

Dynamic Collaborative, Planning, Forecasting and Replenishment (CPFR)

Rewards, Pitfalls and Best Practices
for a Successful Implementation



DELIVERING SUPPLY CHAIN EXCELLENCE

TABLE OF CONTENTS:

ORIGIN AND DEFINITION OF CPFR	3
BENEFITS OF A DYNAMIC CPFR SOLUTION	3
AVOID COMMON CPFR IMPLEMENTATION PITFALLS	5
ROADMAP TO A DYNAMIC CPFR SOLUTION.....	7
SUMMARY	9

ORIGIN AND DEFINITION OF CPFR

The evolution of Collaborative, Planning, Forecasting and Replenishment (CPFR) as a supply chain strategy was brought about out of pure necessity. The brief timeline below depicts the fruition of the CPFR supply chain theory:

- **1985** - In response to strong offshore competition, the American apparel industry started to formulate a set of supply chain initiatives known as Quick Response (QR). The objective of the QR strategy was to compress the amount of time it took from design to concept to arriving on a retail shelf.
- **1992** - The Efficient Consumer Response (ECR) theory emerged with a new base of principals around collaborative management techniques within the supply chain.
- **1993 to 1996** - The introduction of Continuous Replenishment Planning (CRP), Collaborative Forecasting and Replenishment (CFAR) and Vendor Managed Inventory (VMI) all emerged as new supply chain strategies. The difference between these three techniques versus their predecessors is that these theories place accountability on the vendor for inventory management and performance not the manufacturer.

Under CPFR, the retailer and manufacturer agree on a joint sales forecast and a joint order forecast. The joint sales forecast can drive production scheduling, distribution planning and store activity planning. Any changes from any of the forecasts, beyond an agreed-upon threshold, are defined as exceptions. These exceptions generate collaborative actions by both parties to re-align the planning for the entire channel and forecasts are realigned to generate the actual replenishment orders.

CPFR methodologies are documented by an independent industry organization, Voluntary Interindustry Commerce Solutions (VICS). This organization hosts a CPFR committee that includes companies like Wal-Mart, Best Buy, GSI US (a finished goods inventory/item number standards organization), Johnson & Johnson, Kimberly-Clark, Kraft Foods, Macy's and Target Corporation among others who provide feedback and real world data to improve and evolve the model.

BENEFITS OF A DYNAMIC CPFR SOLUTION

CPFR environments create a win-win situation between partners if it is applied properly. Initial benefits from a fully optimized CPFR solution include:

- A reduction in stock-out levels
- More accurate forecast figures that lead to lower inventory and backorder levels
- A reduction in the bullwhip effect
- A more realistic business plan due to closer collaboration (e.g. marketing decisions become more effective when they have a direct effect on sales figures)
- Improvements in replenishment cycle times, stock rates for retailers, days of supply, inventory level and inventory turns, service level, and last but not least, costs arising from production, planning and deployment.

Longer-term benefits will take approximately 36 months to manifest by the partner furthest away from the supply source. After the initial 36-month period, the benefit stream typically adjusts to approximately a 35-65% spread and continued to be weighted toward the partner furthest away from the supply source.

Additional long-term benefits from a CPFR implementation include:

- **STRENGTHENED INTER-ORGANIZATIONAL RELATIONSHIPS, CLOSER INTEGRATIONS AND INCREASED VISIBILITY** – Due to the level of involvement by all partners in a dynamic CPFR environment, there is an inherent benefit brought about by the increased interactions and joint problem solving required for a successful CPFR solution. This benefits both parties as the forecast accuracy improves dramatically, which helps both entities become more agile within their supply chains. Decisions are based on more accurate data and this leads to a supply chain that is proactive rather than solely reactive.

A good way to highlight this benefit is to consider a CPFR client engagement that Spinnaker consultants implemented, which included a beverage manufacturer and distributor. During this dynamic CPFR engagement, numerous departments from both companies including operations, finance, marketing and sales were closely aligned during the planning and implementation phases of this project. The participation from groups outside of the direct supply chain organization ensured that potential supply constraints were socialized early and downstream activities were updated accordingly.

This cross departmental integration provided advanced opportunities for the distributor in this example to understand future supply constraints and prepare mitigation plans prior to promotional strategy commitments and purchase order creation. This allowed the distributor to update their promotional strategies to optimize sales based on actual inventory availability. The manufacturer in this example was able to better understand the expectations of the distributor prior to the receipt of the purchase order and optimize resources to meet those needs.

- **INVENTORY MANAGEMENT AND OPERATIONAL EFFICIENCIES** – In the above mentioned client example, both partners executed an inventory reduction strategy as part of the CPFR engagement roadmap and both saw a shared reduction in overall inventory across the extended supply chain. The excess inventory was removed through the fulfillment of normal demand with a near-term targeted reduction in planned supply.

This reduction in inventory was accompanied by an associated reduction in direct and indirect costs of managing and maintaining the inventory removed from the network as part of the inventory reduction strategy. The proactive collaboration across the organizations provided other operational efficiencies through reduced order management activities to address unforeseen inventory shortages and inventory balancing activities based on newly received purchase orders.

A risk during any CPFR engagement will occur if management in either organization loses sight of the fact that the savings encountered during this inventory reduction period are a unique event and are not sustainable after the desired inventory goal has been achieved. Inventory optimization can and should occur throughout the lifecycle of a CPFR engagement.

- **FINANCIAL BENEFITS** – Primary financial benefits are realized through a reduced customer cost to serve and reduced inventory creation, maintenance and management costs. The inherent reduction in the variability of orders and reduced activity required to move orders, combine orders and resolve stock issues linked to order fulfillment allows order management teams to focus on looking for proactive opportunities to improve efficiency and create incremental savings.

In the client example cited above, the push supply chain environment afforded opportunities to scale back and eventually eliminate extended terms to motivate the downstream partner to take on additional inventory. The reduction in safety stock requirements provided reduced variable costs to store and track inventory. Over the prescribed inventory reduction window, both partners saw a reduction in transportation costs as the flow of incoming supply was slowed to allow organic demand to consume the excess inventory in the network.

AVOID COMMON CPFR IMPLEMENTATION PITFALLS

As with many complex supply chain projects, preparing an organization to take on a CPFR supply chain strategy involves a lot of moving parts and a deep knowledge of the CPFR methodology in order to have a successful transition and outcome.

Through numerous CPFR implementations, Spinnaker has learned that there are many potential pitfalls that may arise when organizations consider moving to a CPFR supply chain model. Being mindful of these common implementation challenges may prevent them from ruining the full benefits of a CPFR solution.

- **NETWORK STUFFING** – Pushing inventory down the extended supply chain to a partner with the least influence to move the inventory is the definition of network stuffing. In this scenario, a manufacturer for example wants to show inflated sales number for a period of time, and therefore, they force their distributor or retailer to take excess amounts of inventory in exchange for extended terms or some other incentive. The distributor or retailer is now stuck with the cost to store and distribute the additional inventory and often times this overstock results in the distributor/retailer being forced to sell merchandise at a less desirable price just to get rid of the excess inventory. Manufacturers may ultimately suffer from this practice via distributors or retailers returning overstocks and/or costly overtimes and factory shutdowns due to the wildly fluctuating demand signals they now receive.

In order for an effective CPFR solution to work, there must be a shared demand plan and each entity must trust in the other to forecast accurately and to ensure orders will be fulfilled on time.

- **BUFFERING DEMAND AND SUPPLY VARIABILITY WITH INVENTORY** – Vendors and customers utilize inventory to buffer for the variability in supply and order. This increases the total inventory position across the extended supply chain and creates an inaccurate inventory picture.
- **BULLWHIP EFFECT** – Forecasts are based on statistics and they are rarely perfectly accurate. Because forecast errors are a given, companies often carry an inventory buffer called “safety stock.” Moving up the supply chain from end-consumer to raw materials supplier, each supply chain participant has a greater observed variation in demand, and thus, a greater need for safety stock. In periods of rising demand, down-stream participants increase orders. In periods of falling demand, orders fall or stop to reduce inventory. The overall effect creates variations that are amplified as one moves upstream in the supply chain (further from the customer).

To avoid this phenomenon in a CPFR implementation, collaborate often and early to ensure that forecast accuracy levels meet both organizations’ expectations.

- **POOR MIX PLANNING** – A related pitfall to the bullwhip effect is a poor planning mix. Forecasts at an aggregate level appear to be a good predictor of future performance. When orders are placed against the aggregate forecast, it becomes evident that the mix is not aligned, which drives increased costs from expediting and balancing inventory to meet demand.
- **INEFFICIENT ORDER PATTERNS** – Order efficiency can suffer for both parties if a misalignment in basic supply chain procedures occurs, such as a difference in pallet configurations between both providers. Inefficient resource utilization and/or misaligned forecasts reduce the efficiency of warehousing and transportation resources and the ability to fully optimize transportation modes. Instead of loading full pallets efficiently, organizations end up picking off individual cases and layers that make up full pallets. This causes an increased “touching of cases” with a cost impact for each “touch.”
- **LOW-STOCK, OUT-OF-STOCK ISSUES** – A poor mix/balance and lack of alignment at granular levels across the extended supply chain creates increased low-stock and out-of-stock issues driving up the “cost to serve” via increased order expedite activities and non-essential inventory movements. Every time your warehouse touches or moves inventory from one facility to another it costs money. If you consistently move inventory to prevent low-stock issues without a true demand forecast, you decrease the margin every time a pallet is touched and compound the problem with expedite fees and increased transportation costs.

- **COST TO SERVE** – All of the issues outlined above drive an increase in the total cost to serve the customer for each supplier/customer relationship in the supply chain.

ROADMAP TO A DYNAMIC CPFR SOLUTION

Organizations may find it challenging to move immediately into a dynamic CPFR environment, but the rewards are worth the effort. To begin, an organization should evaluate where they fall on the dynamic CPFR roadmap to determine the appropriate next steps.

- **DEFINING PARTNER OPPORTUNITIES** – Organizations need to identify potential CPFR partners that express an interest in collaboration from within the greater organization. C-level sponsorship and accountability must occur across both partners for a successful implementation.
- **UNDERSTANDING BUSINESS DRIVERS** – A clear understanding of each party's business drivers and points of capital expenditure against a shared forecast is critical within a CPFR supply chain environment. A mutual agreement must be reached so that each partner knows at what point a financial spend is placed against a forecast. Both organizations need to measure performance against shared efficiency drivers, such as actual lead times and lead time variances, to be successful.
- **ALIGNMENT OF SUPPLY BASICS** – A fair amount of supply chain inefficiency is driven within each partner by a misalignment of supply basics. Both organizations need to gain alignment on a single set of basics. If there is not a standard routine to maintain alignments, the previous inefficiencies will slowly reappear over time.
- **INTEGRATION WITHIN EXISTING BUSINESS PROCESSES** – Once a partnership has been constructed, both parties need to integrate their supply chain, sales and marketing intelligence into the sales and operations (S&OP) and budgeting processes. As organizations become more adept at collaboration, they may reach a point where joint budgeting activities can occur.
- **JOINT DEFINITION OF SUCCESS METRICS** – Both partners need to identify and align on complimentary metrics like in full, on-time delivery (IFOT) and service levels as well as joint-ownership metrics (% full truck or % transportation mode). In addition, metrics that are specific to each partner but are still an input into the extended supply chain, (Variance to Production Plan, Days on Hand/Dollars) need to be defined. Partners need to have a stake in the balanced improvement of these metrics. One way to monitor these metrics is via a shared dashboard with joint ownership for updates and improvements.
- **BENEFITS RECONCILIATION** – Both organizations must document individual and shared benefits to reconcile each appropriately so as not to overstate the total benefits stream. Joint decisions as to how each partner will account for revenue benefits must be defined. The idea that any savings or increased revenue to one partner is an exclusive gain of that partner is no longer a valid assumption.

- **DEFINE GROUND RULES** – As partners move through the dynamic CPFR roadmap, their focus should move from the forecasting requirements of their organization to the forecasting requirements of the broader (combined) supply chain. The focus of forecast and replenishment activities for a retailer is tied heavily to order-cycle times at the vendor and lead times to move inventory through their own network. Traditionally, each vendor concentrated solely on their own supply chain activities. In order to be a successful dynamic CPFR partner, each organization must embrace the needs and drivers of their partner's supply chain in conjunction with their own.
- **DETERMINING DATA SETS FOR COLLABORATION** – Defining each organization's data requirements is critical to a successful CPFR partnership. Joint conversations allow both partners to negotiate a common data framework for collaboration activities. A frequent mistake made during this negotiation is the assumption by one partner that they understand the item/location data structures of the other. Be sure to carefully define the data for each entity, where it is located, and its definition to ensure a common understanding.
- **MANAGE MARKET PERCEPTIONS** – As organizations make the commitment to move to a pull supply model and partner to create an expanded supply chain, they tend to focus on delivering the internally committed inventory reduction numbers as quickly as possible. Depending on the amount of inventory across the extended supply chain, an organization can potentially reduce their inventory by 40% or more in a single fiscal year. There is a fear that for publically traded companies, financial analysts may perceive this reduction in shipments or production output as negative performance. Partners need to construct a joint strategy that includes a communications plan to proactively address this issue.
- **SELECT A FLEXIBLE, YET SECURE PLATFORM** – The technology selected must provide adequate controls to ensure that no partner can gain a competitive advantage through the visibility of the other's data. The goal is to adopt a foundation that is flexible enough to allow for customization based on each party's individual needs now and into the future.
- **IMPLEMENTATION AND ROLL-OUT** – It is critical that business and technical resources from both parties be equally engaged. If engagement is weighted heavier on one side, you run the risk of one partner interpreting the solution as more favorable to the other and this can lead to resentment and distrust causing the entire CPFR solution to fail.
- **ENSURE ROOM FOR EXPANSION** – Once a successful dynamic CPFR environment has been established, the partners can work towards an expanded supply chain collaboration relationship through the introduction of Vendor Managed Inventory (VMI) and the creation of a shared distribution network inventory consignment.

SUMMARY

If executed properly with full transparency, a dynamic CPFR model can provide stability across a shared supply chain. Vendors and customers can reduce the amount of inventory held to buffer against uncertainty in supply and demand between partners.

The benefits outlined in this paper are vast, but this white paper seeks to provide an overall cost-reduction picture:

“The average retail industry out-of-stock rates are 8% and can be as much as 40% on promoted items, which results in a loss of sales between 5% and 10%. Demand-driven collaborative supply chain programs drive higher sales by improving in-stock rates between 2% and 8%.

In addition, increased operating margins by 5-7% can be realized through a CPFR solution.

By sharing demand data, forecast accuracy is improved and less safety stock is required to keep in-stock levels at target. Less capital is tied up in inventory, improving both return on invested capital (ROIC) and gross margin return on investment (GMROI).”

To ensure a successful implementation, consider bringing in a supply chain expert like Spinnaker. We help companies tailor their CPFR strategy for success and can provide helpful guidance to avoid a solution that delivers less than desirable results.



Spinnaker is a global leader in supply chain consulting and execution services. We deliver supply chain excellence with world-class people, processes, technology and operational know-how.

Founded in 2002, Spinnaker operates on two guiding principles – measure our success by our client’s accomplishments and treat every situation with honesty and integrity. It’s from these guiding principles that Spinnaker has been able to achieve tremendous growth.

Spinnaker has worked with entrepreneurial start-ups to Fortune 100 enterprises in industries such as High Tech, Manufacturing, Retail, Energy/Oil & Gas, Communications, Pharmaceutical/ BioTech and Alternative Energy. We combine our vast supply chain and business process knowledge with industry best practices to deliver solutions that drive tangible results for our clients.

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