Profile of a Successful Supplier Performance Measurement System

Ed Lyons and Ken Cook
Lyons Information Systems, Inc.

February 2003

"Creditors have better memories than debtors."
Benjamin Franklin

The goal of a successful supplier performance measurement system (SPMS) is to *cultivate suppliers who consistently deliver quality product, on time, in full, with proper documentation, and are easy to work with on a daily basis.* To cultivate means to grow and nourish; therefore, a successful Supplier Performance Measurement System builds towards something. It is a tool that helps a manufacturer and suppliers collaboratively work on issues that impact each of their businesses, and eliminate costly mistakes.

A successful Supplier Performance Measurement System helps a manufacturer and suppliers collaboratively work on issues...

Manufacturers who use an SPMS to build improvement collaboratively reap the rewards of operational effectiveness, substantial cost improvements and retrieval of lost profits. However, all too often Franklin's quote at the beginning of this section is true; a manufacturer's memory of poor supplier performance and a supplier's recollection of poor performance may differ greatly. Therefore, collaborative use of an SPMS system for documenting actual supplier performance is vital to establishing clear goals and objectives while documenting actual supplier performance. When poor supplier performance is translated into lost profit and increased sales requirement revenues, the topic of supplier performance measurement takes on a heightened importance.

…poor supplier performance (often is) translated into lost profit and in-creased sales requirement revenues…

This paper addresses the impact of poor supplier performance, and the components of a performance measurement system that will improve quality, delivery, and service performance of suppliers. It further describes the composition of an SPMS that is objective, flexible, and easy to use.

Furthermore, implementation of a successful SPMS involves clear supplier understanding of performance expectations, consequences for poor performance, rewards for performance excellence, and consistency of the manufacturer's effort in applying the measurement system performance criteria and parameters. Aspects of implementation are discussed in the concluding section.

Improving supplier performance is…demonstrable, measurable, and its impact is far-reaching.

Impact of Poor Supplier Performance

The impact of poor supplier performance is simple – it costs money. Organizations worldwide are focusing on a myriad of supplier and supply chain issues, all with the goal of improving products and services for customers and improving profitability. Improving individual supplier performance in the areas of quality, delivery and service will go a long way to meeting a company's profitability goals.

Working on improving supplier performance is picking the proverbial "low hanging fruit" because it is demonstrable, measurable, and its impact is far-reaching. The following table illustrates some examples of the profound impact of poor supplier performance.

Operational and Financial Impacts of Poor Supplier Performance

	Problem	Financial Impact
Quality	Rejected product at incoming receiving	Missed delivery schedules
		Reorder and RGA costs
		Higher inventory costs
	Rejected product at WIP	Increased manufacturing costs
		Line stoppages
		Increased labor costs
Delivery	Partial or late product shipments	Increased production line costs
		Late customer delivery
		Loss of revenues
		Dissatisfied customers

The end result of poor supplier performance is loss of money.

These examples merely scratch the surface. The end result in each instance is loss of money. Revenues are lost. The cost of goods increases. Gross margins decrease. Operating expenses increase. Net profit falls. Inventory costs increase. Net equity decreases. Interest expense increases. And most importantly of all – customers are dissatisfied and take their business elsewhere. And when you lose the customer, you lose the most important dollar of all – the revenue dollar – the one that is the catalyst for everything else in the business.

As stated earlier, poor supplier performance is one of the more evident and fixable ailments. As you continue to read, you will

see in the System Overview that the data for documenting a supplier's performance is already on-hand, and the software tools for collecting the data and making it usable are available. Improving supplier performance is measurable, able to be documented, and will improve operations and financial returns.

Supplier Performance Measurement System Overview

In manufacturing environments, the purchase order represents the best performance measurement yardstick since expectations…are defined and agreed upon by both parties.

If suppliers always delivered products on time, in full, with proper documentation, and of the highest quality, then spend amounts and profit dollar losses would be of little concern to manufacturers. However, since perfect supplier performance is seldom if ever realized, then the problems of how to consistently minimize and measure less than perfect supplier performance become important. If performance can be defined as a measure of achievement against an expectation, then what may be used as a yardstick to measure performance and specifically supplier quality and on-time delivery performance?

In manufacturing environments, the purchase order represents the best performance measurement yardstick since expectations in price, quantity, and delivery schedules are defined and agreed upon by both parties. Figure 1 represents a general process flow of procurement information from purchase order placement to communicating an assessment of a supplier's performance. The design is based upon "near real time[1]" access to procurement data from a manufacturer's procurement system. Data from the legacy system to the supplier performance measurement system is always one way. Information critical to the calculation of a supplier's quarterly performance score (i.e., product requirement dates, receipt quantities) is posted to the legacy system and sent to the measurement system database at each data download event. The result is data integrity and synchronicity of data between systems.

[1] The interval of time between downloads of data to a supplier performance system database from a legacy system database should be minimized. Latency in time of data between the two systems leads to the term "near real time". Currency of data becomes especially important at quarter end when supplier scores are computed.

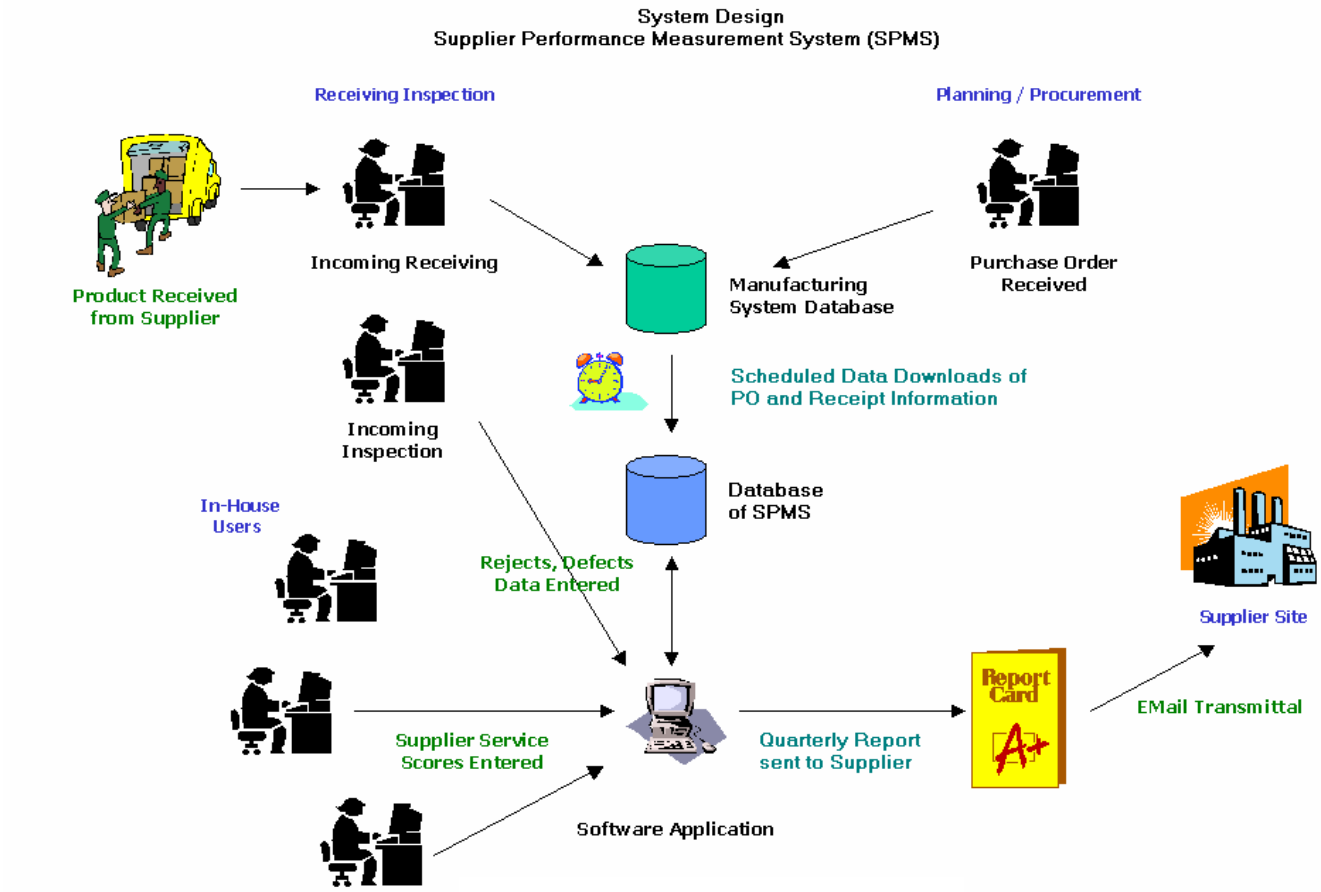

Figure 1: System Design Overview

Information fed from a legacy database to the measurement system database is the most important data artery of the measurement system.

Import of procurement data from a manufacturer's legacy MRP system into a supplier performance measurement system should always be timely and automatic. Errors resulting in problems with data integrity or import timeliness should be immediately discovered and corrected by appropriate personnel. Information fed from a legacy database to the measurement system database is the most important data artery of the measurement system. New and modified purchase order transactions, receipts of supplier product, invoice data, and product standard cost information should be included in the data stream.

Supplier Performance Rating Engine

At the heart of any SPMS is the automated logic used to compute supplier performance scores. The choice of elements used in the assessment of performance, or rating engine, may be as varied as desired as long as the elements fit the business model of the manufacturer and exhibit equal application to different commodity types of the measured suppliers. In conformance to

the objective stated earlier, three main elements of the rating engine are discussed.

Quality Component

Timeliness of deliveries has no value if the quality of the delivered goods is unsatisfactory.

Quality component – perhaps the most important ingredient of the rating engine. Timeliness of deliveries has no value if the quality of the delivered goods is unsatisfactory. The quality component may be divided into separate scores as a percent of total units rejected of all units received during a measurement time period, and the number of rejection events that occurred from a supplier over the same time period. Counting the number of rejection events at incoming receiving inspection serves to compensate scoring for suppliers who deliver either very often or very seldom as compared to the average shipment frequencies of most suppliers.

Delivery Component

Delivery component – used to evaluate the timeliness and quantitative variance of supplier product shipments. The component may be divided into early, late, partial and over-shipment components.

A system should provide for delivery waivers -- flexibility to allow a supplier to deliver product outside of the time and quantity schedule dictated by a purchase order without penalizing the supplier for the shipment. For a host of reasons, an unanticipated need for product from a supplier may occur which requires an early and partial shipment. A flexible SPMS will allow for such unplanned situations. Cautioned use of the delivery waiver feature is advised since supplier performance scores are directly influenced.

Service Component

Service component – represents a subjective element of the rating engine and is used to assess the timeliness of supplier response to problems and questions, technical support, and attitude over the rating time period.

System Characteristics and Features

In addition to the basic rating engine described above, an SPMS is enhanced with the following characteristics and features.

A Usability

A software system communicates to a user through a "program" or what is commonly called a "user interface". A successful interface is translated by the user into "speed and

color". Specifically, this means quick response to user actions from an interface that is easy to navigate and pleasing to view. An interface that groups similar user functions together, does not contain cascades of menus and submenus, and omits the need for special user keystrokes to accomplish common tasks contributes to the usability of a supplier measurement system.

Minimal Support Resources

Another test of the merit of a multiuser software system is the level and amount of resources needed to continue to make the system valuable to the user community. In well designed and implemented systems one system administrator per few hundred users is optimal. However, the complexity of the network system serving the user community factors into the required amount of system administrator resource(s). Overall, the measurement system software should require a minimum of system administrator attention to maintain its usefulness.

Multi-site data visibility

As supplier performance improves and profit leakage due to poor performance is reduced, manufacturers will move the system to other site locations. As a result, performance visibility among and across site locations will be required. A successful supplier measurement system will provide the ability for multi-site performance reporting and comparisons.

Variable Supplier Group Performance Parameters

Assignment of different weights and measures to elements of the rating engine for specific supplier groups allows for consistency in rating metrics applied across suppliers of the same, or similar commodity types. Each supplier group may contain one or more individual suppliers based upon the similarity or uniqueness of the product(s) that they supply to the manufacturer. The ability to define supplier groups and individual performance criteria for each supplier group is necessary to insure equitable grading across a supplier base of varying product types and geographies. This feature enhances integrity of supplier scores when comparing

supplier performance within the same commodity or supplier groups.

E Out-of-Quarter Exceptions

Often in manufacturing environments, awareness of a product quality deficiency occurs later in time than when the deficiency actually occurred. The measurement system must allow a user to apply performance penalties to previous supplier receipts for previous quarterly time periods. Doing so will adjust both the individual supplier's past quarterly performance score and the manufacturer's overall supplier scores.

F Revealed Cost Savings: Money Saved!!

The realization of cost savings as a result of the implementation of a supplier performance measurement system is a key asset to the system. The display of measurable improvement as a function of changes in supplier performance can be used for ROI and other business purposes as well as act as a certification of the SPMS as a successful business tool.

G Purchase Price Variance (PPV) Reports

Since an SPMS contains key procurement information, it follows that a report of purchase price variance between actual and standard costs of purchased products should be produced by the system.

H Performance Communicated to Suppliers

Timely, electronic transmittal of supplier quarterly performance reports to measured suppliers is highly desirable. It is also useful to provide suppliers with a means to view their interim performance scores during the quarterly measurement period via the internet. A secure web server may be placed outside the manufacturer's firewall for suppliers to use to access their individual performance data.

Manufacturer Contributions to Poor Supplier Performance

The manufacturer may contribute to observed poor delivery performance of a supplier. The problems emanate from internal business operations of the manufacturer.

Often the manufacturer may contribute to observed poor delivery performance of a supplier. The problems emanate from internal business operations of the manufacturer. A strong supplier performance measurement system will include the ability to measure and report the severity of these impediments to superior supplier performance. These impediments include:

- PO Due Date Fluctuations

  Frequent changes to required delivery due dates for purchased products from a supplier often sends a message to the supplier that the manufacturer is not efficiently forecasting demand for its products, and mitigates the chances for on-time delivery from the supplier. Generally, fewer changes to an item's delivery due date creates a better chance for unpenalized on-time delivery performance from a supplier. So, there is a need for the measurement system to report the extent of PO delivery due data changes.

- Lead Time Violations

  Ordering product from a supplier inside of the documented product lead time can result in on-time delivery penalties. An effective SPMS will display occurrences of lead time violations on either a part number or time period basis. Such a tool will illustrate the need for renegotiation of supplier product lead times as well as provide information about a manufacturer's ordering performance.

- Delivery Waivers

Frequent changes to scheduled delivery dates on placed purchase orders by the manufacturer reflects problems in the supply chain.

  The frequent need of the manufacturer to change the scheduled delivery dates on placed purchase orders reflects problems in the supply chain. This can cause the manufacturer to require the use of and abuse of another feature of a successful SPMS, namely "delivery waivers". To request a supplier to ship product earlier than scheduled or of a partial quantity will normally result in a delivery penalty to be applied to the shipment by the SPMS. To circumvent the penalty, a manufacturer may choose to waive the delivery penalty. The action will not decrease the performance score of the supplier for the shipment, but may cause a lead time violation if the product is received sooner

than the lead time value. What results is an "artificially" good overall supplier delivery score and possible lead time violation event. Therefore, reports of overall supplier performance improvement should always be accompanied by reports of a downward trend in the frequency of delivery waivers awarded to supplier shipments by the manufacturer coupled with a downward trend in the frequencies of lead time violations.

SPMS Implementation

As discussed, an SPMS impacts many functional areas of a business. Successful implementation of an SPMS therefore requires the involvement of "stakeholders" from many departments, including Quality Control, Procurement, Finance, Information Technology and others. Representatives of each of these groups should be involved in the initial decision about purchasing or developing an SPMS. In addition, they should be involved in its implementation and in reviewing its business impact.

Successful implementation of an SPMS requires the involvement of "stakeholders" from many departments, including Quality Control, Procurement, Finance, Information Technology and others.

A supplier's perception of their business relationship with a manufacturer significantly influences the attitude and overall performance dynamics of the supplier. Performance measurement and reporting are tools that should be used consistently and in a collaborative manner, building the bonds of the relationship and the overall business performance of each company. This can be communicated in many ways, including:

- Off-site gatherings between a manufacturer and its critical suppliers.

This offers an effective means for a manufacturer to communicate expectations of supplier performance measures while recognizing superior supplier performance. Often suppliers are encouraged to improve delivery and quality performance just to "out shine" peer suppliers and receive peer recognition of performance excellence from the manufacturer. Off-sites also offer the opportunity for a manufacturer to explain the measurement system, answer questions about its operation and discuss its impact. Often overlooked by manufacturers, the "family feel" of off-sites can have a dramatic positive impact on supplier performance and hence profitability as a result of improved performance.

- Perceiving and responding to suppliers' needs.

  Prompt response by a manufacturer to technical questions from a supplier, and follow up of late or unpaid invoices, for example, are opportunities to cultivate supplier relationships. The benefits boil down to cost savings and smoother business operations between both the manufacturer and supplier.

The right measurement strategy, when applied in a consistent and equitable manner, will enhance profitability, streamline business operations, and improve the financial performance of your business and your supplier's business.

Conclusion

Developing and implementing a supplier performance measurement system is well within the reach of manufacturers. The right measurement strategy, when applied in a consistent and equitable manner, will enhance profitability, streamline business operations, and improve the financial performance of your business and your supplier's business.

About the authors:

Ed Lyons, President, Lyons Information Systems, Inc., in Raleigh, NC, is developer of GradeCard (www.grade-card.com), a supplier performance measurement system. He has been developing and implementing business solutions for companies throughout the United States since 1979. His experience includes work with large companies such as Sony Pictures, Hughes Aircraft Company, and GlaxoSmithKline.

Ken Cook, Sales and Marketing associate has been providing professional services for worldwide companies since 1978. He focuses on growth strategies and implementation services that truly differentiate businesses in the marketplace.

