Chapter 1

INTRODUCTION
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1.1 UNIVERSITY ADMINISTRATION

The word "University" may be spelt as an organization utilizing the national intelligence for valued education to reference and re-train by skill and inquisitive training to the youngsters of the nation. The framework may constitute a learned person to impart training and the learner to take the training. In first instance the framework may appear to be very-very primitive and small but to impart training on specific technical and mechanical aspects, the framework expands involving more persons than teacher and taught. This increases the required infrastructure and the whole act of training and learning becomes universalized and gives this framework a status of an organization. To bring up and nourish, such organizational needs the funds are to be raised within the system itself. It is because of that the work of the organization are classified hence the name University is well justified.

There can be many technical definitions for University; to keep all the technicalities of the institution intact the state and central government have instituted such organizations. These institutions are funded by University Grant Commission (UGC) a national body and the state government grants. To make the system work in an efficient way and full-fill the motives and objectives of the organization, a specific non-teaching managerial setup was essentially felt. Such need of managerial staff is mandatory in any multi functionary organization. Universities become points of more attention and discussion as these are the Human Resource industries engaged in conversion of normal human resources into useful resources for meeting the trained manpower needs of the nation.

As regards the need of managerial staff, there was the need to develop necessary infrastructure for smooth operation of the process of teaching and learning. There are three main objectives (a). Governance (b). Administration and (c). Academic system. The governance may include framing of policies and activities for the growth and development of the university. The administrative system needs to focus on the mechanism for easy implementation of the policies and procedures. The academic system has the function to impart and create a environment for sustainable dissemination Knowledge and information to the taught. The administrative body of universities is generally composed of Senate/Court, supporting Councils/Syndicate and the person in administration is the Vice-Chancellor. The Governance system should compose of Pro-Vice-Chancellor/Rector, Registrar, Controller of Examination, Deputy Registrar, Finance Officer, Assistant Registrar and Section Officer and the staff lowers to them as per hierarchy.
The Academic is composed of the dean, head of the department, teaching staff and subordinate technical and ministerial staff. Universities have their own structure, management and system. The system is mandatory and as regards the setup its style depicts the individual efficiency. Main objectives of the Universities are universally the same; however they vary in their nomenclature, processes, and procedures. Universities are created by an act of parliament/State Legislature. The act itself provides for basic organizational structure for legislative, academic, administrative and financial affairs. It further provides for the composition and functions of various University bodies (with defined authority and responsibility) and also provides job description for various university officers and creates the system of check and balance. Chart I gives the General organizational structure of an Indian University. As may be evident from the chart, the Chancellor (Governor / Govt. Nominee) is the supreme authoritative official who stands over the Senate/Court, in other words he is the president of the Senate/Court. The Senate suggests both strategic and policy matters to the president. It is the supreme governing body which is composed of persons of proven academic repute and social standing. Members of the senate are elected/nominated persons. The senate reviews and suggests measures for the efficient working of the university.

The Executive council is the next body below Senate / Court which actually is the pulsating organ in the rhythm of University function. It receives suggestion and proposal from the subordinate council whose composition varies within the University setup. What appears to be mandatory is to have one Academic Council, One Finance Committee and One Academic Planning and Evaluation Board in the form of a body. The people to this Council are nominated persons the Dean, Head of the teaching departments (HOD), Affiliating College Principals, few elected or nominated members of good academic repute or social status.

The finance Committee manages financial matters. It prepares financial statements and reviews income / expenditure of the University. It also approves the financial budget and sends necessary proposals to the various councils for discussions and decisions on income and expenditure of the university and submits annual audit report.

The Academic Council is the principal academic authority of a University, which maintains the standard of teaching, research, and examination in the University. The Vice-Chancellor is the president of this council and the Deans, HOD, Directors, Professor, DCDC and few of the elected persons are the members of the body.
The function of Academic Planning and Evaluation Board is to observe the University working to weigh the university reputation and to suggest the alternative short and long term plans to university for a better academic administration. This constitutes expertise from academic and social communities and few other members so as to have cross-section of the various walks.

It may be mentioned that the Vice-Chancellor is the nominated president member to all these committees and Councils by virtue of his being a Vic-Chancellor. In other words the V.C. is Ex-Officio member of all the committees. Thus, he may also be called as Chief Executive Officer of these committees. His office composed of a secretariat; a public relation officer and a Pro-Vic-Chancellor/Rector assist him in exercise of his authorities and administration.

1.2 GENERAL ORGANIZATION STRUCTURE OF THE INDIAN UNIVERSITY ADMINISTRATION

The organization structure of Universities in India varies from university to university according to the need of catering viz. location, population, educational status, economic status of the area, socio economic structure of the population. In most of the cases the politico legal environment of the area where the university situated influences the size, structure, campus and activities of and this influence always affects the hole planning of the university. The planning, control and administrative functioning of the university are designed keeping the environment in view. The University organization is so designed that the management of policy execution should fulfil the requirement of academic need and to support the line of functioning of the whole university. In view of these objectives the management structure is broadly divided into there parts. Chart II gives the General Organization Structure of University Administration. ²

1. Registrar (Administration)  
2. Controller of Examination  
3. Finance Officer

All the above three functionaries are responsible and answerable to The Vice-Chancellor. The accountability of all three line managers lies towards the members of the university. The Registrar is directly answerable to authority of the university by being The Secretary of all bodies and ex-officio custodian of the university. The office of the registrar consists of following four major line office sections.

1.1 Establishment Section  
1.2 General Section  
1.3 Academic Section  
1.4 Development Section
The working of the above sections directed towards managing the human resources, running proper administration and functioning, providing support to services to academic bodies and ensuring the future development of the university. The functioning of each of the above sections as follows:

1.2.1 ESTABLISHMENT SECTION
The personnel functions at university level are looked after by the establishment section. The staff of the university is broadly classified into three categories such as teaching staff, non-teaching staff, and in the statutory officer of the university. The function of the establishment section is to attract and secure appropriate people capable of performing effectively the specific tasks to maximize the individual development of the people within the institution and to utilize the human resources effectively to achieve the university goal.

The section looks after service matter, short term manpower planning to the teaching and non-teaching staff of the university, recruitment, performance evaluations, training and re-training, personnel service and records, leave accounting. It can be observed from the chart II establishment section is 5 cell under three sub-sections.

Generally there are three line managers including one Deputy Registrar supported by three Assistant Registrar act as operational manager to look after the work of the section. The officers and office Superintendents along with the operational level staff consisting of Senior and Junior Assistants are directly responsible for day to day work of the section including maintenance of the records. Each of the sub-sections is accountable to their respective immediate controlling manager, the Assistant Registrar the upward flow of accountabilities moves from Assistant Registrar to the Vice-Chancellor through the Deputy Registrar and Registrar.

1.2.2 GENERAL ADMINISTRATION SECTION
General administration of the university is responsible for public relation and general functioning. The section looks after the whole property of the estate, organisation of planning, co-ordination with the external agencies like state government and other universities, general public, transportation and communication, annual reports and central dispatch unit of the university. It not only liaisons with the various sections and teaching department within the university but also co-ordinates with state and central government and their agencies for getting the financial grants. It can be observed from Chart II the General Administration Section is divided in to three sub-sections under seven cells.
Each of these sub sections are headed by Deputy Registrar as controlling authority and assisted by Assistant Registrar as executive. Each cell is headed by a Section Officer and a Superintendent along with Senior and Junior Assistants to look after the day to day functioning and maintenance of records.

The top to bottom authority pass from Vice-Chancellor at the top and moves down to Registrar, Deputy Registrar, Asst. Registrar, Section Officer, and Superintendent to operational level staff while the process flows is vice-versa.

1.2.3 ACADEMIC SECTION

The area of activities of this section include planning and co-ordination for short and long term plans formulation, research programme and defining the duties of committees for dealing with formulation of rules and regulation, initiates proposal for amendments in various ordinance, statutes etc., providing support services to college development council, inspection for affiliation, framing of syllabi and curricula initiate processes for tests and admissions. It can be observed from the Chart II section operates through six cells.

Planning cell is looks after the planning of short and long term plan for academic development such as time frame of the courses, intake of the students, teaching posts and infrastructure for proposed plan. It also co-ordinates the faculties in initiating new academic programmes. The functions of Committee cell include formulation of various statutory committees such as Court, Executive Council, Academic Council, Faculty, Board of studies, Finance Committee, Academic Planning and Evaluation Board and various other committees as suggested under act, statutes, and ordinances of the university. The Committee Cell arranges the various committees prepare the agenda and minutes, and circulated the minutes. The function of the Affiliation cell includes the inspection of the colleges for affiliation of various courses, curricular designing, academic evaluation of the Colleges and recognition and de-recognition of the courses in respect of affiliation. This cell interact with the colleges on the matters of collection of annual affiliation fees; strength of the student, teachers and infrastructure for various courses in the colleges on day to day basis. The cell also co-ordinates with the State/Central Government and other agencies on the issue of affiliation of collage. The Syllabus cell looks after the recommendations made by the various department's board of studies and the formulation of prospects. The activities of Test & Admission cell includes preparation of rational admission criteria as decided by the Admission Committee, announcement of dates for admission, notification and publicity, checking and screening of applications, intimation to selected students and admitting them into the university teaching departments. The cell also looks after the amendments and updating of the syllabi as per technological development and requirement of society. Research Registration Cell interested in looks after
the maintenance of standards as per the recommendations made by various committees of the university and other agencies like UGC, AICTE, etc. The constitution of RDC and its meeting are managed by this cell. Faculty co-ordination cell usually co-ordinates the activities of various faculties of the university. The Academic Section is managed by a Deputy Registrar and few supporting staff. Assistant Registrars is managed as the executive manager. The activities of the functioning under academic section are supported by Section Officers and Superintendents as supervisory staff and Junior and Senior Assistants as operational staff.

The authority flow of the Academic Section is from top to bottom Vice-Chancellor with at the top, He is followed by Registrar, Deputy Registrar, Asst. Registrar, Section Officer, and Superintendent to operational level staff in the ranks of hierarchy. The process flow takes place bottom upwards.

1.2.4 DEVELOPMENT SECTION

The Development section involved in preparation of long/short term goals for the growth of the university. It undertakes review of quality management at all levels of operations. It co-ordinates with external agencies for maintenance grant, development grants and non-plan grants. The external agencies include NAAC, UGC, AICTE, PCI, NCTE, Ed-CIL, etc. This section is the backbone of university in respect of research done by the teachers. It looks after the international academic exchange programmes with various countries along with the matters of fellowship and conduct of workshop, seminar, conferences and symposia to be organized by various departments. It can be observed from the Chart II Development section is operates with 5 cells under three sub-sections.

Grant cell deal with the maintenance grant received from Central/State Government on monthly and annual basis. It also looks after the plan and non-plan grants received from the UGC and other agencies for development of research and infrastructure. The cells handle utilization certificate, audited statement, and periodical review of grants receipts and utilization. Research Project Monitoring cell assists the assessment committees constituted for various review of research proposal of various departments so as to finalizing the annual grants. It undertakes the assessment of research proposal projects on annual basis. Scholarship and Fellowship Cell has been entrusted with the function of assisting the beneficiaries to get fellowship and scholarship from various agencies. This cell invites application from the students for availing scholarship fund and from the teaching staff for availing fellowship from various agencies. Thus the cell monitors, reviews and makes correspondence with national/international agencies regarding research scholarship/fellowships. The Academic Audit cell is responsible for assisting various assessments and evaluation committees for undertaking the SWOT analysis of the university. The Consultancy service cell looks after the interaction of
consultant experts with Commerce, Industries and society. The cell assist the teachers and researchers in the matter of patent registration. The SC/ST Cell is formed by the Central/State Government to look after the welfare of weaker sections for development and growth of the society. It facilitates the distribution of fellowships and scholarships to the students belonging to SC/ST/OBC. The cell also looks after the reservation policies to be followed by the university.

Development Section is headed by Deputy Registrar (Development) as the Section in-charge and he is assisted by Assistant Registrar as executive manager. Section officer/Superintendents staff along with Senior and Junior Assistant at operational levels. The authority flow of the Development Section moves from Vice-Chancellor down to Registrar, Deputy Registrar, Asst. Registrar, Section Officer, and Superintendent to operational level staff. The process flow occurs in reverse order.

1.2.5 EXAMINATION SECTION

The examination section is an important part of administration. It looks after the assessment and evaluation of students by direct and indirect techniques. The degrees awarded to the students are based on gradation and performance in the open examination of the university conducted for various academic programmes. The section is so structured that is complete the job as per the schedule. The section operates through two major sub-sections namely Examination General and Examination Confidential. The specific jobs of examination section include confidential management of question papers, awards, result preparation, valuations and revaluation of answer sheets and other examination related legal matters. The Credibility of the degree awarded by any university is dependent on the functioning and impression of the examination section. It can be observed from the Chart II the examination section is divided into two main sub-sections under the 5 cells.

Conduct of Examination sub-section relates to the day to day interaction with the students. This is a very sensitive department and therefore the management and operations are designed to provide timely and accurate information to the student. The conduct of examination cell looks after the registration of student for examination, checking of eligibility forms, preparation of examination schedule, distribution of answer sheets to various examination centers, issue of hall tickets to the students, centre co-ordination and management, dispatch of mark sheet and certificates to the various examination centers after the declaration of results. The Examination (General) sub-section has been structured to look after store and purchases and accounts of examination related matters, examination remuneration, enrollment, migration, examination records, convocation, medals and degree of the student. Thus the examination (General) sub-section ensures the credibility and sanctity of the examination. The examination confidential sub-section is consisting of two cells.
Confidential I and Confidential II. The main functions of this cell are appointment of examiner, moderation of question paper, collection of answer sheet and awards from different examination centre, UFM, absentee and examination committee, result preparation and declaration, revaluation.

Keeping in view the high volume of work of confidential nature, the examination section is headed by a Controller of examination whose position is usually at par with registrar in terms authority and channel of communication with the Vice-Chancellor and other administrative and academic body.

The Controller of examination is assisted by Deputy Controllers and Assistant Controllers at executive management level along with Section Officers and Superintendent and office assistants at operational level. The authority flow of examination section usually comes from the Executive Committee through the Vice-chancellor down to the controller of examination to the operating level. The process flow is in upward direction which originates at operating level and moves to executive committee through various examination committees.

1.2.6 FINANCE SECTION
Finance is the lifeblood of the administration. According to L.D. White "Finance and Administration, cannot be divorced. Every administrative act has its financial implications as inseparable as a man and his shadow". The Finance section generally performs its function in three ways 1. Financial advisor to the administrative body 2. Accounting and auditing of the funds 3. Co-ordination with central/state government, agencies for fund generation.

The Finance Section is the whole-sobo custodian of funds therefore the Finance Officer has been authorized to be equivalent to the registrar in most of the universities. The major function of this section is preparation of budget estimate; collection of revenue from various sources and to keep proper accounting and internal audit; Payment to Staff and to external parties for supply of materials and services rendered, review of the realization of receipts and expenditure to achieve the objective of management control and stimulation of the activity involved; preparation of annual accounts; maintenance of P.F., Pension, Insurance, Loan advances and other accounts of welfare funds; prudent investment of the funds to generate additional resources for meeting the developmental needs of the university, co-ordination with external and internal agencies for fund management; and management of the fund of the schemes sponsored by UGC and other bodies.

It can be observed from the chart II the finance section is working with two sections namely Finance I and Finance II under the 10 cells. The Finance I prepare the annual budget, annual accounts and appropriation
for the same in relation with the audited bank statement. All funds of the university are maintained in the banks in various accounts. The cashbook, payment and receipts are looked after by this sub-section. Finance - II looks after the maintenance of store/purchase accounts and its verifications, management of fee counter, loan and advances to the staff salary, PF, Pension and general correspondence. This section provides assistance to executive council and finance committees specifically on financial matters. The tenders and quotations and notice regarding purchase and sales are manage by this section. The section also maintains the records and ledger of the accounts of an individual employee and such record is maintained for nearly forty years.

Finance Officer is an officer equivalent to Registrar in some of the universities. He is accountable to Senate, Executive Council and Finance Committees of the Universities. The Finance Officer is assisted by Deputy Finance Officers and Assistant Finance Officers as executive managers along with supervisors to manage in various functions of the section and its cells. The Office Assistants are engaged at operational level maintenance of ledger and records.

The line of authority comes from the finance committee in the form of budget through the various authorities including Vice-Chancellor upto the operating level and the process flow in this section is vice-versa.

1.3 AUTOMATION
The last quarter of the twentieth century has witnessed radical world wide changes in political, economic and technological fields. Old concepts and practices in management have been replaced with new ones. The buzz word has been mechanization, automation, and computerization. The phenomenal growth of information and application of information technology, specifically the high degree of computerization and transmission of electronic information have changed the basic structure and functioning of organisation including the universities. Effective functioning of the universities in the present era is being ensured by automation and computerization of management. Although the automation and modernization through use of computers have accelerated the pace of management activities like transactions, information management, decision making, etc. in corporate sectors of India, the Indian universities are far behind in the race. The concept of paperless offices is yet to be grounded. The university administration still dependent on traditional mode transaction through paper. The excessive paper work and its handling has adversely innovation, effectiveness and efficiency in administration. The IT and communication technology has offered solutions to overcome the problems of repetitive filing and paper work as also to deliver the pronounced data/information at the time of its need for managing the enterprises.
The use of computer and application of IT in the process of University administration covering finance, examination, teaching learning process, etc. are almost at initial stages. Time has come when application of information technology is inevitable, if the universities have to realize their goals effectively. This would require not only suitable infrastructure but also trained managers. Studies show the University of Delhi, University of Meerut, Aligarh Muslim University, JNU, Anna University, SNDT University, Bajaj Institute, IIT Bombay, Bharthiar University, Madras University, Rajasthan University, University of Kerla, Bombay University, etc. have automated the functions like payroll, financial accounting, admission, examination result process and the library system. It is significant to note that IIT Bombay, Indian Institute of Science, Bangalore; and JNU have established a network connecting all computer on the campus. Terminals have been given to various locations on the campus. The computerization of the administration of the above universities has resulted in discharge of the function effectively and efficiently way.\(^3\)

"Mechanization was aimed at handling problem of bulk, weight and distance by replacing muscle and movement with machines"\(^4\). Automation is the name given to an automatic system of working. "The difference between automation and mechanization, is mainly one of degree".\(^5\) The term automation was first introduced by D.S. Harder in 1936. He defined it as ‘the automatic handling of parts between progressive production processes’\(^6\) in relation to engineering industries. Since then the term has been applied to a wide variety of automatic machinery and automatic systems, and is commonly used to describe any operation in which there has been a substantial substitution of controlled action for human efforts or intelligence.\(^7\) Working on the similar lines, office automation was also introduced. The idea behind introducing office automation was to minimize the human intervention in almost all office operations. Several definitions of automation were suggested by the different researchers and academicians at different terms, viz. "Office automation can be defined as the replacement of manual office activities by equivalent or similar activities which automate means of doing office work. An office activity refers to any activity in an office, such as filling out a form, sending a message, entering information into a file, making a decision to route a form, etc. An office procedure refers to a structured set of office activities for the accomplishment of specific office task, such as scheduling a meeting, processing a mortgage application form, reviewing a paper etc."\(^8\)

As per Olson and Lucas "Office automation refers to the use of integrated computer and communication systems to support administrative procedures in an office environment". As per Ellis and Nuff "An automated office information system attempts to perform the functions of an ordinary office by means of computer system". As per Hammer and Sirbu "Office automation is nothing but the utilization of technology to improve
the realization of office functions. "Office Automation refers to the application of integrated computer, communication and office product technologies and social science knowledge to support clerical activities and functions in an office environment to improve efficiency and effectiveness". Thus the present study of university administrative automation is under taken with the meaning and scope of office automation that uses information technology for generation, storage and retrieval, processing and communication of information for improving the effectiveness of office, which in turn helps in functioning of the organization in an efficient and competitive manner.

1.4 NEED FOR AUTOMATION IN THE UNIVERSITY ADMINISTRATION

The Indian University has undergone remarkable change in the last twenty years. There has been tremendous growth in the last ten year in terms of students, colleges, courses, and number of subject offered, etc. which resulted in the emergence of world's second largest higher education system and comprising 256 Universities, 8600 colleges and 6.4 million students enrolled during 1994-96. The teaching force accounts for 2.4 million, where the total enrollment, forms only about six percent of the relevant population within age group 17-23 of age. (AIU June 2000) Such an expansion was possible, inter alia, due to public financing of higher education. In relative terms, the share of government in financing higher education has increased to about eighty percent of the total expenditure on higher education. All this has led to the problem of management of University Administration. This growth/expansion of higher education has indirectly posed several questions and challenges before management and administration and thus the area needs rethinking and renovation. The cost of University administrative overhead like salaries and perquisites of office employees, rent, power, transportation and communication etc. are increasing day by day. The volume of administrative activities in the universities has been continuously increasing. In the previous part a general organization structure of the University administration and the functions of the various sections have been described. The routine activities of various sections of the university administration involves of large volume of data processing for frequent storage and retrieval. The routine activities are repetitive and labourious in nature.

In most of the universities in India, the administrative work is predominately manual in nature. This led to substantial delay in decision making process and also the execution of plans and polices. It is becoming very important to increase the efficiency of office operations enabling each office worker to increase the quantum of work done in a given time. The increased efficiency can control the cost of administrative overhead which in turn will enable the organization to be competitive.
It is also observed that in several administrative operations where the volume of work is very large and good service to the customer is important, it is not possible to cope up with the work, even by increasing the strength of office workers. The Banking operations, Railway reservations and Insurance policy processing are few such examples where good customer service requires mechanical aids to speed up processing of information as well as the following benefits of automation. The need and benefits of automation are:

- Increase productivity due to better utilization of human resources.
- Improved qualities of work and decision due to computerized storage
- Retrieval of information.
- Improved organizational effectiveness due to better communication system.
- Elimination of manual work of filling and searching of documents.
- Better utilization of time and money and
- Better management control

The above factors have necessitated for the automation of University Administration.

1.5 COMPUTERS AS A TOOL FOR AUTOMATION

Computers are automatic in operation. It means once the data and instruction are fed to a computer, human interventions are not required. It manipulates the data according to the instructions and continues doing so till the last instruction is executed. Computer Now-a-day’s have become an effective tool in management. Computer revolution has necessitated redesigning of job in the electronic office environment so as to improve the quality of work and to reduce the cost of performance. This in turn requires creation of a working atmosphere that encourages motivation and job satisfaction. System studies often reveal that work specialization among the clerical and secretarial staff is essential certain job functions should be eliminated, some job should be simplified, job advancement patterns should be recharged and the supervision responsibilities should be modified. Information Technology has become most widely used and a pronounced buzzword of the computer industry. It has helped all walks of life in one a way other it helps in gathering, storing, manipulating, processing and communicating desired type of information in a specific environment. Computer technology and Communication technology are the two main supporting pillars of this technology and the impact of these two in the information storage and dissemination is vital. The stand alone and the single user concept have become outdated and costly. Integrated computer communication network paradigm leading to information super highway is in use effectively. This highway carries information from one end to other both locally and globally. This emergence of computer and their
wide scale applications have opened new vista for the implementation of efficient and effective Management Information System (MIS). MIS are more concerned with management functions; and can be described as information system that can provide all levels of management relevant, timely, complete and economically feasible information, and essential to the running of smooth business. Knowing these potentials, the use of this mechanize and creating a job management procedure suitable for adoption into working and mechanize, is felt essential.

There is an urgent need for computerization in all section of university administration to face the challenges posed by the complexities of the system. The idea behind introducing computerization is to minimize the human intervention in almost all office operations it not only contributes in the smooth functioning of institution but also ensures better efficiency in the management of institutions and academic activities.

1.6 ROLE OF UGC FOR PROVIDING CENTRAL COMPUTER FACILITIES IN UNIVERSITIES

The UGC has been assisting the universities for setting up of computer Centre since 1970 for use in research and in work relating to examination and administration in the university. For improving the functional efficiency and keeping in view the development in computer hardware and the possibility of using computer Centre for constancy and contractual job. There are no specific guidelines as to the size of the university and the system to be granted to the university at present, The UGC scrutinizes proposals through expert committee in view of current and expected use of the computer in the organization is concerned.

The UGC had initially categories the computer system as type A, B, C equivalent to IBM 1620, IBM 1130, and IBM 360 system configuration. The classification has been changed in 1990 on the basis of the value of hardware installed. The aggregate value for type A is up to Rs. 10 lakhs, for type B between Rs. 10 to 50 lakhs and for type C above Rs. 50 lakhs. In 1999 UGC again revised this central computing assistance scheme can be either Level I up to Rs. 50 lakhs or Level II more than 50 lakhs. The details are mentioned in next page.

Some of the UGC Guide lines for Functioning of University Computer Centre especially on the issue of administrative automation in the universities are as follows

The Computer Centre set up with UGC assistance is to be perform the following function

- Design software for administrative, financial, examination needs of the university and to provide computation facility for these purposes in the computer centre and develop networking with other university for exchange, expertise and software.
• To organize and conduct computer awareness/literacy courses at least twice a year for students/teachers/university employees.

• To undertake consultancy and contractual work relating to software design and computation for outside agencies on payment basis independently or jointly with some software professionals and public/private sector organization in accordance with the Rules/ Statutes/ Ordinances of the university.

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1.6.1 UGC RECENT PLAN FOR APPLICATION OF INFORMATION TECHNOLOGY

The UGC at its meeting held on November 1, 2001 decided to establish "A" UGC network for providing a seamless, broad band scalable nation wide inter university link up to provide information connectivity at the door step of each university, the state of art nation-wide computer network connecting different universities. The UGC and its different offices including all inter university centre, shall lead to virtual enhancement of the academic structure so necessary toady to supplement and compliment the ongoing academic activities in the university. The UGC shall fund this project and would provide financial grants to meet the expenses incurred in each university exclusively for this purpose. ERNET India (Educational research network of the Ministry of Information and Technology Government of India) has been identified by the UGC as an official vendor and a partner to execute this UGC network. The UGC network shall internet and internet access by utilizing the ERNET services.
It has been decided to advise each university to submit its proposal as regards hardware, type of connectivity, bandwidth and other required infrastructure needed to establish the university connectivity with the UGC network along with the already existing infrastructure, if any, in this respect to the UGC. This proposal shall then be discussed by the technical committee along with representative from the ERNAT India in consultation with the university representative for identifying the actual requirement of university. A tripartite agreement between the UGC, ERNAT India and the concerned university shall then be signed accordingly incorporating the requirement identified and approved by the technical committee.

The ERNAT India in collaboration with the university itself shall then undertake to provide necessary hardware and other infrastructure at the University for its Connectivity with the UGC network. The university after verifying its satisfactory completion and performance would make payment directly to ERNAT India out of the grant released by the UGC to the university exclusively for this purpose.

The UGC shall provide the university financial grants for capital equipment, one-time connectivity charges and annual requiring and maintenance charges for a period of five years.

1.7 REVIEW OF LITERATURE
1. Y.S. Kiranmayi (1989) examines the problem of university administration in India and highlights the application of modern management principles in the area of personnel management, financial management, and general management for effective and efficient operation of the institutions. 2. Rao, M.R. (1993) highlights the powers and duties of the executives in the universities and narrates the different areas of University management including Finance, Personnel, Academic, Department and Affiliated Colleges.
3. Sarla Achuthan, Binod C Agrawal, P Shah and R P Soni (1992) using an empirical case study examine the status of technology at selected universities of Gujarat, Uttar Pradesh and Tamilnadu based on an analyses of the computer population in India, export of hardware and software between 1981-1990, type of computer installed, software availability, impact of technology on student, teachers and research activities. They have reviewed the current technology development. They have assessed the availability and use of computer in the management function such as payroll, examination, financial accounting, admission, inventory, and personnel information system in the above universities. 4. Shi-Kuo Chang (1982) presents an overview of office automation and design of a conceptual model framework for office information system. The model framework includes 1. Event monitoring using database alerters, 2. Activity management in office information system, 3. Office procedure model, 4. Simple alerters and implementation issue and 5. External alerters and time alerters. 5. Malik Achal Kumar (2000) presents an overview of office automation in administration of the universities. The author had carried out a study in 1992 of the premier educational
institutions concerned in educational planning and administration. The study also suggests the ways and means for successful management of office automation. 6. Gill, N.S. (1997) describes the importance of office automation and focuses on the available information technology those can be brought in use for office operations. 7. Joshi and Kulkarni (2001) develops a functional model of MIS for Shivaji University, Kolhapur. It has been developed in Visual Basic and MS-Access. The model has five components including general administration, examination, finance and accounts section, affiliation and general information. The advantages MIS in university administration are also discussed. 8. Roy, Nandita (2000) describes the stage wise computerization in the administration of Indian universities. The study describes that the first stage computerization is the stand-alone system at individual level. The second stage of computerization is linking together the different departments in a computer network. In the third stage, the integrated system is achieved by including many databases in client/server mode. In the fourth stage, the information is stored in Cyber space for world wide operations and communication.

1.8 PURPOSE AND OBJECTIVE OF THE STUDY

The study aims at developing a model for the university administrative automation system based on system analysis of university Human Resources System for efficient operation of the administrative functions. The detailed objectives of the study are as follows.

- To make a survey of the status of administrative automation in Indian universities.
- Identify the universities having intensive administrative automation in operation as also the core areas of automation.
- To find out the problems of administrative automation in the universities, to examine the influence and effectiveness of automation on the day to day functioning of the different areas of administration.
- To identify the areas, which are yet to be automated by the majority of the universities.
- To study and analyze the manual operation of human resource system of Dr. Harisingh Gour University, Sagar and identify the problems being encountered in current manual system.
- To design and develop a functional model of Human Resource Information System (HRIS) for Dr. Hari Singh Gour University, Sagar. The proposed functional model is termed as University Human Resource Information System (UHRIS).
- To develop a Users Operational Manual for Implementation of the UHRIS model.
To examine the impact of proposed model in the context human resource planning, decision making controlling and daily transaction processing in university administration.

To assess the impact of computerization on Human Resources System.

1.9 SCOPE AND LIMITATION OF THE STUDY

The study with respect to the status of administrative automation in universities has covered a total of eight universities including deemed university, state universities and universities of national importance. The state universities include Barkatullah University, Bhopal (BU), Devi Ahilya Bai University, Indore (DAU), Dr. Hari Singh Gour University, Sagar (HSG), and Rani Durgawati University, Jabalpur (RD) and the national universities include Delhi University (DU), Indira Gandhi National Open University, Delhi (IGN), Indian Institute of Technology, Delhi (IIT- Deemed University), and Jawaharlal Lal Nehru University, Delhi (JNU). The inclusion of above state and national universities is made to give a fair representation in the survey sample that would enable to give a balance trend on the status of administrative automation. The survey covers status of administrative automation with respect to Student Registration and Evaluations (SR&E), Financial Administration System (FIS), Human Resource System (HRS) and other miscellaneous matters of administration. The detailed study of proposed model of automation focuses on Human Resources System that is being traditionally handled by the establishment section of the universities. The above proposed model is designed, developed and implementation suggestion as Universities Human Resources Information System (UHRIS). The UHRIS is examined in the present study specifically in the context of Dr. Harisingh Gour University, Sagar, Madhya Pradesh. The HSG University has been selected for the study and testing of proposed UHRIS model as it is the first and foremost university having the unique distinction of largest employee strength amongst the universities of the state of Madhya Pradesh.

The UHRIS model has covered the areas such as manpower planning, recruitment and selection, personnel service and record keeping, generation of various administrative orders, leave accounting, government reporting and compliances, faculty research and development record maintenance and salary processing under the four modules included 1. Establishment 2. Recruitment and Selection 3. Leave Accounting 4. Salary Processing. However, the study excludes the cost feasibility aspects as also the operation of the UHRIS model in a multi-user environment. User level security is not presented. However, password level security is applied.

1.10 RESEARCH METHODS

Statement of Problem

The problem selected for study is "Automation of the University Administration: A Proposed Model -- with special reference to Dr. Harisingh Gour University Sagar M.P". The problem involves a
systematic study of the status of administrative automation in selected Indian universities with view to
develop a model integrated information system of administrative automation specifically in the area of
Human Resources System in Dr. Harisingh Gour University, Sagar M.P.

Keeping in view the vastness and volume of university administrative work, the present study has focused
on design, development and implementation of an automated model UHRIS. The selection of this
proposed model of UHRIS is based on a detailed survey conducted to study the status of administrative
automation in Indian Universities. Survey results are discussed in chapter 2.

The research methods followed for the present study is based on combination of both survey method and
system development life cycle (SDLC). The Survey method has been used for determining the status of
administrative automation and the SDLC has been used for system design, development and
implementation suggestion of UHRIS model.

Software development revolves around a life cycle that begins with recognition of user needs and
understanding their problem. Such a life cycle comprising of various phases involved in software
development is called SDLC. 17 There are several models prescribed by the software expert for the
development of software. The waterfall one of the most simples model been adopted for the development
of the software for the proposed UHRIS model. The project begins with the feasibility analysis or
preliminary investigation (Understanding of university organization and management, administrative
automation status). On the completion of the preliminary investigation, the system analysis (study of
manual operation of HR function in Dr Harisingh Gour university, Sagar) begin. The designs start, when
the system analysis is over and the project is planned. The development process begins only when the
system is completely designs and verified. After the software development (Creation of Database and
writing of computer programme), the project enters into the testing phase. After testing, the system is
implemented. The maintenance phases begin on completion of the implementation and final review of the
newly developed system.

Thus, the data collection and analysis are done at two levels. The levels include.

1. Survey of the status of administrative automation in Indian universities.

2. A detailed analysis of manual operation aspects of human resource system (HRS) under
   Establishment Section in Dr. Harisingh Gour University Sagar M.P. (HSG). Design,
   Development, and Implementation of University Human Resources Information System
   (UHRIS).
Data collection

For the purpose of determining the status of university administrative automation, a field survey through a structured schedule combined with the physical observation of the practical operational aspects of the administrative automation in the eight selected universities are adopted. The survey is conducted during the month of Feb. 2000 to April 2000. The schedule is prepared to collect data on various areas of university administration including Student Registration and Evaluations, Financial Administration, Human Resources System and other Miscellaneous areas. The schedule has five parts to collect the data on broad areas like institutional profile, status of administrative services which are computerized, application of computer in other areas of administration, distribution of personnel at operational level, administrative automation incidental activities. The schedule has both open and close ended questions. A specimen copy of the schedule is given in APPENDIX – I.

Data analysis

1. **Preliminary Investigation**: To understand of the working of the manual system of HR under Establishment section interview, observation, record inspections have been undertaken. Under these activities various document like personnel files, service book, leave ledger, manpower inventory (ready recoker), and various policy document such as act, statutes, ordinance of university are examined and the flow of information was recorded. The specimen copies of some of the useful documents are collected.

2. **System Analysis**: To collection of above data is followed by analysis of the details process involved in manual system and identification of functional processes and the problem. For finding the requirement of the proposed model the identification of problem and the working of functional process are necessitated so as to design and develop the proposed automation. Thus this phase identified the actual process specification and requirement of the HR system of the establishment section for the purpose of effective and efficient functioning.

3. **System Design**: On the basis of system analysis to solve the problem of manual system, the study designed the modules of proposed UHRIS model. The structured methodology is adopted for design of model. This methodology is based on data flow diagram (DFD), which is discussed in detail in chapter 5. The activities undertaken during the design phase include output (report-hard copy), input (data entry screen) format design, Database (file structure for storage of data, etc.) and process design.

4. **Development of Software**: Based on the system design process the software is developed. The software development phase can be categories into two sub phases. First is database creation and second is program writing. Taking into account, the data structure and queries design at the
design phase, the database (UTD.MDB) is created by using Microsoft-Access 2002 as back-end. The writing of computer program is preceded with a detailed study of the design and testing of the various algorithms and programme logic as per the specifications mentioned in design phase for different process of the proposed model. For the development of various data entry form and process the Visual Basic (VB Ver. 6) programming language is used as front-end tool and for generation of various reports, the Data Dynamic (Evaluation Copy) used as third party tool.

5. Implementation: Followed by the completion of software testing phase, the different measures for the implementation of the model are suggested. The process of implementation, includes suggested conversion methods, forecasted of the requirement of staff, machine, space, responsibility for each task, and trainings to staff. A detailed user operational manual for each of the functions of UHRIS modules is prepared and presented by giving the step by step operational procedures.

Data Presentation
For presentation of manual function of human resource system functioning under establishment section of Dr. Hari Singh Gour University the physical data flow diagram is used. For presentation of proposed model the logical data flow diagram is used. The DFD is drawn with the help of Microsoft-Visio 2000 drawing software. The following Notation is used in the DFD.

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Data Storage | Processes | Int./Ext. (Source) Entities | Information Flow
1. Leave Master (CF Balance) | 1 | SR&E Decision, Viva Schedule, Place of Viva etc. |
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The External entities represent the source document or database table that supply data/information to the process. The Data flow indicates the movement of data either from input to process or from process to output. The flow is labeled to show what data is flowing. Process are the action performed on input data to produce the output data, where each process is assigned with a unique number and given process name. The data store indicates the data file. In case of physical DFD, it gives the register/files/folders where data is stored.

Each of these DFD can be further categories into different level like zero level (context data flow diagram), first level and third level. Each higher level DFD is by adding more details to each process at the lower end through a technique known as “Exploding DFD”.

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1.11 PROBLEM ENCOUNTERED

The following problems are encountered during the program of the study:

- Data relating to automation in the administrative sections is confidential in nature was hampered as the purpose of identification of the status of administrative automation in universities and institution especially in IIT, Delhi, JNU, and IGNOU.
- The proposed model involved huge quantity of data entry screen (app. 50) and reports (app. 150) and database file structure. It was not only labourious but also time consuming. Thus it limited the study to the area of UHRIS only.
- As Software required to draw the DFD are not available with easy access they were down loaded from the web. However, the evaluations copy of Softwares were available on the web only for limited time period and further, down loading of the software is allowed for on.
- According to the need of generation of Service Book and faculty research and development ledger reports it need multiple grouping. This multiple grouping function is done by the data report of Visual Basic Software. Therefore, down loading the third party data dynamic reporting tools from web. In the below of every generated report the message is given for evaluation copy.
- The developed UHRIS model which was originally intended to function under multi-user environment was restricted to single user environment as it required special skills and techniques for coding.
- It given the fact that the system has developed a massive number of data entry screen and reports. It was not possible to validate the entire screen and report form. However, a few important screens and reports are validated for test the consistency of input data.
- The present trends of software development under front/back end tools are new techniques of software development. The database engine technology establishes connection between front and back end tools for the data retrieval. However incase of minutest error in programming it may lead to undesired and erratic results at the data entry stage as also at report generation stage. These problems were faced frequently as it's in inherent draw back of relational database. The problem was solved by reestablishing a new connection through database engine technology. The use of these tools in the design and development software for the present study was not free from problems.
- As there was a dearth of locally available skilled computer professionals having the knowledge the application of above mentioned new tools and techniques, the problems encountered was solved through e-mail interaction with professional else where. It was very time consuming.
1.12 PLAN OF WORK

The study is presented in seven chapters. They are as follows.

Chapter 1 gives a brief description of university administration and the concept of automation. The university administration includes organisation structure, activities performed by various administrative divisions, the concept of is defined along with computer as tool for automation. Further, the role of UGC for providing central computer facilities to the universities including the UGC recent plan for application of IT in realizing the goals of the universities, scope and limitation of the study, and the problem encountered during the research work, Justification of work are presented.

Chapter 2 Presents a detailed analysis of the survey conducted with respect to status of administrative automation in Indian Universities. The study gives a comparative analysis of the status of various areas of administration consist of student registration and evaluation (SR&E), Financial Information System (FIS), Human Resource System (HRS) and other miscellaneous area in the national and state universities including in the survey, It also discusses the factors for undertaking the detailed study on the Human Resource System (HRS) as the proposed model for university automation.

Chapters 3 discuss introduction of the Dr. Hari Singh Gour University, the university where the experiment was conducted. A brief history of the University along with its operational structure, brief description of various administrative sections and authority structure of the university administration are also highlighted.

Chapter 4 discuss the importance of HRS and the need for its automation, presents the study and analysis of the manual operation of Human Resource (HR) function of the Establishment section of Dr. Hari Singh Gour University. The detailed activities of the establishment section such manpower planning, recruitment and selection, personnel services and record maintenance, leave accounting, government reporting and compliance, and currently existing salary system are explained with the help of DFD. The problems specific to the manual system of HR functions are indicated. The various source documents collected during the study of manual system are also enclosed in various annexure. The concept and practice of HRIS as a suitable system to overcome the problems of manual system of administration in an university are discussed in details with a view to develop an automated model under the concept of University Human Resource Information System (UHRIS).

Chapter 5 explains the detailed design and development of UHRIS model for achieving a fully integrated automated system. The elements consisting of Entity Relationship information, Database (file structure for storage of data, etc.), output format (report-hard copy), input format (data entry screen) format design, and
process design and design of process flow for each of the modules of UHRIS model are presented. The software developed under the study for the integrated UHRIS. The model is recorded in a CD (compact disk). The steps involved in the software development are presented.

Chapter 6 discusses the various conversion methods of automation either from manual system or from semi automated (existing salary system) to fully integrated system. Users operation manual giving step by step working procedure of various modules of the UHRIS model. It also giving hardware and software requirement, source documents and record requirement at the time of conversion. The chapter also present the sample copies of the report generated by different module of UHRIS are given in various annexure.

Chapter 7 presents the conclusion and recommendations. The conclusion consisting of the problems of automation as observed during the study and the impact of the UHRIS model on the functioning of university administration. It presents recommendations are made for improving the pace of automation in the universities of India. The areas of future research are also indicated.

1.13 JUSTIFICATION OF WORK

In an information society, the use of IT is inevitable. In the last decade, India has witnessed an unprecedented growth and development of IT. In all spheres of activities, the universities as the temples of learning need to perform the role model in demonstrating the pervasive powers of the application of IT. In this context, the universities in India which have been producing trained manpower for various sectors but yet to take care of there own needs in implementing automation in university administration. A pilot survey conducted in the study with respect to the status of automation in the Indian Universities shows that automation of Human Resource Management in the universities is one of the most neglected area. The present work has made an effort to demonstrate the efficiency and effectiveness of administrative automation by making a detailed study of Human Resource Information System. The outcome of this work is expected to be of practical value to the state universities in Madhya Pradesh. It may stimulate the development process of fully integrated automation in other major areas of university administration and contribute to much desired need for effective and efficient university administration as also achieve administrative transparency.

REFERENCE


4. Encyclopedia Britannica Chicago, Encyclopedia Britannica Inc. 1966, p858


