ICRON

Management Paper

Optimizing the order promising process: The journey from ATP to CTP

Manufacturing companies must be true to their word – if they make a promise to their customers, they need to be able to fulfill this promise or else risk losing business and market share to competitors.

Every time a manufacturer gets a customer order, they must be able to make a decision – based on their available inventory, supply, and capacity – about exactly when and how much they can deliver. This decision forms the basis of their promise to the customer. Even before the receipt of a purchase order, manufacturers are requested to provide their promise on customer inquiries and based on this information either they receive the order, or they lose the sales opportunity.

And, as we all know, there's a lot riding on that promise – it must be reliable and determined by an accurate calculation and not a best guess.

In our implementations, one of the key KPIs that we almost always encounter (at companies around the world and across various industries including automotive, chemicals, construction, and high-tech) is improving on-time-in-full (OTIF) delivery performance – and this, in turn, leads to increased customer satisfaction.

Effective order promising is the key to maximizing OTIF performance and customer satisfaction, and also – simultaneously – achieving the crucial (but conflicting) KPI of minimizing inventory and costs.

Generally speaking, there are two main methods of order promising: available to promise (ATP) and capable to promise (CTP).

The available to promise (ATP) approach
The traditional method of order promising employed by manufacturing firms is ATP, which focuses on stock availability and looks at production from an infinite capacity perspective.

Using the ATP approach, whenever a manufacturer receives an order from a customer for a specific product in a specific quantity and in a specific timeframe, they make a delivery date promise to the customer based on their available inventory of finished, ready-to-ship products.

The primary consideration of the ATP approach is maximizing profitability. Manufacturers – assuming they don't have enough inventory to satisfy all their customer demand – have to prioritize certain customers and make decisions on how to allocate their available stock in the most profitable manner possible. ICRON (as well as other supply chain planning and optimization solutions) has optimization algorithms that enable profit maximization using ATP functionality.

The shortcomings of ATP

Although ATP provides a straightforward approach to order promising, it has some major shortcomings.

Firstly, in order to satisfy customer demand (which is unpredictable and prone to sudden surges and slumps) using ATP, manufacturers must keep very high levels of buffer stock on hand – and this represents a huge cost (which is unsustainable over the long term).

In fact, minimizing inventory is a pivotal KPI for most manufacturers – and they are all looking for ways to reduce the amount of finished goods sitting in the warehouses.

And so, utilizing the ATP method for order promising, manufacturers are faced with a tough conundrum: keep an enormous volume of stock and bear the colossal cost of this or risk not having the necessary available stock to fulfill customer demand.

Of course, there is a way for manufacturers to balance these tradeoffs through inventory optimization: ensuring they have the right amount of inventory required to satisfy current customer orders and forecasted demand and limited excess inventory to drive up costs.

But, when it comes to optimizing their order promising process, manufacturing firms require a different, more holistic approach – one which could take into account not only the availability of their finished products, but also the capabilities of their entire supply chain. This new approach is CTP.

The capable to promise (CTP) approach

The CTP approach of order promising considers not only the availability of finished goods inventory in the manufacturer's warehouse, but also their manufacturing and supply capacity and the availability of stocks of semi-finished goods and raw-materials, and even the capacity and capability of their suppliers – and this provides a more realistic and reliable assessment of whether a specific order can be delivered in a specific timeframe.

CTP sees production from a finite capacity perspective, assuming that it's impossible for a manufacturer to satisfy all orders they are receiving at the right times and in the right quantities – and this, especially in today's volatile, demand-driven commercial landscape, is more in line with real world conditions.

Using the CTP approach, every time a manufacturer receives an order, they must look at their entire end-to-end supply chain – from their suppliers' capabilities to their own production capacity and constraints including equipment and workforce availability as well as raw material and inventory levels – and then make a decision on how to best satisfy that demand and make a reliable delivery date promise to the customer.

With CTP, cost minimization becomes a new objective function, which – along with profit maximization – can be optimized. This enables manufacturers to accomplish their two overarching (but conflicting) business goals of reducing costs and boosting customer satisfaction.

The strengths of CTP

Utilizing the CTP approach empowers planners in the manufacturing sector to make order promising decisions based current and forecasted demand and the capacities and constraints of all the nodes in their supply chain network.

Armed with this CTP functionality, manufacturing companies can make accurate predictions about their production capabilities, optimized decisions about supply and capacity utilization, and reliable delivery date promises to customers.

CTP equips manufacturing companies with a wider degree of freedom for protecting their delivery promises against volatile demand and supply conditions, i.e. planning capacity reservations for their strategic markets or customers.

Unlike ATP, however, CTP functionality is only possible with an advanced, algorithm-based supply chain planning and optimization platform – as the complexity involved in making a CTP calculation simply too much for the human brain and manual planning techniques to handle.

With CTP, manufacturers can optimize the order promising process, thereby increasing their OTIF delivery performance and decreasing their costs – so they can honor their commitments to both customers and shareholders.

Next-generation CTP solutions

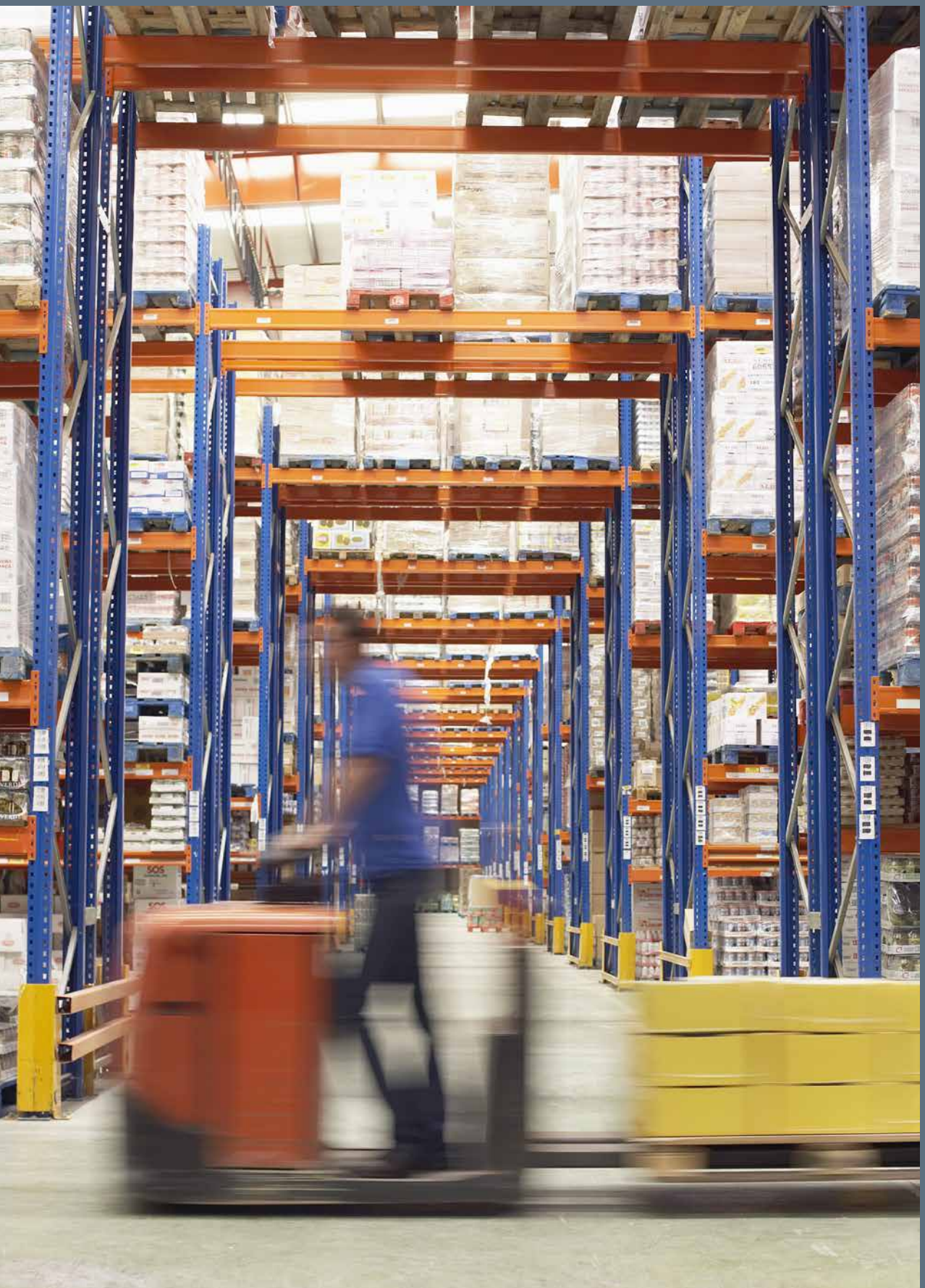
Best-of-breed supply chain planning and optimization solutions, like ICRON, offer a robust in-memory CTP functionality that gives planners at manufacturing companies the ability to:

- Instantly and automatically calculate accurate promise dates based on the production and resource capacities and constraints and inventory availability throughout their entire supply chain.
- Drill down deep into the details of the production process and analyze the Bill of Materials (BOM) for each product (including raw materials and WIP inventory) to precisely determine specific requirements and capabilities, explore different options in terms of BOM components and routing (via alternative machines in alternative production facilities – either in-house or outsourced), and make the best possible decisions on how to most efficiently satisfy demand.
- Customize the order promising process by inserting company- and customer-specific business rules (involving, for example, customer or order priority) as well as reservation logic (through which a portion of inventory or capacity can be automatically reserved for a particular customer).
- Create and explore multiple "what-if" scenarios to evaluate the tradeoff between costs and OTIF delivery performance and make an informed decision on whether to promise a certain delivery date to a specific customer.

Best-of-breed algorithmic supply chain planning and optimization solutions, such as ICRON, actually enable manufacturers to run both ATP and CTP analysis.

For today's leading manufacturing companies, though, CTP is the preferred approach – as it gives them the power to optimally allocate capacity and inventory, resulting in reduced costs and improved efficiency and customer satisfaction. An ever-increasing number of manufacturing companies are looking to make this move from ATP to CTP and investing in intelligent optimization solutions.

With ICRON, manufacturers can utilize both ATP and CTP functionality to optimize their order promising process. With ICRON, these companies can commit to delivery promise dates with confidence, knowing that they will be able to not only deliver their products on time, in full for their customers and but also deliver higher profits for their shareholders.



ICRON is the leading provider of Optimized Decision Making and Supply Chain Optimization software solutions. ICRON's knowledge, experience, and proven technology fuel our customers' supply chain performance, empowering them to exceed their business goals.

Why ICRON

Every company's decision making, planning and supply chain optimization problems are uniquely complex and challenging, but there is a single, simple solution: ICRON. ICRON's algorithm-based, optimized decision making platform is capable of delivering total integration and optimization throughout any enterprise and driving greater operational efficiency, business agility and profitability. Developed in 1992 and proven through scores of successful implementations in some of the world's largest corporations, ICRON possesses the power and flexibility to provide a complete, customized planning optimization solution for any company – regardless of the size or complexity of your organization.

Facing numerous decision making and supply chain optimization challenges

Even if your business is facing numerous planning and supply chain challenges, ICRON has the capacity to handle multiple decision making processes simultaneously and to enable uniform and unified optimization of all of these separate processes – thereby avoiding sub-optimization and eliminating the need for multiple optimization solutions. No matter which stage of any Supply Chain Optimization Maturity Model your business falls into, ICRON's scalable platform will provide a 100% fit for your company's needs at its current state of development, and ICRON's maturity based investment model is a driving force for a reduced total cost of ownership. And as your business grows and matures, ICRON will expand its deployment, gradually offering more features to meet your company's increasingly sophisticated requirements. This maturity benefits-based pricing model is designed to continuously deliver optimal value and ROI. ICRON's groundbreaking Optimized Decision Making platform will serve as the single solution for all of your planning and supply chain problems. ICRON will transform your business, empowering you with the capability to visualize, synchronize, and optimize your end-to-end supply chain operations.

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