
The Supplier Development Program: A Conceptual Model

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In order to compete effectively in the world market, a company must have a network of competent suppliers. A supplier development program is designed to create and maintain such a network—and to improve various supplier capabilities that are necessary for the buying organization to meet its increasing competitive challenges. This article details a conceptual model that describes the organizational decision process associated with a supplier development program. The proposed decision model can serve as a guideline for designing a supplier development program that can link purchasing strategy with a firm's overall corporate competitive strategy. Empirical evidence drawn from the experience of several companies actively involved with such a program is used to validate the model.

In recent years, purchasing and materials management activities in many U.S. companies have been getting close attention from top management with respect to their contributions to overall corporate performance. This increasingly sharp focus is a direct result of mounting pressures—internal and external—from sources such as rapidly rising material costs, high costs of capital, and increasing competition from foreign competitors.

In response to these mounting pressures, some purchasing managers have upgraded their buying and management personnel through better selection and training. Many have also reexamined their existing materials management policies. The recent introduction of “just-in-time” production and purchasing has created an additional impetus to reconsider many traditional purchasing objectives and practices. One of the key areas under scrutiny involves supplier development programs.

Traditionally, one of the most important objectives of the purchasing function has been the development of a network of competent suppliers. In the final analysis, a firm's ability to produce a quality product at a reasonable cost, and in a timely manner, is heavily influenced by its suppliers' capabilities.

Consequently, without a competent supplier network, a firm's ability to compete effectively in the market can be hampered significantly.

Yet, a careful review of existing textbooks and research articles appearing in the professional journals reveals that very little publication space has been devoted to the subject. In fact, most of the existing coverage of supplier development topics in purchasing texts tends to be brief and lacks specifics.¹ Moreover, a review of recent issues of the professional journals in the field identified only one research article directly addressing the supplier development issue.

This article represents one step in filling that void. The basic purpose of the article is to conceptualize the supplier development program. Specifically, it proposes a conceptual model that describes the organizational decision process for creating and refining a supplier development program. The model can also facilitate implementation and future research into the subject area. Interwoven throughout the article is empirical evidence drawn from several companies that actively use supplier development programs; this evidence is used to validate the model.

OBJECTIVES OF A SUPPLIER DEVELOPMENT PROGRAM

The basic objective of the purchasing function is to secure competent supply sources that will provide an uninterrupted flow of required materials at a reasonable cost. This involves first the selection of competent suppliers in terms of technological, quality, delivery, and cost capabilities—and second, it requires working with them to upgrade their capabilities.

A supplier development program, then, can be defined as any systematic organizational effort to create and maintain a network of competent suppliers.² In a *narrow* sense, it involves the creation of new sources of supply when there are no adequate suppliers to meet the firm's requirements. In a *broad*er perspective, it also involves activities designed to upgrade existing suppliers' capabilities to meet the changing competitive requirements.

When a supplier development program is viewed from a narrow perspective, the program tends to be more passive and periodic, and it also tends to emphasize activities for selecting new sources. However, if the program is viewed from a broader perspective, it becomes more proactive and also emphasizes ongoing improvements of suppliers' capabilities for the long-term mutual benefit of both parties.

Traditionally, most supplier industries have been relatively well established in the United States, and the need for developing suppliers has not been well recognized. Consequently, supplier development programs in this country have been viewed largely from a relatively narrow perspective.³ In today's competitive market environment, however, the critical need for continuing supplier development must be recognized.

First, a faster pace of technological innovation has shortened the product life cycle considerably, and the need for world class suppliers is expanding geometrically. Even if existing suppliers can provide the new types of products and materials, their capabilities must be constantly upgraded and refined. Second, increasing competition in the marketplace forces firms to improve product quality and to reduce the costs of products on a continuing basis. The quality and cost of products in the marketplace must be viewed as a relative concept. If a firm fails to improve product quality while its competitors do make improvements, that firm will lose its competitive edge in the market. Third, a firm's operating systems tend to go through an evolutionary or innovative process over time. These systems clearly influence the manner in which purchasing must interact with suppliers. When a firm adopts a JIT production system, for example, this typically requires different types and levels of performance from its suppliers. Hence, purchasing's role in working with these suppliers also changes.

THE SUPPLIER DEVELOPMENT PROCESS

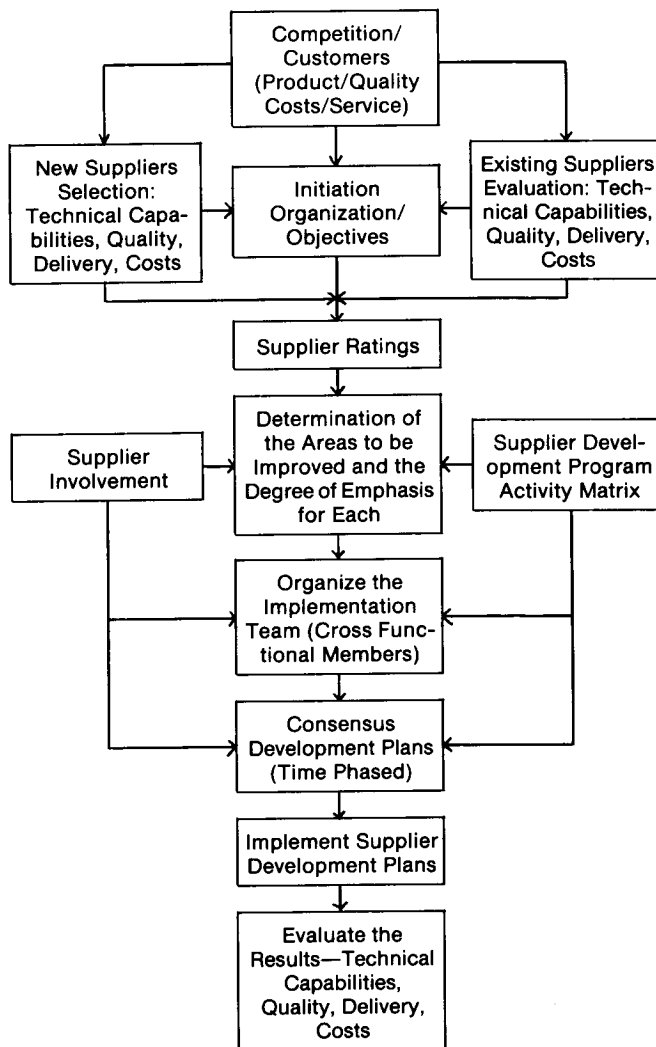
Traditionally, supplier development decisions have been the responsibility of the purchasing function. The rationale has been that purchasing personnel were best equipped with the necessary experience and training. It was felt that purchasing could make the best decision either by acting alone, or when necessary, by soliciting specialized inputs from other functional areas within the organization.

In recent years, however, the supplier development program has been viewed as a more complex organizational activity requiring more formal and active involvement from a number of functional areas. More extensive organizational involvement is particularly critical when supplier development is viewed from the broad perspective. Supplier development activities under the broader definition are much more complex because of the technical nature of some decisions and the longer time horizon involved.

Although each organization tends to approach supplier development decisions differently, it is argued here that a generalized conceptual model depicting the organizational decision processes can be formulated. Such a model is of critical importance for a more systematic study of supplier development activities and for easier implementation of the program. Figure 1 (see page 4) shows a preliminary supplier development decision model based on a synthesis of the decision processes utilized by several American and foreign companies with which the authors have worked. Key steps in the process are discussed in the following paragraphs.

Figure 1

SUPPLIER DEVELOPMENT DECISION PROCESS

**Program Initiation**

The need for a supplier development program must first be recognized by the top management group. Generally, the need for a program is recognized through management's desire to improve the firm's competitive position or to meet specific competitive challenges in the marketplace. It can be initiated by purchasing or by other concerned functional areas within the company. In some cases, top management initiates the program directly. In others it formalizes small existing groups already working cooperatively on isolated

supplier development issues. The recognition of the need is then translated into a set of objectives dealing with various performance measures such as quality improvement, cost reduction, or more reliable delivery performance.

Program Organization

The recognition of need and the formulation of the supplier development objectives are followed by the formation of a supplier development team or department. Organizationally, the program can be handled by an ad hoc committee, by a permanent organizational unit, or by a combination of the two. One of the major American auto manufacturers uses a cross functional team concept in which committee members are drawn from different functional areas such as the purchasing, quality assurance, design and manufacturing engineering, and production and material control departments. The team reports to the program supervisor.

On the other hand, a Japanese automobile producer has a permanent supplier development section within its purchasing group. Yet another arrangement exists in a Korean firm. This auto maker has a permanent department that utilizes several ad hoc working teams made up of the necessary experts from different functional areas.⁴ Although the location or responsibility for the program (or team) varies from one firm to another, administrative responsibility most frequently is vested with the purchasing function.

The supplier development team can be organized by the material to be purchased or by the supplier to be developed. For example, the American auto maker organizes its teams on the basis of the materials purchased—cast and machined items, stampings, assemblies, and control units. The Japanese and Korean firms organize their developmental teams according to the needs of the suppliers. Team members may come from the permanent supplier development unit or from different functional areas on an ad hoc basis. The size of the program can also vary greatly. The Korean company has over 600 staff members involved, while the American firm has approximately 30 members working in its supplier development program.

It should be noted at this point that the impact the various organizational approaches have on the effectiveness of the program is not yet known. Sufficient data and experience are yet to be obtained. To date, the organizational structures reflect historical as well as current needs of the companies involved.

Supplier Evaluation

The supplier development activity typically is triggered by an evaluation of the supplier—either performance evaluations for existing suppliers or preliminary assessments of potential new suppliers. When the buying firm is not satisfied with current performance levels of an existing supplier, or recognizes the need for further improvement, it may initiate selected supplier development activities with the supplier. If the firm has new or modified requirements that cannot adequately be satisfied by

existing suppliers, it may proceed to evaluate new vendors. Such an evaluation facilitates the final selection of new suppliers and can further identify the developmental areas that must be worked on with each of them.

Suppliers typically are evaluated on the basis of their technical, quality, delivery, cost, and managerial capabilities. Evaluation results subsequently are compared against the buying firm's requirements or future objectives. On the basis of these comparisons, suppliers are classified into one of several categories. For example, the American auto firm uses four ratings for suppliers in each commodity group. The highest rating is given to suppliers that meet the following requirements:

1. World class quality standards
2. Worldwide competitive cost structure and a long-term commitment for productivity improvements
3. Requirements for engineering and product development supports, including feasibility tests and prototype supply
4. Consistent on-schedule deliveries

The second highest rating is given to suppliers who have the potential to meet the criteria established for the top group, but have not achieved them yet. Suppliers in the third group have several deficiencies based on the evaluation criteria, and unless these deficiencies are corrected, they will be eliminated gradually. The lowest rating is given to suppliers who definitely lack the required capability and are scheduled to be eliminated. The American firm concentrates on the second group of suppliers by providing any developmental assistance needed. Suppliers in the third group are encouraged to upgrade their capabilities, but the buying firm does not provide any active support to them.

The Japanese firm, in contrast with its American counterpart, does not use a formal rating system. Each supplier's performance is evaluated regularly, and the degree of developmental assistance required is determined on the basis of the evaluation. The Japanese company then works with the suppliers until they satisfy the requirements or until the company concludes that further efforts would not pay off.

In the Korean company, the developmental activities can be triggered by supplier evaluation results or by the company's long-term developmental objectives. This firm is a relative newcomer and has found that its supplier firms are not well established. By and large, their performance is weak compared with world class standards. Therefore, its long-term supplier development objectives have been included as part of the firm's corporate goals and objectives.

Supplier evaluation is an integral part of the supplier development program. The evaluation results serve as a basis for launching an ongoing improvement program. Another way of viewing the supplier development program is that it is a corrective action program found in the supplier evaluation process. In the final analysis, the basic purpose of supplier evaluation is to improve supplier performance—and the

supplier development program can be viewed as an implementation phase of the entire process.

Supplier Development Activities

Once the supplier evaluation process is completed, the next step is to identify the areas for improvement. Supplier evaluation results provide valuable information about general areas of weakness, but the results usually are still too general to be useful. For example, the supplier evaluation process may show that a supplier is weak in its ability to maintain quality. However, the buyer still does not know the exact causes of the quality problem. It could be related to design, to the manufacturing process, or simply to poor workmanship. Therefore, the purpose of this phase of the process is to pinpoint specific causes of the problem. Clearly, a classification of the supplier's performance problems would facilitate the analysis.

Supplier performance problems can be classified in terms of required supplier capabilities—technical, manufacturing, quality, delivery, financial, or managerial. Such a classification narrows the area to be investigated. Supplier problems can also be classified in terms of their sources—things such as product, process, or operating systems. When these two classifications are combined, a supplier development activities matrix can be constructed. The matrix defines more precisely the nature of a supplier's problem, and it also identifies the types of supplier development activities that should be considered by the development team. Figure 2 (see page 6) illustrates a supplier development activities matrix.

For example, when a company experiences product quality problems in dealing with a supplier, the problems will be further investigated to pinpoint the causes. The problem could be product related—inadequate design or materials specifications. On the other hand, it could be related entirely to the supplier's manufacturing processes—perhaps inadequate machine capability or poor workmanship. Or, the problem might be traced to an operating system, such as an unreliable quality assurance program. It is also possible that several of these elements are interacting to create the problem.

At this point in the process, the supplier's management should be invited to participate in the analysis; the objective is to achieve a consensus diagnosis involving both the supplier and the buying firm. The supplier's input should facilitate the problem identification process and subsequent determination of the areas for supplier development effort. It must be emphasized that early supplier involvement in the analysis is critical for successful program implementation.

Consensus Development Plans

Once the causes of the problem are identified and the developmental areas are defined, a development team with the appropriate expertise must be organized. This group then designs the developmental plan and the time schedule.

Figure 2

SUPPLIER DEVELOPMENT ACTIVITIES MATRIX

Related Areas	Product Related	Process Related	Operating Systems Related
Capabilities			
Technical Capability	Capabilities in: <ul style="list-style-type: none"> • Design • New Product Introduction • Feasibility Testing • Product Improvement 	<ul style="list-style-type: none"> • Process Capability • Process Design • Automation • Reconfiguration 	<ul style="list-style-type: none"> • CAD/CAM • CIM/FMS • JIT/MRP
Quality Capability	<ul style="list-style-type: none"> • Specification Limits • Incoming Materials Control 	<ul style="list-style-type: none"> • Process Capability • Testing Equipment • Workmanship (skills) 	<ul style="list-style-type: none"> • Quality Assurance Program • Quality Circles • S.P.C. Program • Worker Training
Delivery Capability	<ul style="list-style-type: none"> • Product Mix • Materials Lead Time 	<ul style="list-style-type: none"> • Capacity Level • Process Flexibility • Setup Times 	<ul style="list-style-type: none"> • Order Entry System • Scheduling Flexibility • Transportation/Inventory System
Cost Capability	<ul style="list-style-type: none"> • Value Analysis • R & D Expenditure • Cost Reduction Programs 	<ul style="list-style-type: none"> • Process Efficiency • Capital Investment • Rationalization of Work Place 	<ul style="list-style-type: none"> • Work Productivity • Indirect Costs • Control

During this phase of the program, the development team must determine the degree of emphasis to be placed on each developmental area and then the specific sequence of the activities. Depending on the maturity of the program and the status of the supplier in question, program emphasis can vary considerably. During the early stages of a supplier development effort, the primary emphasis typically is placed on meeting the technical specifications. Hence, the supplier's technical and quality capabilities probably receive the greatest emphasis. On the other hand, if the supplier is advanced in terms of technical and quality capabilities, major program emphasis might be placed on cost and delivery capabilities.

The extent to which a program contains clear-cut developmental stages is determined largely by the level of development and sophistication found in the supplier industries. The American and Japanese firms did not have to go through the formal stages of supplier development. Their supplier industries were well developed, and the initial supplier selection process had already eliminated most of the poor suppliers. As mentioned earlier, the Japanese company started out with a small number of relatively well qualified suppliers as its supply base. Its developmental emphasis therefore was on continuing improvements of current

suppliers. On the other hand, the American firm originally utilized a large pool of suppliers, and its developmental emphasis was on reduction of the supply base as well as on upgrading the capabilities of selected suppliers.

In striking contrast, the Korean firm experienced a three stage developmental process in dealing with its suppliers. During the first stage, the firm focused primarily on development of the technical and the quality capabilities of its suppliers. During the second stage, it placed primary emphasis on delivery capability and assisted its suppliers in expanding production capacity to meet the requirements. When these objectives were achieved reasonably well, the emphasis was transferred to productivity improvements through plant automation and other cost reduction measures.

Even within each area of development, certain sequences of developmental activities must be determined by the team. The sequenced plan, in a sense, is a road map to achieving stated developmental goals and objectives. And, as just noted, these vary from one supplier to another. In essence, each supplier has its own unique set of problems as well as its various capability levels. Therefore, the developmental program must be tailored uniquely to the needs of each supplier.

Implementation and Evaluation

The final stages of a supplier development program are the implementation of the plans and the evaluation of results. The consensus development plans, developed jointly by the buyer and the supplier, are now ready to be implemented. During the implementation phase, the development team's specific role is determined by the agreement between the two parties and by the nature of the problems. In one case, the development team may act as a resource group providing any technical advice that is needed to carry out the project. In another case, the development team may play a much more active role in the process by actually working with the supplier's personnel at the supplier's plant. The Korean firm, for example, has over 600 of its employees working at suppliers' plants to implement the plans. These team members are still employees of the buying firm and are on its payroll. The American and Japanese firms are less involved with the suppliers; their roles can be characterized as advisory in nature.

When the implementation is complete, the results are evaluated on the basis of the developmental objectives as well as the specific technical, quality, delivery, and cost capability objectives. If the program works properly over the long run, participating suppliers should qualify for "certified" or "preferred supplier" status. Suppliers that do not eventually achieve this status normally are eliminated from the supplier base.

CONCLUSIONS

Although this study is preliminary in nature, it offers several important implications for purchasing and materials managers. First, in order to compete effectively in world markets, a company must have competent suppliers. Suppliers must be able to produce high quality parts and materials at an acceptable cost and deliver them on a timely basis. A supplier development program should support these objectives; it should be designed basically to improve suppliers' technical, quality, delivery, and cost capabilities. Because the market demands continuing improvement in the products and services purchased, continued upgrading of suppliers' capabilities must be a long-term objective of the buying firm. This means adoption of a broad definition of the supplier development concept.

Second, the study suggests ways of designing a supplier development program which will support a firm's overall corporate strategy. The proposed decision model can serve as a guideline in the development of such a program to meet the unique requirements of a given organization. In addition, the supplier development matrix can be used as a tool in identifying and designing specific supplier development activities.

Third, the proposed decision model can be used as a linkage between corporate competitive strategies and purchasing and materials management strategies. Historically,

purchasing and materials managers have searched for methods of developing a set of strategies that were consistent with a firm's overall competitive strategies. The decision model clearly demonstrates such a linkage.

Fourth, as a firm revises or shifts its competitive strategy to meet changing environmental conditions, the model provides excellent tools for identifying and modifying the developmental emphasis under changing conditions. From a supplier's point of view, the jointly conceived supplier development plans offer a means for promoting internal sensitivity toward customer needs for a long-term relationship. A supplier can also use the model for improving its competitive capabilities.

Since this study was conducted utilizing firms in only one industry, it is useful to identify areas for future research. Although the results of the study tend to support the validity of the proposed decision model, more empirical evidence from different industries is needed. Such studies may reveal differences among different industries. In addition, it should be pointed out that, at the present time, the effectiveness of the different supplier development programs cannot be evaluated. A research project designed to identify the major variables and the measurement standards to test program effectiveness is vital to the advancement of work in this area.

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