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COLLABORATING WITH SUPPLIERS FOR A SUCCESSFUL SUPPLY CHAIN

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## **ABSTRACT**

The purpose of this study was to investigate the importance and uses of supplier collaboration to improve the supply chain. Through the study of CPFR and data synchronization methods, different types of collaboration forms and their concerns were examined. Furthermore, steps to implement a successful supplier collaboration program were provided, as well as a procurement case study example involving the Procure-to-Pay process and supplier rationalization. The principle conclusion of this thesis reveals that supplier collaboration is essential for businesses to meet challenges and achieve top performance.

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## **Chapter 1**

### **Introduction**

Every year researchers at Gartner Inc. search out the most innovative, forward thinking supply chain companies. These leaders are praised for their “day to day performance while solidifying the foundation of future growth” (Hoffman, 2012.) and are defined by several significant characteristics. Most importantly, Gartner’s list of supply chain trendsetters are demand driven, combining the efforts of supply, demand, and product management together to “manage demand rather than just respond to it” (Hoffman, 2012.). This circular, networked model allows a company to “respond quickly and efficiently to opportunities arising from market or customer demand” (Hoffman, 2012.) in a way that the old linear, push supply chain model cannot. By instituting this mindset throughout the supply chain, demand driven leaders are racing past their competitors and striving to go “beyond best practices to build a foundation for growth and continual learning.” (Hoffman, 2012.) This includes having an “outside-in focus” which centers supply chain design on the customer experience and works its way back upstream. Both operational and innovation excellence is considered when developing unique supply chains for new products. When measuring metrics, the best companies know that the whole is greater than the sum of its parts, keeping in mind that the purpose is to fix problems, advance to the next level and make the entire system better. Finally, Supply Chain frontrunners are praised for their commitment to developing integral extended networks. Through the design and management of the supply chain system around “customer’s customers, supplier’s suppliers, logistics providers, contract manufacturers and third party warehouses” (Hoffman, 2012.) trailblazers are able to “orchestrate a set of activities across the network, align goals based on each player’s value



proposition to result in the desired outcome from that network – the profitable delivery of final product to the customer.” (Hoffman, 2012.) The foundation to create a competitive network and implement a mindset of innovation is through collaboration. (Hoffman, 2012.)

This research seeks to promote the benefits of establishing collaborative relationships with suppliers through an education of the importance of collaboration, the different types that exist, cultural concerns, how to implement a successful collaboration program and by providing a collaborative procurement example.

## **Chapter 2**

### **The Importance of Collaboration**

Like never before has there been such an imperative need within the global business environment to make joint decisions and share information in order to succeed. Today success is measured by the strength of collaborative partnerships between buyers and sellers to achieve business objectives. C. John Langley, Jr., professor of supply chain management at Penn State University, describes the importance of this movement stating, “Long term, there's a right way to do business, and it very definitely involves having collaborative relationships with all parties in the supply chain.” (Douglas, 2004.) Early on it is important to recognize that a collaborative relationship must benefit everyone. “To be effective long-term, you have to treat your customers like customers, and treat your other partners, including suppliers, like customers as well. Everyone in collaboration has needs. If you don't agree in the beginning to try to meet everyone's needs, your collaboration won't stand much of a chance to succeed.” (Douglas, 2004.) This collaborative relationship involves not only sharing supply chain details in order to solve problems, but also “communicating forecasts and plans, working closely with partners to ensure that the right goods flow in the right volumes at the right times, including transportation.” (Douglas, 2004.) It is important to note that collaboration goes further than the typical SRM model, which only involves interacting in a one-way communication channel where the buyer dictates supplier contracts, terms, service levels, and delivery requirements. Instead of this master-servant relationship, collaboration seeks to align the goals of buyer and seller in efforts for both parties to “reduce overhead, cut costs, simplify business processes and improve the alliance to ensure

growth and increase value”. (Engel, 2012.) By opening up a two way line of communication, both buyer and seller are able to engage as allies. (Engel, 2012.)

Table 1 below outlines the advantages to forming stronger collaborative relationships with suppliers opposed to using the traditional SRM approach.

Table 1. Characteristics of Buyer-Seller Relationships

	<b>Traditional Approach</b>		<b>Collaborative Approach</b>
Suppliers	Multiple sources played off against each other	➔	One of few preferred suppliers for each major item
Cost sharing	Buyer takes all cost savings; supplier hides all cost savings	➔	Win-win shared rewards
Joint improvement efforts	Little or none	➔	Joint improvement driven by mutual interdependence
Dispute resolution	Buyer unilaterally resolves disputes	➔	Existence of conflict-resolution mechanisms
Communication	Minimal or no two-way exchange of information	➔	Open and complete exchange of information
Marketplace adjustments	Buyer determines response to changing conditions	➔	Buyer and seller work together to adapt to changing marketplace
Quality	Buyer inspects at receipt	➔	Designed into the product

(Monczka, 2002.)

The changing business environment has made it more important than ever for companies to embrace a higher form of SRM and commit through time, money and resources to collaborate with their suppliers in order to succeed. Since the global financial collapse in 2008, many commodities and services have switched from a once heavy demand, low supply situation to “widespread cost containment and cost reduction initiative, which in turn has resulted in less

demand and over supply.” (Engel, 2012.) As a result many companies have changed their approach to sourcing, currently focusing on supply solvency, reliability, risk mitigation and quality along with pricing. Supply chain leaders are now expected to find greater cost savings in new areas such as legal services, marketing, advertising, financial services, facilities, and professional services. There is also a greater importance in the role of logistics in sourcing decisions. Because of globalization’s complexity, factors such as shipping times, government and regulatory delays, and natural disaster planning must be taken into consideration. Additionally, having the right procurement technology and working with suppliers who can “incorporate technology efficiencies in the day-to-day ordering, shipping, and inventory activities” (Engel, 2012.) will allow your staff to move away from transactional tasks to more strategic issues. On top of all that, following the Sarbanes-Oxley Act of 2002 (SOX), companies are “incorporating additional focus in other processes and control areas such as supply chain management processes, sourcing, and supplier relationships” (Engel, 2012.) as apart of their SOX transparency reporting reviews. These business environment complexities should be addressed with suppliers to “ensure compliance, price verification, and security issues of theft and fraud”. (Engel, 2012.)

## Chapter 3

### Types of Collaboration

#### CPFR

CPFR is a collaborative effort to coordinate planning, forecasting, and replenishment across the supply chain. In doing so, multiple trading partners are contributing their intelligence and data openly to find the best sales, marketing, and category management practices to increase the efficiency and accuracy of the planning and execution processes. These tactics ultimately benefit the customer by increasing availability and the suppliers and producers by reducing inventory, transportation and logistics costs. As can be seen in Figure 1, the CPFR model is not linear, but an intricate wheel of nine business processes that can begin at any point. (Smith, 2006.)

Figure 1. CPFR Model



(Smith, 2006.)

The most important ingredient to making a CPFR system successful is to establish a relationship of trust and commitment when sharing confidential information. Both parties should be dedicated to collaboration, “the process of shared creation,” to create a joint business plan with shared responsibility and risk. Data should be openly shared to create accurate sales forecasts and exception resolutions. Order forecasts and their exception resolutions should be agreed upon. All this information then contributes to an effective generation of replenishment orders. With thorough analysis, strategy and planning, execution, and supply and demand management, CPFR can succeed across the entire supply chain. (Smith, 2006.) Larry Smith outlines ten elements a company must commit to before successfully utilizing CPFR:

1. Seek long term, holistic solutions, not quick or myopic fixes.
2. Reconcile conflicting goals and metrics.
3. Pursue inclusive problem solving; do not depend upon “experts” who don’t have accountability for the business.
4. Instill collaborative processes that encourage idea creation, shared problem solving, and high adoption rates across organizational boundaries.
5. Use a disciplined and iterative set of methodologies such as CPFR, SCOR, or Six Sigma to help teams define issues, root causes, and solutions.
6. Develop a culture of continuous improvement, particularly at the customer-facing associate level, because those employees are most likely to know what’s needed.
7. Create clear accountabilities and assign authority with a focus on core business processes rather than on traditional organizational “silos” or loyalties.
8. Commit to technology enablement for execution, communication, exception management, and root-cause analysis.

9. Reduce decision cycle times.

10. Implement rapidly. (Smith, 2006.)

West Marine kicked off its first CPFR program in January of 2001 after a disastrous acquisition of E&B Marine in 1996. “Sales fell by almost 8 percent, and peak-season out-of-stock levels rose more than 12 percent compared to the prior year. West Marine soon felt the effects on the bottom line: After six years of steady growth, net income dropped from \$15 million in 1997 to not much more than \$1 million the next year.” (Smith, 2006.) It became apparent that the acquisition of E&B only aggravated West Marine’s existing supply chain problems. A new execution team was hired to tackle the main problems surrounding distribution centers, transportation, replenishment, and supporting systems through the implementation of CPFR. For instance, West Marine was having issues with the large vendor Interlux before they both began to utilize the CPFR system. By disregarding West Marine’s sales forecasts, Interlux cost them more than \$1 million in sales due to poor production planning, late shipments and product stock-outs. By working together through monthly meetings among West Marine and Interlux’ merchandise planning, logistics, and customer relations departments, they were able to improve on time shipments by fifty-five percent and increase sales by seventeen percent. Across the board West Marine was able to improve its key performance metrics with ninety-six percent in stock rates and eighty-five percent forecast accuracy. Additionally, their distribution center performance improved greatly by being able to better sequence inbound and outbound shipments, manage labor requirements using Cubiscan to fill cartons to eighty-five percent capacity, and utilizing the most efficient product combinations to complete pick lists and execute shipping operations. “For West Marine and many of its key suppliers, CPFR is a core business process that provides a path to accelerated performance improvement. Its role is similar to the organizational improvements wrought by corporate and supply chain programs in quality improvement, lean/Six Sigma, the

Supply Chain Operations Reference (SCOR) Model, and sales and operations planning. Such programs provide specific process maps and an integrating philosophy that help organizations to become more adaptive and performance-driven.” (Smith, 2006.) Just two years later, West Marine was ready to take on its largest competitor, Boat U.S., making a much smoother merge than before. In sixty days, West Marine was able to integrate the new distribution centers and in-store systems, effectively experiencing no supply problems in their warehouses or stores, as well as achieving financial growth in the first year. By 2004, West Marine had over two hundred CPFR relationships to support their new a pull demand model, with more sophisticated use of technology and an overall shift toward a supply chain oriented perspective. (Smith, 2006.)

In September of 1995, Wal\*Mart and Warner Lambert began a collaboration effort that included “a number of retailers, manufacturers, logistics providers, consultants and technology providers working to develop a model for guidelines and industry roll-out.” (Andraski, 2012.) The resulting year’s worth of collaboration meetings targeted problem areas and suggested pilot programs to produce solutions. The opportunities for improvement and the resolutions included:

Table 2. Wal\*Mart and Warner Lambert Collaboration Initiatives

Problem		Solution
Manufacturers’ and retailers’ forecasts are not integrated	→	Single forecast across the value chain
Manufacturers’ are not building to retailer demand	→	Pre-notification of issues in meeting consumer demand
Orders are mortgaged against on-hand inventory only	→	Allocate supply chain capacity through production vs. on hand – inventory
Collaboration occurs only after the fact when it is too late to solve problems	→	Common goals and metrics
“Us” vs “Them” attitude	→	Capitalize on trading partner strengths

(Andraski, 2012.)



Consequently Wal\*Mart and Warner Lambert initiated a Listerine pilot, which improved the store service levels from eighty-seven percent to ninety-eight percent, effectively reducing inventory by two weeks and boosting Listerine Sales \$8.5 million. (Andraski, 2012.)

Wegmans and Nabisco encountered a similar collaboration effort with shared success. In February of 1998 the two companies sent team members to meet and, over the course of several months, collaborated to create a joint business plan, establish and revise a combined sales and order forecast, evaluate delivery execution and resolve ongoing problems. Their first pilot focused on the twenty-one SKUs of Planters Brand products over six months. The pilot ended as a huge success, improving unit sales thirty-six percent, dollar sales forty-seven percent, gross profit thirty-nine percent, and percent sold on promotion forty-three percent. As a result, the two companies decided to continue the CPFR program with Nabisco's Milk Bone dog snacks. Despite the nature of the pet snack business experiencing low annual volume sales, the program delivered a ten percent gain. (Andraski, 2012.) Mike DeCory explains the results stating, "It was like spreading magic dust on the products to be included in CPFR and watching sales and market share increase." (Andraski, 2012.)

### **Data Synchronization**

In an age of globalization, connectivity has changed the nature of business, binding commerce and trade with the constant flow of information. With many now using terabytes, "connectivity to processes and information in big bytes is considered a big competitive differentiator." (Managing Data, 2008.) Increasingly global supply chains are at risk of poorly judging the accuracy in collecting, processing and saving this data. Many feel obligated to make sense of the overwhelming amount of information, even when wasting time and money to analyze inaccurate data. The expression "garbage in – garbage out" holds true when trying to utilize results from faulty numbers. (Managing Data, 2008.) It is estimated by Boston-based AMR

Research group that “manufacturers and retailers will squander \$2.1 billion over the next five years on business-to-business initiatives that fail to realize their potential largely because of a lack of data synchronization.”(Harrington, 2006.) Similarly in a study entitled “Garbage at the Speed of Light” conducted by the Grocery Manufacturers of America's Food Marketing Institute, thirty percent of item data in retail catalogs is incorrect and the cost to correct each catalog error ranges from \$60 to \$80 per error. Additionally, sixty percent of all invoices contain errors where the cost to reconcile each invoice costs \$40 to \$400 and forty-three percent of incorrect invoices result in further reductions. In summation, the Grocery Industry loses 3.5 percent of sales due to inaccurate data, which adds up to \$40 billion lost in grocery supply chain inefficiencies each year. Many other industries are experiencing similar strains on the effectiveness of their supply chain execution systems. (Harrington, 2006.) Nigel Bagley, head of customer e-business at Unilever states, ““Never before have we needed data accuracy the way we need it today.” (Harrington, 2006.)

The solution lies within Global Data Synchronization (GDS), which was established by the Global Commerce Initiative in efforts to improve consumer goods supply chain through the implementation of best practices and standards. “When data is properly synchronized, all members of the supply chain can identify the same item in the same packaging configuration. They can therefore determine the most advantageous procurement terms, the item's complete procurement history, the total demand, and potential substitutes and equivalents” (Harrington, 2006.) Utilizing GDS aims to increase sales by decreasing the number of stock outs linked to a lack of data synchronization, promote productivity by reducing redundant data entries in multiple software systems, and increase cost savings with less data errors. “When data is properly synchronized, all members of the supply chain can identify the same item in the same packaging configuration. They can therefore determine the most advantageous procurement terms, the item's

complete procurement history, the total demand, and potential substitutes and equivalents.”

(Harrington, 2006.)

The Navy learned this lesson first hand when reconfiguring its medical supply. Unlike pharmaceutical items that each have federally mandated industry numbers to identify each drug, no standard existed for medical and surgical products at the Navy’s Defense Supply Center, which made it very difficult to identify which products were required for a ship’s mission. The process of collecting this information involved a great deal of manual research and continuous discussions with the Navy. When facing the issue of cross-referencing equivalent products, the efforts of fifteen people and two days discovered that of the 995 medical items the Navy had ordered, 224 were unidentifiable and 205 were obsolete within their system. In response, the Federal Data Synchronization Working Group was created to alleviate these issues and synchronize health care product information. Successful data synchronization has since saved the Navy more than \$25 million by properly identifying its medical product purchases. (Harrington, 2006.)

“Successfully addressing data synchronization is not an easy task. It involves synchronizing information internally and with trading partners, as well as establishing a process for trading partners to stay in sync over time.” (Harrington, 2006.)

The global retail marketing manager at Global Exchange Services provides ten tips to move a company toward successful Global Data Synchronization. (Catalano, 2004.)

1. Get educated by understanding standard metrics for your specific industry.
2. Identify your underlying business needs, such as the number of items, trading partners and internal systems that are essential to your operation.
3. Improve your ROI by reducing product introduction cycles and incorrect invoices.
4. Create a data management strategy that includes the people, processes, and technology involved.

5. Be organized and prepare for changes.
6. Implement. Programs such as UCCNet of the Uniform Code Council provides product and trading partner information in a “global registry electronic library”.
7. Once your internal data is validated against industry standards, communicate internal data with your partners.
8. Publish data.
9. Build a plan for ongoing alignment with trading partners.
10. Implement the right solution by creating a basic road map to promote continuous improvement. (Catalano, 2004).

Once a Supply Chain Execution software implementation is chosen, such as SAP or Oracle, the company can utilize ERP to manage inventory, warehouses, transportation and suppliers. Increasing supply chain visibility will encourage optimization efforts to achieve cost savings. Sophisticated software is able to assist in “streamlining manufacturing and distribution from the point of source through consumption using integrated solutions that optimize inventory flow by facilitating collaboration among customers, suppliers, and trading partners.”(Engel, 2012.) Take the collaborative partnership between Wal\*Mart and P&G for example. By working together, the two large corporations created a software system that linked Wal\*Mart’s distribution centers with P&G through real-time information. Now P&G has greater insight of its consumer demand by being able to track its products on Wal\*Mart's shelves through data provided by satellite links to scanners at the registers. Both parties benefit; P&G is able to manufacture more efficiently while providing Wal\*Mart with efficient logistics and steady inventory. (Malone, 2005.)

## **Chapter 4**

### **Collaboration Concerns**

Before addressing how to go about beginning the collaboration process, it is important to note several cultural issues that may arise when initiating collaborative efforts.

#### **Trust**

The key factor that can make or break the success of a collaborative relationship is trust. On some level it is natural for distrust to exist between buyers and sellers when suppliers are inclined to charge more for their products while buyers want to “lower the pricing hammer”. To establish any type of beneficial collaborative relationship, this attitude must change. (Engel, 2012.) According to Ed Frazelle, president and CEO of the consulting firm Logistics Resources International, “Trust, unfortunately, is harder and harder to come by as the foundations for business ethics are crumbling, the attacks on business information systems are increasing, and the individuals between whom trust is established in organizations are in positions for shorter and shorter tenures.”(Douglas, 2004.) Concerns such as these, as well as poor data accuracy and forecasting, incompetence, misuse of information, dishonoring commitments, and over protectiveness of non-sensitive data, all risk unsuccessful collaboration efforts due to lack of trust. The easiest way to offset distrust among partners is to begin by developing face-to-face relationships. Frazelle advises that people are more likely to trust someone when they’ve met and shared a cup of coffee together opposed to just talking over the phone or through email. Additionally, it is important to accept that building relationships of trust takes time. The process of working with individual suppliers should be taken in a strategic manner, step by step. Frazelle

goes on to instruct, “You build success one vendor at a time. Then you go to the second vendor and try to use those same guiding principles again. Before you know it, you've built a family of suppliers that have all mutually benefited from that relationship.”(Douglas, 2004.) Once a successful pilot is completed, suppliers will understand first hand the benefits of utilizing a trusting, collaborative relationship. Most importantly it will encourage the use of collaboration throughout their multiple stores, regions, or SKUs managed in the relationship.(Douglas, 2004.)

### **Control**

The second issue comes from the buyer’s fear of losing control. “Buyers have traditionally enjoyed the feeling of control over their suppliers stating, ‘Do it my way and you will fit nicely into our supply chain plans’”. (Engel, 2012.) However, when a buyer is asked to make a difficult change, “control must give way to collaboration” and they must be persuaded that the change is essential for both to succeed. (Engel, 2012.)

## Chapter 5

### Implementing a Successful Collaboration Program

The following steps, as shown in Figure 2 below, provide a guideline to implement a beneficial collaboration program with suppliers.

Figure 2. Collaboration Implementation Steps

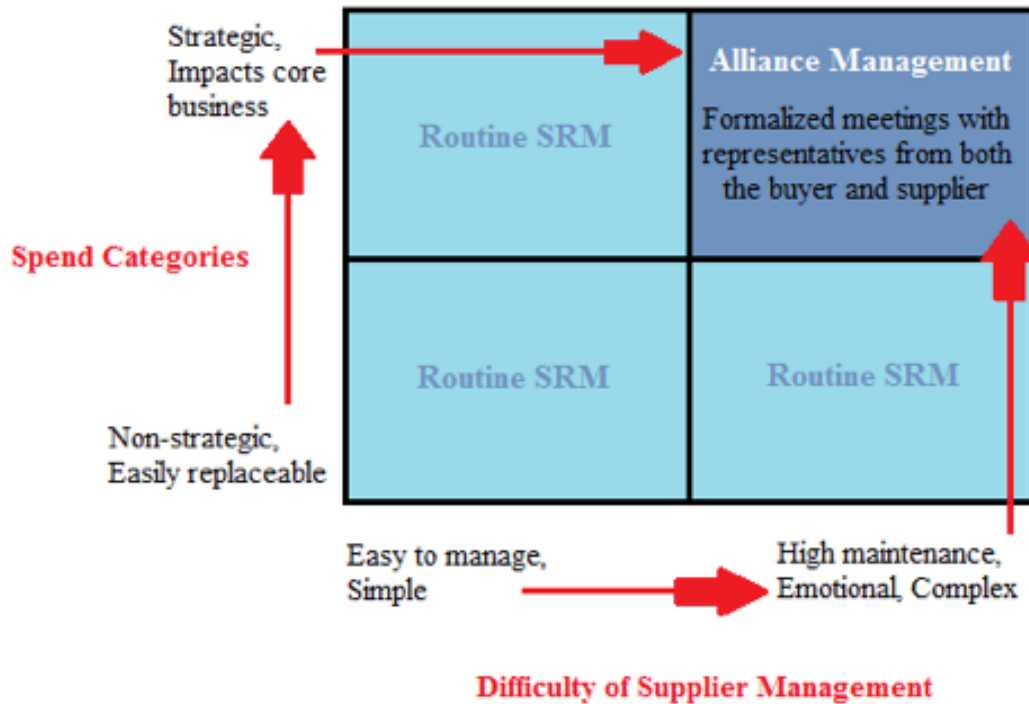


(Engel, 2012.)

#### Step 1. Define and Segment Core Relationships

It may not be economical or feasible to engage every supplier in a collaboration program, which is why it is important to define the key suppliers that are “critical to the business needs and warrant the time and resources involved”. (Engel, 2012.) To begin the collaborative process, a company must make an internal analysis of its suppliers, sorting them into segments based on their business objectives, and creating interaction models with a clear plan to engage specific supplier segments. (Schroder, 2012.) First it might be useful to organize suppliers into one of the four quadrants as listed in Figure 2. This matrix analyzes a supplier’s spend category and difficulty of supplier management. Those who employ both strategic spend, that impacts the core business, and a high level of difficulty to maintain should be considered for collaboration efforts. Suppliers in the remaining three categories are best dealt with through routine SRM programs. (Engel, 2012.)

Figure 3. How to Define Core Relationships

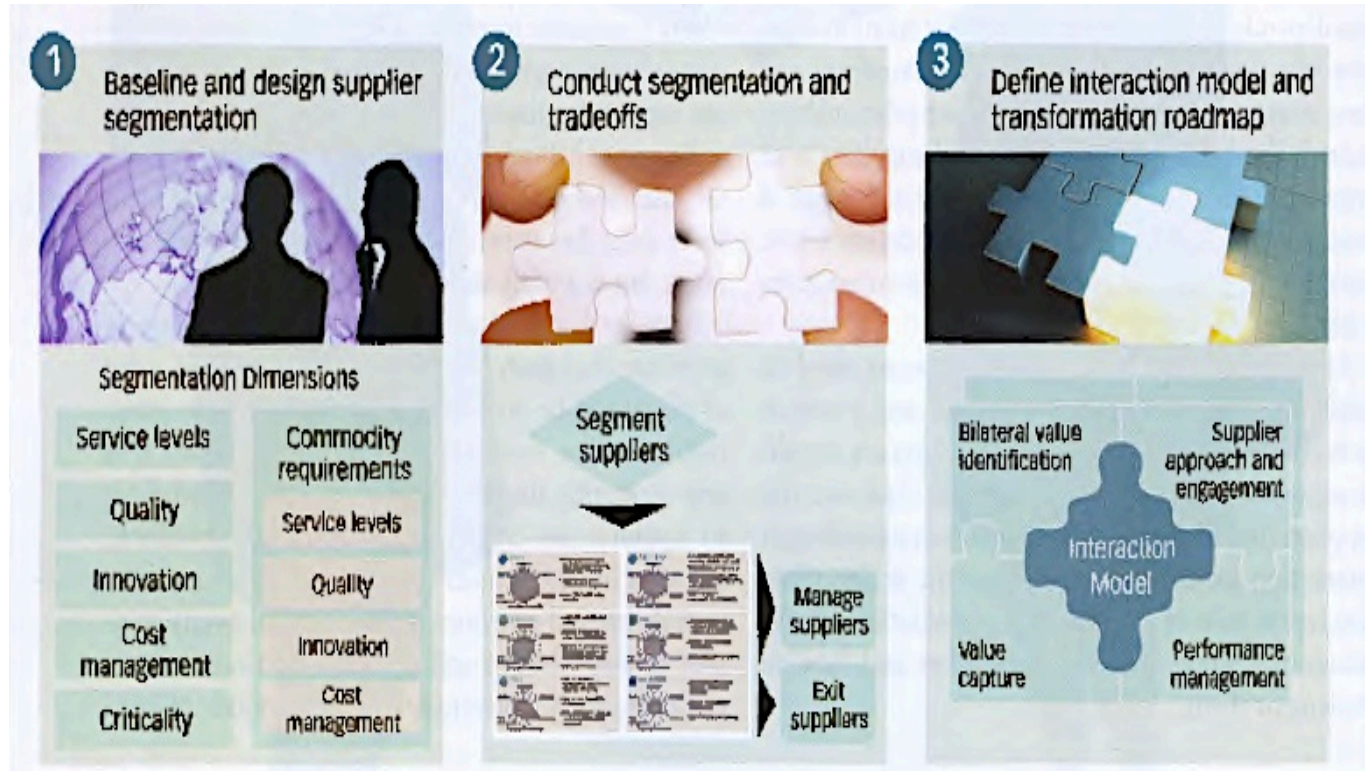


(Engel, 2012.)

While supplier management always aims to achieve lower costs, it should also strive to find new ways to find more value and optimize its effectiveness through various business objectives. These may include “reducing nonconformance, improving customer service, or lowering supply risk exposure”(Schroder, 2012.), all of which can be translated into business unit and individual directives. By looking outward and inward, a company can evaluate a supplier’s ability to perform the needs of its priority business objectives. Figure 4 demonstrates the process of first segmenting the previously identified key suppliers based on internal company needs, secondly measuring supplier capability to perform the objectives, and thirdly creating unique interaction and action plans to work with each supplier segment. (Schroder, 2012.)



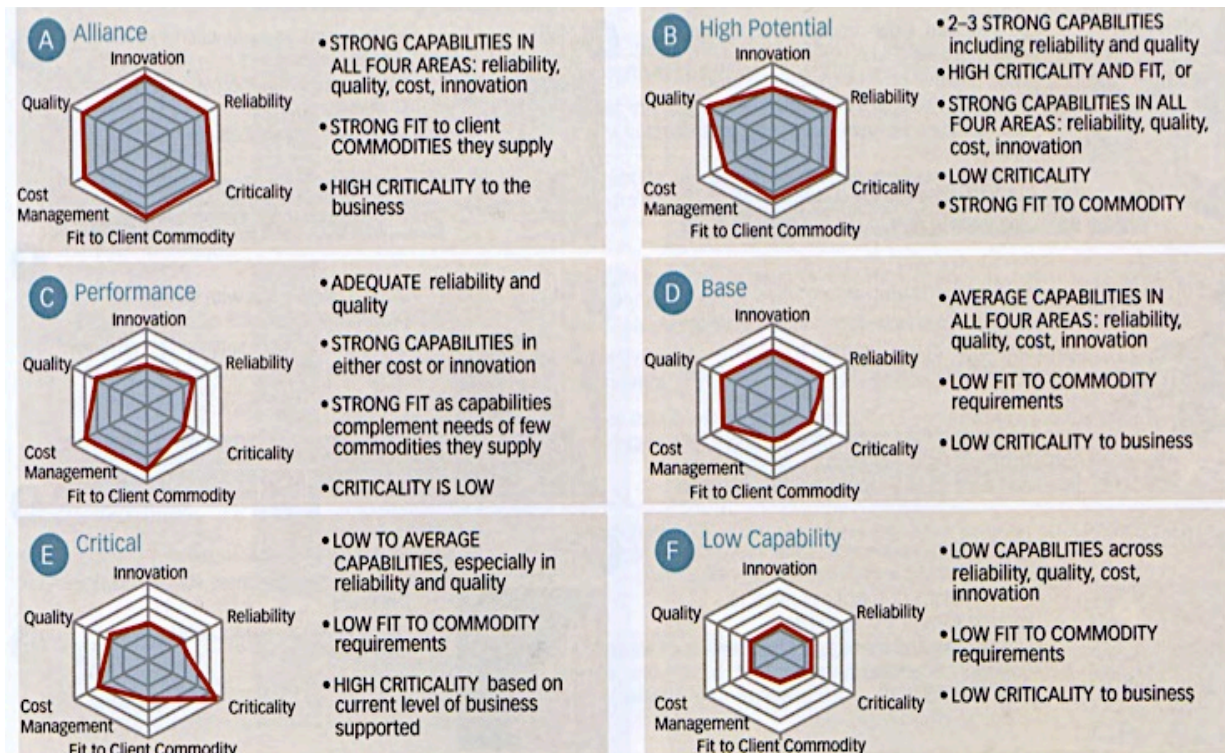
Figure 4. Three Step Process for Supplier Segmentation



(Schroder, 2012.)

Figure 5 is a sample “bottom up” analysis that clusters suppliers with similar characteristics. Suppliers are evaluated on their performance in the areas of reliability, quality, cost, and innovation, as well as their fit to client commodities and criticality to the business. As can be seen, the span of capabilities ranges from Alliance, with strong indicators in all four areas of reliability, quality, cost and innovation, strong fit to client commodities, and high criticality to the business; to Low Capability, with low capability in all four areas, low fit to commodity and low criticality. (Schroder, 2012.)

Figure 5. Supplier Cluster Profiles



(Schroder, 2012.)

Next, Figure 6 shows a “top down” clustering” that defines which segments have the most important strategic implications.”(Schroder, 2012.) For instance, deciding to develop closer partnerships with suppliers who are strongest in the ideal areas and encouraging the weaker suppliers to improve. Suppliers that underperform in every area should be re-evaluated or eliminated. The suggested action plans below demonstrate how a company might move forward with the six types of supplier segments. (Schroder, 2012.)



Figure 6. Supplier Segment Objectives



(Schroder, 2012.)

It is also effective to segment your product lines in a similar manner. By grouping products with similar objectives, whether the prioritizing need is innovation, reliability, or cost, you will be able to “segment the needs of certain groups of products along with the capabilities of certain groups of suppliers.”(Schroder, 2012.) Instituting segmentation requires a large internal collaboration and shift of multiple supply chain functions to achieve these goals.(Schroder, 2012.)

Once suppliers have been segmented and the most capable suppliers have been identified, interaction models can be used to develop beneficial, collaborative relationships. The interaction model outlines how the company should interact and engage with that supplier, including “roles

and responsibilities, process maps, and decision guidelines.”(Schroder, 2012.) Each supplier segment should have its own interaction model based on the strengths and goals of the relationship. Developing interaction principles will also pinpoint how to move forward in a way that is different than before. “These principles should be associated with specific measures of desired outcomes, such as fill rate, on time in full delivery, or end-to-end lead time.”(Schroder, 2012.) Take Figure 7 for example. Each objective on the left hand side is followed by specific interactive step to achieve that goal. (Schroder, 2012.)

Figure 7. Example Organization of Interaction Principles

	Interactions	Description
<b>1</b> <b>Bilateral Value Identification</b>	1.1 Form Internal Teams	Defines the level and mode of internal participation across functions to identify development opportunities between company and suppliers
	1.2 Identify Supplier Sources of Value	Defines the expectations for supplier improvement across service levels, quality, cost management, and innovation requirements
	1.3 Develops Company's Value Proposition to Suppliers	Identifies the value proposition levers company can leverage to attract suppliers' interests in partnering for future collaboration opportunities
<b>2</b> <b>Supplier Approach and Engagement</b>	2.1 Define Approach to Engage Supplier	Based on the bilateral value identification, defines the nature of relationships company wants to engage in with suppliers (collaborative vs.competitive) and establishes internal alignment on how to engage suppliers
	2.2 Engage Suppliers	Through multiple communication channels, engages suppliers to review performance, and identifies improvement and collaboration opportunities
	2.3 Define Programs to Capture Value	Defines the commitment requirements expected from suppliers across segments to capture sources of value
<b>3</b> <b>Value Capture</b>	3.1 Execute Sources of Value Programs	Defines guidelines aimed at measuring supplier progress across predefined sources of value such as innovation or improvement programs
<b>4</b> <b>Performance Management</b>	4.1 Manage Supplier Performance	Defines the tools and frequency by which the company will track, measure, review, and reward supplier performance across service levels, quality, cost, and innovation requirements

(Schroder, 2012.)

Naturally, once the interaction plan has been established, it is easy to implement action plans with individual suppliers to achieve collaborative aims. “The segment interaction model

and supplier-specific action plans are much like a contract, but rather than outline a legal arrangement, they pragmatically outline the operational nature of your relationship: who is responsible for which activities, how those activities are measured, what process adjustments lead to maximum savings, how innovation performance will be measured, who will participate in internal client cross-functional teams, and how often reviews will be performed.”(Schroder, 2012.) Controlling these components and implementing supplier segmentation and supplier interaction models allows a company to minimize risk and gain the greatest value within the supply chain. (Schroder, 2012.)

### **Step 2. Form a Collaboration Team**

While various online and third party programs exist to achieve the logistics of the supply chain SCOR model, or the plan, source, make, deliver, and return steps in perfect order, the most imperative part of planning a collaboration attempt is the team of individuals who will execute the objectives. (Malone, 2003.) Team members should be chosen from both the supplier and buyer side and from various departments that will be affected. They should provide multiple perspectives that both challenge and support the program. (Engel, 2012.) By assigning individuals defined roles playing to their strengths, each player’s contribution can be great, and the combined teamwork can have the most successful effect.(Malone, 2003.) ARC Advisory Group’s Supply Chain Analyst describes it best using a football analogy, “All partners need a clear set of objectives that they can focus on, but their actions have to be coordinated toward the overall supply chain goal. It's great to have a 'superstar' on your team, but a stellar individual performance loses value when the ball is dropped on handoff or when the next player doesn't know what to do with the ball when they receive it. Winning the game requires an overall plan that clearly identifies who will do what and when they will get it done. For such a plan to

succeed, individual commitments must also be based upon careful consideration of how each person will execute their respective tasks.”(Malone, 2005.)

### **Step 3. Share Agreement with All Members**

After all negotiations have been completed and the final terms have been decided upon, it is important that each team member receives and understands the contractual agreement between the two parties. “A lack of understanding among team members as to exactly what’s involved in the agreement results in confusion and non-focused meetings.”(Engel, 2012.) Without full knowledge of the specifics of the agreement, the performance objectives, and the required commitment levels, team members will not be able to form a successful alliance. (Engel, 2012.)

### **Step 4. Constantly Assess Satisfaction and Progress**

At each collaboration meeting, forming an open line of communication should be the top priority. By addressing the level of satisfaction and tackling problems, team members can move toward fixing the issues and preventing further ones from occurring. Some topics to achieve this may include discussing the “satisfaction levels of the internal users in both the buyer and supplier organization, whether issues are being addressed in a timely fashion and with corrective action, enhancements that could be implemented to improve the relationship’s effectiveness, as well as potential problems that may develop down the road.”(Engel, 2012.)

### **Step 5. Establish Feedback and Fix System**

Determining a “formal method of gathering user and supplier feedback and then publishing the results are critical to satisfying the users and giving the alliance team the data necessary to manage the relationship.”(Engel, 2012.) Aside from trust, the next important element of successful collaboration is establishing common goals or metrics. Deciding which metrics to measure gives the buyer and seller an opportunity to establish rules, define tolerable margins of

error, and decide in advance how to resolve problems that may arise. Supply chain professor Langley reiterates, “Simple sharing of information itself is not collaboration. In order for all parties in the collaboration to make good use of the information, they must have a common understanding of what it is, what its purpose is, how it was derived and how it should be used.”(Douglas, 2004.) This includes giving partners more detail than necessary and providing the vendor with clear reasons why this process will provide a better solution. (Douglas, 2004.) Many tools are available for collecting this data, including Excel, Access database, among others. A feedback and fix system should “provide a simple procedure for feedback, create a process for responding to any feedback, employ a tracking toolset, provide specific feedback to the person submitting the issue, and publish the results of the findings to all team members and to any buyer or supplier users that are affected.”(Douglas, 2004.)

### **Step 6. Structure Meetings Properly**

Meetings should be scheduled regularly to ensure the health and effectiveness of the relationship, not only when there is an issue to be resolved. Open communication should always be encouraged, as well as professional, constructive opinions.(Engel, 2012.) ARC Supply Chain Analyst reminds, "Recognizing which methods and practices will best streamline the supply chain requires close collaboration among all partners," he adds. "They have to share current and future plans as well as their performance against those plans. With such information they can better negotiate their joint goals and rapidly mitigate problems before they become disasters. Trust is essential for collaborative relationships and remains the chief obstacle to better performance in a lot of industries."(Douglas, 2004.) This includes open discussion of industry trends and market conditions that will create value for both parties through cost savings, cost avoidance, and quality improvement. Lastly, when contractual changes are being considered, “both sides should take the proposed modification back to the responsible party at each company.”(Engel, 2012.)

## **Chapter 6**

### **A Procurement Collaboration Example**

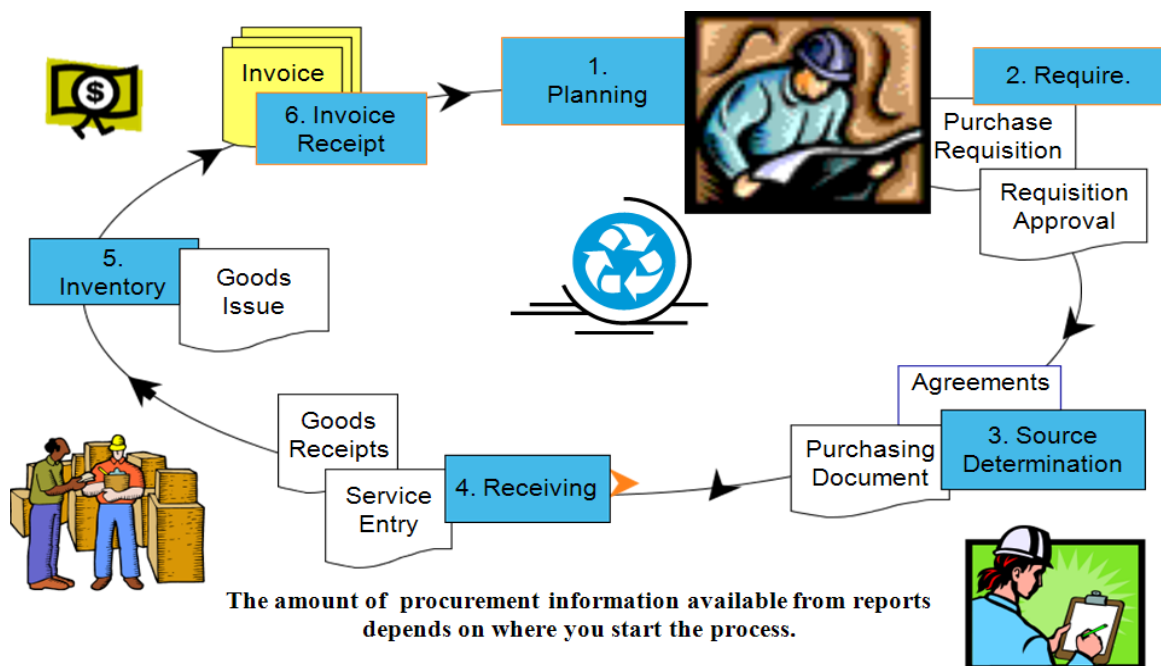
Traditionally, the procurement function is seen as a separate entity apart from the remaining supply chain. This disjoint perspective can have negative impacts across the board that include “supply shortages, excess supply inventory, frequent write-downs and excessively long shipment times.” (Dekhne, 2012.) Many supplier –customer issues faced in the workforce are a direct result of disconnecting procurement and supply chain operatives. Take for example the “food processing company that stores excess raw material inventory while its packaging supplier is burdened with finished goods; or the consumer packaged goods producer that suffers from shortages of a common raw material for a new product that is shared with the company’s old product; or the medical device manufacturer that moves its local production footprint to improve supply chain responsiveness, only to find that it has to ship raw materials around the world.” (Dekhne, 2012.) While it is understandable that “companies and their suppliers optimize their operations to suit their environments” (Dekhne, 2012.), there is an advantage to be gained by integrating suppliers and the procurement function into the supply chain process to benefit the company as a whole. In fact, companies that have focused on bringing the two together have experienced a fifteen percent reduction in total inventory levels across the value chain. (Dekhne, 2012.) The key is to bridge the static procurement role of driving cost reduction with the dynamic supply chain operation of delivering products to satisfy end-customer demand. “What is needed is a cross-functional approach that embeds a total supply chain perspective in procurement’s operations.” (Dekhne, 2012.) One way to go about achieving this directive is to improve the Procure-to-Pay process through supplier collaboration. (Dekhne, 2012.)



### The Procure-to-Pay Process

Procurement serves as the primary face to suppliers, interacting with them from the planning stage of purchasing a material or good “where a purchase order, or other demand signal, is submitted to a supplier for fulfillment, to the eventual receipt, verification and put away (of the product) to payment for goods or services received.” (Garcia, 2008.) Procurement seeks to go beyond direct purchasing activities toward the “acquisition of goods and services at the best possible total cost of ownership, in the right quantity, at the right price, in the right place for the direct benefit or use of business.” (Garcia, 2008.) Within the SCOR model, the procure-to-pay process falls under the source directive, functioning to schedule deliveries, receive product, verify product, transfer product, and authorize payment. Figure 8 summarizes the flow of stages that occurs within the P2P process.

Figure 8. Procure-to-Pay Process



(Garcia, 2008.)

The more upfront planning in Step 1 for the procurement of goods and services allows for greater capture of vital information in reports. This includes establishing a negotiated Outline Agreement with formal material and service numbers that make automated invoice processes through software, such as SAP, possible. There is a wide range of methods that are used to complete the invoice process. Some are listed below.

**FI Paper Invoice** - A paper invoice that does not reference any Material or OLA number

**MM Paper Invoice** - A paper invoice that references either a PO or OLA,

**ePayables** - Electronic system capable of processing technically enabled invoices

**ERS (Electronic Receipt Settlement)** - Allows automatic payment for Materials when the amount on the Goods Receipt matches the Price and Quantity on the PO

**Technical Enablement** - Specific invoice coding formats including EDI, XML and Text

**Web Enablement** - System where vendors submit invoices through an online website

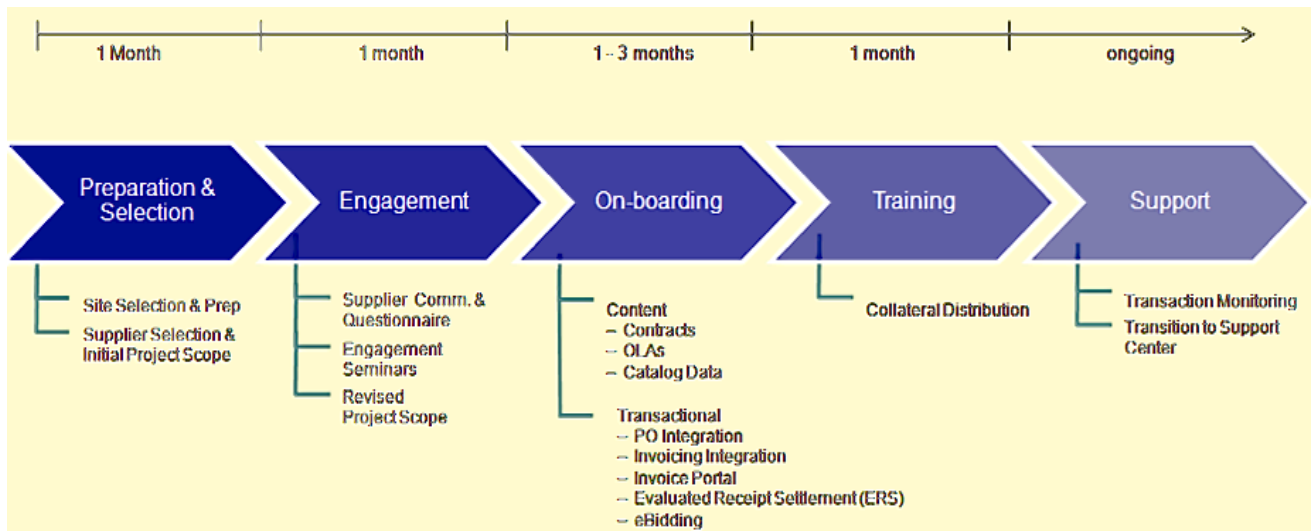
**Auto PO** - A system generated PO according to system settings and flags (Thruong, 2012.)

Non-paper invoices are ideal, however, each supplier is unique in their capability and willingness to comply with procurement preferences. It is estimated that the amount of time to manually process one paper invoice is equivalent to processing eight electronic invoices. Obviously it is worth the investment to collaborate with suppliers to enable their technical systems to comply with your own to avoid the wasted time and money processing paper invoices. (Thruong, 2012.)

### Supplier Enablement

Supplier enablement groups seek to achieve these aims by collaborating with suppliers to reduce paper documents through elimination or exchanging them through the Procure-to-Pay process. In doing so, process efficiency and accuracy can be greatly improved. Manual handling of paper documents, as well as mail, email and fax invoices will be removed or formatted into electronic transactions. Rekeying of data will be eliminated, automation and rate validation will increase, spend capture will become automated, and rogue spend will be identified. Once a vendor is chosen for collaboration, the supplier enablement process is initiated. Figure 9 is an example of what this process might entail and the time line involved. (Thruong, 2012.)

Figure 9. Supplier Enablement Process



(Thruong, 2012)

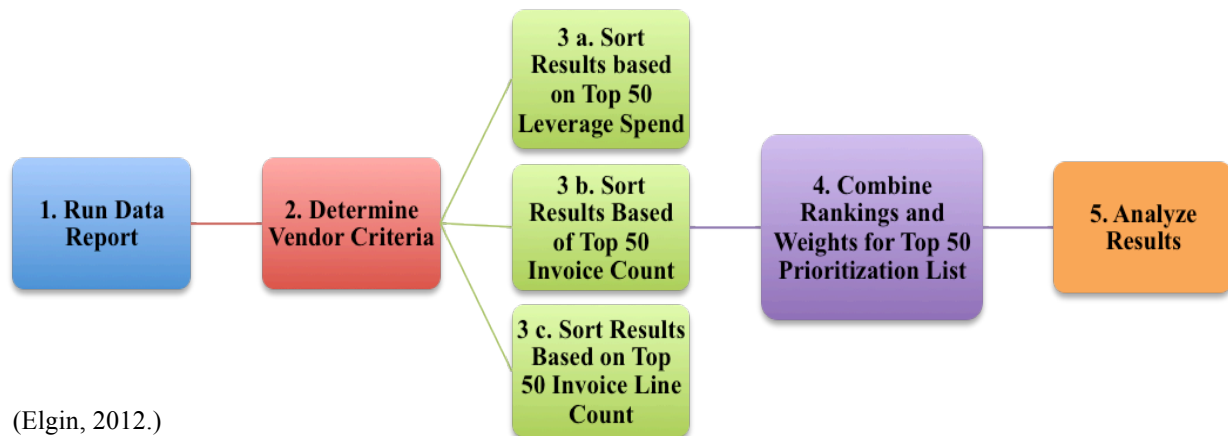
Currently, many supplier enablement groups rely on a reactive method to select suppliers to begin the collaborative process. These suppliers are usually chosen as a result of category management or supplier requests to onboard suppliers for the program. Yet the most effective way to benefit the entire supply chain is to implement a proactive stance that looks at every

supplier a company deals with and evaluate them based on their importance in doing business. For example, vendors that encompass your business's top spend, greatest number of invoices, and even the highest amount of invoice lines should take top priority in consideration for a collaborative relationship. While many managers are quick to single out total spend with a supplier as top priority for enablement, it is important to consider the time constraints involved in working with suppliers who have relatively low dollar spend, but require large amounts of manual validation for thousands of individual invoice lines. This is certainly an equally viable source to save money through more efficient use of time. (Elgin, 2012.)

### Sample Supplier Rationalization Method

The following steps of the Supplier Rationalization Method, Figure 10, can be used as a guide to implement a procurement focused collaboration effort.

Figure 10. Supplier Rationalization Method



1. Run comprehensive data reports for all suppliers to create an overall picture of the company's spend and invoice interaction with its suppliers. SAP, Oracle, Business Warehouse, among other database softwares can be used to achieve this.

2. Determine which vendor criteria makes most sense to work with, whether that be filtering out vendors that have total payments below a certain dollar amount, using a normalized name system, or eliminating non-feasible vendors due to revenue or tax relation.(?)
3. Sort results based on three separate categories: Top 50 Total Spend, Top 50 Invoice Count, and Top 50 Invoice Line Count.
  - a. Rankings: Suppliers are scored individually in order of their total spend, invoice count, and invoice line count. The vendor with the highest amount in each category receives a score of 50 and the lowest in each category receives a score of 1.
  - b. Weights: The weighted value is a function of the vendor's rank multiplied by the percentage each category is being considered in comparison to the others. For instance, to consider all three categories with equal importance in the combined top prioritization list, each rank would be multiplied by thirty-three percent. This allows some flexibility for managers to consider certain categories with greater emphasis over others by increasing their percentage weight. It also emphasizes the importance of suppliers that score high rankings in more than one category, opposed to those that may only show up in one category.

$$\text{Weight} = \text{Rank} \times \text{Percentage of Category Consideration}$$

4. Combine assigned rankings and weights for a Top 50 Prioritization List. Supplier's weights from each category are added together to create a master list of vendors based on their relative importance in all three categories. Excel pivot tables can easily organize vendors based on their assigned weights and rankings.
5. Further analyze results by breaking down the types of invoices received from the top priority vendors. If automated systems have already been enabled and there is still a large amount of paper invoices being received, this is a red flag and an easy situation to investigate. Suppliers that display trends of technical capabilities, yet still show low percentages of automation could be suffering from lack of buyer training, where missing data fields prevent the invoice from generating automatically, or incomplete enablement, where only certain supplier locations have been onboarded with the supplier enablement process. When dealing with vendors who have no previous technical enablement, it is best to pinpoint those with the most MM paper invoices, which reference a material number that is linked to an OLA, yet automation is still not active. These invoices are the "low hanging fruit" that can be easily switched to the electronic process once a collaborative relationship has been established. (Elgin, 2012.)

### Case Study

The following example demonstrates how the rank and weight method works within this supplier rationalization model through altered data and supplier names of an actual case study. A list of full process instructions for this modified case study can be found in Appendix A.

After real time data has been collected from Business Warehouse database software, every supplier, who records a spend greater than \$100,000 and is capable without revenue or tax limitations, is sorted in three separate categories: total spend, number of invoices, and number of invoice lines. In this situation, each category will be considered with equal weight in the combined supplier priority list. Therefore the weighted score of a supplier in each category equals the rank of the supplier in that category multiplied by thirty three percent. Table 3 is a sample of the Top 50 Total Leverage Spend. (Elgin, 2012.)

Table 3. Top 50 Total Spend

TOP 50 TOTAL SPEND		
Rank	Vendor Name	Weighted Value
50	Supplier SW	16.5
49	Supplier UR	16.17
48	Supplier BA	15.84
47	Supplier TI	15.18
46	Supplier II	14.85
45	Supplier MC	14.52

(Elgin, 2012.)

In the comparison of total spend, Supplier MC has the sixth highest amount of total spend, and therefore receives a rank of 45 and a weight of 14.85, which is equal to thirty-three percent multiplied by 45, in the Total Spend category. Table 4 is a sample of the Top 50 Invoice Count. (Elgin, 2012)

Table 4: Top 50 Invoice Count

TOP 50 Invoice Count		
Rank	Vendor Name	Weighted Value
50	Supplier MC	16.5
49	Supplier ET	16.17
48	Supplier SM	15.84
47	Supplier VA	15.18
46	Supplier RS	14.85
45	Supplier FL	14.52

(Elgin, 2012.)

Notice that some suppliers overlap in two or three categories, while others only show up once. The weighting system helps emphasize the reoccurrence of these suppliers throughout several categories within the final combined list for supplier enablement consideration. Supplier MC has the highest total number of invoices, and receives a rank of 50 and a weight of 16.5, or thirty-three percent multiplied by 50, in the Invoice Count category. Table 5 is a sample of the Top 50 Total Invoice Line Count. (Elgin, 2012.)

Table 5: Top 50 Invoice Line Count

TOP 50 Invoice Line Count		
Rank	Vendor Name	Weighted Value
50	Supplier SM	16.5
49	Supplier MC	16.17
48	Supplier VA	15.84
47	Supplier ET	15.18
46	Supplier LA	14.85
45	Supplier HF	14.52

(Elgin, 2012.)

Supplier MC shows up again, with the second highest total number of invoice lines. This vendor receives a rank of 49 and weight of 16.17, thirty-three percent multiplied by 49, in the Invoice Line Count category. After using a pivot table to add supplier weights within each individual category, a Top 50 Combined Prioritization List can be created, as seen in Table 6. (Elgin, 2012.)

Table 6: Top 50 Combined Prioritization List

<b>TOP 50 Combined Prioritization List</b>		
<b>Vendor Name</b>	<b>Sum of Weights</b>	<b>Supplier Enablement Priority</b>
Supplier MC	47.52	1
Supplier TU	40.26	2
Supplier SM	32.34	3
Supplier ET	31.35	4
Supplier VA	31.02	5
Supplier ME	29.7	6
Supplier TI	28.38	7
Supplier UR	28.38	8
Supplier JJ	26.4	9
Supplier ZA	26.07	10

(Elgin, 2012.)

When comparing relative positions across all three categories, Supplier MC tallies up a combined weight of 47.52, making it the number one vendor to be considered for the supplier enablement process.

After taking a closer look into Supplier MC, it is discovered that this supplier is already enabled to use the automated invoice systems ePayables and ERS, yet ten percent of its invoices



are still received in paper format. This might not seem like a significant percentage, but consider that the company receives an average of 61,000 invoices from Supplier MC. Suddenly, having to manually verify and enter 6,100 paper invoices becomes important. Furthermore, suppose that 5,185 of these paper invoices are classified as MM invoices, meaning that they already reference the material number of an OLA, but are missing key information that prevents automation. When the goal is to move toward 100% invoice automation, this presents a huge, easy starting point for improvement. Remember that there is a strong need to collaborate with suppliers who are not fully utilizing the electronic systems, as well as, suppliers who are completely non-enabled. (Elgin, 2012.)

Moving forward, a company should begin the enablement process with vendors identified on the Top Combined Prioritization List. Vendors that have already been enabled for technical or automated invoicing should be re-evaluated for areas of weakness and ways to improve the existing supplier collaborative relationship should be addressed. Additionally, it would be a good idea to begin moving toward implementing supplier enablement initiatives up front with suppliers during the negotiation and contract phase. Whether beginning a new supplier collaboration, or mending an existing relationship, it is important to maintain a healthy line of communication and trust, while always allowing room for continuous improvement. (Elgin, 2012.)

## **Chapter 7**

### **Final Thoughts**

Collaborating with suppliers can positively impact the entire supply chain by filling the gaps between processes and performance. This includes managing and reducing material costs, improving manufacturing and DC efficiencies, optimizing overall internal and external supply chain costs, reducing supply chain risks and aligning the supply chain with the financial goals of the company. Remember that collaboration is a win-win approach to reward sharing and a joint effort to improve supplier performance and resolve disputes. Through open exchange of information, new products, supplier cost data, and production schedules and forecasts for purchased items, a credible commitment to work together during difficult times and dedication to quality, defect-free products can be established. (Monczka, 2002.)

Whether choosing to initiate CPFR, data synchronization, or other forms of supplier collaboration programs, it is important to address trust and control concerns with suppliers. To initiate a successful collaboration program, a firm must define and segment its core relationships. Define core relationships based on levels of spend and difficulty to manage. Suppliers who have a strategic impact on the core business and a complex, emotional maintenance are worth considering for collaboration initiatives. Furthermore, segment remaining suppliers by identifying internal company needs, measuring supplier capabilities, and creating unique interaction and action plans for each supplier segment. When forming a collaboration team, include members from the buyer and supplier side, multiple functions and perspectives, and various strengths. Be sure to share collaboration agreements with all members to encourage complete understanding and constantly assess satisfaction and progress to promote open communication. Finally, structure meetings properly to ensure efficiency and establish a feedback and fix system to measure metrics and prevent future problems. (Engel, 2012.)

One way to collaborate with suppliers and address the disjoint perspective between the supply chain and procurement function is to implement a cross-functional approach to the Procure-to-Pay process. P2P falls under the SCOR source directive, dealing directly with suppliers to schedule deliveries, receive product, verify product, transfer product, and authorize payment. (Garcia, 2008.) More upfront planning in the procurement of goods and services allows greater capture of information in reports. The invoice process can be improved by collaborating with suppliers to enable their technical systems to comply with your own and avoid wasted time and money processing paper invoices. This can be achieved through a supplier enablement group that employs a proactive supplier collaboration effort by prioritizing vendors based on their total spend, number of invoices, and invoice lines. Suppliers should be further engaged with onboarding meetings, training and ongoing support. (Thruong, 2012.)

In conclusion, collaboration seeks to align the goals of buyer and seller in efforts for both parties to “reduce overhead, cut costs, simplify business processes and improve the alliance to ensure growth and increase value”. (Engel, 2012.) By opening up a two-way line of communication, both buyer and seller are able to engage as allies. Collaborating with suppliers is the best way meet business challenges and launch a company to top performance.

## Appendix A

### Supplier Prioritization Process for Collaboration

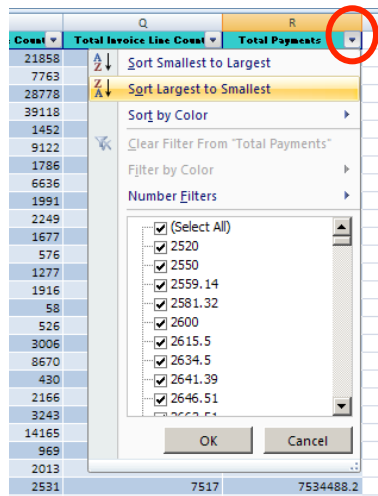
#### Considering Multiple Criteria within an Overlap Analysis:

This process can be useful when considering multiple criteria, such as Total Spend, Total Invoice Count, and Total Invoice Line Count, to compile a relative list of vendors.

A Weighted and Ranking List is used to compile an overlap analysis when considering multiple categories.

To Compile a Combined Prioritization List that considers Top Total Spend, Top Invoice Count, and Top Invoice Line Count:

1. Run data report to find Total Spend, Number of Invoices and Invoice Lines for every vendor
  - Transfer report into an Excel workbook.
  - Filter Total Spend to be equal to or greater than \$100,000 (optional)
  - Eliminate non-feasible vendors
2. Find Top Total Spend Vendors
  - Under the Master Table Tab, select the Total Spend column header drop down arrow and sort Largest to Smallest.



- The vendors are now listed by the greatest Total Spend. Select the Top 50 Vendors and copy data into a new tab in Excel Workbook. Label this Tab Combination Analysis.
- Within the Combination Analysis Tab, insert a column before Supplier Name. Name this column Rank. Insert a new column to the right of the Vendor Name and label column Weighted Value.

**Rankings:** Vendors are scored individually in order of their total spend, invoice count and invoice line count. The vendor with the greatest total spend, invoice count, or invoice line count receives a 50 and the lowest receives a 1.

**Weighted Average:** The weighted value is a function of the vendor's rank in each category multiplied by 33% (holding each category equally important for consideration). This percent can be altered to give one category high consideration over another. (All percents used must add up to equal 100%)

- Assign Rankings and Weights as seen below.

TOP 50 TOTAL SPEND		
Rank	Vendor Name	Weighted Value
50	Supplier SW	16.5
49	Supplier UR	16.17
48	Supplier BA	15.84
47	Supplier TI	15.51
46	Supplier JJ	15.18
45	Supplier MC	14.85
44	Supplier TU	14.52
43	Supplier UN	14.19
42	Supplier HO	13.86
41	Supplier JA	13.53
40	Supplier FI	13.2
39	Supplier ZG	12.87
38	Supplier WA	12.54
37	Supplier GR	12.21
36	Supplier GE	11.88
35	Supplier EX	11.55
34	Supplier XC	11.22
33	Supplier MA	10.89
32	Supplier ST	10.56
31	Supplier NA	10.23
30	Supplier KO	9.9

The vendor with Highest Total Spend receives a rank of 50. Following Vendors receive descending ranks.

The Weighted Value equals the vendor's Rank x 33%

### 3. Find Top Total Invoice Vendors

- Complete the same process listed in Step 2, this time sorting the Total Invoice header column by “Largest to Smallest”.
- Copy and Paste Top 50 Total Invoice Vendors into the Combination Analysis Tab.
- Assign Rankings and Weights.

### 4. Find Top Total Invoice Line Vendors

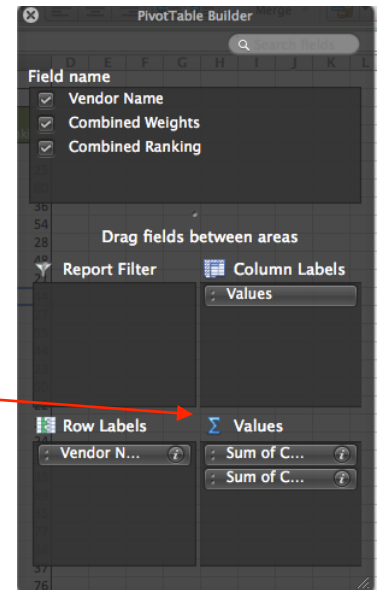
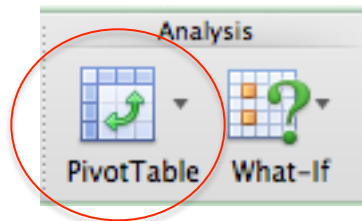
- Complete the same process listed in Step 2, this time sorting the Total Invoice Line Header Column by Largest to Smallest.
- Copy and Paste Top 50 Total Invoice Line Vendors into the Overlap Tab.
- Assign Rankings and Weights.

	A	B	C	D	E	F	G	H	I	J	K
1	TOP 50 TOTAL SPEND				TOP 50 Invoice Count				TOP 50 Invoice Line Count		
2	Rank	Vendor Name	Weighted Value		Rank	Vendor Name	Weighted Value		Rank	Vendor Name	Weighted Value
3	50	Supplier SW	16.5		50	Supplier MC	16.5		50	Supplier SM	16.5
4	49	Supplier UR	16.17		49	Supplier ET	16.17		49	Supplier MC	16.17
5	48	Supplier BA	15.84		48	Supplier SM	15.84		48	Supplier VA	15.84
6	47	Supplier TI	15.51		47	Supplier VA	15.51		47	Supplier ET	15.51
7	46	Supplier JJ	15.18		46	Supplier RS	15.18		46	Supplier LA	15.18
8	45	Supplier MC	14.85		45	Supplier FL	14.85		45	Supplier HF	14.85
9	44	Supplier TU	14.52		44	Supplier DE	14.52		44	Supplier BL	14.52
10	43	Supplier UN	14.19		43	Supplier WA	14.19		43	Supplier RO	14.19
11	42	Supplier HO	13.86		42	Supplier UN	13.86		42	Supplier TU	13.86
12	41	Supplier JA	13.53		41	Supplier UI	13.53		41	Supplier ZA	13.53
13	40	Supplier FI	13.2		40	Supplier ME	13.2		40	Supplier RB	13.2
14	39	Supplier ZG	12.87		39	Supplier TI	12.87		39	Supplier PR	12.87
15	38	Supplier WA	12.54		38	Supplier CO	12.54		38	Supplier UR	12.54
16	37	Supplier GR	12.21		37	Supplier TU	12.21		37	Supplier JO	12.21
17	36	Supplier GE	11.88		36	Supplier AN	11.88		36	Supplier CO	11.88
18	35	Supplier EX	11.55		35	Supplier FI	11.55		35	Supplier TY	11.55
19	34	Supplier XC	11.22		34	Supplier MO	11.22		34	Supplier AS	11.22
20	33	Supplier MA	10.89		33	Supplier NO	10.89		33	Supplier TR	10.89
21	32	Supplier ST	10.56		32	Supplier EN	10.56		32	Supplier FL	10.56
22	31	Supplier NA	10.23		31	Supplier HF	10.23		31	Supplier AL	10.23
23	30	Supplier KO	9.9		30	Supplier TH	9.9		30	Supplier WA	9.9
24	29	Supplier AC	9.57		29	Supplier AL	9.57		29	Supplier FI	9.57
25	28	Supplier EL	9.24		28	Supplier AT	9.24		28	Supplier UN	9.24
26	27	Supplier ME	8.91		27	Supplier CH	8.91		27	Supplier UI	8.91
27	26	Supplier TE	8.58		26	Supplier LA	8.58		26	Supplier MO	8.58
28	25	Supplier SI	8.25		25	Supplier AI	8.25		25	Supplier MA	8.25
29	24	Supplier IB	7.92		24	Supplier ER	7.92		24	Supplier ME	7.92
30	23	Supplier WP	7.59		23	Supplier EG	7.59		23	Supplier TH	7.59
31	22	Supplier EM	7.26		22	Supplier EL	7.26		22	Supplier MT	7.26
32	21	Supplier CO	6.93		21	Supplier BI	6.93		21	Supplier JJ	6.93
33	20	Supplier SR	6.6		20	Supplier AS	6.6		20	Supplier TE	6.6

5. Create Combination Analysis Pivot Table to Overlap Rankings and Weights.

- In a new tab, copy and paste the three Top Spend, Top Invoice Count, and Top Invoice Line Count lists into one single list.
- Select data and click Pivot Table on the Insert Tab.
- Select and Drag  $\Sigma$  Values into the Column Labels Box.
- Select and Drag Normalized COP Name into the Row Labels Box.
- Select and Drag Weighted Value and Ranking into the  $\Sigma$  Values Box.

○ Ensure the value settings are SUM



- Now the Vendors are listed with their combined rankings and weights from all three categories.

	A	B	C
3	Values		
4	Row Labels	Sum of Combined Weights	Sum of Combined Ranking
5	Supplier AC	9.57	29
6	Supplier AI	8.25	25
7	Supplier AL	19.8	60
8	Supplier AN	11.88	36
9	Supplier AS	17.82	54
10	Supplier AT	9.24	28
11	Supplier BA	15.84	48
12	Supplier BI	6.93	21
13	Supplier BL	14.52	44
14	Supplier CH	8.91	27
15	Supplier CO	31.35	95

- Select Pivot Table Data, copy and paste information into the Overlap Tab.
  - Convert data into a table with headers.
- Sort Sum of Rankings Column Header by Largest to Smallest.
- This list represents a vendor's relative position when considering Total Spend, Total Invoices, and Total Invoice Lines. The Vendors with the highest Ranks and Weights show importance in all three categories and are those that Supplier Enablement should prioritize for collaboration efforts.

	A	B	C
1	<b>TOP 50 COMBINED WEIGHTS</b>		
2	<b>Vendor Name</b> ▼	<b>Combined Weight</b> ▼↓	<b>Combined Ranking</b> ▼
3	Supplier MC	47.52	144
4	Supplier TU	40.59	123
5	Supplier UN	37.29	113
6	Supplier WA	36.63	111
7	Supplier SM	32.34	98
8	Supplier ET	31.68	96
9	Supplier CO	31.35	95
10	Supplier VA	31.35	95
11	Supplier ME	30.03	91
12	Supplier UR	28.71	87
13	Supplier TI	28.38	86
14	Supplier FL	25.41	77
15	Supplier HF	25.08	76
16	Supplier LA	23.76	72
17	Supplier FI	22.77	69
18	Supplier UI	22.44	68
19	Supplier JJ	22.11	67
20	Supplier AL	19.8	60
21	Supplier MO	19.8	60
22	Supplier MA	19.14	58
23	Supplier AS	17.82	54
24	Supplier TH	17.49	53
25	Supplier EL	16.5	50



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# **ACADEMIC VITA**

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## **Education**

B.S., Supply Chain and Information Systems with a minor in Religious Studies, 2012,  
Pennsylvania State University, State College, PA

## **Honors**

- Graduation with Honors in Supply Chain and Information Systems
- Dean's List FA 2009, SU & FA 2010, SP & FA 2011, SP & FA 2012, SP 2013

## **Association Memberships/Activities**

- Global Human Rights Brigades Co-President, Pennsylvania State University, 2012
- Global Law Brigades Vice President, Pennsylvania State University, 2011
- Smeal College of Business Mentoring Protégé, Pennsylvania State University, 2011-2012
- Phi-Alfa Delta Pre-Law Fraternity Member, Pennsylvania State University, 2011-2012
- Volunteer Assistant Softball Coach, Spring Grove Area High School, 2010 - 2011

## **Professional Experience**

- Transportation Procurement New Hire, Phillips 66, Houston, TX, 2013
- Supplier Enablement Procurement Intern, Phillips 66, Bartlesville, OK, 2012
- Distribution and Customer Service Intern, Glatfelter Paper Mill, Spring Grove, PA, 2011

## **Professional Presentations**

- Phillips 66 Supplier Enablement Prioritization, Bartlesville, OK, July 26, 2012
- Phillips 66 SHIELD Company Values, Houston, TX, July 31, 2012