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Chapter 8: CPFR

Objectives

- Examine the purpose of CPFR.
- Describe the CPFR process model, including the major processes and underlying collaboration tasks.
- Explain how collaboration is built into the major processes of the model.
- Discuss the advantages and disadvantages of CPFR.

1. Introduction

The origin of CPFR (Collaborative Planning, Forecasting and Replenishment) began when both manufacturers and retailers realized that the lack of information sharing made relationships more costly than they needed to be. The experiences felt in the supply chains were unpredictable ordering patterns, excessive inventories, service failures among others.

While there was attempt to integrate supply chains, adversarial relationships got in the way of integration and collaboration. Joint planning was not possible.

Hence, there was a movement on ECR (Efficient Customer Response). ECR was a conscious attempt to better coordinate marketing, production, and replenishment activities in a way that simultaneously increased value to the consumer while improving supply chain performance for producers and retailers.

In the 1990s, P&G and Wal-Mart developed a joint logistics process which involved:

- Information sharing
- Joint demand forecasting
- Coordinated shipments

2. Collaborative Planning, Forecasting and Replenishment (CPFR)

CPFR is a business practice that combines the intelligence of multiple trading partners in the planning and fulfilment of customer demand.

CPFR has the following features:

- Information systems for capturing and transferring POS, inventory, and other demand & supply information between trading partners.

- Formalized sales forecasting and order forecasting processes.
- Formalized exception handling processes.
- Feedback systems to monitor and improve supply chain performance.

CPFR in essence is the integration of all the entities in the supply chain where relevant and critical information from all sources collected within the supply chain are shared with all partners. Transparency is the key driver in CPFR.

3. Principles of CPFR

CPFR processes depend on the comparison of data: comparing one organization's plans with another; comparing a new version of one organization's plans with a previous plan; or comparing a plan to actual results. In other words, CPFR manages by exception—it addresses variances, whether plan-to-plan or plan-to-actual.

CPFR creates a win-win scenario, tying the buyer and seller together so that their goals are compatible. By competing as one, the buyer and seller form a value chain that will come out ahead of other buyers and sellers who are still caught up in price negotiations.

4. CPFR Process Model

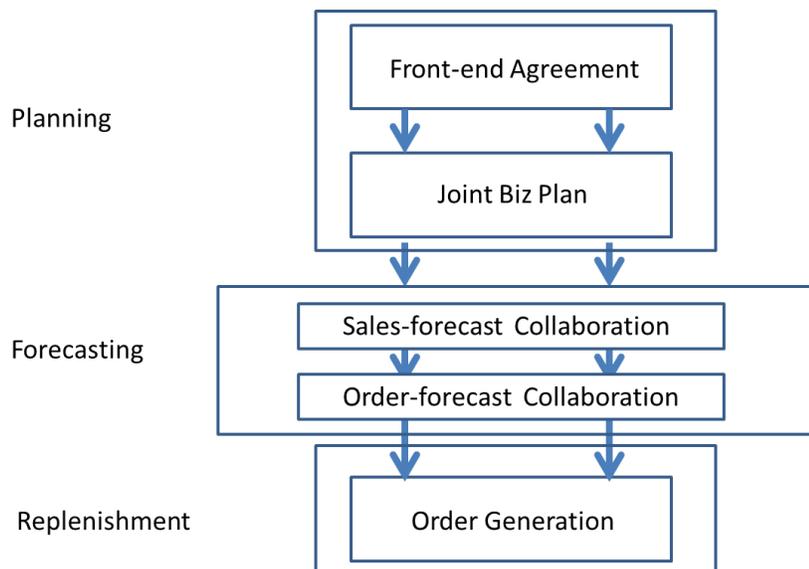


Figure 8-1: CPFR Model
(After J.D.Edwards White paper, 2003)

The model as shown in Figure 8-1 is a simplified version of the 9-step model. The model comprises:

- Develop Front End Agreement
- Create the Joint Business Plan
- Create the Sales Forecast
- Identify Exceptions for Sales Forecast
- Resolve/Collaborate on Exception Items
- Create Order Forecast
- Identify Exceptions for Order Forecast
- Resolve/Collaborate on Exception Items
- Order Generation

The CPFR model enables significant scope and depth of collaboration across supply chains.

CPFR involves a number of business processes integrated between a number of supply chain partners eg between a retailer and a supermarket. There is usually a few lead partners who select those processes where CPFR is adopted.

There is data exchange between the partners and include suppliers taking responsibility for replenishment on behalf of their customer.

Synchronized forecasting is also involved in CPFR. The individual information systems are coordinated for planning and replenishment purposes.

From the data of actual consumer demand extracted from POS, product development, marketing plans, production planning and transport planning are seamlessly integrated with forecasts.

4.1 Planning Phase

In the planning phase, there are 2 stages:

- **Front-end Agreement**

The parties involved establish the guidelines and rules for the collaborative relationship.

The agreement includes a common basis for co-operation, trust and availability of competency resources. All parties are bound to make available and ready these competencies and resources for the system to work.

The Business Intelligence modules allow partners to define and measure specific KPIs.

The agreement also includes mechanism to handle disagreements and differences.

- **Joint Business Plan**

The parties involved create a business plan that takes into account their individual corporate strategies and defined category roles, objectives and tactics.

This includes product types, minimum order quantities, lead time and order frequency.

The business plan becomes the communication tool among the supply chain partners.

The front-end agreement should produce a long-term pact spanning the life of the business. Obviously, an enormous amount of information will flow between partners. These are:

- Who should get what?
- When?
- Where?
- How much should they get?

4.2 Forecasting Phase

The stages are:

- **Sales-forecast**

Retailer point-of-sales data, causal information and information on planned events are used by one party to create an initial sales forecast.

This forecast is then communicated to the other party and used as a baseline for the creation of an order forecast.

- **Identify exceptions for sales forecast**

Items that fall outside the sales forecast constraints set in the front-end agreement are identified.

The criteria for exceptions are stated in the Front-end Agreement.

Examples of such items are seasonal products.

- **Resolve / collaborate on exception items**

Exceptions are easily identified and messages are sent to reconcile unusual items.

Each contributor (partner, supplier, and customer) becomes an integral part of the real-time collaborative process. The final enterprise forecast is the combination of the most accurate and timely information available.

The parties negotiate and produce an adjusted forecast.

- **Create order forecast**

The order forecast relies on point-of-sale (POS) data, causal information, and inventory strategies to generate a specific forecast that supports the shared sales forecast.

- **Identify exceptions for order forecast**

Items that fall outside the order forecast constraints set jointly by the parties involved are identified.

- **Resolve / collaborate on exception items**

The parties negotiate (if necessary) to produce an adjusted order forecast.

4.3 Replenishment Phase

The single stage is:

- **Order Generation**

The final step in the CPFR process is generating the order and promising the delivery.

The order forecast is translated into a firm order by one of the parties involved.

The essence of maintaining positive relationships with partners and customers is to deliver on promises.

5. Benefits of CPFR

- **Improved customer service through better forecasting techniques**

More reliable forecasting allows a more effective way to anticipate consumer demand across the entire supply chain and therefore allow the business to plan production capacity accordingly. Risks for stock-outs is reduced which improves customer fulfillment orders which thereby increases revenue, delivery and improved customer service.

- **Lower Inventories for higher profits**

Accurate predictions of demand as mentioned before will reduce stock-outs and provide a more efficient understanding of production needs. Safety stock inventory for over production would be reduced which decreases carrying costs, storage space and potential spoilage/obsolescence.

Additionally, there is improved material flow and release of working capital that can be used in other areas of the production instead of being tied up in inventory.

- **Improved ROI on Technology investment**

Effective CPFR technology solutions benefit both manufacturers and retailers from reduced overhead costs because several inefficiencies are eliminated, i.e., antiquated manual processes, custom integrations of different partner IT systems and information searching of multiple sources/systems.

- **Improved relationships between trading partners**

Develop when collaboration takes place. Trading partners gain a better understanding of respective businesses by regularly exchanging information and establishing direct communication on channels and create a win-win situation.

- **Cost reduction**

Will occur when production schedule and agreed forecasts are aligned.

Costs are reduced by decreasing set-up times, effort duplication and variations. There is also efficient production capacity utilization since planning information is more reliable.

6. Issues with CPFR

CPFR may be a simple concept however turning it into practice is a difficult task.

Since it involves collaboration with several trading partners, cultural challenges with each organization are realized and requires an across the board buy-in.

A change in business processes is required, along with an inward focus to develop a broad multi-enterprise view. Several challenges faced by organizations implementing CPFR are:

- Selection of CPFR partners – trading partners who wish to collaborate with each other need to assess the potential relationship according to anticipated, realistic benefits, pertinent to common business goals, organizations and cultural issues.
- Senior Management Buy In – senior management must sponsor each of the trading partners and get involvement from necessary resources, e.g. Human resources, technical infrastructure, time and project budget etc.
- Confidentiality – Sharing sensitive data reinforces the need to define rules around confidentiality.
- Cultural Change – Internal and external collaboration requires a mindset of change and capable to be flexible in adapting a collaborative approach.

7. Conclusion

Forecast made in isolation tend to be inaccurate. Collaborative planning, forecasting, and replenishment are an approach in which companies work together to develop mutually agreeable plans and take responsibility for their actions.

The objectives of CPFR is to optimize the supply chain by generating a consensus demand forecast, delivering the right product at the right time to the right location, reducing inventories, avoiding stock outs, and improving customer services.

CPFR is a great concept that has revolutionized business practices by integrating the organization with its trade partners more effectively to realize mutual benefits. Buyers benefit from reduced prices, better forecasting, collaborative relationships to get better service levels and synchronized operations.

There is a longer term collaboration which the two businesses can share risks and rewards. CPFR models require commitment, true collaboration and executive buy-in from both sides.

Reference

1. J.D. Edwards (2003) A White Paper CPFR – Collaborative Planning Forecasting and Replenishment.