



NEAR EAST UNIVERSITY

FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATIVE SCIENCES

DEPARTMENT OF BUSINESS ADMINISTRATION

MAN400

GRADUATION PROJECT

"COMPUTERIZED MIS AT NEU"

SUBMITTED BY: FATİH GÜLEŞ 20011363

SUBMITTED TO: Assist. Prof. Dr. TAHİR YEŞİLADA

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ABSTRACT

We live in the information age. Information systems are dramatically changing not only the process and structures within organizations, but also process and structures across organizations. The applications and sophistication of management information systems (MIS) used by organizations very widely. In order to be more reactive to the increasingly changing internal & external environments of organizations, many organizations are adopting computerized Management Information Systems (CMIS).

This paper intends to study on Near East University. Near East University, a young but fast growing university, needs to reflect on its current computerized MIS.

KEY WORDS: Management Information Systems (MIS), Computerized Management Information systems (CMIS).

CONTEXT TABLE

ACKNOWLEDGEMENT	2
ABSTRACT	3
SECTION 1.....	8
1 SETTING THE SCENE	8
1.2 Introduction.....	8
1.3 Broad Problem Area	8
1.4 Problem Definition.....	9
1.5 Purpose.....	9
1.6 Questions for the Project.....	9
1.7 Conclusion	9
SECTION 2.....	10
2 A BRIEF LITERATURE REVIEW	10
2.1 Information	10
2.1.1 Information needs of managers.....	11
2.1.2 Decision making and information systems	12
2.2 MIS and Computerized MIS	13
2.2.1 Benefits of computerized MIS	14
2.2.2 The role of a management information system.....	15
2.2.3 Conversion of Manual to Computer based M.I.S.	16
2.3 Universities and MIS	17
2.3.1 CMIS and Basic Processes at University	19
2.3.1.1 Studying Process.....	19
2.3.1.2 Human Resources	21
2.3.1.3 Financial Activity.....	21
2.3.1.4 Economic Activity	23
2.3.1.5 Management and Administration of University	23
2.4 CMIS Evaluation	23
SECTION 3.....	26
3 THEORETICAL FRAMEWORK.....	26
3.2.1 Contextual Factors	26
3.2.2 User Related Factors	28

3.2.3	Information Quality	29
3.2.4	System Quality	30
3.3	Conclusion	30
SECTION 4	31
4	METHODOLOGY	31
4.1	Introduction.....	31
4.2	Study design.....	31
4.3	Model for Evaluation of CMIS	32
4.4	Conclusion	35
SECTION 5	36
5	FINDINGS	36
5.1	Reliability of the Questionnaire	36
5.2	Demographic analysis of respondents	37
5.2.1	Sex.....	37
5.2.2	Age.....	37
5.2.3	Education	38
5.2.4	Tenure	38
5.3	Perceived Importance of the Factors.....	39
5.4	Descriptive Statistics.....	40
5.5	Extractions of the table	41
5.5.1	Analysis of the contextual factors:.....	41
5.5.2	Analysis of the user related factors:.....	43
5.5.3	Analysis of the information quality factors:	44
5.5.4	Analysis of the system quality factors	46
SECTION 6	48
6	CONCLUSION.....	48
6.1	Introduction.....	48
6.2	Theoretical Findings	48
6.3	Conclusion on Empirical Findings.....	49
6.4	Limitations and Recommendations.....	53
REFERENCES	55
APPENDIX A	“Reliability Analysis of Questionnaire”	57
APPENDIX B	“Questionnaire (In Turkish)”	70

List of Figures

Figure 2.1 The Role of Management Information System	15
Figure 2. 2 Basic Processes at University	19
Figure 2.3 Studying Process	20
Figure 2.4 Financial Activities.....	22
Figure 3.1 Thoritical Framework.....	26
Figure 5.1 Sex Distribution.....	37
Figure 5.2 Age Distribution	37
Figure 5.3 Education Distribution.....	38
Figure 5.4 Tenure Distribution	38

List of Tables

Table 4.1	Numbers of Staff in Administration of University	32
Table 5.1	Reliabilities of Questions.....	36
Table 5.2	Sex Distribution	37
Table 5.3	Age Distribution	37
Table 5.4	Education Distribution.....	38
Table 5.5	Tenure Distribution.....	38
Table 5.6	Five Most Important and Five Least Important Factors	39
Table 5.7	The Descriptive Statistics Of The Questionnaire	40
Table 5.8	User Satisfaction Levels of Contextual Factors.....	41
Table 5.9	User Satisfaction Levels of User Related Factors	43
Table 5.10	User Satisfaction Levels of Information Quality Factors	44
Table 5.11	User Satisfaction Levels of System Quality Factors	46

SECTION 1

SETTING THE SCENE

1.2 Introduction

This section includes a brief explanation of what will be studied in a broad problem area, what the actual problem is to be studied and some exact questions that try to be answered at the end of the study.

1.3 Broad Problem Area

We live in the information age. Information systems are dramatically changing not only the process and structures within organizations, but also process and structures across organizations. The applications and sophistication of management information systems (MIS) are used by organizations very widely. In order to be more reactive to the increasingly changing internal & external environments of organizations, many organizations are adopting computerized Management Information Systems (CMIS). In this connection organizations face some adopting problems.

Universities are not exempt from the current turbulent, global competitive environments. According to this situation Near East University needs to redefine its MIS policies and update it to a more computerized Management Information System, so this study is an applied research that required an improvement about the situation.

1.4 Problem Definition

Near East University, a young but fast growing university, needs to reflect on its current MIS and how to update it to a more computerized MIS. This study intends to explore the gap between a fully-computerized system and NEU, and identification the advantages and disadvantages of fully-computerized system for NEU.

1.5 Purpose

The purpose of this study is to explore what is short from a fully-computerized MIS and a clear understanding and identification of the advantages and disadvantages the fully-computerized management information system for Near East University.

1.6 Questions for the Project

- What is Management Information Systems (MIS)?
- What is Computerized Management Information Systems (CMIS)?
- What is the gap between a fully-computerized Management Information System and Neu?
- What are the advantages and disadvantages of fully-computerized Management Information Systems for NEU?

1.7 Conclusion

This section has introduced the subject MIS and computerized MIS as a broad problem area and the gap between a-fully computerized systems and NEU and its contributions as advantages-disadvantages to NEU as a problem definition.

SECTION 2

A BRIEF LITERATURE REVIEW

2.1 Information

There are many different definitions of the term information. Dictionary means of information that is knowledge derived from data. A second definition that will be helpful to us was set out by social scientist Gregory Bateson (1978), he defined information as “a difference that makes a difference”. It reflects much of what people mean when they say they would like to have information. (David, K. 1992)

The great Information Age is really an explosion of non- information; it is an explosion of data. To deal with the increasing onslaught of data, it is imperative to distinguish between the two; information is that which leads to understanding. Everyone needs a personal measure with which to define information. What constitutes information to one person may be data to another. If it doesn't make sense to you, it doesn't qualify. (Wurman, R. S. 1990)

Information ties all business functions together and provides the basis for all managerial decisions. It is corner stone of all organizations. Information represents a major source of competitive advantage or disadvantage. (David, F. 1999)

Characteristics of good information;

Relevance; the information must be relate to the business,

Timely; it must be available when needed,

Accurate; it must be fulfilled,

Reduces Uncertainty; it must define things clearly.

Element of Surprise; "differences that make a difference" (David, K 1992)

2.1.1 Information needs of managers

The following is a list of general information needs by managers, based on conclusions from a number of studies (McNurlin 1989; Aris 1992):

- **Summaries from the routine processes of the enterprise.** Operational staffs need continuous and detailed information on the operations they are controlling. Managers need only a summary of operational data, e.g., the total output figure for the day, the week, or the department. It may also be qualitative, e.g., in monitoring quality control. An MIS must therefore accept the detailed information and aggregate it. The degree of aggregation is proportional to the level of the manager. Managers of different areas of the enterprise need different selections of aggregated data.
- **Information on exceptional events.** For routine enterprise operations, aggregated data indicating quantities and qualities of outputs need to be supplemented by details of any exceptional occurrences. Within an MIS the boundaries of "normal" are specified, and the MIS is set to report occurrences outside these limits.
- **Facility to find ad hoc information.** Delivery of the two sorts of information described above can and normally should be largely automated. But the MIS also needs to be able to meet specific questions that cannot be anticipated.
- **Time series information.** An MIS is largely concerned with the present and the future. But often there is value in comparing the present with the past. The MIS therefore needs to be able to store previous data and readily compare today's performance with selected periods from the past.

- **Comparative external information.** While an MIS is focused primarily on the processes within the enterprise, valuable insight can often be gained from data from other institutions in the same type of business in the same country or from other countries. This data may be of direct interest in itself, adding to the corporate knowledge of the institution, or it may be used in comparison with information from within the organization to judge performance. Such external information may help to establish “norms” for use in planning and performance assessment.
- **Contextual or environmental information.** The context or environment in which an organization operates usually has a number of effects on the organization’s performance. Information from an organization’s environment that can usefully influence management decision making and that is available needs to be identified, captured, and presented on a regular basis. It is important to be selective in deciding what to include in an MIS.

2.1.2 Decision making and information systems

Terry (1995) argued the relations between decisions making and MIS that he broad terms the organizations MIS can perform one of two functions with respect to decision making;

- Either, (a) it supplies information, explore alternatives, and provides support where the manager takes the decision.
- Or, (b) the MIS takes the decision itself. This only appropriate with routine operational decisions where the rules are known.

2.2 MIS and Computerized MIS

The subject of MIS is broader than the words management information systems imply. This subject includes managers, but it also includes all of the other people in an organization and the structure and design of the organization as well. A better term would be organizational information system, but the term management information system has become established and accepted. Be aware however, that this subject is much broader than those words indicate. So MIS is the development and use of effective information systems in organizations (David, K 1992). Also Terry (1995), define the management information systems as "it is a system using formulized procedures to provide management at all levels an all functions with appropriate information, based on data from both internal and external sources, to enable them to make timely and effective decisions for planning, directing, and controlling the activities for which they are responsible.

In this connection the question that "*why computers*", become a main issue. Information can be managed entirely without the tools of pen and paper or electronic technologies. Hunter-Gatherer communities manage much information about their environment in this way. Managers of a research organization, however, have to address large amounts of information in such a way that it can be shared between many staff in a short time. This is made possible by formal methods of information management. Paper has been the main tool for this purpose, but it is being increasingly challenged today by electronic media.(Davenport 1994)

Computers and humans act as partners in an information system. Work that the humans would have to do in a manual system is delegated to the computer. To make this possible, human procedures are translated into computer programs. Information systems need not involve a computer. Those that do involve a computer are properly called computer-based

information systems. (David, K 1992). Aris (1992) put in order some critical reasons for computerized in management information systems. There are a number of compelling reasons such as; First, so many others are adopting it that those who do not, run the risk of becoming isolated. Second, there is widespread failure in information management where it relies on traditional paper-based information. There is a hope that the adoption of electronic technologies will help resolve this problem. Third, ICT can process and transmit large volumes of data and at high speed. Fourth, ICT can make and store copies of very large data sets. And finally, ICT can replicate such large volumes of data so that, for example, each division can have a copy. Electronic systems are proving much more powerful than paper-based systems. In his early days as a researcher, the writer progressed from a slide rule to an electronic calculator for numerical work such as statistical analyses of variation. A mechanical typewriter and carbon paper allowed only about six copies, with little allowance for error correction. Now draft copies can be e-mailed in seconds to colleagues thousands of miles away, and the comments received back can be incorporated into the text without the use of any paper. And the World Wide Web offers rapid access to enormous and increasing amounts of information located around the world. However, these potential benefits remain to be realized in many developing countries.

2.2.1 Benefits of computerized MIS

- Faster decision making and control through provision of timely information. For example, the MIS described by Anthes (1993) provided an early warning of performance problems in bulk buying of inputs by US public agencies. Faster decision making released time that would otherwise be tied up on monitoring.
- Better decision making and control through provision of relevant information. Anthes (1993) example, the statistical analyses gave US state agencies a much better

understanding of what was going on in contract bidding. Without the MIS, such an understanding would not have been possible.

- In addition, MIS can improve job satisfaction for public servants and can reduce the number of paper records that have to be held.

2.2.2 The role of a management information system

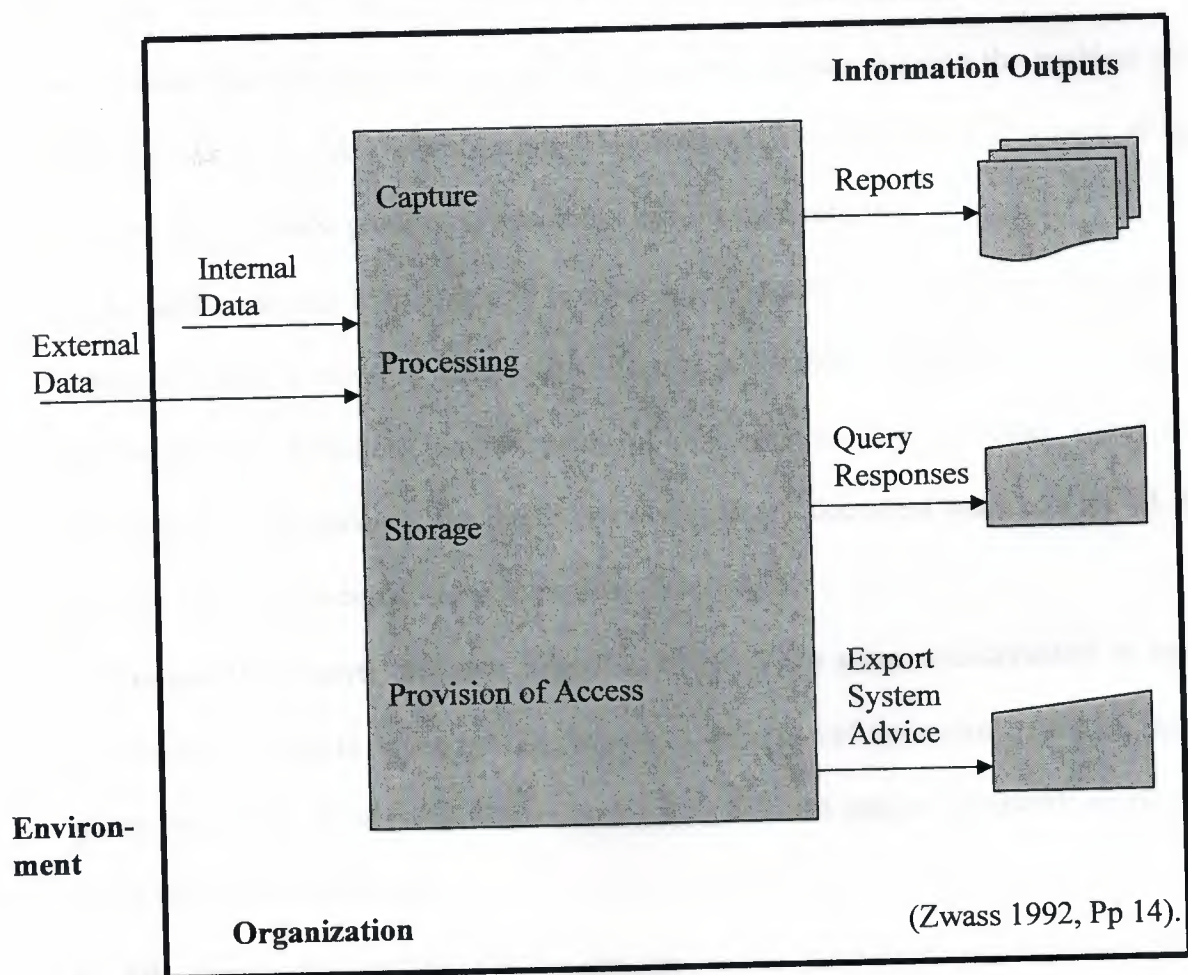


Figure 2.1 The Role of Management Information System

The role of a management information system is to convert data from internal and external sources into information that can be used to aid in making effective decisions for planning, directing and controlling the activities for which they are responsible. An organization may

have dozens of different information systems, some of which are useful for the day-to-day operational decisions, and some of which are used in making tactical and strategic decisions (Zwass 1992).

2.2.3 Conversion of Manual to Computer based M.I.S.

The steps involved in the conversion of M.I.S. (Management Information System) from manual to that of computer based system are as follows (Ashis and Suresh 2005):

- **System Description** System description is prepared after defining the problem and carrying out preliminary investigation. This description is basically a statement of the major inputs, outputs, processing operations and file requirements.
- **Input Documents** In next step, it is necessary to specify how the information will be put in computer acceptable format. Input format is selected considering the volume of information, its frequency and accuracy of requirements. The computer stores this information in the memory for future processing. Input document must provide all the relevant information contained in the system description.
- **Output Documents** these are subject to more or less same considerations as input documents. Since this represents the purpose or objective of the entire operation, this is given more care. As management is concerned with this output document; more care should be taken in its design.
- **File Design** System and file designs are closely associated and therefore, those should be considered in conjunction with considerations of the types of computer, storage capacity, input and output media and formats.
- **Programming:** Programming is done in two steps; in first step documenting of programme logic is done through the use of flow charts. After the programmer has decided the exact flow of the programme, he explains the logic used in computer

language. Flow charts can also be written in the sequence of instructions. This sequence of instructions that works together to perform a task is called a programme. This programme is stored in the memory, and the processor has access to these instructions, as and when required.

- **System Trial** After the program is written and run, it is placed in memory. Then the computer is run on trial for verification, by executing the instructions of the programme in sequence. The errors, if any are corrected.
- **Documentation** Following types of documentations are needed: For those providing input, a clear description of exactly what input is expected and what input is not acceptable. For those running and maintaining the system, all the technical documentation generally are done during the development process. For those using the output, a clear description of what the output means, and note about its limitations

2.3 Universities and MIS

Some Purposes of Use of Information System in university environment can be clarified as follows (Komka and Daunoravicius 1997):

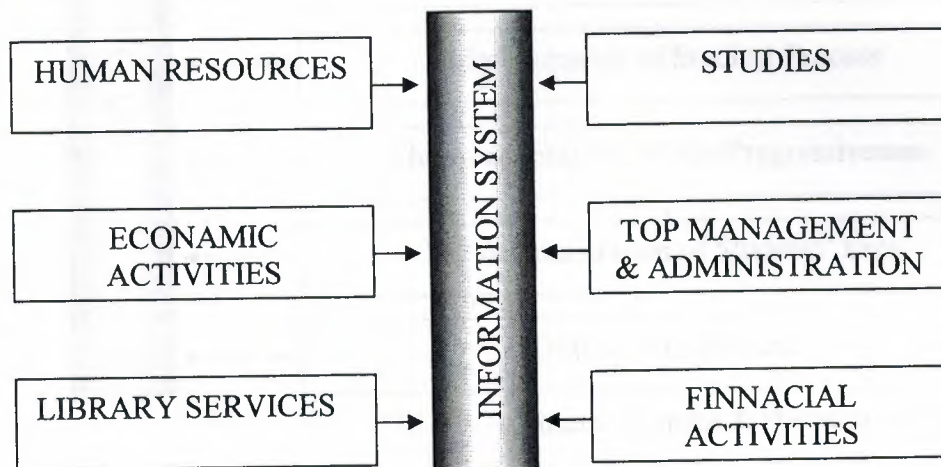
- ***Increasing the Competitive Ability of the University.*** The evaluation's criterion of the university activity is its competitive capacity comparing with other universities. This is competitive capacity is moved by the university pedagogical and academic production, which is stipulated by graduates, teachers, scientists, academic results, publications, arrangements, assortment, quality, etc. In order, the university board (principals) could evaluate university competitive capacity; they have to get the reliable information about university pedagogical and academic production and how it is evaluated outside the university.

- ***Improvement of the University Management.*** Information system requires the systematization of computerized process, the establishment general parts of processes' and the integration of separate processes. Such a system helps for the university principals to make decisions and increases their reliability, as it allows to get reports of united several processes. Having such described university processes, before making the decision, the ability of decision influence modeling and correcting appears.
- ***Decreasing the administrative expenses.*** Information system's potentials allow to simplify some of administration procedures, and sometimes to reject them at all. For example, after the introducing of new scholarships division and the payment order, the servant has only to form the division of scholarships' documents and instructions, in order information system would start to calculate scholarships and send the calculated results to banks through communication lines, and the rest is performed by information system. It releases the bookkeeping and other subdivisions from the inputting of infinite documents into the databases, their controlling, etc., and in addition, it decreases the mistake probability.
- ***Effective and Precise Presentation of Information.*** Information system allows effectively and precisely to form the confirmed forms' reports for ministries of Finance, Education and science and Department of Statistics.
- ***Transparency of Financial and Economical Activities (Accountability).*** Information system creates the ability for ministries and other institutions to observe the processes at university. It increases the transparency and accountability of these procedures. Spreading correct information about it strengthens the prestige of university. That's why the information system has to be more open for the society. It has to be accessed not only for users of the university community, but also for parts of the society outside the university. The system has to be accessible in Internet.

2.3.1 CMIS and Basic Processes at University

Komka and Daunoravicius (1997) concluded the university information system contains all basic processes at university (see Fig.2.2):

Figure 2. 2 Basic Processes at University

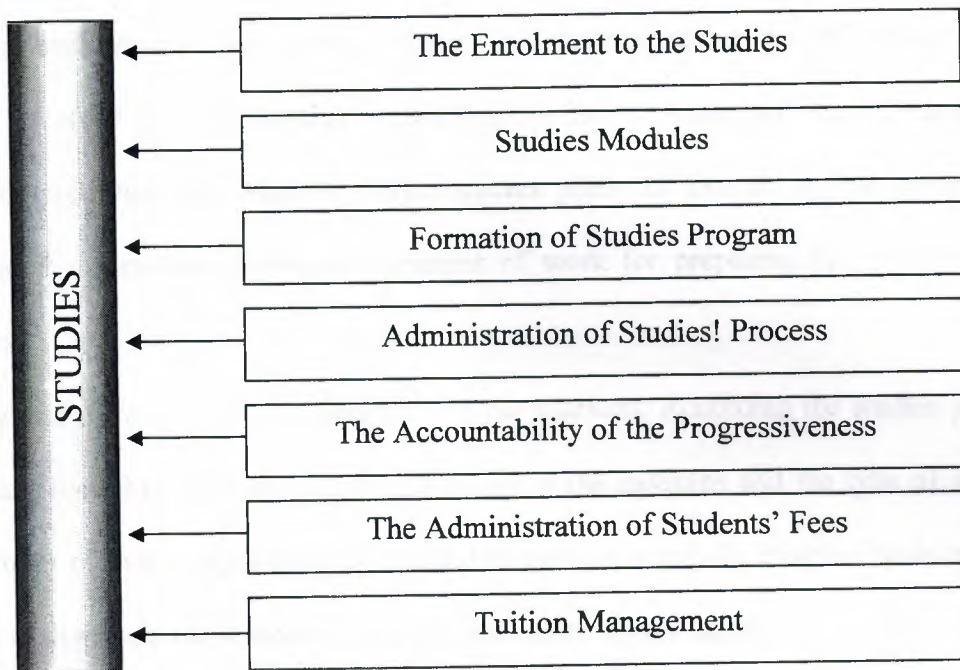


(Source: Komka & Daunoravicius 1997)

2.3.1.1 Studying Process

This process is one of the main the university's activities. Its structure is presented at Fig. 2.3. The enrolment of new students into the first and the second levels, as well, is computerized in studying process. The enrolment for the first studying level is executed together with other universities. The pretender takes part in a competition of some studying programmes from different universities at the same time. It creates more possibilities for the pretender to realize own wishes and for university to accept students with higher knowledge level. Since the preparing students' quality of university depends on the pretenders' quality, the information about the secondary education supplying institutions and their gained knowledge level are collected.

Figure 2.3 Studying Process



(Source: Komka & Daunoravicius 1997)

Studying modulus and studying programmes at university vary with the time. The task of information system is to save the finished studies programme and the received each subject's evaluations of every student. The working out of computerized studies modulus and the formation of studying programmes is necessary for other processes. They are used for accounting of students' progressiveness, providing and registration of diplomas, calculation of teachers time job.

The computerization enables the control of studying students of studies process. The precise and operative information about studying students amount in each studies program is presented, the changing of this number and the tendencies of changing allow for the university administration to control this process, to make the conclusions about each studies' program demand and to correct the admitted students' number. Information system allows the operative preparing of statistical reports for ministries of Education and science, Finance and

Department of Statistics. *The accountability of students' progressiveness* quantitatively allows the evaluating of the studies process. The database stores the information about the students' received studies modulus evaluation, the date of exam and the examiner. From it can be derived how the student fulfils studies plans of chosen studies program. This accumulated information decreases expenses of work for preparing the documentation of graduation.

Planning and Accounting of pedagogical job for teachers. According the studies programme and studies modulus, planned students' amount of the modulus and the type of studies, the staff number of every department is counted. It allows to use the salaries funds in optimum way and to distribute them precisely among university departments.

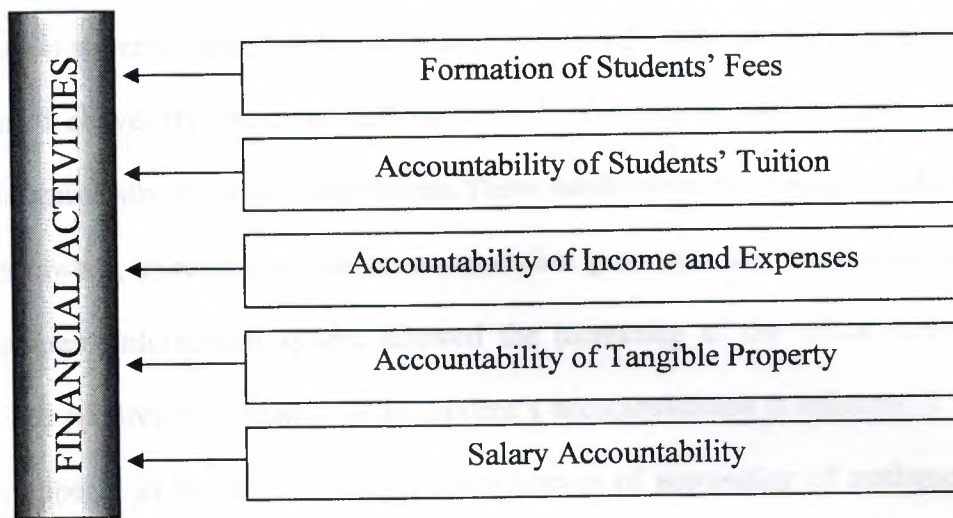
2.3.1.2 Human Resources

The computerization of human recourses allows the receiving of the complete information concerning university staff, to observe the staff occupancy, to execute the control of certification of the university workers. Exhaustive and operative information about university staff provides the university administration with the opportunity of effective using of human resources. In addition, precise information about taken posts, the work time, the salary of every servant is necessary for bookkeepers for the accounting of salaries.

2.3.1.3 Financial Activity

The computerized part of the process of financial controlling and accountability is presented at Fig. 2.4. The nomination of payments for students, the accounting and payment process are computerized.

Figure 2.4 Financial Activities



(Source: Komka & Daunoravicius 1997)

The processes of connected different university subdivisions to the continuous system, allowed to prepare funds, from which the payments are done, to distribute the disposition of these funds better among students, speed up this process and to enhance reliability of the control of funds using implementation. The direct distribution of payment data from information system to banks allowed for university to reject quite many expenses of work and speeded up they're receiving for student. The one united system forms the payment of student fees, which usually is done in the bank, and the use of these fees. Precise information about the fulfilled payment operatively reaches from the bank through the computer network the university information system, which facilitates to fulfill the fees administration and their distribution to funds. The fund administrators have used the information system for the disposition of the received funds. The information system is also used for the disposition of another non-budgetary income of the university and the execution of the accountability.

2.3.1.4 Economic Activity

The information system is used for the controlling of students' settlement in the hostels. As it was mentioned above, the processes are executed by connecting into the one continuous system of the university different subdivisions. These subdivisions are engaged in distribution of places in hostels, execution of the accommodation processes and the accountability of hostels' expenses. Information system allowed the increasing of the effectiveness of the hostel use. The subdivision engaged in the student's accommodation is informed if the non-taken place appears in the hostel. The computerization of accounting of settlement of in hostels improves the collecting of fee and their distribution among the hostels.

2.3.1.5 Management and Administration of University

The information system is a model of the majority processes, executing at university. The fact that the university principals operatively can get reliable information helps to control them in real environment. The registration of the received and sent documents was created in information system, improving the university administration. At the same time, the executing control of assignments and responses according these writings is carried out. In addition, the signed contracts between the university and other organization are registered. Information system renders the information concerning these contracts and helps to control their execution.

2.4 CMIS Evaluation

While there is no direct measure for the success of an Information System, (see DeLone & McLean, 1992), empirical researchers have commonly used user satisfaction as the dependent variable (Doll & Torkzadeh, 1989; Franz & Robey, 1986; McKeen & Guimaraes, 1997;

Powers & Dickson, 1973). Prominent among the independent variables studied for their influence on this measure, are as followings; (based on a comprehensive survey of prior literature), system quality, information quality, contextual factors and user related factors (DeLone & McLean (1992), Zmud 1979; Guimaraes and Igarria 1997, Doll 1985; Yap 1989).

- **Contextual Factors;** Three contextual factors – top-management support, IS facilitating conditions, and quality of ISD team – were included in the study. *Top-management support* refers to the senior executives' favorable attitude toward, and explicit support for, the IS (e.g. Doll 1985; Yap 1989). *IS facilitating conditions* reflect the processes and resources that facilitate an individual's ability to utilize information systems (Thompson et al. 1991). Finally, *quality of ISD team* indicates the technical expertise of the ISD team as well as the communication skills of the ISD team members (Amoako-Gyampah and White 1996, Wixom and Watson 2001). Some items can be connected with contextual factors; *Top management involvement, Organizational competition with the EDP unit, Priorities determination, Relationship with the EDP staff, Communication with the EDP staff, Technical competence of the EDP staff, Attitude of the EDP staff, Time required for new development, Response/turnaround time, Processing of change requests, Vendor support, Means of input/output with EDP center, Organizational Position of the EDP Function.*

- **User Related Factors** User characteristics have an important role in the eventual success of IS (Zmud 1979; Guimaraes and Igarria 1997). Some items can be connected with User Related Factors; *Expectations, Understanding of systems, perceived utility, Feeling of participation, Feeling of control, Degree of training, Confidence in the systems,*

- **Information Quality;** Information quality relates to the characteristics of the information that an information system produces. *Accuracy, Timeliness, Precision, Reliability, Currency, Completeness, Format of output, Volume of output, Relevancy*
- **System Quality** System quality refers to the quality of an information system. Rivard et al(1997)'s instrument was designed to be suitable for end user developers to complete, yet to be sufficiently deep to capture their perceptions of components of quality. *Convenience of access, Language, Flexibility of Systems, Integration of systems, Security of data, Documentation, Error recovery.*
- **User Satisfaction:** There has been little empirical research on user development of applications (Shayo et al., 1999), and most of what has been undertaken has used user satisfaction as the measure of success because of the lack of direct measures available (Etezadi-Amoli & Farhoomand, 1996). User satisfaction refers to the attitude or response of an end user towards an information system. As Seddon and Kiew noted, User Satisfaction is the central construct in the evaluation of CBIS success.

SECTION 3

THEORETICAL FRAMEWORK

3.1 Introduction

This section sets up a theoretical framework of the problem situation using the variables as identified in Section 2.

3.2 A Theoretical Framework for the CMIS Evaluation

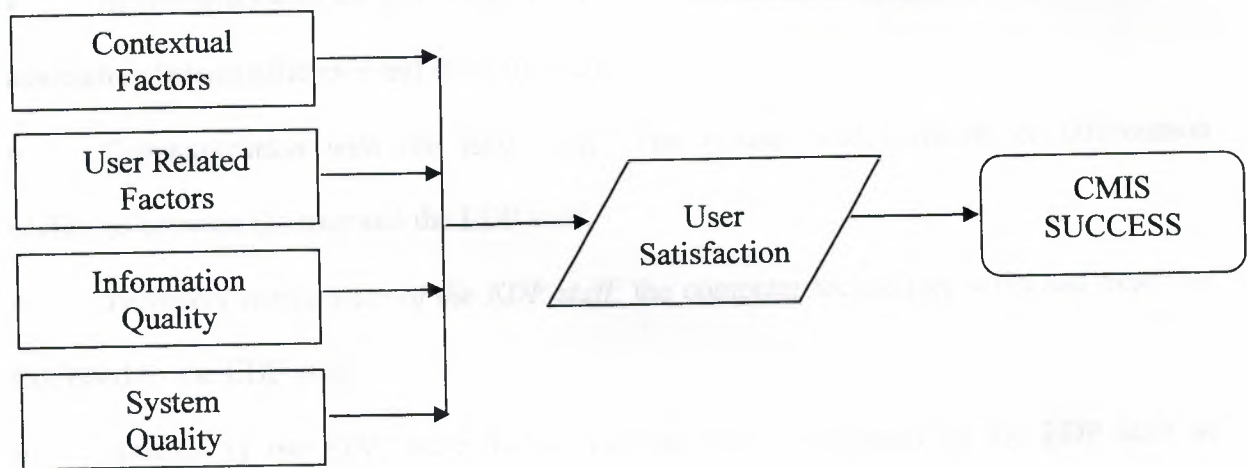


Figure 3.1 Theoretical Frameworks

The followings are the independent variables and their definitions which are summarized from many of studies by James & Sammy (1983).

3.2.1 Contextual Factors

- *Top management involvement:* The positive or negative degree of interest, enthusiasm, support, or participation of any management level above the user's own level toward computer-based information systems or services or toward the computer staff which supports them.

- *Organizational competition with the EDP unit:* The contention between the respondent's organizational unit and the EDP unit when vying for organizational resources or for responsibility for success or failure of computer-based information systems or services of interest to both parties.
- *Priorities determination:* Policies and procedures which establish precedence for the allocation of EDP resources and services between different organizational units and their requests.
- *Relationship with the EDP staff:* The manner and methods of interaction, conduct, and association between the user and the EDP staff.
- *Communication with the EDP staff:* The manner and methods of information exchange between the user and the EDP staff.
- *Technical competence of the EDP staff:* the computer technology skills and expertise exhibited by the EDP staff.
- *Attitude of the EDP staff:* the willingness and commitment of the EDP staff to subjugate external, professional goals in favor of organizationally directed goals and tasks.
- *Time required for new development:* The elapsed time between the user's request for new applications and the design, development, and/or implementation of the application systems by the EDP staff.
- *Processing of change requests:* The manner, method, and required time with which the EDP staff responds to user requests for changes in existing computer-based information systems or services.
- *Vendor support:* The type and quality of the service rendered by a vendor, either directly or indirectly, to the user to maintain the hardware or software required by that organizational status.

- *Response/turnaround time:* The elapsed time between a user-initiated request for service or action and a reply to that request. Response time generally refers to the elapsed time for terminal type request or entry. Turnaround time generally refers to the elapsed time for execution of a program submitted or requested by a user and the return of the output to that user.
- *Means of input/output with EDP center:* The method and medium by which a user inputs data to and receives output from the EDP center.
- *Organizational Position of the EDP Function:* The hierarchical relationship of the EDP functions to the overall organizational structure.

3.2.2 User Related Factors

- *Expectations:* The set of attributes or features of the computer-based information products or services that a user considers reasonable and due from the computer-based information support rendered within his organization.
- *Understanding of systems:* The degree of comprehension that a user possesses about the computer-based information systems or services that are provided.
- *Perceived utility:* The user's judgment about the relative balance between the cost and the considered usefulness of the computer-based information products or services that are provided. The costs include any costs related to providing the resource, including money, time, manpower, and opportunity. The usefulness includes any benefits that the user believes to be derived from the support.
- *Feeling of participation:* The degree of involvement and commitment which the user shares with the EDP staff and others toward the functioning of the computer-based information systems and services.

- **Feeling of control:** The user's awareness of the personal power or lack of power to regulate, direct or dominate the development, alteration, and /or execution of the computer-based information systems or services which serve the user's perceived function.
- **Degree of training:** The amount of specialized instruction and practice that is afforded to the user to increase the user's proficiency in utilizing the computer capability that is unavailable.
- **Confidence in the systems:** The user's feelings of assurance or certainty about the systems provided.

3.2.3 Information Quality

- **Accuracy:** The correctness of the output information.
- **Timeliness** The availability of the output information at a time suitable for its use.
- **Precision:** The variability of the output information from that which it purports to measure.
- **Reliability:** The consistency and dependability of the output information.
- **Currency:** The age of the output information.
- **Completeness:** The comprehensiveness of the output information content.
- **Format of output:** The material design of the layout and display of the output contents.
- **Volume of output:** The amount of information conveyed to a user from computer-based systems. This is expressed not only by the number of reports or outputs but also by the voluminous ness of the output contents.
- **Relevancy:** The degree of congruence between what the user wants or requires and what is provided by the information products and services.

3.2.4 System Quality

- Error recovery: The methods and policies governing correction and rerun of system outputs those are incorrect.
- Language: The set of vocabulary, syntax, and grammatical rules used to interact with the computer systems.
- Security of data: The safeguarding of data from misappropriation or unauthorized alteration or loss.
- Documentation: The recorded description of an information system. This includes formal instructions for the utilization of the system.
- Flexibility of Systems: The capacity of the information system to change or to adjust in response to new conditions, demands, or circumstances.
- Integration of systems: The ability of systems to communicate/transmit data between systems servicing different functional areas.
- Convenience of access: the ease or difficulty with which the user may act to utilize the capability of the computer system.

3.3 Conclusion

As discussed earlier the dimensions; information quality, systems quality, user related factors, contextual factors, each should be measured – or controlled for -- separately, because singularly or jointly, they will affect subsequent user satisfaction.

Most of the studies built their model on user satisfaction as a dependent variable, to determine the information system success. Here, according to our purpose of the study we can make the user satisfaction as an intervening variable, so this helps to conceptualize and explain the influence of the independent variables on the dependent variable.

SECTION 4

METHODOLOGY

4.1 Introduction

This section describes the steps and methods that are to be used during the investigation of the proposal study.

4.2 Study design

- This study is an exploratory research and it is a correlational study. Because this paper is interested in delineating the important variables associated with the problem in section 1.
- According to correlational study, it is conducted in the natural environment of the organization with minimum interference by the researcher. I will conduct interviews with the employees and administrators at the work place without any manipulation. So it will be also a noncontrived setting. The time horizon of the study will be a cross-sectional study.
- Literature survey on MIS and a fully computerized MIS have been done and also further survey on a fully computerized MIS model for the universities or similar service industries.
- **Sampling;** CMIS users are the target group of the study, namely end-users. According to the purpose of the study, the population of the end-users in Near East University includes the students, instructors, employees and administrative staff. Here an assumption was made that questionnaire was conducted only to the administrative staff. So it is a non-probability

sampling that is namely judgment sampling. The total numbers of administrative staff figures are summarized in the following table (Table 4.1.)

Table 4.1 Numbers of Staff in Administration of University

Administrative staff	Number of employee
1- Student Affairs Staff	56
2- Faculty Secretaries	25
3- EDP Staff	10
Total	91

The total numbers of 91 employees, 26 employees have been interviewed and 26 questionnaires have been obtained for analysis by using convenience sampling method.

- Once the data are collected, the information has been coded and according to the findings the main advantages and disadvantages will be identified for the Near East University.

4.3 Model for Evaluation of CMIS

Swanson (1974) empirically found high correlation in a query environment between the user's appreciation for the system and his utilization of its outputs. Powers and Dickson (1973) concluded that user satisfaction is the most critical criterion in measuring computer system success and failure.

While seeking a model of computer-based information system user satisfaction, it was natural to turn to the efforts of psychologists who study satisfaction in its larger sense (Schwab & Cummings 1973). The literature generally agreed that satisfaction in a given situation is the

sum of one's feelings or attitudes toward a variety of factors affecting that situation. Wanous and Lawler (1972) proposed variations on two basic models for measuring satisfaction. The applicable definition of satisfaction is the sum of the user's weighted reactions to a set of factors,

$$S_j = \sum_{i=1}^n R_{ij} W_{ij}$$

Where;

R_{ij} = the reaction to factor j by individual i.

W_{ij} = the importance of factor j to individual i.

This model suggests that satisfaction is the sum of the individual's positive and negative reactions to a factor. An individual's feeling must, in this model, be placed somewhere between a "most negative" reaction and a "most positive" reaction. Implementation of the model centers on two different requirements. First, the set of factors comprising the domain of satisfaction must be identified. Second, a vehicle for scaling an individual's reaction to those factors must be found.

Measurement of one's perception; involves the rating of four bipolar adjective pairs ranging from a negative to a positive feeling. For example, the meaning of "format of output" could be measured between the pairs; good vs. bad, simple vs. complex, readable vs. unreadable and useful vs. useless. The evaluation of one's feelings relative to any given adjective pair is accomplished via a five interval scale. The five intervals from negative to positive were denoted by the adverbial qualifiers; extremely, quite, neither/equally, quite and extremely. Figure 1 illustrates the semantic differential technique for measuring reaction to the "Degree of EDP (electronic data processes) training" factor.

Degree of EDP training provided to users: The amount of specialized instruction and practice that is afforded to the user to increase the user's proficiency in utilizing the computer capability that is available.

Complete ---- --x-- ---- ---- incomplete

Sufficient ---- --x-- ---- ---- insufficient

High ---- ---- --x-- ---- ---- low

Superior ---- ---- ---- --x-- ---- inferior

To me, this factor is:

Important --x-- ---- ---- ---- unimportant

The scaling of the five intervals was quantified by assigning the values -2, -1, 0, 1, and 2 to the intervals. The importance scale was assigned values from 0.20 to 1.00 with steps of 0.20, the value 0.20 being associated with extremely unimportant and 1.00 with extremely important. Using these numbers, the reaction of an individual to a given factor is the average of the four assigned values;

E.g. Calculation an individual's perceived user satisfaction to a factor (i.e. Degree of EDP training provided to users) is as follows:

Complete & Incomplete.....+1

Sufficient & Insufficient.....+1

High & Low.....0

Superior & Inferior.....-1

Taking the average of these four adjective pairs, we find R_{ij} value (that is the reaction to factor j by individual i) that is .25.

After that importance scale is valued "1" as W_{ij} (that is the importance of factor j to individual i).

As a result $S_{ij} = R_{ij} \times W_{ij}$ (that is satisfaction of individual i to the factor j)

$$S_{ij} = .25 \times 1 = .25$$

The next step is the sum of the S_{ij} , that is $S_j = \sum_{i=1}^n R_{ij} W_{ij}$ meanly total satisfaction of a number individuals to the factor " J ".

The minimum value of the S_j can be -2, and the maximum is +2. "-2" represents "extremely dissatisfied" and "+2" represents "extremely satisfied" for the factor " j ".

4.4 Conclusion

This section has introduced the steps and methods that are to be used during the investigation of the proposal study.

SECTION 5

FINDINGS

5.1 Reliability of the Questionnaire

The 26 returned questionnaires and their corresponding self-assessment scores were used to examine the reliability of the measurement questionnaire. Reliability is defined as the absence of measurement error. A reliable instrument will measure the same object with consistent and error free results. In the research reported here, an exact measure of error was not available. Therefore, error had to be statistically estimated. Assuming factor responses R_{ij} to be independent and normally distributed, an analysis of variance was used to estimate measurement errors. The total variance was composed of components due to differences between each adjective pair, differences between each subject and measurement error. A reliability coefficient was calculated using by SPSS 12 for windows reliability analysis.(See; Table 5.1 and for more see; Appendix A)

TABLE 5.1 Reliabilities of Questions

Reliability	Number of factors
Above 90%	17
80% - 89%	15
70% - 79%	3
60% - 69%	1
Below 60%	0
Total	36

Reliability of the satisfaction questionnaire was calculated for each factor. The reliability coefficients obtained were very high. Of the 39 factors, 17 resulted in a coefficient greater than 0.90. The average coefficient was 0.88 and the minimum was 0.69. Thus, it can be argued that the questionnaire is a reliable instrument.

5.2 Demographic analysis of respondents

5.2.1 Sex

Table 5.2

	Frequency	Percent
MALE	7	26,9
FEMALE	19	73,1
Total	26	100,0

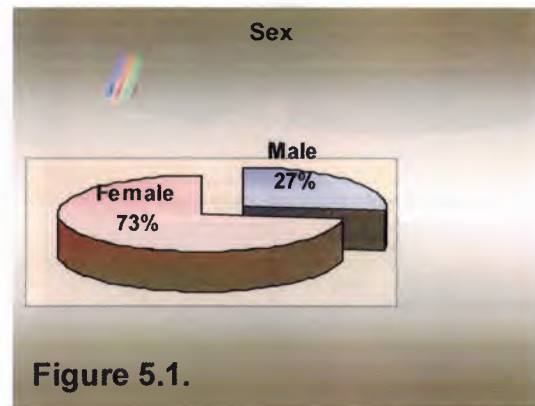
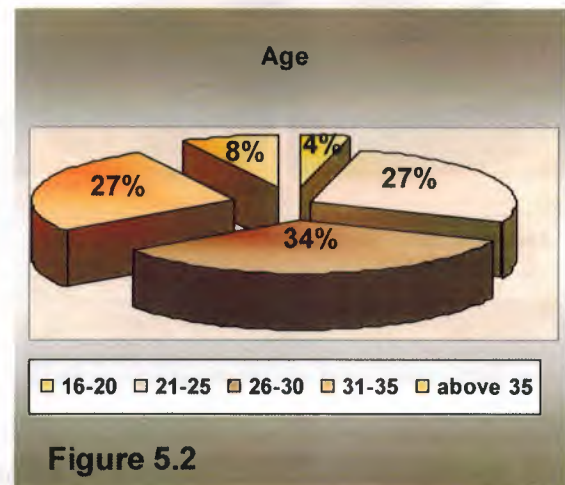


Table 5.2 and figure 5.1 indicate the sex distribution of the respondents. The most of the respondent are female, about 73% of total, because majority of student affairs staff and all secretaries are female. Only 27% of the respondents are male.

5.2.2 Age

Table 5.3

	Freq	%
16 - 20 YEARS OLD	1	3,8
21 - 25 YEARS OLD	7	26,9
26 - 30 YERAS OLD	9	34,6
31 - 35 YEARS OLD	7	26,9
MORE THAN 35 YEARS OLD	2	7,7
Total	26	100,0

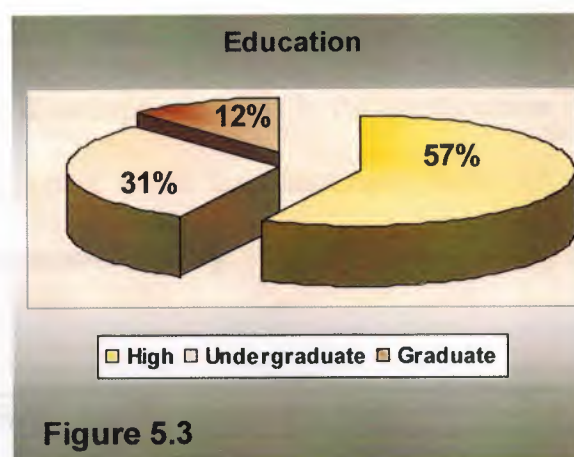


About 35% of the respondents are above 30 years old. The rest, 65% of the respondents, are below 30 years old. The allocations of the age groups are shown in table 5.3 and figure 5.2.

5.2.3 Education

Table 5.4

	Frequency	Percent
HIGH SCHOOL	15	57,7
UNDERGRADUATE	8	30,8
GRADUATE	3	11,5
Total	26	100,0

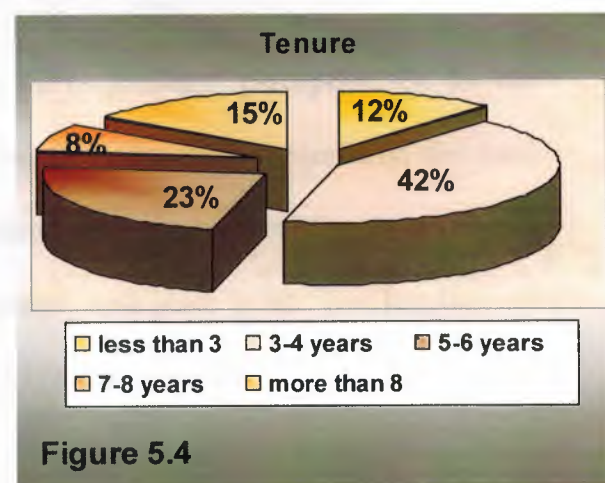


57.7% of the respondents have high school diplomas. The rest of the respondents are the upper level educated (Table 5.4 & Figure 5.3).

5.2.4 Tenure

Table 5.5

	Frequency	Percent
LESS THAN 3 YEARS	3	11,5
3 - 4 YEARS	11	42,3
5 - 6 YEARS	6	23,1
7 - 8 YEARS	2	7,7
MORE THAN 8 YEARS	4	15,4
Total	26	100,0



The majority of the respondents have worked at NEU less than 4 years (54%). The rest of the respondents have worked more than 5 years (Table 5.5 & Figure 5.4).

5.3 Perceived Importance of the Factors

The averages of the responses from the “important & unimportant” part in the questionnaire for each variable were ordered from the most important to the least important. Table 5.6 indicates five most important factors and five least important factors.

Table 5.6 Five Most Important and Five Least Important Factors	
<u>Most Important</u>	<u>Less Important</u>
1. Accuracy	1. Documentation
2. Reliability	2. Vendor Support
3. Degree of training	3. Completeness
4. Relationship with the EDP staff	4. Language
5. Understanding of the system	5. Feeling of participation

Of course, this ordering was formed according to the respondents’ perception. On the other hand, scientific studies in the related field also found similar results. Similarly, the factors (accuracy, reliability, and understanding of the system) took place in the “five most important factors” part and factors (Vendor support and language) took place in the “five less important factors” part in these studies (Bailey And Pearson 1983, Janecek 1978).

5.4 Descriptive Statistics

The Factors	N	Min	Max	Mean	Std. Deviation	Sum
1. Top management involvement	26	-,40	2,00	,763	,713	19,90
2. Organizational competition with the EDP unit	26	-,80	2,00	,439	,594	11,40
3. Priorities determination	26	-,80	2,00	,438	,681	11,40
4. Relationship with the EDP staff	26	-1,00	2,00	1,115	,816	29,00
5. Communication with the EDP staff	26	-,80	2,00	,669	,725	17,40
6. Technical competence of the EDP staff	26	-2,00	2,00	,542	1,087	14,10
7. Attitude of the EDP staff	26	-,40	2,00	,637	,636	16,60
8. Time required for new development	26	-1,75	1,25	-,077	,884	-2,00
9. Processing of change requests	26	-1,75	2,00	-,064	,938	-1,65
10. Vendor support	26	-,80	1,40	,240	,495	6,30
11. Response/turnaround rime	26	-2,00	2,00	,310	1,077	8,00
12. Means of input/output with EDP center	26	-1,00	2,00	,560	,507	14,00
13. Convenience of access	26	-2,00	2,00	,410	1,315	11,00
14. Accuracy	26	-1,50	2,00	,758	1,044	19,70
15. Timeliness	26	-2,00	2,00	,190	1,101	5,00
16. Precision	26	-,80	1,20	,321	,576	8,40
17. Reliability	26	-,50	2,00	,850	,703	22,10
18. Currency	26	-1,50	2,00	,365	,977	9,50
19. Completeness	26	-,60	2,00	,487	,637	12,60
20. Format of output	26	0	2,00	1,270	,493	33,00
21. Language	26	-,50	1,60	,625	,488	16,30
22. Volume of output	26	-1,00	2,00	,730	,609	19,00
23. Relevancy	26	-1,50	2,00	,579	,819	15,10
24. Error recovery	26	-1,80	2,00	,279	,918	7,20
25. Security of data	26	-2,00	2,00	,640	,978	16,65
26. Documentation	26	-1,00	,80	,096	,465	2,50
27. Expectations	26	-1,20	1,75	,439	,745	11,40
28. Understanding of systems	26	-1,50	2,00	,827	,965	21,50
29. Perceived utility	26	-1,00	2,00	,281	,731	7,30
30. Confidence in the systems	26	-,80	2,00	,602	,768	15,65
31. Feeling of participation	26	-,50	2,00	,446	,682	11,60
32. Feeling of control	26	-1,00	2,00	,390	,697	10,00
33. Degree of training	26	-2,00	2,00	-,631	,911	-16,40
34. Organizational Position of the EDP Function	26	-,15	2,00	,769	,568	20,00
35. Flexibility of Systems	26	-,80	2,00	,148	,713	3,90
36. Integration of systems	26	-1,00	2,00	,420	,756	11,00

Table 5.7 The Descriptive Statistics Of The Questionnaire

The sample size is shown in Table 5.7 by "N". The "Min" column shows the minimum user satisfaction that is given by a respondent(s). For example for the factor "top management support" was valued "-,40". For this factor, this is the minimum satisfaction level of an individual. The max column shows the maximum user satisfaction that is given by a

respondent(s). For example for the factor "top management support" was valued +2. Also this can be commented as this factor was ranked at most +2 by the respondents.

The mean column shows the means of all individuals' user satisfaction for each factor. So the results can be interpreted that; if the value is below the "0", there is a certain problem in the user satisfaction for that factor. If it is above "0", the user satisfaction is quite good for that factor. The next column shows the standard deviations for each of the factors.

According to our main formula, a factor can be valued at most 52 and at least -52. This range was occurred by multiplying the sample size and the maximum and minimum user satisfaction values, $[26 \times (+2)] = +52$ and $[26 \times (-2)] = -52$.

5.5 Extractions of the table

5.5.1 Analysis of the contextual factors:

Table 5.8 User Satisfaction Levels of Contextual Factors

Contextual Factors	N	Mean	Std. Dev.	Sum	User satisfaction (%)
S4 Relationship with the EDP staff	26	1,115	,816	29,0	77,9
S34 Organizational Position of the EDP Function	26	,769	,568	20,0	69,3
S1 Top management involvement	26	,763	,713	19,9	69,1
S5 Communication with the EDP staff	26	,669	,725	17,4	66,7
S7 Attitude of the EDP staff	26	,637	,636	16,6	66,0
S12 Means of input/output with EDP center	26	,556	,507	14,5	63,9
S6 Technical competence of the EDP staff	26	,542	1,087	14,1	63,6
S2 Organizational competition with the EDP unit	26	,438	,594	11,4	61,0
S3 Priorities determination	26	,438	,681	11,4	61,0
S11 Response/turnaround time	26	,306	1,077	8,0	57,7
S10 Vendor support	26	,240	,495	6,3	56,1
S9 Processing of change requests	26	-,063	,938	-1,6	48,5
S8 Time required for new development	26	-,077	,884	-2,0	48,1
Average user satisfaction for contextual factors	26				62,2

The relation with the EDP staffs is the most satisfied factor. Its perceived user satisfaction is 77.8% which is acceptable very high level. The factor, the relationship with the EDP staff, is

also perceived by the respondents as a most important factor (see table 5.6). Additionally the other factors that are related with the EDP staff have also high user satisfaction levels (S34, S5, S7, S12, S6, S2, and S3).

Top management involvement has 69.1% perceived user satisfaction. The respondents see the consistency of the upper level managers' involvement not much. But they also determined that their involvement is extremely good and strong. So it is seen that there is only a little problem in continues of the support to the information systems by the top managers.

Generally, end users put forward that vendor support is not in our interest area. It is seen that at NEU, end users do not face with the suppliers. EDP staff made purchases and allocate the resources to the users. So as a result, the vendor support has only 56.1 % satisfaction level. In this connection, it is meaningful that looking to the priorities determination factor that has 61% satisfaction level. End users determined that the allocation of resources is fair but also it is inconsistent and there are no precise policies and procedures.

Time is a very relative term. That is also reflected by the respondent to the factors, response/turnaround time, processing of change requests, and time required for new development. It is very clear that the adjective pairs of these factors have very high standard deviation (see Appendix A, for the each factors' adjective pairs' standard deviations). But it is also seen that standard deviations of the satisfaction of the factors is not as high as the adjective pairs' (see table 5.8). There are some problems in these points because these factors' satisfaction levels are near to the 50%. They are not at the satisfactory level. The end users determined that the elapsed time is very long for these processes but they also see this some what reasonable.

5.5.2 Analysis of the user related factors:

Table 5.9 User Satisfaction Levels of User Related Factors

User Related Factors	N	Mean	Std. Dev.	Sum	User satisfaction (%)
S28 Understanding of systems	26	,827	,965	21,5	70,7
S30 Confidence in the systems	26	,602	,768	15,7	65,1
S31 Feeling of participation	26	,446	,682	11,6	61,2
S27 Expectations	26	,438	,745	11,4	61,0
S32 Feeling of control	26	,388	,697	10,1	59,7
S29 Perceived utility	26	,281	,731	7,3	57,0
S33 Degree of training	26	-,631	,911	-16,4	34,3
Average user satisfaction for user related factors	26				58,4

The most satisfied factors from the user related factors are the understanding of the systems and the confidence in the systems, that indicate that the end-users at NEU are aware of the computer based information systems products and services that are provided. Their satisfaction levels are 70.7% and 65.1%. End users mostly know, what the system provide for them.

The feeling of participation of the respondents has 61.2% satisfaction level. They determined that there is certain level of positive perception of participation, but still there is some need for improvement.

It is seen that the expectations of end users at NEU from the CMIS change very much from person to person. Their average satisfaction level is 61.0%. They are mostly optimistic for the future. But now they indicated that they are some pleased with the system.

The feeling of control that is the user's awareness about the commitment to the CMIS has a user satisfaction level of 59.7%. End users have the feeling that their power on the CMIS is not much strong and precise.

The awareness of the end users about the CMIS usefulness and support to their work performance has 57.0% satisfaction level. They believed that they don't get much benefit from the CMIS, and they believed that it is not sufficient.

The degree of training is very low at NEU that has 34.3% satisfaction level. This factor's perceived satisfaction level is the lowest one among the 36 factors. The respondents are very unsatisfied with the current training program. They indicated that there is no completeness in the training programs about the CMIS.

5.5.3 Analysis of the information quality factors:

Table 5.10 User Satisfaction Levels of Information Quality Factors

Information Quality Factors	N	Mean	Std. Dev.	Sum	User satisfaction (%)
S20 Format of output	26	1,273	,493	33,1	81,1
S17 Reliability	26	,850	,703	22,1	71,3
S14 Accuracy	26	,758	1,044	19,7	68,9
S22 Volume of output	26	,725	,609	18,8	68,1
S23 Relevancy	26	,579	,819	15,1	64,5
S19 Completeness	26	,487	,637	12,6	62,1
S18 Currency	26	,365	,977	9,5	59,1
S16 Precision	26	,321	,576	8,4	58,1
S15 Timeliness	26	,192	1,101	5,0	54,8
Average user satisfaction for information quality factors	26				65,3

Questions which are related with the information quality are mostly responded in high levels.

From the four major factors, user related factors are the most satisfied factor that has average user satisfaction level of 65.3%.

Format of output has a highest user satisfaction level by 81.1%. End users find the outputs of the CMIS very simple and readable.

Reliability and accuracy are the two factors that take place in the “five most important factors” in Table 5.6. Also their satisfaction levels are 71.3% and 68.9% respectively. Respondents’ beliefs about the reliability of the outputs are high and sufficient. Respondents also find the accuracy of the output is high and consistent but already needs some improvement.

The volume of output have been accepted by the users very concise and some reasonable and sufficient. They indicated that there is no information garbage. They found mostly what they look for. Similarly, they indicated that the relevancy of the outputs is also mostly good, clear and useful.

Completeness of outputs has a perceived user satisfaction of 61.2%. According to the respondents, the completeness of outputs of the IS is consistent and adequate but already it needs some improvement.

The age of outputs (currency) of the CMIS is seen about 59.1% satisfaction level. There is some adequate and time problem with the currency of the output but they also accepted that it is some what reasonable.

The variability of the outputs (precision) (polymorphism) are not much satisfied, it has 58.1% user satisfaction level. Those respondents indicated that there is some problem with the usability of current information in different areas. They can use an output only some certain issues. They indicated that the precision of the outputs of the CMIS some limited.

Timeliness, the availability of output information at the time that it is needed, has 54.8% satisfaction level. They indicated that punctuality of the output is very unsatisfactory, namely it is tardy. But also they said that it is some reasonable.

5.5.4 Analysis of the system quality factors

Table 5.11 User Satisfaction Levels of System Quality Factors

System Quality Factors	N	Mean	Std. Dev.	Sum	User satisfaction (%)
S25 Security of data	26	,640	,978	16,7	66,1
S21 Language	26	,625	,487	16,3	65,7
S36 Integration of systems	26	,417	,756	10,9	60,5
S13 Convenience of access	26	,406	1,315	10,6	60,2
S24 Error recovery	26	,279	,918	7,2	56,9
S35 Flexibility of Systems	26	,148	,713	3,9	53,8
S26 Documentation	26	,096	,465	2,5	52,4
Average user satisfaction for system quality factors	26				59,8

It is seen that security of the system is mostly satisfactory which has 66.1% satisfaction level. Respondents rely on the system because they believed that unauthorized persons can not reach to the system. But it seems like; their reliance to the system is based on their reliance to the EDP staff.

End users indicated that they don't face many problems with the systems language. They find the systems language which is very easy to use, and simple but not much powerful. And also the system supports english and turkish languages characters.

The integration of system is mostly satisfactory which has 60.4% satisfaction level. It is evaluated by the respondents mostly successful and good but not sufficient.

The convenience of the system is evaluated by the respondents by a 60.2% satisfaction level. They indicated that the access procedure is easy but there are some problems with the convenience and efficiency. They claimed that the network connection is sometimes bad.

Error recovery has an average satisfaction level of 56.9%. The respondents are mostly unsatisfactory with time that is elapsed for the correction. However they claimed that it is simple to make correction. When it is corrected, the error recovery is superior and completeness.

The perceived satisfaction level of the integration of system is 52.4% that is not sufficient. The respondents indicated that the flexibility of system is sometimes very low and versatile according to their demands.

According to the results, it was found that respondents are not interested in the documentation of the system. The documentation factor took place in the "five less important factors" in table 5.6. Their reaction to this factor is very low, and they indicated that the availability of the documentation is also very low.

SECTION 6

CONCLUSION

6.1 Introduction

This section summarises the results of the theoretical and empirical findings of this paper.

6.2 Theoretical Findings

A brief definition of MIS is the development and use of effective information systems in organizations. If computers are included in this process, it becomes Computerized Management Information Systems (CMIS).

The major benefits of CMIS;

- Faster,
- To stay competitive,
- More reliable than the paper based information systems,
- Process and transmit large volumes of data more easily,
- Better decision making process.

There is no direct way to evaluate the level of Computer based Information systems. According to the results of the literature survey, it is found that the user satisfaction is the best way to determine the level of current CMIS level that is used in an organization. So the factors are found that are affecting the user satisfaction. These factors can be concluded in four major headings;

- I. **Contextual factors** which are; *Top management involvement, Organizational competition with the EDP unit, Priorities determination, Relationship with the EDP*

staff, Communication with the EDP staff, Technical competence of the EDP staff, Attitude of the EDP staff, Time required for new development, Response/turnaround time, Processing of change requests, Vendor support, Means of input/output with EDP center, Organizational Position of the EDP Function.

II. User Related Factors which are; *User Related Factors, Expectations, Understanding of systems, perceived utility, Feeling of participation, Feeling of control, Degree of training, Confidence in the systems,*

III. Information Quality which are; *Accuracy, Timeliness, Precision, Reliability, Currency, Completeness, Format of output, Volume of output, Relevancy*

IV. System Quality which are; *Convenience of access, Language, Flexibility of Systems, Integration of systems, Security of data, Documentation, Error recovery.*

6.3 Conclusion on Empirical Findings

One of the most important points that is found out that the high standard deviations in the satisfaction levels. This is caused from the nature of the satisfaction theorem. Each individual have very different satisfaction levels on an each factor.

To summarize the empirical findings, it is good to turn back and answer the project questions:

PQ1. What is Management Information Systems (MIS)?

PQ2. What is Computerized Management Information Systems (CMIS)?

A brief definition of MIS is the development and use of effective information systems in organizations. If computers are included in this process, it becomes Computerized Management Information Systems (CMIS). So the human procedures are translated into

computer programs. Those that do involve a computer are properly called computer-based information systems.

PO3. What is the gap between a fully-computerized Management Information System and

NEU?

As discussed in previous sections, to determine the level of current CMIS, it is the best way to look the user satisfaction level with the current system. On this basis, the main findings are as follows;

- **Contextual Factors;**

The average satisfaction level of the contextual factors is 62.2%. The factors that reduce this average are; Organizational competition with the EDP unit, Priorities determination, Response/turnaround time, Vendor support, Processing of change requests, Time required for new development. So EDP staff has a great responsibility on these factors, and they need to reexamine its capabilities on the time basis factors, and the lack of the methods and policies are needed to determine clearly to prevent the ambiguity on the resources and services allocation process.

The factors that increases the average are; Relationship with the EDP staff, Organizational Position of the EDP Function, Top management involvement, Communication with the EDP staff, Attitude of the EDP staff, Means of input/output with EDP center, Technical competence of the EDP staff. So it is found that the human and technical relationships between faculty secretaries, student affairs staff and the EDP staff contributed a positive impact on the user satisfaction of the CMIS. Also the top management involvement is supportive for the development of the CMIS.

- **User Related Factors**

The average satisfaction level of the user related factors is 58.4%. The most unsatisfactory factor is the degree of training that is caused by the lack of the EDP staffs' training methods and policies. They invite an individual from a department and train him/her and then they asked to her to train his/her friends in their departments. Also it is found out that the perceived usefulness and the benefits of the system are mostly understood by the end users clearly. But it is seen that their contribution to the system is not sufficient.

- **Information Quality**

The average satisfaction level of the Information quality is 65.3%. A time problem is found that the CMIS provide the information with some delay. It is also seen that the respondents are very satisfied with the design and the volume of the output and the outputs of the CMIS is found mostly reliable, accurate and relevant.

- **System Quality**

The average satisfaction level of the system quality is 59.8%. The most interesting finding in this factor is the satisfaction of the documentation of the system. The end users in NEU don't consider about the documentation of the system.

The corrections and the developments in the system are mostly insufficient. There is also a certain lack of the convenience of access to the system. The system sometimes does not work efficiently.

As a result the average of the all factors is 61.7%. This user satisfaction level is not an expected level. But there are already serious studies on this area at NEU. This user satisfaction level indicates that there is a significant study and uses of CMIS at NEU.

PQ4. What are the advantages and disadvantages of fully-computerized Management Information Systems for NEU?

There are many advantages of using a fully computerized management information system in university environment. Near East University is also a diverse organization, so main advantages can be summarized according to the interviewing with the Mr. Ali Özgen who is the manager of the technical support unit, as the followings;

- Firstly, Near East University gets a main advantage from a computerized administration management system that is *the ability to eliminate duplication of effort*. Once data is stored in the system, all authorized persons across the various departments and different physical locations may access it. This eliminates the need to replicate documents all the time to send to different departments or personnel.
- Secondly, there is also an opportunity of *reducing errors and eliminating the unnecessary of long and repetitive manual processing*.
- Thirdly, there is a real support for the effective management function. Mr. Ali Özgen said that the managers are using the system very intensive when they are at the decision making point. He claimed that the system does 50% of the decision making process by itself.

- Fourthly, also the routine tasks such as pay slips for staff, transcripts, preparing budgets, developing mailing lists, and analyzing trends no longer have to take days with the system.
- The allocation of reports and data transfers generates costs for all organizations. The system provides a real cost advantage in respect of paper based system in NEU.

6.4 Limitations and Recommendations

It is observed that the length of the questionnaire is so long and it causes some inefficient results, another research must be done to reduce the questionnaire length without damaging the reliability.

The CMIS is a complex subject which needs a comprehensive and longitudinal study. However there is a time limitation because this paper is a graduation project. In order to shorten the length of time, at the beginning of the study, the field study area was limited only the administration staff of NEU. However our subject, the CMIS at NEU, includes also students, instructors and the employees. On this connection, there is a question mark whether the results represent the rest of the total population or not. The further research on students and instructors is needed to clear this question mark.

According to the results of the study, it is seen that there is a serious problem with the training program about the Computer Based Management Information Systems. So a further research is needed to be done to explore the causes to this problem.

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APPENDIX A "Reliability Analysis of Questionnaire"

CASE PROCESSING SUMMARY FOR ALL FACTORS

Warnings

The space saver method is used. That is, the covariance matrix is not calculated or used in the analysis.

Case Processing Summary

		N	%
Cases	Valid	26	100,0
	Excluded	0	,0
	(a) Total	26	100,0

a Listwise deletion based on all variables in the procedure.

Reliability for Question -1-

Reliability Statistics

Cronbach's Alpha	N of Items
,874	4

Item Statistics

	Mean	Std. Deviation	N
V1Q1	1,00	,748	26
V1Q2	,62	1,023	26
V1Q3	,85	,881	26
V1Q4	,81	,849	26

Reliability for Question -2-

Reliability Statistics

Cronbach's Alpha	N of Items
,692	4

Item Statistics

	Mean	Std. Deviation	N
V2Q1	,62	,852	26
V2Q2	,12	,952	26
V2Q3	,58	1,065	26
V2Q4	,65	,846	26

Reliability for Question -3-

Reliability Statistics

Cronbach's Alpha	N of Items
,856	4

Item Statistics

	Mean	Std. Deviation	N
V3Q1	,88	,816	26
V3Q2	,35	,936	26
V3Q3	,46	,859	26
V3Q4	,31	,838	26

Reliability for Question -4-

Reliability Statistics

Cronbach's Alpha	N of Items
,892	4

Item Statistics

	Mean	Std. Deviation	N
V4Q1	1,27	,827	26
V4Q2	1,27	,919	26
V4Q3	1,23	,992	26
V4Q4	,96	1,076	26

Reliability for Question -5-

Reliability Statistics

Cronbach's Alpha	N of Items
,863	4

Item Statistics

	Mean	Std. Deviation	N
V5Q1	,81	,939	26
V5Q2	,92	,744	26
V5Q3	,38	1,061	26
V5Q4	,69	,736	26

Reliability for Question -6-

Reliability Statistics

Cronbach's Alpha	N of Items
,946	4

Item Statistics

	Mean	Std. Deviation	N
V6Q1	,65	1,198	26
V6Q2	,65	1,164	26
V6Q3	,50	1,140	26
V6Q4	,42	1,238	26

Reliability for Question -7-

Reliability Statistics

Cronbach's Alpha	N of Items
,791	4

Item Statistics

	Mean	Std. Deviation	N
V7Q1	,69	1,050	26
V7Q2	,77	,765	26
V7Q3	,62	,752	26
V7Q4	,77	,815	26

Reliability for Question -8-

Reliability Statistics

Cronbach's Alpha	N of Items
,877	4

Item Statistics

	Mean	Std. Deviation	N
V8Q1	-,42	1,065	26
V8Q2	,15	1,223	26
V8Q3	-,08	1,197	26
V8Q4	,00	1,131	26

Reliability for Question -9-

Reliability Statistics

Cronbach's Alpha	N of Items
,913	4

Item Statistics

	Mean	Std. Deviation	N
V9Q1	-,08	1,129	26
V9Q2	-,35	1,263	26
V9Q3	,12	1,107	26
V9Q4	-,08	1,164	26

Reliability for Question -10-

Reliability Statistics

Cronbach's Alpha	N of Items
,905	4

Item Statistics

	Mean	Std. Deviation	N
V10Q1	,12	,711	26
V10Q2	,35	,689	26
V10Q3	,46	,859	26
V10Q4	,35	,797	26

Reliability for Question -11-

Reliability Statistics

Cronbach's Alpha	N of Items
,932	4

Item Statistics

	Mean	Std. Deviation	N
V11Q1	,35	1,056	26
V11Q2	,38	1,299	26
V11Q3	,31	1,123	26
V11Q4	,19	1,386	26

Reliability for Question -12-

Reliability Statistics

Cronbach's Alpha	N of Items
,814	4

Item Statistics

	Mean	Std. Deviation	N
V12Q1	,77	,710	26
V12Q2	,69	,736	26
V12Q3	,50	,707	26
V12Q4	,69	,736	26

Reliability for Question -13-

Reliability Statistics

Cronbach's Alpha	N of Items
,981	4

Item Statistics

	Mean	Std. Deviation	N
V13Q1	,46	1,529	26
V13Q2	,23	1,505	26
V13Q3	,62	1,472	26
V13Q4	,38	1,416	26

Reliability for Question -14-

Reliability Statistics

Cronbach's Alpha	N of Items
,947	4

Item Statistics

	Mean	Std. Deviation	N
V14Q1	1,04	,999	26
V14Q2	,85	1,084	26
V14Q3	,73	1,185	26
V14Q4	,46	1,240	26

Reliability for Question -15-

Reliability Statistics

Cronbach's Alpha	N of Items
,956	4

Item Statistics

	Mean	Std. Deviation	N
V15Q1	,35	1,325	26
V15Q2	,46	1,104	26
V15Q3	,27	1,218	26
V15Q4	-,12	1,336	26

Reliability for Question -16-

Reliability Statistics

Cronbach's Alpha	N of Items
,823	4

Item Statistics

	Mean	Std. Deviation	N
V16Q1	,38	,804	26
V16Q2	,42	,758	26
V16Q3	,31	,838	26
V16Q4	,50	,949	26

Reliability for Question -17-

Reliability Statistics

Cronbach's Alpha	N of Items
,867	4

Item Statistics

	Mean	Std. Deviation	N
V17Q1	,81	,895	26
V17Q2	,96	,824	26
V17Q3	,81	,849	26
V17Q4	,92	,796	26

Reliability for Question -18-

Reliability Statistics

Cronbach's Alpha	N of Items
,915	4

Item Statistics

	Mean	Std. Deviation	N
V18Q1	,38	1,203	26
V18Q2	,31	1,011	26
V18Q3	,27	1,041	26
V18Q4	,50	1,304	26

Reliability for Question -19-

Reliability Statistics

Cronbach's Alpha	N of Items
,916	4

Item Statistics

	Mean	Std. Deviation	N
V19Q1	,81	,895	26
V19Q2	,81	,801	26
V19Q3	,27	,874	26
V19Q4	,62	,852	26

Reliability for Question -20-

Reliability Statistics

Cronbach's Alpha	N of Items
,776	4

Item Statistics

	Mean	Std. Deviation	N
V20Q1	1,73	,452	26
V20Q2	1,58	,643	26
V20Q3	1,58	,643	26
V20Q4	1,27	,874	26

Reliability for Question -21-

Reliability Statistics

Cronbach's Alpha	N of Items
,853	4

Item Statistics

	Mean	Std. Deviation	N
V21Q1	,88	,909	26
V21Q2	,62	,697	26
V21Q3	,92	,744	26
V21Q4	1,00	,748	26

Reliability for Question -22-

Reliability Statistics

Cronbach's Alpha	N of Items
,803	4

Item Statistics

	Mean	Std. Deviation	N
V22Q1	1,08	,744	26
V22Q2	,73	,919	26
V22Q3	,77	,863	26
V22Q4	,65	,797	26

Reliability for Question -23-

Reliability Statistics

Cronbach's Alpha	N of Items
,895	4

Item Statistics

	Mean	Std. Deviation	N
V23Q1	,73	1,002	26
V23Q2	,65	,936	26
V23Q3	,62	1,061	26
V23Q4	,62	,941	26

Reliability for Question -24-

Reliability Statistics

Cronbach's Alpha	N of Items
,860	4

Item Statistics

	Mean	Std. Deviation	N
V24Q1	,08	1,197	26
V24Q2	,42	1,137	26
V24Q3	,35	1,093	26
V24Q4	,31	1,258	26

Reliability for Question -25-

Reliability Statistics

Cronbach's Alpha	N of Items
,954	4

Item Statistics

	Mean	Std. Deviation	N
V25Q1	,88	1,071	26
V25Q2	,77	1,177	26
V25Q3	,46	1,140	26
V25Q4	,54	1,104	26

Reliability for Question -26-

Reliability Statistics

Cronbach's Alpha	N of Items
,713	4

Item Statistics

	Mean	Std. Deviation	N
V26Q1	,42	,902	26
V26Q2	,38	,804	26
V26Q3	,19	,849	26
V26Q4	-,04	,999	26

Reliability for Question -27-

Reliability Statistics

Cronbach's Alpha	N of Items
,874	4

Item Statistics

	Mean	Std. Deviation	N
V27Q1	,46	1,067	26
V27Q2	,42	1,065	26
V27Q3	,54	,948	26
V27Q4	,77	,908	26

Reliability for Question -28-

Reliability Statistics

Cronbach's Alpha	N of Items
,939	4

Item Statistics

	Mean	Std. Deviation	N
V28Q1	1,00	1,020	26
V28Q2	,85	1,084	26
V28Q3	,85	1,047	26
V28Q4	,85	1,156	26

Reliability for Question -29-

Reliability Statistics

Cronbach's Alpha	N of Items
,893	4

Item Statistics

	Mean	Std. Deviation	N
V29Q1	,23	,951	26
V29Q2	,35	,846	26
V29Q3	,04	1,183	26
V29Q4	,50	,906	26

Reliability for Question -30-

Reliability Statistics

Cronbach's Alpha	N of Items
,925	4

Item Statistics

	Mean	Std. Deviation	N
V30Q1	,77	,951	26
V30Q2	,73	1,002	26
V30Q3	,58	,945	26
V30Q4	,73	,962	26

Reliability for Question -31-

Reliability Statistics

Cronbach's Alpha	N of Items
,900	4

Item Statistics

	Mean	Std. Deviation	N
V31Q1	,73	,724	26
V31Q2	,42	,758	26
V31Q3	,23	1,032	26
V31Q4	,54	1,029	26

Reliability for Question -32-

Reliability Statistics

Cronbach's Alpha	N of Items
,903	4

Item Statistics

	Mean	Std. Deviation	N
V32Q1	,50	,949	26
V32Q2	,54	,811	26
V32Q3	,38	1,023	26
V32Q4	,23	,992	26

Reliability for Question -33-

Reliability Statistics

Cronbach's Alpha	N of Items
,910	4

Item Statistics

	Mean	Std. Deviation	N
V33Q1	-,69	,970	26
V33Q2	-,65	1,093	26
V33Q3	-,62	1,098	26
V33Q4	-,54	1,067	26

Reliability for Question -34-

Reliability Statistics

Cronbach's Alpha	N of Items
,877	4

Item Statistics

	Mean	Std. Deviation	N
V34Q1	,96	,774	26
V34Q2	,73	,827	26
V34Q3	1,04	,662	26
V34Q4	1,00	,566	26

Reliability for Question -35-

Reliability Statistics

Cronbach's Alpha	N of Items
,908	4

Item Statistics

	Mean	Std. Deviation	N
V35Q1	,35	,846	26
V35Q2	,31	,928	26
V35Q3	,00	,849	26
V35Q4	-,04	,999	26

Reliability for Question -36-

Reliability Statistics

Cronbach's Alpha	N of Items
,922	4

Item Statistics

	Mean	Std. Deviation	N
V36Q1	,42	1,027	26
V36Q2	,35	,936	26
V36Q3	,58	,758	26
V36Q4	,50	,906	26

APPENDIX B "Questionnaire (In Turkish)"

Yakın Doğu Üniversitesindeki mevcut BSY üzerine bir anket

Ben, Yakın Doğu Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, İşletme Bölümü 4. sınıf öğrencisiyim. Bu anketin, bitirme tezimin önemli dayanaklarından birini temsil edeceğini belirterek, vereceğiniz samimi cevaplar için teşekkür ederim. Ayrıca kişilerin haklarını mahfuz edebilmek amacıyla isim, unvan ve iş başlıklarına ankette yer verilmemiştir. Anket çalışması, okulumuzun Öğrenci İşleri, Sekreterlikler ve Bilgi İşlem Birimi alanlarında çalışan personellere uygulanmıştır.

Bu anket şu anda kullanılmakta olan Bilgi Sistemleri Yönetiminin pratikteki durumunu ölçmeyi amaçlamıştır.

Bölüm -1- Demografik sorular:

1. Cinsiyetiniz? ☐ Erkek ☐ Bayan
2. Yaşınız? ☐
3. Öğrenim durumunuz? ☐ İlkokul
☐ Ortaokul
☐ Lise
☐ Üniversite
☐ Yüksek lisans
☐ Doktora
4. Ne kadar zamandır YDÜ' de çalışıyorsunuz ? ☐

Bölüm -2- Mevcut BSY ile ilgili Sorular: Bu bölümde soruların karşısına 4'er adet sıfat yerleştirilmiş ve 5'li ölçek kullanılmıştır. Burada "1" soldaki sıfat için yüksek dereceyi, "5" ise sağdaki sıfat için yüksek dereceyi temsil eder. "3" ise emin olmadığınız cevaplar için kullanılabilir.

1.Üst düzey yönetimin katkısı: Bilgisayara dayalı bilgi sistemlerine ve bilgi işlem birimine karşı, üst düzey yönetimin pozitif veya negatif katılımı.	Güçlü	①	②	③	④	⑤	Zayıf
	İstikrarlı	①	②	③	④	⑤	İstikrarsız
	İyi	①	②	③	④	⑤	Kötü
	Önemli	①	②	③	④	⑤	Önemsiz
	Bu faktör; Önemlidir	①	②	③	④	⑤	Önemsizdir
2.BİB ile kurum içi rekabet: Biriminiz ile BİB arasında kurumsal kaynak ve sorumluluk elde edilmesine yönelik rekabet ilişkilerinin durumu.	Verimli	①	②	③	④	⑤	Tahrip edicidir
	Rasyonel	①	②	③	④	⑤	Duygusal
	Az	①	②	③	④	⑤	Çok
	Uyumlu	①	②	③	④	⑤	Uyumsuz
	Bu faktör; Önemlidir	①	②	③	④	⑤	Önemsizdir

3.Önceliklerin belirlenmesi: BİB kaynak ve hizmetlerinin, kurumun farklı birimlerine dağılımı hakkında yöntem ve disiplinler:	Adaletli Tutarlı İnsaflı Belirli	① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤	Adaletsiz Tutarsız İnsafsız Belirsiz
4.BİB personeli ile ilişkiler: BİB personeli ile kullanıcı arasındaki ilişkiler:	Uyumlu İyi Yardımlaşan İçten	① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤	Önemsizdir Uyumsuz Kötü Yardımlaşmayan Yapmacık
5.BİB personeli ile iletişim: BİB personeli ile kullanıcı arasındaki bilgi alış-veriş yöntemleri ve şekilleri.	Uyumlu Yapıcı Belirli Anlamlı	① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤	Önemsizdir Uyumsuz Yıkıcı Belirsiz Anlamsız
6.BİB personelinin teknik yetkinlikleri: BİB personelinin bilgisayar teknolojileri beceri ve uzmanlıkları:	Güncel Yeterli Üstün Çok	① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤	Eski Yetersiz Basit, bayağı Az
7.BİB personelinin yaklaşımı: BİB personelinin kurumsal hedeflere ve görevlere, katılım ve istekliliği:	Kullanıcı odaklı Birlik içinde Nazik Olumlu	① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤	Bencil Kavgacı Kaba Olumsuz
8.Yeni geliştirmeler için gerekli zaman: Kullanıcının yeni bir uygulama isteği ile BİB personelinin yeni uygulamayı gerçekleştirmesi arasında geçen zaman:	Kısa Güvenilir Makul Kabul edilebilir	① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤	Uzun Güvenilmez Makul değil Kabul edilemez
9.Değişim isteklerinin yerine getirilmesi: Mevcut bilgisayara dayalı bilgi sistemlerindeki değişim için kullanıcının isteklerine BİB personelinin cevap verebilme süreci.	Hızlı Zamanında Basit Esnek	① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤ ① ② ③ ④ ⑤	Yavaş Zamanında değil Karmaşık Kati, değişmez
	<i>Bu faktör; Önemlidir</i>	① ② ③ ④ ⑤	Önemsizdir

17. Güvenilirlik: Elde edilen bilginin güvenilirliği:	Tutarlı Yüksek Üstün Yeterli <i>Bu faktör; Önemlidir</i>	① ② ③ ④ ⑤ Tatarsız ① ② ③ ④ ⑤ Düşük ① ② ③ ④ ⑤ Bayağı ① ② ③ ④ ⑤ Yetersiz ① ② ③ ④ ⑤ Önemsizdir
18. Güncellik: Elde edilen bilginin güncellik durumu.	İyi Zamanında Uygun Makul <i>Bu faktör; Önemlidir</i>	① ② ③ ④ ⑤ Kötü ① ② ③ ④ ⑤ Zamanında değil ① ② ③ ④ ⑤ Uygunsuz ① ② ③ ④ ⑤ Makul değil ① ② ③ ④ ⑤ Önemsizdir
19. Bütünlük: Elde edilen bilginin içeriğinin bütünlüğü:	Tam Tutarlı Yeterli Uygunluğu <i>Bu faktör; Önemlidir</i>	① ② ③ ④ ⑤ Eksik ① ② ③ ④ ⑤ Tatarsız ① ② ③ ④ ⑤ Yetersiz ① ② ③ ④ ⑤ Uygunluğu yetersiz ① ② ③ ④ ⑤ Önemsizdir
20. Çıktıların formatı: Çıktı içeriklerinin görünüm ve yapısının düzenlenmesi:	İyi Basit Okunaklı Kullanışlı <i>Bu faktör; Önemlidir</i>	① ② ③ ④ ⑤ Kötü ① ② ③ ④ ⑤ Karmaşık ① ② ③ ④ ⑤ Okunaksız ① ② ③ ④ ⑤ Kullanışsız ① ② ③ ④ ⑤ Önemsizdir
21. Dil: Bilgisayar sistemlerinde (programlarında) kullanılan kelime, işaret, ve dilbilgisi kurallarının birbiriyle örtüşmesi:	Basit Güçlü Kolay Kullanımı kolay <i>Bu faktör; Önemlidir</i>	① ② ③ ④ ⑤ Karmaşık ① ② ③ ④ ⑤ Zayıf ① ② ③ ④ ⑤ Zor ① ② ③ ④ ⑤ Kullanması zor ① ② ③ ④ ⑤ Önemsizdir
22. Çıktı miktarı: Kullanıcıya sistemden ulaşan bilginin yoğunluğu, içeriği, ve çeşitliliği:	Az ve Öz Yeterli Gerekli Makul <i>Bu faktör; Önemlidir</i>	① ② ③ ④ ⑤ Fazla ① ② ③ ④ ⑤ Yetersiz ① ② ③ ④ ⑤ Gereksiz ① ② ③ ④ ⑤ Makul değil ① ② ③ ④ ⑤ Önemsizdir
23. Konu il ilgisi: Bilgi ürün ve hizmetleri ile kullanıcının istek ve taleplerinin uygunluğu:	Kullanışlı Alakalı Açık-net İyi <i>Bu faktör; Önemlidir</i>	① ② ③ ④ ⑤ Kullanışsız ① ② ③ ④ ⑤ Alakasız ① ② ③ ④ ⑤ Belirsiz ① ② ③ ④ ⑤ Kötü ① ② ③ ④ ⑤ Önemsizdir

24. Yanlış düzeltme: Yanlış işlenmiş verilerin düzeltilmesinde uygulanan yöntem ve disiplinler:	Hızlı	①	②	③	④	⑤	Yavaş
	Nitelikli	①	②	③	④	⑤	Düşük nitelikli
	Tam	①	②	③	④	⑤	Eksik
	Basit	①	②	③	④	⑤	Karmaşık
	<i>Bu faktör;</i> Önemlidir	①	②	③	④	⑤	Önemsizdir
25. Verilerin güvenliği: verilerin yetkisiz kişiler tarafından kullanılıp değiştirilmesine yada kaybedilmesine karşı alınan koruma yöntemleri	Güvenli	①	②	③	④	⑤	Güvensiz
	İyi	①	②	③	④	⑤	Kötü
	Kesin	①	②	③	④	⑤	Belirsiz
	Tam	①	②	③	④	⑤	Eksik
	<i>Bu faktör;</i> Önemlidir	①	②	③	④	⑤	Önemsizdir
26. Dokümantasyon: Bilgi sisteminin içeriğinin açıklanması.	Açık	①	②	③	④	⑤	Açık değil
	Elverişli	①	②	③	④	⑤	Elverişsiz
	Tam	①	②	③	④	⑤	Eksik
	Güncel	①	②	③	④	⑤	Eskimiş
	<i>Bu faktör;</i> Önemlidir	①	②	③	④	⑤	Önemsizdir
27. Beklentiler: BİB ve bilgi sistemlerinin kullanıcıların beklentilerini karşılama derecesi:	Memnun	①	②	③	④	⑤	Memnun değil
	Yüksek	①	②	③	④	⑤	Düşük
	Kesin	①	②	③	④	⑤	Belirsiz
	İyimser	①	②	③	④	⑤	Kötümser
	<i>Bu faktör;</i> Önemlidir	①	②	③	④	⑤	Önemsizdir
28. Sistemin anlaşılabilirliği: Kullanıcının sistemi veya sunduğu hizmetleri kavrama (anlama) derecesi:	Yüksek	①	②	③	④	⑤	Düşük
	Yeterli	①	②	③	④	⑤	Yetersiz
	Tam	①	②	③	④	⑤	Eksik
	Kolay	①	②	③	④	⑤	Zor
	<i>Bu faktör;</i> Önemlidir	①	②	③	④	⑤	Önemsizdir
29. Sağlanan (algılanan) fayda: Kullanıcının sistemin maliyet ve kullanım yararlılığı üzerindeki yargıları.	Yüksek	①	②	③	④	⑤	Düşük
	Pozitif	①	②	③	④	⑤	Negatif
	Yeterli	①	②	③	④	⑤	Yetersiz
	Kullanışlı	①	②	③	④	⑤	Kullanışsız
	<i>Bu faktör;</i> Önemlidir	①	②	③	④	⑤	Önemsizdir
30. Sisteme güven: Kullanıcının sistemin sunduğu olanaklara veya sistemin kesinliğine duyduğu güven	Yüksek	①	②	③	④	⑤	Düşük
	Güçlü	①	②	③	④	⑤	Zayıf
	Kesin	①	②	③	④	⑤	Belirsiz
	İyi	①	②	③	④	⑤	Kötü
	<i>Bu faktör;</i> Önemlidir	①	②	③	④	⑤	Önemsizdir

31. Katılım hissi: Kullanıcıların diğer kullanıcılarla ve BİB personeli ile, sistemin daha verimli çalışması için, sürece katılma derecesi:	Pozitif	①	②	③	④	⑤	Negatif
	Cesaretlendirici	①	②	③	④	⑤	Uzaklaştırıcı
	Yeterli	①	②	③	④	⑤	Yetersiz
	Katılımcı	①	②	③	④	⑤	Katılımsız
	<i>Bu faktör; Önemlidir</i>	①	②	③	④	⑤	Önemsizdir
32. Kontrol etme hissi: Kullanıcıların sistemin geliştirme, değiştirme ve uygulama aşamalarını etkileyebilme dereceleri:	Yüksek	①	②	③	④	⑤	Düşük
	Yeterli	①	②	③	④	⑤	Yetersiz
	Belirli	①	②	③	④	⑤	Belirsiz
	Güçlü	①	②	③	④	⑤	Zayıf
	<i>Bu faktör; Önemlidir</i>	①	②	③	④	⑤	Önemsizdir
33. Eğitim derecesi: Kullanıcıya sistemi kavraması için sunulan eğitimler ve yönetmelikler:	Tam	①	②	③	④	⑤	Eksik
	Yeterli	①	②	③	④	⑤	Yetersiz
	Yüksek	①	②	③	④	⑤	Düşük
	Üstün	①	②	③	④	⑤	Bayağı
	<i>Bu faktör; Önemlidir</i>	①	②	③	④	⑤	Önemsizdir
34. BİB'nin kurumdaki yeri: BİB'nin örgütsel yapı içindeki konumu:	Uygun	①	②	③	④	⑤	Uygun değil
	Güçlü	①	②	③	④	⑤	Zayıf
	Açık-net	①	②	③	④	⑤	Belirsiz
	İyiye giden	①	②	③	④	⑤	Kötüye giden
	<i>Bu faktör; Önemlidir</i>	①	②	③	④	⑤	Önemsizdir
35. Sistem esnekliği: Sistemin değişik koşullara veya değişik isteklere cevap verebilme kapasitesi;	Esnek	①	②	③	④	⑤	Katı, değişmez
	Çok yönlü	①	②	③	④	⑤	Limitli
	Yeterli	①	②	③	④	⑤	Yetersiz
	Yüksek	①	②	③	④	⑤	Düşük
	<i>Bu faktör; Önemlidir</i>	①	②	③	④	⑤	Önemsizdir
36. Sistem entegrasyonu: Sistemin diğer birimlerle arasında iletişim ve veri alış verişi yeteneği	Tam	①	②	③	④	⑤	Eksik
	Yeterli	①	②	③	④	⑤	Yetersiz
	Başarılı	①	②	③	④	⑤	Başarısız
	İyi	①	②	③	④	⑤	Kötü
	<i>Bu faktör; Önemlidir</i>	①	②	③	④	⑤	Önemsizdir