DIMENSIONS OF PERCEIVED RISK IN ORGANIZATIONAL BUYING DECISIONS

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Abstract

Perceived risk is typically examined as a global contruct, or one whose major dimensions can be additively or multiplicatively combined to provide an aggregate measure. This paper stresses that risk should be defined in terms of the specific problem areas found in a given buying decision. It is examined as the likelihood of loss and magnitude of loss resulting from six individual problem areas. Influence in purchase decision-making is viewed as situational, arising from the relative abilities of different individuals to handle the critical uncertainties contained in a vendor or product decision. Results of an exploratory study in which risk is operationalized and related to influence are described.

Purchasing is a complex process involving a number of role players in the organization, and evolving over a period of time. As a result, purchasing processes might be viewed as influence processes. Influence may rest in such diverse areas of the organization as the legal department or the engineering department. Given this, questions, have been raised as to the role of the purchasing department in purchase decision-making, and how that role can be enhanced (Strauss, 1964). This department may exert fairly autonomous influence when purchasing low cost, less critical items, which are more routine and repetitive in nature. The challenge is to explain what happens in situations which are less routine, more critical, and where the firm has little past experience. One approach is to view buying as an activity fraught with risks and uncertainties, and purchase decision processes as risk-reducing behavior (Spekman and Stern, 1979; 1979; Upah, 1980). With this perspective, the person or department best able to cope with the relevant risks should have greater influence in deciding what is bought, in what quantity, from whom, and based on what criteria. The purpose of this research are: (1) to investigate the construct of perceived risk in its various forms as found in organizational buying; and (2) to empirically examine the relationship between the individual's ability to cope with types of risk and that person's influence in purchasing processes.

Background

Early work on the risk component in industrial purchasing came with the efforts of Levitt (1965). He applies a perceived risk model, where the buyer adopts various strategies (such as information gathering, source loyalty, reciprocity arrangements, and decision avoidance) so as to lessen the amount of risk in the buying situation to some acceptance level. Risk is related to product and vendor performance uncertainties and psychological uncertainty (how others will react to a given decision). Moreover, risk is assumed to have two major dimensions, uncertainty and likelihood of loss. Thus, risk is defined in terms of the buyer's expectation of negative utility or loss (Peter and Ryan, 1976).

Given these two dimensions, Sweeney, Mathews and Wilson (1973, p. 218) explain the industrial buyer can lessen risk by "striving to reduce the uncertainty surrounding the situation or by minimizing the possibility of serious negative consequences." They relate two personality traits, congnitive style and cognitive clarity, to risk-reducing strategies adopted by individuals involved in buying decisions. A relationship is found between these personality traits and specific risk-reducing strategies aimed at reducing uncertainty as well as strategies aimed at reducing negative consequences.

In another attempt to relate risk to purchasing strategies, Cardozo and Cagley (1971) found that more bids are solicited in high-risk situations than those with low risks. Vendors who emphasize their ability to meet product specifications are more likely to be selected as risk increases. Advertisements which stress low price tend to be effective primarily in low-risk circumstances, unless the major risk is in paying a premium price. Importantly, a number of types of risks are recognized in this study, including risk centered around late delivery or unmet product specifications.

Much of the research on organizational buying behavior has focused on identifying principal sources of influence (e.g. Silk and Kalwani, 1982). Separately, Salancik, Pfeffer and Kelly (1978) have attempted to empirically verify the hypothesis that power and influence derive from the capacity to cope with organizational uncertainty. They indicate that influence has three sources: (1) knowledge and expertise, (2) control of information flows, and (3) position in the formal organizational hierarchy. Uncertainty, alternatively, varies over the different types of decisions being made and is reduced bia communication. Thus, they assume that those individuals most involved in communicating with others in the organization about the area of greatest uncertainty will have the greatest influence. They found that influence is a function of the type of uncertainty faced by organizations, and by the extent to which a given individual possesses the necessary characteristics to reduce that type of uncertainty. Stability in power and influence relationships may arise from "the subunits' manipulation of resources or information to maintain the importance of the contingencies with which they cope" (Salancik, Pfeffer and Kelly, 1978, p. 252).

An application of such a perspective to purchasing can be found in Spekman and Stern (1979). Individuals were asked to evaluate the extent of different types of risk relative to their role in the buying center. Uncertainty is looked at in terms of such variables as the degree of social, economic, political, and technical change outside the firm, confidence that a given decision was

correct, and doubt about how to obtain information. A significant relationship is found between aggregated scores for influence and the amount of environmental uncertainty.

A review of these efforts illustrates the need for more explicit findings on the interaction between perceived risk and influence. Specifically, the construct of perceived risk is too vague, and must be further broken down definitionally as it applies to buying behavior. Too much emphasis is placed on measuring the aggregate or overall level of risk present. Purchase situations vary, however, in terms of the types of problems they pose for the buying organization. For example, such situations can be characterized as involving technical problems, political problems, human relations problems, learning problems, financing problems, legal problems, and so forth. As the severity or complexity of a given problem increases, the uncertainty or risk involved increases. Once identified, the individual components of risk must then be related to an individual's ability to influence the purchasing process.

One type of breakdown is provided by Gronhaug and Bonoma (1979): unawareness of alternative suppliers, ignorance of different ways of using the technology, and habit or comfortability with rituals. It would seem more appropriate to classify these as reasons for uncertainty. Upah (1980) has gone further, though, in elucidating eight components of the construct, each of which is applied to both the uncertainty and magnitude of loss dimensions. Consequently, riks consists of the likelihood of loss and magnitude of loss due to: the supplier's reliability, the product, the need for the product, the ability to purchase the product, the demand for the product in customer markets, the financial aspects of the purchase, any legal or regulatory issues surrounding the purchase, and social/ecological factors related to the purchase. An adaptation of Upah's risk taxonomy if is found in **Table I**.

TABLE I
A CLASSIFICATION SCHEME FOR PURCHASING-RELATED CATEGORIES OF RISK

RISK DIMENSION / PURCHASING PROBLEMS	LIKELIHOOD OF:	MAGNITUDE OF LOSS FROM:
SUPPLIER RELATED	1. PROBLEMS DUE TO SUPPLIER FAILING TO MEET PRODUCT SPECS, DELIVERY OR SERVICE REQUIREMENTS, ETC.	
PRODUCT RELATED	2. PROBLEMS DUE TO FAILURE OF PURCHASED ITEM TO MEET NEEDS, TO BE COMPATIBLE WITH OTHER COMPONENTS OR EQUIPMENT, OR TO REQUIRE UNEXPECTED CAPITAL OUTLAYS.	
CUSTOMER RELATED	3. PROBLEMS DUE TO ADVERSE REACTION FROM CUSTOMERS OF PURCHASING ORGANIZATION TO USE OF ITEM IN PRODUCTION.	
PRICE RELATED	4. PROBLEMS DUE TO PAYING TOO HIGH A PRICE GIVEN VALUE OF PRODUCT TO COMPANY, THE PRICE OF COMPETITOR'S PRODUCTS OR SUBSTITUTES, OR COST OF MAKING OR LEASING ITEM INSTEAD OF BUYING IT.	
FINANCIALLY RELATED	5. PROBLEMS IN ARRANGING FINANCING OR IN LEASING ARRANGEMENTS FOR THE PURCHASE.	
LEGALLY RELATED	6. PROBLEMS DUE TO LEGAL ASPECTS OF THE PURCHASE AGREEMENT/CONTRACT.	
REGULATORY RELATED (ENVIRONMENTAL)	7. PROBLEMS DUE TO GOVERNMENT REGULATION REGARDING USE OF THE ITEM, SUCH AS WITH EMPLOYEE SAFETY, ANTITRUST, OR ENVIRONMENTAL DAMAGE.	

Source: Adapted form Upah, G. D., "Applying the Concept of Perceived Risk to Buying Influence in Industrial Firms," Advances in Consumer Research, vol, 7, Jerry C. Olson (ed.) Ann Arbor: Association for Consumer Research), 1980, p. 382.

In conducting research on the buying center, Johnston and Bonoma (1981, p. 19) have concluded that "finding the key buying influence in a purchase decision may be a highly complex, if not possible, process. It may be much more important to examine who influences which tasks and act accordingly." The position taken in this research is that influence arises from a person's ability to cope with (lessen) the types of risks involved in those tasks. Support for such a position can be found in the organizational theory literature (e.g. Lawrence and Lorsch, 1967; Thompson, 1967; Perrow, 1970; Hickson, et al., 1971; Salencik, Pfeffer and Kelly, 1978).

Upah (1980) suggests that when the risk of each of the various problem areas is very low, those in purchasing should be the primary source of influence. Alternatively, upper level management will play the major role where the risk of each type of problem is very high. If this is the case, the question becomes what happens between these two extremes. From the perspective of one's ability to deal with critical uncertainties, we might expect production or engineering personnel to be more influential when the buying decision is characterized by problems concerning technical aspects of the product. The same may be the case when the principal area of concern involves the compatibility of the product with existing equipment. If it is the possibility of adverse reaction by one's own customers to the use of some purchased component that most characterizes the buying decision, the sales/marketing department may be a key source of influence. Where there are legal or regulatory problems, the legal staff should play a larger role. Influence may rest with finance/accounting personnel in purchases involving problems with payment arrangements, make-or-buy decisions, leasing questions, or additional capital needs. Purchase situations involving risk due to problems related to employee safety or environmental damage should find greater involvement and influence on the part of senior management. The ability of purchasing managers to address problems in delivery or supplier reliability may enhance their influence when the firm is threatened with potential loss due to such problems. Alternatively, to the extent that members of the purchasing department have greater access to vital (potentially risk-reducing) information regarding a wide variety of problems, they may be able to enhance their influence as riskiness due to a number of problem areas increases.

In an attempt to operationalize the risk construct as it is presented in **Table I**, an exploratory survey was developed. This project had the further aim of investigating the nature of buying influence patterns in the presence of differing types and amounts of risk.

Method

A self-administered questionnaire was sent to 250 industrial companies represented in the Purchasing Management Association of the Carolinas-Virginia.

In an attempt to address the purchasing agent bias found in many organizational buying studies, two copies of the questinnaire were sent to the purchasing manager at each firm. Each was asked to pass one copy along to a person outside of purchasing whom they believed were influential in purchasing decisions. They were given separate instructions and self-addressed stamped return envelopes. A total of 195 people responded from 129 firms (see **Table II**), of which approximately one-half were in purchasing. The remainder covered a wide range of departments (see **Table III**). Response rate was increased with a call-back and second mailing to non-respondents.

A major problem in research on organizational buying behavior involves attempting to take measurements across companies or industries, and drawing subsequent generalizations. Among other things, companies vary widely in the types of products they purchase, especially with regard to technical specifications. In order to measure the relationship between risk and influence in such a wide variety of industrial companies, it was necessary to establish some common product reference point for respondents. It did not appear feasible to identify a common product that all respondent firms had recently purchased and which involved more than a modicum of risk. Some effort was made to do so in an initial exploratory survey. Thus, respondents were asked to specify a major component part or other key item purchased by their firm which is used in producing one of their final products (see Table II). Although some noise may be introduced as a result of differences among products, most of those specified fall into a common category which might be labeled "entering goods." These are goods that become part of the finished product, the costs of which are treated as expense items assigned to the manufacturing process (Hutt and Speh, 1981).

Once respondents had specified a product, they were asked to estimate both the likelihood of loss and the magnitude of loss that would result if problems occurred in each of the areas listed in **Table I** when purchasing that particular product (note: financially-related problems were not included because of interpretational difficulties expressed by respondents in a pre-test). These were measured on seven-point scales, the anchors of which were "very likely to encounter problems" versus "very unlikely to encounter problems" and "losses would be very substantial" versus "losses would be insignificant." The result is twelve close-ended items measuring perceived risk in terms of some major component part or commodity. Also included were two questions concerning the overall likelihood and severity of problems in purchasing the item, using a seven-point scale.

Influence was measured in a number of ways. An open-ended question asked respondents to name the three positions in the company most involved in purchasing decisions for the product they had specified. Alternatively, they were asked to estimate the influence of engineering, purchasing, production, sales/marketing, top managment, the legal department, and "other" in supplier selection for the product. A seven-point scale anchored by "very important" and "very unimportant" was included for each department listed. They were also asked to estimate the influence of each of these departments in determining the criteria used in deciding among product or vendor alternatives (also using the seven-point scale). This was done due to the possibility that a given department may be influential in setting criteria, but relatively uninvolved in actual vendor selection. The particular departments specified were chosen as a result of the pre-test as well as findings in the literature concerning influence in organizational buying (e.g., Weigand, 1968; Brand, 1972; McMillan, 1973; Patchen, 1974; Spekman and Stern, 1979).

In a separate set of questions, respondents rank-ordered the departments listed above from 1 to 6 in terms of their respective abilities to deal with each of the problem areas (see **Table I**). In addition, they responded to an open-ended question asking for the two major factors that determine which individual(s) is most influential in a purchase decision. Finally, company size and the job title of the respondent were requested.

Results

A wide variety of companies were included in the sample, all of which were involved in manufacturing and/or distribution (see **Table II**). Similarly, different respondents based their answers on a range of product types. The respondents represented a number of departments, half of which were outside of (but selected by) purchasing. **Table III** illustrates the range of departments included.

TABLE II
EXAMPLES OF PRODUCTIS SPECIFIED AND THE COMPANY TYPES INCLUDED IN STUDY

Product	Type of Manufacturer
Polypropylene	Fiber
Butyl Alcohol	Chemical
Adhesive Transfer Tape	Paper
Coke	Foundry
Titanium Dioxide	Paint
Leather	Shoe
Caustic Soda	Chemical
Rubber	Seal
Silver Contact Tips	Electrical Equipment
Machined Parts	Motor
Printing Equipment	Computers
Carbon Block	Tire
Wood Pulp	Chemicals
Yarn	Carpet
Steel Wire	Screw
Paper	Box
Decals	Cooking and Dishware
Carpeting	Mobile Home
Electrical Motors	Industrial Machinery
Sand	Cement
Transformers	Power Generation
Alloys	Steel
Zinc Chloride	Chemicals
Indigo Dye	Textile

TABLE III
DEPARTMENTS/FUNCTIONAL AREAS OF RESPONDENTS

	Number	Percent
Purchasing - Related	99	50.7%
Materials Management Related	15	7.6
Manufacturing/Production	11	5.7
Marketing Sales Related	8	4.2
General Management	36	18.4
Engineering - Related	19	9.8
Other	7	3.5
	195	100.0

In terms of the risk measures, results can be broken down into the likelihood of problems and the magnitude of loss from problems. In general, customer-related problems were the most likely, followed by supplier-related problems and problems with purchased items fulfilling company needs or their compatibility with existing equipment. Price-related problems were unlikely, while both legal and environmental problems were viewed as very unlikely. At the same time, losses would be significant if problems were encountered in the performance or compatibility of purchased items, as well as if customers reacted negatively. Problems with supplier reliability and price were seen as leading to moderate losses. These findings are summarized in Table IV.

TABLE IV
LIKELIHOOD AND MAGNITUDE OF LOSS FROM VARIOUS PURCHASING-RELATED PROBLEMS

		% RESPONDING						
		PROBLEMS VERY LIKELY OR LOSSES VERY SUBSTANTIAL					PROBLEMS VERY UNLIKELY OR INSIGNIFICANT LOSSES	
PROBLEM TYPE	RISK COMPONENT	1	2	3	4	5	6	7
SUPPLIER-RELATED	LIKELIHOOD	8.9	10	13.2	13.7	20	22.1	12.1
	LOSS MAGNITUDE	22.5	26.7	17.8	11	11	6.8	4.2
PRODUCT-RELATED	LIKELIHOOD	4.7	6.3	13.6	11	11.5	30.9	22
	LOSS MAGNITUDE	25.7	28.3	19.4	8.9	4.7	7.3	5.8
CUSTOMER-RELATED	LIKELIHOOD	45.5	16.9	5.3	7.9	4.8	7.4	12.2
	LOSS MAGNITUDE	45.2	21.8	11.7	5.9	5.3	4.8	5.3
PRICE-RELATED	LIKELIHOOD	3.7	10.1	16.9	19.6	10.1	22.2	17.5
	LOSS MAGNITUDE	14.7	20	18.4	21.1	7.9	10.5	7.4
LEGALLY-RELATED	LIKELIHOOD	1.6	5.9	4.8	8.5	1.7	22.3	45.2
	LOSS MAGNITUDE	12.3	16.6	14.4	16	7.5	13.9	19.3
REGULATORY/ SAFETY/ ENVIRONMENTAL	LIKELIHOOD	8	5.9	4.3	7.4	9.6	21.3	43.6
	LOSS MAGNITUDE	15.8	16.8	13.7	8.4	10.5	14.2	20.5

NOTE: FIGURES REPRESENT THE PERCENTAGE OF THOSE ANSWERING A GIVEN QUESTION THAT SELECTED EACH OF THE RESPONSE ALTERNATIVES.

Perceptions of risk did not tend to vary much from department to department. There were three major exceptions to this general rule. Both manufacturing/production and sales/marketing respondents perceived a greater likelihood of problems with supplier reliability. These two departments also rated the likelihood of product-related problems arising significantly higher than did other departments. There was a wide range of opinion regarding the likelihood of price-related problems, with engineering and purchasing personnel perceiving this as less likely than those in other departments.

In terms of the measures of influence, it appears that certain departments are consistently influential across all types of purchasing problems. The more frequently mentioned as being influential were purchasing, production/manufacturing, and engineering personnel (see Table V). These were emphasized more than the many other departments thought to play some role both here and in the open ended question asking for the three consistently more influential departments. Purchasing received the greatest emphasis, perhaps due to a bias in that half the respondents were in purchasing. However, a check of just non-purchasing respondents also found purchasing emphasized. Top managment was not seen as playing a larger role than others, which is consistent with previous findings (e. g., Corey, 1978). These results were consistent among organizations of different size (employment).

TABLE V
OVERALL INFLUENCE OF VARIOUS DEPARTMENTS IN MAKING SUPPLIER SELECTION DECISIONS

	% Responding						
	Very Important						Very Unimportant
Department	1	2	3	4	5	6	7
Engineering	46.1	9.4	7.9	6.8	2.1	8.9	18.8
Purchasing	56.9	21.0	10.8	6.2	1.5	1.5	2.1
Sales/Marketing	21.3	16.0	15.4	9.6	9.6	12.8	15.4
Production	35.8	18.1	14.0	11.9	7.3	5.2	7.8
Senior Management	30.7	20.8	14.6	13.5	5.2	6.8	8.3
Legal	6.1	3.9	8.3	5.5	12.7	18.2	45.3

Note: Figures represent the percentage of those answering a given question that selected each of the response alternatives.

A related question concerns whether people from different departments perceive one anothers influence in the same way. Engineering's influence was rated higher by those in manufacturing/production and in engineering than by all other departments. Both the purchasing department and the sales/marketing department gave purchasing a significantly higher rating than did others. Sales/marketing rated its own influence much higher, on average, than did any department. General management, marketing, and manufacturing tended to rate production personnel as more highly influential than did others. Senior management was rated highly influential by all departments except manufacturing/production and marketing/sales. All respondents indicated that the legal staff was very low in influence.

It might seem that influence would vary over the course of the buying process. For example, manufacturing might be more influential at an early stage such as need recognition, engineering may play a bigger role in setting specifications, and purchasing may make the actual vendor choice and determine the order routine. Although changes in influence were not measured over such stages, questions were directed at whether there was any difference between the influence of departments in setting criteria for evaluating vendors and in actually selecting suppliers. No differences were found.

Respondents ranked departments in terms of their abilities to deal with the problem areas listed in Table I. Over 11, engineering was consistently rated either first or second among departments in terms of its ability to deal with all the problem areas except legal (see Table VI). Purchasing was also consistently rated highly, except in coping with customer-related and environmentally-related problems. Production was somewhat effective at dealing with supplier and product-related problems.

Sales/marketing was rated most effective among departments in dealing with customer satisfaction problems, and third in ability to cope with pricing problems. Top management was consistently rated third or fourth, except where environmental problems were encountered. The legal staff was generally last except with legal or envir. problems.

TABLE VI
RANKINGS OF THE ABILITY OF VARIOUS DEPARTMENTS TO COPE WITH PURCHASING RELATED PROBLEMS

I. SUPPLIER PROBLEMS	II. PRODUCT PROBLEMS	III. PRICING PROBLEMS
1. PURCHASING	1. ENGINEERING	1. PURCHASING
2. ENGINEERING	2. PURCHASING	2. ENGINEERING
3. PRODUCTION	3. PRODUCTION	3. SALES/MARKETING
4. TOP MANAGEMENT	4. SALES/MARKETING	4. TOP MANAGEMENT
5. SALES/MARKETING	5. TOP MANAGEMENT	5. PRODUCTION
6. LEGAL	6. LEGAL	6. LEGAL
IV. CUSTOMER PROBLEMS	**V. LEGAL/CONTRACTUAL PROBLEMS**	**VI. ENVIRONMENTAL/ SAFETY/REGULATORY**
1. SALES/MARKETING	1. LEGAL	1. ENGINEERING
2. ENGINEERING	2. PURCHASING	2. TOP MANAGEMENT
3. TOP MANAGEMENT	3. TOP MANAGEMENT	3. LEGAL
4. PURCHASING	4. ENGINEERING	4. PURCHASING
5. PRODUCTION	5. SALES/MARKETING	5. PRODUCTION
6. LEGAL	6. PRODUCTION	6. SALES/MARKETING

A central question concerned whether or not the influence of each department was significantly different as the likelihood and potential loss from each problem area varied. A number of such differences were found (chi square at .05 level). For example, the influence of both engineering and purchasing varied significantly with the likelihood of both supplier reliability and customer-related problems. The influence of sales/marketing varied as a function of the amount of potential loss from customer-related, regulatroy, and legal problems. Manufacturing/production influence varied with the amount of potential loss due to poor supplier reliability, product-related, customer-related, and price-related problems. Top management's role varied depending upon the likelihood and magnitude of loss from product-related, customer-related, regulatory, and legal problems.

A number of influence variables did demonstrate significant correlations with the risk measures. Using a more liberal isk of error (.10), relatively weak coefficients were found, in part as a reflection of the exploratory nature of this study. Senior management appears to exert influence across a range of problem areas. Purchasing's influence was significantly correlated with customer-related problems. Manufacturing finds its influence positively correlated with the amount of potential loss from product, price, or customer-related problems. It should be remembered that customer-related problems were rated high both in terms of likelihood and magnitude of loss, and that purchasing was consistently a major source of influence. Nonetheless purchasing personnel were not rated especially high in their ability to cope with customer problems. While marketing was rated high in ability to cope with customer problems, their influence was not higher when these problems were more prevalent. The legal staff was rated high in ability to cope with legal and regulatory problems, and its influence is highest in the face of such problems.

While the focus here was on breaking out sub-components of risk, others have attempted to combine measures or risk dimensions additively or multiplicatively to achieve a global measure. For example, likelihood of loss times amount of loss may provide expected value of loss. Problems exist such as those related to scale differences between measures (Schmidt 1973;Schmidt and Wilson 1975). With these in mind, six risk measures were computed by taking the likelihood of each problem area times the loss if that proble accurred. All six were regressed against the influence of each department. These composite measures significantly explained the influence of production (R^2=.23,F=4.05) and engineering(R^2=.14,F=2.18), as well a the (low) influence of the legal staff(R^2=.28,F=4.8). It also appears that a composite of the six magnitude of loss measures is a better predictor of influence than is a composite of the six likelihood of loss measures.

Conclusions

Though mixed, the results of this exploratory study do suggest that influence varies over risk categories, and so risk may be a useful variable in explaining and understanding purchasing. It especially appears that the role of the production department is consistently related to the presence of risk in purchase decisions. The type of risk which predominates may not be clear, though, in that a given purchase decision is likely to involve more than one type of problem. Ongoing research should be directed at combinations of risk variables.

Marketers may find this discussion holds implications for the emphasis placed on various attributes in strategy formulation. The attributes stressed through the marketing mix should relate to the buying organization's primary sources of perceived risk . Industrial segmentation can be designed using the risk taxonomy discussed here. The salesforce could find it useful to determine the relative abilities of various departments to cope with key sources of risk, and direct their efforts to those departments.

The implications for buyers are also many. Firms have avoided risk through source loyalty, long-term contracts, and reciprocity arrangements. A less costly approach might involve viewing purchase decision-making as risk-reducing behavior. Purchasing professionals should concentrate on identifying the relevant risks, and developing the expertise to best cope with them. Such expertise can be enhanced through ongoing professional development programs. In this way, the influence of the purchasing department in organizational purchase decision-making will also be enhanced.

References Available Upon Request