

# Profitable to Promise™

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## Executive Overview

"Profitable-To-Promise" (PTP) is a natural extension and combination of the 'order promising' and Sales and Operations Planning process. At the order promising level PTP allows companies to compare in a real-time manner the realizable profit from an actual Customer order to the opportunity cost (profit) associated with a forecasted Customer order that may consume the same. This capability moves beyond current "Capable-To-Promise" (CTP) functionality, which confirms that sufficient production capacity and/or work-in-progress is available, and "Available-To-Promise" (ATP), which checks inventory against current orders. PTP elevates the decision focus from "Can I take the order?" to "Should I take the order?" By giving companies the ability to evaluate their customer demand alternatives, Logility is the first in the industry to deliver a solution that considers the impact of value chain decisions on the bottom line.

At a business planning level, PTP support Goal Oriented Sales and Operations Planning. Sales & Operations Planning (S&OP) is a business planning process whereby aggregate level demand and supply plans are reconciled. Goal Oriented S&OP (GOSOP) provides users with the ability to automatically find the optimal mix of products that should be supplied (purchased and manufactured) in order to minimize constraint violation and asset investment, and optimize service levels while maximizing profit. GOSOP goes beyond traditional S&OP and other business planning processes, which rely on people to manually make decisions on product mix. By holding demand constant, profit maximization is identical to cost minimization. GOSOP provides for the determination of product mix given a series of hard constraints (immovable) and soft constraints (moveable) in order to maximize overall organization profit.

The sophistication of the technology needed to achieve PTP is quite remarkable, as is the business process definition at the company that is undertaking to answer such questions. The quest for excellent and superior customer service is driving companies to answer such questions. However, simply allocating orders through out the supply chain and Enterprise Planning systems is not enough to achieve the dates. ATP and its cousins CPT and PTP do not help companies meet dates. They assist companies in promising dates that they hope to meet. The level of hope is heightened when the planning systems and execution systems are integrated and synchronized inside their organization as well as between their customers and suppliers (B2B). When this real time integration is achieved the planning engines can make valid and accurate promises. When demand exceeds supply (which is why promising is needed!) then the engines can help companies make better, more informed decisions. Order promises will continue to be made and promises, like piecrusts, will be broken. PTP will help companies more then ever understand the impact of their decisions. Which order are to be physically satisfied is still down to the supplier.

## **Order Promising and PTP**

### **ATP: "Can I take the Order?"**

Since the introduction of Available to Promise (ATP) in the early 1980's, companies have struggled with the very concept of reconciling 'execution' systems with 'planning' systems. Execution systems facilitate the processes involved with the physical movement and accounting of goods, which typically include inventory control, order management, purchasing, manufacturing scheduling, transportation, warehousing, and the financial suite. These systems are synonymous with Enterprise Resource Planning systems (ERP) of today, and Manufacturing Resource Planning (MRP II) of yesterday. In contrast, planning systems ensure that the product is in the right place at the right time in order to meet or exceed customer expectations. Planning systems support activities such as forecasting, planning promotions, setting inventory policies, planning product distribution, allocating manufacturing capacity, finite-capacity scheduling, and transportation planning and others.

In business we have become used to 'real-time' execution systems. The first MRP system in the 1970's provided inventory control 'on-line real-time'. However, in the world of ATP, the planning information - what inventory is available to promise (ATP) to new customer orders - was actually provided in a batch mode. In other words, the planning process operated in monthly, weekly or daily cycles - and the information used for ATP was only as accurate as the last time you physically ran the planning programs. The good news is that this ATP environment was surpassed during the 1990's.

A forecasting tool that looks at on hand inventory and future demand provided ATP. Any inventory in excess of loaded or allocated customer orders is 'available to promise'. The point is that ATP was only ever accurate early on in the planning cycle - as the information was out of date within minutes, hours or days. Consequently, ATP was a great concept but not widely adopted across industries.

### **CTP: An expanded approach to "Can I take the Order?"**

Capable to Promise (CTP) was developed as an improvement to ATP. CTP involves real-time integration of planning systems to execution systems. Further, CTP includes manufacturing capacity as well as finished goods. Using this expanded approach, the supplier could now take orders against goods as 'work in progress' as well as on the shelf. To achieve CTP, Manufacturing Planning and Scheduling was integrated to the ATP function described above, thus providing a natural evolution to ATP.

The goals and deliverables of a CTP environment focused on answering the question: "Can I take the Order?" The "Can I" focused on all the components required to balance finished goods inventory. When sufficient finished goods inventory was available, the 'Can I take the Order' was answered favorably. CTP was a great step in the forward direction. However, several key questions remained unanswered - that is until today.

When taking an order, suppliers need to have visibility of alternative sourcing options. For each alternative sourcing method, they also need to know the projected landed cost - and therefore profit to the supplier. Due to a fatal flaw CTP failed to include a key consideration, that of "opportunity cost".

In order to consider alternative opportunities you must have visibility to forecasted customer orders and demand as well as actual customer orders in the form of pegging through the whole promising value chain. With forecasting integrated to the CTP world, and real time pegging of promised orders through distribution, manufacturing and procurement, suppliers now can move to a 'profitable to promise' environment.

**PTP: "Should I take the Order?"**

Profitable to Promise (PTP) means that you can evaluate the expected profit of the order being taken today to the profit you might realize in the future by NOT taking the order, leaving the inventory or capacity unconsumed, and satisfying another customer order or orders with a higher margin.

Put it another way, PTP is this: Suppliers will always say, "yes" to customer inquiries. If they say "no", they will not get the order in question and may not even get the call back next week for the next order. That is unless their competitor did such a bad job of delivering to an unworkable promise!

So let us assume demand outstrips supply. What else happens? Supply will also hit problems so that key raw materials will be delayed; machine break-downs take place; strikes occur; yield variations change resulting inventory balances and so on. The point is that demand and supply are in a forever flux – they will not and never will remain in perfect balance for more than a non-second. If we could fix this, we would have achieved what no science fiction film has achieved and we would all be playing golf on Mars.

So with this in mind, we go back to the order inquiry on the telephone. If I assume that demand will exceed supply, and I have to say "yes" to a new order inquiry, the question becomes many:

1. What other customer's orders can I delay in order to serve this inquiry?
2. What additional costs will I incur (and have to charge for?) in order to squeeze this new inquiry through the business?
3. What production or supplies are on the critical path to any changes in the plan?
4. What resources that are currently allocated can I de-allocated in order to minimize pain and cost to my organization and yet maximize yield to my customers in the form of customer service?

In constrained environments where demand exceeds the sum of inventory, capacity or the general 'ability to meet', PTP is the key to managing the balance between profit and customer service. PTP ensures that, when taking an order, you can see all the alternate sourcing methods with their associated costs and profits. Also, you can evaluate the impact on profit, if any, by not using current inventory or capacity to meet the current order, and leaving it unconsumed and available to meet a forecasted order. This is not simply comparing profits of alternative orders; this is about comparing potential margin with the true opportunity cost of not consuming the resource - which may or may not imply alternative customer order profits or shifts in promised delivery dates.

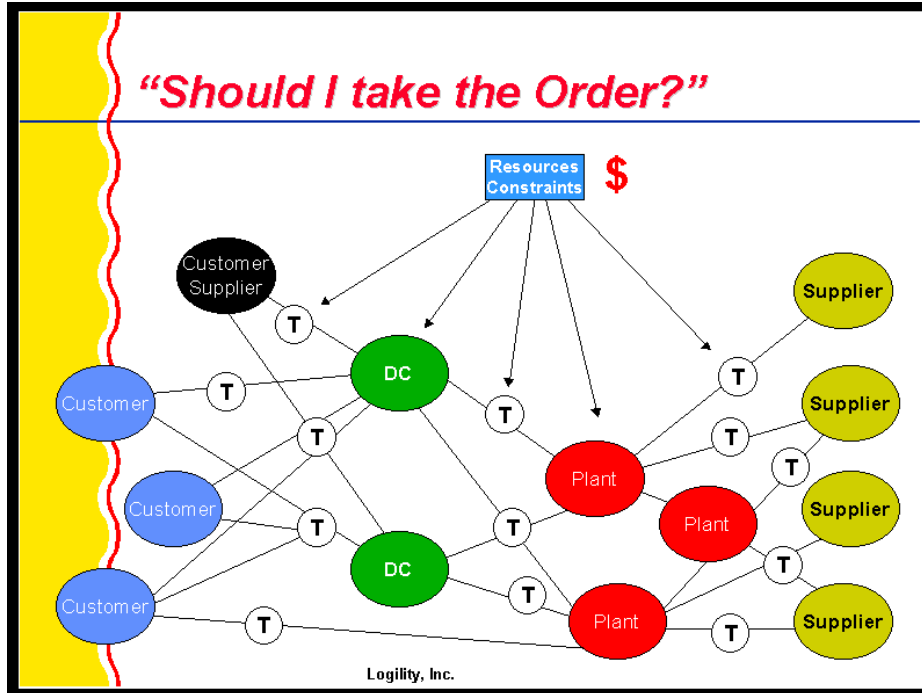


Figure 1: The Value Chain and between end-customer and raw material supplier.

PTP provides visibility of constraints and opportunities across the entire value chain. With this expanded visibility, users are empowered to make more profitable decisions.

Every actual and potential customer order may have a different margin associated with it. By using PTP, the opportunity cost associated with each order is highlighted. More informed decisions can be taken. Customer service and profit maximization will be balanced - and trade off's identified. For the first time the right customers get the right product at the right time and the suppliers profit expectation is assured. Pegging each currently promised order allows you to build up a view of the total cost and resulting profit of each order at every level of the value chain process. These means you can determine when and how to un-allocate most efficiently in order to minimize change and cost to the current plan.

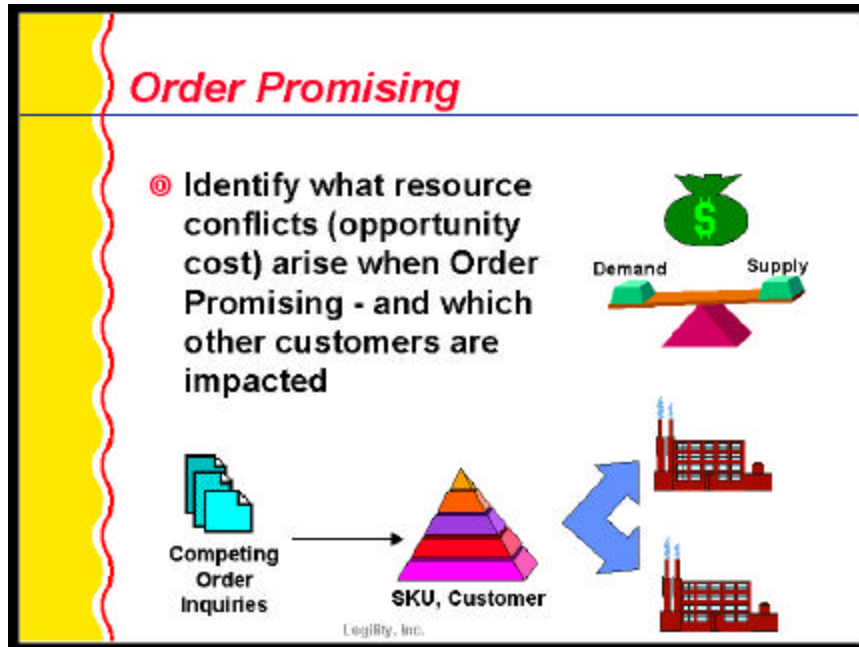


Figure 2: Beyond Real-time Order Promising with Profitable to Promise.

And the principles of Profitable to Promise do not stop at the factory gate! The whole idea of resolving resource allocation conflict for competing and alternative marketing programs, assortment plans and category seasons is synonymous with "should I take the order". The question is elevated to "should I effect one plan over another plan?" This takes the process from single order promising to a whole new other level – that of alternative business plans that compete for the same resources.

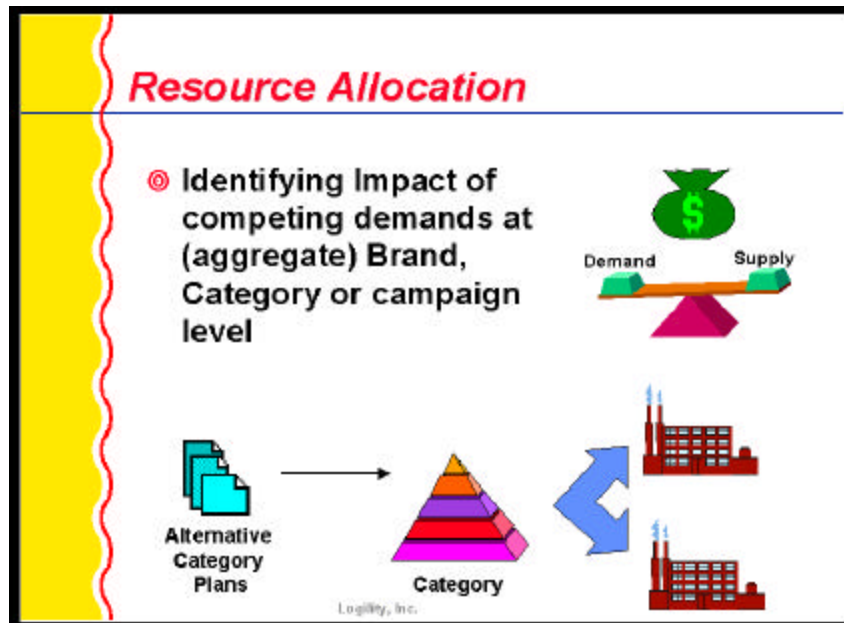


Figure 3: Alternative Plans competing for Resources.

In this sense, the expected profit of one assortment plan can be compared to the opportunity cost of not consuming the resources and leaving them available for other assortment plans to consume. This again can be achieved when you can quantify, at the right level of your business, the competing demands for resources - be they inventory, capacity, materials, labor, transportation, storage, manufacturing or whatever. "Should I take the Order?" focuses on a more manufacturing bias and "Should I make this plan" elevates the question to a more distributor or retailer solution.

## Aggregate level and alternative Business Planning simulation.

The components required to make PTP a reality are clear. On the Demand Chain Planning side of the equation, you need Demand Planning and Event Planning. These systems integrate promotion planning with the basic forecasting engine. Also, service level goals need to set and managed by item, by location, by customer. This implies Inventory Planning. On the Supply Chain Planning side, you need three key elements - Replenishment, Manufacturing and Transportation Planning.

Supply Chain Planning is constraint-based and optimized to ensure that all resources of the Supply Chain are "in the right place at the right time". Multi-plant manufacturing constraints are reconciled with demand requirements; transportation schedules are optimized to ensure fleet resource utilization, private or public, is maximized. Distribution resources-- such as inventory levels, warehouse space and ability to receive or ship goods -- are managed and synchronized with manufacturing and transportation cycles.

On the execution side you need access to inventory levels and current allocation status and rules implicit in the ERP systems. Pegging is supplied through the integration of the Planning and Execution systems – which thus emphasizes how difficult it would be to separate these two processes or to insert a third (hosting or ASP service?) into the middle. Tight integration and real time, bi-directional information sharing is needed and this is the realm of the Enterprise Application Integration (EAI) companies.

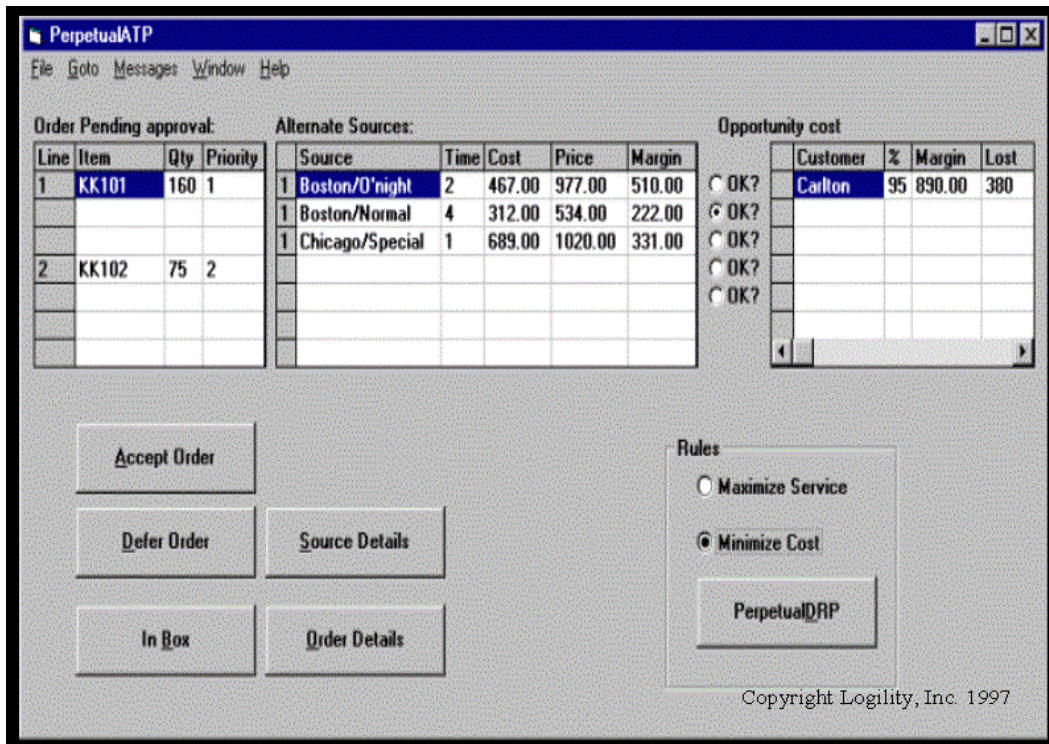


Figure 4: The basic "nuts and bolts" of a PTP calculation emphasizing pegging, visibility, integration and the need for superior and accurate forecasting of customer needs.

## Profitable To Promise

The above window describes the principle of the PTP solution for the Order Promising environment. A requested customer order is compared to available inventory and capacity - taking into account alternative sourcing routes. Forecasts for other customers are then listed - together with the expected margin for both the current order and forecasted demand. The user then can balance the profit from the "order in hand" compared to the profit potential associated with saving the inventory or capacity for a future order.



## **Goal-Oriented Sales & Operations Planning (GOSOP)**

### **Sales and Operations Planning**

S&OP is a form of business planning. Most manufacturing companies that implemented MRPII recognize the principles of S&OP. Retailers, Distributors and Wholesalers use other terms to describe the same process - with obvious differences - one includes manufacturing capacities the other supplier capacities. In principle, S&OP reconciles aggregate market demand with distribution, manufacturing and supplier capacities. Typically revenue and profit are the focus at this high level of aggregation. Also, the planning horizon is long - perhaps monthly for the next 6 months and quarterly for several years. For short life-cycle industry segments, the time line and aggregation are shorter and lower accordingly.

S&OP can be a very successful process to show the links between the market, manufacturing and supply processes that often conflict. However, even though S&OP is prescribed as a proactive management tool, its focus is not strategic. Goal Oriented S&OP (SOSOP) utilizes optimization techniques to resolve which particular mix of products should be marketed that realizes the greatest profit while not violating fixed restrictions, absolute constraints (fixtures, actual customer orders etc.) and soft constraints (rated supply capacities).

### **Goal-Oriented and Profit Maximization**

Goal Oriented Sales and Operations Planning (GOSOP) takes as it's input the current firm and proposed order book (Customer orders and demand forecasts, if any), on hand inventory conditions (shortages - which represent negative revenue, and excesses), distribution, manufacturing and supplier (raw material) capacities. GOSOP operates over multiple time horizons and will therefore analyze both short-term season programs as well as higher-level annual and longer programs. GOSOP will propose a revision to the demand plan in order to maximize profit. However, firm customer orders will not be violated - nor will prioritized customer and forecast orders. Further, capacity restrictions throughout the organization will not be violated.

Ultimately, GOSOP is a strategic goal-seeking process. Instead of users trying to guess the demand plan in order to optimize supply-side asset utilization, GOSOP helps to optimize the demand-side asset requirements. More accurate cash flow analysis is also provided to the financial community. Taken together, GOSOP and an optimized supply chain planning solution, the entire 'end-to-end' value chain is optimized.

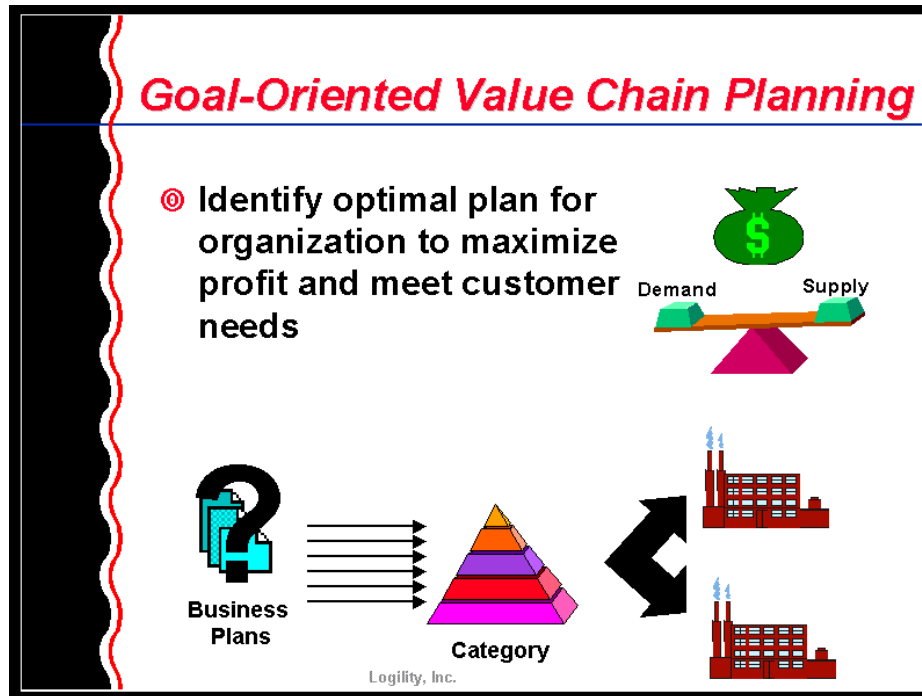


Figure 5. GOSOP automatically determines optimal product mix in order to achieve optimal asset utilization and profit maximization.

GOSOP leverages the business processes outlined in PTP by extending the basis of the question posed to that of overall business plan. This perhaps is the nirvana of business simulation. In the late 1990's companies were acquiring strategic planning systems to determine, using optimization technologies, answers to such questions as:

- Where should I build a plant?
- Where should I source a product (on a global scale)?
- Where should I locate a DC?
- Which market should I enter or leave?

These required often static though time-phased solutions that were the most strategic of Supply Chain systems. With GOSOP, we are operationalising the batch-oriented strategy process with day-to-day planning and execution. This is the next phase of (true) supply chain management.

## **Summary**

When supported by an integrated solution including the components listed above, Profitable to Promise (PTP) can be achieved. Organizations can now surpass inventory availability and manufacturing capacity (ATP and CTP) to consider the bottom-line impact of value chain decisions. PTP advances beyond more effective planning to provide intelligent evaluation of alternatives in a real-time environment. Further, Goal-Oriented Sales and Operations Planning provides a mechanism to determine the optimal mix of products to sell in order to maximize profits while observing critical resource restrictions.

This is where the battlefield is moving. This is where the recent B2B maelstrom will be seen to have been a mild "off-track" interest. This is where B2B will meet Supply Chain!