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Full Length Research Paper

Impact of Management Information Systems on Decision Making Effectiveness in South-West Nigerian Universities

Ajayi, I. A. and Omirin, Fadekemi F.

[1]Department OF Educational Foundations and Management, Faculty of Education, University of Ado-Ekiti, Nigeria
[2]Department of Educational Foundations and Management, Faculty of Education, University of Ado-Ekiti, Nigeria

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This study investigated the use of Management Information Systems (MIS) in decision-making on long-term planning, short- term planning and budgeting in the South-West Nigerian Universities. The study used the descriptive research design of the survey type. Data were collected from a sample of 600 subjects consisting of 400 academic staff holding administrative staff positions and 200 senior administrative staff heading units using stratified random sampling technique. Data collected were analyzed using frequency counts, percentages, means, standard deviation and t-test statistics. The three hypotheses generated were tested at 0.05 level of significance. The study revealed that MIS was not adequately used in decision making process on long-term planning, short-term planning and budgeting. There was no significant difference between Federal and State universities in terms of the use of MIS for decision making on both long and short term planning. There was significant difference in the use of MIS for decision making on budgeting between Federal and State universities in favour of the Federal universities. It was recommended that the MIS units should be adequately financed and maintained to ensure a free flow of information and adequate use of MIS in decision-making on short-term and long-term planning as well as budgeting.

Key words: The Use, Management Information Systems (MIS), Decision Making, South-West Nigerian Universities

INTRODUCTION

The role of information in decision making cannot be overemphasized. Effective decision making demands accurate, timely and relevant information. According to Aminu (1986), information resource is one of the major issues and indices of university planning. Where the relevant information required for planning are not available at the appropriate time, there is bound to be poor planning, inappropriate decision making, poor priority of needs, defective programming or scheduling of activities. Hence, the university system will not be efficient and effective in its operation. Poor management information system has been identified as a bottleneck in the successful management of universities in Nigeria (NUC, 1987).

The more complex an organization's structure is, the greater the need for coordination within and between sections and departments. However, central to the needed coordination is information. This view is buttressed by Murdick and Ross (1971), when they opined that:

> Information is absolutely essential to the survival of an organization. As organisations grow, the pressure of scale, complexity and an increased rate of change make adequate information processing capacity inevitable, if effective control, consequent upon coordination of individual activities is to be achieved.

Thus, the information needed for effective decision-making in universities cannot be provided from people's often-deficient memories. Moreover, it is impossible to plan activities over a long period of time effectively with-out effective information. Information is supposed to be created through the discipline of enquiry and research with peer moderation to ensure validity and societal influence. The knowledge to be created or established must be stored to ensure continuity of reason, and adap-

*Corresponding author: isaacabiodun2005@yahoo.com

tive academic pursuit. The stored information must then be recalled at will and be disseminated for use in taking decisions, which are in the interest of the society at large.

According to Knight (2005), there are mechanisms that drive continuous investment in bricks and mortar education, and deny the expenditures that would establish virtual universities by means of telecommunication net-works. Even if they wanted to, administrators are restrict-ted in their freedom to move in this direction by traditional funding formulae. Promotion and tenure procedures are seen as barriers in the universities. In many institutions, the primary requirements for promotion and for tenure procedures are publications in traditional journals and teaching in traditional classrooms.

A major federal government contribution is its booster plan to computerized information in the unity schools (Ekwere, 1990). With these improvements, the information resource still presents a major issue in educational management in the country. Particularly with the universities, one wonders the essence of their acquiring communication gadgets and the scope of their applications. Studies have revealed that in most sophisticated organization both manual and computer-based systems are used; in fact, both are held to be complementary in information handling procedures (Sanders, 1983). Obi (2003), Fabunmi (2003) and Adebayo (2007) had stressed the need for Management Information Systems in making effective decisions in educational institutions.

In recognition of the important role of information to the survival of the university system, the NUC introduced the computerized management information system to the Nigerian universities. The MIS idea was conceived during a conference jointly organized by NUC and the British Council in Kaduna in 1987. In conjunction with Overseas Development Administration (ODA), the project took off in 1989 in four pilot universities, namely Federal University of Technology, Minna, University of Ilorin, University of Lagos, and University of Nigeria, Nsukka.

The importance of MIS in decision making can be realized from its aims and objectives. The aim of MIS is to develop a viable system to maximize the effective use of modern data approach to management practices. It is also aimed at assisting managers and operating person-nel, to produce timely and accurate information not only to decide present and future operations, but also to pin-point potential problems that need to be rectified.

According to NUC (1987), the objectives of MIS project in the universities are:

a. To standardize the system of obtaining reports and statistical information from the various universities on: students, staff, financial matters, and library.
b. To record such information on diskettes or tapes at the universities and send to NUC for budgeting, information storage, analysis and retrieval purposes.
c. To ensure that such information are accurate and timely.
d. To organize information for planning, budgeting and decision making.
e. To help the universities put in place effective management system and improve utilization of resources.

Based on these objectives, it is expected that MIS will assist the universities in decision making on various issues in their operations. To this end, efforts are made by the universities in the areas of the acquisition and use of computers in information processing, computer literacy, establishment of computer services units among others.

Experience has shown that where MIS facilities are readily available in Nigerian universities, they are not effectively used to take decisions on long and short term planning issues. In a university organization where information cannot be stored or retrieved as at when needed, it becomes difficult or impossible to take accurate and timely decisions on long and short term planning such as: expenditure estimates, revenue estimate, cost of each programme of the universities and the like. Ineffective use of MIS in decision making by some of the universities usually result in failure of academic programmes, ineffective budgeting, wastage of resources, inaccurate projection of students' enrolment and manpower needs, poor motivation of staff, poor resource allocation among others.

It appears the Federal universities use MIS to take decisions on short-term planning, long-term planning and budgeting more than State universities. It also appears that there is undue concentration on low data processing application particularly in the accounting area. This seems to slow down activities and make decision out-come longer than necessary.

MIS and decision-making

Management Information System (MIS) is basically concerned with the process of collecting, processing, storing and transmitting relevant information to support the management operations in any organizations. Thus, the success of decision- making, which is the heart of administrative process, is highly dependent partly on available information, and partly on the functions that are the components of the process. For example, if managerial objectives are absent or unclear, probably due to inadequate information, there is no basis for a search. Without information obtained through a search, there are no alternatives to compare, and without a comparison of alternatives the choice of a particular course of action is unlikely to yield the desired result. According to Alabi (1997) the search could be through:

i. Undirected viewing—this involves a general exposure to information where. The search could be that the viewer has no specific purpose in mind.

ii. Conditioned viewing—the directed exposure does not involve active search to a more or less clearly identified area or type of information.
iii. Informal search—this is a relatively limited and unstructured effort to obtain specific information for a specific purpose. The information wanted is actively sought.
iv. Formal search—this is a deliberate effort, usually following a pre-established plan, procedure or methodology to secure specific information relating to a specific issue.

It is pertinent to note that the existence of alternatives, based on relevant information, is a necessary condition for making a decision. This view was buttressed by Ogunsaju (1990), when he pointed out that education decision must be based upon sound and well informed evidence that are highly intelligent, rather than those that are weak and baseless. For effective decisions to evolve in any organization, therefore, receiving information from, and supplying information to, people within the system are a necessity. The information so communicated must be accurate and up-to-date to cope with uncertainty. Uncertainty is the condition in which the manager has little information relevant to a decision and there is no way to predict the outcome of the decision.

In corroborating the important role of information in decision-making, Sisodia (1992) advanced the notion of decision-making as a total process involving discernible and separate activities. The first of such activities is information gathering, which is followed by evaluation of alternatives and finally a choice. The first task of the manager is to design and manage the flow of information in an organization, in ways that would improve productivity and decision-making. Information must be collected, stored, and synthesized in such a way that it will answer important operating and strategic questions. Adesina (1988) corroborated this by elucidating that the amount of information available to a decision-making group affects the product of that group. Hence, an administrator must be concerned with facilitating the free flow of information upward, downward and laterally within the organization. To do this successfully, the decisions should be based on accurate information obtainable with the operation of an effective management information system.

According to Obi (2003), MIS is useful in the area of decision making as it can monitor by itself disturbances in a system, determine a course of action and take action to get the system in control. It is also relevant in non-programmed decisions as it provides support by supplying information for the search, the analysis, the evaluation and the choice and implementation process of decision making. Fabunmi (2003) also maintains that MIS is useful in making decisions to solve many of the problems facing educational institutions. Such problems include poor programme scheduling, poor estimate of staff requirements, lack of accurate information on students, personnel and facilities, piling- up of administrative matters, wastage of spaces, lack of feasible budget estimates among others. Adebayo (2007) stressed the need for MIS in decision making as it provides infor-mation that is needed for better decision making on the issues affecting the organization regarding human and material resources.

PURPOSE OF THE STUDY

The purpose of this study is to investigate the extent to which MIS is being used to take decisions of long-term planning, short-term planning and budgeting issues in the South-West Nigerian Universities. The study will examine whether Federal and State universities differ in terms of the use of MIS in decision making on short and long term planning as well as budgeting.

METHODOLOGY

The study used the descriptive research of the survey type. The population for the study was all the public universities in the South-West Nigerian Universities. Stratified random sampling technique was used to select 4 universities: 2 state and 2 federal universities. Stratified random sampling technique was used to select 600 subjects consisting of 400 academic staff holding administrative positions and 200 senior administrative staff heading units. An instrument tagged “Management Information System and Decision-Making Questionnaire MISDQ” was used to collect relevant data from the subjects. The questionnaire contained two sections. Section A sought information on personal biodata of the respon-dents while “Section B” contained 21 items on the use of manage-ment information systems for decision making on long term planning, short term planning and budgeting. The reliability coeffi-cient of the MISDQ was 0.9243 and the data collected were analyzed using frequency counts, percentages, means, standard deviation and t-test statistics. All the hypotheses were tested at 0.05 level of significance.

RESULTS AND DISCUSSION

Table 1 reveals that less than 40% of the respondents indicated that information from MIS is always used to take administrative decisions on long-term planning in most of the items listed on Table 1, while only 40.8% indicated that MIS is always used to take administrative decision on (item 2) that is “students’ enrolment project-tion”. On the average, 36.9% of the respondents indica-ted that MIS is always used to decide administratively on long-term planning. The results therefore show that MIS is inadequately used to take administrative decisions on long-term planning in the universities.

Figure 1 further shows the use of Management Information Systems in decision making on long term planning.

As revealed in Table 2, over 40% of the respondents indicated that administrative decision on (items 1—3) that

Table 1. MIS and decision-making on long-term planning.

S/N	Information Stored in Computer and Administrative Files are used for:	Always		Occasionally		Never	
		N	%	N	%	N	%
1.	Construction of building in the university	191	34.7	207	37.7	151	27.5
2.	Student enrolment projection	220	40.8	200	35.9	125	23.4
3.	Manpower (staff) projection	216	39.4	191	34.7	142	26.0
4.	Staff recruitment exercises	215	39.2	210	38.2	124	22.7
5.	Establishing new faculties/ department	192	34.9	204	37.2	153	28.0
6.	Deciding university academic programmes	181	33.0	239	43.5	129	23.6
7.	Stocking library with books and journals	198	36.1	203	37.0	148	27.0
	Mean	**203**	**36.9**	**207**	**37.7**	**139**	**25.4**

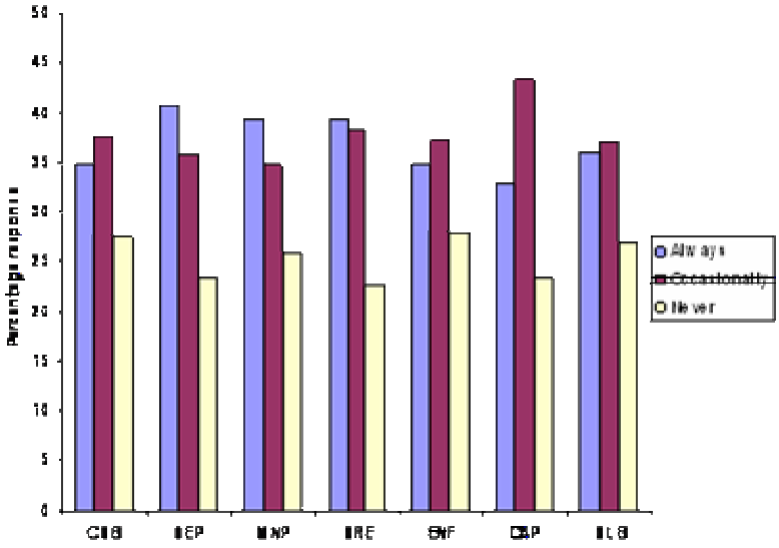

Figure 1. MIS and decision-making on long- term planning.

Key:

CSB: Building Construction
SEP: Student Enrolment Projection
MNP: Manpower Projection
SRE: Staff Recruitment Exercises
ENF: Establishment of New Faculties
DAP: Designing Academic Prog.
SLB: Stock Library with Books & Journals

is, “promotion of staff”, “staff training and development” and “appointment of Deans/HODs/Directors” are always based on information from MIS while the remaining (items 4-9) had below 40% of the respondents indicating that information from MIS is occasionally used to take decisions on short-term planning. On the average, 36% of the respondents indicated that information from MIS is always used to take decisions on short-term planning while 32.7% indicated that MIS is occasionally used for administrative decision on short-term planning and 31% indicated that MIS is never used to take administrative decisions on short-term planning. The results therefore revealed that information from MIS is not adequately used for administrative decisions on short-term planning in the universities. Figure 2 also shows the use of MIS for decisions on short-term planning in the universities.

Table 3 shows that above 40% of the respondents to item 1, 2, and 5 indicated that administrative decisions on budgeting issues in the universities are always based on MIS, while only 50% of the respondents indicated that decisions on cost of each programme in the university are occasionally based on information from MIS and 39.3% of the respondents indicated that decisions on “unit cost per graduating students” (item 4) is always de-

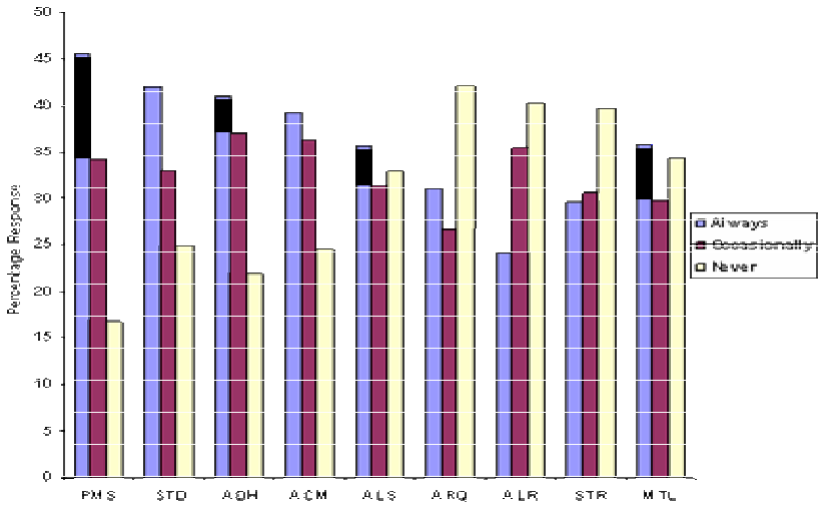

Figure 2. MIS and decision making on short- term planning

Key:

PMS: Staff Promotion
STD: Staff Training & Dev.
ADH: Appt. of Deans/HOD/Directors
ACM: Appt. of Committee Members
ALS: Allocation of offices to staff
ARQ: Allocation of Residential Qtrs.
ALR: Allocation of Lecture Theatres
STR: Teacher-Student Ratio
MTL: Max. Teaching Load

Table 2. MIS and decision-making on short-term planning.

S/N	Information Stored in Computer and Administrative Files are used for:	Always		Occasionally		Never	
		N	%	N	%	N	%
1.	Promotion of staff	249	45.5	104	34.3	196	16.7
2.	Staff training and development	231	42.0	181	33.0	137	25.0
3.	Appointment of Deans/HODs/ Directors	225	41.0	204	37.0	120	22.0
4.	Appointment of committee members	215	39.2	199	36.2	136	24.6
5.	Allocation of offices to staff	196	35.7	172	31.4	181	33.0
6.	Allocation of residential quarters	171	31.2	147	26.7	231	42.2
7.	Allocation of lecture rooms/ theatres	131	24.2	195	35.5	221	40.4
8.	Full-time equivalent i.e. teacher/ students ratio	163	29.6	168	30.7	218	39.7
9.	Maximum teaching load	197	35.9	164	29.8	188	34.4
	Mean	**198**	**36.0**	**180**	**32.7**	**171**	**31.0**

Table 3. MIS and decision-making on budgeting

S/N	Information Stored in Computer and Administrative Files are used for:	Always		Occasionally		Never	
		N	%	N	%	N	%
1.	Expenditure estimate of the university	247	44.9	179	32.6	123	22.5
2.	Revenue estimate of the university	255	46.4	187	34.1	107	19.6
3.	Cost of each programme in the university	275	50.0	166	30.3	108	19.8
4.	Unit cost per graduating student	216	39.3	224	40.8	109	20.0
5.	Allocation of funds to university's sub-system	224	40.7	213	38.8	112	20.5
	Mean	**244**	**44.3**	**193**	**35.3**	**112**	**20.5**

Table 4. t-test summary of the use of MIS in decision-making on long-term planning in Federal and State Universities.

Group	N	Mean	SD	df	t-cal	t-tab
Federal Universities	271	29.77	6.87			
State Universities	278	29.42	7.03	5.47	0.58	1.96

p>0.05

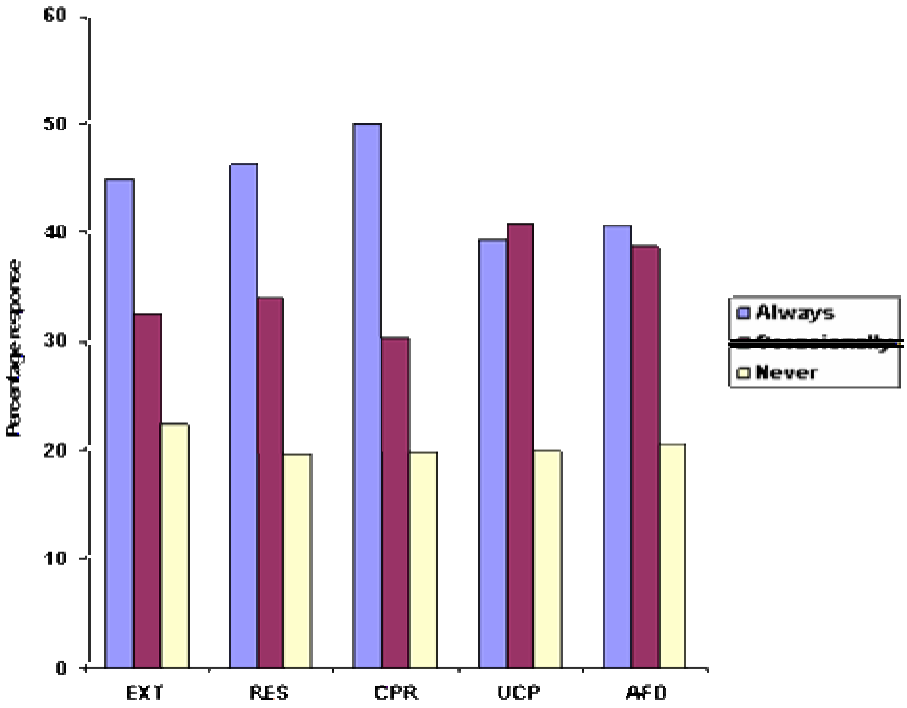

Figure 3. MIS and decision making on budgeting

KEY:

EXT: Expenditure Estimate
RES: Revenue Estimate
CPR: Cost of each programme
UCP: Unit Cost per Student
AFD: Fund Allocation to sub-systems

cided with the use of information from MIS. On the average, 44.3% of the respondents indicated that information from MIS is always used for administrative decisions on budgeting in the universities, 35.3% indicated that MIS is occasional used while 20.4% indicated that MIS is never used for decision making on budgeting. From the results, it is obvious that decisions on budgeting in the universi-ties are to a little extent based on information from MIS. Figure 3 further shows the use of MIS in decision-making on budgeting.

Hypothesis 1: There is no significant difference in the use of MIS in the decision-making process on long-term planning between Federal Universities and State Universities.

Table 4 shows the difference in the use of MIS facilities in the decision- making process on long-term planning in the Federal and State universities. The result obtained from the analysis shows that the value of t-calculated (0.58) is less than t-table value (1.96). Therefore, the null hypothesis is not rejected. This means that there is no significant difference in the utilisation of MIS on decision-making process on long-term planning between the Federal and State universities.

Hypothesis 2: There is no significant difference in the use of MIS in the decision-making process on short-term planning between Federal Universities and State Universities.

Table 5 shows the difference in the use of MIS facilities

Table 5. t- test summary of the use of MIS in decision-making on short-term planning in Federal and State Universities.

Group	N	Mean	SD	df	t-cal	t-tab
Federal Universities	271	37.55	8.15			
State Universities	278	36.19	8.59	5.47	1.91	1.96

p> 0.05

Table 6. t-test summary of the use of MIS in decision-making on budgeting in Federal and State Universities.

Group	N	Mean	SD	df	t-cal	t-tab
Federal Universities	271	22.85	4.64			
State Universities	278	21.91	4.88	5.47	2.27	1.96

p < 0.05

in decision-making process on short-term planning in the Federal and State universities. The result obtained from the analysis shows that the value of t- calculated (1.91) < t-table (1.96) that is, t-cal is less than the t-table. Therefore, the null hypothesis is not rejected at 0.05 level of significance. That means there is no significant differ-rence in the utilization of MIS on decision-making process on short-term planning between the Federal and State universities.

Hypothesis 3: There is no significant difference in the use of MIS in the decision-making process on budgeting between Federal Universities and State Universities.

Table 6 shows the difference in the use of MIS facilities in the decision-making process on budgeting between Federal and State universities. The result of the analysis reveals that the value of t- calculated is greater than t-table value that is, (2.27) > t- table (1.96); therefore, the null hypothesis is rejected at 0.05 level of significance. This means that there is significant difference between the utilisation of MIS facilities in the decision-making process on budgeting in the Federal and State universi-ties. The mean scores of State universities (21.91) is less than that of Federal universities (22.85) which show that Federal universities use MIS facilities in decision-making on budgeting more than the State universities.

DISCUSSION

The study revealed that MIS was not adequately used to make decisions on long-term planning in the universities. Less than 40% of the respondents indicated that MIS was always used in making decisions on building construc-tion, manpower projection, staff recruitment exercises, establishment of new faculties, designing academic pro-gramme and stocking library with books and journals. This shows that the level of utilisation of MIS for decision-making on long-term planning falls below expectation in the universities. It must be emphasized that inadequate use of MIS in making decisions on long term planning could slow down the pace of growth and development of the universities. The inadequate use of MIS in making decisions in these areas could be as a result of inade-quate MIS facilities, computer illiteracy among staff and other logistics. The finding agrees with that of Shuabu (1995) , that planning in Nigerian universities was not based on adequate and current information.

It was also found out that information from MIS was not adequately used for administrative decisions on short-term planning. On the average, only 36% of the respon-dents indicated that MIS was always used in making decisions on short term planning. The inadequate use of MIS in decision making on short term planning may not facilitate accurate and up-to-date data and information required for efficient and effective planning in the universities. Adequate use of MIS will enhance accurate and timely information which are needed for effective decisions on issues related to staff promotion, staff train-ing and development, appointment of staff to duty posts, allocation of resources among others.

The study also revealed that decisions on budgeting were to a little extent based on MIS. Though, it is fairly better than other decision areas examined in this study. It must be emphasized that care is usually taken by the universities to base their budgeting on appropriate infor-mation, possibly because financial management is a major area of focus by the funding agents, i.e. Federal and State governments. The results also justify the fact that all Nigerian universities perform similar roles as stipulated in the National Policy on Education (FRN, 2004). Budget preparation requires the use of accurate and timely information which MIS can readily provide. Nwamarah (1995) believes that for effective budgeting in universities, linkage is necessary between the Bursary and the MIS unit. Expressing a contrary view, Dewelt (1977) believes that the most important element in financial decisions is the need to relate expenditure to in-

come available to units, based on priorities and not whether the procedure is manual or computerized.

The study revealed that there was no significant difference between Federal and State universities in the use of MIS for decision making process on both long and short term planning. The findings reiterate the fact that the need to plan realistically using adequate information might not be affected by the proprietorship of the universities (Federal and State-owned). However, as submitted by Dyer, Davies and Giagu (1990), without adequate application of computer and manual methods of information storage and retrieval, it would be difficult to plan effectively.

It was also found out that there was significant difference in the use of MIS in decision making process on budgeting between Federal and State universities in favour of the Federal universities. The reason for this might be due to the fact that the Federal universities are better equipped with MIS facilities as a result of better funding. According to Aminu (1986), Federal universities are better funded and more financially accountable to NUC than State universities.

Conclusion and Recommendations

Based on the findings of this study, MIS was not adequately used for decision making on long-term planning, short-term planning and budgeting in the universities. Moreover, while ownership (Federal or State) did not make a difference in the use of MIS for decision making process on long-term and short-term planning, it made a difference in decision making process on budgeting.

It is therefore recommended that the MIS units should be adequately financed and maintained to ensure free flow of information and adequate use of MIS in decision making on long-term and short-term planning as well as budgeting. Proper orientation should be given to mana-gers at all levels as well as in-service training for secre-taries to ensure proper and adequate use of MIS facilities in generating and disseminating information for better decisions in the universities.

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