate with other systems to further cut production time. Today's product-focused CPQ solutions integrate with ERP applications and deliver the right information, documents, and data throughout the ordering, manufacturing, delivery, and installation phases. Other technologies that integrate well with CPQ include CRM software, CAD systems, and applications for 3D printing, which Rolls Royce uses to produce titanium components for jet engine housings. As a result, the company cut like-for-like manufacturing lead time **by 30%**.<sup>5</sup>

## Being easy to do business with—One of today's key differentiators

With brand commoditization a growing concern, customer satisfaction is more important than ever to A & D companies. Everywhere in manufacturing, production cycles are shorter and competitive advantages are becoming more difficult to maintain. **Bloomberg Business** notes:

"It wasn't long ago that time-to-market was two years, then 18 months, and then 12 months. Now, a competitor can knock off your 'innovation' in six months or less. Many organizations understand that being 'new' or 'different' is no longer a differentiator."<sup>6</sup>

Ease of business relations is becoming increasingly important to customers, whether they're large distributors or retailers, and it's become a crucial competitive differentiator. A CPQ solution with 2D or 3D image functionality can present thousands of product options for marine and aviation subsystems, quickly and with all constraints accounted for. Users can explore each option on the screen and receive accurate pricing information; when the CPQ system is linked with a CRM system, special discounts and value-added services can be automatically reflected. In addition, CPQ software can automatically generate all sales and manufacturing documentation needed to accelerate an order, enhancing the customer experience and helping to deliver a faster time to value.

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## Better business outcomes through CPQ

Simply put, reps equipped with CPQ software close more deals with higher value per deal—and they close them faster. [A report from Aberdeen Group](#) noted that when using CPQ solutions, 26% more sales reps achieved their quota, aided by a 17% higher lead conversion rate. Their average deal size was twice as big as non-CPQ users, and on average they generated 49% more RFP responses per month, and reduced average sales cycle time by 27%.<sup>7</sup>

How does CPQ technology make this possible? [Some experts point to](#) the transformative effects of having full product knowledge as one's disposal. "These apps can aid a change in sales person perception by the customer," says Chuck Schaeffer, CEO of Vantive Media, "by advancing the sales person's role from go-between resource to a professional that can add value in getting the complex product the customer needs."<sup>8</sup>

The analyst community is also recognizing the positive effects of CPQ technology. In its report [How CPQ Impacts Customer Engagement](#), Gartner states:

"CPQ helps sales organizations to achieve efficiency by reducing response time to customers, reducing quoting errors thereby avoiding rework, maintaining consistency across the sales cycle and actively engaging with customers."<sup>9</sup>

## What to look for in CPQ software

To reap the full business benefits of increased sales, lower costs, shorter lead-time, and greater customer satisfaction, an A&D company should implement a CPQ system that can:

- **Promote step-by-step consultation and problem solving**—Sales reps can sit with customers and explore configuration options in a clear and simple way, problem-solving and consulting, while branching to the next set of needed information with just a click. CPQ solutions guide the customer and rep through contingencies and dependencies for different versions of products (such as landing gear), and both parties can see relevant technical specifications, and impact on schedules, as needed. This reduces errors and engenders deeper customer engagement.
- **Provide a greater range of choices, more quickly**—In addition to centralizing all possible permutations of aerospace and defense products, CPQ software can capture core configurations for airplanes, vehicles, and submarines for later use. Sales reps don't have to start from scratch to build a complex aircraft bid. And with automated documentation, some companies have been able to reduce hundreds of bills of materials (BOMs) to just a few, which expedites the post-production process.
- **Use 2D and 3D images**—A picture can be worth a thousand hours, and CPQ software can dynamically generate 2D and 3D product representations to reflect customers' exact specifications. When buyers can compare detailed pictures rather than written descriptions, evaluating options and confirming choices are accelerated.

An officer can share a 3D model with high command to win support for allocation of funds the same week. An engineer can dynamically generate 3D CAD models to walk a government buyer through the differences in a product family for faster approval.

- **Integrate with the ERP system to shorten cycles**—CPQ software should be easy to integrate with a wide range of enterprise resource planning (ERP) applications. This connection speeds fulfillment and gets orders right the first time, which helps improve a vendor's reputation and encourages word-of-mouth referrals and additional contracts.
- **Generate automated documentation**—To streamline the sales and manufacturing process, CPQ software can generate compelling quotes, comprehensive contracts, accurate orders, and complete bills of materials and routings, all personalized to customer and company needs. For example, if a service branch orders a varied set of radar subsystems, it receives accurate, detailed documents for the entire batch immediately. This makes processing simpler, which is a boon for tightly staffed procurement offices.
- **Simplify training, administration, and security**—The CPQ user experience needs to be intuitive to minimize training. The software should guide reps through best-practice approaches step-by-step, training new reps and allowing all reps to *consult* rather than sell. To simplify administration, business users should be able to make changes to the configurator without IT help. And for deeper security, there should be role-based access.

CPQ software does more than streamline complex product configuration and contract management. It gives top executives in the company an opportunity to map and transform the workflow of the entire business. When used with an ERP system, CPQ can simplify order entry and billing, while accelerating support and service.

In addition, CPQ replaces manual administrative work with a complete, convenient user experience that provides high visibility into all product and project options, up-to-the-minute cost and availability data, and detailed customer information to strengthen relationships and upsell opportunities. CPQ solutions benefit many different stakeholders in different ways:

- **Aerospace and defense customers** can request accurate specifications because it's easier to see how dependencies, rules, constraints, and variables affect components and lead times. They gain greater knowledge of options and components for current and future orders and feel an increased ownership of design, due to a more collaborative quoting process that guides them through the creation of their product.
- **Salespeople** can respond to bids faster and focus on relationships and problem solving, rather than selling. Margin information is easily accessible and continually updated as different choices for a tank's materials, fittings, and subsystems are made. This helps the sales force achieve profitability targets.

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## Benefits throughout your business cycle

- **Sales executives** can capture their best sales reps' strategies and approach, to simplify training for new reps. For instance, CPQ software shows the best way to guide a buyer through hundreds of door, seat, and accessory options that can help comprise a search and rescue helicopter.
- **Aerospace and defense engineers** can be relieved of sales support to focus on innovation. Because CPQ software captures engineering expertise up front, less engineering support is needed for each project or deal. If an order of customized radio signal sensors is needed for a new use case, the sales rep can use an existing order or quote as a template. Since all specifications are captured and already approved by engineering, the order can move more quickly into manufacturing.
- **Marketers** can showcase innovations more quickly. CPQ software highlights new features for customers, such as mine-resistant shields, in context, as salespeople walk them through the sales and quoting process for an armored personnel carrier. Marketers also get real-time data on customer needs and trends, enhancing product development and planning. More importantly, they can drive customer behavior by suggesting a more profitable product option over a less profitable one, while still meeting the customer's needs. All these capabilities help create a critical competitive edge in meeting customer demands and enhancing product differentiation.
- **Dealers and distributors** can integrate CPQ software with their own customer-facing systems, and enjoy multi-tier capabilities for complex sales channels.

Their customers can use the visual catalog to facilitate faster, easier searching and be exposed to options and contingencies automatically. A manufacturer of avionics test equipment, for instance, can use CPQ software as an intuitive, dynamic ordering interface that presents only the available options of subsystems, instrumentation, and other items. Dealers and distributors also find it easier to collaborate because CPQ software dynamically generates a BOM without manual order entry and duplication of information.

- **The IT team** gets more time for innovation and new projects because CPQ software allows aerospace and defense sales, marketing, and engineering teams to make CPQ changes quickly and easily, without IT assistance.

Advanced CPQ software can shrink lead times when there is an abundance of demand, and provide the agility and savings needed to pivot to new markets when demand shrinks. For decades, aerospace and defense solutions have represented the pinnacle of innovation. It's time that the process of configuring and ordering those solutions is re-engineered and streamlined to deliver a better customer experience. CPQ software is a ready resource.

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