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The Effect of Environmental Turbulence and Innovativeness on the Breadth of Marketing Research Activities Within Firms

Rania Ijhaish

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ABSTRACT

The Effect of Environmental Turbulence and Innovativeness on the Breadth of Marketing Research Activities Within Firms

Rania Ijhaish

Recent research efforts on marketing research processes within organizations have suggested that environmental and organizational factors have a significant effect on the Breadth of marketing research activities within organizations. Based on a comprehensive review of literature on research utilization and organizational science, hypotheses were developed on the effect of environmental turbulence and innovativeness on the breadth of market research activities within organizations. Research hypotheses were tested through data that was collected for the purpose of this study from a random sample of senior marketing executives. A mail survey of a self-administered questionnaire resulted in 128 responses. The results of a stepwise regression analysis show that environmental turbulence and innovativeness are significant predictors of the breadth of market research activities. This study provides the first empirical support to the effect of these variables on the breadth of marketing research activities. Some limitations decrease the generalizability of this study. Directions for future research on marketing research activities within organizations are presented.

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CHAPTER 1

INTRODUCTION

A growing concern over the past few years among academicians and practitioners has been to understand the major determinants and impediments related to information collection and utilization in organizations (Starbuck 1976; Huber and Daft 1987; Glazer 1991; Menon and Varadarajan 1992; Glazer and Weiss 1993). The Marketing Science Institute (MSI) lists "improving the utilization of market information at the very top of its research priorities for the 1990's (Marketing Science Institute 1990). This concern stems from the notion that the organizational effectiveness depends in large on the amount and quality of information available to its decision-makers (Sinkula 1990).

Information is argued to create a sustainable competitive advantage by increasing the speed of decision-making, reducing uncertainty, improving decision-making results and identifying innovation opportunities (Day and Wensley 1988). The importance of information has been accelerating enough for scholars to consider it the lifeblood of the organizations (Daft 1992) and to view it as a primary organization resource (Peterson 1982).

In the marketing discipline, business and marketing scholars have long articulated that to be market-oriented and to gain competitive advantage, firms are presumed to rely heavily on

information pertaining to all aspects of the environment they operate in (Porter 1980; Day and Wensley 1988; Kohli and Jaworski 1990; Narver and Slater 1990). This is particularly true for marketing managers who are encountered with a greater amount of uncertainty in their decision-making given that the tasks of the marketing function encompass rapid change as well as multiplicity and complexity of factors to be considered in decision making (Shelly 1991).

Marketing information sources for marketing managers are diverse in their scope and complexity (Sinkula 1990). The most popular of these sources are marketing research, decision support systems and expert systems (Cravens 1991), what is known as the Marketing Information System (Kotler 1984).

The collection and use of information generated by marketing research has gained "center-stage status" by marketing decision-makers in their efforts to become more competitive and market-oriented (Sinkula 1990; Menon and Varadarajan 1992). Kohli and Jaworski (1990, p.6) state that the "organization-wide generation of market intelligence..., dissemination of the intelligence..., and organization-wide responsiveness to it" are the critical elements of market orientation. The growth of the marketing research industry of near 15% per year (Sinkula 1990), and the increasing attractiveness of external marketing research to organizations (Marketing News 1987) are indicative of the growing recognition among scholars and practitioners of the importance of market-research generated information. Urban and Hauser (1993) articulate that "in the 1990's market research will be increasing in importance" as American, European and Japanese companies are viewing it as the most important technology for marketing.

Accordingly, understanding the breadth of marketing research activities within firms and the factors that motivate marketing decision-makers to engage in marketing research is an increasingly important area of research especially that the general consensus seems to be that our current understanding of this area is less than adequate (Sinkula 1990; Menon and Varadarajan 1992). This importance is heightened in view of some controversy over the status of marketing research for decision-makers as some studies have indicated that marketing research is seldom carried out (Robinson and Pearce 1984), and in many cases, is not perceived as a valuable source of information (Bellenger 1979; McDaniel and Parasuraman 1985).

In this study we attempt to contribute to the current understanding of marketing research, as a managerial decision-making tool, by examining the breadth of marketing research activities and the factors that may motivate it. The breadth of marketing research activities in our study refers to the number of marketing research activities that are conducted across a multitude of decision-making areas. Based on their information need, managers may engage in a breadth-strategy of marketing research, by which they carry out research in a multitude of areas, or may choose to pursue a depth approach, by which they limit their research activities to one or few areas of decision-making. The choice made by managers with respect to their marketing research strategy as well as the factors that may explain this choice is of utmost importance as marketing managers are confronted with a vast multiplicity of areas in which they can conduct research and our current understanding of their choice process is very minimal. This could be of particular benefit to marketing research providers as it provides them

with an understanding of their clients' needs and consumption behavior of the "marketing research product."

Alarmed by the potential negative consequences of ignoring marketing research, a main medium of transmitting the voice of the market (Zaltman and Barraba 1991), some researchers have embarked their work in the past decade to understand the factors that are associated with various market research-related issues (Deshpande 1979; Deshpande and Zaltman 1982, 1987; Cheng et al. 1986; Lee et al. 1987; Kinnear and Root 1988; Perkins and Rao 1990; Sinkula 1990; Menon and Varadarajan 1992).

Despite the richness of the literature on the factors that effect the collection and utilization of marketing research in organizations, a recent critical state-of-the-art review (Menon and Varadarajan 1992) concludes that the potential impact of the environmental factors on marketing research activities (as part of marketing knowledge) has been largely ignored by researchers despite its theoretical and practical significance.

Thus, this study proposes to examine the effects of environmental turbulence on the breadth of market research activities within firms. Environmental turbulence makes the external developments and change in the environment unpredictable (Khandwalla 1977; Daft 1992). This lack of predictability of environmental forces is expected to increase managers' need for conducting marketing research across various decision areas as they attempt to reduce uncertainty and predict future actions and changes in their environment.

Also, the effect of the degree of the innovativeness of the firm on the breadth of marketing research activities will be examined. Innovativeness is an important organizational

factor that is documented for its impact on information collection activities (Daft and Becker 1978) yet it has not been addressed in the past stream of studies on marketing research. The degree of a firm's innovativeness is expected to influence the breadth of marketing research activities as managers are likely to gather information, seek new ideas, and consequently, engage in market research activities on a broad scale when operating in the boundaries of a pro-innovation culture (Zaltman et al. 1973; Zaltman 1986).

Objective of this study.

The purpose of this study is to assess the effect of environmental turbulence and innovativeness on the breadth of marketing research activities, that is, on how much is done across different areas of decision-making.

Significance of this study.

1. This study is the first to introduce and examine the breadth concept in a marketing research context.
2. The proposed variables have not been examined before by researchers in the area for their effect on marketing research activities.

CHAPTER 2

BREADTH OF MARKETING RESEARCH ACTIVITIES

This chapter discusses the various issues related to the definition and measurement of breadth of marketing research activities. A review of the factors associated with marketing research activities within firms is also presented.

Growing attention has been directed to issues related to the management of marketing research information (Deshpande 1979; Deshpande and Zaltman 1982, Sinkula 1990, Menon and Varadarajan 1992). Marketing research is conceptualized here following the definition offered by the American Marketing association of marketing research being:

> "the function which links the consumer, customer, and public to the marketer through information-information used to identify and define marketing opportunities and problems; generate, refine, and evaluate marketing actions; monitor marketing performance; and improve understanding of marketing as a process." (Bennett 1988)

Marketing research information could be obtained by collecting existing information in the firm, using standardized research services or conducting special research studies (Cravens 1991).

Marketing research plays a vital role for firms in implementing the marketing concept and becoming market oriented (Kohli and Jaworski 1990; Slater and Narver 1994). Kohli and Jaworski (1990, p.6) state that the "organization-wide generation of market intelligence..., dissemination of the intelligence..., and organization-wide responsiveness to it" are the critical elements of market orientation. Many authors (Kotler 1984; Churchill 1991; Zaltman and Barraba 1991; Urban and Hauser 1993) have repeatedly stated that only through sound marketing research is a firm able to effectively understand the markets it serves and the competition it faces as well as clearly hear the voice of the customer to whom it caters its products.

Whether marketing research activities are carried out for instrumental purposes, that is toward specific decision-making situations (Rich 1977) or for conceptual ends aiming at the general enlightenment of the manager (Weiss 1982), the strategic importance of marketing research information is always stressed by business scholars (Deshpande and Zaltman 1982; Sinkula 1990).

From this perspective, a systematic stream of research in the last decade has attempted to provide a clearer understanding of the process of collecting and utilizing marketing research (Deshpande 1979; Deshpande and Zaltman 1982, 1987; Lee et al. 1987; Perkins and Rao 1990; Menon and Varadarajan 1992). Some studies focused on issues related to the *amount*,

sources, and/or types of marketing research (Cheng et al. 1986; Kinnear and Root 1988; Sinkula and Hampton 1988; Sinkula 1990; Higby and Farah 1991), while other research was aimed at understanding the factors that influence the *utilization* of marketing research output (Deshpande and Zaltman 1982, 1987; John and Martin 1984; Hu 1986; Menon and Varadarajan 1992).

These studies have not addressed any issues related to the *breadth* of marketing research activities. Most of their focus went to examining the *use of a particular research report* by managers (Deshpande and Zaltman 1982). Sinkula (1990) points out that this stream of research has focused mainly on profiling the use of particular piece of research and not the extent or the breadth of marketing research activities. A review of the literature reveals a consensus among marketing researchers in the area, that market research *use* construct has been, to say the least, troublesome (Deshpande and Zaltman 1982; John and Martin 1984; Sinkula 1990; Menon and Varadarajan 1992). Although research efforts have been directed towards understanding it, great controversy and confusion surround this elusive construct, enough for cautious researchers to question whether the use of market research was truly ever measured (Sinkula 1990). This observation was mentioned in early work on the area (Deshpande and Zaltman 1982), and even after a decade by Menon and Varadarajan (1992).

Based on the past discussion, in this study *no attempts are made to examine the degree to which marketing managers use or incorporate marketing research in their decision-making*. Rather, the focus is on examining the *breadth* of marketing research activities conducted in firms.

Breadth of Marketing Research Activities

Breadth, in a general sense, is defined as "the openness, lack of restriction, especially of viewpoint or interest." (Collins Dictionary and Thesaurus 1987).

The breadth of marketing research activities, in this sense, signals information need in a multitude of areas rather than a few limited areas as the manager is interested in information pertaining to various areas of decision-making.

Theoretical foundations for conceptualizing marketing research activities along the breadth dimension could be found in the consumer behavior literature as well as the marketing strategy literature. In their study of information-search behavior by consumers, consumer researchers (Bettman 1979; Ozanne et al. 1992) suggest that a main characteristic of information search behavior is the breadth of this search; the number of attributes sought by the consumer. Ozanne et al. (1992), for example, introduce a framework in which they suggest that the amount of information search and processing can be characterized by breadth or depth. While breadth of information refers to the *number of different* attributes that are acquired or processed, depth of search and processing refers to the amount of search or processing devoted to *each* attribute. In the marketing strategy literature, breadth versus depth strategies have been introduced in the context of brand image management (Martin 1992). In this context, breadth strategy means to base the brand image on addressing a *multiple set* of

consumer needs while a depth strategy indicates that the image is based on a *single set* of these needs.

In the context of marketing research activities, we propose that a breadth strategy is present when marketing research activities are conducted in a *multitude* of decision-making areas whereas a depth strategy is the case when marketing research activities are directed to one or a few *limited* decision-making areas.

Decision-making areas for which information may be needed are multiple. Wind (1982), provides an excellent summary of these areas by stating that:

> "The product/marketing manager needs continuous up-to-date information on consumers' behavior (awareness, attitudes, purchase, and usage behavior), the marketing environment (wholesale and retail sales, marketing efforts, and other relevant characteristics), competitive actions (price, advertising, promotions, distribution), and other environmental conditions (government regulations, economic conditions and forecasts, technological innovations)."

Wind (1982) further argues that one way of responding to information need in these areas of decision-making is to undertake marketing research as it provides a major set of tools for product policy and is expected to lead to a reduction in the risk surrounding these various decision areas and improve decision-making.

Another framework to describe the decision-making areas for which marketing research information may apply has been suggested by the American Marketing Association (Kinnear and Root 1988). According to this framework, various marketing research activities could be conducted in each of the following areas: Business/Economic Research and Corporate Research; Pricing; Product; Distribution, Promotion; and Buying Behavior. This framework corresponds largely to Kotler's (1984) framework of the components of the marketing mix.

Thus, in this study, we attempt to examine the breadth of marketing research activities across the decision areas suggested by the American Marketing Association (Kinnear and Root 1988). Furthermore, we are interested in examining the factors that may explain the breadth of marketing research activities within firms. To this end, we next provide a brief summary of the various factors that have been examined in past studies for their effect on marketing research activities within firms. It is important to note that none of these studies have addressed the concept of breadth of marketing research activities. Their research goals were dedicated to understanding other issues related to marketing research processes in firms (i.e. utilization of research output, utilization of external research suppliers). Yet, one can still draw on the theory and findings in these studies, as these studies, like ours, attempt to understand the marketing research component of decision-making within firms and the factors that surround issues related to its use, source or, in our case, breadth. Thus, theory and research on factors that effect use of research can be examined in this study. Sinkula's (1990) research lends support to

our argument. while examining the *extent of reliance on external market research suppliers*, he based much of his theory and research on findings and arguments drawn from the *use of marketing research output* literature. Next, we present a summary of factors related to market research activities within firms.

Marketing Research Issues Addressed in Past Research

Various factors were discussed and examined for their potential effect on marketing research activities. Although research in this area started only in the past decade, it has covered a wide array of issues pertaining to these factors. The most prevalent of these factors are organizational factors (Deshpande 1982; Deshpande and Zaltman 1982), decision-maker's characteristics (Lee et al. 1987; Perkins and Rao 1990), quality of marketing research (Deshpande 1982; John and Martin 1984; Shrivastava 1987), and manager-researcher interaction (Moorman et al. 1993).

With respect to *organizational factors*, organizational structure was studied by Deshpande (1982), who found that brand managers were more likely to use marketing research when operating in decentralized firms. The demographics of the organization were studied for their potential effect on marketing research. Sinkula (1990) found that manufacturers as well as more diversified organizations utilize external research suppliers with greater intensity than service or less diversified firms.

Individual characteristics of decision makers have received great attention by researchers. Zinkhan et al. (1987) found that the decision maker's risk aversion was the key personality factor related to the use of marketing decision support systems. Perkins and Rao (1990) examined the effect of various levels of experience on information use. They found that more experienced managers are likely to search for more information, simultaneously restricting themselves to only relevant information. Hu (1986) examined the difference between managers and researchers in information utilization. He found that managers acted more immediately on information than did the researchers, who tended to wait for more complete information before they took action. One of the individual factors that have been found to significantly impact marketing research use is the manager's prior beliefs or dispositions. Lee et al. (1987) as well as Deshpande and Zaltman (1982) confirmed that the further the information in the research is from the manager's prior beliefs or expectations, the less the use of information.

With respect to the *research characteristics*, some attributes of the research report were found to effect use of the information. Perceived technical quality of the research report was found to have effect on use. Where higher perceived technical adequacy of the method and analysis and higher satisfaction with the presentation of the data (tables, graphs, etc.), higher utilization was reported (Weiss and Bucuvalas 1980; Rich 1977; Deshpande and Zaltman 1982; Sinkula 1990). Interestingly enough, the importance of the quality of the method has been found to be a function of how surprising the results are (Deshpande and

Zaltman 1982). When research results are consistent with expectations, managers are less inclined to pay attention to the research methodology than when the results are surprising.

The importance of *manager-researcher interaction*, or the dynamics of manager-researcher relation has been the focus of the recent studies by Moorman et al. (1992; 1993), who have reported results indicating that trust and perceived quality of interaction contribute most significantly to marketing research utilization.

Cheng et al. (1986) presented a *descriptive comparison* of marketing research in the Canadian and United states economies. Their findings indicate that although marketing research in Canada has increased in scope and intensity, it still lags the American position.

Discussion

The review of the literature shows that despite the richness of empirical research on the factors affecting marketing research use in organizations, most of the focus was on the areas of organizational/informational factors and micro-level factors related to the orientation of the managers (Menon and Varadarajan 1992). No attempts have been found in the literature to examine the effects of macro-level factors of the environment in which the firm operates.

In their recent critical state-of-the-art review, Menon and Varadarajan (1992) propose a comprehensive model of organizational and informational factors effecting research use in organizations. They highlight the direct and indirect effects of environmental forces on research use and other organizational/informational factors that they propose in their model, and

conclude that the potential impact of these factors, viewed along dimensions of complexity and instability, has been largely ignored by researchers despite its theoretical and practical significance. If we note the potential effect of environmental factors on other important factors as organizational structure (Daft 1992) and the perceived complexity and uncertainty of the managerial task (Duncan 1972; Daft et al. 1988), the importance of studying environmental effects is heightened further.

Another conclusion of our review was the lack of studies, except for Menon (1989), on the effect of the firm's innovativeness on its engagement in marketing research activities despite the apparent theoretical significance of this relation. Menon and Varadarajan (1992) propose, in their previously mentioned model, that the stronger a pro-innovation culture in an organization, the greater the utilization of information in the organization. While some researchers examined marketing research through the diffusion and adoption of innovation theory, viewing marketing research as an innovation (Zaltman 1986, Sinkula 1990), few attempts in the literature were made to link the extent of a firm's innovativeness to its engagement in market research activities (Menon 1989).

Accordingly, this study attempts to address these two issues by examining the effect of environmental turbulence and the firm's innovativeness on the breadth of marketing research activities within firms.

CHAPTER 3

ENVIRONMENTAL TURBULENCE

This chapter presents issues related to the concept of environmental turbulence and the theoretical relation between this construct and the breadth of marketing research activities.

The environment in which a firm operates has been long studied by researchers due to its potential effect on organizational structure and managerial-decision making (Hambrick 1983; Grinyer et al. 1980; Miller 1987; Day and Wensley 1988; Kohli and Jaworski 1990; Slater and Narver 1994). Studies have reported results on the effects of environmental factors on managers' need for information and the potential consequences of seeking and using this information (Daft et al. 1987; Huber and Daft 1987). We discuss next the concept of environment and its characteristics.

Definition of the Environment and Environmental Characteristics

Duncan (1972) defines the environment as "the relevant physical and social factors outside the boundary of an organization that are taken into consideration during environmental

decision making." Early work on the environment and organizations has viewed the environment as a single entity (Duncan 1972, Tung 1979). Most recently, studies have attempted to conceptualize and measure the environment as composing of different sectors such as the customer, competitors, economic and regulatory sectors (Hambrick 1982, Bourgeois 1980; Daft et al. 1988).

The environment of an organization can be viewed as composed of two layers, each of which is composed of various sectors (Dill 1958). The first inner layer is the task environment, which includes sectors that have direct influence on the operations of the organization. Sectors in this layer include customers, suppliers, competitors and technology. The outer layer is the general environment, which is composed of the social, economic and regulatory sectors that have indirect influence on the organization (Dill 1958). Because of its direct influence on the operations of the organization, the task environment and the sectors it is composed of has been the focus of organizational researchers (Aldrich 1979; Dess and Beard 1984; Miller 1987).

Researchers have proposed that the need for information is larger in the task environment, specifically in the customer, competition and technological sectors (Huber and Daft 1987; Daft et al. 1988). In their study of chief executive scanning activities, Daft et al. (1988) found that these sectors of the task environment create greater uncertainty for chief executives than the economic or regulatory sectors, thus increasing the need for information.

Organizational scientists have enriched the literature with a wide range of topologies on the characteristics or dimensions of the organization's environment (Emery and Trist 1965; Child 1972; Starbuck 1976; Aldrich 1979; Khandwalla 1977; Pfeiffer and Salancik 1978; Dess

and Beard 1984). This wide range encompasses dimensions such as the uncertainty, complexity, turbulence, munificence and capacity of the environment.

The most often discussed of task environment characteristics are environmental uncertainty and turbulence (Dill 1958; Duncan 1972; Khandwalla 1977; Miller 1987). Huber and Daft (1987) define perceived environmental uncertainty as the absence of information about organizations, activities and events in the environment. Turbulence refers to the extent to which the environment of an organization is rapidly changing, unstable, and unpredictable (Emery and Trist 1965). Duncan (1972) has reported that high levels of turbulence were associated with high levels of perceived environmental uncertainty.

Discussion

The review of the organizational literature have revealed a great deal of overlap and duplication in the various dimensions used to characterize the environment, a conclusion that has been stated by various researchers (Dess and Beard 1984; Clark et al. 1994). For example, many researchers use the term "dynamism", "instability" and "turbulence" rather interchangeably to refer to unpredictability of change (Dess and Beard 1984). Other researchers confuse rate of change with turbulence, overlooking that *unpredictability* of change is what makes an environment turbulent (Daft et al. 1988). An environment in which change is predictable is not necessarily a turbulent environment (Milliken 1987). Some research have treated complexity and turbulence as separate unidimensional constructs (Duncan 1972,

Daft et al. 1988), while other researchers have articulated that turbulent environments are those that are dynamic, threatening and *complex*, thus suggesting the multidimensionality of the turbulence construct (Asnoff 1979; Drucker 1980; Khandwalla 1977; Miller and Freisen 1982; Miller 1987). Clark et al. (1994) provide a comprehensive review of the various attempts of conceptualizing and operationalizing these characteristics and convincingly demonstrate the observed overlap in past research efforts in the field.

Based on this review, and following mainly Khandwalla's (1977) and Miller's (1987) work, this research will examine perceived environmental turbulence as a major indicator of the level of uncertainty about the external task environment. Thus, we define perceived environmental turbulence in this sense as the amount, diversity, magnitude and unpredictability of change in events that managers perceive in the organization's external task environment.

Slater and Narver (1994) state that environmental turbulence could be viewed as composing of three subset constructs; market (customer) turbulence, competitor turbulence and technological turbulence. This conceptualization corresponds largely to the conceptualization discussed earlier of the task environment as composing of customer, competition and technological sectors (Daft et al. 1988). Thus we further propose defining *customer turbulence* as the amount, diversity and predictability of change in events related to customers and their preferences; *competitor turbulence* as the amount, diversity and predictability of competitor marketing activities; and *technological turbulence* as the amount, diversity and predictability of change in product/ service technology.

Environmental Turbulence and the Breadth of Marketing Research Activities

The degree to which organizations engage in environmental scanning, a process of seeking and collecting information about events and relationships in a company's environment (Fahey and King, 1977), depends largely on managers' perceptions of the turbulence in their environments (Daft and Lengel 1986; Huber and McDaniel 1986). Daft and Lengel (1986) state that "when the environment is perceived as hostile, competitive, and rapidly changing..., the organization gathers *more data* about the environment (italic added)." Such data typically includes information about customers, suppliers, competitors as well as socio-cultural and technological trends (Fahey and King 1977).

Marketing research is considered an important tool for environmental scanning (Kotler 1984; Churchill 1991) Marketing activities in general, and marketing research activities in particular are considered a principal mechanism for dealing with the uncertainty inherent in turbulent environment (Khandwalla 1977). Daft (1992) states that "environmental conditions of complexity and change create greater need for gathering information and to respond based on this information." He further argues that marketing research, assuming a boundary-spanning role, is a major source of information as it links an organization with the key elements in the external environment by detecting and bringing into the organization information about changes in the environment in areas like trends in consumer tastes, new technological developments, innovations and competitors' actions. Similarly, Davis et al. (1991) state that

marketing, being a boundary function, is responsible for interaction with components of the environment on daily basis, and as these components become more dynamic and complex, marketing is expected to receive greater attention in the firm. They have found in their study that more turbulence is positively associated with the marketing orientation of the firm and its information gathering activities (i.e. utilization of external marketing consultants and customer surveys). They offer a convincing interpretation to their findings by stating that "as the environment becomes more uncertain, managers react by implementing more marketing activities such as collecting information about their customers and performing more internal activities to become more market oriented (i.e. market segmentation to understand more about specific needs of the customers)."

Based on the past theories and findings, and along the lines of research and theorizing that has provided support for the relation between the environmental characteristics and the amount and nature of information processing in organizations (Leavitt 1951; Gaston 1972; Daft and Macintosh 1981, Daft and Lengel 1986), it is our expectation that the breadth of marketing research activities will be positively associated with greater perceived turbulence in the firm's task environment. Managers operating under conditions of unpredictable change are expected to seek information and thus conduct research activities in a multitude of areas as the uncertainty surrounding their operations makes their information need greater and across various areas of decision-making as they cannot determine the areas of expected change nor its direction.

Thus, we hypothesize that:

H_1: The Greater the Perceived Environmental Turbulence, the Greater the Breadth of Marketing Research Activities.

Objective and subjective measures of environmental turbulence

When measuring organization environments, objective measures and/or subjective measures could be used to assess the dimensions of interest to researchers. Objective measures were defined as those that require only a "direct assessment of organizational properties without any conceptual transformation" (Payne and Pugh 1976, p. 1128). Subjective measures, on the other hand, require "direct assessment of organizational properties by instruments which measure group perceptions." (Payne and Pugh 1976, p. 1128).

Environmental turbulence could be measured objectively by examining rates of market and technology change (Lawrence and Lorsch 1967) or changes in designs and deregulation of industries (Miller 1993). While many researchers reported measuring environmental turbulence objectively (Tosi et al. 1973; Snyder and Glueck 1982), their research efforts were severely criticized for attempting to measure change, which does not necessarily entail turbulence, as turbulence stems mainly from *unpredictability* of change and not its occurrence *per se* (Milliken 1987). Some research have even indicated that environmental change, when assessed objectively, could be certain, predictable and following a forecastable pattern (Lenz and

Engledow 1983), a status that characterizes the opposite of turbulent environments (Khandwalla 1977).

An alternative measurement approach of environmental turbulence has been to assess this construct through the perceptions of managers (Duncan 1972; Khandwalla 1977; Dess and Beard 1984; Miller 1987; Daft et al. 1988). This measurement technique has the pragmatic advantage of being "do-able" (Lusch and Laczniak 1987), but most importantly, it is perceptions of the turbulence in their environments that managers base their decisions on, and not objective measures or ratios (Anderson and Paine 1975, Van de Ven and Ferry 1980; Milliken 1987). As Day and Wensley (1988) state, "market environments are not unambiguous realities. They are given meaning in the minds of managers through processes of selective attention and simplification."

The merits of measuring environments subjectively through managers' perceptions rather than objectively have been discussed by various researchers (Bourgeois 1980; Boyd et al. 1993) who tend to agree that actions taken in various decision-making situations (i.e. conduct of market research) are based on managers' perceptions of their environment's status rather than objective measures of this status. Van de Ven and Ferry (1980), while discussing what they call "the popular myths" about subjective versus objective measures, state that any objective measure is a subjective measure once removed from its context and is entered into the perceptions of the respondents.

Based on this review, in this study, environmental turbulence will be assessed through the perceptions of marketing decision-makers.

CHAPTER 4

INNOVATIVENESS OF THE FIRM

This chapter introduces innovativeness of the firm as an organizational culture variable. Discussion of the relations among innovativeness, breadth of marketing research activities and environmental turbulence as well as related hypotheses are presented.

Definition and Conceptualization of Innovativeness

Organizational innovativeness was defined as "the rate of the adoption of innovations" (Damanpour 1991).

Innovation has been a frequently studied construct by organizational researchers due to its recognized effect on the long term performance (Comanor 1965; Kay 1979; Schmookler 1966; Capon et al. 1990) and the survival and competitiveness of the firm (Miller and Freisen 1982, Porter 1980).

A recent stream of research proposed the conceptualization of a firm's innovativeness as part of an organization's culture (Smircich 1983; Deshpande and Webster 1989; Menon and Varadarajan 1992). Deshpande and Webster (1989, p. 4) define organizational culture as "the

pattern of shared values and beliefs that help the individual understand organizational functioning and thus provide them norms for behavior in the organization." They state that organizational culture is related to the "causality that members impute to organizational functioning." Thus, our decision to include innovativeness of the firm in our study does not stem only from our belief of its theoretical significance to our framework, but also in response to a recent call by marketing scholars to integrate cultural issues in general (Mahajan et al. 1987), and innovation culture in particular (Menon and Varadarajan 1992; Deshpande et al. 1993) into the research on strategic marketing planning and decision-making. The benefit of including culture variables into research frameworks was stated by Smircich (1983): "a culture variable provides a conceptual bridge between micro and macro levels of analysis."

In marketing decision-making, innovativeness is a major concern for marketing managers. In a frequently-cited paragraph, Drucker (1954 p. 37) argued: "There is only one valid definition of business purpose: to create a customer...It is the customer who determines what the business is....Because it is its purpose to create a customer, any business enterprise has two-and only these two-basic functions: marketing and *innovation* [italic added]". Deshpande et al. (1993) argue that despite this importance of innovativeness in the marketing discipline, the effect of a firm's innovativeness-as an independent construct-on marketing decision-making has received little attention by marketing scholars as most of the literature on this construct has focused on the determinants of adoption and diffusion of innovations, mainly in the consumer literature, which mostly examined innovation as a dependent variable (Downs and Mohr 1976; Rogers 1983; Capon et al. 1988; 1992). Based on the past discussion, the

importance of examining the effect of a firm's innovativeness on the breadth of marketing research activities is deemed crucial and well-justified.

Innovativeness and the Breadth of Marketing Research Activities

The degree to which a firm may engage in marketing research activities across various areas may be determined, in part, by the innovativeness of this firm (Cravens 1991). Menon and Varadarajan (1992), drawing on Zaltman's (1986) theory on innovation, state a manager operating in a pro-innovation culture would actively seek new information across various areas and promote the exchange of this information. This argument has its premises in the information-processing perspective of organizational theory (Daft and Huber 1987) where studies in this field have called attention to environmental scanning activities, including marketing research, stating that a firm's ability to recognize the needs and demands of external environments through scanning activities is a primary source of its innovativeness. Baker et al. (1967) report that 75% of the ideas for innovation in their study were derived from perceived market needs transmitted through scanning activities. Thus, one decision area for marketing research in an innovative firm is generation of new ideas derived, for example, from customer surveys and research or competitive benchmarking.

Furthermore, an innovative firm is expected to seek opportunities for growth and expansion through identification of new markets or new customer groups, development of new products and services and modification of existing products and services (Laudon and Laudon

1988), which motivates marketing managers in these firms to seek related information across various areas through marketing research.

The breadth of marketing research activities in an innovative firm is expected to be most prevailing in new product planning situations (Urban and Hauser 1993). Lawton and Parasuraman (1980) report that 52% of the 107 firms they sampled used one or more of the following marketing research activities in their new product planning; use of concept testing (19.6%), use of research to determine appropriate product form (25.2%), use of research to determine appropriate pricing, promotion or distribution strategy (26.2%) and use of test marketing (25.2%).

The past Discussion leads to the following hypothesis:

H_2: The Greater the Firm's Innovativeness, the Greater the Breadth of Marketing Research Activities in the Firm.

Subjective and Objective Measurement of Innovativeness

Innovation as a field is very broad as distinctions have been made by authors in studies between "diffusion" and "adoption" of innovations (Kimberly 1981; 1986). Other studies differentiated between innovating and innovativeness (Van de Ven and Rogers 1988). Some overlap in these constructs have been documented (Damanpour 1991). In this study, we will focus on a firm's innovativeness as conceptualized and measured by Capon et al. (1992) and

Deshpande et al. (1993), which views innovativeness of the firm through its tendency to pioneer and its technological sophistication.

Variation in measurement of the innovativeness construct was evident in the literature, an observation that was supported by Capon et al. (1992, p. 158), who state that "there is no agreed-upon way to characterize a firm's innovativeness."

Some studies have attempted to measure innovativeness objectively through measuring the number of patents acquired by companies (Hull and Hage 1982) or number of innovations adopted within a given period (Daft and Becker 1978; Ettlie et al. 1984).

Subjective assessment of the innovativeness of the firm through the perceptions of executives was present in the literature (Menon 1989; Capon et al. 1992; Deshpande et al. 1993).

Based on our past discussion of the merits associated with subjectively assessing organizational constructs (please see chapter 3), and to create unification in the measurement approach utilized across the constructs of interest, in this study, innovativeness will be assessed through the perceptions of marketing managers.

CHAPTER 5

METHODOLOGY

This research was undertaken by a field study nationwide across Canada and the United states. A fully structured measurement instrument was developed, pretested and mailed to marketing managers. Pre-paid postage envelopes were enclosed in the mailing package. The initial mailing was followed by a second wave of a reminder of urgent response.

Measures

In this study, development of scales to measure the constructs of interest was done based on the framework suggested by DeVellis (1991) for scale development.

The Dependent Variable

Breadth of Marketing Research Activities. In this study, the measurement tool was adopted from the 1988 American Marketing Association Survey of Marketing Research (Kinnear and Root 1988).

In this measure, respondents were provided with a list of 45 types of marketing research activities in the following areas; Business/Economic Research and Corporate Research, Pricing, Product, Distribution, Promotion, and Buyer Behavior. Respondents were asked to report if they have engaged in any type of these research activities in the past 12 months.

The Independent Variables

Environmental Turbulence. In this study, the measure utilized to tap the environmental turbulence construct was adopted from the work of Daft et al. (1988) and Khandwalla (1977). Items were formulated to tap the *amount, diversity, magnitude and unpredictability of change that managers perceive in three task environment sectors, customer, competitor and technology.*

Items examining customer turbulence addressed such issues as the degree of concern for customer satisfaction, the predictability of change in customer preferences and the homogeneity in the customer base served. Items on competitor turbulence examined the frequency and predictability of change in competitors' marketing strategies. Items on technological turbulence addressed the change in product/service technology and the frequency of new/modified product introductions. Finally, some items measured the overall perceived turbulence by examining the degree of predictability of the future state of affairs in the business

environment and the accuracy of estimating this state (For examples of the items, please see appendix A).

Innovativeness of the Firm. In this study, some of the items used to measure innovativeness were borrowed from the scale of innovativeness (Cronbach's α=0.85) used by Deshpande et al. (1993), which is adopted from the scale developed by Capon et al. (1992). These measures examined the tendency of the firm to pioneer and the degree to which the firm purposefully attempts to be at the cutting edge of technology (technological sophistication). Other items were added to this scale based on various studies on characteristics of innovative firms, to examine the extent to which new technologies are incorporated in product development (Duncan 1972; Johne 1985; Ettlie and Rubenstein 1987). For a list of the items used, please see appendix A.

The Control Variables

Three control variables were included in the analysis because of their recognized influence on marketing research activities, as they are expected to explain some of the variance in the frequency of marketing research activities. They were not included in the theoretical discussion as they are not hypothesized to have any effect on the hypothesized relations between the independent variables and the dependent variable (Slater and Narver 1994). These variables are: 1) organizational type; we expect that manufacturer firms will engage in more market research activities than service firms (Sinkula 1990), 2) country of origin; American

firms are expected to engage in more research activities than Canadian firms (Cheng et al. 1986), and 3) growth rate of the industry; low growth rate is expected to induce greater breadth in marketing research activities for new opportunity identification and market expansion (Wind 1982).

Questionnaire Development

The measurement tool in this study was a six-page questionnaire that was developed following Churchill's (1991) paradigm for questionnaire construction. For respondents in Quebec, the questionnaire was translated to French by two graduate marketing students. English and French versions of the questionnaire were pretested before administration of the survey.

Pretest

The instrument was pretested through in-depth interviews with 10 managers across various industries (banking, wholesale trade, construction and life insurance). This stage of the study aimed at examining the questionnaire design and the ambiguity of the questions' wording; assessing the content validity and reliability of the multiple items scales; and locating any technical mistakes in the questionnaire (Sonquist and Dunkelberg 1977; Churchill 1979).

Managers in this stage were initially contacted by phone to get their participation, they were given the constructed scales with a letter explaining the purpose of their review. Based on the feedback and suggestions made, some items were reworded, deleted, and added. All managers who participated in this stage received thank-you letters after the interviews.

The Sample

One month prior to the mailing of the survey, a random sample of 600 Canadian and 600 American marketing managers was requested from Dun and Bradstreet Information services. This frame was selected for its comprehension and accuracy (Cravens 1991) as it provided a survey population of "the highest decision makers in the marketing function in their firms." Most of the past research in this area have relied on the American Marketing Association Directory of Members (Deshpande and Zaltman 1982), a frame that could include besides marketing managers, marketing department employees, researchers, consultants academicians and even marketing students. Such a frame has less accuracy when one aims at getting response from marketing decision-makers, the potential users of marketing research.

Data Collection

The data was collected by a self-administered questionnaire that was sent through a mail survey. The survey instrument was accompanied with a covering letter explaining the purpose of the study. Pre-paid postage envelopes were provided for respondents. The questionnaire package is presented in appendix A.

Respondents were directed to establish a frame of reference when answering the questions, defined as a specific product/market situation where they were responsible for the formulation or monitoring of the marketing plan for the specified product. The importance of establishing a frame of reference for respondents is discussed at length by Van de Ven and Ferry (1980), who define frames of reference as "the internal standards or cognitive filters a person uses in describing or evaluating a situation." They state that establishing a frame of reference for the respondent is necessary to prevent the respondent from selecting different aspects of the situation which may lead to different evaluations across the measurement instrument.

Data collection was achieved in a six-week period starting at the second week of April until the first week of May.

A second wave of mailing was sent in the form of a post-card as a reminder of urgent response (please see appendix B). In the case of lost or undelivered questionnaires, respondents were asked to send back the pre-paid postage reminder card and they were mailed back questionnaires.

Response Rate

The mailing resulted in 135 responses, of which 128 were usable responses. Three responses were non-response confirmations stating that it is against the respondent's firm policies to answer questionnaires. The remaining non-usable responses were excluded as they were either filled out by non-marketing managers or were not complete.

Based on the original sample size of 1200 managers, the response rate obtained is 10.6%. After correcting for the effect of some uncontrollable variables, as respondents that cannot be located, no longer with the firm, wrong addresses or undelivered questionnaires (the last category was identified as the respondents who returned the post-card reminder stating they did not receive questionnaires), this resulted in an effective sample size of 1116, reflecting an effective response rate of 11.5%. The response rate for Canadian firms (12%) was slightly higher than that for American firms (11%). Table 1 illustrates the various figures related to these rates.

The response rates obtained are relatively low, yet when the population surveyed consists of vice-presidents and directors, low response rates are usually expected (Deshpande 1979).

It was not possible for the researchers to contact non-respondents as first, no codes were used to reveal respondents' identities and second, budget limitations did not allow a third wave of mailing to examine reasons behind non-response and compare non-respondents'

characteristics to those of respondents. However, we assert that non-response could be explained by three factors:

1. The sample frame consisted of highest decision-makers in the marketing function in their firms. This was confirmed by the respondents titles that were mainly vice-president marketing or marketing director. This type of population is characterized by lack of time (Deshpande and Zaltman 1982), which may have contributed significantly to decreasing the responses.

2. The sensitivity of issues under investigation in the questionnaire. Respondents were asked to report details about their marketing information sources and practice and their market research budgets. It is highly likely that some suspicion regarding our research's results or motives have made some respondents reluctant to cooperate, despite assurances of confidentiality of responses.

3. The questionnaire was relatively lengthy. It composed of six pages that included 40 agreement/disagreement statements, 45 research activities and 10 questions on general information about the firm.

As mentioned earlier, it was not possible for the researchers to verify these claims, however, past research in the area have reported similar explanation for non-respondents' sluggishness. Deshpande and Zaltman (1982), for example, found in their survey of marketing

and brand managers that low response was normal for this population mainly due to lack of time and company policies opposing responding to external questionnaires. They also report that techniques to increase response rates are not successful with this population, due to its dominating character of lack of time.

TABLE 1
Effective Response Rate

	CDN. Firms	US Firms	Total Firms	Percent
Original Sample	600	600	1200	-----
Return to Sender	23	21	44	3.7%
Not Received	19	21	40	3.3%
Effective Sample Size[a]	558	558	1116	93%
Total Responses	72	63	135	-----
Confirmed Non-Participation	3	-----	3	-----
Non-Usable Responses	2	2	4	-----
Total of Usable Responses	67	61	128	-----
Usable Response Rate[b]	12%	11%	11.5%	-----
Effective Response Rate[c]	13%	11.2%	12%	-----

[a] Effective Sample Size = Original Sample - (Return to Sender + Not Received)
[b] Usable Response Rate = Total Number of Usable Responses/ Effective Sample Size
[c] Effective Response Rate = Total Responses / Effective Sample Size

CHAPTER 6

ANALYSIS AND RESULTS

In this chapter, issues pertaining to the internal consistency and dimensionality of the variables are presented. Based on factor scores for the independent variables and the number of marketing research activities across decision areas as the dependent variable, stepwise regression analysis was employed to examine the hypothesized relations. Results of the analysis are reported.

A total of 128 firms responded to this study, 67 of which were Canadian firms and the remaining 61 firms were American. The responses came from various industries; Food and Beverage (9.4%), Automotive & Industrial (7.8%), Financial Services (8.6%), Business Services (2.3%), Health Services (6.3%), Publishing (6.3%), Retail or Wholesale (14.1%), Public Utilities (7%), Information Technology (10%) and Other (28.1%). The "Other" category included various industries such as the Construction industry.

Computation of the Dependent Variable

Breadth *of Marketing Research Activities* for each respondent was obtained through counting the number of marketing research activities (ranging from 0-45 activities) that the firm has engaged in over the past 12 months. A mean value of 22.25 research activities for the sample was reported, with a standard deviation of 10.06.

A diagnostic check of the normality of the distribution of the dependent variable was examined to verify the appropriateness of using a regression model. A histogram of the different values was visually checked (Lewis-Beck 1980), and normality of the distribution was observed.

Internal Consistency and Dimensionality of the Independent Variables

Reliability-the tendency toward consistency found in repeated measures of the phenomenon-of the measures utilized in this study was examined through the internal consistency approach, which is used to "determine the single factoredness of observations" (Bagozzi 1980). This technique is recommended as it provides a unique estimate of the reliability for a given set of observations. In this study, the examined estimate is that which is most widely used, Cronbach's Coefficient Alpha (Carmines and Zeller 1979).

Dimensionality of the variables' domains was examined through a series of factor analysis that aimed at examining the correspondence of the factors obtained to *a priori* theory

and selecting the items which "best fit into the various strata of domains" (Bohrnstedt 1970, p. 96). Common factor analysis model was used (principal axes factoring), with varimax rotation[1] .

[1] It was decided to use common factor analysis as the purpose of this procedure was data-reduction based on a-priori theory. As common factor analysis defines the factors that arise only from the common variance of the variables, it can achieve this goal. In contrast, principal component analysis, which defines the factors based on the total variance (common and unique variance) does not achieve this goal.

Environmental Turbulence. 15 items representing environmental turbulence were factor analyzed, the factor structure was limited to 4 factors (based on a-priori theory of the components of environmental turbulence). The generated factor solution explained 41% of the overall variance (inter-item correlation matrix of the 15 items is presented in appendix D) Table 2 presents the loading coefficients of the items on the four factors[2] .

The factor structure corresponds to the hypothesized structure of environmental turbulence as composing of competitor, technological and customer turbulence, represented by factors 1, 2 and 4 respectively. This correspondence is an indicator of high factorial validity (Comrey 1988). The third factor represents "overall perceived turbulence" of the environment.

Examination of the items loading on factor 1 revealed that 3 items loading on it were originally hypothesized to be customer-turbulence related. Through reviewing the wordings of these items, it was observed that these items represented issues about the customers that could be highly related to competitors strategies, which explains why these items loaded on competitor turbulence factor.

Internal consistency of the four factors was assessed through examining the values of Cronbach's Alpha for factors 1, 2, 3 and 4, which were 0.78, 0.66, 0.64 and 0.63 respectively.

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[2] Originally, a pool of 22 items was factor analyzed. The factor solution produced 7 factors. 3 items had defined factors by themselves, suggesting they represent distinct dimensions and thus were deleted. Other items were deleted either because their loadings on their subsequent factors were too low (less than .35), or because they did not demonstrate a simple structure in their factor loadings (i.e. loading on more than 2 factors). This initial step of item reduction resulted in the deletion of 7 items. For a list of the deleted items, please refer to Appendix C.

TABLE 2
Factor Analysis of Perceptions of Environmental Turbulence

Item Description	Communality[e]	Loadings on Factor 1 Competitor	Loadings on Factor 2 Technology	Loadings on Factor 3 Overall	Loadings on Factor 4 Customer
Consumer profiles have changed drastically over the past five years (crt3)[a]	.39	.58			
It is difficult to forecast what major competitors will do (cpt5)[b]	.46	.53		.40	
Competitive conduct is very predictable* (cpt6)	.36	.51			
Major competitors change their marketing strategies frequently (cpt3)	.42	.50			
New trends in customer tastes emerge frequently (crt1)	.46	.48	.37		
The actions of our competitors are rather simple than complex* (cpt4)	.24	.46			
Competition is very dynamic (cpt2)	.20	.42			
Changes in customer requirements are very predictable* (crt4)	.20				
A new product is expected at any time (tt2)[c]	.79		.88		
Market shares can be substantially influenced by product introductions (tt1)	.40		.48		
It is easy to forecast the future state of affairs* (v1)[d]	.44			.60	
The information received about the business environment is often not clear (v2)	.28			.51	
Estimates of the future state of affairs are often "guess estimates" (v5)	.40			.51	.36
There is high uncertainty about customers' preferences (crt7)	.56				.61
Customer preferences are stable* (crt6)	.56	.44			.60

*Negatively-worded items
[a] (crt) refers to items on Customer Turbulence
[b] (cpt) refers to items on Competitor Turbulence
[c] (tt) refers to items on Technological Turbulence
[d] (v) refers to items on Overall Turbulence
[e] Communality is the proportion of variance in each item that is associated with the factor structure

Innovativeness. The proposed measure for innovativeness was purified by entering the 8 items utilized to tap the innovativeness construct into a factor analysis (Churchill 1979).

The factor structure obtained resulted in 2 factors, which is contrary to past conceptualization of the construct (Deshpande et al. 1993) that have reported innovativeness as a unidimensional construct. The examination of the item that define factor 2 (loading coefficient of .78) revealed that this item was negatively worded: "How often is your company an entrant in *declining* markets?." Items that are negatively worded have been documented in some research to define distinct factors by themselves, due to method artifacts in factor analysis (Zeller and Carmines 1980, p. 93). Rosenberg (1965) report similar results in his self-esteem measure, and more recently, Michaels and Day (1985) report such results in their scale of customer orientation of salespeople. In such cases, negatively worded items constitute a reliable source of variation other than the construct of interest due to their method rather than their content. Accordingly, it was decided to delete this item. Two other items (IN2 and IN3) were deleted as they had low loadings on their factors (using a cut-off point of .35 as acceptable loading coefficients). It was determined that these items did not tap any theoretical domain of interest. A factor analysis was performed on the remaining items, table 3 presents the loading coefficients of the 5 retained items on their subsequent factor (please see appendix E for inter-item correlation matrix).

TABLE 3
Factor Analysis for Innovativeness

Item Description	Communality	Loadings on Factor 1
At a technological lead with its products (IN6)[a]	.74	.86
at the cutting edge of technological innovation (IN5)	.67	.82
Improving and developing new products by implementing new technological advances in industry (IN8)	.58	.76
More innovative than other firms in terms of offering new and/or improved products (IN7)	.55	.75
First to market with new products and related services (IN1)	.41	.64

[a] (IN) refers to items on Innovativeness

As the table shows, the items load on one factor that explained 59% of the overall variance. To examine the structure and reliability of the remaining 5 items, coefficient alpha estimate was computed, resulting in a 0.88 value of Cronbach's alpha.

Table 4 presents the descriptives associated with the scales used in the regression model.

TABLE 4
Reliability Coefficients (Cronbach's α) for Independent Variables Used in the Regression Model

Scale	No. of Items	Range	Mean	S.D.	Cronbach's α
Turbulence					
Competitor	8	1-5	25.15	5.25	.78
Technology	3	1-5	9.9	2.66	.67
Overall	4	1-5	13.47	2.7	.64
Customer	3	1-5	9.11	2.2	.63
Innovativeness	5	1-5	17.2	4.1	.88

Regression Analysis and Hypothesis Testing

Based on the factors results reported, factor scores were computed for innovativeness, competitor, technological, customer and overall turbulence. Two control variables; country, and firm type were dummy coded. Rate of growth was treated as metric. These newly created variables were entered into a stepwise regression model, as predictor variables of marketing research activities. It was decided to use stepwise regression as it is most recommended by statisticians among other procedures (Stevens 1986), given that it is the only method that allows for re-examination of the contribution of each predictor variable after the other variables are introduced to the regression model[3] . Results of the regression are shown in Table 5. As the table illustrates, the overall regression equation explains 16% of the total variance (for correlation matrix of the variables, please see Appendix F).

To interpret the contribution of the individual independent variables, the standardized beta coefficients were examined as they indicate the effect of each of the independent variables

[3] Three popular procedures for selecting a good set of predictor variables are forward selection, backward selection and stepwise regression. In forward selection, the first predictor variable to enter the equation is the one which has the largest correlation with the dependent variable. The significance of the variable's contribution is assessed by comparing its F value to a selected value of significance (entry criteria) F (FIN). If the F-value for the variable is higher than FIN, it enters the equation. If this variable is significant, then the predictor with the next largest correlation is entered and so on until the variable entered is not significant. In backward selection, a selected significance value (removal criteria) F (FOUT) is specified, and variables with F values less than FOUT are removed from the equation. Stepwise regression is a combination of forward and backward selection, as the first variable is selected based on the forward selection procedure. However, at each stage of the procedure, variables that already entered the model are examined for removal based on FOUT. This ability to eliminate variables already in the model distinguishes stepwise model from the other procedures as it allows examining if these variables still make a significant contribution in the presence of the new variable (Stevens 1986, Hair et al. 1987)

on the dependent variable when the effect of the other variables is held constant (Lewis-Beck p. 65). Examining the components of the environmental turbulence, among the four environmental turbulence factors, technological (factor 2), competitor (factor 1) and customer (factor 4) turbulence have significant effect on the breadth of market research activities (standard regression coefficients of 0.25, 0.21 and -0 17 significant at 0.009, 0.059 and 0.03 levels of significance respectively). However, as it could be noticed, the regression coefficient for customer turbulence is not in the hypothesized direction. Regression coefficients for competitor and technological turbulence are in the hypothesized direction. The overall turbulence (factor 3) showed insignificant relation with the breadth of marketing research activities and was excluded from the regression equation. These results lead to the acceptance of hypothesis (1), as two of the hypothesized components of environmental turbulence related significantly to the breadth of marketing research activities.

TABLE 5
Stepwise Regression Analysis of Marketing Research Activities with Perceptions of Environmental Turbulence and Innovativeness

Independent Variables[a]	Standardized Beta	F-Value	Significance
In the equation			
Technological Turbulence (tech)	.25	7.043	.009[b]
Type of Firm (type)	.15	2.775	.099[b]
Innovativeness (Innov)	.21	4.787	.031[b]
Customer Turbulence (custom)	-.17	3.635	.059[b]
Competitor Turbulence (compet)	.21	4.822	.030[b]
Growth rate of the Industry (rate)	-.13	1.741	.190
Not in the equation			
Overall Turbulence (overall)		.001	.969
Country (coun)		.009	.925
Overall F = 4.23 N = 128	Significance = .0008		Adjusted R^2 = .159[c]

[a] variables are listed in their order of entry in the stepwise regression model
[b] indicates that the regression coefficient is significant at 0.10 level of significance
[c] adj. R^2 was examined to adjust for the effect of the number of variables on the explained variance

Innovativeness was a significant predictor of the breadth of marketing research activities, with regression coefficient value of 0.21, significant at a 0.03 level, thus confirming hypothesis (2).

Type of the firm made a contribution in explaining the variance in the breadth of marketing research, with regression coefficient of 0.15, significant at a 0.09 level. In this sample, manufacturing firms engage in more research activities across various areas than do service firms. The remaining two control variables were not found significant in interpreting the variance in the breadth of marketing research activities as the beta weights for the growth rate of the industry are relatively small, statistically insignificant, and in the opposite hypothesized direction, while the country variable (count) was not entered into the regression.

Summary

The regression model proposed was analyzed using a stepwise regression analysis (SPSS). The model explains significantly 16% of the overall variance, with competitor turbulence, technological turbulence, customer turbulence, innovativeness of the firm and type of firm as significant predictors of the breadth of marketing research activities within firms. The amount of variance explained may seem low in absolute terms, but it is relatively consistent with past models suggested and validated in social sciences (Stevens

1986). This lends confidence to the individual parameters estimates and the final conclusions drawn from these results.

CHAPTER 7

DISCUSSION, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Discussion of Findings

The empirical findings in this study generally support the overall proposed regression model. The positive effect of the Technological Turbulence, Competitor Turbulence and Innovativeness on Breadth of Marketing Research Activities was supported in this study. Particularly, these findings indicate that:

1. The greater the perceived competitor turbulence (i.e. unpredictabi' / of change in competitor actions), the higher the breadth of marketing research activities. Also, the greater the perceived technological turbulence (i.e. unpredictability of change in product technology), the higher the breadth of marketing research activities. These links are examined in this study for the first time, and the empirical support found here corroborates findings reported by Daft et al. (1988) to a large extent, which state that when executives perceive higher "change" in their task environments, they gather and seek market information increasingly. These findings lend support to Menon and Varadarajan's (1992) proposition, that "the greater the environmental instability, the

greater the utilization of information in organizations." It seems that when marketing managers perceive turbulence in their competitors' actions and in product technology, they resort to marketing research as a tool for attaining information and predicting change.

Contrary to what has been theorized and hypothesized, marketing mangers engage in less research activities when confronted with increased unpredictability about their customers' preferences and requirements. Although our study did not ask specifically about the reasons behind this relation, a possible explanation of it is that managers may believe that changes in customers' preferences and requirements cannot be predicted through marketing research, thus they resort to "re-active" rather than "pro-active" strategies, reacting to these changes after their occurrence (Urban and Hauser 1993).

We believe that our findings about environmental turbulence, through its various components, are very important as they reveal the effect of this force on marketing decision-making. This environmental aspect of marketing management has only received recognition recently by marketing scholars (Clark et al. 1994). Moreover, for researchers concerned with organizational consumption behavior, our study reveals a major force in marketing decision makers' consumption of the market research product, whether produced internally or externally.

2. The greater the perceived innovativeness of the firm, the higher the breadth of marketing research activities. This finding lends support to Menon and Varadarajan's (1992) proposition that "the stronger the pro-innovation culture within an organization,

the greater the utilization of information in the organization." Our results support that innovativeness is a major structural variable in the organization that has its effect on marketing decision-making, a link that has been relatively ignored by researchers (Deshpande et al. 1993). The importance of our results on innovativeness is heightened when it is viewed as a dimension of the consumption process of marketing research by marketing managers.

3. Marketing managers operating in manufacturing firms engage in more research activities than do their counterparts in service firms. This result further supports the findings of Sinkula (1990), of manufacturers utilizing external research suppliers to a greater degree than do service organizations. This finding has been interpreted by past research in the light of the recent adoption of service firms of the marketing concept (Chan 1992).

4. An alternative method of measuring the extent of engagement in marketing research activities had proved reliable in this study. This measure has been utilized in past research for descriptive purposes only (Kinnear and Root 1988) and our study supports that its use could be further extended in more advanced analyses processes. Although this measure may not constitute a full indicator of the "use" of marketing research in firms, it is or belief that until the efforts of researchers on the elusive "use" construct produce valid and reliable measures, alternative measures, like the one used in our study, should be employed to enrich this important stream of research and to avoid employment of possibly invalid measures of marketing research use.

5. Environmental Turbulence, according to this study, was found to be a multidimensional construct. Support fort this claim was found through the internally consistent measures obtained of the three hypothesized components. These results strongly support that any research on task environments and turbulence should take into consideration the multidimensionality of this construct and to avoid any "holistic" measurement approaches that, more often than not, increase measurement error.

Limitations of the study

1. The sample in this study was limited to the Dun and Bradstreet list of marketing vice-presidents, directors and managers. Before these findings can be generalizable across all marketing decision-makers, a more representative sample need to be used.
2. The results of this study were not discriminated by industry as the possible resultant sample sizes would have been very small.
3. The final sample size, although large enough for establishing confidence in the various statistical analyses conducted, was relatively small when compared to the population surveyed. Such limitation may constraint the generalizabilty of the findings of this study and may narrow its managerial and research implications.
4. Respondents to this survey constituted of one key informant in each organization. As marketing research activities within organizations are often initiated and used by groups (Deshpande and Zaltman 1982), multiple respondents-potential research users-rather

than one key informant in each organization need to be surveyed and average group responses calculated.

5. The number of variables considered in the regression model is limited, which may explain the relatively low variance explained by the regression model. Past research have argued for and documented the effects of various factors on marketing research activities and use within firms, such as organizational, informational and personal factors (a detailed review of these factors is presented in Chapter 2). Our study attempted to empirically test only a subset of a comprehensive model of the factors mentioned (Menon and Varadarajan 1992). The direct and indirect effect of the other variables need to be examined in future research in the area.

6. The effect of more control variables need have been included, such as organization size and diversification as these variable may explain some variance in market research activities within firms (Sinkula 1990).

Directions for Future Research

The issue of market research use is a fertile and versatile area of investigation. Some issues that could be considered for extending this research are presented next.

1. An investigation of the validity of the proposed relations in specific industries would give a clearer and more practical implications and interpretation of marketing decision-makers' choice of marketing research breadth in light of the structure of their specific

industries. Also, the relations could be examined in a judgment sample of industries in which variance in environmental turbulence and/or technology intensity is maximized (i.e. information technology industry versus steel industry).

2. A comparison between industrial and consumer firms is an area worth of exploration, as the decision-making processes in these two contexts relatively differ.

3. A replication of this study while using objective measures of the environmental and organizational factors examined could be carried out to investigate the convergence of the results.

4. Investigation of the effect of other environmental forces on the breadth of marketing research activities would be interesting. Characteristics of the environment as capacity and complexity could have significant influences on the decision-making process in organizations, and thus on the engagement in marketing research activities.

Managerial Implications

Given the relative exploratory nature of our research, speculative and rather brief suggestions for practice are made, taking into consideration the limitations discussed in advance. With this cleared, we proceed to discussing the managerial implications of this study.

1. For marketing research providers, that is marketing research directors, an understanding of the factors surrounding the consumption of their product "marketing research studies" is crucial to producing effective research, increasing perceptions of

quality of their product and improving the interaction between research users and research providers. This study sheds light on some important factors that influence marketing research "consumption". The incorporation of these factors and analyzing research users' need and expectations by research providers can contribute to the effectiveness and utilization of research studies.

2. Research providers, when aware of the environmental forces surrounding their clients, can work on establishing and augmenting "comfort zones" (Zaltman and Barraba 1991) in their interaction with these clients. Such zone of comfort, stemming from the researchers' understanding of their clients' business environment, can increase the use of marketing research studies and the trust in its effectiveness.

Conclusion

This study had contributed to the current understanding of marketing research activities, as part of the marketing information system within organizations. By supporting the effect of environmental turbulence and innovativeness on the breadth of marketing research activities, further clarity of marketing decision-making is gained. Yet, our understating of the environmental forces and innovation culture surrounding marketing research processes is far from adequate. We are hopeful that our study have added to the current stream of knowledge on marketing research activities in within organizations.

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APPENDIX A
Questionnaire

Concordia
UNIVERSITY

April, 1994

Dear Madam/Sir,

This is a nationwide survey of marketing managers about their perceptions of the competitive environment and market research use. The survey is being conducted for partial fulfillment of a Master of Science degree in Administration and has no commercial purposes.

The objective of this study is to identify marketing managers' perceptions of the competitive surroundings in which they operate, and the kinds of market research they utilize. The results of this study will be of benefit for both managers who design market research projects and managers who utilize these projects in their decision making.

Your response is of vital importance to the generalizability of the findings of this study *even if you or your firm are not currently involved in any marketing research projects*. It takes about 10-15 minutes to complete the attached questionnaire and return it in the stamped envelope. Your address has been selected as a result of a random sampling plan. Also be assured that your responses will be kept anonymous and strictly confidential and they will be used for statistical purposes only.

Please be advised that this questionnaire should be completed by a marketing (product, brand) manager who is responsible for the formulation and monitoring of a marketing plan for a product/service or a group of products/services. If you are not such a manager, please pass along this questionnaire to a manager in your organization who meets the given description.

Thank you in advance for your assistance in the completion of this questionnaire. If you have any questions about the study, please feel free to contact me at the address below or Dr K. Buyukkurt, Associate Professor of Marketing, Concordia University by phone at (514) 848-2952 or fax at (514) 848-8645.

Sincerely,

Rania Ijhaish

Rania Ijhaish

M.Sc. in Administration candidate
Marketing Department
Faculty of Commerce and Administration
Concordia University

A STUDY ON MARKET RESEARCH USE AND PERCEPTIONS OF COMPETITIVE ENVIRONMENT

Thank you in advance for participating in this study. Your responses will be kept strictly confidential.

WHO SHOULD FILL OUT THIS QUESTIONNAIRE?

This questionnaire should be completed by a marketing (product, brand) manager who is responsible for the formulation and monitoring of a marketing plan for a product/service or a group of products/services. If you are not such a manager, please pass along this questionnaire to a manager in your firm who meets the given description.

WHICH PRODUCT (SERVICE) IS RELEVANT FOR THIS QUESTIONNAIRE?

This questionnaire should be completed with respect to only ONE product or service. If you are responsible for a group of products or services, please choose ONLY ONE of them, and then answer all of this questionnaire with respect to that product or service.

Please briefly describe your product or service. In doing so, please do not mention any brand names. For example, depending on what you are marketing, you could say "software", "shampoo", "soft drinks", etc., without mentioning the brand name:

Your product/service is:_____

In the following pages, statements will refer to "product" for the sake of simplicity. If you are responsible for a service, please consider each statement to be relevant to your area of responsibility.

SECTION A. COMPETITIVE ENVIRONMENT OF YOUR PRODUCT MARKET.

Some business environments are more competitive than others The following statements characterize certain business environments Please read each statement carefully and express how much you agree or disagree with it with respect to the product you indicated above.

Compared to many other business environments, in your business environment...

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	it is easy to forecast the future state of affairs.	1	2	3	4	5
2.	new trends in customer preferences emerge frequently.	1	2	3	4	5
3.	managers monitor the marketing strategies of only a few competitors.	1	2	3	4	5
4.	market shares can be substantially influenced by new/modified product introductions	1	2	3	4	5
5.	customers differ widely in their characteristics.	1	2	3	4	5
6	competition is very dynamic.	1	2	3	4	5

Compared to many other business environments, in your business environment...

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
7.	a new product is expected at any time.	1	2	3	4	5
8.	the information received about the business environment is often not clear.	1	2	3	4	5
9.	it is difficult to gain and sustain the support of the distribution channel members.	1	2	3	4	5
10.	product-related technology changes unpredictably.	1	2	3	4	5
11.	differences in competing brands are very minimal.	1	2	3	4	5
12.	major competitors change their marketing strategies frequently.	1	2	3	4	5
13.	consumer profiles have changed drastically over the past five years.	1	2	3	4	5
14.	gaining and improving customer satisfaction is not a major concern for competing firms.	1	2	3	4	5
15.	the actions of our competitors are rather simple than complex.	1	2	3	4	5
16.	change is the only constant.	1	2	3	4	5
17.	changes in customers' requirements are very predictable.	1	2	3	4	5
18.	market shares are roughly equal among major competitors.	1	2	3	4	5

Compared to many other business environments, in your business environment...

19.	product designs vary to meet requirements of different customer segments.	1	2	3	4	5
20.	price competition is extremely intense, "cut throat".	1	2	3	4	5
21.	there are many factors to consider when making a decision.	1	2	3	4	5
22.	it is difficult to forecast what major competitors will do.	1	2	3	4	5
23.	it is easy to predict any new/modified product introductions.	1	2	3	4	5
24.	advertising is a very powerful competitive tool.	1	2	3	4	5
25.	there are very few firms competing.	1	2	3	4	5

Compared to many other business environments, in your business environment...

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
26.	competitive conduct is very predictable.	1	2	3	4	5
27.	there is dominance by one or a few leaders.	1	2	3	4	5
28.	customer preferences are stable.	1	2	3	4	5
29.	there is great concern for product and related service quality.	1	2	3	4	5
30.	there is high uncertainty about customers' preferences.	1	2	3	4	5
31.	estimates of future state of affairs are often "guess estimates".	1	2	3	4	5
32.	competitors strongly rely on promotional activities to attract customers	1	2	3	4	5

SECTION B. INNOVATIVENESS OF YOUR FIRM.

This section deals with the innovativeness of your firm. Please rate how often your firm engages in each of the following activities with respect to the product you indicated on the first page of this questionnaire.

With regard to new product and/or service introduction, how often is your company...

		Never				Always
1.	first to market with new products and related services.	1	2	3	4	5
2.	a later entrant in established but still growing markets	1	2	3	4	5
3	an entrant in mature, stable markets	1	2	3	4	5
4.	an entrant in declining markets.	1	2	3	4	5
5.	at the cutting edge of technological innovation.	1	2	3	4	5
6.	at a technological lead with its products	1	2	3	4	5
7.	more innovative than other firms in terms of offering new and/or improved products.	1	2	3	4	5
8.	improving and developing new products by implementing new technological advances in the industry.	1	2	3	4	5

SECTION C. MARKET RESEARCH ACTIVITIES FOR THE PRODUCT YOU INDICATED.

This section includes various market research activities that marketing managers may carry out. Such research is usually conducted by the firms' market research department, other departments, or external research suppliers.
With respect to the product you indicated on the first page of this questionnaire, please specify for EVERY type of research listed below :

- Whether you have conducted this type of research in the past 12 months and, if yes,
- Who conducted the research.

For each type of research, please circle the appropriate number(s) on the right.

	Type of research	Needed But Not Done	Not Needed Therefore Not Done	Done By Market Research Dept	Done By Another Dept.	Done By Outside Firm
A.	**Business/Economic and Corporate Research**					
	1. Industry/Market Characteristics and trends	1	2	3	4	5
	2 Acquisition/Diversification studies	1	2	3	4	5
	3. Market share analyses	1	2	3	4	5
	4. Other:_____	1	2	3	4	5
B.	**Pricing**					
	1. Cost analysis	1	2	3	4	5
	2. Profit analysis	1	2	3	4	5
	3. Price sensitivity of buyers	1	2	3	4	5
	4. Demand analysis					
	a) Market potential	1	2	3	4	5
	b) Sales potential	1	2	3	4	5
	c) Sales forecasts	1	2	3	4	5
	5. Competitive pricing analyses	1	2	3	4	5
	6. Other:_____	1	2	3	4	5
C.	**Product**					
	1 Concept development and testing	1	2	3	4	5
	2. Brand name generation and testing	1	2	3	4	5
	3. Test Market	1	2	3	4	5
	4. Product testing of existing products	1	2	3	4	5
	5. Packaging design studies	1	2	3	4	5
	6. Competitive product studies	1	2	3	4	5
	7. Other:_____	1	2	3	4	5
D.	**Distribution**					
	1. Location studies	1	2	3	4	5
	2. Channel performance studies	1	2	3	4	5
	3. Channel coverage studies	1	2	3	4	5
	4. Export and international studies	1	2	3	4	5
	5. Other:_____	1	2	3	4	5

Type of research (cont'd)	Needed But Not Done	Not Needed Therefore Not Done	Done By Market Research Dept.	Done By Another Dept.	Done By Outside Firm
E. Promotion					
1. Motivation research	1	2	3	4	5
2. Media research	1	2	3	4	5
3. Copy research	1	2	3	4	5
4. Advertising effectiveness	1	2	3	4	5
5. Competitive advertising studies	1	2	3	4	5
6. Public image studies	1	2	3	4	5
7. Sales force compensation studies	1	2	3	4	5
8. Sales force quota studies	1	2	3	4	5
9. Sales force territory structure	1	2	3	4	5
10 Studies of premiums, coupons, deals, etc	1	2	3	4	5
11 Other:_____	1	2	3	4	5
F. Buying behavior					
1. Brand preferences	1	2	3	4	5
2. Brand attributes	1	2	3	4	5
3. Product satisfaction	1	2	3	4	5
4. Purchase behavior	1	2	3	4	5
5. Purchase intentions	1	2	3	4	5
6. Brand awareness	1	2	3	4	5
7. Segmentation studies	1	2	3	4	5
8. Perceptions of product/service quality	1	2	3	4	5
9 Studies of competitive benchmarking	1	2	3	4	5
10. Other:_____	1	2	3	4	5

SECTION D. GENERAL INFORMATION.

1. Is your firm? ☐ A service firm ☐ A manufacturer

2. In which of the following industries would you classify the product you indicated?

- Food & Beverage 1
- Automotive & Industrial 2
- Financial services (Banks, Insurance, etc.) 3
- Business services (Marketing research, Consulting, etc.) 4
- Health services and Pharmaceuticals 5
- Publishing or Broadcasting 6
- Retail or Wholesale trade 7
- Public Utilities (Transportation, Telecommunications, etc.) 8
- Information Technology (Software development, Hardware, etc.) 9
- Other (describe):_____ 10

3 In the last fiscal year, approximately what percentage of the gross sales of the product you indicated was marketing research expense? _____%

4. For the last fiscal year, let the total dollar expenditure for marketing research for the product you indicated equal 100%. What percentage would you estimate was accounted for by:

In-house marketing research _____%

External research suppliers _____%

Total = 100%

5. Please indicate whether the marketing plan for the product you indicated is formulated and monitored ..

Completely independently from other products in your firm	Mainly independently from other products in your firm	Mainly jointly with other products in your firm	Completely jointly with other products in your firm
1	2	3	4

6. When compared to your largest competitor for the product you indicated ..

a. your profitability is:
☐ less ☐ about equal ☐ more

b. your market share is:
☐ Smaller ☐ about the same ☐ larger

c. your growth rate is:
☐ slower ☐ about the same ☐ faster

7. For the industry of the product you indicated please state approximately:

a The number of major competitors in the industry: _____

b. The growth rate of the industry: _____%

c. Market shares of the largest three competitors: _____%
_____%
_____%

8. Your title is:_____

Thank you for your cooperation

APPENDIX B
Post-Card Sent as a Reminder

Dear Madam/Sir,

We recently sent you a questionnaire on **market research use and perceptions of competitive environment**. We have already received many completed questionnaires.

If you have not yet returned your questionnaire, we are again asking for your cooperation. It is essential that we obtain responses from as many managers as possible to complete this study with maximum accuracy possible.

If you have not yet received the questionnaire we sent you, please return this postage-paid card or contact us at (514) 848-2952.

Thank you for your cooperation.

Rania Ijhaish

APPENDIX C
List of the 7 Items Deleted from Environmental Turbulence Measures

Description of Items Deleted in First Step of Item Reduction

(v3) Change is the only constant.

(v4) There are many factors to consider when making a decision.

(tt3) Product-related technology changes unpredictably.

(tt4) It is easy to predict any new/modified product introductions.

(cpt1) Managers monitor the marketing strategies of only a few competitors.

(crt2) Customers differ widely in their characteristics.

(crt5) Product designs vary to meet requirements of different customer segments.

APPENDIX D
Correlation Matrix for Items on Environmental Turbulence

Correlation Matrix for 15 Items on Environmental Turbulence

	CRT3	CPT3	CPT5	CPT6	CRT1
CRT3	1.0000				
CPT3	.3298	1.0000			
CPT5	.3284	.4223	1.0000		
CPT6	.3486	.3412	.3423	1.0000	
CRT1	.4528	.3637	.2508	.4379	1.0000
CPT2	.3139	.2721	.2641	.2514	.1881
CPT4	.2569	.2480	.3313	.2609	.3147
CRT4	.3180	.2354	.2671	.2731	.2397
CRT6	.3795	.2062	.3788	.3805	.3120

	CPT2	CPT4	CRT4	CRT6
CPT2	1.0000			
CPT4	.2053	1.0000		
CRT4	.1381	.1682	1.0000	
CRT6	.1763	.2873	.2882	1.0000

APPENDIX E
Correlation Matrix for Items on Innovativeness

Correlation Matrix for 8 Items on Innovativeness

	IN1	IN5	IN6	IN7	IN8
IN1	1.0000				
IN5	.4731	1.0000			
IN6	.5117	.7857	1.0000		
IN7	.5847	.5489	.6161	1.0000	
IN8	.4859	.6405	.6319	.5822	1.0000

APPENDIX F
Correlation Matrix of Variables in the Regression Model

Correlation Matrix for Variables in the Regression Model

	NRA	COMPET	TECH	OVERALL	CUSTOM	INNOV	TYPE	COUN	RATE
NRA	1.000	.155	.285	.053	-.145	.214	.175	-.044	-.068
COMPET	.155	1.000	.068	.140	.212	-.018	-.013	.096	.214
TECH	.285	.068	1.000	.026	.011	.200	-.040	-.094	.074
OVERALL	.053	.140	.026	1.000	.114	.222	-.139	-.045	-.074
CUSTOM	-.145	.212	.011	.114	1.000	.082	-.071	.057	.153
INNOV	.214	-.018	.200	.222	.082	1.000	.015	.086	.223
TYPE	.175	-.013	-.040	-.139	-.071	.015	1.000	-.080	-.146
COUN	-.044	.096	-.094	-.045	.057	.086	-.080	1.000	.222
RATE	-.068	.214	.074	-.074	.153	.223	-.146	.222	1.000

LEGEND

NRA =	Number of Market Research Activities
COMPET =	Competitor Turbulence
OVERALL =	Overall Turbulence
TECH =	Technological Turbulence
CUSTOM =	Customer Turbulence
INNOV =	Innovativeness
TYPE =	Type of Firm
COUN =	Country of Origin
RATE =	Growth Rate of the Industry