REVIEW OF RELATED LITERATURE

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After discussing the Information Technology industry in Kerala, an elaborate literature review was undertaken in this chapter which shows that most of the studies relevant to the subject matter of this research have been conducted in countries other than India. Different methodologies were used for conducting the studies. The literature reviewed in this chapter identified the research gap and formed the motivation for the present study.
3.1. INTRODUCTION

The review of related literature is an important aspect of a research work. The purpose of review is to gain background knowledge of the research topic and to identify the concepts relating to it in order to develop appropriate methodology. In order to carry out a worthwhile study, it is essential to be well acquainted with the studies that have already been carried out in that particular area. In this chapter an attempt has been made to present the literature review of the relevant research work done by researchers in the area of information utilisation for decision making. Since a few studies have been conducted in this area, the availability of literature is very scant. However it has been able to manage in reviewing the available literature which is as follows. The reviews obtained are grouped under the following four sub headings:

- Use of information in general.
- Use of Information for decision making
- ICT for decision making
- Management Information System for decision making

3.2. USE OF INFORMATION IN GENERAL

Information has become a vital ‘raw material’ in the rapidly changing society. In this section the use of information through various sources by different categories of users; especially by manager community is studied. There are 34 related studies in this section between the years 2014 and 1995.

Bida and Abba (2014) identified the utilisation and organisation of information sources available to small scale entrepreneurs. Survey research
method was used for the study in which 900 small scale entrepreneurs were sampled as part of the study. Questionnaire, observation and oral interview were used as instruments for data collection. Frequency count and simple percentages were used for data analysis. The study discovered that majority of the entrepreneurs indicated the use of financial information.

Gurudev Singh and Monika Sharma (2014) surveyed the information needs of Hindi faculty members in the various colleges of the University of Delhi. Data were collected by using questionnaires and interview methods from ninety-six faculty members of the various colleges of University of Delhi which were obtained by random sampling. It can be seen that textbooks are the main source of information for meeting their information needs.

Lal (2014) explored the graduate students’ information seeking behaviour and their use of information to support their process of inquiry and scholarly activates. A random sample of hundred graduate science students that represented the three departments of Arts, Commerce and Science of the College was selected for the study. The data collected through various tools, such as questionnaire, interview, observation and documentary records or sources have been analysed that explored that there was a positive impact on the use of resources on scholarly activities.

Sahu, Goswami and Choudhury (2014) studied the information needs of library users of selective metallurgical institutions in Jharkhand. In this survey method, questionnaire, interview schedule and an on spot study were undertaken for data collection. Both e-mail and print based questionnaires were distributed to 1101 users which included scientists, engineers, managers, researchers, etc. The data were analysed using MS-Excel 2007 software. Most of the scientists, engineers, managers and research scholars were found to prefer subject specific information through the use of current periodicals to
keep them update in the knowledge of their field of interest and clearly preferred using internet for e-mail services.

Anwarul Islam, Ikeda and Maidul Islam (2013) measured the knowledge sharing behaviour of Information Science and Library Management (ISLM) faculties in Bangladesh. The sample of this study comprised sixty ISLM faculty members working in the Universities in Bangladesh. Mann-Whitney and Kruskal-Wallis tests were carried out in order to analyse the data. The results revealed that there is no significant difference between knowledge sharing behaviour of LIS educators.

Madukoma and Opeke (2013) surveyed the use of information and job performance of senior non-academic staff in Nigerian Universities. Multistage sampling technique was used to select 1804 senior non-academic staff of 27 Universities in Nigeria. Structured questionnaire was used for data collection. Descriptive statistics such as frequency count, mean, standard deviation and correlation was used to present data. The study concluded that information sources used were mostly online such as internet, CD-ROM, etc. and the information use had a positive relationship with the job performance of senior non-academic staff in Nigerian Universities.

Mallikarjuna Rao and Doraswamy (2013) attempted a critical study of information use pattern of pharmacy faculty members in Andhra Pradesh. A questionnaire was circulated among 700 pharmacy faculty members. The results revealed that faculty members mainly collects and seeks information for the purpose of setting up of question papers and exam related work and they always depend on library catalogues and books for their teaching.

Swain and Panda (2013) examined the overall information seeking behaviour of students of School of Computer Engineering of KIIT University in India through a survey method. A representative sample of 100 students
from the single school was selected for the study. Simple percentage analysis which was done through excel revealed that students are absolutely satisfied with the loan of books and internet services of the library.

Tirumagal and Sathyabama (2013) studied the information requirements of the users of library of Jamal Mohamed College. The data was obtained through a questionnaire and interview from 125 randomly selected users. Statistical tools like Percentage, Spearman’s correlation coefficient and Chi-square test was adopted for the study to found that the need to meet competitive opportunities was the main purpose of seeking information.

Tripathi, Hans Raj and Arora (2013) described the information needs and their usage patterns of faculty members of colleges of Delhi University. The survey was conducted by using questionnaire and interview method to collect data from faculty members. Random sampling was adopted in which ninety questionnaires were distributed to faculty members of selected eleven colleges. The data collected were analysed using simple percentage method. It can be found from the study that textbooks related to their subject area are the most important to them followed by newspapers, magazines and journals.

Bindu Sharma and Sangita Gupta (2012) explored the information seeking behaviour of faculty members at University of Agriculture Science and Technology, Jammu. Data was collected by using a questionnaire from eighty three faculty members of both the Agricultural Sciences and Veterinary Sciences. Data were analysed using correlation, multiple regression and t-test. Findings revealed that internet was used almost on a daily basis and search engines are the most preferred way of accessing information through internet.

Ghosh et. al. (2012) surveyed the information needs of Rabha community who reside in the district of Jalpaiguri. Data was collected through questionnaires and interviews from a randomly selected sample of one
hundred and eighty six. The study found that Rabha community required information on every aspect of life for overall socio-economic upliftment.

Hossain and Shariful Islam (2012) investigated the information behaviour of print media journalists in the city of Rajshahi of Bangladesh. Out of 124 journalists in the city, sixty were selected randomly by lottery method. The data were collected using questionnaire and structured and unstructured interviews. The data were subjected to simple percentage analysis and found out that the journalists need information on facts and news and more than half of them read periodicals related to their work.

Nwagwu and Kolapo (2012) examined the information search strategies of international travellers in Nigeria through a sample survey design. Accidental random sampling technique was used to select 203 willing respondents from an undefined number of travellers found at the departure wings of 14 international airlines operating at Nigeria’s’ busiest international airlines airport. Data collection was guided by a questionnaire and was analysed by Chi-square test. The study found that information on the safety and other travellers were the main source of information for the travellers.

Parvez (2012) made a study on the information needs of managers in Indian financial institutions. An online survey conducted through a questionnaire which was developed using Survey Monkey and interview was also conducted among a sample of 352 managers working in financial institutions. Percentage and weighted mean were calculated for analysis. Financial and industry specific databases were found to be used most by the managers who had clear preference for electronic format.

Raghavendra and Venkatesha (2012) assessed the information needs and use pattern of the professionals of mental health and Neurosciences in Karnataka. The data was collected from a sample of 723 professionals...
working in medical colleges and major hospitals in Karnataka state. Data was analysed using percentage analysis, frequencies procedure, Chi-square test and cross tabs. It was revealed that the professionals use mental health and neuroscience information services mainly for teaching work than research work, project work or to obtain disease specific information.

Almutairi (2011) investigated the information needs of public managers in Kuwait. A sample of three hundred and twenty one public managers working in eighteen Kuwaiti ministries was used to collect data from questionnaires. SPSS was used to carry multivariate ANOVA and multiple comparisons with Scheffe test. The findings showed that Kuwaiti public managers have unique information behaviour characteristics.

Buse and Zimmermann (2011) conducted a quantitative and qualitative study to assess the information needs of developers and managers at Microsoft. A survey was conducted through email among 110 software engineers in which there are 57 managers and 53 developers. This study found that the managers rated data and metrics and developers rated their personal experience as the most important factor to their problem solving.

Mahapatra, Swain and Jena (2011) surveyed the information seeking behaviour of teachers of Engineering Colleges in Bhubaneswar, Odisha. A structured questionnaire was administered among the faculty members of engineering colleges functioning in Bhubaneswar. The study found that personally visiting the library was the most preferred method of information seeking and lack of time was the major barrier in information seeking.

Mahawar (2011) studied the use and user perception of library and information services in the higher research and academic institutions in Lucknow. Questionnaire and interview method were used for data collection from 120 users who were randomly selected from the eight libraries of Lucknow.
The study showed that the various services of the library like the circulation, internet services, online, e-journals and reference services are utilised widely.

Nwagwu and Ajama (2011) assessed the health information needs and information seeking behaviour of women living in a rural palm plantation community in Nigeria. The data for the study was collected through Focus Group Discussion (FGD) and a questionnaire. Data which were analysed with percentage method revealed that the women relied on traditional sources for health information.

Sheela and Shivarama (2011) studied the information requirement and the methods used for searching information among the corporate library users. An HCL company was taken as the sample. Data were collected from the senior executives, consultants, and other employees through questionnaires. The study revealed that the senior executives, consultants and HR were the most satisfied of services provided by the library and library policies.

Thanuskodi (2009) made a questionnaire based survey method to identify the information seeking behaviour of law faculty members of Central Law College, Salem. The study was based on the whole population of full time academic staff of the college. It was seen that only very few opined that the library was very effective in information dissemination as most of them were not excellent in using the library.

Momeni Rad, Shams and Naderi (2008) investigated the need for effective information management and information managers in organisations. The sample unit involved 145 managers in 13 business organisations by focusing on the banking industry, oil and gas, and IT and Telecommunication services around the Tehran city. This study used questionnaire-based survey and interviews for data collection. Statistical indicators used were percentages, frequency distribution, ranges and standard
deviations and factor analysis. Texts were analysed using content analysis approach. The findings revealed the use of informal sources such as colleagues, superiors, subordinates, and business associates as important.

Odunewu and Omagbemi (2008) studied the use of information by the policy makers in Olabisi Onabanjo University, Nigeria. A questionnaire was used to collect data from 120 policy makers. The survey revealed that a majority of the respondents need information on the performance of their jobs, for professional development and policy making. They depend more on the information from meetings and colleagues than from the library.

Okello-Obura, Minishi-Majanja, Cleote and Ikoja-Odongo (2008) identified the sources and means of access of business information by small-and medium-scale enterprises. Descriptive research design was adopted to collect data from three types of respondents and the total sample size was 251 SMEs, 75 business information providers, and 25 business policy-makers. Data collected using structured questionnaires from SMEs and information providers and a semi-structured interview guide from business policy-makers were transferred to SPSS for analysis into frequencies, percentages, pie charts, line graphs, and bar graphs. Data from interviews were analysed, using content analysis. Radio stations, personal contacts and newspapers were the major source of business information.

Nor Shahriza and Ramlah (2007) explored the information behaviour of business executives to understand the effective information management and the need for information and knowledge managers particularly those in the managerial positions in the services and banking industries in Malaysia. This study used questionnaire-based survey and interviews for data collection from the population unit which involved 145 managers in business organisations in banking industry, oil and gas, and IT and Telecommunication services in the Kuala Lumpur state. Various descriptive statistical tools were
used to analyse the quantitative data and a qualitative approach of content analysis was used to analyse qualitative data. It was found that accuracy, timeliness, and accessibility are the important elements that IM should provide in order to assist managers make good decisions.

Shanta Meitei and Purnima Devi (2007) attempted to find out the information needs of the persons engaged in the small scale industries in the rural areas of valley districts of Manipur. A questionnaire was designed for the rural community for collecting data, and interview was also conducted with the heads of the villages particularly those who are engaged in small scale industries of the rural areas. The sample consists of 116 persons selected through simple random sample method. Percentage method was used for analysing the data. The study found that majority of the respondents need information on raw materials regarding the construction and manufacture and were not aware about the IT and access to internet.

Jorosi (2006) undertook a nation-wide mail survey of managers to investigate the information needs and information seeking behaviours of small and medium-sized enterprises managers in Botswana’s manufacturing industry. The findings of the study indicated that SME managers considered customer and competition information to be the most important types of information to their firms. It was also found that they used both personal and impersonal sources of information.

Ibohal Singh and Lahiri (2004) conducted an extensive survey on the information seeking behaviour of health care paraprofessionals including nurses, pharmacists, staff nurses, laboratory technicians, sanitary inspectors, health workers and trainees etc. The sample of the present study consisted of 126 paraprofessionals engaged in different health care sectors of Manipur. The data was collected from the sample through mailed questionnaires. Certain statistical methods like standard deviation were used to make the
study more empirical. The study revealed that the existing Health Information System of Manipur cannot full fill the information needs of paraprofessionals.

Seaman (2002) examined the information gathering strategies of software maintainers. The survey was completed by forty-five software professionals in different organisation with varying degrees of experience in maintenance. This survey study constituted three stages, with each stage depending on the findings of the earlier stages. The first stage is an explanatory stage while the focus of the second stage is to learn what information sources are efficient and effective. The last stage is the empirical demonstration of their effectiveness through case studies. It was found that maintainers depend mainly on source code, particular human sources, some types of CASE support and lessons learned from previous projects.

Shokane (2001) determined the extent to which the small and medium sized enterprises in Aornhoek make use of business information for competition. A non-probability sample of these enterprises was selected by purposive sampling. Data collected from thirty-two questionnaires were applied for descriptive statistical technique and study revealed that prospective female entrepreneurs are beginning to make a mark in business related activities. It was seen that there was a persistent ignorance in accessing business information for managing their business enterprises.

Popoola (2000) studied the major information sources used by the bank managers. Questionnaires were administered to 550 selected managers by stratified sampling at the headquarters of 124 licensed banks operating in Nigeria. Both descriptive and inferential statistical tools were employed to analyse the data collected from the field. The study revealed that the customer and competition sectors were the sectors most strategically uncertain.
Anna Chalmers (1995) conducted a qualitative research study on the use of business information by the managers in New Zealand. Data were collected by using a structured interview schedule from a sample of managers of eight New Zealand companies, selected by purposeful sampling. The interviews were fully transcribed and content analysis was undertaken. This research found that most respondents did not systematically seek information from secondary sources to assist in company activities. Environmental scanning usually involved the use of personal sources of information.

**To Sum up**

- Information needs and the corporate use of information in organisations or industries by managers are mainly focused.
- Majority of the users preferred electronic resources to satisfy their information needs.
- Most of the studies are done outside India, i.e. – mainly in Nigeria, Kuwait, Iran, New Zealand, Malaysia etc.
- Questionnaire and Interview was the data collection tool in majority of the cases.
- Data analysis of the qualitative data was done by content analysis in most of the studies.

### 3.3. USE OF INFORMATION FOR DECISION MAKING

Decision making is an integral part of the functioning of any organisation. Sufficient and reliable information is essential for effective operation and decision making at all levels. To facilitate decision making in this ever-competitive world it is imperative that managers must have the right information in the right form at the right time to bridge the gap between need
and expectation. Sourcing information is a core task in decision making. The 29 literature reviews between 2013 and 1990 related to the use of information for decision making is discussed in this section.

Jedlitschka, Juristo and Rombach (2013) empirically investigated the decision makers’ information needs to judge the appropriateness and impact of software technology. A model was empirically developed that characterises these needs and performed an experiment to evaluate the model with regard to its effectiveness. Software managers who read an experiment report according to the proposed model judged the technology’s appropriateness better than those reading a report on the same experiment that did not explicitly address their information needs. The study showed that information regarding a technology and the impact of this technology on development costs and schedule as well as on product quality is crucial for decision makers.

Popoola and Okiki (2013) investigated whether the information availability and utilisation determine the creativity of managers in the commercial banks in Nigeria. A self-developed questionnaire was used for data gathering from a sample size of 1179 managers selected through cluster random sampling. The data gathered from the field were analysed using descriptive statistical tools such as mean, standard deviation and variance as well as inferential statistics such as Pearson’s zero order correlation and multiple regression analysis with the aid of computer and SPSS. The study found that information availability and utilisation had significant correlation with the creativity of respondents and the major sources utilised by the respondents were found to be colleagues, subordinate staff and customers.

Unegbu and Runo (2013) made a study on the information use in decision-making process of administrative staff of Federal University of Agriculture in Nigeria. A descriptive survey design was conducted by distributing questionnaires to a sample of 137 administrative staff. Collected
data was analysed using discrete figures, frequency tables and simple percentages to test the significant differences between variables and their frequencies. The study found that the information sources most frequently consulted were internal memo, minutes and schedules of meeting, past conference papers and dictionaries and there was a perceived influence of information use on decision making process of administrative staff.

Fiankor and Akussah (2012) investigated the information utilisation for policy decision making by the assembly members in Ghana’s local Government system. The quantitative data collected by questionnaires from a random sample of 278 assembly members were analysed using descriptive statistics, while the data collected from structured interviews with 15 Coordinating Directors were summarised. The study revealed that policy makers in the assembly system of Ghana had little access to relevant information for decision making about policies and policy implementation.

Popoola (2009) examined the self-efficacy, information acquisition and utilisation as correlates of effective decision making of managers in corporate insurance companies in Nigeria. The data was collected from 153 managers in eleven corporate insurance companies in Nigeria through a total enumeration technique called census coupled with a self-developed questionnaire. The study found that self-efficacy, information acquisition and utilisation had collinear relationship with effective decision making.

Chong and Eggleton (2007) examined the effects of information asymmetry and organisational commitment on the relation between the extent of reliance on incentive-based compensation scheme and managerial performance. Data for this study were collected from a sample of senior managers selected from business sub-units of 176 firms of Australian manufacturing companies using a mail survey method. The data were analysed using a multiple regression technique. The results of this study
showed that the performance level of managers with high organisational commitment is unaffected regardless of the degree of information asymmetry and the extent of reliance on incentive-based compensation scheme.

Erwat and Fabunmi (2006) investigated the level of information acquisition, information management capacity and decision-making effectiveness of administrators in fourteen tertiary institutions in South-Western Nigeria. A Likert-type questionnaire was used to collect data from a random sample of 1,357 administrators. Findings revealed that although the level of information acquisition, information management capacity and decision-making effectiveness were rated very high, there were significant differences among the three types of tertiary institutions.

Popoola (2006) conducted a study on information accessibility and utilisation as factors influencing decision-making of managers in commercial banks in Nigeria. The main objectives of the study were to find out the most prevailing specific information requirements in decision making of the respondents. Single stage random sampling with equal allocation method was used to select 550 managers from sixty-six licensed commercial banks in Nigeria. The data were collected using questionnaire and scaling technique. The study revealed a significant positive relationship between academic qualifications and information utilisation in decision making.

Wiggins and Bollwerk (2006) examined the impact of heuristic-based approaches to the acquisition of task-related information on the selection of an optimal alternative during simulated in-flight decision making. The study comprised two phases, the first of which involved familiarising pilots with three different heuristic-based strategies of information acquisition, frequency, and elimination by aspects, and majority of confirming decisions. The second stage enabled participants to choose one of the three strategies of information acquisition to resolve a fourth scenario. The results indicated that
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Task-oriented experience, rather than the process of information acquisition, predicted task accuracy during the decision-making task.

Lee (2005) examined the effects of safety information on aeronautical decision making for students in a collegiate flight program. The target population of this study was thirty-four student pilots who were selected randomly from a pool of volunteers in initial flight training at Purdue University. Participants were evaluated using a flight simulator profile and a pen and pencil test of situational judgement. ANOVA, ANOCOVA and Kruskal-Wallis test was used to analyse different corrective action scores. Findings of this study were that flight students who periodically review ADAM safety information demonstrated a beneficial effect on their aeronautical decision making in critical flight safety situations.

Mc Caughan, Thompson, Cullum, Sheldon and Raynor (2005) conducted a study on nurse practitioner and practice nurse’s use of research information in clinical decision making. Purposive sampling technique was adopted to select twenty-nine practice nurses and four nurse practitioners from general practices in the north of England. Qualitative methods such as interviews, observation, and documentary analysis were used to collect data on the clinical decision making and information seeking behaviour and a seven fold typology captured the types of decisions the nurses made. The majority of the nurses in the study relied on personal experience, or obtained advice and information from General Practitioners and other colleagues for decision making.

Mutemmwa (2005) conducted a multi-level and qualitative comparative case study on the influence of information in the strategic decision-making process in district health management in decentralised health systems in Zambia. Extensive empirical evidence indicated that managers’ decision making behaviour was influenced by the existence of
different forms of information outside the HMIS and within the organisational environment.

Sykianakis and Bellas (2005) explored the role of management accounting information in Foreign Direct Investment (FDI) decision-making process through a case study method which was applied in a Greek company in Balkans. The study revealed that FDI decision-making process was cyclical in nature with information continuously received, processed and used as feedback for subsequent action.

Frishammar (2003) attempted to find out the source of information and the kind of information management used in strategic decision making. It was based on four specific strategic decisions by medium sized companies in Sweden. The study employed a case study as a research strategy together with personal interviews and documentation as a means of data collection which revealed that information had great impact on decision making.

Gilbert (2003) made an investigation to identify the major internal and external sources of information used by senior executives in decision making in Japanese trading companies. In-depth interviews were conducted both in formal settings at the participant offices at various locations in Tokyo and in informal settings. The results indicated that the major source of information they depended on were other executives involved in taking decisions.

Solano, Leon, Perez and Herrero (2003) studied the role of personal information sources on decision-making of 91 Costa Rican dairy farmers. A multidimensional preference analysis, cluster and a factor analysis were used in study. It was found that the importance of different informational sources slightly changed throughout the decision-making steps and the family and farm staff were the most preferred information sources.
Adomi (2002) made a study to find out the sources of decisional information and to find areas where information is mainly used for official decision making by the administrative staff of a University in Nigeria. The data were collected from a total of thirty-six administrative staff of Nigerian University collected by means of questionnaires and interviews. Student matters, staff matters and issues concerning university relations with the public where the three areas were information was gathered for use in decision making and most of them did not see the library as a place from which they can obtain information.

De Alwis and Higgins (2001) conducted a study to provide an insight into the behavioural patterns of Singapore’s managers as information users for decision-making. A total of 369 questionnaires were mailed to individual members of Singapore’s Institute of Management. The results indicated that the types of information considered important for decision making included competitor and economic trends and they did not exploited all types of information sources mainly due to lack of awareness and information skills.

Julien (1999) surveyed the adolescents' information seeking for career decision making. A written questionnaire gathered data from 400 Canadian adolescents and a thirty semi structured interviews were conducted to know about their decision making and information search process. The findings showed that majority of the adolescents do not know where to go for help in decision making and also found that adolescents vary with respect to their readiness to conduct information seeking to make career decisions.

Aschroft (1998) conducted a study on the impact of information use on decision making by physiotherapists. The data were gathered by observations and questionnaires and the survey population included physiotherapists who were professionally qualified and registered with the chartered society of
physiotherapy. Majority of the respondents agreed that the information supplied was accurate and it was of value to clinical situation.

Bouchet et. al. (1998) identified the information sources managers used to support decision making and the overall corporate value of the information and knowledge supplied in pharmaceutical industry. A sample of 24 library managers in pharmaceutical companies was taken and data were collected using questionnaires. The majority of the respondents felt that the information provided by the information service was accurate, up-to-date, and timely and it had made a significant impact on decision making.

Reid, Thomson and Wallace (1998) evaluated the impact of information on corporate decision making by bank managers. Majority of the managers agreed that they handled the decision making process differently. The findings were that irrespective of its source, information was a valuable commodity and it added considerable value to the decision making process.

Winterman, Smith and Abell (1998) conducted a study on the impact of information on decision making in Government departments. Each respondent was asked to focus on one decision only and there were follow up interviews to investigate the particular routes to obtain information were taken. Data was collected using questionnaire from 164 identified senior personnel within Government department. The results showed an increased confidence in making a better informed decision from relevant, accurate, timely and valuable information.

Edem and Lawal (1997) determined the utilisation of quantitative methods in decision making in diverse areas such as personnel management, acquisition, storage and circulation of information materials among Nigerian University librarians, selected by stratified random sampling. The survey results indicated that only few of the respondents had good knowledge of
application of quantitative methods in decision making and a large majority had not used these statistical tools in decision making in University libraries.

Wood and Wright (1996) made a study on the impact of information on clinical decision making by general medical practitioners. Interviews were conducted among the available 38 practitioners to collect data. From the analysis of the collected data it was found that in seven cases, although the information was able to provide better patient care, it was not related to clinical decisions but was of administrative in nature. It was found that the general practitioners did not use library for immediate patient care problems.

Fisher and Oulton (1995) conducted a study on the role of information in decision making in small and medium sized libraries and to determine the information needs of library managers for decision making. Two different questionnaires were designed and interviews were conducted with librarians to collect the data. The study revealed that most of the strategic decisions relating to finance, recruitment and premises were taken by most senior level of management. People and interpersonal sources of information such as professional colleagues and other staff and sales people, were extremely important in supporting the librarians in their decision making process.

Bruns and McKinnon (1993) conducted a field study to learn the information need, use and sources of accounting information for managers. A non-random sample was selected which consists of 73 managers in twelve manufacturing organisations in North America, six in each of the United States and Canada to conduct interviews. It was seen that managers developed their own personal system for getting the information they want. Personal information sources are used by every manager and the management accounting reports did not provided information for day-to-day decisions.
Choo (1993) investigated the use of industry information by the chief executive officers in the Canadian telecommunications about the external business environment. Data was collected by a nationwide questionnaire survey and several focused interviews from 113 CEOs. Personal interviews were then conducted with eight of the respondents. Each respondent was asked to relate two critical incidents of information use. The incidents were analysed according to their environmental sectors, the information sources, and their use in decision making. In decision making, environmental information from internal sources is used more frequently than that from external sources in the four decisional roles of Entrepreneur, Resource allocator, Disturbance handler and Negotiator.

Perkins and Rao (1990) explained the use of information in decision making by practicing marketing managers through a formal case study in a single large company. They examined the effect of managerial experience and decision programmability on managers' information use and decisions. The results indicated that experience is an important determinant of managers' behaviour for relatively un-programmed decisions.

To sum up

- Literature studies on the information use for decision making revealed that the information use for decision making was mainly conducted in the health and banking sector.

- While searching the literature on information use in decision making it can be seen that most of the studies were conducted in Nigeria.

- Questionnaire was used as the tool for data collection in majority of studies.
It can be seen that managers depend more on personal sources rather than impersonal or published sources of information.

Many studies reveal that information use had a great impact or improved the decision making of managers.

3.4. ICT FOR DECISION MAKING

The rapid and pervasive growth of Information and Communication Technology and the emergence of internet are providing unprecedented opportunities to access information, improve decisions, and enhance communication among decision makers. Business organisation promotes the effective use of ICT for all functions. By having key information in the hands of managers and decision makers within a limited span of time they can make informed decisions without wasting time. In this section the utilisation of ICT for decision making in different organisations are included.

Prem Kumar and Gopikuttan (2014) examined the use of e-information and the level of satisfaction regarding the quantity and quality of information of e-resources of the research scholars of Calicut University. A well-structured questionnaire was used for collecting data from a random sample of 150 research scholars that was analysed by using simple method of calculation. The analysis revealed that OPAC was the most used e-information resource and a large majority used e-information for their research work.

Ramesh Kumar and Venkatachalam (2014) analysed the information seeking behaviour on internet. After reviewing the studies carried out by different persons in different fields it appears that most of them are using internet as the best source of seeking information because of its speed. The main problem with the internet is that it is difficult to locate the required
information, because of excessive information and instructions and training are needed for the internet users.

Ajegbomogun (2013) surveyed the internet based information seeking behaviour and utilisation by the doctors in Federal Medical Centre in Nigeria. The descriptive data collected by questionnaires was reported in the form of percentages and Likert scales. The study had established the use of internet as a source of information access and utilisation by the doctors and these resources helped the doctors to diagnose patient queries with ease.

Bhaskar Reddy, Sujatha and Hemantha Kumar (2013) studied about the use and awareness of internet at the University of Agricultural sciences, Bangalore. Simple Percentage method used for the analysis revealed that a good number of the respondents are using internet daily and majority are using for educational purposes.

Bhatnagar and Haidar (2013) investigated the application of ICTs in ITM group of institutions. The study was confined to 80 users of the library of ITM group of institutions that were randomly selected. Questionnaire was used to collect data which was analysed using simple statistical tool. The analysis revealed that though the libraries had hardware, software and communication facilities to some extent, ICT based resources and services was not reaching the users to the expected extent.

James, Boyle, Lei Yu and Bennet (2013) examined the use of internet in decision making among older adults. The relationship of internet use and decision making was studied in 661 community-dwelling older persons without dementia using a 12-item instrument in real settings and associations were tested via linear regression models. The study found that majority of the participants had access to internets and the higher frequency of internet use was associated with better financial and healthcare decision making.
Manjunatha, Sachin and Prasad (2013) examined the existence and use of various e-resources available through Bangalore Institute of Medical Sciences and research centre. The study was conducted by a structured questionnaire distributed among randomly selected 200 students and faculty of different dental sciences departments. The paper concluded that electronic resources have become integral part in meeting their information needs.

Mehdi (2013) identified the IT infrastructure and software used in decision making of organisations in Jorhat city. The responses were obtained by 15 in-depth interviews with the employees of ten different organisations selected using convenient sampling. The results indicated that information systems application like accounting, invoicing, inventory management and MIS report are the main source of running an organisation in decision making and the use of company’s IT infrastructure and Information Systems applications smoothens the top management’s decision making process.

Vikas Singh (2013) identified the use of e-resources by the faculty members and research scholars of the department of computer science and mathematics of Jamia Millia Islamia University. Only the data of 40 faculty members and research scholars were obtained through questionnaires. The results of the study showed that the faculty members and research scholars used e-resources and they frequently used the internet, online databases and e-journals whereas a few of them were using e-books to access information.

Al-Omari, Al-Qatawneh and Al-Majali (2012) investigated the impact of Information Technology in the process of managerial decision-making. The study adopted analytical and descriptive approach in which a sample consisting of 14 Jordanian touristic companies was selected randomly. Questionnaires were obtained from 132 users which were analysed using arithmetic average, t-test, and alpha Cronbach’s test, standard deviation, ANOVA and turkey test. It was found that there is a positive impact of
software, information networks and the quality of information on the process of decision-making and the information offered by technology cannot be considered sufficient and do not covered all the company's departments.

Baladhandyutham (2012) surveyed the use of online information by the scholars of School of Biotechnology in Madurai Kamaraj University of Madurai. Questionnaire was used to collect data from the 200 scholars of Biotechnology selected by random sampling. Simple percentage analysis revealed that majority are satisfied with internet facilities and more than half of the respondents use the University Central library daily. It is also clear that the use of online information by the scholars is not poor.

Deval (2012) highlighted the use and assessment of digital information resources through a descriptive survey method. A questionnaire which consists of dichotomous questions, multiple choice questions and likert type questions based on 3-point rating scale was used. The sample size consists of sixty users of various schools selected by stratified accidental random sampling method. For analysing the data, descriptive statistics and content analysis technique are used. In the study majority of the users ascertained that all digital information resources are equally useful as print sources.

Gill (2012) studied the use of e-journals by the medical professionals of Indian Council of Research Libraries in Delhi. Questionnaire was used to collect data from researchers, scientists, doctors, faculties, DNB students etc. Four ICMR libraries of Delhi region were selected. The study found that majority of the respondents use e-journals on a daily basis.

Kandel and Hota (2012) examined the adoption process of IT within small family businesses, especially in South Asia. This study considered focus groups of qualitative research ranging from 6-12 participants of owners, managers and staffs of businesses of the three districts of Lumbini zone,
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Review

Nepal. A range of data collection methods were considered for interpretive research including interviews, observations and questionnaires. Content analysis was done on the primary data. The activities of such businesses have not received greater scrutiny due to IT adoption, particularly in South Asia.

Kiran Kumar and Kumbhar (2012) carried out a study on the use and the factors affecting the use of electronic information resources. Questionnaire was used for data collection and it was randomly distributed among 224 faculty members of all the sixteen autonomous engineering colleges in Karnataka. It was found that majority of the faculty use electronic information resources for their academic work and research activities.

Thanuskodi (2012) evaluated the frequency of usage of electronic resources and services in the Supreme Court library. The data was collected through a questionnaire from the randomly selected advocates of different levels. The study found that majority of the advocates are using the library, but they opined that the performance of the library was poor.

Ujunju (2012) evaluated the role of ICT towards the processes of management in institutions of higher learning. This case study was conducted through 107 questionnaires distributed to the staff of institutions of higher learning in Kenya selected by purposive sampling. Unstructured interviews were also conducted with senior University management staff. All the data collected were analysed using qualitative and quantitative approaches by using SPSS. The study found that the use of ICT for managing Universities simplifies work and makes it easier for universities’ staff to enjoy their work and hence generate quality decisions for the running of their universities.

Guruprasad, Khaiser Nikam, Marimuthu and Mudkavi (2011) highlighted the role of internet in spreading scholarly communication through a survey. In these survey 583 questionnaires was distributed to selected 16
Indian aerospace organisations to study the impact of the internet in their scholarly pursuits. The survey found that the main purpose of use of internet among the aerospace scientists and engineers was mainly for sending and receiving e-mails, collecting general information and accessing e-resources.

Jabir Ali and Sushil Kumar (2011) analysed the role of information delivery through ICT in enhancing decision-making capabilities of Indian farmers. Using primary data derived from structured surveys of 303 farmers, differences in decision-making abilities on activities across the agriculture supply chain among user and non-user farmer groups have been examined. The survey was conducted using a pre-tested structured questionnaire consisting of items on various agricultural practices. The findings indicated that the provision of information and knowledge through ICT is likely to improve the decision-making processes among the farming community.

Kadli, Kumbar and Hadagali (2011) studied the methods adopted by the faculty for keeping abreast of current developments, environments affecting information seeking and the problems faced while seeking information in ICT environment. The questionnaire method was adopted to collect data from 200 faculty members of 46 Commerce Colleges in Mumbai city. The study found that majority of the respondents seek information for preparing class notes for teaching and they faced the problem of information scattered in too many sources and too much information on the internet.

Kavitha, Mohammed Esmail and Nagarajan (2011) evaluated the use of ICT among the faculty members of health care institutions in Puducherry. Four medical colleges of the Puducherry were selected for the study and 200 respondents from each medical college were selected through random sampling to collect data through mailed questionnaire. The study revealed that there was a high level utilisation towards ICT tools with respect to internet, CD ROMs, overhead projectors, laptop etc.
Lagan, Sinclair and Kernohan (2011) explored women’s experiences and perceptions of using the internet for retrieving pregnancy-related information and its influence on their decision-making processes. Thirteen online focus groups across five countries were conducted with 92 women who had accessed the internet for pregnancy-related information over a 3-month period. The overall analysis indicated that the women accessed the internet for support and pregnancy-related information to assist in their decision-making.

Mostofa (2011) examined the use and influence of internet on the academic efficiency of business students in Darul Ihsan University. The study employed a structured questionnaire to collect data from 137 students. The study found that they have been able to keep themselves abreast with the latest information and improved their competence using internet.

Olatokun and Moremedi (2011) determined the extent to which organisations regulate and provide use of internet in the workplace in Botswana. Survey research design was adopted and questionnaire was used for data collection. It was administered across 113 organisations. Data were analysed using simple percentage method with the help of SPSS. Findings revealed that although majority of the organisations monitor employee internet use, less than half had an internet use policy in workplace.

Couper et. al. (2010) examined the internet use and perceived importance of different sources of information by patients for medical decisions. Cross-sectional survey was conducted on a national sample of 2575 English speaking US adults identified by random sampling. The findings were that the use of internet for information related to specific decisions among adults was generally low but varied across decisions and was also found that the internet use was higher at younger ages. Internet users rated internet as the most influential sources of information for medical decisions.
Myeong and Choie (2010) examined the effects of IT on policy decision making in the stages of objective setting among policy alternatives. The study used survey data collected from the metropolitan areas of Seoul and Busan in Korea. The survey results showed that there has been a positive change in the perception of the effects of IT on policy decision making among Government users. The empirical results also showed that barriers to information sharing had increased in 2005 because of environmental changes, including requirement of authorisation for providing information, complicated data management, and negative attitudes to information sharing.

Yeung and Gifford (2009) made a study on the influence of online information on military enlistment decision making by potential recruits. Stratified random sample was conducted among the job seekers of military to survey the information needs for recruit demographics and marketing or advertising exposure, as well as motivations for joining the army. The analysis of the recent army new recruit surveys showed that they sought recruiting information online and a large proportion of new recruits heard military advertising through the internet than traditional channels.

Gayatri (2006) did a case study to assess the information needs of scientists and engineers in electronic environment of Indian exploratory and production industry. A survey method was applied to collect the data from scientists, engineers and technologists in work centres and institutes through observation and questionnaire method. No sampling method was adopted as it was a heterogeneous group. The findings showed that a good number of respondents preferred to use internet facilities in the library and on-line access was preferred among a variety of internet services.

Limbada (2006) investigated the ways in which internet supports the consumer decision making process of potential consumers in an online car retail environment. Interviews were carried out with McCarthy Call-a-car
employees and the documents and call-a-car website were analysed. Data were analysed using an inductive approach and thematic analysis. It was revealed that Call-a-car viewed the internet as a marketing tool that provides convenience to customers searching for product information and focused on using the internet to support customers in the pre-purchase phase only.

Naushad and Mohammad Javeed (2006) examined the use of internet by the faculty members of Aligarh Muslim University, Aligarh, India. Printed questionnaires were administered among faculty members of all departments in AMU, Aligarh. The results of the study showed that e-mail and www are the most used internet services.

Belch, Krentler and Willis-Flurry (2005) explored whether the extensive use of internet by the teens has affected the family decision-making. The research design was a cross-sectional survey with a random sample of households across the United States which was selected from the National Family Opinion interactive consumer panel. 167 parent-teen pairs were analysed for this study using simple regression analyses and analysis of variance. Results indicated that the advent of internet had an influence on family decision making and that teens who perceive to be Internet mavens believe themselves to be more influential in family decision making.

Hedelin and Allwood (2002) conducted a study on the relation between IT and strategic decision making. A total of 41 top executive managers in large enterprises were interviewed about factors affecting their demands on, attitudes towards and use of ICT when making strategic decisions in their work. The study found that the extent of IT used in the decision making process depends on the current need for information, time pressure and skill of the manager. Poor knowledge management was reported to be an obstacle in supporting the decision-making process effectively. Problems with accessibility, accuracy and trust of the information in ICT-systems were
prevalent. Furthermore, ICT did not provide much help with respect to the necessary social interactions in the decision-making process.

Wijnberg, Ende and DeWit (2002) focused on the impact of IT on the upstream and downstream flows of information and decision making at different levels of organisations. Two cases concerning the introduction of a new IT in two Dutch banks were analysed within the framework. The study demonstrated that the chances of success were increased by employing the new technology to enable employees at lower levels of organisation to be more concerned with and aware of the performance objectives of the firm.

Warkentin, Sugumaran and Bapna (2001) made four industry case studies to demonstrate the e-knowledge networks such as supply chain networks, and B2B hubs and how they ushered in a new paradigm of decision making. The study found that it has led to greater back-office efficiency, greater customer intimacy, improved strategic planning, and flexible adaptation to market changes and improved the decision making. Knowledge networks allowed their participants to create, share, and use strategic knowledge to improve the operational and strategic effectiveness.

Seyal, Rahim and Rahman (2000) investigated the extent of use of IT in various organisations working in Brunei Darussalam. The data were collected from questionnaires from 54 organisations which were filled up by their chief executive officers that were selected by stratified sampling method. The major findings of the study was that chief executive’s computer knowledge is positively associated with the use of IT and CEO knowledge of computer and involvement leads to more successful use of IT in business.

Larsen and Wetherbe (1999) explored the differences between more- and less-innovative middle managers in their use of information and IT. A field study of ninety-nine middle managers in a division of a major defence
contracting manufacturing organisation in the St. Paul/Minneapolis area of the USA was conducted. The results showed that the more-innovative middle managers are inclined to use data drawn from personal experience and insights more than historical data and found IT was considered too much important in their work related activities.

Tan and Arnott (1999) conducted a case study on the use of World Wide Web as a channel for acquiring information by managers. Formal documentation and examination of the authority’s web site were used to compile background data and research data was collected by interviews with eight senior managers in a large organisation. The study found that web-based information acquisition by managers is a complex socio-technical activity and the managers use the web as an institutionalised information channel.

Abell and Lim (1996) investigated the business use of the internet in New Zealand. A questionnaire was developed to collect data from the individuals of 754 companies that was prepared to form the sample of study selected, from the New Zealand internet connected organisations web page. Descriptive statistics were used in the study as it is an exploratory study. The result of the study was that small companies were making more use of internet and only a quarter of the businesses use the internet for marketing.

Lan and Scott (1996) explored the relevance of computer-mediated information for organisational decision making. The sample of the study consists of 174 public managers and managers of agency computers or information systems in local and state government in the USA. The findings were that managers' personal knowledge is utilised more for high-risk and non-routine decision making than computer-mediated knowledge, formal documentation, and interpersonal contacts.
Vlahos and Ferratt (1995) identified the extent of use of IT by the German managers in decision making process. A survey was conducted among 55 managers, representing 29 medium-large businesses in Greece. Descriptive analysis technique was conducted. The study found that there was a heavy use of information reporting systems and first-line supervisors and top managers were the most and least pleased with computerised information systems respectively. There was a positive impact of computerised information systems to various areas relating to decision making.

Kraemer, Danziger, Dunkle and King (1993) conducted a longitudinal study to assess the usefulness of computer-based information to public managers. The data were collected from the sample of 260 public managers of US cities through semi-structured interviews with top management and MIS professionals. The results showed that computer-based information is important for most managers, and they are extremely dependent upon it. The managers currently found the information more valuable for the control of financial resources than for the management of operations.

**To sum up**

- 41 studies related to the utilisation of ICT for information seeking between 1993 and 2014 are included.
- Literature review indicated that most of the studies related to ICT and decision making was conducted among the faculties of different disciplines.
- All the studies found that the use of computer based information or the utilisation of ICT tools improved the decision making process except in one of the study by Hedelin and Allwood (2002).
3.5. MANAGEMENT INFORMATION SYSTEM FOR DECISION MAKING

Management Information Systems exist to support the decision making process of managers by identifying decision needs and supplying supportive information to the managers at all levels and thus greatly help the organisation to achieve its goals and objectives. MIS has many roles to perform like the decision support, the performance monitoring and the functional support role. On the other hand, if an MIS is poorly planned and constructed, it may provide inaccurate, irrelevant or obsolete information, which may even prove fatal for organisation. The studies related to the role of MIS in organisations and particularly in decision making is presented in this section.

In a paper on the literature review of management information systems and corporate decision making by Gabriel and Obara (2013), a reflection of amassed discourse available in literature concerning the nexus between management information systems (MIS) and corporate decision-making is noticed. The paper also suggested that a painstaking development and management of MIS in organizations is capable of triggering decisions that would not only be fast and accurate but would be in line with industry best practices and ultimately result in organizational efficiency and effectiveness. It is also stressed that information resources have become of high demand in today organizations and MIS is the only option for the satisfaction of such demands.

Olumoye (2013) conducted a field survey among the senior management staff of five insurance companies to empirically find out the relationship of information systems as used by the management for decision-making with the availability of information and involvement of subordinates in decision-making. A structured questionnaire was used as the main instrument for carrying out the research among 140 managers of 51 insurance companies.
companies in Nigeria which were selected for the study using a sampling technique. Simple percentage and Chi-square statistical method were used for the data analysis. The result of the study clearly indicated that information systems minimised traditional, geographical and marketing limitations.

Al-khaffaf (2012) analysed the current state of computer information systems and its role in decision making in the Jordan bank. Multiple regressions were used to analyse the data from 252 questionnaires which have been distributed to the studied bank. The study found a strong relationship between information systems and the decision making process. Information systems such as group decision support system (GDSS), video conferencing, intranet and extranet helped in the increased participation in decision making.

Arif, Rahaman and Nasiruddin (2012) identified the information system needs in an organisation and the relationship between information system and decision making process of an organisation. Employees of different levels of well reputed organisations have been consulted through convenience sampling with a set of questionnaire. This study identified that MIS play an effective role in an organisation for taking right decisions at right time by analysing the surrounding situations with the help of other information systems in global competitive environment.

Jawabreh and Alrabei (2012) explored the impact of Accounting Information System in planning and decision-making in Jodhpur hotels. The descriptive analytical method was done after the data was collected by means of a questionnaire from various hotel accountants. Pearson Correlation, ANOVA and Chi-square were used to synthesise the data. The study found that there is no relationship between Accounting Information System and planning, controlling, and decision-making in five star Jodhpur hotels.
Onaolapo and Odetayo (2012) examined the role of Accounting Information System in fruitful decision-making by the managers in selected construction firms in Ibadan. The questionnaire was used for gathering data from the financial accountants and site project managers respectively. Purposive sampling technique was adopted in selecting a total of ten personnel from each of the selected companies. Both descriptive and inferential statistical tools were employed to analyse the data. The hypothesis was tested by ANOVA through SPSS. The results showed that the Accounting Information System had an effect on organisational effectiveness.

Sachin Gupta and Shweta Gupta (2012) in a paper focused on the role of MIS in decision making. He briefly presented that MIS not only include software systems, but the entire set of business process and resources that are used to pull together information from functional or tactical systems. Data is then presented in a user friendly and timely manner so that middle and upper level managers can use it to take right actions. The entire system is designed so that the company will meet its strategic and tactical goals.

Al-farajat, Al-sarayreh, Al-hussein and Al-omari (2011) demonstrated the effectiveness of information systems used in Jordanian tourism companies and to identify its role in improving the performance of these companies. The sample consists of 132 users of 19 Jordanian tourism companies. Questionnaire was used as the initial data collection tool. Several statistical measures were calculated and arithmetic-test, test Cronbach’s alpha and standard deviation were conducted. The study found that information systems improved the performance of Jordanian companies although it is not flexible to meet changing needs, and does not reduce work cycle times nor contribute to the involvement of employees in decision making.

Ismail (2011) highlighted the importance of use of Marketing Information System on decision-making. The required data was collected by
questionnaire, which was validated through a mini survey of academics and experts. Correlation analysis was employed to test the validity of the procedure. The findings confirmed positive relationships between the level of utilising Decision Support System and marketing intelligence and the success of an organisational decision making, and provide the organisation with a competitive advantage as it allows the organisation to solve problems.

Karim (2011) explored the extent to which MIS are used to make effective decisions of long and short term planning in two financial organisations at the Kingdom of Bahrain. The population of study included the top and middle-level managers and normal staff in financial institutions. The collected data from 190 questionnaires were analysed based on correlation and regression analyses using SPSS. The results showed that MIS was primarily used to enhance strategic planning in both financial institutions.

Al-Zhrani (2010) investigated the extent to which MIS is being used in decision-making process during crises at the Directorate General of Border Guard in Saud Arabia. Stratified random sampling technique was used to cover 350 officers holding administrative positions and senior administrative staff heading departments in General Directorate. Data collected were analysed using frequency counts, percentages, means, standard deviation and Chi-square test statistics. The study revealed that MIS was adequately used in decision-making during crises and the information from MIS was excellent and adequately used for administrative decisions.

Ahamed (2009) surveyed the University libraries of Chhattisgarh to understand the library automation status for successful implementation of MIS. The present study obtained responses from 240 readers including teachers and students of eight University libraries of Chhattisgarh using two different scales. SPSS was used to conduct ANOVA and F-test to analyse the
data. The study revealed that maintaining library automation significantly influenced the overall library effectiveness.

Ajayi and Omirin (2007) investigated the use of MIS in decision making on long and short term planning and budgeting in the south west Nigerian Universities. Data were collected from a sample of 600 subjects consisting of 400 academic staff holding administrative staff positions and 200 senior administrative staff heading units using stratified random sampling techniques. Data collected were analysed using frequency counts, percentage method and means, standard deviation, and t-test statistics. The study revealed that MIS was not adequately used in decision making process on long term and short term planning, and budgeting.

Promila (2006) explored the utility of Geographic Information System as a Decision Support System for the development of marketing strategy through the system analysis for the public library system. He explained that the implementation of system analyses for scientific decision making could be useful for the sure success of marketing program in the case of a PLS which in itself is a full-fledged information system. In order to develop an effective marketing strategy, the first phased program for market analysis includes the GIS, the consumer metadata in offering for segmentation as the first phase. The second phase includes ascertaining the probable course of action and last phase is the system analysis of marketing strategy for public library system.

Rajendran and Venkatesan (2005) made a case study in order to design suitable Decision Support Systems pertained to library routines. He described that DSS help a librarian to retrieve, summarise and analyse decision relevant data quickly. The required tools for developing DSS was spread sheet, data base, text and graphics tools. He concluded that DSS supports a large group of librarians in a networked, client server environment with a specialised data ware house or desktop, single user DSS on PC in a library.
Vlahos, Ferratt and Knoepfle (2004) investigated the use of computer based information systems by German managers to support decision making. The data for the study was gathered through a survey questionnaire from the managers of middle and top level. Results showed that the managers were relatively heavy users of Information Technology and there was a significant correlation between the amount of IT use and their perceived value of CBIS.

Shibanda (2002) in a paper explained the role of Library Management System for processing, accessing and retrieving information to support the library decision-making process. He stresses that without an organised management of information, organisations would suffer from information accessibility and retrieval while the clients may find it equally hard to access and make decisions based on the right packaged information. It is therefore argued that the library MIS would provide the means and methods to manage multimedia-computer based information systems to help gain useful, and timely information through its objective of satisfying scholarly, academic, administrative and information needs of the University.

Uma and Collins (1997) conducted an empirical study that evaluated the contribution of MIS to various productivity and efficiency measures in a bank. The survey was mailed to the CIOs of all member banks of the Florida Bankers Association and was found that banks rely heavily on mainframes, minicomputers, microcomputers, and workstations. Electronic fund transfers and ATMs are the most widely used computer technologies by banks. It was also indicated that there is a growing use of several intelligent support systems (ISS), such as DSS, EIS and GIS.

Leidner and Elam (1995) examined the impact of Executive Information Systems on organisational decision making. The study used a survey response of ninety managers of higher level to examine the relationship of use of Executive Information System by managers with the
speed of decision making, information availability, and the involvement of subordinates in decision making. The study found that Executive Information Systems are positively related to perceived problem identification and decision making speed for top and middle level managers.

Streeter (1992) conducted a case study on the use of Electronic Information System on farmer decision making. In depth interviews with four farmers and one grain purchaser was conducted to explore the impact of EIS for decision making. The key findings are that the most successful user used electronic information either to save time to become more efficient with time and had at least an informal overall MIS in their business. Successful users found that the use of EIS improved their decision making.

To sum up

- This section contains 20 studies related to MIS for decision making between 2013 and 1992.
- While reviewing it was found that most of the studies on MIS and decision making were case studies and correlation analysis was conducted.
- Most of the studies in this section are obtained from online sources.
- Comparatively more studies on MIS and decision making are seen as done in Arabic countries.

3.6. CONCLUSION

As part of the review of literature on the availability and utilisation of information for decision making, 124 articles were analysed on related themes between the years 1990 and 2014. The reviews indicated that managers of different industries need information to perform their functions. But the type
of information they need varied from one industry to another. Some of the studies exhibited that MIS did not supported the decision making to the expected level. In addition, the literature review revealed that the information support from library or information centres for decision making activities was not satisfactory. One prominent contributor to study the role of information in decision making was Popoola from Nigeria. Only a very few studies were carried out on the use of information for decision making, especially in IT industry. So in order to fill this gap, this particular study was adopted.
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