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An Appraisal of Manpower Adequacy of MIS Units in Managing Information in Nigeria Universities

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ABSTRACT
This study examines the adequacy of manpower capacity of MIS units for managing information in Nigeria universities. It specifically evaluates the adequacy of manpower in terms of quantity, quality and composition in the universities. To achieve this, the study used multistage sampling technique to arrive at scientific sample for the study. Consequently fifteen (15) universities were sampled for in-depth analysis. Data were collected using structured questionnaire from two groups of respondents; 'Information Providers' and 'Information Users' upon which this analysis depends. Resultant data were analysed using descriptive statistics, bar chart and Pearson Chi-Square. The study found that there is inadequate manpower quantity that cut across various categories of ICT professions. The specific areas of deficiency reported include Skills, competence and experiences of key MIS staff. It also found that available manpower does not reflect all categories of ICT profession. The study recommends upward review of Manpower capacity. Employment of MIS staff should be based on merit, requisite skill and competence. It also recommends training and retraining of existing staff to improve their performance.
Keywords: Manpower adequacy, MIS, information management and university

Introduction

The centrality of effective information in the management of any organisation especially university, is not contestable. However, what is contestable is the capacity of MIS to effectively handle information resources of a university to facilitate the efficiency and effectiveness required of such institution. Seemingly wilful challenges of MIS to effectively handle the information resources of universities in Nigeria manifests in variety of ways including recurrent tendency of systemic information inaccessibility, lack of standardisation and maintainability, poor MIS design, lack of sound information management policies to guide the generation, processing, storage and retrieval of information, procedural problems regarding planning, evaluation and control, inadequate information storage and retrieval system, alarming rate of misplacement or loss of vital records, the slow speed at which needed information are retrieved from records, and the gap between information generation capacity and information utilisation capacity among others (Ugwunze, 1992; Lundu & Mberve, 1993; Ajewole, 2001; Okwilagwe & Njoku, 2002; Fabunmi & Isah, 2004; Ajayi & Omirin, 2007& Atulomah, 2011).

On this note, Popoola and Oluwole (2007) posit that Nigerian university administrators are often concerned about the alarming rate of misplacement or loss of vital records and the slow speed at which needed records are retrieved from their storage. Similarly, Ugwunze (1992) and Atulomah (2011) observe that universities in Nigeria generate large quantity and quality records in their day-to-day activities; but a lot of files are duplicated in numbers within and across units without control over their creation, causing data redundancy and wasteful spending. Such colossal waste of money unnecessarily overstretches the overhead cost of running the Universities. This will negatively impact on the lean resources of the universities occasioned by poor funding by the proprietors.

The explanatory reasons often given for these challenges have been put around the fact that development of MIS in Africa are constrained by lack of infrastructure and untrained personnel to handle equipment (Okwilagwe & Njoku, 2002). Fabunmi and Isah (2004) also identify inadequate personnel quantity and quality, lack of basic infrastructure required for an effective MIS at the tertiary education level.

As plausible as these reasons, they have not been empirically investigated in universities in Nigeria. An extensive literature search shows no evidence that research had been undertaken to examine the adequacy of manpower capacity of MIS unit in managing information in the universities in Nigeria. Indeed, previous studies on MIS in educational institutions in Nigeria merely cited manpower factor among the impediments to information management in the introductory statements, literature and recommendations (Egunleti, 2000; Nwamarah, 2002; Anho, 2006; Uwadia et al., 2006; Ajayi & Omirin, 2007; Egwunyenga, 2009 & Nakpodia, 2011).

The fact that the relationship between manpower capacity of MIS units and information management in the universities has not been widely documented leaves a wide gap in the available literature. Besides, information management is gaining greater attention the world over and the position of the universities in Nigeria needs to be investigated in order to better manage the complexity inherent in modern university system. To fill these research cavities therefore, the study examines the adequacy of manpower capacity of MIS unit in managing information in the universities in Nigeria. In light of this, research questions such as how adequate are the manpower quantity; quality and composition were posed to guide the study.

The objectives of the study include:

i examine whether or not the manpower quantity of MIS units is adequate for effective information management in the Universities;
ii find out whether or not the manpower composition spread across the key MIS professions; and,
iii evaluate the adequacy of the qualifications of the key MIS staff in the Universities

Thus, the study hypothesised that MIS units in the universities do not have adequate manpower capacity to effectively manage information.

Literature Review

Manpower adequacy is in two fold; quantity (size) and quality (skills and experiences). It looks at numbers of people and capabilities. Ogunbameru (2004a) and Agbonifo and Adewale (2009) maintain that the domain of personnel addresses the cognitive and physical characteristics and capabilities required to be able to train for, operate, maintain, and sustain material and information systems. According to Lucey (2005), personnel capabilities are normally reflected as knowledge, skills, abilities, and other characteristics (KSAOs).

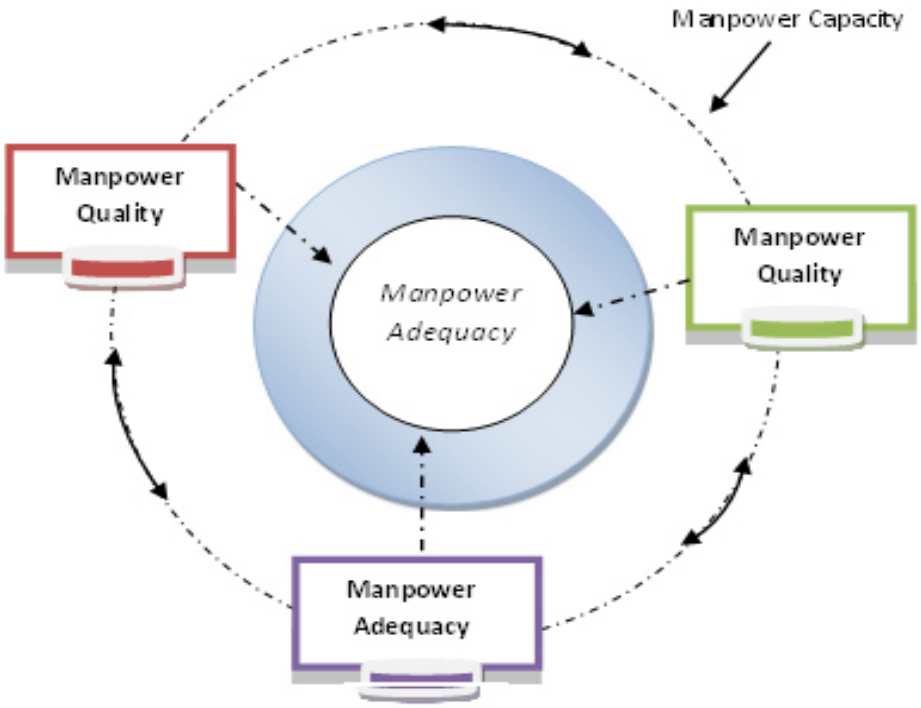
A review of earlier literature shows that barely two (2) decades, behind the adoption of ICT era, the problems of information management have not changed significantly. Egwunyenga (2009) examines the associated problems and management options of record keeping among universities in the South West Geo-Political Zone of Nigeria. Using a mean score and Z-test statistics, the study revealed that negative attitude of staff, improper security of records, inadequate computer terminals, ineffective means of retrieving records, lack of record keeping policy, inadequate resources as well as lack of record retention and disposition schedule among others were the associated problems that affect MIS effectiveness. These findings are consistent with the views of Iguodala (1998) and Iwhiwhu (2005) who in their studies pointed out that records kept by Nigerian universities, their acquisition policy, methods of preserving and disseminating are faulty. This finding explains the difficult in retrieving information from universities' archives. Indeed, there are instances where academic and administrative documents were missing and the authenticity and accuracy of such records are questionable (Popoola, 2003).

The availability of personnel and their KSAOs should be identified early in the acquisition process and may result in specific thresholds. However, Okwilagwe and Njoku (2002) argue that developments of MIS in organisations are constrained by lack of trained personnel to handle equipment. Fabunmi and Isah (2004) also identify adequate personnel quantity and quality as requirements for attaining effective MIS activities at the tertiary education level. Ahmed (2009) studied MIS in university libraries of Chhattisgarh and reveals that a successful MIS is built on good executive support, training, feedback, information flow and skill sets, among others.

Theoretical framework in this review provides the pivot of the study. Indeed, in large organisation, management and MIS are interrelated and function together as one cannot take place without the other (Lucey, 2005). This is the fundamental concept of the system theory (Glasstone, 2009). Management scholars argue that attainment of high level of productivity requires systematically designed organisation that adheres to basic rules and order. A variety of motivations drive managers to setup MIS in organisations. The key reasoning behind establishment of MIS is to provide decision variables for effective decision making (Laudon & Laudon, 2006). Suffice to say that the study of impact of manpower adequacy of MIS units on information management is supported by system theory. This theoretical perspectives command relevance as they provide background and insight into numerous motivations for this study. This study particularly leans on the premise of system theory in the realisation of the objectives underlying the study.

Thus, to operationalize the study a model for appraising the adequacy of manpower capacity in the universities MIS units was designed and presented in figure 1.

Figure 1: *Model of Adequacy of Manpower Capacity of MIS*



Model developed by researcher

Methodology

The study adopts cross-sectional survey research and identifies data variables. The key determinants which are the dependent variable and independent variable constitute the model that operationalized the study. The research model's independent variable is the manpower capacity of MIS units defined by three (3) proxies namely; staff strengths, composition, manpower quality (qualification of key MIS staff). Similarly, the dependent variable is the manpower adequacy relative to effective information management measured by seven (7) proxies; information adequacy, timeliness, accessibility, reliability, efficiency, innovativeness and consistency with management requirements.

The population comprised all the forty four (44) universities in Northern Nigeria made up of 19 out of the 36 states and the Federal Capital Territory, Abuja. The population frame which includes federal, state and private universities has the distribution as presented in Table 1.

Table 1: **Cross Tabulation of Population Distributions by zones**

Zones	Federal Universities	State Universities	Private Universities	Total/ Zones
N/Central	7	6	8	21
N/East	5	4	2	11
N/West	6	5	1	12
Total	18	15	11	**44**

Source: **NUC Monday Bulletin, 22 August, 2011: Vol.6, No.34**

The study adopted multistage sampling techniques which include stratified, proportionate, purposive and random sampling. The stratified sampling technique was used to categorise the universities in Nigeria into three main strata. Thus, a sample made up of fifteen (15) universities was proportionately selected based on 33% of the university population in each stratum; to ensure that sampled universities in each stratum represents their proportion in the target population. The essence of using 33% to choose sample size is to avoid or minimise incidence of large sample errors. This choice is supported by Ojo (2005), who opines that no fixed percentage is ideal; but researcher should choose a size that gives a better representation of the population. However, Ary, Jacobs and Razavieh (1996) argue that for descriptive research, a sample of 10% is the minimum standard. Table 2 presents the sampled universities in each stratum across the three zones.

Table 2: **Distribution of Sampled Universities by Strata and Zones**

Zones	Federal Stratum	State Stratum	Private Stratum	Total/ Zones
N/Central	2	2	3	7
N/East	2	1	1	4
N/West	2	2	0	4
Total	6	5	4	**15**

Source: Computed from Table 1

The universities surveyed include Ahmadu Bello University, Zaria; Bayero University, Kano; University of Abuja; University of Jos; University of Maiduguri; Federal university of Technology, Yola; Adamawa State University, Mubi; Benue State University, Makurdi; Kaduna State University, Kaduna; Kano State University of Technology; Nasarawa State University, Lafiya; Bingham University, Karu; African University of Sci. & Technology, Abuja; American University of Nigeria, Yola; and, Nigerian Turkish Nile, University Abuja. Universities from each stratum were purported to be homogeneous in terms of composition, regulatory frame and operating experiences and randomly sampled. Since research design is a logical task to ensure that the evidence collected enables the study to answer research questions and test hypotheses, data for these variables were collected using 5 points Likert's scaled questionnaire on the opinions of two groups of respondents in the sampled universities. The respondents groups are the 'information providers (MIS Staffers) and the information users (managers, administrators, staffers and others).

The statistical tools used in this study include descriptive and Pearson Chi-Square statistics. Data screening, reliability and consistency tests and analyses was done using SPSS version 16.

Data Presentation and Analysis

Three hundred (300) copies of the questionnaire were administered in the sampled universities and returned valid for this analysis. That is, twenty (20) copies of questionnaire per university and the resultant data were coded as Manpower Adequacy (MANAD). This MANAD has 3 variables coded as Manpower Quantity (MANQUAT), Manpower Composition (MANCOMP) and Manpower Qualifications (MANQUAL). Hence, data for MANAD were extracted for all the sample universities. These data are used to compute MANAD of MIS units in the universities to answer the research objective of the study.

As stated earlier, MANAD comprises of the qualification of key MIS staff, their quantity and composition which cut across all categories of MIS professionals. The nature of the instrument used in collecting the data consists of both subjective and objective questions to ensure that reliable and dependable data are available for analysis. The data collected from the two groups of respondents (technical staff and users) based on the 5 points Likert's scale are presented in Table 3.

Table 3: **Distribution of opinions on MANQANT, MANCOMP and MANQUAL**

Variables	Respondents	VA	A	N	I	VI	Total
MANQUAT	Technical Staff	0	12	45	71	22	150
	Users	0	8	33	82	27	150
	Total	0	20	78	153	49	300
MANCOMP	Technical Staff	0	16	2	54	78	150
	Users	0	3	6	27	114	150
	Total	0	19	8	81	192	300
MANQUAL	Technical Staff	0	14	44	69	23	150
	Users	0	9	36	75	30	150
	Total	0	23	80	144	53	300

Source: Field Survey, 2013

Table 3 presents a cross tabulation of field data on the three components of MANAD. To analyse these data, the researcher re-categorised the data into two; the 'Adequate' and 'Inadequate' in each of the three components of the MANAD. On the 'Adequate' side, are variables namely VA, A and N; whilst the 'Inadequate' side has I and VI. Beginning with MANQUAT, a total of two hundred and two (202) respondents representing about 67% reported existence of inadequate manpower quantity. Similarly, under MANCOMP, 273 respondents representing 91% opined that manpower composition of MIS units is grossly inadequate. Lastly, 197

representing about 66% of the total respondents viewed manpower quality as inadequate. Against this backdrop, one can argue in the interim that there is manpower inadequacy in the MIS units of the sampled universities.

The proportions of the respondents who reported that adequate manpower exists among the MIS units of the sampled universities are generally low across responses on the three components of MANAD as: 98 (32.7%); 27 (09%); and, 103 (34.3%) respondents respectively. These results explain that manpower quantity and quality recorded two third (2/3) shortage of the expected manpower requirements of the MIS units in the sampled universities. It also shows that the deficiency in manpower composition is more prominent with 91% of the respondents reporting inadequate against 9% who reported adequate. The manpower composition consists of different staff categories such as programmers, system analyst, user support staff, data processing managers, data entry clerk, administrators, network specialist among others.

The data from these three variables (MANQUAT, MANCOMP and MANQUAL), were extracted and used in the analysis of MANAD. Hence, the data collected from various components of MANAD based on the 5 points Likert's scale are summarised in Table 4.

Table 4: **Distribution of opinions on MANAD based on categories of Respondents**

Respondents	VA	A	N	I	VI	Total
Technical Staff	0	17	46	75	12	150
Users	0	8	34	92	16	150
Total	0	25	80	167	28	300

Source: Extracted from Survey, 2013

Table 4 shows the summarised opinions on MANAD from the two categories of respondents. Presented in the total row are; 0 very adequate response, 25 adequate responses, 80 moderately adequate responses, 167 inadequate responses and 28 very inadequate responses. Using the same categorisation of the data in Table 5.1, the adequate side has VA, A and N; whilst the inadequate side has I and VI as well. Although, the 80 respondents who opted for N are counted to the adequate side; it is very likely that their actual opinions are tilted towards adequacy, inadequacy or undecided. Indeed, adding this value out rightly to the adequate side might aptly mislead or jeopardise the final outcome.

In this wise, this study adopted the 'sample mean' as the decision benchmark to discriminate the actual opinions of this group of respondents. This is consistent with Onwe (1998), who observes that researchers can be 99 percent confident that the true value of a population mean will be within 10 percent of the sample mean. Afolayan (2009) also argues that for a population that is normally distributed, 95 percent of the sample mean will lie within the limits of two standard errors ($\mu \pm 2\sigma / \sqrt{\eta}$) on either side of the true or false of the population mean. Table 5 presents the descriptive statistics for the analysis on MANAD.

Table 5: **Descriptive Statistics on Manpower Adequacy (MANAD)**

Value	Range	Minimum	Maximum	Mean	Std. Deviation
300	9	3	12	**5.9867**	2.13268

Source: Computed from filed survey, 2013

Table 5 presents the result of the descriptive statistics regarding manpower adequacy of the universities MIS units. The minimum and maximum values are 3 and 12 respectively and the mean is 5.9867; which are the values of interest in this analysis. Since MANAD has 3 components based on 5 points Likert's scale, a respondent whose entries under the 3 variables are in 'VI' column will sum up to 3. Again, if for instance, another respondent makes entries on 'A' column in the 3 cases (MANQUAT, MANCOMP and MANQUAL); it will also sum up to 12. Hence, the minimum and maximum values as in Table 5 are 3 and 12 respectively; since no entries were made in the VA column (see Table 4).

On this note, the 'sample mean' is the research benchmark and all other values or entries above the benchmark through to the maximum value of 12 are considered as 'adequate', whilst all other values or entries from the minimum value of 3 through to the benchmark value are considered as 'inadequate'. Hence, the resultant data is represented in Table 6.

Table 6: **Cross Tabulation of MANAD by Type of Respondents**

Observation	Respondents		Total
	Technical Staff	Users	
Inadequate MANAD	87 58.0%	108 72.0%	195 65.0%
Adequate MANAD	63 42.0%	42 28.0%	105 35.0%
Total	150 100.0%	150 100.0%	300 100.0%

Source: Analysis of Filed Survey, 2013

Table 6 presents the results of the manpower adequacy analysis. A total of 195 out of 300 respondents representing sixty five (65%) percent agreed that there is inadequate manpower in MIS units while 35% opined that adequate manpower exists in the universities' MIS units. Generally, both groups reported inadequate manpower, but a line of divide in the opinions of the groups of respondents is evident.

Indeed, a cross sectional review of the data from the two categories of the respondents depicts an existence of divergent views on the level of MANAD in the universities sampled. A total number of 108 (72%) of users and 87 (58%) of technical respondents reported that there is inadequate manpower whilst 42% of the technical staff and 28% of the users believed there is adequate manpower. However, the percentage of the respondents in the users category who observed inadequate manpower is more than those from the technical staff. Similarly, the percentage of the respondents in the technical category who reported that there is adequate manpower more than those in the users category. Indeed, if a reasonable number of the technical staff (42%) believed the manpower aspect of the universities MIS units is adequate than the users observed, then one can fittingly argue that, the likelihood that the manpower output has not really translates into effective service delivery in the eyes of the users category. However, this finding is consistent with Nakpodia (2011) who argues that personnel problem is one of the major challenges of record management in Nigerian tertiary institutions. Similarly, Fabunmi and Isah (2004) argue that there is gross inadequate manpower in Nigerian universities.

Findings and Conclusions

Re Statement of Hypothesis: MIS units in the universities do not have adequate manpower capacity to effectively manage information'

Table 6 which presents cross tabulation of the frequency and percentage distribution of data collected for MANAD was used to test hypothesis 1 using Pearson chi-square statistics. The chi-square test result on MANAD is presented in Table 7.

Table 7: **Chi-Square Test of Manpower Adequacy**

	Value	**Df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square (a)	6.462	1	.011
Continuity Correction (b)	**5.861**	1	**.015**
Likelihood Ratio	6.494	1	.011
Linear-by-Linear Association	6.440	1	.011
No. of Valid Cases	300		

(a) 0 cells (.0%) have expected count less than 5. The minimum expected count is 52.50
(b) Computed only for a 2x2 table

Source: Analysis of Field Survey, 2013

Table 7 presents the result of Pearson Chi-Square analysis on Manpower Adequacy. The footnote labelled (a) indicates the condition on the first assumption on validation rule for this instrument. The minimum expected count is 52.50 which show that we have not violated the validation rule of Chi-Square test, because all the expected cells size is greater than 5. This test yields 3 important values of interest for the interpretation of this result. They include the values in the first and second rows labelled 'Pearson Chi-Square (a)' and 'Continuity Correction (b)'; and the value in the fourth column labelled 'Asymp. Sig. (2-sided)'.

The fact that this test is a 2 tailed-test makes the Pearson Chi-Square value unreliable; thus, we used the value in the Continuity Correction row which compensates for overestimation of the Chi-Square value in 2 tailed-tests (Pallant, 2007). Therefore, the output value for this test is **5.861**, with an associated significance level of P = **0.015**. The probability for rejection or non-rejection is stipulated by the value at $P \leq 0.05$ level of significance (the alpha). Since, P value which reads **0.015** is less than the alpha, the test is said to be statistically significant. Indeed, this analysis passed the validation rules of Chi-square statistics, since the test have not

violated the first assumption, as all the expected cell sizes are greater than 5 and the second assumption; the test significance statistics is given at $p \leq 0.05$.

Therefore, since $x^2(1, n = 300) = 5.86$, $P < 0.05$, we accept the null hypothesis (H_o1). This result confirmed the opinions held by 65% of the respondents, that there is inadequate manpower in MIS units to effectively manage information resources in the universities. This finding is consistent with prior studies such as Fabunmi and Isah (2004) and Okwilagwe and Njoku (2002); who pointed out that educational institutions lack adequate and trained personnel to handle information processing equipment in Nigeria. The manpower adequacy is measured by the number of key MIS staff, their qualifications and composition.

With this result therefore, the study found that MIS Units in Nigerian universities lack adequate manpower capacity as the MIS Units were found deficient in terms of Key MIS staff, qualifications and staff composition to effectively manage information resources. Specifically, MIS key staff deficiency includes programmers, system analysts, database administrators, user support staff and network specialists.

The study concludes that the universities generally lack adequate manpower in terms of quantity, compositions and qualifications of key MIS staff to handle MIS tools for effective information management. The shortage of manpower is one of the problems of information management in the universities. This shortage cut across various segments of manpower concern namely numbers of staff, professional categorisations and qualification of key staff. Personnel cost is the major reason for management's reluctance in employing the right size and qualified staff. A plan to cut personnel cost in this respect, is perhaps a plan to fail.

Recommendations

The study recommends adequate manpower acquisitions in all categories of MIS professions. The university management should evaluate the required number of programmers, system analysts, network specialist; users support officers and computer operators with their requisite qualifications, skills and experiences in each MIS job post. This requires proper and persistent manpower planning and managerial commitments to the development of MIS in the universities. Employment of the key MIS staff should be based on merit and training and retraining of the existing MIS staff is imperative to improve on their competency.

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