In this chapter a brief survey of literature is made on the aspects related to the identified research problem. Also, the objectives and hypotheses of the study are stated and methodology is described.
LITERATURE SURVEY, OBJECTIVES AND METHODOLOGY

INTRODUCTION

In this chapter a brief survey of literature is made on the aspects related to the identified research problem. Also, the objectives and hypotheses of the study are stated and methodology is described.

LITERATURE SURVEY

The survey covers the following four areas of importance:

- Concept and components of MKIS
- Importance of MKIS
- Development of MKIS
- Evaluation of MKIS

CONCEPT AND COMPONENTS OF MKIS

Studies in this area focused on the need for systems approach, elements of marketing information and its applications and benefits.

Seymour Banks (1968) surveyed the practice of systems concept in 125 top advertisers in the United States given in the Advertising Age. He reported that a minority of the largest firms were using the systems concept. Companies using the systems concept in marketing show a wide range in its implementation, the most users operating only sub-system applications.
Kenneth P. Uhl (1968) in his paper identified that the need for relevant marketing information had expanded rapidly, leading some firms to develop marketing information systems. Each system is likely to be different in order to fit with the unique circumstances of individual firms. Three general information sub-systems appear appropriate to all the firms:

1. Selective Dissemination Sub-System (SDS)
2. Retrospective Research Sub-System (RSS)
3. Unsolicited Information Sub-Systems (UIS)

SDS maintains databank to provide current awareness. RSS provides in depth information on special problems or areas whereas UIS came through informal channels without being asked.

John M. McCann (1986) reviewed the evolution of marketing information systems over the past few decades and explored its future developments. He proposed a new marketing discipline - "Marketing Informatics" which integrates traditional marketing information system with a range of new information technologies as well as information management procedures. He provided a framework for thinking about the development of expert systems in the marketing context. He illustrated the marketing information concept with some examples from the consumer packaged goods industry. Of particular interest is the use of graphics and audio / video information to help managers interpret data better. One notable idea is that of multimedia marketing plan, which harnesses the full power of computer technology to move beyond just number and text processing in order to help management make decisions based on more "realistic" modules of the market place.
Raymond R. Burke (1994) presented a perspective on the emerging use of expert systems for customer oriented marketing decision-making. He discussed the use of AI for both "everyday" and "strategic" decision-making and problem solving. Two important distinctions between the two are:

1. The system requirements are different and
2. Current methodologies are better suited for the former than the later.

He identified a new technique that can further the development of AI systems for strategic decision. As a notable example of this he briefly described the ADCAD system, a procedure to assist advertising objectives, copy strategy, and the selection of communication techniques.

Hotaka Katahira and Shigeru Yagi (1994) described the state-of-the-art in "point of sale (POS) marketing system" in Japan. It is an instructive example because it illustrates how different market conditions across cultures lend to the use of essentially the same technology in somewhat different ways. This should be of value not only to those interested in how the information revolution is influencing marketing in Japan, but also to those concerned with the more general question of how alternative consumer behavior patterns (whether in the same or different culture) may require different technology adoption patterns.

Timothy Peter Shea and Jane Fedoerowicz (1995) had attempted to measure the actual use of lateral and external information by the middle level manufacturing managers and to test the influence of three factors; the lateral and external information demands of the department; the level of information distribution; and the use of IT.
They administered an executive questionnaire to gather departmental information and a middle manager questionnaire to gather information about these information acquisition activities. They canvassed the questionnaire in six large manufacturing firms representing various industries across the US: Pharmaceuticals, Electronics, Office Systems, Surgical Products, Process Controls and Electronic Controls. They have applied regression, ANOVA, and t-test analysis. They found that the computer-based information use is positively related to the use of both external and lateral information. The external information use is affected by the external information needs, computer expertise of the manager and the level of overall information distribution. The lateral information use is dependent on lateral information needs, satisfaction with corporate information systems and education level of managers.

**IMPORTANCE OF MKIS**

Use of IT depends on factors like size, investment capacity, competition and a host of factors. Organizations, in the process of their functioning, develop a large amount of data. It is essential to create appropriate databases, discover their potential in building relationships with customers and fortifying competitive advantage. The studies cited here, point out various benefits of MKIS.

Bonnie K. Buckland and James C. Branchéau (1995) found the following from their research on the use of IT in small business:

1. The use of IT decreases as business size decreases,
2. When IT is used in small businesses, successful implementation depends in large part on the level of computer knowledge of the small business owner / manager and
(3) Differences in their members' overall level of computer education and training.

They developed alternative research models based on classical and enhanced versions of diffusion theory. It addresses IT utilization with the following variations:

- Perceived contribution of IT to the firm,
- Number of sources from which computer education and training were received,
- Firms size,
- User involvement,
- Years of In house Information Systems (IS0 experience),
- Computer knowledge in the firm and perceived availability of technical support

David Ing and Angdew A. Mitchell (1993) described different sources of electronic POS (Point of Sale) data. They discussed many of the uses of data while providing a typology of decisions for which electronic POS data are best suited. They sum up with a discussion on designing the strategy for accessing and utilizing data and transforming it into information.

John Deighton, Don Peppers, and Martha Pogers (1994) reviewed the power and potential of customer databases with a focus on the use of these databases as a new marketing medium. They suggested 'interactive' marketing in the place of 'broadcast' marketing. This disseminates messages widely but not precisely. In interactive marketing, programs can now be directly addressable. They go to only those customers or prospects whose past behavior suggests that they are receptive.
They opined that information technology may be used not only to improve decision-making or logistics, but also to help manage customer relationships. There is a necessity to marry "high-powered analytical tools" with specialized interactive marketing communications techniques.

George Day and Rashi Glazer (1994) opined that, the developments in information systems that unleashed the data deluge have also enhanced the ability of organizations to learn about their markets. The feasible organization changes that can overcome impediments and ensure competitive advantage can be realized from investment in information systems.

Van Engelen and Johannes Marie Luclen (1989) identified that the drastic developments in information technology have the potential of bringing forth-new strategic (marketing) opportunities. A marketing system for instance, will serve as a diagnostic tool for analyzing a full array of marketing problems. An empirical study was conducted. It proved that the hypothesized relation between marketing strategy and the information system with the product market contribution exists.

Richard B. Rosecky (1986) identified delayed sales information at the producer level can cause inappropriate sales estimates; mistimed promotion efforts, inadequate channel inventory levels and other marketing dysfunctions.

Jiro Kokuryo (1992) described how information technology triggers the reorganization of logistics systems and specifically, the EDI based Quick Response (QR) systems being implemented.

Gaillynn Cook (1990) addressed the research problem- "Does an integrated computer based information system facilitate coordination?" A laboratory
An experiment was conducted to test the effects of sharing marketing data, decision models, and feedback with production managers. All combinations of providing and not providing these three independent variables were included in the experiment.

Students assumed the roles of production managers in a manufacturing organization. The task required the student to decide the quantity to produce from each of three sub-assemblies, schedule six machines, schedule labor, and order raw materials. Decisions were evaluated on cumulative profit, ending cash balance, and average Return on Investment (ROI) for five decision periods. Statistical analysis included ANOVA, comparisons, and a post hoc Dunnett's test. The results indicated that sharing marketing feedback, decision models, and decision models increased coordinated decision making above the control level.

Edvard Phillip Bovich (1987), through an experimental inquiry, explored the effects of using computerized decision support systems on marketing management decision-making processes and decision quality. Experienced and specially trained marketing planners participated in a comprehensive, realistic computerized product management simulation. Half of the subjects were provided access to simulated market research and company performance information through a sophisticated computerized decision support system. The other half were given access to the same information in traditional paper report form. All subjects were required to develop comprehensive strategic and tactical plans for their simulated corporation. Subjects were asked to record their activities as they developed their plans. In addition, they completed a questionnaire, which captured their activities and attitudes towards the process.
Their tactical plans were entered into the computerized simulation to derive short-term corporate performance results. The experiment showed that the subjects with computer support fared well.

**Development of MKIS**

The development considerations include top management support, staff knowledge and skills, outsourcing and end-user computing.

Donald F. Cox and Robert E. Good (1967) presented a brief review of some of the characteristics and advantages of sophisticated MIS and the current "State of thought". They identified some of the key decisions, which must be made by top management in the MIS development process.

Gernot Bernhard Langle (1988) conducted a study which focused on knowledge which relates to a specific functional area of business (such as accounting, manufacturing or marketing) and the presence or absence of some firm's specific domain knowledge in IS development.

His specific study was an empirical investigation involving eight experienced business system analysts. Each subject was asked to analyze and design two information systems. One in a familiar area of business, the other in an unfamiliar area of business. Subjects were instructed to think about during the tasks and their verbalizations were tape recorded and transcribed for analysis. The results indicated that the presence of function specific domain knowledge affected the construction of representation as well as modeling, discovery and validation process. Subjects with function specific domain knowledge were found to (1) build representations considering a large number of facts and concepts relating to the information system application domains, (2) discover and validate
the representations requesting additional domain specific information more frequently, and (3) model the information system utilizing analogical reasoning more often than the subjects without function specific domain knowledge.

Interpretation of results suggests that when experienced system analyst possesses function specific domain knowledge, they are more likely to construct accurate and complete system representation and exhibit focused and efficient information gathering behavior.

Robert C. Blattberg, and Byong-Do Kim and Jiangming Ye (1990, 1992) presented a framework for "Mass Produced". Mass produced models are statistical analyses of large databases where literally thousands of models are created for a single data set with little or no human intervention. They described a typical application of MDSS development of a price simulator for setting retail prices across many items in a product category. Next, they discussed the requirements necessary for models to be mass-produced.

Somendra Pant and HSU. Cheng (1997) reviewed the business use of internet technology and identified that there is a lack of stable models and frameworks to plan for incorporating it in business. He proposed a push model for internet strategy planning. In actualizing this "Push" model into a concrete planning framework, through internet based information system they made use of a reference model. This framework is empirically tested in two industrial situations. In the Korea Long term Bank (KLB) case, the reference model is used to generate internet goals for the bank and, subsequently, to redesign their processes. Based on the initial plan generated for the bank, they have embarked on establishing an Internet based online bank and are a test-bed for the rest of
the planning framework. Second case was that of study of a Conglomerate Heavy Machinery and Shipbuilder, Samsung Heavy Industries Company Limited (SHI) of Korea. Additional cases were taken from literature and usefulness of reference model and planning framework were established.

Myungoong Cheon and Varun Grover and James Tegn (1992) developed a contingency model of outsourcing from the literature. Two hypotheses were tested:

- Organizational attributes influence the change in the extent of an organization's outsourcing of IS functions.
- Success of outsourcing is dependent upon both the change in degree of IS outsourcing and the quality of outsourcing implementation.

From the mail survey of 188 top IS executives, they found support to the hypotheses to a large extent.

1. The change in the degree of IS outsourcing is determined by gaps in information quality, IS supporting quality, IS cost effectiveness and financial performance.

2. The quality of outsourcing service providers and the nature of partnerships with them are implementation factors determining the degree of outsourcing success;

3. The change in the degree of IS outsourcing differs between outsourcing and non-outsourcing firms with respect to the following:

   (i) Gaps in information quality, IS support quality, and IS cost of effectiveness and

   (ii) The condition of these gaps (high deprivation versus equilibrium or moderate deprivation);
The change in the degree of outsourcing;

The degree of outsourcing success is related to the change in the degree of outsourcing of specific types of IS functions. For example, outsourcing success is highly related to changes in the degree of outsourcing of both systems operations and telecommunication management and maintenance.

Jeanne Wenzel Ross and Kate M. Kaiser (1987) focussed on End-User Computing (EUC), which consumes a significant proportion of many organizational computing budgets. The need to contain EUC costs as well as ensure effectiveness has led many authors to recommend that top management of organizations device EUC strategies. The goal of this study was to identify the factors related to EUC control and note variances by industry.

Data were collected through telephone interviews with a marketing manager and an ISD manager in 87 organizations in four industries. Analysis of the data showed that IS control is positively related to four factors:

a. its ability to cope with EUC uncertainties,
b. its non-substitutability,
c. the pervasiveness of the department's data needs and
d. the importance of EUC to the department coping with uncertainty.

The last factor has the greatest predictive power of the four variables. Data pervasiveness proves insignificant in multiple regression equations. They proposed a model by which ISD can gain EUC control.

Chang Liu (1997) conducted a study to identify consumer reactions to a well-designed website. Four functions that are critical to the design of electronic markets were identified; they are (i) information and service quality (2) system use (3) playfulness and (4) system design quality. He identified that a well
designed website will increase the level of customer recall and recognition. Also, a well designed website will lend customers to have a favorable attitude toward the site and favorable attitude toward the products/services that are presented through the site.

Ray Joseph Blankenship and Barnes, James H. Jr. and John D. Johnson (1994) opined that MIS has a responsibility to evaluate different methodologies (or) information technologies as they are developed and become available for use to ensure that the MIS function is meeting its responsibility. They compared the performance of Multi Layered Feed Forward Artificial Neural Network (MLFFNN) that use a Genetic Adoptive Neural Network Training (GANNT) algorithm against the back propagation training algorithm for MLFFNN, the inductive dichotomize 3 (ID3) algorithms, and a multi-nominal logic model. These algorithms represent several prevalent methods of machine learning. They explored modeling of consumer choices. They found that the GANNT algorithm is able to significantly predict better than the back propagation algorithm and the predicted multi-nominal legit model.

EVALUATION OF MKIS

Researchers have explored the factors and models which help evaluate information systems. Also they offered suggestions to make "IS" effective.

1. Nature of Function

Ackoff (1967) in his paper analyzed the weakness of management information systems and recommended a program for overcoming their weaknesses. Ackoff notes: "Contrary to the impression produced by the growing literature, few
Computerized management information systems have been put into operation. Of those that I have seen, most have not matched expectations and some have been outright failures. Ackoff indicated some reasons why systems development has not been successful.

- First marketing decision is increasing in complexity at an accelerating pace.
- Second, marketing decision, as a class is more difficult to model than other business decisions.
- Third, many of the methods that have been developed for modeling the marketing decisions are inadequate when checked with real world results.

2. IS AND USER CONFLICT

Richard H. Brien (1968) observed that too many firms, mistaking computers for information systems, acquired a large machine capability before management is really systems oriented. The result is a gap between the managers and the information systems. Problem of time, pride, language, and premature computer acquisition result in failure of MIS. There is a clear need for a very special kind of intermediary between systems 'users' and system 'technicians'. He found in one company two new positions "information systems manager" and "operations research manager" were created before acquisition of a larger, more sophisticated computer system and it was successful.

Warren Lee Dickson and Leon R. Price (1994) identified a variety of problems that prevent IS professionals and non-IS professionals form joint realization of the ideal. Individual differences, social differences and interaction (communication)
problems relating to difficulties in integration have been explored. They made an attempt to identify differences in values between information system professionals and non-information system professionals that may be blocking integration efforts.

3. IS People and Technology

Lind, Mary Louise Robinson (1988) examined whether effective communication between information systems personnel and non-information systems personnel would result in greater information technology innovativeness. Two means were proposed for achieving more effective information systems / organization communication. (1) More frequent communication; and (2) the use of richer communication channels. In the research model, two proposals were made. The level of communication frequency and communication richness determines the level of convergence: (convergence is the degree of mutual understanding between IS and the non-IS personnel about the business activities performed in the firm's departments) and the importance of IT in supporting these business activities. More the conveyance, higher the level of IT innovativeness.

Five periods of data collection were used in testing this research model, using longitudinal causal research techniques. The following research results were obtained:

1. Convergence between information systems personnel and non-information systems personnel on the importance of the firm's business activities and IT to support them was found to be an important predictor of convergence.

2. Communication richness is an important predictor of convergence.
3 Communication frequency is not only an important predictor of convergence but is an important predictor of communication richness as well.

Malcolm A. Mc. Nevin (1968) reviewing Ackoff's paper identified reasons for the failure of information systems in marketing (i) the tremendous gap between expectations of information systems people and (ii) the state of the art in business today. He described how Coca-Cola Company was bridging the gap by setting the management information system department at corporate level and carrying out developmental research (to build new models) and continuing research (solving predictable marketing problems).

Claire Maureen Forrest (1984) described the design and implementation of a Decision Support System (DSS) for marketing planning and control in a small, but complex company and examined the nature of the difficulties encountered. An intermediary with functional, rather than technical expertise is used in a strategy for overcoming the problems.

The findings of the research showed how the main focus of the intermediary's role needs to be adopted over the systems development cycle. From co-ordination in design stages to system champion during the first part of the implementation stage, and finally to a catalyst to ensure that the DSS is integrated into the decision-making process.

Two practical marketing exercises were undertaken to illustrate the nature of the gap between the provision of information and its use. The lack of a formal approach to planning and control is shown to have a significant effect on the way
the DSS is used and the role of the intermediary is extended successfully to accommodate this factor. The conclusion was for the DSS to play a fully effective role, small firms may need to introduce more structure into their marketing planning and that the role of the intermediary, or information coordinator, should include responsibility for introducing new techniques and ideas.

Charles D. Schewe and James L. Wiek (1977) suggested a marketing approach to the successful design and implementation of management information system. They have drawn parallels between MIS Development function and marketing function utilizing Taylor's framework of marketing. marketing delineation, purchase motivation, product adjustment, physical distribution communications, transactions and post transactions

Donald R. Lehman (1970) attempted to sketch the elements of marketing information system by starting with a “model of individual choice” and then developing a system for evaluating marketing decision based on the model. Thus the key element in the system becomes the individual choice model. They included evaluation of new products and advertising effectiveness.

4. MODELS FOR EVALUATION

Kamna Malik and D.P. Goyal (2000) attempted to understand the concept of effectiveness and the application of different models for evaluating the information system. An analysis of existing models, being used for measuring the effectiveness of IS has also been made. An integrated model has been suggested that comprehends the effectiveness of organizational IS with respect to product, process and environment effectiveness. The findings in this paper would provide a basic material for furthering the research in this area and also
would provide the right directions for the corporates to carry out the evaluation process of their information systems

W.H. Delone and Mc Lean (1992) identified the possibility of two types of measures in IS evaluation, viz qualitative and quantitative. They developed a quantitative IT utility index to quantify measures of effectiveness.

Eldon Y. Li (1997) summarized IS success factors into 8 categories and further sub categories as given below:

i) System Quality: Response time, conveyance of access programming, language features used, security, realization of user needs, documentation, flexibility, and integration of systems

ii) Information quality: Accuracy, timeliness, precision reliability, currency, completeness, format, clarity and instructiveness

iii) Information use: Volume of output.

iv) User satisfaction: Top management involvement, charge back method of payments for service, user's participation, user's confidence and support of productivity tools.

v) Individual Impact: User's expectation of IS support, job effect of IS support, perceived utility.

vi) Service Quality: Technical competence, attitude of staff, scheduling of CBIS products and services, time required for system development, processing of change requests, maintenance support, means of I/O, user's understanding of systems and training of users.

vii) Conflict resolution: Competition between CBIS and non-CBIS units, allocation priorities for CBIS resources users and CBIS staff relations and
communication, personal control over CBIS, organizational position of CBIS unit and user's attitude towards CBIS

vii) Organizational impact: Productivity improved by CBIS, efficiency of systems and effectiveness of the systems

Timo Saarinen (1996) recommended four measurement scales for IS success model as stated below

➢ Development process (Cost and Efficiency use)
➢ Use process (User Satisfaction)
➢ IS product quality (Performance Efficiency)
➢ Impact of IS on organization (Benefits)

The emphasis is both on process and product evaluations.

P.G. Kulkarni (1997) suggested the use of IT utility index to measure the effectiveness of IT in banking. The measures are as follows

➢ Technology costs as a percentage of the total operating cost.
➢ Transaction processing costs.
➢ Technology led exposures and risks.
➢ System availability indicators.
➢ Technology awareness of the knowledge works.
➢ Customer friendliness, flexibility and innovativeness of the system.

He suggested that similar index parameters can be developed for other industries also.

Erik Brynjolfson (1996) suggested three approaches to IT value estimation.

➢ Output and productivity estimation.
Business performance: Various business metrics are profits, sales, market share, growth, stock price appreciation etc.

Consumer surplus from derived demand

James W. Cortada (1995) identified three major questions that companies keep on asking and try to answer as:

- Are we selecting and funding the right IT project?
- Are we getting our money's worth?
- Do our measurements tell us how well are we achieving the goal?

The answer to these can be found in the effectiveness of IS. IS is said to be effective if its product is effective. The product of IS can be termed as effective if they:

- Provide quality information as per the user's perception
- Improve management function.
- Improve resource utilization.

James W. Cordata (1998) recommended the use of Balnidge criteria for getting the snapshot of IS effectiveness. Balnidge criteria have seven categories defined for any quality assessment. They are leadership, information and analysis, strategic planning, HRD and HRM, process management, business results and customer satisfaction.

Glenn Edward Maples (1997) examined service quality as a component of overall information systems quality. He tested three related studies of SERVQUAL. He found that SERVPERF^ outperformed SERVQUAL in all three studies.
Miller, Marc Donald and Rainer, R. Kelly Jr. (1994) extensively examined the success or failure of IS. Success variables such as user satisfaction were proposed. They attempted to examine the perceived ease of use and usefulness of the IS as a means to predict its use. The Technology Acceptance Model (TAM) assumes complete volition control over the IS or technology in question. Volitional control, therefore, the TAM may not be able to predict use in these situations. They had proposed and tested the Extended Technology Acceptance Model (ETAM). This model was designed to predict usage behaviors where volitional control over using the technology was absent. They concluded that ETAM model significantly explains more variance in IT usage behaviors than the TAM, and also indicates that the active participation change strategy gives the user optional control over the technology, while the persuasive communication change strategy does not.

Karahanna, Elena and Detmar W Straub Normal L. Chervany, (1993) identified that though organizations adopt information technology to support knowledge workers, many users were unwilling to use available systems, and thus, the full benefits of IT are often not realized. Guided by a theoretical model derived by combining innovation diffusion theory with the theory of reasoned action to contribute to a better theoretical understanding of the antecedents of user acceptance and user resistance to the adoption of information technology, they carried out their study and found that:

a. Potential adopters base their adoption decisions on a sparser set of innovation characteristics than suggested by the innovation diffusion literature;
b Users and potential adopters differ on their determinants of behavior intention and attitude, and
c There are significant differences between low and high innovativeness and users in the determinants of subjective norm and behavioral intent.

James Edward Turner and Julian W Riehl (1993) proposed a model to analyze the influence of factors related to use and satisfaction with information systems. The more satisfied firms follow a plan for system development, have top management interest in IS, provide periodic technology updates for management and users, and use prototypes to speed development. Firms with more experience with scanning were more satisfied with IS support while firms with more computer experience rated IS support lower. Advanced communication technologies were used by the more successful firms including central processing of sales data and Electronic Data Interchange (EDI).

Bernadette Agatha Szajna (1990) suggested that user's attitude towards a proposed information system would provide system developers with some knowledge of the potential success or failure of that information system.

Ginzberg (1981) and Desantis (1983) suggested the importance of investigating user's expectations of information systems particularly the effects of realistic expectations. Their research investigated user expectation system and the consequences of realistic versus unrealistic expectations. These treatment groups consisting of subjects with user expectations made up the independent variable. After using an information system to make decisions, the dependant variables of user satisfaction, perceived decision performance and system usage
were measured to detect the effects of differing levels of expectations on system effectiveness.

Their finding in this experiment suggests that pre-implementation expectations have an effect on user satisfaction and perceived decision performance. No effect was found for either decision performance or IS usage. The results are consistent with the predictions of cognitive dissonance theory – those users with unrealistically high expectations and perceptions of the information system that were higher than those with moderate expectations and those users with unrealistically low expectations had significantly lower perceptions. Even after repeated uses of the information system, significant differences were found among the three expectation groups although the trend indicated a moderating of the high and low expectations groups both in their perceptions and post implementation expectations.

Allan Fletcher Gillman (1995) tried to develop a comprehensive examination of the influence of Electronic Data Interchange (EDI) on marketing channels of distribution. He derived some propositions that are loosely organized for structural outcomes, efficiency outcomes, or strategic outcomes. He examined three different industry groups such as telecommunications, information systems and food retailing. He found no support for the structural outcomes, partial support for the efficiency outcomes, and strong support for the strategic outcomes. He found that the role of EDI in promoting electronic commerce in marketing channels of distribution is a complex and interesting one. As a new medium for information transfer it simultaneously expands and adds value to interorganizational communications. What it does is shift the emphasis in channel theory from a structural to a more strategic orientation.
Vijaya Sarathy, Leo Ramesh, and Daniel Robey (1994) examined the consequences of Electronic Data Interchange (EDI) use on Inter-organizational Relations (IR) in the retail industry. EDI is a type of Inter-organizational Information System that facilitates the exchange of business documents in structure, machine processable form. The model links EDI use and three IR dimension—structural, behavioral, and outcome. They proposed 14 hypotheses and tested them by using multiple regression analysis. The analysis supports the following hypothesis:

- a. EDI use is positively related to information intensity and formalization.
- b. Formalization is positively related to cooperation.
- c. Information intensity is positively related to cooperation.
- d. Conflict is negatively related to performance and satisfaction.
- e. Cooperation is positively related to performance, and
- f. Performance is positively related to satisfaction.

**A Bird's Eye View**

A brief presentation of the review of literature is depicted in Tables 2.1 to 2.4.
<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Researcher</th>
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<th>Method</th>
<th>Findings</th>
</tr>
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<td>System concept was being used by a minority of even the largest firms. Companies using the system concept in marketing show a wide range in its implementation, the most users operating only sub-system applications</td>
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| 4     | Raymond R. Bruke    | 1994 | -                       | -                   | Identified new technologies that can further the development of artificial intelligence (AI) systems for both everyday and strategic decisions. He briefly described ADCAD system |
| 5     | Hotaka Katahira and Shigeru Yagi | 1984 | -                       | -                   | Described the state-of-the-art Point of Sale Marketing Systems in Japan. Illustrated how different market conditions across cultures lend to the use of essentially the same technology in somewhat different ways. |</p>
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### Table 2.2
**Importance of MKIS**

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<tr>
<td>1</td>
<td>Banne K Buckland, James C Bancheau</td>
<td>1995</td>
<td>Small firms (employing fewer than 100 people)</td>
<td>Mail survey (Telephonic interview)</td>
<td>To explain IT use developed a different theory. Variables are perceived contribution of IT to the firm, number of sources from which computer education and training were received, firm size, user involvement, years of in-house information systems (IS) experience, computer knowledge in the firm, and perceived availability of technical support.</td>
</tr>
<tr>
<td>2</td>
<td>David Ing and Andrew A Mitchell</td>
<td>1993</td>
<td>–</td>
<td>–</td>
<td>Described different sources of electronic POS (Point of Sale) data, and discussed a typology of decisions for which electronic POS data are best suited.</td>
</tr>
<tr>
<td>3</td>
<td>John Deighton, Don Peppers, and Maritha Poggers</td>
<td>1994</td>
<td>–</td>
<td>–</td>
<td>Reviewed the power and potential of customer databases. Suggested 'interactive' marketing in the place of 'broadcast' marketing. There is a necessity to marry &quot;high-powered analytical tools&quot; with specialized interactive marketing communication techniques.</td>
</tr>
<tr>
<td>4</td>
<td>George Day and Rash/ Glazer</td>
<td>1994</td>
<td>–</td>
<td>–</td>
<td>Opined that the feasible organization changes that can overcome impediments and ensure competitive advantage can be realized from investment in information systems.</td>
</tr>
<tr>
<td>5</td>
<td>Van Engeelen, and Johannes Marme Lucien</td>
<td>1989</td>
<td>Empirical study</td>
<td>Compared the usual dyadic models. An empirical study conducted and proved that the hypothesized relation between a marketing strategy and the information system with regard to the success of the product market combination.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Author</td>
<td>Year</td>
<td>Type</td>
<td>Methodology</td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
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<td>------</td>
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<td>-----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6</td>
<td>Richard B Rosecky</td>
<td>1988</td>
<td>Survey empirical test</td>
<td>-</td>
<td>This research shows that an existing information gathering system, i.e. registration cards, can be used to reduce information delays experienced by producers and hence reduce the affects of some marketing dysfunctions.</td>
</tr>
<tr>
<td>7</td>
<td>Jiro Kokuryo</td>
<td>1992</td>
<td>Case studies</td>
<td>8 firms (87 responses)</td>
<td>Describes how information technology triggers the reorganization of logistics systems specifically, explains EDI based Quick Response (QR) systems being implemented.</td>
</tr>
<tr>
<td>8</td>
<td>Gallynn Cook</td>
<td>1990</td>
<td>Laboratory experiment</td>
<td>-</td>
<td>The results indicated that sharing marketing feedback, feedback and decision models, or data and decision models increased coordinated decision making above the control level.</td>
</tr>
<tr>
<td>9</td>
<td>Edward Philip Bovich</td>
<td>1987</td>
<td>Experimental inquiry</td>
<td>Experience -ed and specially trained marketing planners (questionnaire)</td>
<td>Examined the relationship between marketing management decision-making process and decision quality and usage of computerized decision support system. Results suggest that usage of the decision support system have its most direct benefits.</td>
</tr>
<tr>
<td></td>
<td>Author(s)</td>
<td>Year</td>
<td>Type</td>
<td>Methodology</td>
<td>Findings/Significance</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------</td>
<td>------</td>
<td>--------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Donald F Cox and Robert E Good</td>
<td>1967</td>
<td>-</td>
<td>-</td>
<td>Presented current “State of thought” and identified some of the key decisions which must be made by top management in the MIS development process.</td>
</tr>
<tr>
<td>2</td>
<td>Gernot Bernhard Langle</td>
<td>1988</td>
<td>8</td>
<td>Empirical investigation</td>
<td>Found that presence of function specific domain knowledge affected the construction of representation as well as modeling, discovery and validation process.</td>
</tr>
<tr>
<td>3</td>
<td>Robert Blatberg</td>
<td>1990</td>
<td>-</td>
<td>-</td>
<td>Evolved frameworks for “Mass produced” They described a typical application of MDSS development of a price simulator for setting retail prices across many items in a product category.</td>
</tr>
<tr>
<td>4</td>
<td>Somendra Pant and HSU. Cheng</td>
<td>1997</td>
<td>Two</td>
<td>Case method and empirical test</td>
<td>Reviewed the business use of internet technology and identified the lack of stable models. He proposed a ‘push’ model for internet strategy planning. Additional case studies were taken from literature and usefulness of reference model and planning framework were established.</td>
</tr>
<tr>
<td>5</td>
<td>Cheon, Myunjong and Grover, Varun; Tegn, James</td>
<td>1992</td>
<td>188 top IS' executives</td>
<td>Mail survey questionnaire</td>
<td>A contingency model of outsourcing was developed from the literature. Two hypotheses were developed.</td>
</tr>
</tbody>
</table>

> Organizational attributes influence the change in the extent of an organization’s outsourcing of IS’ functions.  
> Success of outsourcing is dependent upon both the change in degree of IS’ outsourcing and the quality of outsourcing implementation.
<table>
<thead>
<tr>
<th>6</th>
<th>Ross, Jeanne Wenzel Ross and Kate M Kaiser</th>
<th>1987</th>
<th>87 Organizations in 4 Industries (marketing managers &amp; ISD managers)</th>
<th>Theoretical framework &amp; telephonic interviews</th>
<th>Conducted a study with the goal of identifying the factors related to EUC control and noted variables in the industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Change Lu</td>
<td>1997</td>
<td>1000 Web masters</td>
<td>E-mail questionnaires, experimental visits</td>
<td>Four functions that are critical to the design of electronic markets were identified, they are (1) information and service quality (2) system use (3) playfulness, and (4) system design quality. He identified that a well-designed website will increase the level of customer recall and recognition</td>
</tr>
<tr>
<td>6</td>
<td>Ray Joseph Blankenship James H Barnes Jr and John D Johnson</td>
<td>1994</td>
<td>Different machine algorithms</td>
<td>Empirical</td>
<td>They explored modeling of consumer choice. They found that the GANNT algorithm is able to significantly predict better than the back propagation algorithm and the predicted multi-nominal legit model</td>
</tr>
</tbody>
</table>
Table 2.4
Evaluation of MKiS

<table>
<thead>
<tr>
<th>No</th>
<th>Researcher</th>
<th>Year</th>
<th>Sample</th>
<th>Method</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ackoff</td>
<td>1967</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Richard H. Brion</td>
<td>1968</td>
<td>One 'X' company</td>
<td>Case study</td>
<td>According to Ackoff, systems development has not been successful because: first, marketing decision is increasing in complexity at an accelerating pace. Second, marketing decisions, as a class are more difficult to model than other business decisions. Third, many of the methods that have been developed for modeling these decisions are inadequate when checked with real world results.</td>
</tr>
<tr>
<td>2</td>
<td>Dickson Warren lee and Leon R. Price</td>
<td>1994</td>
<td>Marketing departments in telecom firms</td>
<td>Exploratory (Questionnaire)</td>
<td>Identified a variety of problems that prevent IS professionals and Non-IS professionals from joint realization of the system. Individual differences, social differences and interaction (communication) problems relating to difficulties in integration have been explored.</td>
</tr>
<tr>
<td></td>
<td>Author(s)</td>
<td>Year</td>
<td>Methodology</td>
<td>时间段</td>
<td>Research Area</td>
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<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Linkd, Mary Louise Robinson</td>
<td>1968</td>
<td>One organizat on</td>
<td>Longitudinal</td>
<td>Convergence between information systems personnel and non-information systems personnel on the importance of the firm business activities and IT to support them was found to be an important predictor of IT innovativeness. Communication richness is an important predictor of convergence. Communication frequency is not only an important predictor of convergence but is an important predictor of communication richness as well.</td>
</tr>
<tr>
<td>2</td>
<td>Malcolm A McNevin</td>
<td>1968</td>
<td>One organizat on</td>
<td>Study</td>
<td>A reason for the failure of information systems in marketing is tremendous gap between expectations of information systems people and the state of the art in business today. He described how Coca-Cola company is bridging the gap by setting the management information system.</td>
</tr>
<tr>
<td>3</td>
<td>Claire Maureen, Forrest</td>
<td>1974</td>
<td>A Small company</td>
<td>Case study Action research approach</td>
<td>DSS to play effective role, small firms may need to introduce more structure into their marketing planning and that the role of the intermediary as such include responsibility for introducing new techniques and ideas.</td>
</tr>
<tr>
<td>4</td>
<td>Charles D Schewe and James I WieK</td>
<td>1977</td>
<td>-</td>
<td>-</td>
<td>They have drawn parallels between MIS development function and marketing function utilizing Taylor's framework of marketing delineation, product adjustment, physical distribution, communications, transactions and post transactions.</td>
</tr>
<tr>
<td>5</td>
<td>Donald R Lehman</td>
<td>1970</td>
<td>1203 adults 20 television shows</td>
<td>Empirical cross sectional study</td>
<td>Sketched the elements of marketing information system by starting with a model of individual choice and then developing a system for evaluating marketing decision based on the model. The several applications of this system seem feasible. They include evaluation of new products, advertising effectiveness and product aging.</td>
</tr>
</tbody>
</table>
## 4. Models of Evaluation

<table>
<thead>
<tr>
<th></th>
<th>Author(s)</th>
<th>Year</th>
<th>Survey of Research &amp; Analysis</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kamna Malik and DP Goyal</td>
<td>2000</td>
<td></td>
<td>An analysis of existing models, being used for measuring the effectiveness of IS has also been made. An integrated model has been suggested that comprehends the effectiveness of organizational IS with respect to product process and environment effectiveness.</td>
</tr>
<tr>
<td>2</td>
<td>W H Delone and Mc Lean</td>
<td>1992</td>
<td>-</td>
<td>Identified the possibility of two types of measures in IS evaluation, viz qualitative and quantitative developed.</td>
</tr>
</tbody>
</table>
| 4 | Timo Saarinen                    | 1996 | -                             | Recommends four measurement scales for IS success model, as stated:  
  - Development process (Cost and efficiency use)  
  - Use process (User satisfaction)  
  - IS product quality (Performance efficiency)  
  - Impact of IS on organization (Benefits)  
  The emphasis is on both process and product evaluations. |
| 5 | P.G. Kulkarni                    | 1997 | -                             | Suggested the use of IT utility index to measure the effectiveness of IT in banking. They are as follows:  
  - Technology costs as a percentage of the total operating cost.  
  - Transaction processing. |
<table>
<thead>
<tr>
<th></th>
<th>Erick Brynjolfson</th>
<th>1996</th>
<th>-</th>
<th>-</th>
<th>Suggests three approaches to IT value estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>Costs</td>
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<td></td>
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<td></td>
<td>Technology led exposures and risks</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>System availability indicators.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>Technology awareness of the knowledge works</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Customer friendliness, flexibility and innovativeness of the system</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Similar index parameters can be developed for other industries also</td>
</tr>
<tr>
<td>7</td>
<td>James w. Cortada</td>
<td>1995</td>
<td>-</td>
<td>-</td>
<td>Information system is said to be effective if its product is effective.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The product of IS can be termed as effective if they</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Provide quality information as per the user’s perception</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Improve management function.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Improve resource utilization.</td>
</tr>
<tr>
<td>8</td>
<td>James w. Cortada</td>
<td>1998</td>
<td>-</td>
<td>-</td>
<td>Recommended the use of Bainbridge Award criteria for getting the snapshot of IS effectiveness. Bainbridge criteria have seven categories defined for any quality assessment. They are leadership, information and</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Glenn Edward Maples</td>
<td>1997</td>
<td>Three studies</td>
<td>Empirical test</td>
</tr>
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</tr>
<tr>
<td></td>
<td>10</td>
<td>Miller, Marc Donald and Kelley R Rainer jr.</td>
<td>1994</td>
<td>177 UG students</td>
<td>Laboratory experiment</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Karahanna, Elena and Detmar W. Straub and Chervany, Norman L</td>
<td>1983</td>
<td>161 users and 107 potential adopters</td>
<td>Questionnaire</td>
</tr>
<tr>
<td>No.</td>
<td>Author(s)</td>
<td>Year</td>
<td>Data Gathering Method</td>
<td>Proposed Model/Findings</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>12</td>
<td>James Edward Turner and Julian W Rehl</td>
<td>1993</td>
<td>Mail survey</td>
<td>Proposed a model to analyze the influence of factors related to use and satisfaction with information systems. The more satisfied firms follow a plan for system development, has top management interest in IS, provide periodic technology updates for management and users and use prototypes to speed development. Firms with more experience with scanning are more satisfied with IS support while firms with more computer experience rate IS support lower.</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Bernadette Agatha Szalna</td>
<td>1990</td>
<td>Three treatment groups</td>
<td>Laboratory suggested that user's attitude towards a proposed information system would provide system developers with some knowledge of the potential success or failure of the information system.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Ginzberg &amp; Desantis</td>
<td>1981 &amp; 1983</td>
<td>Three treatment groups</td>
<td>Laboratory experiment Pre-implementation expectations have an effect on user satisfaction and perceived decision performance. No effect was found on either decision performance or IS usage. The results are consistent with the predictions and perceptions of the information system that were higher than those with moderate expectations and those users with unrealistically low expectation had significantly lower perceptions. Even after repeated use of the information significant difference was found among the three expectation groups although the trend indicated a moderating of the high and low expectations groups both in their perceptions and post implementation expectations.</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Alan Fletcher Gilman</td>
<td>1995</td>
<td>Three industry groups Telecommunications, Information systems and Food retailing</td>
<td>Case study</td>
<td>The role of Electronic Data Interchange (EDI) in promoting electronic commerce marketing channels of distribution is a complex and interesting one. As a new medium for information transfer it simultaneously expands and adds value to interorganizational communications. What it does is shift the emphasis in channel theory from a structural to emphasize more strategic orientations</td>
</tr>
</tbody>
</table>
| 16 | Vjaya Sarathy, Leo Ramesh and Daniel Robey | 1994 | 97 Retail companies | Empirical investigation with questionnaires | The analysis supports the following hypotheses:  
- EDI use is positively related to information intensity and formalization  
- Formalization is positively related to cooperation  
- Information intensity is positively related to cooperation  
- Conflict is negatively related to performance and satisfaction  
- Cooperation is positively related to performance, and  
- Performance is positively related to satisfaction |
NEED FOR THE STUDY

In India, many organizations have set up marketing information systems (MKIS) for various reasons. However, due to lack of publicity and research, the status of the MKIS, its configuration, its applications and its effectiveness are less known to the management world of practitioners, researchers, teachers and students.


A comprehensive research on marketing information systems is yet to take place. The available literature comprises mostly conceptual explorations and journalistic descriptions of existing marketing information systems. As such, there is a need to undertake a systematic study on the status, working and effectiveness of the marketing information systems.
Research Problem

In view of the above, the study is undertaken to find answers to the questions.

➢ What is the state of the art of marketing information systems in the Indian organizations?
➢ How well are they performing?
➢ Do they need improvements? If yes, what kinds of measures are needed?

Objectives of the Study

Following are the objectives of the study.

➢ To describe marketing information systems in select organizations
➢ To evaluate the effectiveness of the systems based on
  (i) Comparative study of information systems in similar organization(s)
  (ii) User's opinions
➢ To identify measures to improve the effectiveness of the systems.

Research Model

An analytical model representing system effectiveness variables under study is shown in the following Figure 2.1
RESEARCH PROBLEM

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OBJECTIVES OF THE STUDY

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➢ To identify measures to improve the effectiveness of the systems.

RESEARCH MODEL

An analytical model representing system effectiveness variables under study is shown in the following Figure 21
Figure 2.1

An Analytical Model of Information System Effectiveness

1. Information quality
2. Decision support
3. User Confidence & Satisfaction
PROPOSITIONS
The study examines the following propositions

➢ Design / Technological effectiveness

The information systems represent the current state of the art

➢ Functional effectiveness

The information systems are effective in serving the functional needs of marketing

➢ Change effectiveness

The information systems are change oriented.

➢ Use effectiveness

The information systems are user friendly

➢ Cost effectiveness

The information systems are cost effective.

➢ System management effectiveness

The information systems have effective leadership, plans, security and controls

SCOPE OF THE STUDY
The study focuses on marketing information system and on how functional needs and user needs of an enterprise are fulfilled by MKIS

SIGNIFICANCE OF THE STUDY
The study is beneficial in many respects

1. Academicians: There is a dearth of research literature on marketing information systems. It bridges the gap, stimulates interest for further research in this area

2. Executives: An audit of the information systems helps executives identify the inadequacies, if any, and improve the system.
3. Organizations: The organizations will have an opportunity to improve system effectiveness

**RESEARCH METHODOLOGY**

The procedure adopted for the study is briefly stated here

**Research Design**

The study is descriptive as well as analytical. It employs "Case Method" as it provides an opportunity to understand the phenomena as it appears and evolves. This method will be helpful particularly when respondent organizations are busy and cannot respond to mailed questionnaires.

**Data Sources**

Data required for the study are primary as well as secondary. The secondary data include the company brochures and reports. The primary data comprises the viewpoints of employees using the information systems and information system personnel.

**Research Site**

In all 8 organizations are studied representing three important sectors of industry — core, chemicals, and services. The inclusion of the organizations is influenced by their acceptance. However, care is taken to select organizations:

- Which have minimum of 10 years of existence
- Which are progressive and facing competitors and
- Which are classified as large organizations by Indian standards

The selected organizations are as follows.
<table>
<thead>
<tr>
<th>Sector</th>
<th>Organization</th>
<th>Year of Establishment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core</td>
<td>Chennai Petroleum Corporation Limited</td>
<td>1969</td>
</tr>
<tr>
<td></td>
<td>Vizaghatnam Steel Plant</td>
<td>1982</td>
</tr>
<tr>
<td></td>
<td>ACC Cement</td>
<td>1936</td>
</tr>
<tr>
<td>Chemical</td>
<td>Neuland Laboratories Limited</td>
<td>1984</td>
</tr>
<tr>
<td></td>
<td>Erythro Pharma Limited</td>
<td>1991</td>
</tr>
<tr>
<td></td>
<td>Biological E Limited</td>
<td>1953</td>
</tr>
<tr>
<td>Services</td>
<td>Antrix Corporation Limited</td>
<td>1972</td>
</tr>
<tr>
<td></td>
<td>Medinova Diagnostic Services Limited</td>
<td>1987</td>
</tr>
</tbody>
</table>

Data are also collected from all the managers in the marketing department of the participant organizations. The managers have designations like Vice-president, General Manager, Deputy General Manager, Assistant General Manager, Senior Manager, Manager and Officers. The number of marketing managers varied from 6 to 14 in the corporate or regional offices of select organizations.

**Data Collection**

Data are collected with the help of two questionnaires, one for organizations (Appendix - II) and another for users (Appendix - III). Beside the questionnaires, unstructured interviews are used as a major data collection method.

The questionnaire for organizations consist of

<table>
<thead>
<tr>
<th>Part- A</th>
<th>Organizational Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part- B</td>
<td>Marketing Organization</td>
</tr>
<tr>
<td>Part- C</td>
<td>Marketing Information Systems</td>
</tr>
<tr>
<td>Part- D</td>
<td>System Development</td>
</tr>
<tr>
<td>Part- E</td>
<td>System Functions</td>
</tr>
<tr>
<td>Part- F</td>
<td>Evaluation</td>
</tr>
</tbody>
</table>
The questionnaire for users consist of

<table>
<thead>
<tr>
<th>Part</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Personal Profile</td>
</tr>
<tr>
<td>B</td>
<td>Data Analysis Methods</td>
</tr>
<tr>
<td>C</td>
<td>Information Flows</td>
</tr>
<tr>
<td>D</td>
<td>Transactions &amp; Reporting</td>
</tr>
<tr>
<td>E</td>
<td>Intelligence</td>
</tr>
<tr>
<td>F</td>
<td>Marketing Research</td>
</tr>
<tr>
<td>G</td>
<td>Systems Management</td>
</tr>
<tr>
<td>H</td>
<td>Evaluation of Information Systems</td>
</tr>
</tbody>
</table>

**Data Analysis**

Data are presented in the form of tables. Simple statistical tools like ratios, percentages, means and standard deviations are used.

**Limitations**

The limitations to the study are:

1) Unwillingness of organizations to take part in the research. Several organizations have declined the request of researcher to undertake study on this topic, in the name of confidentiality. Those organizations, which have permitted the study, have also not supported it whole heartedly. As a result, getting desired information has become a difficult task.

2) Financial Problems: The researcher had to spend more time and money, waiting for the consideration of managers and obtaining relevant data from them. Lack of financial support for the study and longer stays with each of the organizations, has posed financial difficulties. Due to this, the researcher has to wind up the study in some organizations requesting them to mail the information. Though the organizations have responded positively, the information dispatched was not up to the expectations.
Despite these limitations, the researcher has collected the relevant information tapping various communication media- telephone, e-mail, postal and courier and also by influencing participating managers through friends.

**Plan of the Thesis**

Chapter 1 presents a conceptual framework and growth of MKIS in India and identifies the research problem.

Chapter 2 makes a survey of literature and establishes objectives and methodology for the present study.

Chapter 3, 4 and 5 describe and evaluate MKIS in select organizations in the core, chemicals and services sector respectively.

Chapter 6 summarizes the findings and highlights the suggestions for improving MKIS.
NOTES


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