Defining Marketing Information Needs: An Exploratory Study of Senior Marketing Executives

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The identification of the information needs of marketing decision-makers lies at the very core of Marketing Information Systems (MkIS) design. Information needs can be defined as the user specifications of information characteristics involved in information seeking, and refer to those qualities of information perceived by managers to be 'useful' to facilitate their decision-making. Drawing on empirical results from three sets of literature and from studies of information systems design (particularly management and accounting information systems design), the authors review a framework for exploring the design of an MkIS. A qualitative study examining the information needs of senior marketing executives is also reported and discussed. By examining the appropriateness of the information characteristic continua advocated by Gorry and Scott-Morton (1971), the authors provide some preliminary insights into how the information needs of marketing decision-makers might be operationalized. The results, based on interviews with 20 senior marketing executives, indicate that marketing information needs can be defined using six information characteristics.

Conceptual and empirical work in the information systems literature suggests that the performance of an information system is influenced by the fit between information system characteristics and contextual variables (*e.g.*, Tushman & Nadler, 1978). Success (the benefits to be derived from the information system) is viewed as a function of the fit between these contextual variables and information system characteristics. Relatively little attention however, has been given to what kind of information marketing decision-makers regard as useful in performing their marketing tasks within MkIS research. As Proctor (1991) states, "*there is plenty of information around, but too much of the wrong kind and not enough of the right kind*" (Proctor, 1991, p. 55). Proctor (1991) further notes that the kinds of complaints usually encountered regarding information are that the information is too dispersed to be useful, it arrives too late to be useful, and it arrives in a form that leaves no idea of its accuracy and therefore lacks orientation or focus.

The function of an information system at any level in the organization is to provide information to enhance the decision-making process (*e.g.*, Jones & McCleod, 1986). Since a primary objective of an MkIS is to provide information that facilitates the marketing management decision-making process, the information content of that system must be linked closely to this process. Management accounting systems (MAS) and management information systems (MIS) researchers (*e.g.*, Dermer, 1973; Daft & Lengel, 1986; Gordon & Miller, 1976; Gordon & Narayanan, 1978; Munro, 1978; Chenhall & Morris, 1986; Senn, 1987; Choe & Lee, 1993; Goodman, 1993; Mitchell & Volking, 1993; Choe, 1996; Fisher, 1996; Choe, 1998) suggest that the information needs for decision-making can be considered in terms of general information characteristics. These information requirements are the user specifications of information characteristics involved in information seeking and refer to those qualities of information perceived by managers to be useful to facilitate their decision-making (*e.g.*, Gordon & Narayanan, 1984; Chenhall & Morris, 1986; Mangaliso, 1995). These MAS and MIS researchers contend that by identifying the dimensions of information, the designers of an information system are more in tune with those qualities or characteristics of information perceived by decision-makers to be useful in performing their work tasks. Information is useful to an individual to the extent that it improves decision-making and hence the operating efficiency and effectiveness of the organization (Chenhall & Morris, 1986; Mangaliso, 1995; Choe, 1998).

Research pertaining to MAS and MIS design is largely based on the information characteristic continua advocated by Gorry and Scott-Morton (1971). These researchers suggest that each item of information has a source (information may come from internal or external sources), scope (information may be narrow or wide in its representation), level of aggregation (information may be detailed or aggregated), time-horizon (data items may report what has happened, *i.e., ex post*, or what is expected to occur, *i.e., ex ante*), currency (information may report on the most recent events or be older), required accuracy (information may be high or low in its correctness), and frequency of use (information may be used very frequently or infrequently). These information characteristics are summarized in Table 1.

While the general importance of these information characteristics for the design of accounting and management information systems is well documented in the literature (*e.g.*, Dermer, 1973; Gordon & Narayanan, 1978; Chenhall & Morris, 1986; Choe & Lee, 1993; Mangaliso, 1995; Choe, 1996; Fisher, 1996; Choe, 1998), there appears to have been no conceptual and empirical investigation of information characteristics in MkIS research. This paper seeks to shed some light on the characteristics of marketing information. In doing so, we hope to firstly, provide some preliminary insights into the information needs of senior marketing executives using these characteristics and secondly, establish an initial platform for further research in this area.

TABLE 1
Gorry and Scott-Morton (1971) Information Characteristics

Information Needs	
1. Accuracy	High/Low
2. Scope	Narrow/Very wide
3. Frequency of Use	Very Frequent/Infrequent
4. Time Horizon	Historical/Future
5. Level of Aggregation	Detailed/Aggregated
6. Updating	Highly Current/Old
7. Source	Largely Internal/External

This paper is organized into four sections. We first review the conceptualization reported by Ashill and Jobber (1999) and describe marketing information needs in terms of the user specifications of information characteristics. We then outline our research objectives specific to one aspect of this conceptual framework and follow this with data collection procedures, sample selection, and analytical methods. Finally, we discuss the results of our study, highlighting their exploratory nature, and suggest areas for future research. The study's limitations are also acknowledged in this section.

CONCEPTUAL FRAMEWORK

The conceptual framework advocated by Ashill and Jobber (1999) to study MkIS design is presented in Figure 1. The framework examines the influence of contextual settings on the effective design of MkIS, draws on three key literature bases, and illustrates three categories of antecedents of the usefulness of marketing information characteristics: environmental uncertainty perceptions, decision-maker characteristics, and work environment factors (Ashill & Jobber, 1999). Environmental uncertainty perceptions are drawn from conceptual frameworks and empirical investigations in organizational design and behavioral decision-making; decision-maker factors are drawn from the personality and cognitive psychology literature; work environment factors are drawn from theories of managerial information processing. Although considerable emphasis has been placed on potential benefits of contingency theory applications to accounting research, relatively few empirical investigations exist examining MkIS design.

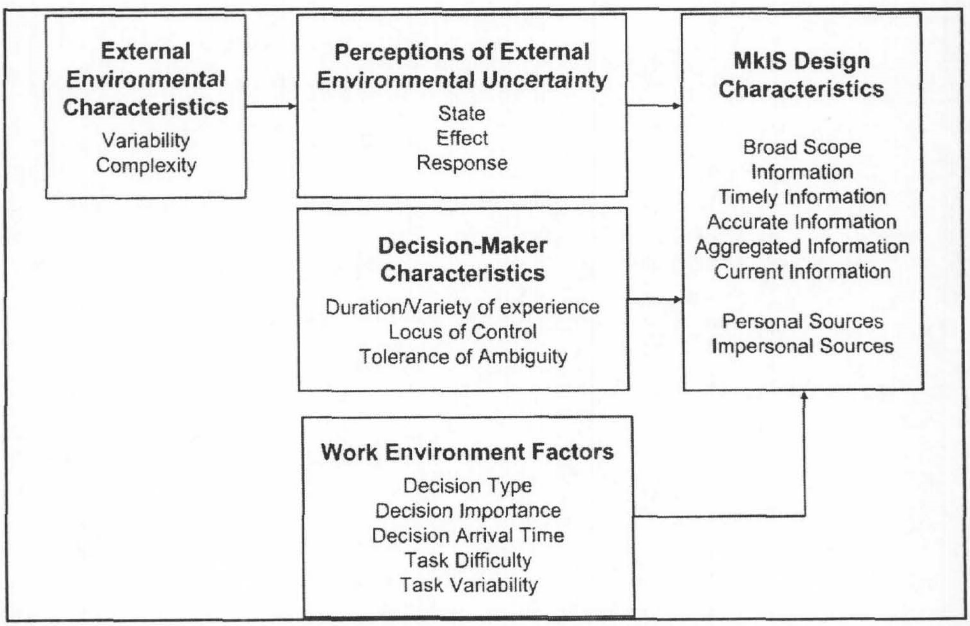

Figure 1. A Conceptual Model of Factors Affecting the Perceived Usefulness of MkIS Design Characteristics (Ashill & Jobber, 1999)

Using the Gorry and Scott-Morton (1971) conceptual framework (see Table 1) and empirical work cited in the information systems literature (*e.g.*, Chenhall & Morris, 1986), the authors suggest that the design of a MkIS can be operationalized in terms of the perceived usefulness of seven information characteristics: broad scope information, timely information, current information, aggregated information, accurate information, personal information sources and impersonal information sources. Information scope represents the scope of events, places, people, and things that are represented by information (Gorry & Scott-Morton, 1971; Senn, 1987; Choe & Lee, 1993; Wright & Ashill, 1998). Broad scope information thus describes information that is wide or broad in its representation (a wide or broad set of information inputs are required to facilitate marketing management decision-making). Timely information describes receiving information quickly and on time (*e.g.*, Chenhall & Morris, 1986; Mangaliso, 1995; Fisher 1996). Information aggregation refers to the degree of summarization performed on information (*e.g.*, Chenhall & Morris, 1986; Specht, 1986; Mangaliso, 1995; Wright & Ashill, 1998). For example, an MkIS can provide information in various forms of aggregation ranging from the provision of raw marketing data to a variety of aggregations around periods of time and areas of responsibility such as product/markets. Information currency refers to the age of the information appropriate for decision-making (*e.g.*, Senn, 1987; Li, 1997), and describes the length of time between something occurring and the event being reflected in the information. Current marketing information thus describes marketing data that reports on the most recent events. Information accuracy refers to the extent to which the output information is sufficiently correct to satisfy its intended use (Li, 1997). Accurate information thus describes data, which is correct for its intended use (Fredenberger et al., 1997). Personal information sources involve direct contact with other individuals (such as face-to-face conversations, telephone conversations and meetings); impersonal information sources describe those sources of information which are written in nature, such as computer generated reports and market research reports (Wright & Ashill, 1998).

The propositions advanced in this work posit that MkIS design should be aligned to a range of contextual factors. These include external environment factors (variability and complexity), environmental uncertainty perceptions (state, effect and response), decision-maker characteristics (experience, tolerance of ambiguity and locus of control) and work environment factors (nature of marketing management decision activity, decision importance, decision arrival time, task difficulty and task variability).

The framework is grounded in three sets of literature, namely organizational behavior and behavioral decision-making (*e.g.*, Duncan, 1972; Downey & Slocum, 1975; Tung, 1979; Milliken, 1987; Achrol & Stern, 1988; Glazer & Weiss, 1993; Gul & Chia, 1994; Mangaliso, 1995; Chong, 1996; Fisher, 1996; Wright & Ashill, 1998), personality and cognitive psychology (*e.g.*, Budner, 1962; Rotter, 1966; Downey et al., 1977; Ashford & Cummings, 1985; Specht, 1987; Govindarajan, 1989; Perkins & Rao, 1990; Wang & Chan, 1995; Vandenbosch & Huff, 1997), and managerial information processing (*e.g.*, Van de Ven & Ferry, 1980; Daft & Lengel, 1986; Jones & McCleod, 1986; White, 1986; Saunders & Jones, 1990; Menon & Varadarajan, 1992; Goodman, 1993; Zeffane & Gul, 1993; Bystrom & Jarvelin, 1995; Wright & Ashill, 1998). The framework suggests that user specifications of information characteristics may depend on the nature of the external marketing environment, work conditions that decision-makers have to deal with, and the psychological disposition of the decision-maker. Specifically, the key premises which underlie this framework are:

- Perceptions of state, effect and response external environmental uncertainty are linked to the perceived usefulness of marketing information characteristics.
- Marketing decision-makers with different behavioral and psychological profiles will perceive the usefulness of marketing information characteristics differently.
- The perceived usefulness of marketing information characteristics are affected by a range of work environment factors, including (a) the nature of marketing management decision activity, (b) the importance of marketing management decisions, (c) decision arrival time, (d) marketing task difficulty, and (e) marketing task variability.

The authors discuss the components of the framework elsewhere (see Ashill & Jobber, 1999) and develop a set of research propositions for empirical study.

RESEARCH APPROACH

A recent review of the literature has shown that little is know about MkIS design in terms of marketing information characteristics (Ashill & Jobber, 1999). Bearing in mind that a "reason for using qualitative measurement is that for particular outcomes no acceptable, valid, and reliable quantitative measurement exists" (Patton, 1980, p. 75) and that "if relatively little is known about the phenomenon to be investigated, exploratory research will be warranted" (Churchill, 1991, p. 70), it was decided to undertake a qualitative study of marketing information needs. Specifically, the research sought to determine the appropriateness of the characteristics of information advocated by Gorry and Scott-Morton (1971) to define and operationalize the information needs of senior marketing decision-makers.

Given that information characteristics have been defined and empirically examined in the MAS and MIS literature, this study did not follow a purely inductive (grounded theory) approach to data collection (Strauss & Corbin, 1992). Its design was partly confirmatory, so as to further explicate the work of Gorry and Scott-Morton (1971), and partly exploratory, to shed some light on information characteristics within a marketing decision-making context. To this end, in-depth personal interviews were used as the data collection method. This research approach allows insights to be gained into the respondent's own interpretations of the information needed to facilitate the marketing management decision-making process and enhances the researcher's ability to understand underlying or latent issues (Miles & Huberman, 1994).

An experience survey (key informant survey) of 20 senior marketing executives was selected as the data collection method, given its applicability for studying decision-makers (Robson & Foster, 1989). While no pretence is made that the firms contacted constitute anything but a convenience sample, every effort was made at the selection stage to ensure substantial variability among the respondents in terms of the industries represented. The sampling frame consisted of large (employing 100+ full-time employees) manufacturing, business-to-business and service organizations identified as operating a MkIS (Statistics New Zealand, 1996). All participants represented organizations within a 30 km radius of the University, proximity being important due to time and cost considerations. Past literature on information needs utilizing user specifications of information characteristics was used to develop questions to be included in a semi-structured, undisguised interview guide. The choice of a semi-structured versus a structured questionnaire was made due to the exploratory nature of the study (Strauss & Corbin, 1990). The length of the instrument was such that the interviews would last approximately one hour. The questions generated were related to the conceptualization shown in Figure 1.

That part of the research instrument, which focused on marketing information characteristics, centered on the following questions:

a) What marketing data should be made available (*e.g.*, competitor actions, customer demand shifts, governmental regulations, technological shifts, industry factors)?

b) What should the format of the marketing data be (*e.g.*, degree of summarization performed on the data, level of accuracy required, verbal/written formats)?

c) What should the form of the marketing data be (*e.g.*, quantitative and qualitative nature of the data)?

d) What should the orientation of the marketing data be (*e.g.*, internal/external orientation of the marketing data)?

e) What should the time horizon covered by the marketing data be (*e.g.*, historical, current, future)?

f) How frequently should the marketing data be communicated (*e.g.*, periodic reporting/ non-periodic reporting)?

Each interview was taped and then transcribed. The analysis followed the sequence of steps described in Miles and Huberman (1994, p. 10), who "define analysis as consisting of three concurrent flows of activity: data reduction, data display, and conclusion drawing/ verification." Data reduction was undertaken for each of the 20 interviews, using mainly in-vivo codes (Strauss & Corbin, 1990). Such codes (as opposed to codes determined prior to the analysis) were chosen because of the exploratory nature of the study; the issues raised during the course of the interviews were specific to marketing information needs. Rigid use of literature-based codes would have restricted the analysis to what was already known on information needs in other contexts. The codes were arranged in the form of 20 within-case displays which took the form of a matrix or a network according to which was most appropriate to the interview being analyzed (Miles & Huberman, 1994). The 20 displays were then integrated and synthesized into fewer cross-case displays capturing the information needs of senior marketing executives.

FINDINGS

A summary of the Gorry and Scott-Morton (1971) information characteristic continua and the findings of this exploratory study are presented below (see Table 2). The table displays six generic characteristics of marketing information. Senior marketing executives generally found the Gorry and Scott-Morton (1971) continua too vague and ambiguous, with many of

TABLE 2
Relationships between the Information Characteristics of the Gorry and Scott-Morton (1971) framework and the Information Characteristics generated from the Exploratory Research

Gorry and Scott-Morton (1971) Information Characteristics	*Information Characteristics Generated From This Research*
Source: Internal/External	**(implied in broad scope information, therefore dropped)**
Internal	Internally focused marketing information
External	Externally focused marketing information
Level of Aggregation: Detailed/Aggregated	**1. Aggregated Marketing Information:**
	Aggregated around time periods (e.g., quarterly, annual summaries)
	Aggregated around product/markets (e.g., sales data specific to product lines and market segments)
	Analytical marketing information/information for marketing decision models (e.g., SWOT analysis, segmentation analysis)
Time Horizon: Historical/Future	**(implied in broad scope information, therefore dropped)**
Frequency of Use (Reporting Interval): Very Frequent/Infrequent	**(implied in current information, therefore dropped)**
Scope: Narrow/Very Wide	**2. Broad Scope Marketing Information:**
	Internally focused marketing information (e.g., sales, costs, marketing performance indicators)
	Externally focused marketing information (e.g., macro and industry trends)
	Historical marketing information (e.g., sales, profitability, market trends)
	Future-orientated marketing information (e.g., environmental scanning information)
	Quantitative marketing information (e.g., costs, profit, market share)
	Qualitative and often subjective marketing information (e.g., buyer behavior, competitor strategy information)
Currency: Highly Current/Old	**3. Current Marketing Information:**
	Information reports provided on a frequent basis
	Information which reports on the most recent events
Required Accuracy: High/Low	**(should be as high as possible, therefore dropped)**
	4. Timely Marketing Information:
	Information which is received quickly
	Information which is received on time
	5. Personal Information Sources
	Face-to-face/telephone contact (verbal) from external agencies, customers, suppliers, competitors, distributors, internal staff
	6. Impersonal Information Sources
	Written Information from externally generated reports, internal memos, professional/trade journals, manual and computer generated information reports

the composite variables having no clear operational definition. For example, they were unsure about (1) what constituted broad and narrow scope information, (2) what encompassed 'detailed' information and 'aggregated' information, (3) how a senior marketing executive can reliably measure the accuracy of information, and (4) how much time must have elapsed for marketing information to be classified as "old." Instead, respondents found it easier to describe information characteristics at one end of the Gorry and Scott-Morton (1971) continua, suggesting the need to specify information characteristics with more narrowly defined variables, *i.e.*, categorical (nominal) variables. Similar conclusions have been reported in MAS and MIS research operationalizing accounting information items. Chenhall and Morris (1986) for example, used categorical variables to measure characteristics of accounting information including aggregation, scope, and timeliness.

Respondents described broad scope information (marketing data which is broad in its representation) using six categorical (nominal) variables: marketing data which is quantitative in nature (*e.g.*, sales, costs, profitability, market size), marketing data which is qualitative in nature (*e.g.*, shifts in buyer behavior and competitive threats), marketing data which reports both internal facts (*e.g.*, costs, profitability) and facts with an external orientation (*e.g.*, broad environmental changes, industry environment changes), and marketing data which is ex post (historical) and ex-ante (future-orientated). The first two nominal variables describe the quantitative/qualitative nature of marketing data. As the Marketing Manager of Organization 14 stated, "*Hard data is important. Facts and figures are really important.*" Similarly, the Marketing Manager of Organization 11 stated, "*We need to be really in tune with market-place trends in terms of food consumption and in particular health trends, growing trends (technology) and all the science that goes into food technology such as the trend towards organic growth of product and what consumers are demanding now and what they will be demanding in the future. Qualitative information such as consumer trend information is really important.*" The second two nominal variables describe the orientation of the marketing data, *i.e.*, data may have an internal focus or an external focus. For example, the Marketing Manager of Organization 1 stated, "*There are three categories of marketing information. The obvious category is what is happening to the marketplace and what is happening to our performance (sales, profitability and market share). And also information relating to the consumer.*" Similarly, the Marketing Director of Organization 9 stated, "*Anything that tells me what is going on about the market, our sales, our performance relative to others in the marketplace, and our overall performance relative to what is happening in the market.*" The remaining two nominal variables describe the time-horizon of information. Marketing data can report what has happened (and is therefore historical) or can report what is expected to occur (and is therefore future-orientated). The Marketing Director of Organization 2 stated, "*The more data you can get about what might be happening in the market further out the better position you are going to be. So I am always looking at forecast information.*" Similarly, the Sales and Marketing Manager of Organization 4 stated, "*We need to know if there are any big changes coming up with our business and our customer's business, and we need to know how these changes are going to affect how we operate with them, how it is going to affect our revenue, and how it is going to affect the way in which we approach them for business.*" Respondents also identified historical marketing data as necessary to facilitate their marketing management decision-making. For example, the Marketing Director of Organization 9 stated, "*Historical information is key . . . we can look at what has happened in the last few years, and make a lot of assumptions about what we think is going to happen to the marketplace in terms of budgeting for example . . . this is based on critical historical information. Going on previous historical information we can look at what has happened, to establish what we think is going to happen . . .*"

Narrow scope marketing information was deemed irrelevant to facilitate marketing decision-making given the boundary spanning nature of a senior marketing executive role. All respondents identified themselves as being involved in a wide variety of tasks and processes that entail dealing with events which are complex and uncertain. Marketing data with an internal and external focus, historical and future-orientated marketing data, and quantitative (numbers) and qualitative data were demanded to deal with this complexity and uncertainty. While these findings support the work of Chenhall and Morris (1986), Gul and Chia (1994), and Mia and Chenhall (1994) by reporting the use of categorical variables to operationalize broad scope information, senior marketing executives use different variables to describe broad scope marketing information. Chenhall and Morris (1986) for example, operationalized broad scope accounting information with three nominal variables: data items which have an external focus (external orientated accounting data), data items which report what is expected to occur (future-orientated or ex ante accounting data), and data items which are expressed in non-financial terms (qualitative accounting data). The findings reported here suggest that broad scope marketing information also describes internal marketing data, quantitative marketing data, and historical data as data items required to facilitate the marketing management decision-making process.

Respondents described the format of marketing data in terms of three information characteristics: aggregation, accuracy and personal/impersonal information sources. Aggregated marketing information included aggregation around time periods (*e.g.*, summary reports specific to particular time periods such as monthly, quarterly and annual summaries), aggregation around product/markets (*e.g.*, marketing data on specific products/services and target markets), analytical information (*e.g.*, 'what-if' scenarios), and information suitable for input into marketing decision models (*e.g.*, segmentation information). For example, the Sales and Marketing Manager for Organization 16 stated, "*Summarized information pertaining to permit Values is extremely valuable, particularly in the industry we are working in, because it tells us where the market is going and what it should be doing. Also market share information, we do get information on how much concrete there is in various regions, so it gives us a good indication as to where we are placed in the marketplace.*"

Data analysis pertaining to the format of marketing data also suggests that information provision (the sources used to gather marketing information) can take a personal and impersonal format. Personal sources were described as involving direct contact with other individuals and included face-to-face/telephone/verbal contact with external customers, suppliers, competitors and distributors; impersonal sources were described in terms of written documentation such as marketing reports, professional/trade journals and computer-generated reports. These findings appear to support the recent work of Wright and Ashill (1998) who examine information provision as a component of MkIS design, and conclude that written reports are one part of a much larger range of information sources used by managers. Deshpande and Zaltman (1987) and Maltz and Kohli (1996) also report similar findings. The MkIS literature, however, has typically emphasised computer reports, ad hoc reports and marketing intelligence reports (formal reporting processes) as the major information inputs used by marketing decision-makers.

Finally, questions about the accuracy of marketing information were deemed irrelevant. All respondents felt that the accuracy of information should always be as high as possible. For example, the Marketing Director of Organization 7 stated, "*Marketing data has to be accurate to begin with, otherwise you will have no confidence in the information . . .*"

Current information and timely information are the remaining information characteristics identified in Table 2. Respondents described current information as the periodic reporting of marketing data (*i.e.*, information is continually updated) and the provision of data that reports on the most recent events. For example, the Marketing Manager of Organization 12 stated, "*We need to maintain regular contact with customers to provide a continuous update on the market.*" Similarly, the Marketing Director of Organization 16 stated, "*Frequency of reporting is a major issue, for example in our regular monitoring of say the consumer market, we only do two tracking studies a year. What's happening between those studies and why this is impacting our campaign is something we don't know until we have got the outcomes of those. It's often too out-of-date to make any real changes.*"

In MAS and MIS research, current information has typically been operationalized as part of the timely information variable. However, the preliminary findings reported here suggest that timely information and current information are two distinct information characteristics. Senior marketing executives described timely marketing information as necessary to facilitate marketing management decision-making because it is received quickly and is on time. For example, the Sales and Marketing Director of organization 3 stated, "*I could do with much quicker response on financial analysis. Timely information is a major issue and feedback from our customers is often too late to make any real changes.*" Similarly, the Marketing Director of Organization 11 stated, "*I need pricing information at the point where I make the decision on what price to charge for the product. This information is timely because I need to have it there and then.*"

CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS

Ashill and Jobber (1999) contend that little is known about the underlying characteristics of information in MkIS research. The research reported here has sought to determine the appropriateness of the characteristics of information advocated by Gorry and Scott-Morton (1971) to define the information needs of senior marketing executives. In doing so, the authors have provided some preliminary insights into how MkIS design might be operationalized. The findings suggest that the terms used to describe the characteristics of information advocated by Gorry and Scott-Morton (1971) need to be revised to accommodate the tasks, thinking, and practices of senior marketing executives. For marketing information to be needed by senior marketing executives, it must display certain characteristics in terms of scope, timeliness, currency, aggregation, and source.

The conceptual framework and propositions presented by Ashill and Jobber (1999) illustrates potential relationships between marketing information characteristics and the context of a marketing decision-maker's operating situation. External environment factors (variability and complexity), environmental uncertainty perceptions (state, effect and response), decision-maker characteristics (experience, tolerance of ambiguity and locus of control) and work environment factors (decision type, decision importance, decision arrival time, task difficulty and task variability), are potentially important dimensions of context in a study of MkIS design. User specifications of information characteristics may depend on the external environment and work conditions that decision-makers have to deal with.

However, little is known about MkIS design is terms of marketing information characteristics. The focus of the qualitative study on the information needs of senior marketing decision-makers was explicitly on obtaining preliminary insights rather than testing theory; depth of understanding rather than generalization was the prime concern (Miles & Huberman, 1994). Further research is needed to: a) develop appropriate measures of these information characteristics and b) identify antecedents of information needs (operationalized in terms of the 'perceived usefulness' of information characteristics). On the methodological front, appropriate adaptation and further refinement of information characteristic measures derived in MIS and MAS research (Chenhall & Morris, 1986) would be an important step forward in a study of marketing information characteristics. On the substantive front, a systematic investigation of antecedent variables on the perceived usefulness of marketing information characteristics is needed. The conceptual framework illustrated in Figure 1 seeks to relate marketing information characteristics to the context of a senior marketing executive's operating situation.

Certainly, information characteristics have been the subject of considerable research in MAS and MIS design. However, there has been no empirical research exploring the interrelationships between contextual factors and the perceived usefulness of information characteristics in MkIS research. The link between contextual factors and the perceived usefulness of marketing information characteristics is crucial for MkIS design since the findings of such research would provide useful insights as to what particular characteristics or qualities of marketing information are required by marketing decision-makers to perform their work. By specifying information needs in terms of user specifications of information characteristics and recognizing that these information needs may depend on the context in which marketing decision-making takes place, MkIS designers can design systems to ensure that information with these characteristics are made available. While the present study has highlighted possible characteristics of marketing information, it does not link these characteristics with contextual factors such as environmental uncertainty, work environment and the psychological disposition of the decision-maker. Future research aims to shed some light on the association between these contextual factors and the perceived usefulness of these information characteristics using structural equation modeling. For some of the independent variables identified by Ashill and Jobber (1999), adaptation and further development of existing scales is a good starting point. However, it is important to ensure that these measures are applicable in a MkIS context. To this end, in-depth interviews with senior marketing decision-makers coupled with qualitative data analysis along the lines suggested by Miles and Huberman (1994) should help generate a pool of items for each of these variables with a high level of content validity. We further propose the testing of the MkIS model advocated by Ashill and Jobber (1999) using the statistically robust structural equation modeling-based partial least squares for model estimation. The Ashill and Jobber (MkIS) model posits relationships among a set of latent theoretical constructs measured with multiple manifest variables. Since the model advocates multiple relationships among several predictor and criterion variables measured with multiple measures, structural equation modeling is the most appropriate approach for comprehensively testing the proposed model.

By examining the relationship between contextual factors and marketing information needs, the results of this future research agenda may sensitize designers of the facets of a MkIS to the underlying qualities or characteristics of marketing information perceived by decision-makers to facilitate their marketing management decision-making.

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