Importance of CPFR implementation in SME

Discovering the need and insights of CPFR as a supply chain strategy

Eduardo Quintero Diaz
Zhilin Li

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Abstract

This thesis intended to evidence the need for change in a SME to reduce levels of inventory based on their process related to their supply chain management. This research focused on CPFR which is a process innovation tool that stands for collaborative planning, forecasting and replenishment (Cassivi, 2006). The idea behind this process is to make collaborative actions on all members of the supply chain to come up with a share vision and objective. Based on the core concept of this process partners along the supply chain share information based on customer trends and needs to create a single forecast that is visualize at all times by its members to react accordingly to sudden changes in demand. The research’s main objective is to describe the main process needed for CPFR implementation in actual SME that is struggling in a supply chain that is under constant pressure and obtain insight on the benefits involved in this process to reduce levels of inventory. The research was made based on the concept of CPFR through the use of databases such as Google scholar to come up with a first idea of the concept and examples of other companies implementing CPFR as a their main process for their supply chain. The second approach was to contact the companies involved in our case and use questionnaires to identify the relationship and the problems involved in their supply chain structure. This methodology was used to establish a comparison between what has been done in other companies and what is needed in our case company. The companies involved in the research are a SME and a large manufacturer. The large manufacturer is working under CPFR but with final retailers setting aside the value of incorporating upstream suppliers. Due to bullwhip effect upstream suppliers are incrementing their warehousing facilities to react to changes on the demand. This is incrementing the cost of the operation and it is creating an unstable supply. The research demonstrated companies in where CPFR is proven to reduce stockouts, markdowns, levels of inventory, time to market, strengthen the relationship and overall reduce costs. Based on the discoveries in the retail industry it was clear the benefits from this process. Companies such as Condis revealed important information based on incorporating upstream suppliers. At the end observations were made based on implementation strategies such as following the 9 step guidelines set up by VICS, developing pilot programs, reducing the number of SKU’s at the beginning, working on seasonal products rather than standard products, and developing and implementing better IT systems to manage the level of information needed.
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1. Introduction

1.1. Background

In today´s industry large manufacturers rely on Small Medium Enterprises (SME) to support their needs based on parts, components, raw materials and transportation (Wagner et al., 2005). Large manufacturers are implementing CPFR as a model to forecast and plan actions based on collaboration with final retailers (Fliender, 2003). CPFR is a process that stands for collaborative partnering, forecasting and replenishment (Cassivi, 2006). These collaborations are generating cost reductions due to lead time reductions, forecasting of customer behavior based on points of sale (POS) exchange of information (Holmström et al., 2002) and specially reduction on inventory levels (Caridi et al., 2006). Inventory levels are specially a point to consider due to short life cycle products are experiencing. This issue is most important in innovative products rather than functional products (Fisher, 1997). Innovative products possess a shorter life cycle due to their level of customization and technological characteristics (Fisher, 1997).

To meet customer needs exchange of information is essential from the final retailer all the way to the supply chain partners. Final retailers have the advantage of knowing the latest trends and customer behaviors (Holmström et al., 2002). SME are still developing and coping with these trends but still efforts need to be made and studied to know what are the characteristics and actions that need to be followed in order to achieve successful implementation.

Today some SME´s are facing bankruptcy, huge losses of merchandise, misleading forecasts, and sudden changes in the production line to adjust to the large manufacturer needs. Information that retailers and large manufacturers are using for their advantage as a new process innovation tool based on forecasting and planning based on collaboration is not being shared with SME´s thus limiting their potential (Holmström et al., 2002). This limits SME participation in the supply chain process and can greatly decrease the efficiency of the whole supply chain behavior (Wagner et al., 2005). CPFR implementation requires involvement of all trading partners throughout the whole supply chain structure (Holmström et al., 2002).

It is important to address the need for better collaboration in the supply chain structure to avoid excessive inventory levels which is one of the main issues that’s striving SME´s into supply chain integration (Wagner et al., 2005). Inventory control can help reduce costs of warehousing,
markdowns, lead time, and transportation. Inventory control is of main concern of this research and will be addressed based on the process innovation tool of CPFR.

CPFR is a practice that mainly focuses on partnering of all members in the supply chain in order to achieve greater shared benefits. This concept utilizes 4 main focuses which are collaborative planning, forecasting and replenishment. (Cassivi, 2006)

CPFR stages:

- Planning: front end agreement, and joint business plan (Cassivi, 2006).
  - Specify objectives, resource requirements, level of confidentiality (Fliender, 2003).
  - Developing a joint business plan by exchanging strategies (Cassivi, 2006).
- Forecast oriented steps: sales forecast collaboration, and order forecast collaboration (operational step) (Cassivi, 2006).
- Replenishment Inventory (operational step): When forecasts are agreed the order forecast becomes the actual order, which initializes the replenishment process (Fliender, 2003).

This process innovation tool will be analyzed and discussed based on the idea of partnering all the supply chain to obtain profitable results and reduced levels of inventory.

However there are some gaps in the literature. First, they only discuss the supplier chain as a whole and they seldom discuss how the innovation in this area can help small company to reduce the cost and help them to develop well into their industry in the future.

Second, a lot of the researchers pay too much attention on the theoretical level. On one hand, relatively small number of discussion rest on the quantitative analysis of CPFR and SME’s development. On the other hand, there tends to be little research about how to apply the theoretical characteristics on the development of SME in Mexico, not to mention the quantitative analysis.

This last point will be an essential part of our study, due to the fact that little research has been done in Mexico so this issue adds value to this research.

1.1.1. QUINRO’s background and supply Chain Structure
QUINRO is a family owned company with more than 50 years of experience in the cable industry. It started developing simple cooper wires for small retailers which later developed into complex harness sold to large manufacturers such as GE, Whirlpool, MABE and some other local companies. QUINRO has been working for many years in the cable industry and the need for change in their collaboration structure is of great need. (Supply chain manager QUINRO, 2012)

QUINRO’s most important client is MABE which is a downstream client that has been manufacturing electro domestic appliances for more than 60 years (Supply chain manager QUINRO, 2012). Their main strategy has always been partnering with local companies outside Mexico to establish alliances in the partner’s home country (Mabe, 2012). These allied companies are referred in this supply chain structure as final retailers (Mabe, 2012). MABE has been working based on a CPFR process with final retailers but further intentions of including upstream partners is still limited. This action is intended to reduce the problems faced by upstream suppliers such as QUINRO.

This supply chain structure is going to be further described, analyzed and discussed to obtain a general panorama of their working structure and the actions needed to serve our purpose and objectives address in the following sections.

1.2. Purpose and Research Focus

The main purpose of this research is to understand CPFR as a process innovation tool to help minimize the levels of inventory SME’s are facing. A process innovation tool refers to a relatively new methodology of doing things to achieve better results. QUINRO is a SME that will be addressed during the study to understand the problems it is facing, and the solutions available based on CPFR. The study will be of significant importance to SME’s facing the same situation as QUINRO.

Firms already implementing CPFR in their process are experiencing advantages based on cost reduction and better inventory management (Tenhiala, 2012). According to the definition of CPFR the whole supply chain must be integrated to obtain full benefits from this process innovation tool (Cassivi, 2006). Planning and forecasting based on real time information are the key elements for success in this process. Collaborative actions are needed to obtain mutual benefits in the supply chain.

This research is focused on QUINRO which is a SME manufacturing company that produces cables for manufacturing companies that produce electro domestic appliances. In order to understand
how QUINRO manages its production and inventory levels its relationship between MABE which is downstream large manufacturer and final retail is addressed.

The study will evolve around the relationship of the company with its downstream client and final retailer. It will present key observations on the actions needed to reduce inventory levels based on CPFR implementation. The case company of the study is of valuable importance due to its nature of being a small medium enterprise with limited resources, the level of innovativeness of their products, the short time frame that is being experienced to deal with unstable demand and the risky amount of inventory level that is being managed. The case company of QUINRO will provide essential information that could be useful to other companies facing the same situation in similar or other industrial sectors.

Sharing of information is essential through the whole supply chain to obtain mutual benefits from planning and forecasting (Fliender, 2003). Collaboration has not been achieved in some supply chains working with CPFR, limiting its full benefits. It is of great importance for SME’s such as QUINRO to cope with large manufacturers and collaborate in the process of CPFR to obtain mutual benefits (Wagner et al., 2005).

1.3. Research Problem and Objectives

Time to market, customization, cost and inventory reduction are variables that are playing an important role in today’s Supply chain structure. Trading partners are no longer relying on better production practices but are focusing on integration throughout the whole Supply Chain. CPFR is a concept developed to impulse forecasting and planning through partnering as part of a vertical integration strategy (Fliender, 2003). Considered as an innovative process it requires study to achieve a correct implementation and result in a win-win relationship. Several hindrances are related to the concept and one of them is integrating SME’s in its main process. Since the concept is relatively new in the manufacturing area partnership exists between large manufacturers and final retailers. A further need for incorporating the whole supply chain is needed to obtain actual benefits and make information visible through the whole process. This is the main aspect that drove the need for this research.

In matters of SME partnering with large manufacturers to obtain win-win relationships the objective of this research is to:
• Discover the need for CPFR as a process innovation tool based on actual market needs
• Evaluate theories and findings of CPFR to determine key factors that characterize this process innovation tool.
• Review previous case studies to obtain insights of real benefits and barriers of CPFR implementation.
• Describe the main process needed for CPFR implementation in actual SME.

The need for study in this area is due to the complexity that exists today in the market. Globalization is bringing benefits and drawbacks in the matter. With globalization off shore practices are common, more partners are being integrated in the supply chain and new markets are reached. Whereas, globalization increases sales, it reduces product life cycle and increases level of customization to attract potential customers. These variables are leading towards better practices to increase revenues and reduce costs in order to survive in today’s market.

1.4. Value of Research

CPFR is a concept that has proven to achieve cost reductions by reduction of inventory, providing a greater visibility of information through the whole chain, and reducing time to market. The research is intended to discover what are the characteristics and elements needed to achieve integration and what are the main barriers that will compromise the implementation. The outcomes will focus on SME implementations of CPFR in a context where the large manufacturer partner is already partnering with retail suppliers to create forecasts and joint planning.

This research will address an actual situation were implementation is becoming a necessity to cope with the trend acting through its current supply chain.

The outcome of this research is to create an understanding of the necessity to integrate QUINRO with MABE and final retailer into the same innovative process to reach benefits in all trading partners.

1.5. Limitations

The study faced one big limitation which affected the research during its development.
This limitation was the distance from the company QUINRO and MABE. This problem reflects in the type of data recollected. The information was sometimes late, unclear and further revision needed to be made to understand the issue. Distance from the company MABE was a bigger issue because this company is a big firm which makes it more difficult to address someone willing and available.

Time was not an issue during the study. Most of these studies always face time problems, but correct planning and a clear timetable was set at all times to avoid setbacks and allow a fluid progression of the work.

Further limitations will be discussed in later sections.

1.6. Outline Structure

Chapter 1 Introduction

This chapter provides background information on CPFR concept and its importance. It addresses the main concerns of SME´s in today´s industry and how this process innovation tool can help reduce uncertainty. This chapter states the main objectives of the study, its focus and its value.

Chapter 2 Literature Review CPFR

This chapter reviews the studies of different authors regarding CPFR concepts clarifying research objectives 1, 2, and 3 established in the introduction. The chapter highlights a clear definition of the concept, its benefits, drawbacks, role of the members in the supply chain structure and specially findings on actual CPFR implementation methods on diverse companies. Some insights about the future on this process innovation tool are explained and so do the need for the actual market.

Chapter 3 Research Methods

This chapter emphasizes on the methodology followed to achieve the study. It describes in a clear way how the research was conducted and what were the techniques used.
Chapter 4 Results: SME struggle inside large manufacturer’s CPFR supply chain structure

Chapter 3 describes the results obtained from the research. This research was focused on the relationship between two companies in a supply chain to obtain insights on the process that is being followed to attain market demands. Basic background of both companies is presented as well as their current working structure.

Chapter 5 Analysis/Discussion: Importance of CPFR implementation in SME, incorporating all trading partners

Analysis and discussion wraps it all up by providing the relationship between the literature review and the results obtained from the companies. It gives a clear insight on what were the main aspects of CPFR, what lead the other companies to implement CPFR and how this applies to our research companies. It provides key observations of CPFR implementation to address to our fourth objective of the study.

Chapter 6 Conclusion: Achievements, barriers and further research

This chapter concluded our final observations of the study. It revealed key points of the research such as the benefits of CPFR, the barriers for implementation and the need for further research. At the end a conclusive paragraph was stated to lead the reader into the achievement of the objectives established in the introductory section.

Chapter 7 Referencing

Includes all references used for achieving the study.
2. Literature review

2.1 Introduction

The world is becoming a more complex business area in where offshore production, partnership, time to market, customization and cost reduction are becoming essential for survival in the competitive market. Innovation is a key success factor that not only occurs at the product level, there is also innovation in the way of doing things. In this research the focus is on process innovation. To meet customer’s needs exchange of information is essential from the final retailer all the way to the supply chain partners. Final retailers have the advantage of knowing the latest trends and customer’s behaviors (Holmström et al., 2002). SME are still developing and coping with these trends but still efforts need to be made to understand what are the characteristics and actions that need to be followed in order to change their way of doing things (Wagner et al., 2005).

Large manufacturers are implementing CPFR as a model to forecast and plan actions based on collaboration with retailers (Fliender, 2003). CPFR is a process that stands for collaborative partnering, forecasting and replenishment (Danese, 2007). This process innovation tool is generating cost reductions in large manufacturers due to short lead times and specially controls on the inventory levels (Caridi et al., 2006).

The aim of this section is to understand the CPFR process and focus on its advantages on today´s supply chain structure. These are the objectives this section will address:

- Discover the need for CPFR as a process innovation tool based on actual market needs
- Evaluate theories and findings of CPFR to determine key factors that characterize this process innovation tool.
- Review previous case studies to obtain insights of real benefits and barriers of CPFR implementation.

The review will provide insight on the need to implement a process innovative tool to cope with today´s market. This first approach will clarify objective number 1. This approach is intended to give the reader a background of the concept and provide a clear list of motives for companies to change their strategies of their supply chain structure. Objective number 2 will be addressed by giving a clear panorama of the concept, how it works, what is the role of the different partners in the supply
chain and what are the different stages of the concept. The third and last objective addressed in the
literature review will provide some insights of actual companies that implemented CPFR as their
process innovation tool. This will provide the reader some insights regarding CPFR implementation,
how it worked, what were the real advantages and problematic each one of the companies faced
during and after implementation.

2.2 Methodology of literature review

This section of the research was made through intense article research made by authors that are
well knowledgeable like Pallab, Tenhiala, and Fliender amongst others in the topic. The article of
Tenhiala brought a thorough understanding of the retail industry that has been working with this
methodology and its key aspects were described to bring useful information to the research. The
information was searched through databases like Google scholar, ieeexplore, and independent
websites. These websites contained the most accurate and updated information on the topic so their
roles were crucial in the study.

The main point of this literature research was as stated earlier to address the first three
objectives of the research. These objectives compose the initial study of the research.

2.2.1 Based on actual market need, companies need CPFR as a process innovation tool

Searching for a new process innovation tool that will help minimize inventory levels was the
first element that strived the study into a full research based on articles that described the history of
the process, how is this process implemented, what are its benefits, how can it be useful, to finally
obtain a clear panorama of how we intended to perform our study.

2.2.2 Success of CPFR research

Since this section of literature review needed to be objective based on article research the
information needed to be free of biased information, trustworthy and most important this research was
performed based on qualitative information. Quantitative information was not pursue since little
information is available and the study intends to be more generalized and avoid specific results that
can vary from one company to another without revealing a more global panorama of the process.
Articles containing information about CPFR were easy to come across since this process is becoming common in many industries looking for leaner more effective and efficient supply chains.

### 2.2.3 Limitations of CPFR research

There are many difficulties in applying CPFR in the whole SC. On one hand, it is very hard for SMEs to predict precisely because they are too small in size to resist competition and changes in market. However, the cooperation between various companies in CPFR is built on precise prediction. Nevertheless, it is relatively easy for large companies to predict their product level due to their size and ability to have effect on the trend of market.

Article research was more difficult to come across; punctual problems about CPFR were difficult find but a general panorama was brought in reviews such as the one by Holmström. Some of the problems that were research were problems such as backstabbing, bad forecasting and bad or incomplete supply chain integration. Since our research is intended to prove how CPFR can work better if all partners are involved articles about integrating all the supply chain into CPFR was hard to come across, some of them contain some vague information about the topic but the article wrote by Tenhiala brought an important example in the Condis Company. They integrated upstream suppliers into their process which at the end brought profitable results and win-win relationships.

As described earlier scientific articles were the most used, some of them like the Tenhiala article were based on a conference and some others like the Board Liquor Company was a Power Point presentation but brought key points that were used during the study. All the information in this section is scientific which is intended to give a full understanding on the topic.

### 2.3 CPFR theoretical framework

#### 2.3.1 CPFR as a process innovation tool

Efficient consumer response is a strategy in where retailers and suppliers work together in a cooperative manner to bring products to the final customer in a more efficient, faster, less expensive but still profitable way to the members of the supply chain (Corsten et al. 2005). Many solutions are out there in search for this strategy, one of them being CPFR (Tenhiala, 2003). CPFR is a process concept referred to as collaborative planning, forecasting, and replenishment developed to satisfy and anticipate future demands by promoting collaboration between the companies inside the supply chain.
It is the integration of all the members of the supply chain including the retailers and all the distributors involved. The potential benefit of this process is seen with the sharing of the information throughout the supply chain and is effectively coordinated (Fliender, 2003). The use of electronic methods such as softwares facilitates this activity of sharing of information. CPFR is mostly involved in process innovation which is the way products and services are produced and design, and relationship innovation which are the methods that control buyer seller interactions based on trust and commitment rather than mere product innovation (Cassivi, 2006).

Why was CPFR implemented at the beginning? CPFR started in the food retail industry as the ECP which stands for efficient consumer response (Corsten et al., 2005). Large retailers that had it all presented a threat to the small retailers so efficient response to consumer needs was introduced. In the retail sector intense pressure, change in the portfolio, customization, and sustainability in the market lead to implementation of an integrated supply chain (Büyüközkan et al., 2012). A second approach for adopting CPFR is the short life cycle of products and their innovative characteristics (Fisher, 1997). A third approach was the offshore production which demanded more accurate and complex planning. A fourth approach is cutting back on operational costs and quicker response (Fliender, 2003). CPFR is based on business to business collaboration so partnering and correct exchange of information is an essential element (Pallab, 2012). CPFR projects started as pilot programs which then developed incrementally until the main actors were fully operational under this process (Pallab, 2012). The main concern and focus on CPFR was the customers’ behavior and correct usage of this information.

2.3.2 Theory behind the concept of CPFR

Profitability is no longer the main reason for change, in the actual market this reason is not enough for companies striving for competitive advantage. Collaboration between the members and actual partnering based on sharing and trust is what is leading companies into a leaner cost efficient and agile supply chains (Tenhiala, 2003). This collaboration between partners in the supply chain leads to mutual benefits by sharing of real time information. This information is based on customer behavior and latest trends in the market (Büyüközkan et al., 2012). Retailers which are the points of sale of the supply chain are the link between manufacturers and customers. Each partner along the supply chain is benefited from this process innovation tool. The innovation process of each partner varies and so do the activities involved (Cassivi, 2006). Planning collaboration in today’s world requires mass collaboration rather than collaboration between close partners. This action leads to a more robust replenishment and with IT systems involve the planning process becomes more scalable in a business network (Holmström et al., 2002).
The retailer’s innovation process of the supply chain starts in the category management process; the supplier innovation starts at the replenishment of the supply chain process. Category management allows retailers to manage in a systematic form the products that are being offered to the customer. This leads to profitable retail space, and providing more value for the customer. This is created by avoiding buying promotions from suppliers or new product introduction in their process. In the other hand the supplier acts based on replenishment, instead of waiting for the orders to trigger supply, the supplier acts according to consumption. For a supplier to replenish inventories effectively information needs to be based on stock lists rather than orders and material movements. This allows errors to be corrected every inventory count (replenishment based on inventory count data). Category management and efficient replenishment need to implement collaborative forecasting and planning in order to establish win-win situations of trading partners. (Holmström et al., 2002)

A push pull system is followed in a CPFR process. The push part of the supply chain is followed by upstream suppliers which work in a make to stock process in a just in time basis. Forecasts are used to determine lot sizes and stock level. This will ensure a low inventory on downstream companies. Downstream companies work in a make to order process or “pull” process. Based on historical data they trigger the orders to the upstream suppliers to meet demands. The main objective of the system is quick response and rapid change. (Yang-Fang, et al. 2012)

Tools that help information reach the members of the supply chain are electronic point of sales and they serve as part of the continuous replenishment system (Tenhiala, 2003). This leads to a more automatic collaborative planning and forecasting.

CPFR definition resumes as follows:

- Planning: front end agreement, and joint business plan (Cassivi, 2006).
  - Specify objectives, resource requirements, level of confidentiality (Fliender, 2003).
  - Developing a joint business plan by exchanging strategies (Cassivi, 2006).
- Forecast oriented steps: sales forecast collaboration, and order forecast collaboration (operational step) (Cassivi, 2006).
- Replenishment Inventory (operational step): When forecasts are agreed the order forecast becomes the actual order, which initializes the replenishment process (Fliender, 2003).
CPFR increases level of relationship between partners, improves the communication channels by jointly managing the process and sharing of information (Cassivi, 2006). A framework is needed establishing the competences of the partners, includes the responsibilities and leadership of the CPFR activities. It also delimits partner’s participation by acknowledging their delimitations. The participants agree to share only one forecast. This forecast is made and shared by the use of certain agreed information channels and technologies (Saha, 2012). This shared forecasting allows a reduction on inventory levels caused by bullwhip effect through a thorough scientific forecasting procedure to meet customer demands and effectively replenish inventory (Yang-Fang, et al. 2012). It is agreed on the methods used to resolve difference in views. Overall the entire process is steered by only one shared forecast. The removal of constraints within the supply chain is an important step towards effective CPFR implementation. The share of only one forecast leads to removal of buffer inventories and a more synchronized production cycle (Saha, 2012).

Lawrence Fennel a Wal-Mart CPFR pioneer saw CPFR as a process that is not about changing technologies and reorganizing the business, it is about a business strategy to create partnering and agree on mutual objectives. It is a cultural change in were performance amongst partners is shared. Most important it is all about having real time communication and responding to the dynamics of the customer behavior (Tenhiala, 2003).

The VICS which stands for Voluntary Inter Industry Commerce Standards association developed a process to follow to achieve CPFR implementation. The process is divided into three phases, planning, forecasting and replenishment. These phases together form 9 steps essential to the process (Saha, 2012).

**Step 1. Develop Collaboration Agreement**

This step forms part of the planning phase. In this step the members agree on the rules on which the whole process will be based. A front end agreement needs to be developed with some issues to consider. Formation of mission statement, clarify and establish objectives especially on the matters of seasonal products and special promotions, understanding of participants systems and capabilities, establishment of business functions, establishing the names of the personnel responsible of the CPFR process, establishing the frequency of sharing of information, resolution rules for disagreements, publication of the front end agreement. (Saha, 2012)

**Step 2. Create Joint Business plan**
This step is also part of the planning phase. It consists of the creation of a plan regarding pricing actions, scale, schedule of events, and location. The main objective is to synchronize and match the visions so that common objectives and strategies can be agreed upon and set as the course of action. (Saha, 2012)

**Step 3. Create Sales Forecast**

This step is part of the forecasting iterative process. The forecast needs to be matched with the manufacturer’s cycle time. The participants work on their own forecast so it can set the pace for the shared forecast. A method of weighing each forecast is set to be used in the generation of the final forecast. At the end the forecast is made for every store and for each stock keeping unit (SKU). (Saha, 2012)

Forecasting requires a platform in where partners share information such as customer demand, adjustments to orders, transportation plans and cost between supplier, manufacturer, and retailer. This method enhances the visibility of the future sales and permits a more agile and leaner supply chain. Some of the factors affecting time in forecasting are trends, seasonality, random inputs, and cyclical products. Trends and seasonal products are the easiest to forecast but random inputs and cyclical products offer a more challenging forecasting. (Yang-Fang, et al. 2012)

**Step 4. Identify exceptions for sales forecasts**

Some events or certain conditions will require further consideration. These events happen when a certain exception criteria are met triggered by an exceeding tolerance between participants’ forecasts. This problematic can be passed to the next steps if no further action is made. The exception requires collaborative investigation. (Saha, 2012)

**Step 5. Resolve and Collaborate on Exception Items**

Resolving this issues require investigation for obvious errors from both parties. A real time communication is essential for reaching acute solutions. This issue should be resolved through a compromise made by both parties. (Saha, 2012)

**Step 6. Create Order Forecast**

When the shared forecasts are done the orders can be set. The order forecast main objective is to satisfy the forecast demand. It is a replenishment plan that looks for inventory control and scheduled orders made from the sales forecast. Some considerations are delivery times, lot sizes,
and cost. Some logistical issues may arise due to the complicated logistic implications. These implications are agreed in the front end agreement. (Saha, 2012)

**Step 7. Identify Exceptions for Order Forecast**

Some of the exceptions that are of main concern are planned orders that are more than a manufacturer can handle. These orders exceed the manufacturer’s capacity. (Saha, 2012)

**Step 8. Resolve and Collaborate on Exception Items**

All exceptions as always are resolved through collaboration. After the resolution is made the order forecasts follows its path accordingly. (Saha, 2012)

**Step 9. Order Generation**

This step is the replenishment process. In this step all the exceptions are controlled and the forecasts are converted into orders that are passed to all the parts of the supply chain structure. (Saha, 2012)

The steps mentioned were established to understand the process needed for implementing CPFR. These steps were developed as a roadmap for businesses in need for establishing a process innovation tool to help them share risks between partners and establish mutual goals and benefits.

Implementing CPFR requires structure and partial implementation. Pilot programs are essential as partial steps towards complete implementation. These programs should be carried out one at a time with only one trading partner and no more than 10 stock keeping units. Advancing step by step increases level of success, increases learning issues and successful adaptation to the system. Pilot programs are meant to expand when trading partners feel it necessary to introduce the rest of the stock keeping units. After success in pilot programs Tenhiala (2012) set out some guidelines for successful expansion:

- Ensuring that forecasts are actually used in the planning of operations. This is done by observing the results (Tenhiala, 2012).
- Expand pilot programs to include more steps and stock keeping units (Tenhiala, 2012).
- Converting the process into an automated action (Tenhiala, 2012).
- Incorporating more partners into the supply chain (Tenhiala, 2012).
• Increase forecast detail (Tenhiala, 2012).

This set of guidelines established by VICS leads partnering into full CPFR implementation with the necessary rules and precautions needed to avoid a miscarriage of the process.

With the theory in mind we can now have an idea of how CPFR originates and what are the expected results of this process innovation tool based on efficient consumer response. The actual benefits and drawbacks are discussed later in another section. Findings of actual partners incorporating CPFR is described below.

2.3.3 Findings of CPFR implementation

This section aims to discover CPFR implementation on diverse companies of different sectors. Some companies obtained real tangible benefits and some others with only some apparent benefits. A description of the implementation methods, the course of action, problematics that arose and results is described per partnering. These description findings will lead to a more substantial research that will set the basis for the analysis in a later section of the research.

2.3.3.1 Collaborative planning, forecasting and replenishment in the European grocery retail

This article included several CPFR companies in where pilot programs were conducted as a basis for CPFR implementation. All of these examples are European companies of the grocery retail industry. The main objective of these articles is to explore how many SKU’s were managed during the pilot programs and what were the results obtained. (Tenhiala, 2012)

Eroski – Henkel

German Henkel is a consumer goods manufacturer who has some global brands such as Persil and Schwarzkopf and is one of Europe’s CPFR pioneers. Henkel started a five month pilot program with the Spanish company Eroski which is one of the largest retail chains in that country. (Tenhiala, 2012)

Reported Scale
The pilot was operated at only the central warehouses of the companies, covering all detergent products of Henkel. The actual number of SKU’s involved in the pilot program was not revealed but the main concern was to position promotional products more efficiently. The predictions were gathered up to the nationwide level. Sales predictions were made twice weekly and order prediction was made once weekly. The horizon of prediction was continued in 5 weeks for the purpose of matching Henkel’s schedule of production planning. Warehouse-level transaction is the only one that was considered and the data of POS wasn’t applied. According to the report each step of the process of CPFR was executed. At least the prediction was the responsibility of Henkel only. Furthermore, it seems to be pretty passive the role of Eroski in the overall activities. (Tenhiala, 2012)

Reported Results

The only result from the report that is calculable was the improved accuracy of the prediction. But there are some other benefits that the parties listed, e.g.: decreased levels of inventory and stock-outs, increased availability of on-shelf and easier operations planning of Henkel because of the enhanced prediction and horizons of ordering. As to the parties each of them has considerably improved the pilot products’ sales. (Tenhiala, 2012)

Condis – Henkel

Henkel made a second CPFR pilot program implementation with Condis in the year 2000. This pilot program intended to include upstream partners like Cartisa, Suñer and Reverplas. These companies are Henkel’s packaging suppliers. (Tenhiala, 2012)

Reported Scale

Henkel used its main central warehouse in Spain with the addition of two distribution centers of Condis and a non accountable number of packaging suppliers. The main targets were promotional detergents with an undetermined number of SKU’s. The forecasting was made at the distribution center level and the horizon for the forecasting was of 8 weeks to allow suppliers effective responsiveness. Points of sale were not used and the forecast intervals were made on a daily basis. CPFR was implemented at its full and as Henkels partnering with Eroski Henkel again took the leadership in forecasting. (Tenhiala, 2012)
Reported Results

The accuracy of the sales forecasting improved 15%, availability also improved in the distribution center to 99.5%, improvement were made on on-time deliveries, modifications to the promotions was reduced, during implementation new opportunities were discovered and members were looking forward to full CPFR implementation. Inventory management and operations planning was improved with Henkel’s upstream suppliers. (Tenhiala, 2012)

Metro – Procter and Gamble

This CPFR implementation program started between Procter and Gamble which is a world leading manufacturer of goods and Metro which is one of Germany’s largest retailer. (Tenhiala, 2012)

Reported Scale

The program included a Metro distribution center and several Metro outlets. Procter and Gamble had a facility but in the research it appears as undefined. The main focus of the pilot program was again on promotional products. This time the number of SKU’s is known and it was of 53 at the beginning which later expanded to 130. Point of sales data was used during promotional periods, but most of the forecasting and planning was made at a distribution center level on an 8 week forecast horizon done weekly. Only steps 3 to six were used which mainly covers forecasting. This action of forecasting was made by both companies which then lead to a single shared forecast. (Tenhiala, 2012)

Reported Results

Results were not shown during the study but some challenges were noticed during implementation. Problems with responsibility issues arose, insufficient, inexact and outdated information was common, not well defined business plan, lack of communication and deficiency in its methods, and specially difference in views when evaluating the information. These challenges demonstrate that even though two large companies with history of implementing different methodologies in their business strategies still find difficulties with process like CPFR. Taking into account that only steps 3 to 6 were followed could be a signal of lack of proper implementation. Further research needs to be done. (Tenhiala, 2012)

Sainsbury – Unilever
These two companies started a 16 week pilot program. Unilever is a large manufacturer of personal care products, chemicals and food. Sainsbury is one of the world’s leading retailers. (Tenhiala, 2012)

Reported Scale

The program appears to be made between the manufacturer and the distribution center of Sainsbury, there is no actual information on the subject. The number of stock keeping units implemented was of 24 including promotional items and newly introduced items. Point of sales was not used for forecasting, this process was made at the distribution center unit. Forecasts were made for up to four or six weeks on a weekly basis. The CPFR steps used were one and two, and from six to nine. The responsibility and management of the process was equally shared between the partners. (Tenhiala, 2012)

Reported Results

The timing, and accuracy of product volume was increased in promotional products and new products, and the inventory was managed more effectively due to better visibility. Stock out was prevented thanks to the accuracy level of CPFR. Overall CPFR appeared to offer daily improvements. (Tenhiala, 2012)

Findings on the companies in the retail industry

The benefits that were showed on the companies needed more than one pilot project to observe real tangible results. Forecasting according to CPFR is made at the point of sale level and the companies revealed that forecasting was more effective at the distribution center. The companies knew the importance of partnering and worked with the idea but problems still arose while integrating the whole structure into one shared forecast. Finally some steps of the actual CPFR methodology were skipped or misunderstood so the processes that resulted were far away from the actual model. (Tenhiala, 2012)

2.3.3.2 CPFR case of the retail industry in Taiwan
JP Computers Ltd was established in 1985 to sell computers, communication equipment, and consumer products (so-called “3C products”) through retail outlets in Taiwan. In its early years, its annual turnover was about NT$5 million, and the company had approximately eight employees. Over the past 20 years, JP has grown to a company with 12 chain stores, a capital base of NT$158 million, and a workforce of 160 employees. In 2004, its turnover reached NT$2.5 billion. The major supplier of JP is Synnex Logistics, the largest logistics supplier of 3C products in Taiwan, which supplies 40 per cent of JP retail products. (Chang et al., 2007)

**Situation**

The original operational model of JP depended on its head office, which formulated every operational strategy for the business. All its retail stores were engaged in direct face-to-face sales of products to individual clients. Each of these retail stores transferred operational information on inventory and sales to head office through a point-of-sales (POS) system on a daily basis. The head office would then establish purchasing strategies and make price enquiries of almost 200 suppliers before placing orders. Suppliers would deliver products to each retail store and inform head office of the delivery. After receiving the products, each store reported to head office, which then paid the supplier on confirmation of delivery. Because the system depended on the transfer of a great deal of information from individual retail outlets using manual processes, decision-making at head office could not respond promptly to changes in market demand. In addition, purchasing time and response time to information received were both prolonged. (Chang et al., 2007)

For the purpose of improving the process, JP made the proposition of implementing a CPFR model in order to establish the collaborative process of cross-enterprise application-to-application (AP-to-AP) (also called “peer-to-peer” collaborative processes) with key suppliers that had the capability of high information. (Chang et al., 2007)

**Implementation Process**

JP set two strategies and processes for major suppliers and minor suppliers and the specific steps for these two processes as following shows:

- **CPFR with major supplier**
Step 1: JP together with its supplier formulated the replenishment and forecasting mechanism that includes safe inventory, promotion, replenishment, pricing and forecasting (Chang et al., 2007).

Step 2: JP Head office collects sales data from its chain stores nationwide; change the data into the system of inventory, and transmits inventory and sales data through a regular basis to the supplier (Chang et al., 2007).

Step 3: On receipt, data are transferred automatically into the supplier’s internal system, confirming items that need to be replenished (Chang et al., 2007).

Step 4: The supplier regularly transfers information about the amount of replenishment to JP and delivers the goods to designated stores within the agreed time period (Chang et al., 2007).

Step 5: After the retail stores of JP get the delivery, such delivery data would be input into the computer systems; such data would later be transmitted to head office (Chang et al., 2007).

Step 6: Payments between JP and the supplier are made on a monthly basis (Chang et al., 2007).

- **CPFR with minor supplier**

  The CPFR mechanism set up by JP with its minor suppliers is similar to the model of major suppliers. These suppliers have less information capability; only automatic replenishment can be achieved. All data transmission is done over the platform established by JP. The suppliers can log into a customized web site with passwords to examine the sales-and-inventory data of their products on JP shelves. They can also make replenishments on the basis of the inventory policy agreement. Payments are made on a monthly basis. When suppliers have developed new products, they can transmit information about the products to JP via this platform. (Chang et al., 2007)

**Results**

The efforts of JP together with JP’s logistics supplier conducting CPFR implementation have decreased the inventory’s level and built a special collaborative marketing model. Benefits of implementation of CPFR are described from metrics of inventory turnover rate, capital turnover, out of stock rate and service level. The inventory turnover rate per month rose for 1 to 1.5 after CPFR.
The capital turnover changed from 1.33 to 1.75. For the out of stock rate, CPFR reduced the rate to 2.49% comparing with 4.95% before. CPFR helped to improve customer service from 95.05% to 97.51%. (Chang et al., 2007)

2.3.3.3 CPFR case of LCBO (Liquor Control Board of Ontario, retail industry)

LCBO is an Ontario government enterprise, a buyer and also a retailer of alcoholic beverages. On LCBO’s road for expansion, management staff is facing new retail strategies such as renovated stores, innovative sales displays and programs, product staff, better shopping experience and optimistic consumer reply and response. Demand uncertainty and supply unreliability become the new challenge for LCBO. The whole supply chain increased its complexity in changeable consumer tastes, expanded product portfolio, long lead time and so on. For the purpose of building innovative solutions for supply chain which can improve the product flow through the partner network collaborating effectively and efficiently, CPFR process are modeled to solve these problems. (Miller, 2012)

Actions

The whole CPFR process includes four parts, Collaborative Planning and Promotion, Collaborative Sales and Order Forecasts, Collaborative Order Replenishment and Execution, Joint Performance Scorecard. (Miller, 2012)

First, information sharing system with trading partners is automated in data collection and transmission and the system transmits information weekly. The information system provides suppliers with visibility to sales, inventory and open purchase orders. (Miller, 2012)

Secondly, in Collaborative Planning and Promotion process, an eighteen months’ promotional program is improved which includes promotional details, dates and themes to develop more effective promotion programs for its suppliers and also share with each other more channel and market information. (Miller, 2012)

Thirdly, for Collaborative Sales and Order Forecasts, two forecasts are created that can be analyzed to get consensus forecasts. (Miller, 2012)

Fourthly, Collaborative Order Replenishment process reached the visibility to a rolling 52 week order forecast and improved operating efficiency and asset utilization. (Miller, 2012)
Lastly, Performance Assessment was created based on supplier scorecard that lead to quarterly reviews to improve supplier performance. (Miller, 2012)

Results

In 2003, LCBO piloted CPFR with its 6 suppliers and received notable improvement. In 2005, LCBO expanded CPFR to 21 suppliers representing 34% of the business. For suppliers, the production planning and material requirements planning are more accurate and dynamic changeable according to the market demand. Raw material inventory and finished goods inventory has reduced due to the implementation of CPFR. On the other hand, LCBO had shorter lead times, reduced safety stock levels and improved on time delivery and order fill rates. (Miller, 2012)

Some forecast and inventory metrics demonstrate the improvement more clearly. Forecast accuracy has increased roughly 5% percent from 2004 to 2006. Inventory turns have increased a lot after implementation of CPFR. Other inventory metrics such as week’s supply, on-time delivery, order fill rate and lead time also have obvious improvement. (Miller, 2012)

2.3.3.4 CPFR case in Copper Clad Laminate Industry

The manufacturing products sales are directly conducted to the customers. There is no retailer, wholesaler or distributor. The non-integrated computer programs are applied to manage the work data including production scheduling, order tracing, raw material consumption and inventory, finance data and WIP progress, and ERP software is used in the industry of copper-clad laminate. Manufacturing Industry lacks point-of-sale data. Some products cannot be regarded as commodity that is able to be customized. It exist a simple bill of materials but many kinds of product allocation. Product design varies frequently. (Chung, 2005)

Since the electronics products’ life cycle is reduced last 1/4 of the previous life, over inventory would become abandoned scrap. The process of CPFR is a powerful tool that can provide and reduce the control of the inventory of a company as well for the purpose of protecting the abandoned scrap’s loss. For the purpose of dealing with the industrial discrepancies CPFR was suggested for the purpose of improving the company’s responsiveness to market change for ECR. (Chung, 2005)

Problems
Before implementation of CPFR, the company in copper clad laminate industry failed to conduct consideration towards its business partners’ involvement to create a broaden organization. This would meet with many problems and obstacles, which furthermore required the company’s consecutive resources input for the purpose of maintaining its industrial viability. Such problems include over inventory, long lead-times (boosted by 60%), high ratio of abandoned scrap, inadequate capacity of storage, temporary raw material storage due to changes in electronic product design, expense for air freight to reach key customers. (Chung, 2005)

**Actions**

The product here was manufactured using three major raw materials, epoxy resin, E-glass fabrics and electro-deposited copper foils. It was determined that the implementation phase was initiated with the major supplier of copper foils (Company JA) selected as the collaboration partner. (Chung, 2005)

First, criteria are made for supplier partner selection. Open information sharing and continuous inter- and intra-improvements is a key requirement for success. (Chung, 2005)

Secondly, technology is used for accurate information. For the purpose of determining sales prediction, Company MA applied the MRP program created by the EDP programmers to calculate the sales prediction presented by the company’s marketing department. (Chung, 2005)

Thirdly, to facilitate an effective sharing of objectives between the partners, KPIs are made for measurement of the overall performance of the collaboration relationship, including material inventory, order forecast, out of stocks, material order lead time and obsolete percentage. (Chung, 2005)

Lastly, Company JA and MA reallocated the staff and time resources to conduct the CPFR process (Chung, 2005).

**Results**

The level of inventory of 1 oz of copper foils increased but the standard deviation decreased meaning that the variability was less and they could respond more efficient to the market. H oz of
cooper and 2 oz of copper decreased and so did the standard deviation, meaning that they were keeping too much stock of these materials. (Chung, 2005)

Out of Stock (OOS) occurred very frequent prior to that of the project execution. The frequency of OOS monthly was above 50% and this is a pretty high number. The 2 oz copper takes the peak OOS days and H oz took the peak frequency of occurrence. After implemented the CPFR, OOS’s occurrence and frequency had improved significantly. (Chung, 2005)

2.3.3.5 Case of SMEs in Uganda on Collaborative

CPFR is a practice method implementing the supply chain collaborative performance. The following case analyzed how SMEs in Uganda set the collaborative system and achieve supply chain cost reduction. (Ntayi, 2010)

The collaborative relationship with suppliers and customer are a must for companies to enhance competency, flexibility and efficiency. Small and medium enterprises in Uganda have met a dilemma of collaboration of unprofessional procurement practices and information technology inaccessibility, which directly led to high costs during transaction and order processing, lack of vital information, and ineffective logistics and production support. Thus their growth, achievements of economies of scale and minimization of costs, which is essential in supply chain performance, are restricted. (Ntayi, 2010)

CPFR is an effective method to reduce the inventory levels, enhance the turnover rate and reduces the nonessential operating time. But applying CPFR is difficult because of following reasons. Small and medium enterprises (SMEs) over flood Uganda, and they have the limitation of operating cost, the changes of specialists, update of new technology and management difficulties, in addition to the weak on the mutual confidence foundation and very little knowledge of the results of sharing the information and its benefits. (Ntayi, 2010)

The purpose of the study is to emphasis on small and medium size enterprises (SMEs) in Uganda. Solve the difficulties of collaboration processes like CPFR and in a wider vision to test a framework identifying the relationships among collaborative relationships, procurement practices and supply chain performance. (Ntayi, 2010)

Problems
The needs and operating environment of SMEs are very different from those of large firms. SMEs might serve as distributors, suppliers, customers and producers. SMEs could give large firms support services and technical basic manufacturing. They are a big part of manufacturing firms in some emerging countries. (Ntayi, 2010)

The correlation of procurement practices is lower than collaborative relationships which are showed by a procurement practice analysis. It is caused that the procurement practices make less positive effect then collaborative relationships on supply chain performance. (Ntayi, 2010)

Suggestions

For the majority of the firms (56.2%), they have no formal purchasing departments. So, to oversee purchasing related activities and improve professionalism in the purchasing function, there is need to encourage these firms to create purchasing departments. In Uganda, focus on procurement is in the public sector. Purchasing has been left unregulated in the private sector. It is necessary to create a unit / section for the Public procurement and Disposal of Asset Authority - PPDA. This will sure that the activities in these companies are valuable. The first think for purchasing departments to do is to build the relationship with suppliers. This is the collaborative relationships for the purchasing departments. The purchasing department should build collaborative relationships with suppliers and maintaining them. So, whether there is the relationship between purchasing departments and suppliers or not, it is hard for the cooperation relationship to vigorous develop. Purchasing departments should be taken to study the new technology to improve the trading quality. Firms should also put the build system; strengthen the risk awareness and incentive the information sharing into the same scheme. (Ntayi, 2010)

Supply chain performance of SME can be foreseen by collaborative relationships which need be reinforced. Aspects like trust and commitment fertilize relationships between partners that are also valued by SMEs. (Ntayi, 2010)

Collaborative relationships and professionalism should be supported. To execute this kind of systems, the managers also should give their support. Training and some related courses are good way for PPDA to increase the create ability and better collaborate with SMEs. There are a lot of reasons to
affect SME supply chains performance and there is the need focus more on future research related with these influencing factors. (Ntayi, 2010)

2.3.3.6 Strengthening the Competitiveness of Eastern European SME Clusters by implementing an Open-Source-based Collaboration Tool

SME have not enough resources to response the customers’ requirements with low price and high quality as the Asian Market so the network of collaboration with other companies has been formed. To improve the competitiveness by inter-organizational collaboration, SMEs adopt to collaborative ICT tools but it is not suitable for SMEs with fewer employees in Eastern Europe. The more effective approach is to use specific business process reference model and a modular open source-based collaboration tool with ERP/CRM functionalities to make information exchange seamless thus improve the Eastern European company competiveness in a applicable approach. (Baalsrud et al., 2012)

Problem

Many SMEs are facing shut down by the laggard and unsuitability to get into clusters models in Europe. According to Baalsrud (2012) this kind of model makes a strong affect on Europe manufacturing as below:

- The low price competitiveness with Asian
- The devalued current of Euro
- The higher costs of infrastructures, saturation and labor
- The downgraded manufacturing capacity

The price advantage of Europe manufacturing is not existed in economic developing process and the clusters model will destroy the SMEs developing by less resource. There need a new collaboration system to protect and promote SMEs develop in Eastern Europe. (Baalsrud et al., 2012)

Results

Most collaborate form is just email, phone and fax but lack of suitable instrument on data flow level. A suitable ICT tool can solve complexity easier thus reduce the cost of collaborate information. (Baalsrud et al., 2012)
Enterprise Resource Planning (ERP) is a strategic tool to help SMEs to integrate the organization processes and help to improve SMEs competitiveness. It has six features as flexibility, modular & open, comprehensive, beyond the company, best business practices and the ultimate ERP solution for manufactures. This kind of solution can change the business slowly but effective. (Baalsrud et al., 2012)

Eastern European countries need more of collaboration tool with CRM/ERP to integrate and collaborate with companies with a low cost and effective approach. (Baalsrud et al., 2012)

About ERP system selection, the proceeding to choose favored open source-based ERP systems based high functionalities and high testing result. (Baalsrud et al., 2012)

Participating SMEs within a cluster must reach the highest level of awareness of the cluster to get open source-based solution by low cost. (Baalsrud et al., 2012)

The tool-East solution will promote combined development at client level as well as the involvement of open-source community for enterprise level customizations. (Baalsrud et al., 2012)

The approach to improve the competitiveness of SMEs in Europe is to make SMEs join in electronic collaboration thus keep up with the pace of clusters in other places. The specific modules in ERP system help to achieve this. Not only the technical solution need to be entering into SMEs but also integrates their partners to analysis the business to understand the demand of supplier and customers. The Tool-East solution is a kind of approach to help SMEs to analysis, identify and modify their business. The modular, open source, Tool and Die-making workshops in this solution give a good approach to make SMEs to collaborate easier. From the paper, the open-source initiative is an important element to make SMEs to be potential power of business and create future sustainability. (Baalsrud et al., 2012)

2.3.4 Benefits and Drawbacks of CPFR

CPFR is based on a strong relationship between buyer and supplier (Varma et al. 2010). The benefits of the CPFR are time to market, precision in forecasting, efficient communication, less inventory thus resulting in less deterioration and obsolescence of products, cost reduction by eliminating the middle man amongst others (Pallab, 2012), early involvement of partners (Cassivi, 2006), more sales (Pallab, 2012) and benefits from a pull process (Cassivi, 2006).
The shared information system generates more knowledge of all participants in the supply chain, increases accuracy of forecasting and the relationship between partners is increased. Regular business plan meeting, planning and forecasting meetings and all CPFR based meetings help strengthen this relationship between partners (Varma et al. 2010). Stock outs which in many cases was the main reason for implementation of this ECR tool are reduced, lead times are shortened which creates a better responsiveness system towards customer behavior. Buffer inventories are minimized by having a higher production capacity based on a bigger forecast horizon. Examples like the Henkel and Eroski partnering shows how CPFR implementation helped reduced errors in forecasting from 50% to only 20% (Varma et al. 2010). Forecasts also play a very important role in reducing handling and administrative costs, and shortened set up times (Tenhiala, 2012). Bullwhip effect which in many supply chains leads upstream SME´s into losses is reduced greatly causing a healthier supplier chain and better commitment by all partners involved (Caridi et al., 2006).

Some of the drawbacks of CPFR are costs involved to correct implementation. IT systems need to be implemented and the partners involve need the same infrastructure to work at the same pace. Sharing of vital information to partners is a key problem if there is not enough trust and commitment. The risk of back stabbing is always a problem in a close partnering like the CPFR model requires. A lack of forecasting agreements, poor integration and standardization of information, collaboration with partners that do not share the same vision and objectives results in a poor CPFR implementation (Pallab, 2012). Internal changes are seen as more problematic than economic changes so correct implementation requires planning and proper structuring in the internal processes and people (Varma et al. 2010).

2.4 Conclusion

Supply chain integration is nowadays a necessary innovation process to be competitive in today´s industry. Short lead time, cost reduction, less inventory, customization, and overall stay in competition are the factors that are striving industries to change their process structure and function (Caridi et al., 2006). Partnering is becoming more important to share risks, obtain a single forecast through the whole supply chain, and focus on customer behaviors and trends (Pallab, 2012). As observed in the retail industry the main objective was to reduce uncertainty, increase the availability of shelf space and avoid stockouts (Wagner et al., 2005). This industrial sector represents ground cero of CPFR development. CPFR was part of the efficient consumer response approach to increase availability of products and avoid logistical problems on inventories.
Any process that is new to the industry needs a pilot program as a starting point. Pilot programs are implemented at simple categories or special products to test the supply chain and its response to the market. These programs are especially important when a lot of variables and factors blur the vision of the company’s future. These pilot programs then lead to a full CPFR implementation throughout the whole chain involving retailers, suppliers, and the lead manufacturing firm. CPFR requires many factors to obtain benefits from this process (Pallab, 2012). Pilot programs according to VICS are the initial strategy to full CPFR implementation. VICS came up with several steps or guidelines to consider in order to impulse CPFR implementation in all SKU’s of the supply chain. These guidelines as well as the initial steps towards effective CPFR implementation need time, work and especially full collaboration among partners. As view earlier on the several cases in the retail industry CPFR success requires following the guidelines set to avoid miscarriage and eventually failure of the process.

This process as it name stands for requires collaboration in forecasting and planning, and replenishment actions between partner firms. What we can assume from this concept is that a common plan, a common forecast and a common objective or target is communicated and shared through all the supply chain. This will eventually lead to a common result (Fliender, 2003).

Communication is one of the most important aspects; technology and the use of softwares helps information to get to all partners The case of SME’s in eastern Europe reveals the importance of developing ERP softwares to integrate the whole structure into one centralize information system. Communication practices also serve as key elements towards developing better partnering since it helps knowing the members better and it helps develop trust and confidence (Tenhiala, 2003). Setting up meetings, centralizing information, common schedules, and exchanging up to date information is essential for its survival. Information is most important when it comes from the retailer, since he possesses the most accurate customer behavior insight. Other requirements needed are education of the personnel, a culture of openness and honesty, trust and commitment are also to consider (Büyüközkan et al., 2012).

Some of the Challenges of CPFR are selecting the correct partners, establishing correct performance measures, everyone commitment to implement CPFR on a larger scale, adequate philosophies and changes in management if required (Pallab, 2012). The future of CPFR will be its
automatic exchange of forecasting information to production planning, accounting, warehousing, inventory control, and human resource requirements among others (Fliender, 2003).

According to Büyüközkan et al. (2012) CPFR in SC is limited and inefficient. It is essential to implement and adapt the system correctly to all the partners in the supply chain to obtain benefits. This vision includes SME partners which are the most vulnerable and are the cause of holding back the CPFR implementation in all the supply chain.

In the case of SME’s in Uganda we found all the problematics that were faced by other companies already implementing CPFR. This case gave us ideas of a pre CPFR exploratory situation in were a solution is needed for a problem based on efficient consumer response. The case had no results but laid the ground for suggestions as for why is CPFR needed. (Ntayi, 2010)

As a conclusion CPFR implementation requires partnering in all the supply chain, and not only between the large manufacturing firms and the final retailers but also SME involvement is essential. Communication is the most important skill that needs to be developed by using correct IT tools (Baalsrud et al., 2012). Joint forecasting and planning are essential to obtain a centralized and shared vision of customer’s reaction and tendencies. CPFR is a process innovation tool that requires correct players, rules, and tactics to obtain the most out of it, but most important of all, visualization of the same objectives at all times.
3. Methodology

3.1 Introduction

Literature Review section followed a methodology based on article research, conferences and information available at internet databases such as Google scholar amongst others. This research was developed following this methodology to obtain knowledge from different authors about the concept and its implications. The next step of the research was to develop a case study based on the relationship between MABE and QUINRO. This relationship was researched based on personal experience as an aid, interviews and questionnaires. The objective of this methodology is to understand how QUINRO reacts and adapts in this supply chain structure in where the large manufacturer and final retailers are already working based on CPFR.

3.1.1 Objectives of This Research

This is the main aspect that drove the need for this research.

- Describe the main process needed for CPFR implementation in actual SME.

This objective will be clarified using the theory established in the literature review section obtained from different sources and utilizing the information obtained from the case study to finally make an analysis in where the key points will be addressed.

3.1.2 Chapter Structure

Chapter structure is intended to provide the reader a guideline to understand how the work is distributed in the study. In this section it can be read the main ideas that lie in each chapter of the study.

3.2 Research Strategy

In the following words of “Research Strategy”, our research strategy will be a case study. The decision to use a case study as a tool was due to its qualitative characteristics (MacNealy, 1997). The main concern of this research is SME’s development in today’s industry and how this process innovation tool, CPFR, can help reduce uncertainty. As a result, in this study, we conduct research on two companies, QUINRO and MABE. We developed questionnaires and by the results obtained an
interview was perform to QUINRO to obtain further insight on their working structure. Information was also gathered from personal experience inside the companies. This personal experience was developed through seminars, conferences, work reunions, and by observation made through years of working inside both companies.

In generally, this case study can be divided into three stages.

On the first stage, we made a preparation on the study. The case study was planned and discussed in advance so that the information could be examined, trustworthy, and in actual time so that the results obtained reflect current events (MacNealy, 1997). Also, we obtained general insights about upstream and downstream companies with QUINRO and MABE. Downstream companies in this case where the final retailers which little is known about them and upstream companies for QUINRO were suppliers which in the results section will be mentioned.

On the second stage, we conduct our field researches on supply chain managers of QUINRO and MABE. At the end the interview and questionnaire that were performed was revised.

This previous methodology was made through managers and corporate information available in the web. The third stage of collecting information was made through personal experience. I, Eduardo Quintero, have worked on both companies for a period of two years in the area of production in QUINRO and the area of International Commerce in MABE. Both areas are closely related to the supply chain of both companies. This insight gave the research valuable information based on personal experience acquired through reunions performed in the companies, workshops, company news, and documents available for training or revising working related issues. This information helped the research gain information based on the current partnering between both companies, strategies implemented, objectives, future plans and priorities.

This information can somehow be interpreted based on own personal experience and understanding which creates limitations on the validity of the research (MacNealy, 1997). Although the information is trustworthy in aspects such as structure, working relationship, forecasting decisions, and historical data, personal recommendations, own views of working methodology and suggestions on the need for change could contain bias information that can be seen as a disadvantage for the study. As a note information based on personal experience was used as an aid and not as primary data since
information obtained from personal experience relies on memories and could be biased (MacNealy, 1997).

The three stages were combined to obtain objectivity and avoid untrustworthy information that could arise during the research.

3.3 Data Collection

In this research case study, we will collect our data in the form of questionnaires, interviews and aided by personal experience to obtain fully understanding of the relationship between MABE and QUINRO.

This kind of questionnaires applied in this research is an open and close research with twelve questions. Two questionnaires were distributed, one to the supply chain manager in MABE and the other to the supply chain leader at QUINRO. Generally, the following words will show the advantages and disadvantages of this survey.

There are four advantages of questionnaires. First, it has little space limitation. Second, it is one of the best ways to obtain empirical data and the data is very convenient to be tested. Third, people in the survey are anonymity. As a result, the manager is not afraid of telling something real because he will not be figured out. In this way, we can figure out the real conditions of SMEs and the functions of CPFR. Although in this case there was no anonymity. Fourth, it is very time-saving and cost-saving. In applying survey, we do not need a lot of people to assist in distributing and collecting the survey.

However, there are also some disadvantages of questionnaires. First, data in survey can only reflect the social condition with stable words; as a result, it cannot reflect the world vividly. Second, it lacks flexibility and is hard to be expanded into specific research. Nevertheless, a kind of survey strategy, it is still a preferable choice for that its advantages outweigh the disadvantages.

The drawback of the technique mentioned was the distance and lack of availability of the interviewed people. From company MABE there was no response or he did not understand the reason of the study so no response was received from them. The people that were targeted could not be reached but basic information was addressed based on the historical information that is available based on the web, information obtained from QUINRO’s supply chain manager and aided by personal
experience. This of course represents a major drawback. The second company that was addressed QUINRO showed more interest since the study is more representative for them. The questionnaire was answered by the manager of the supply chain which posses the main aspects of the relationship and current conditions. The questionnaire was supported with an interview to obtain a more detailed explanation of their current working methodology and relationship with MABE.

3.4 Framework for Data Analysis

In order to fulfill the aims of this part, we conduct it in four stages.

In the first stage, we read the questionnaire to find some ambiguous aspects and tried to fully understand what lay behind the explanation.

In the second stage, we will describe the data with descriptive words. With those words, we will try to figure out what have been reflected by the questionnaire with general analysis and give the direction to the following qualitative analysis. Those descriptive words will give general ideas of the problems we will discuss in the research and in those descriptive words we want to figure out which problem is the most serious and which problem attracts the widest attention.

Then, in the main job of next stage is to try to figure out the answers to the three objectives mentioned in the literature review. We will review the insights mentioned in literature review, insights which can be applied to demonstrate the theoretical background of this study. And three questions need to be answered in the analysis: (1) in actual market in Mexico, whether companies need the innovation tool in supply chain management, CPFR, or not; (2) whether the reasons presumed above to explain the successes and drawbacks of CPFR are appropriate or not; (3) what partnership SME and large manufacturers in applying the techniques of CPFR is.

In the fourth stage a cross relationship was developed based on the literature findings and our case company. This cross relationship was developed to obtain qualitative data based on the current situation of the company, the conditions that lead other retail sectors to change their process and to explain key actions that need to be followed to achieve CPFR implementation.

3.5 Limitations and Potential Problems

Generally, there are several limitations of this research.
First, due to the limitations of time and cost, we cannot give questionnaires to too many managers. As a result, the selected company can be biased and cannot represent all the conditions in the nation.

Second, some questions in the questionnaire are descriptive. No one would deny that analysis with descriptive words can be misleading and even cannot reflect all the meaning of writers. Namely, what have mentioned in the analysis is based on our previous knowledge and it is possible for us to try to explain some phenomenon with existed theories or viewpoints, however, it may be a totally new problem.

Third, we cannot guarantee that all the data written on the questionnaire is correct or reflect the manager’ real ideas. The main reason for the latter problem is that each of us may find different meaning even we read the same sentences.

3.6 Reliability and Validity

The survey of the study should be reliable and valid. In our study, we mainly choose to use questionnaires and literature review as part of our scientific method design to achieve our research objectives. These requirements guided our design, methodology and overall study to achieve repeatable results although our research requires human judgment in almost the entire study.

Since our study was aimed at only one company and our findings were compares with other companies it does not have a high external validity. The company had its own processes, its own relationship with large manufacturer and suppliers and no other companies were researched to obtain a high external validity. Our findings are not general and although some of the observations made can be compared to similar companies we cannot conclude that our study has a high external validity.

The research and process followed during the study guarantees certain repeatability in the results except for those obtained through personal experience. According to the main issues of the research several articles were researched and same results were obtained. No real experiment was made during the study but the study was based on CPFR research and judgment concerning a case company. The reliability of the study limits itself on personal judgment as most of the issues attacked in the study were made based on this premise.
To support our study we used a lot of literature. This process was part of our internal validity which followed the scientific method which is introduction, methodology, research, analysis and discussion. The structure was changed in some aspects without compromising our internal validity. We added a small section of methodology in our literature review section to help the reader understand from where the information was obtained. Analysis and discussion section were fusion to obtain a more fluid answer to research objective four. We chosen the literatures strictly which have been published and confirmed but not some unbelievable paragraph posted on webs. We also read and connected theories in each literature to verify the theories we used to be validity. To go to the library and find correlative literatures is a common way we choose. To check the key words of CPFR and SMEs to find what we want. Overall the internal validity of our study was not compromised following the scientific method to obtain reliable results.
4. Results: SME struggle inside large manufacturer´s CPFR supply chain structure

4.1. Introduction

The following section of results is intended to serve as a background of the actual companies from which a CPFR process innovation tool is intended to be analyzed and discuss. It is of great importance to clarify its actual partnering in the Supply Chain structure in order to establish clear benefits and challenges it might face when implementing a full CPFR process. Some of the key elements of this section will be their current relationship, and what actual inside process are affected and how they are coping with this challenges. A more detailed research on the SME is made to learn how they are evolving with a large manufacturer, what challenges are they facing so that the research in a later section can be compared with the actual literature to establish key points for implementation. Little is known from the large manufacturer since they are a multinational company with a complex system and information is not available. Most of the results are taken from personal experience and simple questionnaires. Still some crucial information is missing based on a deeper working structure between SME and the large manufacturer, but real SME insight on its actual methodology is known. Information on how the large manufacturer works with other SME’s is also brought into topic but little is known on the actual problems that lead them into their current situation.

4.2. QUINRO

4.2.1. Background

QUINRO is a family owned company with more than 50 years of experience in the cable industry. It started developing simple cooper wires for small retailers which later developed into complex harness sold to large manufacturers such as GE, Whirlpool, MABE and some other local companies. QUINRO has been working for many years in the cable industry and the need for change in their collaboration structure is of great need. (Supply chain manager QUINRO, 2012)

QUINRO is a SME with more than 350 employees distributed in 2 shifts. The company is divided into the cable making section, the injection section, and the harness section. The cable section is where the copper is shaped and transform into a real cable with its proper insulation and specifications. In this section all cable is made based on specific requirements such as temperature limits, flexibility, roughness, and type of insulation. The injection section is where the different types
of plugs are injected to the ending of the cables. Some other types of injections that are made are stops that serve as barriers for the cable to miss position itself inside an electro domestic. The last and most important section is the harness section. A harness is an arrangement of cables that work together based on specific requirements that allow electricity to be conducted along different parts of an electro domestic. Harnesses are the most important product sold to MABE and offer the most difficult task to manage and control its production. This product will be explained in the following section. (Supply chain manager QUINRO, 2012)

4.2.2. What is known

Harnesses are of most difficult to control due to their level of customization. A harness can only serve one specific function and trying to disassemble or recycle can be of great difficulty due to the type of plastic and final assemblies in it. Harnesses can serve for the inner computer of a refrigerator, microwave electric panel, stove wiring and toaster inner structure amongst others. These harnesses are different from each other and customization level is high. Inside a same type of refrigerator different models can use different wiring which can be difficult to adapt from one another if a sudden change of order is made. This is the most important issue regarding harnesses. Orders change rapidly without warning and little is shared to the supplier to cope with these changes until is too late. This creates burnouts due to their level of innovativeness, and a more complex system of design to ensure a smooth implementation and adaptation of the new harness to the appliance (Flower, 2004). Creating a harness requires a lot of inner structuring inside the plant. Manufacturing cells need to be reorganized, movement of materials needs to be planned and especially cables need to be done. Three vital areas need to coordinate inside the company to attend the actual orders. (Supply chain manager QUINRO, 2012)

QUINRO’s methodology of working with MABE and current clients is through email and direct communication. Some IT systems are implemented but little infrastructure has been done to attend current market needs. MABE shares a platform with its suppliers to share actual forecasts based on an established horizon on a daily basis. This platform changes radically due to the inner struggles MABE is facing with its retailers. This platform helps the production and purchase area to know what is intended to be distributed so a production plan can be generated based on the specifications. The platform works in two ways, it helps the personal in QUINRO to know the actual inventory levels and also know the actual production plans from MABE. Based on the production plans and inventory
levels from MABE the company can react to this information and make an accurate production plan. (Supply chain manager QUINRO, 2012)

QUINRO possess limited IT capacity so actual ERP is not incorporated inside the company. The information obtained from MABE works on a highly developed platform that cannot be fully exploited inside QUINRO. ERP systems help companies involve all the areas of the company into one single shared information system. These systems allow all areas of a company visualize real time information and plan their activities according to what is needed and what is available. QUINRO’s way of working is based on excel spreadsheets and basic notes that run along the company when new material is needed or new product has been developed. These spreadsheets have created several problems due to human errors such as mistyping of cable code or forget inputting data into system. A shared network is available but system constraints and sometimes inside jobs have created problems with the data. Inventory levels are of special consideration. Based on actual survey material has been misplaced and lost due to lack of a proper system for organizing and viewing the availability. This are some results that can be seen based on their actual IT system. (Supply chain manager QUINRO, 2012)

Implementation of a partnering or shared production plans with upstream suppliers is not implemented. Upstream suppliers are large manufacturers who sell whenever an order is made. Supplying a SME like QUINRO is not a problematic they face based on inventory levels or production capacity. QUINRO buys from suppliers on a monthly basis and due to the closeness from suppliers makes it easier to buy whenever is needed. A small stack of raw materials is kept so inventory levels are hardly affected by this issue. QUINRO possesses a more coordinated upstream structure. (Supply chain manager QUINRO, 2012)

4.2.3. Results from research

Based on the questionnaire answered by the supply chain manager from QUINRO we obtained the following results:

The total capacity of the warehouse designated to finish product is of 300 m2 in 5 level racks, 30% of the space is designated to MABE´s products which makes a pretty large designated space since the company supplies more than 30 companies. The number of SKU´s that are handled for MABE is between 0 and 100 SKU´s depending on the season and the products that are being replaced by different models. (Supply chain manager QUINRO, 2012)
Orders are shipped everyday from the company to the different plants that MABE posses. The SKU that is sold the most are outlets which basically apply to most of the products that MABE produces. Weekly the supply is of 40,000 units and the copper that is used to produce these products is purchase from different suppliers depending on the availability. Copper purchases are made every month since production of raw copper is very constant since its configuration is pretty standard and it can be applied to any product. For the finishing assemblies several suppliers are involved but especially suppliers distributing terminals and accessories are the most important. The forecast made with suppliers is based on a 12 week horizon, which helps maintain the levels of production constant. (Supply chain manager QUINRO, 2012)

A very important issue that the questionnaire revealed is the planning horizon with final retailers. According to the interview a forecast of demand is made in collaboration with the final retailer and each release is verified every week. (Supply chain manager QUINRO, 2012)

Every week production plans are developed based on a 4 week horizon. This horizon is shared through a system called SLP and intents are made to emigrate to SAP as soon as MABE develops it. (Supply chain manager QUINRO, 2012)

Actual strategies of further collaboration and a more detailed share of information is not available. MABE does not discuss or intents to approach QUINRO to develop further strategies. (Supply chain manager QUINRO, 2012)

4.3. MABE

4.3.1. Background

MABE is a large manufacturer with more than 60 years of experience. It is a Mexican company that started making stoves which later developed into other electronic appliances such as refrigerators, ovens, washing machines and dryers. Their main strategy has always been partnering with local companies outside Mexico to establish alliances in the partner’s home country. This kind of relationship led to their partnering with GE to supply North American and the Mexican market. This alliance led to the creation of the largest stove plant in the world in San Luis Potosi Mexico. Canada was also a country from which they developed and alliance with CAMCO to supply the Canadian market which led to huge revenues at the end of the 90´s. (Mabe, 2012)
These two alliances made MABE one of the most profitable companies in Mexico with 5 plants around Mexico and 1 big distribution center in Mexico City. Each plant possesses different capacities and they all manufacture different products with its own suppliers but work with one centralize IT system. The manufacturing plants for themselves supply only direct deliveries or they supply to the distribution centers if mix of product is required. The distribution center main’s objective is to centralize orders that require not only product from one plant but a mixture of product of all plants. Their main strategy is to send full trucks to their customers so orders don’t leave the plants until a full truck is achieved. (Mabe, 2012)

MABE developed a very important alliance in South America in Brazil with BSH. This strategy permitted them to save on costs by manufacturing in South America and distributing product to the local market. This strategy is somehow a monopoly to the South American market since BSH is the leader in South America in electro domestics. MABE is always trying to establish partnership with the largest manufacturers in the region available. (Mabe, 2012)

In 2000 MABE developed another strategic alliance with Spanish company FAGOR to support the Russian market. This company is well experienced in the eastern European market. This alliance positioned MABE in a top position to obtain full leadership in the Eastern Europe. (Mabe, 2012)

4.3.2. Supply Chain Management Structure

Mabe’s supply chain structure works based on Baan which is an ERP that coordinates all plants and centralizes all the information. Local market and international market work with different sections of the system so production is divided in two. National market which still is Mabe’s strongest market has priority in the production plants. This is to the fact that local market is growing exponentially and the logistic cost is smaller than international orders, this permits low inventory levels and rapid deliveries. International orders are somehow problematic since orders cannot leave the plant or the distribution center if one container is not full. Some containers experience delays in the plants due to bad positioning of the actual container or bad forecasting. Containers are ordered through forecast made with the client. This idea led to CPFR implementation with retailers and customers to achieve rapid deliveries and lower inventories.
CPFR started with pilot programs with the national market. These pilot programs included stoves and refrigerators with local retailers which then lead to pilot programs with the international market. Since the logistic cost proved to be less and the inventory levels were better managed and actual clients were more satisfied CPFR passed from pilot program to full implementation. These actions lead to a new area especially for the international orders since they represent a logistic nightmare.

The whole system works with the Baan IT system. This system permits a visibility of the clients forecasting and inventory levels. Also helps know what are the production plans but still excel spreadsheets are needed for some activities. This is due to the fact that the system is divided in such a way that some functions still are not developed. Although MABE has all the resources for possessing a well developed IT system still there are some barriers for full IT implementation.

SAP is an IT system that is starting to be explored my MABE. Full SAP implementation to the national market is 2 years away and for the international market is still uncertain. This new ERP system is intended to help the logistic department and avoid as much as possible human errors or misplacement of information.

MABE´s main strategy has always been reduce costs no matter what. They have made some small suppliers to go bankruptcy because their information is not accurate and their production plans are always changing. They require suppliers to be fast and have always product available. This action has led to upstream suppliers to have over stacked inventories and many times it becomes waste material due to the level of innovativeness. MABE works little with upstream suppliers; their main concern as all large manufacturers who implemented CPFR is more on the retailers or final customers. Their concern on upstream suppliers is only on how much final product they have available. Their production plans are shared through a platform but accuracy is always an issue.

There is a lack of an integrated centralized information system with suppliers. Although MABE has many suppliers that vary from large manufacturing plants to small shops their requirements are always very specific and in a short time limit. A need for a better integrated system is needed.

4.4. Results of supply chain relationship
MABE is a client that gives suppliers prestige. They require suppliers to have ISO certification and they are always demanding the best products and services. These actions strives companies to develop and cope in today’s demanding market.

MABE shares an IT system with suppliers to help them plan their production and obtain a general visibility of the orders. Their orders are based on forecasts made with final clients based on CPFR. Their forecasting is made daily with a somehow accurate visibility for the week with a 2 month horizon. These orders are not final, the clients change their orders based on sudden changes or seasonality which sometimes is miscalculated. This action leads to bullwhip effect to upstream suppliers. Upstream suppliers are always the most affected by this actions and this causes logistical nightmares to the companies.

QUINRO has proven to cope with these sudden changes by building a larger inventory warehouse and working with a 2 week material inventory for the most important SKU’s involved. This has lead to effective response and less waste material. Although this system has proven to be one of the best solutions, material is still wasted due to the level of innovativeness and it required QUINRO to build a new warehouse. This can be seen as a required cost, but if more SKU’s are developed a new warehouse will be needed twice as big and so on. This way of managing is costly and wasteful.

A need for a better forecast is needed and more involvement with the upstream supplier is required based on the results obtained from both companies. The interviews made were somehow vague in many aspects but lead to the general idea of the research. The main purpose of this research was to know how they are working, how they perceive each other and the main barriers that can be seen from their partnering.

The most important issue of their relationship is the level of inventory. The main concern of this research is come up with a process innovation tool that helps upstream suppliers such as QUINRO to cope with large manufacturers and control their inventory levels. This research will further develop in the analysis/discussion section.
5. Analysis/Discussion: Importance of CPFR implementation in SME, incorporating all trading partners

5.1. Introduction

This section will intend to provide an analysis for CPFR implementation. It will discuss the main reasons that lie behind this concept and its importance in today’s industry. Research has been done about CPFR concept. This research lead to the reasons why it started, how did it started, and its evolution inside the retail industry. This industrial sector is of most importance because it is where this concept was developed and implemented. This supply chain process has been implemented in the industrial and retail sector to reduce cost, adjust to customer needs, be leaner, be more efficient, and avoid stockouts and unused inventory.

Inventory is the main reason why this research was developed in first place. Industries have many areas that affect their economy and influence their results in the long run. The main focus of this research was an industrial process that is being followed by downstream large manufacturers and retailers. This concept will be discussed and explained based on the actual problematic.

This section intends to explain the need for CPFR and why it will be useful for this research. Some examples of the retail industry that were addressed in the literature review section will be mentioned to point out key observations and help the study evolve around this concept. The results obtained from the interview and knowledge about the relationship between both companies will be analyze and discussed to come up with key observations. This last point will satisfy our last objective drawn in the introduction:

- Describe the main process needed for CPFR implementation in actual SME

This next objective will seal the research and will draw some vital conclusions based on this process innovation tool and the actual relationship of two firms working with unstable processes. The result will be a series of observations based on what has been researched about the process to minimize inventory levels on a SME supplier in a supply chain.

5.2. What is special about CPFR implementation
5.2.1. Partnering

CPFR stands for collaborative planning, forecasting, and replenishment (Fliender, 2003). This definition leads us to our first concept; partnering. Partnering according to literature starts when members of the supply chain collaborate to obtain results that otherwise would be more complicated to achieve (Fliender, 2003). Demand is becoming a more challenging issue due to the level of customization products are experiencing. Technology is also a catalyst to this problem because the products’ life cycle is decreasing at a higher rate. Partnering leads to a shared vision and objectives (Fliender, 2003). This last element helps reduce the risk by sharing all available information and actions along the members (Pallab, 2012).

Through close collaboration and exchange of information partnering becomes stronger. Partnering involves sharing of vital information, working together as one, developing new ideas based on win-win situations and specially creating stronger bonds which eventually lead to confidence between each other (Cassivi, 2006). This point is very essential according to CPFR implementation.

From the companies in the retail industry, the retail industry in Taiwan, the Liquor Control Board in Ontario, the Laminate Industry, and the case of Uganda we observe how partnering lead to shared objectives based on effectiveness and efficiency of the supply chain. The main reason partnering started was due to seasonality (Tenhiala, 2012). The level of demand of special promotions and seasonal products was a hard task to achieve. The supply chain of our case works on seasonal products which are the products experiencing unstable demand. These products lead to our main problematic of high inventory levels. By sharing risks and incorporating stronger relationships better planning can be achieved leading to more profitable results (Pallab, 2012).

Planning is an essential point of CPFR concept. Planning is the idea of developing a strategy that benefits the actors to obtain the most desirable results. Planning if implemented correctly creates leaner supply chains (Holmström et al., 2002). This action is of special importance in our MABE-QUINRO relationship. As the results show the relationship is based on emails, and indirect communication. No real strategies are shared according to the interview leading to weaker bonds and no real partnering. Collaboration is essential for obtaining success in every relationship. If collaboration is weak no real strategies or plans are developed causing deficiencies in the relationship and overall structure of the supply chain.
Some of the drawbacks of close a relationship is fear of backstabbing. Since partnering requires members of the supply chain to exchange vital information, there is always the risk of being backstabbed by partners who are not trustworthy (Fliender, 2003). This issue can be reduced by effective measures of communication. This issue will be further explained in the next subsection.

5.2.2. Communication

Communication is the main reason why humanity developed. CPFR is no stranger to this concept: if communication is not developed no real plans or set of objectives can be shared. This concept is closely related to partnering. Coordination and communication are the main tools for finding the best strategies and achieving goals that are beneficial to the members of the supply chain (Sari, 2008). Communication is a task that needs to be performed on a daily basis and through direct contact. This last issue is achieved through phone calls or by personal contact. Emails and other type of communication system of this type is a great tool for achieving communication but lacks of reliability. Written words have the potential of being misinterpreted. (Büyüközkan et al., 2012)

As described earlier the CPFR concept is mostly related to seasonal products, or as Fisher (1997) described, to innovative products. These products are based on seasonality, customization, trends, and sudden changes in the demand for several other reasons that are hard to control (Fisher, 1997). Although IT systems help members react to sudden changes by visualizing up to date information there is always the need to attend special and urgent circumstances (Holmström et al., 2002). By direct communication barriers are broken and better partnering can be achieved.

The companies described in the literature have little insight on the communication strategies they developed or shared with their partners. This issue is mostly theoretical but its application is essential and although it is not described in the literature as such we can assume that there was a level of communication to transmit the objectives, methodologies and plans that were intended to be achieved. The relationship between QUINRO and MABE was described earlier and it was observed through the results that there is no real communication. The use of email is the closest they have but still there is the need to make more efficient their communication attempts. The action of improving their level of communication can make more agile the supply chain to sudden changes in demand.

Backstabbing was described earlier in the partnering sub-section. Backstabbing can occur when vital information is shared and distributed to outside members who are willing to disrupt the
operations in a harmful manner (Fliender, 2003). Communication helps reduce this problematic due to the closeness that can be achieved through constant meetings and sessions. This closeness can create better conditions between the partners; if issues arise they can be discussed to come up with better solutions that can satisfy the members involved.

5.2.3. Forecasting and Replenishment

Forecasting is the most important aspect of the CPFR process. The literature described forecasting as the action of getting ahead of customer’s needs. This action is based on collaborative planning and shared set of objective. As described earlier forecasting is a tool that helps reduce uncertainty of demand through knowing customer’s trends and sudden changes in demand. (Holmström et al., 2002)

POS are of most importance in this matter since retailers have the latest information based on customer reaction. They represent the link between manufacturers and actual market needs. A historical log of past demand helps the supply chain to produce what is need and avoid stockouts and unwanted inventory. This last point is essential to our study since QUINRO’s level of inventory is high due to uncertain conditions of the market. Ordinary product such as the electric outlets are produced and distributed on a regular basis so no further study is required for this functional product. (Holmström et al., 2002)

In the retail section there was a case between Condis and Henke which is of vital importance to this study due to its relationship between retailer, large manufacturer and upstream suppliers. In this case upstream suppliers were involved in the forecasting action and the results prove to be beneficial at all levels of the supply chain. The results obtained from the case demonstrate how CPFR can work and be beneficial at all stages of the supply chain. (Tenhiala, 2012)

Results shown from our research companies demonstrate how forecasting is attended and developed. In most companies of the retail industry we observed how most of the times forecasting was made by only one partner instead of including all the partners involved (Tenhiala, 2012). This action is also seen between the relationship between QUINRO and MABE. MABE is the one developing the forecasts with the retailers instead of including all trading partners. This issue is of special importance in full CPFR implementation.
Forecasting requires a horizon that will inform the suppliers what actions are going to be required to achieve better results. This action reduces uncertainty since forecasting horizons details the amount of product needed at different times (Tenhiala, 2012). QUINRO and MABE share a horizon which is updated and revised by the final retailer. These horizons change constantly and in most cases they are not a representation of the reality.

Through an integrated forecasting automatic replenishment can be achieved. This is a very important aspect of further CPFR implementation. Through partnering and better communication strategies and forecast actions can be further developed to attain all important issues of all the partners involved. Automatic replenishment refers to the idea of stocking up the downstream partner with product that is needed based on levels of inventory or forecasting orders. These forecasting orders are the main concept that underlines CPFR process. As we have seen in normal supply chain relationships orders are triggered by customer needs. In CPFR a forecast is developed based on Point of Sales data and this forecasts become actual orders in a pull process based on a forecast horizon. Some examples of the companies researched showed that most of the times Point of Sales were not followed but instead forecasts were made based on the information from the distribution centers. This is somehow a mismanagement of the process but showed beneficial results. (Holmström et al., 2002)

Flexibility is an important issue for correct implementation of forecasting actions. Companies have their own internal and external structure that sometimes is hard to change (Cassivi, 2006). VICS established a guideline to follow for correct implementation but special conditions are always what differentiate one supply chain from another (Saha, 2012).

Forecasting requires an IT system that is capable of managing all the information needed. This information based on levels of inventory, production plans and forecasting horizons needs to be updated and visualize by all members involved. (Holmström et al., 2002)

5.2.4. IT implementation

Creating leaner and more effective and efficient supply chains requires up to date information. CPFR concept is based on getting ahead customers needs; partners involved need to react faster to seasonality and sudden changes in demand (Tenhiala, 2012). These actions lead to exchange of information and visualization at all times (Holmström et al., 2002). It is of most importance to rely
on a system that aids these needs by controlling, sharing and managing the information needed to perform (Holmström et al., 2002).

As seen from the QUINRO-MABE relationship platforms exist to share information, it is the quality of this platforms and integrative actions that are of must need to react faster to the market. QUINRO’s platform works only to visualize a forecast horizon but still levels of inventory and production plans are not integrated or the information is not fully updated. This is of most importance if automatic replenishment is going to be further developed. It is this idea that differentiates CPFR from other forecasting processes. Automatic replenishment as described the sub section of forecasting and replenishment depends on updated information based on production plans, levels of inventory and a forecasting horizon. This information is vital to create automatic supply to fulfill SKU’s that are needed. (Holmström et al., 2002)

IT systems not only involve actions between partners, they also incorporate internal levels of inventory, production plans, ordering actions and logistic services (Baalsrud et al., 2012). This type of system is not implemented in QUINRO so manual data is constantly used based on excel worksheets and notes. An integrated IT system permits full integration of all the areas involved from a pull system based on actual forecasting orders all the way to upstream supplier actions to replenish whatever is needed in QUINRO’s production plan (Cassivi, 2006). This point is emphasized in the case of the eastern European market. The need for a suitable IT system is essential for creating modular open source based collaboration (Baalsrud et al., 2012).

As seen from the companies, large quantities of information and the need to react faster to the demand leads to better IT systems to cope with these needs. The case of the copper laminate industry which managed innovative products which due to its lack of responsiveness lead to over inventory and waste material (Chung, 2005), the liquor board which became more complex due to uncertainty in demand (Miller, 2012), and the Taiwan retail industry which dealt with large quantities of information (Chang et al., 2007) lead to the implementation of CPFR process based on a more effective and efficient IT system. IT systems have the capacity to include information needed all the way from the actual forecasting order to the first supplier’s actions. This information creates leaner supply changes causing less time to market and a more flexible supply chain (Holmström et al., 2002).
IT systems are the backbone of the CPFR process. They are the tool that permits this collaboration to react better to the market and avoid the potential problems caused by the level of innovativeness of the products.

5.2.5. Pilot programs

Pilot programs started in the retail industry as a way of implementing a new unknown process with lower levels of SKU’s and partners involved. This action led to varied benefits in the companies that were researched. Overall we observed on the companies studied how pilot programs worked, and what were the benefits drawn from them. (Tenhiala, 2012)

According to the literature CPFR piloting started when demand became uncertain and there was a need to reduce level of inventory and stockouts. Most of the companies included only final retailers to avoid dealing with more variables in the process. (Tenhiala, 2012)

Pilot programs are essential so companies can adapt and adjust easier to changes in their process and internal structure. These programs showed benefits such as reduce levels of inventory, markdowns, stockouts, and cost reduction. After benefits were observe piloting led to full CPFR implementation in most of the companies’ involved. Some of the results drawn from these pilot programs were the need to include only seasonal products instead of standard and seasonal products. This is due to the level of uncertainty experienced in innovative products rather than functional products. (Tenhiala, 2012)

Developing Pilot programs requires close collaboration, a front end agreement, communication skills, full implemented IT system and reduce set of variable to achieve better control of the process. (Saha, 2012)

5.3. Key observations for CPFR implementation

What have we learn from our theoretical framework and our current situation between QUINRO and MABE? We came across important issues such as time to market, high inventory levels, stockouts and markdowns, that have lead these industrial sectors into a change in their process. This process achieved results that were of great need based on quicker more efficient response to changes in demand. As technology evolves and taste develops customization becomes an essential
variable into industrial planning. Customization translates into more complex supply chain structures. The more variables that come into play the more planning and strategy is needed to handle the supply chain structure (Tenhiala, 2012). Customization also translates into more partners involved. As products become multifarious more suppliers are involved to achieve the desire results. This action leads to a needed process to involve all actors working towards a same goal. Issues such as level of inventory, time to market, level of innovativeness, and flexibility are some of the many aspects that need to be addressed and controlled to achieve successful results (Fliender, 2003).

What can we draw from our findings? The need for pilot programs. As the research evolved some articles based on real company issues were reviewed and similar characteristics were found. All companies revealed the need to start CPFR implementation with pilot programs. These programs intend to work with fewer partners and less number of SKU’s to have a better control of the process. Since CPFR was a new process involving all SKU’s and all partners would be harder and more problematic to achieve. Pilot programs revealed good results after a few months implementation; better results were achieved on seasonal products than ordinary products. This result is of great importance because seasonal products are harder to control, customer behavior is uncertain and a need for responsiveness is essential. Ordinary products are replenished in a controlled way; there is no need to study customer behavior. (Tenhiala, 2012)

VICS came up with a set of steps towards CPFR partnering (Saha, 2012):

Step 1. Develop Collaboration Agreement
Step 2. Create Joint Business plan
Step 3. Create Sales Forecast
Step 4. Identify exceptions for sales forecasts
Step 5. Resolve and Collaborate on Exception Items
Step 6. Create Order Forecast (When the shared forecasts are done the orders can be set)
Step 7. Identify Exceptions for Order Forecast
Step 8. Resolve and Collaborate on Exception Items
Step 9. Order Generation (This step is the replenishment process)

These set of steps intend to lead firms into a better CPFR implementation based on front end agreements, create a business plan with an established set of objectives and goals, establish
partners’ responsibilities, specify how issues will be addressed and controlled, and set up the actions that will take place based on the CPFR process methodology (Saha, 2012).

Pilot programs need to expand when a level of comfortableness is achieved. More SKU’s are included and the supply network becomes more involved. Some results based on the VICI guidelines towards full CPFR implementation were addressed in the literature section (Tenhiala, 2012):

- Ensuring that forecasts are actually used in the planning of operations. This is done by observing the results.
- Expand pilot programs to include more steps and stock keeping units.
- Converting the process into an automated action.
- Incorporating more partners into the supply chain.
- Increase forecast detail

CPFR implementation requires stronger relationships. Real time communication, meetings, and conferences are the best way to achieve stronger partnering. This action leads to more trust, and confidence, and since CPFR process requires firms to share important information backstabbing becomes an important problematic. Partnering helps reduce the level of uncertainty since information is updated and centralized this allows firms to react better to sudden changes in demand or to respond more efficient to problematical along the supply chain. To achieve better partnering the same vision and objectives must be followed, this will lead to a better communication and coordination of the process (Fliender, 2003).

Forecasting is one of the most important issues of CPFR implementation. It requires a platform in where partners share information such as customer demand, adjustments to orders, transportation plans and cost between supplier, manufacturer, and retailer. This method enhances the visibility of the future sales and permits a more agile and leaner supply chain. Some of the factors affecting time in forecasting are trends, seasonality, random inputs, and cyclical products. Trends and seasonal products are the easiest to forecast but random inputs and cyclical products offer a more challenging forecasting. (Yang-Fang, et al. 2007)

IT systems play a very important role in CPFR. As described earlier they represent the backbone of the whole process. Without them information would be useless since partners could not have access to sudden changes or to market trends. In some companies we saw that large quantities of
information are being managed and controlled based on centralized and efficient IT system. These IT systems help the supply chain to share current up to date information that is essential for the process. (Holmström et al., 2002)

Cost is always an issue in every new process or product. Partners working in close collaboration in a process need to share the same risks and have the same infrastructure or at least have the essentials to work alongside. This is one of the problems of our research. QUINRO has basic IT infrastructure but there is a need for a better system. An efficient IT system reduces uncertainty dramatically since information is visible with a clear forecasting horizon and information is updated and centralized at any moment. SAP’s intention is to reduce this problematic between QUINRO and MABE.

Overall CPFR needs front end agreements to specify the objectives, roles, actions, forecasting methods, products involved and especially how are the responsibilities going to be managed in the partnering (Saha, 2012). These agreements combined with a centralized IT system in where levels of inventory, production plans and forecasting horizons are shared results in a profitable supply chain (Holmström et al., 2002). Still determination to grow as an SME is of most importance for survival in a supply chain where uncertainty is a daily’s work.
6. Conclusion

The main purpose of this research was to understand CPFR as a process innovation tool to help minimize the levels of inventory SME’s are facing. This purpose was aimed using QUINRO as a case company to understand its process and needs based on the concept of CPFR.

Through this research we have gain understanding on CPFR as a process that achieves results that resume in a leaner more efficient and effective supply chain management. This last section of the study will resume key issues regarding this process tool. The achievements of the study will be summarized and key elements will be emphasized to prove how this process works and the advantages that can be drawn.

Some issues concerning implementation and actual results will be addressed to obtain a balance between potential benefits and possible barriers of the process. It is important to remember the hindrances that lay underneath the process to make a better assessment of the possible actions needed for a proper execution.

In the study several companies were reviewed following the same characteristics, a large manufacturer and a retailer’s relationship in a supply chain. Punctual issues were obtained but still some important gaps were missing. This is why a subsection of further research is needed, to explore specific issues that are of great concern for our study.

6.1. Achievements

Efficient consumer response is a strategy in where retailers and suppliers work together in a cooperative manner to bring products to the final customer in a more efficient, faster, less expensive but still profitable way to the members of the supply chain (Corsten et al. 2005). Many solutions are out there in search for this strategy, one of them being CPFR (Tenhiala, 2003). CPFR is a process that stands for collaborative partnering, forecasting and replenishment (Fliender, 2003). This process innovation tool is generating cost reductions in large manufacturers due to short lead times and specially controls on the inventory levels (Caridi et al., 2006).

CPFR started in the food retail industry with small retailers who could not compete with large retailers. This process was needed due to high levels of customization, less time to market, a high
volume of SKU’s and constant market pressure. These actions lead to the development of an integrated supply chain between retailers and manufacturers. Through collaboration partnering became stronger and shared forecasts were developed. This forecasts based on customer trends helped production and distribution gain higher levels of accuracy and less levels of inventory. (Pallab, 2012)

According to CPFR literature this process involves actions of both retailers and suppliers on different elements of the process. The retailer works as a Point of Sales so he posses the most updated and actual information based on customer’s necessities and latest trends. This historical log serves as valuable data for generating forecasts. Based on this information a forecast horizon is developed and the orders become the forecast itself. Levels of inventory are also updated and visualize by both members of the supply chain to replenish whenever is needed. This is the supplier’s main purpose of this CPFR process. (Holmström et al., 2002)

With the development of better IT systems information was centralized, updated and shared in a more effective and efficient way. This allowed partners to visualize forecasting horizons, levels of inventory and production plans; this action lead to a reduce level of uncertainty. (Tenhiala, 2012)

The relationship of the partners described in the retail industry, the retail industry in Taiwan, the Liquor Control Board in Ontario, the Laminate Industry, and the case of Uganda brought important aspects such as the issues concerning implementation, and results obtained from the process. In most of these companies issues concerning a process change were due to high levels of information and amount of products that were handled. A need for faster and more flexible supply chain structure was needed. Results were favorable in most companies. Lower levels of inventory were obtained, more retail space was observed and a less number of stockouts were experienced. This research leads to key points regarding benefits and barriers for CPFR implementation.

These companies demonstrated the basic benefits that can be drawn from CPFR. Some other benefits from this process are time to market, precision in forecasting, efficient communication, less inventory thus resulting in less deterioration and obsolescence of products, cost reduction by eliminating the middle man amongst others (Pallab, 2012), early involvement of partners (Cassivi, 2006), more sales (Pallab, 2012) and benefits from a pull process (Cassivi, 2006).
The supply chain structure between QUINRO and MABE is in need for results like the ones achieved by CPFR. The problem faced by this relationship is the same as the one experienced by the initial retail industries that pioneered CPFR.

Implementing CPFR in a company can be somewhat revolutionary to some companies and for others it could just imply small adjustments to their process. Companies in need for better results in terms of lower their inventory levels, creating faster, more effective and efficient supply chains as well requires the characteristics described above in this sub section. Discovering the need is the most important step of the process. As we have seen throughout the thesis discovering the need implies knowing your inventory levels, are they high, or low, your ability to react to customers is fast enough, or are you being overthrown by other companies reacting better and faster than you. Other important issues is cost, are your products being purchased on time avoiding burnouts or stockouts, is the process reacting to customer needs based on seasonality and special promotions. These issues are important to keep in mind when considering a different strategy based on ECR.

According to VICS there are 9 steps to follow to reach full CPFR implementation. Not all companies are the same so the same steps with different results can be seen. Some of this issues are the example of the POS, some companies use POS as their source of information and some others use their distributions centers as their source of information. Every company needs to study their own process and see how the VICS 9 step guideline adapts to their needs.

Important issues need to be considered in order to obtain full benefits of CPFR which are correct partnering, a well established communication system, a functional IT system, developing a forecasting and replenishment system that is shared and planned by the partners involved and our most important issue which is developing pilot programs. Getting to know your trading partner, developing a front end agreement, establishing a real time communication system, adapting and developing an IT system that functions both in cost and productivity, developing forecasts that represent customer needs and trends and last of all, triggering a pilot program to adapt to the system and observe its characteristics and results based on a working structure rather than just a model are the pillar points of this CPFR strategy.

It is very important to understand the model, adapt it to one self-needs and work with the main aspects mentioned above which serve as a backbone for the whole process.
This section of achievements was intended to bring a summary of the most important elements that can be achieved following CPFR as a strategy and how it can be implemented.

6.2. Barriers

Implementing a new process is always a hard task to achieve. Companies must be flexible, open and have the resources necessary to adapt to the new structure and methodology that is trying to be employed. Some of the barriers for CPFR implementation are backstabbing, improper implementation due to lack of front end agreements, poor integration and standardization of information, and collaboration with partners that do not share the same objectives. (Fliender, 2003)

Not all results are perfect and some adjustments need to be made along the way. As we have seen POS is an important step in the forecasting activity. They possess the most accurate and updated information based on customers’ demands. The studied companies revealed a need to adjust this activity and use the information based on the distribution center’s activities. This is one example of how processes are always in need of adaptation. Some other companies revealed the need to work with a specific number of steps that VICS set up for implementing CPFR. This action resulted in less benefits observed but became easier for implementation. (Tenhiala, 2012)

Collaboration is also a matter to be discussed. CPFR requires full partnering and trust between members to achieve better results. This closeness can lead to leakage of information and backstabbing from one of the partners. This action is one of the reasons that a front end agreement need to be fully developed and agreed to avoid an undesirable situation.

Resources are our last barrier that relates to most SME’s in today’s market. Resources play one of the most important roles for CPFR implementation. This process needs IT systems that can manage large quantities of information and be updated constantly. IT systems help as a platform to share vital information such as levels of inventory, forecasting horizons and levels of production. Without proper resources an effective and efficient IT system becomes a hard task to achieve. (Baalsrud et al., 2012)

Cost is one of the most important issues that are linked to resources. Implementing and IT system such as SAP can be costly to implement for a SME. IT systems can be implemented in clusters such as the one described by Baalsrud et al. (2012) in the Eastern European article. This action can
considerably reduce the cost of implementing a proper IT system by just attacking specific areas of the company that are in need for improvement.

6.3. How were the objectives addressed during the study?

As a conclusion for our research we can assure that our objectives were addressed. Objective number one was to discover the need for CPFR as a process innovation tool based on actual market needs. This objective was attacked by establishing the early need in the retail industry based on large quantities of SKU’s involved in the process, high level of customization, more profitable retail space, lower levels of inventory, less stockouts and a leaner more effective and efficient supply chain.

Objective number two which was the evaluation of theories and findings of CPFR to determine key factors that characterize this process innovation tool was explained in the literature findings section. It was drawn the concept of CPFR which resumes in a collaboration based on planning and forecasting with replenishment actions. This concept leads to establishing a better forecasting horizon to reduce the level of uncertainty and have a more flexible supply chain to cope with sudden changes in demand. The reduction of bullwhip effect which is of great concern was also addressed in our study since our company is an upstream supplier. The creation of better relationships between partners to work based on share objectives and a centralize information system were also some of the main aspects related to the CPFR concept. The third objective was to review previous studies to obtain insights of real benefits and barriers of CPFR implementation. This objective was also addressed in the literature review section in were different companies such as Henkel, Sainsbury and Unilever amongst others dealt with an initial problematic based on a more efficient response to demand. Results were obtained and overall the pilot programs that were followed in the mentioned companies revealed actual CPFR benefits such as less inventory, more retail space and less stockouts. The forth and last objective which is of most importance was to describe the main process needed for CPFR implementation in actual SME. This objective was attacked by explaining the barriers for implementation such as resources, a well structured IT system, and better collaborative practices with members of the supply chain. This objective was attacked in a more smoothly way based on examples of companies that made pilot programs using this process, and explaining how they achieve it and in what aspects does it compare to our study between QUINRO and MABE. At the end the nine steps guideline established by VICS was addressed to review key issues needed towards CPFR implementation. As a result the study evolved naturally by describing the history of the process all the way towards the need for actual implementation, and key observations for proper execution in an uncertain supply chain structure to reduce the inventory level.
6.4. Further Research, Theoretical and Practical Implications, and Contribution

The study revealed the importance of a process that permits a better relationship between partners in a supply chain structure. Some key observations were obtained based from its actual benefits acquired from companies that worked piloting with this process. Most of the research was made focused on large manufacturers and final retailers, limiting its study for the rest of the partners involved in the supply chain structure. These upstream partners were not fully studied since CPFR cases mostly focus on end customer and large retailer. Some companies included smaller upstream retailers and prove to have better results, but still description was not made regarding benefits seen by the upstream suppliers. This is of most importance for this study because the main focus is on upstream SME’s in a complex supply chain structure.

This study is limited on this main upstream supplier aspect but based on the general observations obtained from the research we can conclude that CPFR is a process that achieves results in were lower levels of inventory are important, leaner supply chains are needed, and innovative products are of concern.

From a theoretical point of view the study reviewed several articles based on companies dealing with similar problematics to deal with today’s market demand. The real theoretical achievement was to support the opinions by those who already control the process and experienced favorable results in their process. Results such as lower inventory levels due to the high level of response, and the minimization of markdowns and stockouts are the most important theoretical contribution that this research concluded and suggested to SME’s facing similar problems.

QUINRO as several companies from the retail industry discover the need to change their process to react better to customer behavior, changes in demand, and customization of products. As a practical contribution the discovery of this need supported by an extended study of several companies that dealt with similar issues lead to a possible approach to change their process inside an erratic supply chain. The discovery of this need for change into a fairly new process called CPFR is the greatest contribution this study intends to transmit to readers interested in solutions for erratic supply chains with innovative products. CPFR is a process that needs correct implementation at every level of the company, managers such as the ones in QUINRO should follow the guidelines set up by VICS to avoid setbacks and obtain the benefits from the CPFR process.
As a suggestion for further research the level of partnering and collaboration in Mexico should be studied to understand how companies are working together and how they are growing based on win-win relationships. As a country with a high potential of industrial growth it is important to understand the processes that are being followed based on supply chain relationships. Still there are many SME´s struggling to compete and survive so further study needs to be focused on ways to achieve better results.
7. References


Lazcano, D., supply chain manager, QUINRO, interviewed 2012-04-28, during 1 hour.


Mabe, Acerca de Mabe,


Miller, C., CPFR Case Study: Liquor Control Board of Ontario,


Saha, P., Factors Influencing Broad Based CPFR Adoption,


8. Annex

8.1. Questionnaire

1. What is the capacity of the warehouse of finished product?
   300 m2 in racks 5 levels
2. How much of this space is designated to MABE
   30%
3. How many SKU’s are developed for MABE
   +0- 100
4. What is the frequency of distribution to MABE
   daily
5. What is SKU that is the most produced and what is its frequency of production
   Outlet 40,000 weekly
6. What is the frequency of copper orders from suppliers and what are the names of the suppliers
   Monthly, and there are many distributors, just depends on availability.
7. Who are QUINRO’s suppliers
   Different, most of the products bought from suppliers are spare parts and accessories
8. What is the relationship with suppliers? Is there a shared system to make forecasts or the orders is made whenever needed?
   The orders are open with a forecast of 12 weeks
9. What is the frequency of the orders from MABE, or how does it work?
   There is a forecast that is developed that goes according to clients data and every week a confirmation needs to be done.
10. How often are production plans developed, and what is the forecasting horizon?
    Every week the production plan is adjusted and there forecasting horizon is of 4 weeks
11. What is the name of the platform shared with MABE?
    SPL y SAP soon
12. What are the strategies that MABE has implemented lately with QUINRO to cope with actual demand?

None.
8.2. Interview

Lazcano:

Mira te escribo porque tengo unas dudas en cuanto a Mabe. Me acuerdo cuando estaba yo en la fábrica que me contaban que para poder atender a las órdenes erráticas de Mabe normalmente mantenían un stock de 2 meses o algo por el estilo. Ahora para mi tesis ando viendo el tema de inventarios y sistemas para reducir inventarios mediante planeacion colaborativa (CPFR). Se que Mabe anda trabajando ultimamente con este sistema. A mi me toco cuando trabajé en Mabe. Quinro esta metido en este sistema con Mabe? O como manejan las órdenes de Mabe, en cuanto ellos ordenan ustedes envían o comparten un sistema de informacion en donde ustedes estan al pendiente de sus niveles de inventario para planear mas sumistro? Como manejan Mabe tio? Ahi cualquier dato que tengas sobre Mabe estaría perfecto. Como quiera que sea el control que ustedes tienen con las ordenes de Mabe me serviría de mucho. Ando integrando toda la cadena de mabe, desde almacenes en Sudamerica y centroamerica hasta proveedores.

Saludos

Hola Lalo:

Mira, nosotros encontramos que con un inventario de seguridad de dos semanas, somos capaces de absorber las variaciones de demanda de Mabe. Para saber que es lo que tenemos que fabricar nos basamos en los pronósticos que nos mandan. Los pronósticos a un mes están dados por día, los de los siguientes tres meses están dados por semana y para el resto de un año están al mes. Se actualizan constantemente y a veces varían de forma importante, sin embargo como te digo la mayor parte del tiempo dos semanas de inventario de los números de parte pronostiados generalmente nos permiten mantenerlos surtidos. Ellos nos piden casi siempre producto para consumo de una semana. Sabemos que de su sistema de control actual están migrando a SAP. No se cuando será efectivo y en que nos afecte, pero por el momento vamos como te dije antes.

Espero que te haya contestado tu pregunta.

Saludos

Atte

Lazcano, D.