



Retail Event Collaboration

Business Process Guide

May 6, 2004



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Abstract

In many retail environments, promotions and other retail events generate the largest swings in demand, and as a result, the majority of out-of-stocks, excess inventory and unplanned logistics costs. While the VICS Collaborative Planning, Forecasting and Replenishment (CPFR[®]) Guidelines include recommendations for the entire lifecycle of planning, forecasting and replenishment, many organizations have sought to focus collaborative efforts on retail events, where their financial opportunity is greatest. This specification describes a standard business process model for retail event collaboration, along with the implementation guidelines needed to support the process.



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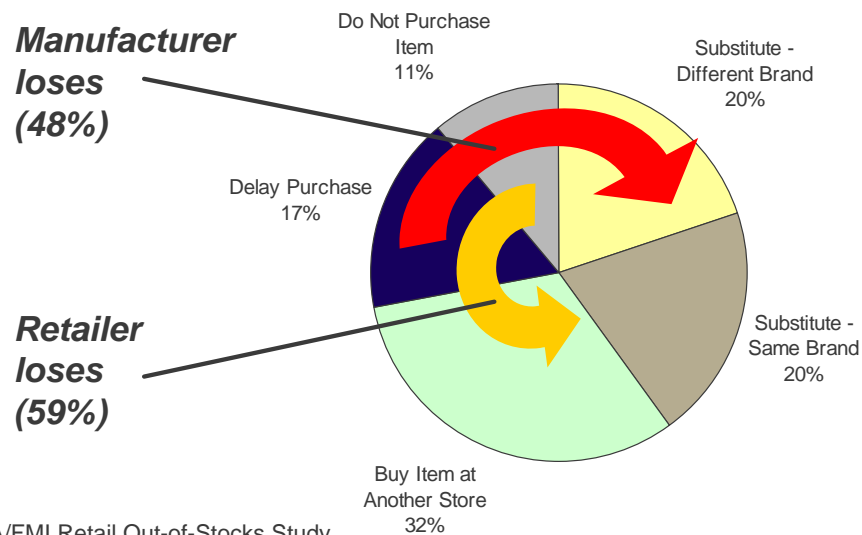
Introduction

Business Case

Out-of-stock products in retail stores continue to frustrate consumers, while reducing profits for retail and manufacturing enterprises. According to a joint Grocery Manufacturers of America/Food Marketing Institute study*, specific products are missing from retailers' shelves an average of 8.3% on a global basis.

The problem becomes much worse during promotional events. The out-of-stock rate doubles, just as consumer demand peaks. Consumers become upset by the broken promise of a special deal, and half the sales that would have been generated during the period are lost. Retailers and manufacturers both lose as a result. Figure 1 illustrates the global consumer response to an out-of-stock, averaged across several product categories.

Who loses when an item is out-of-stock?



Source: GMA/FMI Retail Out-of-Stocks Study

Figure 1 – Consumer Response to Out-of-Stock Events

Just as both manufacturers and retailers suffer financially from promotional out-of-stocks, both must work together to solve the problem. About a quarter of the time, the product is at the store, but for various reasons has not found its way to the shelf. But three-quarters of the time, out-of-stocks come from poor planning and communication. These include the wrong allocation of promotional products from a retailer's distribution centers to its stores, inaccurate shipments from the manufacturer to the retailer, or failure to incorporate event changes and shifts in consumer demand into sales forecasts. Figure 2 shows the relative proportion of these causes worldwide.

* Retail Out-of-Stocks, Grocery Manufacturers of America, 2002

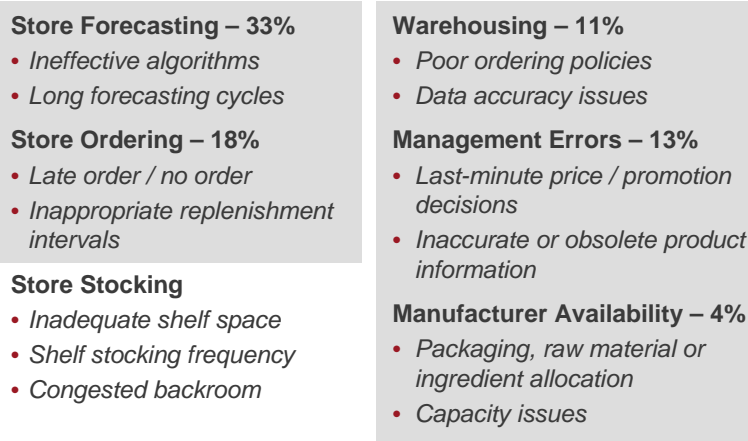


Figure 2 – Causes of Out-of-Stocks

Remediation of out-of-stocks and other issues with promotional planning demands more accurate, timely and detailed information. The most obvious response – pushing more inventory into the supply chain – usually hurts rather than helps. Other approaches are effective, but are not generally sustainable. For example, intensive store employee monitoring of shelves during promotions can prevent in-store out-of-stocks, but cost pressures are driving retailers to deploy fewer store personnel, rather than more.

One method that has been effective is increased collaboration between retailers and suppliers in the planning, forecasting and replenishment of promotions. Collaboration can improve promotional forecast accuracy, improve fill rates and reduce execution errors, attacking the root causes of promotional out-of-stocks.

Figure 3 illustrates the actual results of retail event collaboration between a large retailer and manufacturer. Retailer demand (DC withdrawals) is represented in orange; DC inventory is represented in green. After shipping too much stock in response to the first event, the trading partners improved demand estimates and inventory management in subsequent events.

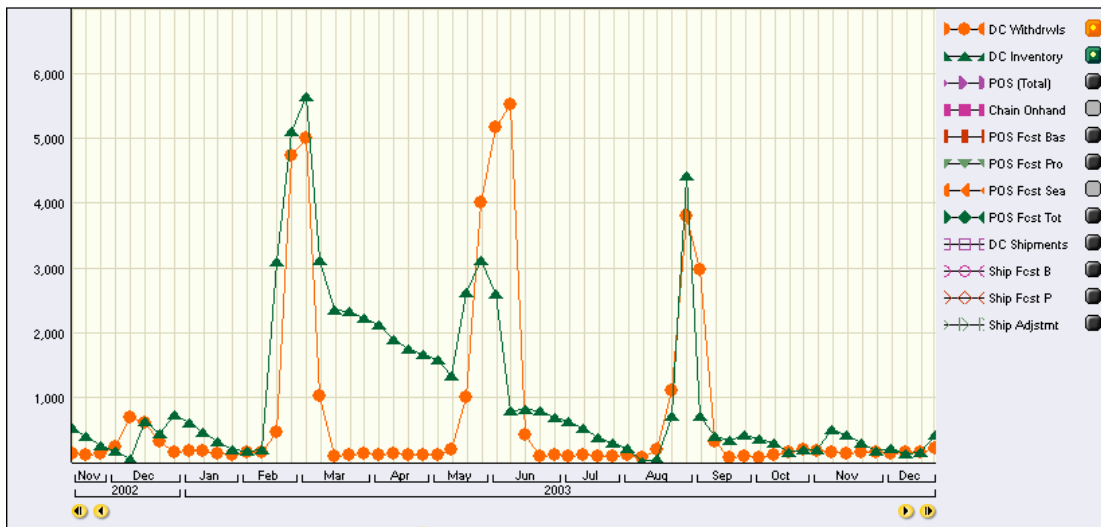


Figure 3 – Collaboration Improves Retail Event Performance

Current Process State

Most manufacturers and retailers have well-established processes for planning and executing promotions within their enterprise. Manufacturer sales teams devise promotional strategies that align with consumer activity and make the best use of available trade funds, and then propose events to their retail customers. The retailer's merchandise planning and buying organizations evaluate manufacturer events, along with their own initiatives. On an annual, semi-annual or quarterly basis, the retailer and manufacturer agree on a calendar of approved events.

The manufacturer needs to enter any special promotional items into its calendar. Retailers also need to authorize these items for ordering.[†]

Depending upon the retailer's ordering policies, the retailer may place a promotional order for any additional product required to support the event. The manufacturer ships these additional quantities, and the retailer distributes them (along with any special signage, displays or other collateral) to stores. Any ads to drive demand for the event are also placed. Retailers enter promotional prices in their POS systems, and execute the event. For trade promotions, the retailer and manufacturer then settle the trade funds associated with the event.

Retail events can be very complex. A single event may employ several tactics (for example, a price reduction accompanied by a flyer advertisement and an end-aisle display, but only in half of the stores). Long events may have multiple product replenishment cycles. Distribution for major events may combine DC, cross-dock and direct-to-store shipments. Third parties, such as brokers, wholesalers and third-party logistics providers may be involved in the planning and execution processes.

[†] The product data synchronization process to support the introduction of new items is the subject of other EAN-UCC standards activities, and will not be discussed further in this document.

Figure 4 shows the technology infrastructure that supports the event management process within each enterprise. Manufacturers typically have a trade promotion management process along with a software application that assists the sales force with developing promotional strategies and managing trade funds. This may be a custom application, a module in a Customer Relationship Management (CRM) solution, or a simple spreadsheet.

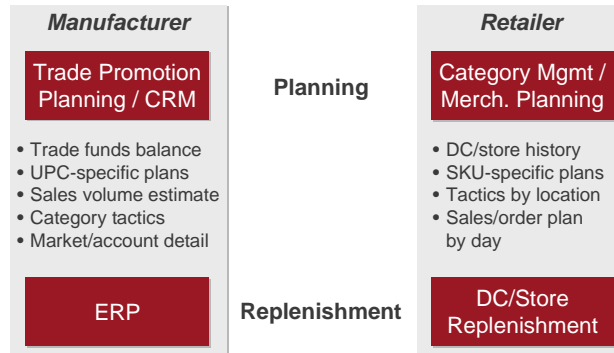


Figure 4 – Enterprise Systems Support for Promotion Planning and Execution

Retailers have category management and merchandise planning solutions to analyze the expected lift, margin, cannibalization, shelf space requirements and other details of a proposed event in the context of the retail business. These are all critical components to developing events and determining product requirements.

At execution time, manufacturers process promotional orders through their order management or Enterprise Resource Planning (ERP) solution. If the products being promoted are in continuous replenishment (CRP or VMI) programs, special handling of promotional orders is required to prevent negative effects on ongoing replenishment calculations.

The retailer's DC and store replenishment systems manage distribution of promotional order quantities to the stores.

The gaps in the current process occur in the coordination of the manufacturer's activities with the retailer's activities. When the event calendar is agreed, both companies (in theory) have a synchronized view of upcoming promotions. But this view is at a very high level. Many more details are required on each side to actually execute the event, and there is no systematic way to share information about them. More critically, the details of an event, such as its timing, price points, or ad positioning can and often do change. If one organization executes off of an obsolete notion of the event, product volume and timing can be wrong.

Historically, there has been no way to systematically communicate event details or changes. Updates are typically ad hoc, through phone calls, e-mail or in person. Often any information exchanged "falls through the cracks," and is never entered in the enterprise systems that drive event planning and execution.

Collaborative planning, forecasting and replenishment of promotional events can reduce the errors in event estimation and execution that arise from poor coordination.

Future Process State

Figure 5 presents a high-level overview of retail event collaboration, based upon the VICS CPFR reference model. Trading partners develop a collaboration strategy and a joint business plan for promotions, typically on an annual or quarterly basis. They then work together to determine the impact of planned events on consumer demand and retail distribution. As events occur, promotional orders are placed, and delivery takes place. Then the event is executed in stores.

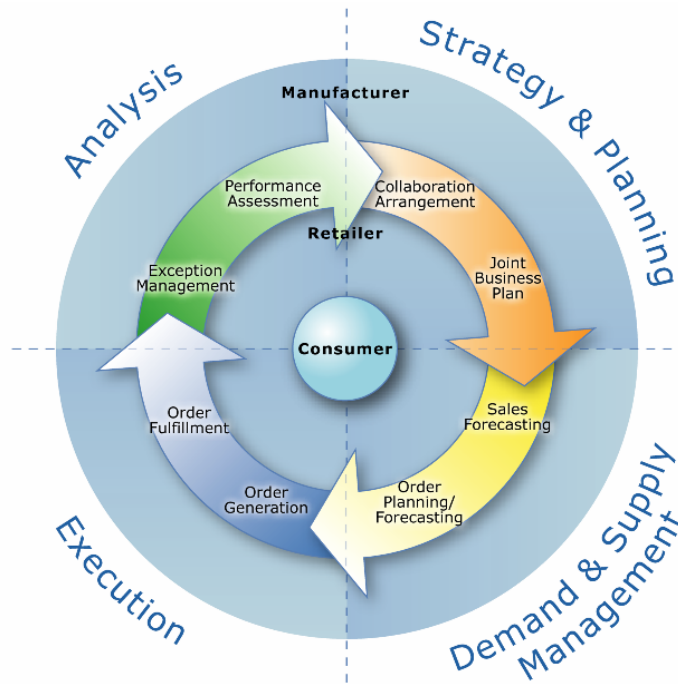


Figure 5 – Retail Event Collaboration Process Overview (VICS CPFR Model)

Along the way, exceptions related to event planning or execution may be identified and resolved. The process should conclude with an evaluation of event performance.

Retail event collaboration is one of four standard scenarios in the VICS Collaborative Planning, Forecasting and Replenishment (CPFR) process. Retail event collaboration focuses exclusively on managing the supply and demand impact of promotions and other retail events. The financial aspects of promotions management (negotiation of terms and financial settlement) are a parallel process, which is handled by a other existing transaction standards. The consequences of promotional deals, such as forward buys, are reflected as increased quantities, but the financial terms themselves are not included in the collaboration guidelines.

Implementation Scenarios

Retail event coordination processes can be implemented in two phases:

- **Event synchronization** is the basic process of communicating event details systematically, and notifying trading partners of changes as they occur.
- **Event collaboration** is a more comprehensive process that engages both trading partners in the estimation of event volumes, execution strategy, and tactical decision-making.

The event synchronization process can reduce errors due to missing or obsolete information, as well as reduce the overhead of event coordination. In addition to these benefits, the event collaboration process can enhance retail event strategy, produce more accurate forecasts, and lower the costs of execution by taking advantage of opportunities offered by both manufacturer and retailer capabilities. This document describes both alternatives.

Table 1 – Comparing Retail Event Synchronization and Collaboration Processes

	Retail Event Synchronization	Retail Event Collaboration
<i>Strategy & Planning</i>	Define scope and process of information sharing.	
	<enterprise process>	Assign exception handling roles and procedures.
	Communicate event details. Send updates as details change.	
<i>Demand & Supply Management</i>	<enterprise process>	Develop and share event sales forecast estimates.
	<enterprise process>	Develop and share event order plan estimates.
	Place promotional order or release promotional quantity in continuous replenishment system.	
<i>Execution</i>	Deliver promotional quantities to third parties, retailer DCs or stores.	
	<enterprise process>	Monitor store inventory and sales performance during the event.
	Trigger, communicate and resolve exceptions.	
<i>Analysis</i>	<enterprise process>	Trigger, communicate and resolve exceptions.
	Communicate event performance results.	

The Retail Event Synchronization Process (Summary)

1) Strategy and Planning:

- a. Establish the ground rules about what brands and specific SKUs are to be included, the level of detail, and how often information is to be sent.
- b. Share details of events gathered from the event calendar, including timing, duration, price point, advertising, display and packaging tactics, as well as affected items and locations. Include consumer activity that may be taking place across the entire market such as television advertising or couponing. Send event updates whenever event information changes (or additional detail is specified).
- c. Trading partners compare event details they receive to previously received information and local plans, and update local plans when necessary.

2) **Demand and Supply Management:** Each organization makes its own estimates, based upon the data provided.

3) **Execution:** Order and deliver products for the event.

4) **Analysis:** Report the sales results of the event, including any event performance metrics.

The Retail Event Collaboration Process (Summary)

1) Strategy and Planning:

- a. Establish the ground rules about what brands and specific SKUs are to be included, the level of detail, and how often information is to be sent.
- b. Assign roles and tolerances for issue identification, escalation and resolution.
- c. Share details of events gathered from the event calendar, including timing, duration, price point, advertising, display and packaging tactics, as well as affected items and locations. Send event updates whenever event information changes (or additional detail is specified).

2) Demand and Supply Management:

- a. Create event-specific sales forecasts by SKU.
- b. Share forecast estimates with the trading partner.
- c. Assess the impact of the event on ordering patterns (if promotion replenishment rules are not pre-determined).
- d. Share any promotional order forecast developed, along with any other expected impacts on the ordering process (for example, specific cross-dock, direct-to-store, or direct plant shipments).

3) Execution:

- a. Order and deliver products for the event.

4) Analysis:

- a. Monitor sales, changes in products/locations/pricing/tactics, adjustments to sales estimates and shipment plans for exception conditions. Trading partners resolve exceptions through an iterative process of resolution proposals and responses.
- b. Report and review the sales results of the event, including performance metrics at event, brand, category and partnership levels.

Collaboration Roles and Responsibilities

Both manufacturers and retailers are the source for retail event information. However, any event that will actually be executed must ultimately be entered in the retailer's systems[‡]. As a result, there are two alternatives for the retailer/manufacturer roles in the collaboration:

- The retailer initiates the transmission of event information, regardless of whether a retailer or manufacturer promotion is involved.
- Manufacturers send initial messages to the retailer for their proposed events. Retailers respond to these, and add their own events.

In the first case, the retailer[§] enters information about manufacturer events collected through joint planning sessions into retailer's system, and exports it to the manufacturer in a Retail Event message. The manufacturer validates that the information the retailer sent against data in their own systems, sending status updates or proposed changes as necessary.

There are also alternatives for the roles that retailers and manufacturers play in event demand forecasting and order planning. One enterprise can be uniquely responsible for each activity, or both organizations can develop plans, and compare them to arrive at a consensus plan. Common combinations include **retailer-managed** planning (CPFR Scenario A, in which the retailer generates both the sales and order forecasts), **co-managed** (CPFR Scenario C, in which the retailer generates the sales forecast, and the manufacturer develops the order plan), and **vendor-managed** (CPFR Scenario D, in which the manufacturer is responsible for both the sales forecast and the order plan).

Organizational Implications

CPFR establishes guidelines for enterprises to integrate their planning processes across corporate boundaries. However, successful programs must be based upon more fundamental collaborative processes *within* each enterprise. For some companies, achieving internal collaboration can pose a bigger challenge than working with customers or suppliers.

[‡] Of course, promotions need to be entered into the manufacturer's systems as well, so promotional orders can be shipped and invoices that reflect promotional terms can be paid.

[§] In certain cases, a manufacturer employee enters this information directly into the retailer's system through a web-based (extranet) interface.

Figure 6 illustrates the organizational functions that manage retail events on each side of the trading relationship. Resources responsible for merchandize planning develop category plans, which the manufacturer's demand planning personnel incorporate in their forecasts. Sales representatives and buyers negotiate deals and other promotional events. Replenishment personnel determine store and/or DC order quantities, and manufacturer customer service and logistics personnel mobilize the resources to fulfill them. In many cases, these discussions and business transactions take place independently, without coordination among enterprise organizations.

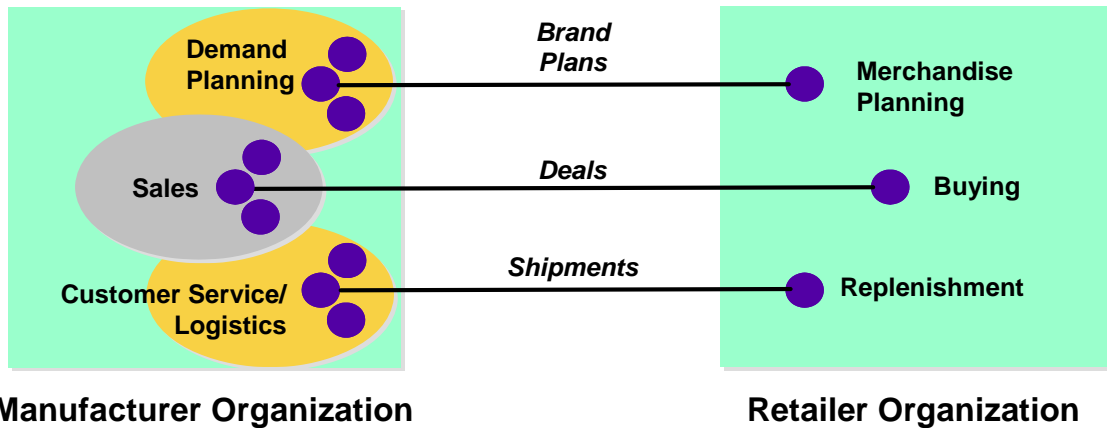


Figure 6 – Organizational Roles for Retail Events

Effective business-to-business collaboration demands a reorientation of resources – from functional silos to an interdisciplinary focus. For major accounts, many manufacturers establish cross-functional, customer-specific teams. Logistics, planning and financial resources are co-located with sales personnel to provide a single face to the customer. For smaller accounts, cross-functional teams are assigned to a geography or channel. Figure 7 dramatizes the desired collaborative organizational structure.

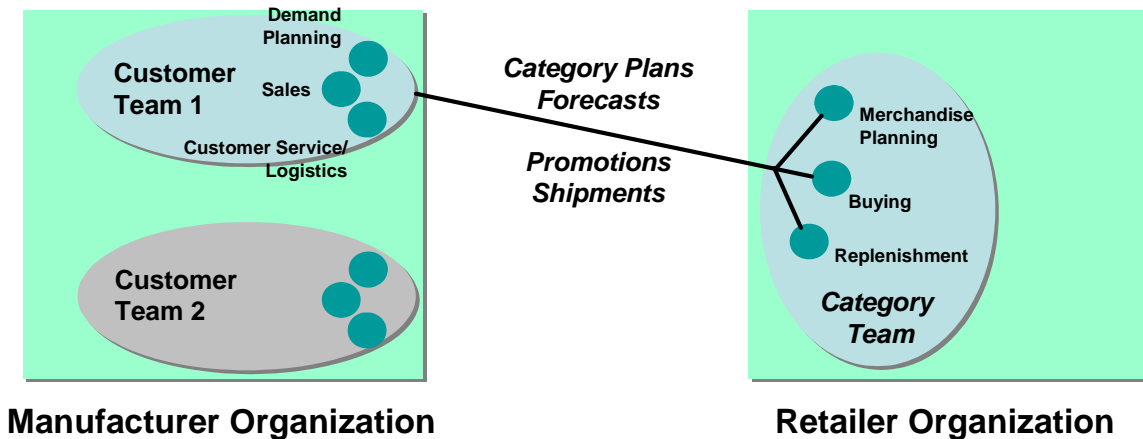


Figure 7 – Collaborative Organizational Structure

Retailers face an even bigger organizational challenge. Retail events often present dilemmas of conflicting objectives – for example, a better net price, but higher inventory carrying costs or cannibalization of high profit sales – that require input from multiple organizational perspectives. It is not usually practical for the planning, buying and replenishment functions to reorganize around suppliers. However, they may be able to form category-specific teams. The biggest change may come within the replenishment organization itself: store and DC replenishment personnel must carefully orchestrate promotional distribution, so some retailers have combined their store and DC replenishment teams to reduce disconnects.

Collaborative Event Strategy and Planning Process

Collaboration Arrangement

The Event Collaboration Arrangement is the preparatory step that defines the scope of the project, assigns roles and establishes procedures for data interchange, issues identification and resolution. The process can be divided into the following steps.

A. Initial Collaboration Scope Definition

- 1) Receive and review background information from the sales organization or buyers (depending upon the company role) and replenishment personnel regarding the following:
 - a) Service level and inventory turn performance/objectives
 - b) Number of stores and DC's
 - c) Receiving/shipping pattern
 - d) Promotional lead times
 - e) Average promotional quantities
 - f) Issues and opportunities with the customer
- 2) Identify the product categories that should be included in the initial scope (usually categories with large promotional volume):
 - a) Document product code list, including package UPC, description, retailer item code, manufacturer item code, package-to-case conversion factors.

B. Define Collaboration Objectives

- 1) Collaboration objectives can include:
 - a) Increase POS and order forecast accuracy
 - b) Increase DC-to-store service level associated with events
 - c) Reduce excess inventory associated with events
 - d) Reduce retail out-of-stocks
- 2) Define specific metrics that reflect the above objectives.

C. Define Collaboration Process

- 1) Event collaboration cycle:
 - a) Event calendar and attributes comparison (typically 12 - 10 weeks prior to promotion)
 - b) POS Forecast comparison (typically 10 - 8 weeks prior to promotion)
 - c) Order Forecast comparison (typically 6 - 4 weeks prior to promotion)
 - d) Post-event evaluation (typically 2 - 3 weeks after the event ends)
- 2) Quarterly process/results review meetings to discuss results, challenges, and process modifications, if necessary.
- 3) Annual joint business planning and strategies discussion.

D. Document Data Requirements

- 1) Document the data sources that are essential for a successful event collaboration process, including:
 - a) Event calendar (event dates and items)
 - b) Event attributes/tactics (price point, display activity, etc.)
 - c) POS forecast (if available)
 - d) Order forecast (if available)
 - e) Actual POS data
- 2) Document additional information that can be used in event analysis, including:
 - a) Actual shipments (including any product cuts or shipping delays that affected execution)
 - b) Actual DC withdrawals
 - c) Inventory

E. Set up Technical Infrastructure

- 1) Establish data transmission process
- 2) Develop any required interfaces to enterprise systems
- 3) Load data into collaboration solution.

F. Prepare for Collaboration Kick-off Meeting

- 1) Prepare Collaborative Arrangement document and other materials. (See Appendix B for an example.)
- 2) Develop the agenda for the kick-off meeting, covering the following:
 - 1) Collaboration objectives
 - 2) Collaboration scope
 - 3) Weekly/quarterly/annual process
 - 4) Roles and responsibilities
 - 5) Official start date
 - 6) Other milestones
 - 7) Next steps

G. Conduct the Collaboration Kick-off Meeting

Note that a working session for CPFR team members follows the general kick-off meeting and may include discussion of technical details (e.g. exception tolerance limits, etc.), as well as Collaboration Tool training.

Joint Business Planning

In the VICS Collaborative Planning, Forecasting, and Replenishment (CPFR) process, the seller and buyer exchange information about their corporate strategies and business plans in order to develop a joint business plan. In the Retail Event Collaboration variant of CPFR, the focus of joint business planning is on upcoming promotions and other planned retail events (such as holidays, major sports events and other consumer-related activities). At this stage, the seller and buyer collaborate on developing optimal plans for these events - prior to developing detailed sales forecasts during the next stage of the process.

The buyer and seller collaborate to develop an event calendar that includes (in rough order of priority):

- What events will take place during a given time period (typically the next 6 – 12 months)
- When the events will take place (start and end dates)
- What brands and SKUs will be included in each event
- What type of event each will be (e.g. manufacturer promotion, holiday, etc.)
- What tactics will be used for the event (e.g. store display details, feature, display, ad, etc.)
- Which store locations (or what percentage of them) will participate in the event
- Consumer price points (by product/location)
- Buying price/cost sharing arrangements between buyer and seller (i.e. for price reduction promotions), and what periods these arrangements are valid for
- Other external factors, such as advertising and likely competitive pressure

The collaborative process helps the buyer and seller agree to the event calendar and event details that meet their joint business and collaboration objectives. The objective of the event calendar is to ensure events are planned to achieve optimal results, and to enable both parties to plan the execution of the event more accurately, from the preparation of advertising and displays, to the production and delivery of promotional stock. As a result, the details of an event that affect timing and impact the forecast for demand are the most important to include. These will vary by product category and retail channel, but can generally be selected from a common industry-wide set of retail event attributes.

The EAN.UCC Retail Event Business Message specification provides a standard for event data attributes. Key attributes that can be communicated for each event include:

- *Event Timing:* The beginning and end periods that the event runs, along with key milestones such as the first available shipment date.
- *Event Type:* Indicator of whether the event is a manufacturer promotion, holiday, community event, product demonstration or some other planned activity.
- *Pricing:* The promotional price planned for each item in the event, if any.

- *Volume impacts*: The expected sell-through or sales lift, as well as any expected order impacts, which can be spread over multiple periods.
- *Tactics*: Any other activities commonly associated with retail events, which are categorized as follows:
 1. Feature: A media advertisement in support of the promotional event, whether in third-party publications, or in the retailer's own flyers available at the store.
 2. Display: Temporary secondary location that draws attention to the promoted product.
 3. Trade Item, Packaging or Labeling: Changes to the product size (such as bonus packs), special labeling, attached free samples or other temporary changes to the product offered to the consumer.
 4. Consumer Incentive: A device (such as a coupon or rebate either delivered directly in-store or direct to consumers) that offers the consumer a financial incentive for buying the product.

Either the buyer or the seller documents the details that have been previously negotiated in an event calendar. The trading partner confirms the plans for the event or proposes changes. Each party continues to notify the other of any changes.

The completeness of event detail will vary based on the time in the planning horizon. Annual or seasonal plans, in negotiation 6-12 months prior to individual events, may only capture product category, volume target and a performance date range. The additional event details should be negotiated and captured as the event approaches.

Collaborative Event Forecasting Process

Event Sales Forecasting

In the Demand Planning process, it is critical that an accurate forecast for event-driven demand be created, agreed upon by both manufacturer and retailer and then used to drive both the ordering and supply chain processes.

Event forecasting is typically performed at aggregate level today, based upon historical DC withdrawals or shipments. Recognizing that consumer behavior can vary greatly by store, many organizations are moving to more detailed, store-level event forecasting practices. Figure 8 depicts this approach to event forecasting, which uses store-level POS data to drive the process.

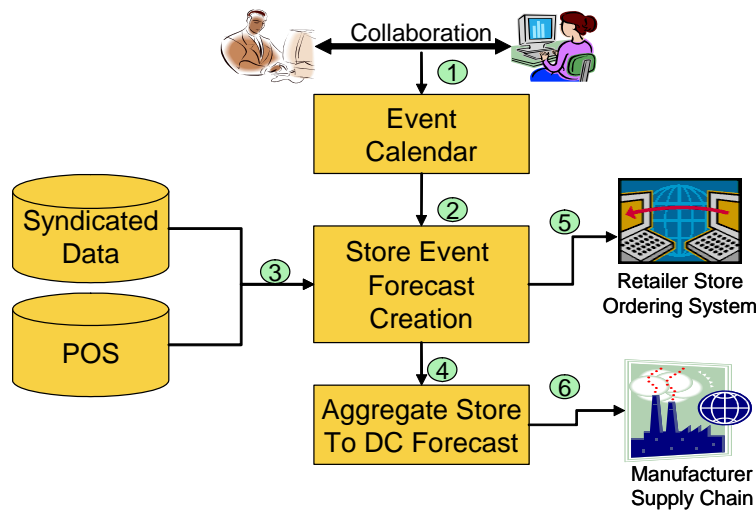


Figure 8 – Store-Level Event Sales Forecasting Process

Below is an explanation of each step in the process.

Collaboration

- (1) → The agreed to event calendar details from the joint business plan are captured in an electronic event calendar solution
- (2) → The event details are made available to the forecasting solution
- (3) → Historical movement data is made available to the forecasting solution. This data can come from many different sources depending on what is available. Ideally, store POS data is used, as it is the most granular data that reflects what consumers are really buying. However, other sources of data, such as syndicated data, historical store shipments and/or warehouse withdrawal data could also be used. The algorithms used to actually create the forecast will vary depending on many different variables including
 - a. The type of data being used (POS, syndicated, etc.)
 - b. The amount of data being used (13 weeks, 52 weeks, etc.)
 - c. The granularity of the data (store, cluster, sample, DC, etc.)

Store Event Forecast Creation

Based on the event details (dates, products, tactics, etc.) and using the available data source(s) a volume estimate/forecast is created for each product/store combination included in the scope of the event. Retail event forecasting algorithms provide demand estimates for peak periods of demand (which would be considered “outliers” in conventional baseline forecasting) by calculating coefficients for causal factors based on event history. New events are projected by applying the coefficients to event attributes that match the causal factors (discount, display activity, etc.).

- (4) → The individual store forecasts are sent to an aggregation solution
- (5) → The individual store forecasts are sent back into the retailer's ordering systems so the forecast numbers can be used as the basis for ordering from the manufacturer as well as Customer DC to store allocation. The EAN.UCC Retail Event Message should normally be used as the format for this transmission/integration.

Aggregate Store-to-DC Forecast

Based on a store-to-customer DC mapping, aggregate the individual store forecasts into customer ship point (e.g. distribution center) forecasts that can then be fed into the manufacturer's supply chain where they can be used for production planning, materials requirements planning, etc.

- (6) → Feed the Ship Point forecasts into the manufacturer supply chain systems. The standard EAN.UCC Retail Event Message should be used as the format for this transmission/integration.

Event Order Planning/Forecasting

In the supply chain process, it is important for sales forecasts that are created to be converted into shipment forecasts that can then be used in the production planning processes at the manufacturing locations and be incorporated into the ordering processes at the retailer. Figure 9 shows how this process might work.

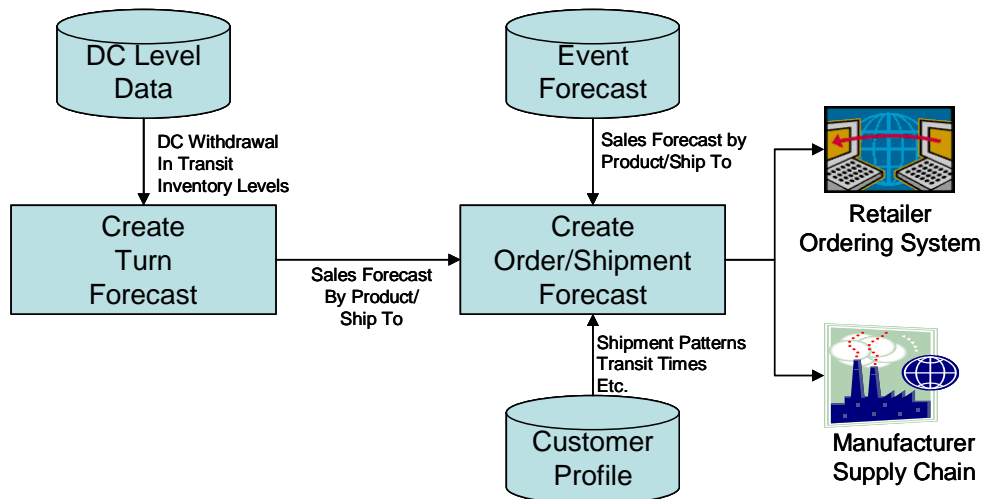


Figure 9 – Event Order Planning Process

The order planning process is divided into two components:

Create Turn Forecast

Based on customer distribution center (DC) information obtained from the retailer a turn forecast is generated. This is based primarily on withdrawal.

Create Order/Shipment Forecast

Using the turn forecast that has been generated for non-promoted periods, along with any event forecasts for promotional periods, the total demand is known. However, the forecasts are generally “sales” forecasts (i.e. volume that will sell) rather than “order” forecasts (i.e. what needs to be ordered and when it needs to be shipped). The sales forecasts can be transformed into order forecasts by incorporating inventory, in transit and on order information. Once the sales forecast has been converted to an order forecast it needs to be split into actual shipments. This is done by using customer profile data such as shipment patterns (how early the volume needs to arrive at the ship point before an event starts, transit times between plants and distribution centers, etc.). Once these calculations have been made, the shipment forecasts can be fed into the customer and manufacturing systems for fulfillment and tracking.

Collaborative Event Ordering and Fulfillment Process

Linking Store Replenishment and DC Replenishment

Many retailers are facing situations where exactly what will be promoted and at what retail price is being adjusted at the last possible moment. Changing conditions make it increasingly difficult to communicate and trigger appropriate order promotional product quantities and ensure that the quantities the supplier delivers match store needs.

“Appropriate” quantities are always challenging to determine. They must be adjusted with knowledge of the last few similar promotions, the most recent activities of competitors, as well as store and DC inventory levels. Ordering well in the midst of these uncertainties can clearly be a competitive advantage.

The first priority is to synchronize replenishment to the retailer’s DC with the supplier’s supply chain plans. This can be unidirectional. This is an opportunity to double check the accuracy (quantity by location), completeness (complete and current list of product codes involved), and timing. This is also the time to make sure that forecasted order quantities are reasonable. Comparisons to previous similar events’ DC withdrawals, and retail price point of the promotion in relationship to the current and ongoing market level retail price point may very well reveal that some product was overstocked following the previous event and some adjustments in the ordering pattern need to be made. This comparison may also reveal that the previous event’s shipment quantities were correct, but that either timing or the quantity splits between DCs need to be adjusted.

The key is superior information in combination with as tight a link as possible between DC replenishment, store replenishment, and actual consumer demand. Best practices for connecting the three depend upon who enters promotional orders:

- Store management
- Retail headquarters
- Suppliers (VMI scenarios)

Promotional Ordering Driven by Stores

Promotional ordering based upon store-specified quantities is the most complex alternative. In spite of its challenges, in many environments (such cooperatives and franchises) it is the only practical approach.

Store personnel are close to their markets, and aware of their inventory positions. However, they are usually not aware of how their own order requirements fit into the corporate total. Once aggregated, store orders can be far too high or far too low, often depending on the recollection of the individual at the store level to order the correct quantity. Stores can also over-order “hot” products for a promotion, recognizing that they will only receive a partial allocation. Second-guessing at stores and headquarters can lead to a feedback loop of false demand signals.

Event coordination can tighten the controls within the store replenishment process. This can be done through a store order polling process that provides stores with enough information to make an intelligent estimate of what to order. Alternatively, this can be a “push” approach, where headquarters makes the decision to create store-level replenishment orders automatically for the stores. This is usually done with the intent of providing a specific percentage of the expected retail sales quantity in the push to the store. Finally, some retailers rely on suppliers to calculate store-level order quantities. This can clearly be an effective partnership effort if the necessary trust and process are in place between the partners.

Centralized Automated Promotional Ordering Processes

For companies that centralize their promotional ordering, the store operations environment has become far more complex and competitive. The influence of many factors makes it necessary to develop orders based upon the specific conditions of each store. Examples include:

- The typical number of items carried within the store
- The frequency of promotions
- Changing local demographics
- Personnel turnover
- The SKU changeover rate within a category

Accurate promotional store replenishment is a critical function given that a significant number of repeat and occasional customers will likely shop at a given location specifically for a promoted item. This has led retailers to consider switching from conventional store stock allocation methods to more sophisticated and automated processes for promotional store replenishment.

Ideally, knowledge of previous similar promotional event sales rates, ongoing day-to-day sales rates, anticipated store inventory levels at the beginning of the promotional event, intended local promotional support (end-aisle display, in-store signage, ads, coupons, etc.) can all be factored into store-specific order quantities. Some automated promotional replenishment is based strictly on the store level sales rates and performance during previous similar events. Others take both sales rates and store inventory levels into account. All methods require the company to have confidence in the accuracy of store level data. They also require confidence in the logic and calculations that are meant to quantify the impact of individual promotional causal factors.

Regardless of the exact algorithm used to calculate store order quantities, a methodical, automated and fact-based approach store-by-store offers the best opportunity to realistically anticipate the quantities demanded from each retailer DC. In turn, this is also the best possible basis for shipments from the supplier into that DC. What is most important is that this forms the basis for gathering the key elements of data required for improving forecast accuracy over time.

VMI Promotional Order Entry

In VMI scenarios, the retailer buyer and supplier sales personnel first agree on what causal factors will be in place to drive promotional retail sales and the resulting demand rolled up to each retail DC. The VMI analyst then determines actual order quantities. These quantities can be communicated along with promotional planning information and be accepted as the total amount needed at the beginning of the promotional pull from the DC.

The total quantity can be inclusive or exclusive of normal base demand. It can also be inclusive or exclusive of inventory already on hand and in transit. Of course, what is most critical is that this be agreed to ahead of time and be perfectly clear to both partners.

The most common method of communicating promotional demand requirements is as a total required quantity. It is then the responsibility of the VMI analyst to break this down into shippable orders in a timeframe that is workable for properly flowing the product through the DC. Scheduling the product arrival must be done with the proper timing for proper execution at the store.

When the volume warrants it, the VMI analyst is also responsible for collaboration regarding the execution of multiple promotion deliveries. Often this involves adjusting orders, moving up the arrival dates on an order, or canceling orders depending on early actual retail sales results and actual store pulls from the DC. A more comprehensive implementation may very well have quantities broken down by week to specify the flow of promotional product expected for a multiple week promotional event.

Finally, once order quantities are communicated, they need to be an integral part of the actual VMI order creation process. Ideally, this is driven off of a collaborated, and sometimes adjusted, promotional order forecast. Although some collaboration can take place at the time of order entry, it is often too late to adjust timing and quantity. Production and deployment decisions will have had to have been made days or even weeks before this. The end result is less than desirable on-time and shipped-complete service level measurements. More importantly, this service level slippage can impact on-shelf in-stock percentages and negatively affect the results of the promotion itself.

Table 2 summarizes best practices for event ordering across each of the three most common scenarios.

Table 2 – Best Practices for Event Ordering and Delivery

Distributed (Store Ordering)	Centralized (Store Allocation)	Supplier-led (VMI)
<ul style="list-style-type: none"> • Provide store management with proposed quantities, or detailed enough event information to place an accurate order. • Validate aggregated store order quantities against overall demand expectations for the event. • Communicate adjusted order quantities to suppliers and stores. 	<ul style="list-style-type: none"> • Develop store-specific order plans based upon event demand drivers, store POS history and store inventory positions. • Adjust replenishment quantities as causal factors and competitive conditions change. • Use store demand requirements to calculate DC order requirements. • Communicate DC order requirements to suppliers. 	<ul style="list-style-type: none"> • Collect event demand estimates from sales personnel and/or buyers. • Allocate store demand to appropriate DCs. • Communicate expected event order quantities. • Integrate event demand with base/turn replenishment requirements.

Collaborative Event Analysis Process

Exception Management

Exceptions should be distinguished from the routine process of communicating changes to event details. Changes to begin/end dates, tactics, items and locations, and planned impacts can be transmitted via the retail event message, rather than via an exception. (Application software may provide users with local “exception” reporting to highlight these changes.)

Exceptional circumstances that may be communicated between trading partners are deviations between planned impacts (either between buyer and seller, or between subsequent generations of planned impacts from the same trading partner), as well as deviations between planned and actual impacts such as the following:

- | | |
|-----------------|----------------------------|
| 1. Retail sales | 4. Participating locations |
| 2. Receipts | 5. Promoted prices |
| 3. Shipments | |

For example, on the first day of a major promotion, the forecast is for an 800% lift in sales. However, chain sales reported that evening indicate only a 300% lift over baseline. This deviation should trigger exceptions within the retail organization to investigate the cause of the lower-than-expected sales, as well as to the supplier, to adjust future shipments.

Performance Assessment (Post-Event Analysis)

1. Review metrics. Table 3 illustrates an example metrics review framework.
2. Discuss and document competitive activity and other outside influences (such as weather) associated with the event.
3. Review event collaboration process and revise as necessary based on learnings from most recent event.

Table 3 – Retail Event Metrics

Metric	What is Being Measured?	Example Calculation
I. Sales Increase/ Decrease vs. Target Event	Sales volume (and dollar?) performance versus target or base event	Target/Base Event Sales Units = 3000 Actual Event Sales Units = 3200 Sales Increase = $(3200-3000)/3000 = 6.7\%$
II. Sales and Order Forecast Accuracy	Measures our ability to accurately predict demand	Forecast Accuracy = $(1 - (\text{Forecast} - \text{Actual}) / \text{Forecast})^{**}$ Example: Forecast Units 2600; Actual Units 2900 National Forecast Conformance ^{††} = $(1 - (2600-2900 /2600)) = 88.5\%$
III. Inventory Turns/Periods of Supply	“Inventory turns” refers to the number of times per year that inventory is “turned over”. The key concept is that consumption is always adjusted to an annualized basis. Weeks of inventory/periods of supply measures inventory levels at the end of an event in terms of periods (i.e. weeks) on-hand. Comparative measurement can also be made at the beginning and during an event.	Inventory Turns = Annualized Consumption / Average Ending Inventory Example: Avg Ending Inventory for June = 100 units June Avg Weekly Sales = 11.5 ($11.5 * 52 = 598$ annualized sales) Inventory Turns = $598/100 = 5.98$ Ending Inventory for last week of an ad = 1000 4 week average of DC Withdrawal (base) = 200 Weeks of inventory on-hand = $1000/200 = 5$
IV. Retail Out-of-Stock	Reflects product availability on retail shelf	(This metric is provided by retailers or third-party audit firms. Metric definitions depend on retailer capability.)
V. Service Level %	Reflects the level of service from Customer DC to Customer Stores.	Service Level % = $1 - (\text{DC Withdrawals} / (\text{DC Withdrawals} + \text{Stockouts}))$ Example: June DC Withdrawals = 55 June Stockouts = 5 June Service Level % = $1 - (5 / (55 + 5)) = 8.33\% = 91.67\%$
VI. Fill Rate %	Reflects product availability at Customer DCs.	Fill Rate = Cases Shipped to Customer DC / Cases Ordered by Customer

While retail out-of-stock is the main measure of whether the product was available to the end consumer, it is also important to measure service level and fill rate. These measures are more “diagnostic”. They help identify the issues that resulted in retail out-of-stocks. For example, the fill rate might indicate that the manufacturer was not

** Many alternative calculations are possible. See Appendix A for more details.

†† To calculate a Forecast Conformance percent for a category, the conformances of the individual SKUs within the category are weighted by the SKU’s forecast volume. See Appendix A for more details.

able to ship the adequate amount of product to retailer DCs. The service level might indicate that the retailer was not able to effectively distribute the product to its stores. If neither indicated a problem, perhaps the retailer encountered shelf stocking problems.

Another desired metric is some measurement of the profitability of the promotion. It is more difficult to establish standards for profit measures. Depending on their organizational perspective, retailers and manufacturers may include different costs in their calculations. How much volume was truly incremental to the category rather than shifted from other brands? What was the impact of individual promotional components (display, feature, price) in the event demand? To complicate matters, companies are often reluctant to share the cost information that would be required for a comprehensive profitability analysis.

Profitability should also consider the ambient effects of the promotion. Even if the profitability of the item on promotion was reduced, it might have resulted in more profitable market baskets. This can very difficult to measure.

Performance Assessment (Category Analysis)

Category analysis complements the evaluation of individual promotions, and prepares participants for future collaboration arrangement discussions. Category analysis considers the response of items and categories to promotional activity, competition, consumer trends, and brand initiatives. As a result of this analysis, trading partners may recommend changes in product assortment, regular shelf and/or display placement, pricing and promotion strategies.

Information Sharing Requirements

Retailers and manufacturers must share a variety of data to coordinate retail events. Sales history, performance metrics and the details of the events themselves need to be available to both trading partners. Companies may exchange this data through EDI and/or XML messages, or use a shared implementation of a retail event collaboration solution to make the data visible to both parties.

Both approaches have advantages and disadvantages. A shared solution can accelerate implementation and guarantee consistency between buyer and seller views. Peer-to-peer data exchange implementations can incorporate data from many trading partners, and integrate more readily with enterprise systems. Trading partners may choose to start on a shared solution to work out the details of their collaboration process, and then move to data interchange once they know precisely what information needs to be exchanged, and in what order.

The following sections describe data interchange requirements for retail event collaboration in more detail. This is only a high-level guide. Specification references are based upon V1.3.1 of EAN.UCC Business Message Standards. In the event of any difference between the technical information contained here and that in the standard, the standard takes precedence.

Retail Event Data Interchange

Retail Event Synchronization

In the retail event synchronization scenario, the buyer or seller publishes retail events to its trading partners by sending messages to them, or by making them visible through an extranet, exchange or other technology. The publisher sends updated retail event messages and/or updates these views whenever changes occur. Any feedback from the trading partner is informal (off-line). Figure 10 illustrates this scenario.

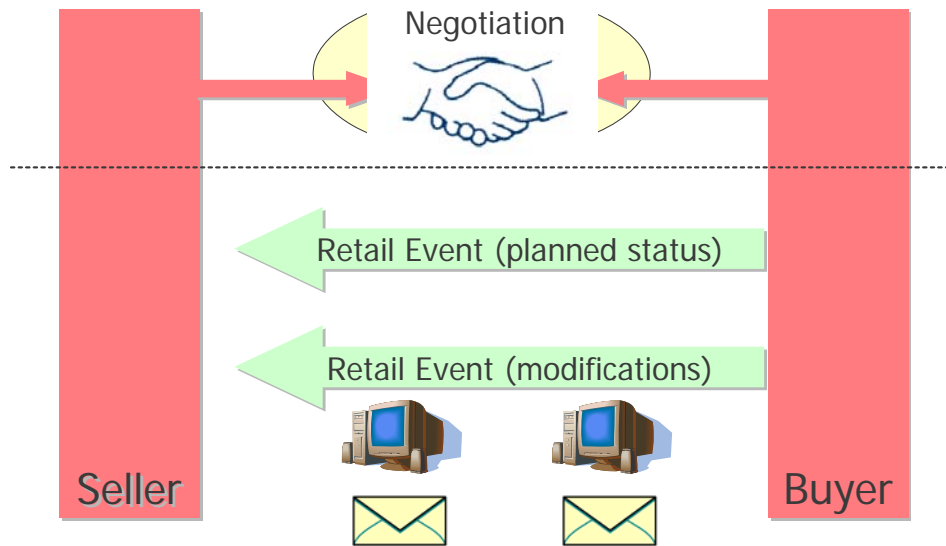


Figure 10 – Retail Event Publishing Scenario

As the retail event is executed at the retailer, the publisher collects metrics and publishes these through the same means.

Retail Event Collaboration

In the retail event collaboration scenario, either the buyer or the seller documents the details of a promotional event that has previously been negotiated. The trading partner confirms the plans for the event, or proposes changes. Each partner continues to notify the other of any changes as the date of the event approaches. As the retail event is executed at retailer, one party (typically the retailer) collects metrics and makes them available to the partner.

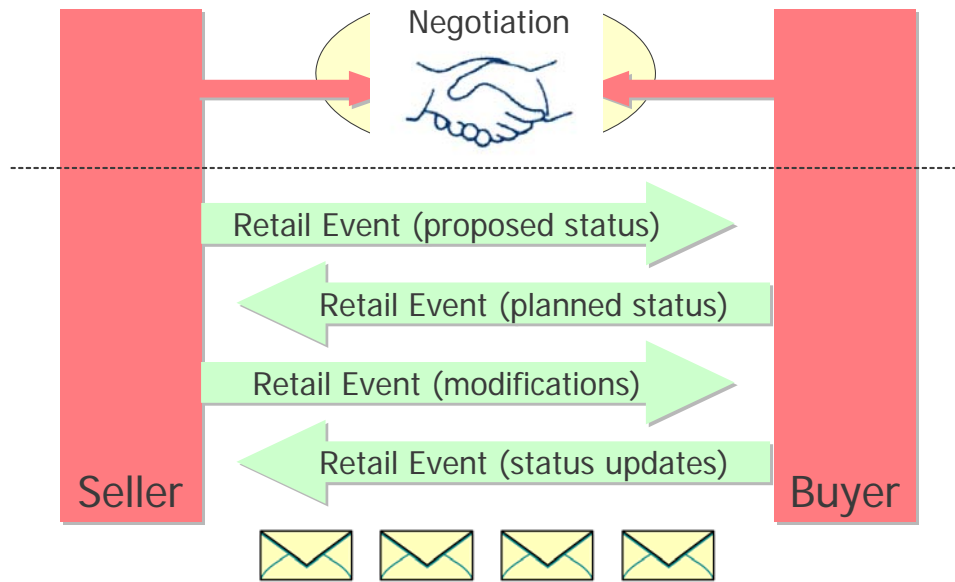


Figure 11 – Retail Event Collaboration Scenario

As with the event publishing scenario, retail event collaboration can take place on a shared system, or peer-to-peer, via message interchange.

Collaborative promotion planning users have two alternatives for managing changes to events:

1. Utilize a shared retail event object.
2. Compare a retailer's view of an event with a separately managed supplier's view.

Both alternatives have advantages and disadvantages. The shared event ensures that the buyer's and seller's expectations are synchronized. Event comparison may better reflect the reality of two systems of record (buyer's merchandizing system and supplier's trade promotion management system) where the promotion originates and is maintained.

Example Process

Figure 12 illustrates a more complete example of a retail event collaboration process. In this case, the retailer publishes its general event plans to suppliers, and collects proposals for specific promotional offers from each of them. The retailer then selects the promotions that it plans to run for that period, and adjusts the status on them accordingly. Adjustments in products, pricing and tactics may be made along the way.

The retailer (and possibly the manufacturer) may share sales forecast estimates for order planning purposes at this point. Major differences in estimates or unexpected changes may trigger exceptions.

Before the event, the retailer places promotional orders with the participating manufacturers, and the manufacturers ship product to the retailer's distribution

centers or stores. The retailer then executes the event and reports sales results. Exceptions may be triggered again at this point, if sales significantly exceed (or fall below) forecast estimates.

Finally, key inventory and sales metrics are calculated for the event and exchanged among the trading partners. The process then begins again for subsequent events.

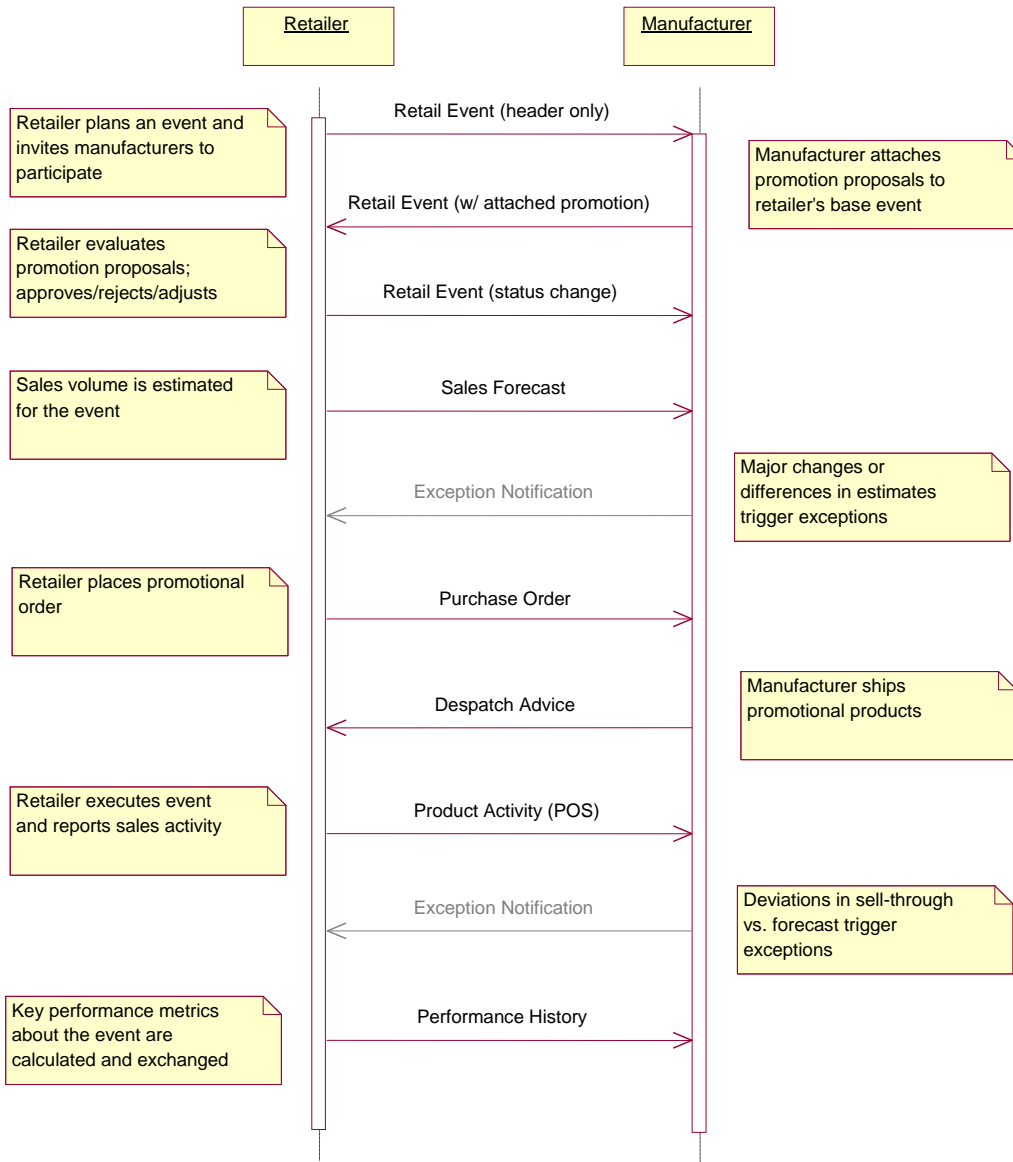


Figure 12 – Sample Retail Event Collaboration Process

Table 4 maps the logical data interchange between the trading partners to electronic commerce message standards. EDI messages can be used for several steps in the process, but only the EAN.UCC XML message standard has messages that correspond to all the communications requirements.

Table 4 – Mapping Electronic Commerce Message Standards to Retail Event Collaboration

Message	EAN.UCC XML	Global EDI	VICS EDI
Retail Event	Retail Event	N/A	Promotional Announcement (889)
Sales Forecast	Forecast / Forecast Response	DELFOR	Planning Schedule with Release Capability (830)
Exception	Exception Notification	N/A	N/A
Purchase Order	Purchase Order	ORDERS	Purchase Order (850) or Grocery Order (875)
Despatch Advice	Despatch Advice	DESADV	Advance Ship Notice (856)
Product Activity	Product Activity	SLSRRPT	Product Activity (852)
Performance History	Performance History	N/A	N/A

Communicating Event Status Changes

The EAN.UCC Retail Event Business Message specification allows retailers and manufacturers to coordinate the event lifecycle by communicating event status changes. Table 5 describes each logical status of an event. Figure 13 illustrates the permitted transitions that may occur among status values. Not all event types utilize all status values. For example, some weather-related events may only be noted after they have completed. Retailers and manufacturers must map these standards-based status changes to their own internal event lifecycle stages, and link communication to the appropriate transitions.

Table 5 – Retail Event Message - Status Codes

Status Value	Description
Proposed	The originator of the event (buyer or seller) is communicating a prior agreement or proposes to engage in a new promotion or activity.
Acknowledged	The company that received the proposed event (“respondent”) acknowledges that it has received the document.
Planned	The event activity is planned to take place.
Rejected	The respondent rejects the event proposal. Either the event must be re-proposed with changes, or it will not take place.
Expired	An event that was either proposed, acknowledged, planned or rejected passed its begin date without being executed. This status notification may or may not be sent as an explicit message.
Canceled	A planned event was canceled by either party.
Active	An planned event has reached its begin date, and is being executed. This status change may or may not be sent as an explicit message.
Terminated	An event was prematurely terminated.
Completed	An event was completed.

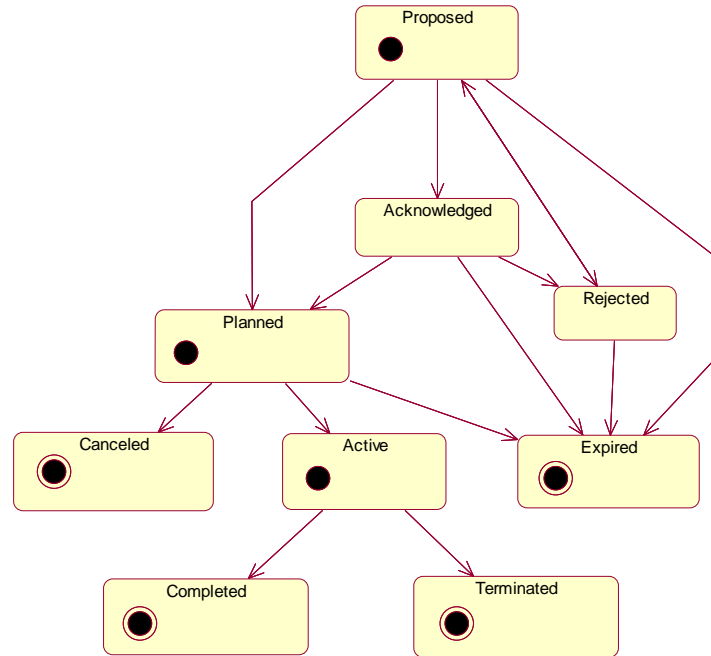


Figure 13 – Retail Event Message – Event Status Transitions

Event Exception Message Interchange

The fundamental difference between a retail event exception and a conventional CPFR forecast-to-forecast or forecast-to-actual exception is that the tolerance is for the set of item and location combinations within the event, rather than for an individual item/location combination. Exception messages exchanged within a retail event collaboration relationship need to reflect this difference.

Retail Event Exception Criteria Messages

Event exception criteria should be able to be defined (and exceptions should be able to trigger) at promotion specification level (for a set of item/location combinations that share a set of tactics), or across entire events. This model assumes that exception criteria are set on kinds of events (based upon event type and optionally, event tactic). A detailed proposal for the technical changes required to the existing CPFR Exception Criteria message has been made to the EAN.UCC Plan BRG.

Retail Event Exception Messages

The exception messages triggered by event-specific exception criteria should identify the event that triggered the exception, as well as the specific deviation between planned values or planned and actual values that was measured. A detailed proposal for the technical changes required to the existing CPFR Exception message has been made to the EAN.UCC Plan BRG.

Appendix A: Forecast Error and Accuracy Calculation

Introduction

The calculation and communication of forecast error (or accuracy) measures among trading partners is crucial to the evaluation of demand planning activities. Yet the variety of alternative forecast error calculation approaches makes individual reported values (such as “sales forecast accuracy of 92%”) difficult to interpret. The same reported result could indicate excellent or poor performance, depending upon how it was calculated.

It is impossible to legislate consensus on forecast error and accuracy calculation methods, so the next best alternative is to offer information about the method used to calculate the values that are reported. That way, trading partners can better understand the performance being measured, and can duplicate the calculations from source themselves, if they desire. They can also request that a trading partner calculate a metric based upon data in their systems.

While there are several parameters and alternative formulas for forecast error and accuracy calculation, the alternatives themselves are not controversial. The alternatives are also few enough that a succinct, comprehensive specification can be made.

Calculation Alternatives

Forecast Error or Accuracy

Forecast error (as a percentage) may be expressed as:

$$(|Forecast - Actual| / Forecast) * 100^{\ddagger}$$

However, business people often prefer results in terms of forecast accuracy (92% accuracy vs. 8% error). The corresponding formula for forecast accuracy is:

$$(1 - (|Forecast - Actual| / Forecast)) * 100$$

The disadvantage of forecast accuracy is that it is possible for results to become negative if forecast error is very high (over 100%). Since negative forecast accuracy is difficult to conceptualize, by convention any forecast accuracy value below zero is reported as zero.

Deviation of Forecast from Actual or Actual from Forecast

Some organizations measure the deviation of their forecast from observed (actual) values, while others measure how actual events deviated from their forecast. Both calculation approaches are widely used. In the first case, the forecast error formula uses the actual value in the denominator, while in the other, the forecast is used as the denominator, as illustrated below.

[‡] This is just one example of a forecast error formula, which uses the deviation of actual from forecast and absolute value reporting options with a scalar result. These alternatives are documented below.

Deviation of Forecast from Actual	Deviation of Actual from Forecast
$(\text{Actual} - \text{Forecast} / \text{Actual}) * 100$	$(\text{Forecast} - \text{Actual} / \text{Forecast}) * 100$

Use of Absolute Values in Results

Forecast error and accuracy are most often reported as absolute values. Regardless of whether forecasts are high by 8% or low by 8%, forecast error is still reported as 8%. Some companies take the absolute value function out of the equation, so the sign of the error is preserved. This alternative is not used in forecast accuracy calculations, as it can lead to forecast accuracy values that exceed 100%.

Result Reported as Scalar or Percentage

Forecast error and accuracy are often reported in percentage terms. They may also be reported in scalar terms (.92 forecast accuracy, vs. 92% forecast accuracy), many systems apply the percentage unit of measure conversion internally. In this case, the forecast error or accuracy formulas omit the multiplication by 100.

Weighting of Values

When calculating forecast error or accuracy across a number of products or locations, the relative weight of each individual item must be considered in calculating the error at the next level of aggregation to get an accurate result. If the deviation of forecast from actual is being measured, then the actual value is used as the weighting factor. Otherwise, the forecast value is used as the weighting factor.

While the use of weighted averages is a best practice, there are cases in which (due to system limitations and other factors), it has not been used in a calculation, so the specification needs to report whether weighting was used to derive a reported forecast error value.

If weighting is used, the level of detail of data that was the basis of the calculation should be reported, as it has a major influence on the result. The level of source data in each dimension of product, location and time may be identified as follows:

- Product Dimension: SKU, Item, Brand, Category, Cross-Category
- Location Dimension: Store, Customer DC / Store Group / Store Format, Customer, Channel
- Time Dimension: Day, Week, Month, Quarter, Year

Example 1: POS Forecast Accuracy

Alternative 1:

$$\text{Forecast Accuracy (FA)} = 1 - (| \text{Forecast units} - \text{Actual units} | / \text{Forecast units})$$

Additional business rules:

If Absolute Error > Forecast, then Forecast Accuracy = 0

Note 1: Category total is calculated by weighting the SKU values by forecast volume.

Example: Category A

	<i>Fcst Vol</i>	<i>Act Vol</i>	<i>Abs Diff</i>	<i>SKU FA</i>	<i>SKU Wght</i>	<i>Category FA</i>
<i>SKU 1</i>	100	80	20	80%	56%	44%
<i>SKU 2</i>	80	100	20	75%	44%	33%
<i>Category Total</i>		180	180	0		78%

Note 2: When Forecast Accuracy is calculated at a DC level, the calculation involves multiple steps:

1. Calculate individual SKU's forecast accuracy by DC
2. Calculate the SKU's forecast accuracy across all DCs
3. Weight each SKU's forecast accuracy by its forecast volume to calculate the category's forecast accuracy

Please refer to the example below for details:

Example: Category A

	<i>Fcst Vol</i>	<i>Act Vol</i>	<i>Abs Diff</i>	<i>SKU FA</i>	<i>SKU Wght</i>	<i>Total FA</i>
<i>SKU 1 at DC 1</i>	50	30	20	60%	50%	30%
<i>SKU 1 at DC 2</i>	50	50	0	100%	50%	50%
<i>Total</i>	100	80	20			80%

	<i>Fcst Vol</i>	<i>Act Vol</i>	<i>Abs Diff</i>	<i>SKU FA</i>	<i>SKU Wght</i>	<i>Total FA</i>
<i>SKU 2 at DC 1</i>	40	70	30	25%	50%	13%
<i>SKU 2 at DC 2</i>	40	30	10	75%	50%	38%
<i>Total</i>	80	100	40			50%
<i>Category Total</i>	180	180				67%

Example 2: Order Forecast Accuracy

Alternative I: Same as Alternative I under POS Forecast Accuracy

Alternative II:

Forecast Accuracy (FA) = $1 - (| \text{Forecast units} - \text{Actual units} |) / \text{Forecast units}$

where Actual = Actual Ship + 40% of Short

Additional business rules:

If Absolute Error > Forecast, then Forecast Accuracy = 0

Note 3: The 40% number is based on Grocery Industry statistics. Software providers should give end-users the flexibility to input the percentage that is appropriate for their company.

Example:

<i>Forecast Units =</i>		<i>450</i>
<i>Ship Units =</i>	<i>500</i>	
<i>Short Units =</i>	<i>100</i>	
<i>Absolute Error =</i>		<i>ABS (450-(500+40%*100))</i>
<i>Absolute Error =</i>		<i>90</i>
<i>Forecast Error=</i>		<i>90/450</i>
<i>Forecast Error=</i>		<i>20%</i>
<i>Forecast Accuracy=</i>		<i>80%</i>

Treatment of Null and Zero Values

In the calculation of forecast error and accuracy at a detailed level (such as store POS by SKU), it is frequently possible to encounter zero values. Depending upon the calculation alternative used, divide by zero or infinite error conditions arise.

Similarly, there are cases in which no actual value is reported for one or more products or locations in the group being measured. By convention, any product/location combinations that have no actual values or divide by zero conditions should be eliminated from the calculation.

Parameters

Forecast Lag (Forecast Horizon)

Forecast error is often measured based upon the latest forecast value as of a specific number of days or weeks in advance of the actual event. The number of days or weeks that the forecast is “frozen” for the purposes of error or accuracy measurement is called the “forecast lag” (or forecast horizon). Forecast lag should be specified when it is used in forecast error or accuracy calculations.

Base Unit of Measure

The base unit of measure used for items in a forecast error calculation affects the calculation results. Often, measurement of forecast error is made in terms of individual units (eaches) or cases, but eaches and cases may not be comparable when forecast error is measured across products with dissimilar case pack sizes, or across categories with dissimilar products. In these cases, monetary units of measure (e.g. monetary sales), or other mutually-agreed types (weight, volume, consumer uses) may provide more fungible results.

Forecast error results should specify the input unit of measure: Each, Case, Monetary or Mutually-Agreed (Statistical), as it can affect the relative weighting of the component item/location combinations in the calculation.

Forecast Data Source

In CPFR projects, both the buyer and the seller may make forecast estimates. Forecast error results should indicate whether the source of the forecast was the buyer or the seller.

Other Considerations

1. Aggregation across time:

For multi-week promotions, the Total Event Forecast Accuracy should be a weighted average of individual weeks. The weeks should be weighted on Forecast cases.

2. Forecast performance as a supplemental metric to forecast accuracy:

By using an absolute error in calculating Forecast Accuracy, we are not able to see whether we overforecast or underforecast an event without referring to the detailed data. We recommend that we consider adding a simple Actual Units as a percent of Forecast Units to supplement our Forecast Accuracy metric. (No aggregation for this metric).

3. Forecast accuracy metric aggregation when forecast = 0:

If forecast units for an SKU = 0, Forecast Accuracy associated with that SKU will not contribute to the overall Category Forecast Accuracy.

4. Forecast accuracy aggregation across multiple categories.

As shown in the calculation examples, individual SKUs' forecast accuracy is aggregated to a higher (e.g. Category level) based on Forecast volume. However, if we try to aggregate forecast accuracy percentage to a total customer/vendor level, one might argue that a case of product from Category A (e.g. Perfume) is not equivalent to a case of product from Category B (e.g. Napkins). So aggregating across those categories based on forecast case volume may not be meaningful. Forecast sales dollars (*forecast volume x price*) may be a better aggregation method in this case.

Appendix B: Sample Event Collaboration Arrangement

The intent of Collaborative Event Management process and this implementation project is to eliminate both Business Plan and Supply Chain inefficiencies associated with events through collaboration. Promotions and other retail events (i.e. product rollovers, new product introductions, store openings and closings, etc.) generate the largest swings in demand and, as a result, the majority of retail out-of-stocks, excess inventory, and logistics costs. Solving these issues through collaboration will better serve consumer needs and translate into more profitable business for both Retailer and Vendor.

Retailer and Vendor agree to handle all the information exchanged as a result of this project confidentially. A formal confidentiality agreement will be signed if deemed necessary by the Project Sponsors.

The scope of this project is Event Collaboration. The product categories to be included in the initial project rollout are X, Y, and Z. The project will be gradually expanded to include other product categories, as needed. Collaboration will be at Retailer DC level; all DC's are included in the collaboration scope.

The goals for this project are outlined below and progress toward these goals will be shared and discussed on a quarterly basis:

Metric:	Objective:
Sales increase/decrease vs. target	X%
Retail out-of-stock:	below X%
Promotional service level:	X%
Allocation sell-through	100%
Post-promotional inventory level:	X weeks
Inventory turns	X
POS and Order forecast accuracy:	X%
Rush trucks:	0

Achieving these goals through agreement on a business plan and volume forecast will allow both organizations to drive their planning processes and systems from a single retail sales forecast and, consequently, from one order forecast. Ensuring Retailer and Vendor are working against the same forecast is a key to efficiently providing the desired service to the end consumer. Both Retailer and Vendor realize the importance of ensuring forecast quantities are available in the proper locations to satisfy consumer expectations and achieve the necessary sell-through.

Retailer and Vendor will periodically review objectives, methods, roles and responsibilities, and tools used in this collaboration. The current collaboration process, roles and responsibilities, and tools are captured in the Addendum to this Arrangement.

Retailer Project Sponsor _____

Vendor Project Sponsor _____

Addendum to Retailer/Vendor Collaboration Arrangement

I. Scope:

This Collaborative Event Management Arrangement will be bound by the following parameters:

Category	X, Y, Z
Location	All Retailer DCs
Collaboration Type	Event Collaboration
Timing	

II. Project Team:

- Retailer Project Sponsor:
- Vendor Project Sponsor:
- Retailer Project Coordinator:
- Vendor Project Coordinator:
- Retailer Replenishment Analyst:
- Vendor VMI Analysts:
- Vendor Technical Lead:
- Retailer Technical Lead:

III. Information Sharing Needs:

- Promotional calendars and event attribute information (i.e. event dates, items/locations included in event, price points, display activity, ad placement, etc.)
- Retail sales forecast by code by DC
- Allocation quantities
- DC withdrawal forecast by code by DC
- Actual POS by code by DC
- Other information: actual DC withdrawals, actual shipments, DC inventory

IV. Definition of Collaboration Points:

- 1. Event Attribute Communication – 12^{§§} Weeks prior to event:**
 - Retailer will email event dates, items/locations included in the event, retail price points by division, display activity, and ad placement to the Vendor.
 - Vendor Analyst will compare the event attribute information received from Retailer to the assumptions reflected in Vendor systems. If the information is different, a note will be sent to Vendor Sales Representative to adjust his/her Sales Forecast based on the new event attribute information received from Retailer.
 - Long-term, event information will be exchanged using Retail Event Message standard.
- 2. Sales Forecast Collaboration – 10** Weeks prior to event:**
 - Retailer and Vendor will exchange files containing Sales Forecast by item by Retailer DC.
 - The file transfer will be followed by a collaboration call to discuss and agree upon Sales Forecast quantities.
 - Note: if Retailer Sales Forecast is not available, Vendor Sales Forecast is reviewed and discussed by both trading partners.
- 3. Allocation Quantity Communication – 9** Weeks prior to event:**
 - Retailer provides Allocation product quantities to Vendor OR Retailer and Vendor collaboratively develop Allocation/Force Out product quantities
 - Retailer and Vendor will use Allocation quantities in development of Order forecasts.
- 4. Order Forecast Collaboration – 4**Weeks prior to event:**
 - Retailer and Vendor will exchange files containing Order Forecast by item by Retailer DC. .
 - Vendor Analysts will compare Vendor and Retailer Order forecasts using the agreed upon tolerances limits (please refer to the **Event Exception Criteria** portion of this document).
 - Significant forecast differences will be discussed and resolved during a collaboration call.
 - Retailer will communicate all the causal factor changes to Vendor in a timely manner. The impact of the causal factor change on forecast quantities will be arrived at through collaboration.
- 5. Event Execution:**
 - Actual orders will be based on agreed upon Order forecast.
 - Daily, Vendor and Retailer will review Actual DC Withdrawals, will compare them to the agreed upon DC withdrawal forecast, and react, as appropriate.
- 6. Post-Event Evaluation – 3-4** Weeks after event:**

Discuss the following categories/metrics:

^{§§} Numbers are provided as examples only. The actual number of weeks will vary by category of product category and other factors.

- a. Event attributes/tactics conformance
- b. Sales increase/decrease vs. prior similar event or objective
 - Promoted item
 - Promoted category
 - Include 2 weeks of post-event sales
- c. Retail out-of-stocks
 - Service level (Retailer DC to Stores)
 - Fill rate (Vendor DC to Retailer DC)
- d. Post-event inventory
- e. Event efficiency
 - Number of rushed trucks
 - Number of cancelled trucks
 - Number of order changes
- f. Forecast accuracy
 - POS forecast accuracy
 - Order forecast accuracy
- g. Capture competitive activity
- h. Discuss any proposed changes to the collaboration process, as necessary

V. Event Exception Criteria:

The following Exception Criteria will be defined for Retailer/Vendor Event Collaboration process:

Criteria Name	Criteria Purpose	Criteria Definition	Comment
1. Event Date	Identify instances when trading partners are planning an event for different dates; also trigger event attribute communication	Retailer Price < Prior Price, Vendor POS Promo Fcst > 0	Criteria should be set up with a horizon of 0 to 12 weeks (based on event attribute information communication timing)
2. POS Forecast Event Total Qty Comparison Item (Account-level)	Identify significant item requirements differences between Retailer and Vendor forecasts by item (across all DCs)	Retailer POS Forecast compared to Vendor POS Forecast Tolerance = 2 week aggregated POS base volume	National level criterion for Total Event (not by week)
3. POS Forecast Event Total Qty Comparison Item (DC-level)	Identify significant item requirements differences between Retailer and Vendor forecasts by item by DC	Retailer POS Forecast compared to Vendor POS Forecast Tolerance = 2 week aggregated POS base volume	DC level criterion for Total Event (not by week)
4. Event Total Qty (DC-level)	Identify significant quantity requirements differences between Retailer and Vendor forecasts by DC (across all items)	Retailer POS Forecast compared to Vendor POS Forecast Tolerance = 2 week aggregated POS base volume	DC level criterion for Total Event (not by week)
5, 6, 7. Same exception criteria 2, 3, 4 for Order Forecast		Tolerance = 2 week Order forecast base volume	DC level criterion for Total Event (not by week)

Criteria Name	Criteria Purpose	Criteria Definition	Comment
8. Order Forecast Comparison Item (DC Week)	Identify significant quantity requirements differences between Retailer and Vendor Order Forecasts by item by DC by week	Retailer Order Forecast compared to Vendor Order Forecast Tolerance = 1 week base Order Forecast volume	DC level criterion by week
9. Execution Issues Identification	Identify significant differences between agreed upon Order forecast and orders entered in the Replenishment System	Compare consensus Order forecast to Actual Orders Tolerance = 5%	DC level criterion by week
10. Actual POS to POS Forecast Comparison	Measure the accuracy of POS forecast and identify instances when the metric is below the agreed upon objective	Compare POS Forecast by code by DC to Actual POS by code by DC. Tolerance = X% (should be tied to objective Forecast Accuracy)	DC level criterion by week