

The use of management Information System in National Board for Technical Education, Kaduna

By

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Abstract

This study investigated the barriers to the Use of Management Information System in National Board for Technical Education Kaduna. The study adopted the survey method of research and the instruments used for data collection were the questionnaire and unstructured interview. The target population of the study comprised of all the Management staff of the NBTE. Purposive sampling procedure was used to arrive at a total of 58 samples of the entire population of staff. The target sample was made up of 1 Chief Executive, 4 Directors, 27 Deputy Directors and 26 Chiefs. The data collected for the study was analyzed and interpreted by the use of descriptive statistics, which were presented in tabular format using percentages to provide answers to the research questions. The major barrier identified that affects the effective use of MIS is financial barrier. The study discovered that MIS impacted management/organization processes positively and negatively. The study therefore, concluded that the use of MIS by management staff of NBTE for an improved decision making is very low. In view of this number of recommendations were made, such as: top management of NBTE should give full support to adoption, implementation and maintenance of MIS by allocating adequate fund, and constant training and education of the staff will no doubt help to improve the MIS usage in the organization which will in turn improve information flow, hence effective decision making.

Introduction

The world is in a dispensation of great change and working in an Information Age, where managers have to assimilate masses of data, convert that data into information, form conclusions about that information for planning and making decisions leading to the achievement of business objectives. The place of information in an organization sense is complex. Information is very crucial for effective running of all organization. It is a basic and important resource needed to develop other resources in any thriving organization. Information is data that have been processed into meaningful and perceivable form for use by administrators and managers in planning and decision-making. In the same vein Eyitayo et al (2006) said information is data which has been processed in such a way as to be meaningful and useful to the person who receives it. Uhegbu (2001), held the view that information is a conveyor of knowledge, a change agent, a reinforcement of ideas and opinion. **The development** and use of MIS is a modern phenomenon concerned with the use of appropriate information that will lead to a better decision making and organizational planning, hence better results (Ali, et. al. 2011). A manager's effectiveness is largely dependent on the existence and use of information system such as a management information system. Management information system

gathers, process, store and disseminate relevant information to the appropriate levels of management to support their planning and decision making. Adebayo (2007) is of the opinion that if the relevant information required in a decision making process or an organizational planning is not available at the appropriate time then, there is a good chance to be a poor organizational planning, inappropriate decision making, and poor priority of needs and defective programming of activities. Management information system is an ever evolving and a useful integrated user-machine for providing information, supporting operations, management, analysis and decision making functions by utilizing computer hardware, software models and database. MIS is basically concerned with processing data into information which is then communicated to the various departments in an organization for appropriate decision making. MIS provides several benefits to organizations some of which are: it provides effective and efficient means of coordination between departments, quick access to relevant data and documents; use of less labour; quick and reliable referencing; management of day-to-day operations and day-to-day assistance in a department and improvement in organizational and departmental techniques. Despite the roles MIS play in organization, some organization up till date still find

it difficult to break even as a result of series of barrier.

The National Board for Technical Education is one of the agencies of the Federal Ministry of Education specially established to handle all aspects of Technical and Vocational Education Training in Nigeria. It was established by Act No. 9 of 11th January, 1977. There are at present 110 approved tertiary technical institutions and 159 technical colleges under the purview of the Board with different types of ownership. The NBTE provides standardized minimum guide curricula for Technical and Vocational Education and Training (TVET). It supervises and regulates through an accreditation process, the programs offered by the technical institutions and colleges. It is also involved in the funding of the government polytechnics and **monotechnic As an Agency of the** Federal Ministry of education specially established to handle all aspects of technical and vocational education training in Nigeria, National Board for technical Education generates a lot of data both internally and externally which the human brain can no longer comprehend hence, need a perfect working MIS devoid of barriers designed to meet all the stakeholders, management, and staff information needs for effective and efficient organizational operations, decision making and organizational planning.

Management Information System

Barrier to MIS exploitation is any obstacle or factor that is inherent to the business context or the system itself, and can prevent organizations from efficiently using, maintaining and improving the implemented MIS. (Rucks and Ginter; 1982, Rach and Benbasat, 2000) argued that potential benefits associated with the use of MIS may not be achieved due to issues such as technological barriers, systems barrier and organizational barrier.

Management Information System is a system that uses formalized procedures to provide management at all levels in all functions with appropriate information, based on data from both internal and external sources, to enable them to make timely and effective decisions for planning, directing and controlling the activities for which they are responsible.

According to Laudon and Laudon (2004), MIS is an integral Part of organizations which represents an organizational and management solution, based on

information technology, to a challenge posed by the environment. MIS is an information system that enhances management decision making. According to David and Olson, (2005); Lucas,(2000) McLeod,(2005). A MIS essentially produces information that supports the management functions of an organization. In essence, MIS is the link required to connect all the organization's components together, hence providing better operation and survival in a competitive environment. Similarly, O'Neil and Adiya, (2007) reported that organizations that do not have formal information sharing practices will fail to leverage their manager's intellectual capital for business innovation and growth. This means that MIS enables the exchange of experience which transfers the required information to the management levels to sustain competitive advantage since it affects the decision making to improve the quality of services provided.

Statement of the Problem

In a specialized setting like the NBTE a lot of data are being generated both internally and externally on a daily basis. Its proper transformation and dissemination on daily basis is very crucial. The NBTE is a large scale organization in terms of size, area coverage, varieties of activities and functions, and also diverse manpower requirements. It is therefore, natural that such large organization should adapt an information system (MIS) devoid of any barrier to facilitate information generation, management, and use by the staff, management and the stakeholders. Barriers pose serious problems to organizations as they rely on their employees to adapt to changes that will improve staff performance and productivity, however, the adaptation is usually slow, often difficult and sometimes even unsuccessful.

Preliminary investigation by the researcher revealed that information generation process, storage and dissemination are still carried out majorly through manual system. This made the researcher to ponder whether it is as a result of poor utilization of the management information system which leads to delay in information accessibility? It is against this backdrop that this study is being undertaken to identify the barriers that hinders the effective use of MIS by management of the NBTE and to determine the impact of the use of MIS on the organization.

Objectives of the study

The objectives of this study are:

1. To determine the impact of MIS use on management work processes.
2. To identify the barriers inhibiting the use of MIS in NBTE.

Literature Review

There are many barriers within organization that restrain, distract, limit and bound the effective use of information management system. Reducing these barriers requires understanding their context, identifying the problems associated with each, and developing appropriate procedures for dealing with them. Barrier is an obstacle, an obstruction, or a hindrance that may prevent an event from taking place (Peng and Nunes, 2010). According to (Oxford University Dictionary, 2015), barrier could also mean a circumstance or obstacle that keeps people or things apart or prevent communication or progress. In essence a barrier to MIS utilizations is any obstacle or factor that is inherent to the business context or the system itself and can prevent organization from efficiently using, maintaining and improving the implemented MIS or systems. That is why (Rucks and Ginter, 1982; Reich and Benbasat, 2000) reported that potential benefits associated with the use of MIS or any other system in an organization may not be achieved due to barriers such as: cultural barriers, system barriers, individual barriers or organizational barriers.

The essence of adapting new technology in the administration of organization in this information era is to improve work and work productivity, especially as it relates to management functions whose basic responsibilities are to make decisions and plan strategies through which organizational goal and objective can be achieved. Unfortunately, there are so many barriers that are hindering the use of MIS in some organizations which have deterred such organizations from achieving the aims and roles of MIS. Business dictionary, (2015) defined barrier as an obstacle in a work place that prevents effective exchange of ideas or thoughts. It went further to identify some of these barriers to include Status, Gender, Cultural and Organization difference.

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(2005). A MIS essentially produces information that supports the management functions of an organization. In essence, MIS is the link required to connect all the organization's components together, hence providing better operation and survival in a competitive environment. Similarly, O'Neil and Adiya, (2007) reported that organizations that do not have formal information sharing practices will fail to leverage their manager's intellectual capital for business innovation and growth. This means that MIS enables the exchange of experience which transfers the required information to the management levels to sustain competitive advantage since it affects the decision making to improve the quality of services provided.

Information system (IS) usage creates both positive and negative impact for an organization that uses it. Consequently, managers of organization have to understand these effects in order to design and run systems that provide only benefits for the organization, and to avoid the risks that occur from IS tools Davies, (2009). According to Lucey (2005), one of the negative impacts to employees is that technology alters the skills requirements for individuals, jobs, and working protocols. MIS have significant potential as vehicles for learning in organizations. Various benefits are provided from introducing management information systems into an organization. The IT system typically causes amendments in forms of collaboration and coordination between groups in an organization. An electronic mail (e-mail) can be an example of using IT in an organization. It is nowadays extensively used as a means of scheduling meetings which reduces time for face-to-face contact. The system can also change the patterns of power and influence in and between groups (Davies, 2009). Moreover, MIS allows a greater control of work by the managerial group which makes work become more visible. MIS capacity increase the potential for workers to establish more clearly what is happening in their organization, identify problems with work processes and suggest alternative ways of doing things. Large amounts of transactional information are enabled to be captured about the day-to-day activities of the workforce by this system. Can improve the quality of work and provide greater degrees of worker empowerment. This system helps to remove many burdensome administrative activities, freeing up workers to devote more time to issues such as customer service. In addition, MIS involves the improvement of a customer service section by letting

front-line personnel make instantaneous decisions Davies (2009). MIS can increase or decrease both of the levels of skill required of workers and the size of a task relative to the overall purpose of the organization. Moreover, IS are designed to increase the autonomy of workers in the sense that they are given responsibility for planning and controlling their own work. This tool can also encourage or diminish levels of social interaction between workers Davie, (2009). Management information system reduces communication costs and internal coordination costs Gurbaxani & Whang (1991). Enhance the quality and speed of information processing and management's decision making, planning and control - Increase data quality and flexibility Gurbaxani & Whang (1991); Lucey (2005). Rikhardsson & Kræmmergaard (2006), reported Better administration, communications and coordination. Lucey (2005) said MIS help for better management of the organization's knowledge. They allowed people to change their place of work, improve working practice, reduce marketing and transaction costs, coordinate the flows of organizational information, have closer contact with customers, suppliers and clients.

Research Method

The research design adopted for the study is the survey research method. The researcher adopted this method because it involves gathering of data on target population. The entire population of the study is three hundred and ninety three (393) staff of NBTE. Therefore, fifty eight (58) management staff

was selected as sample of the study through purposive sampling technique. The sample size comprised of one (1) Executive Secretary, four (4) Directors, twenty seven (27) Deputy Directors, twenty six (26) chiefs. The researcher found purposive sample very useful for situations where you need to reach a target sample quickly. Similarly, Crossman (2012) postulated that "a purposive sampling is very useful for situations where you need to reach the targeted sample quickly and the sampling is not proportional in nature. The researcher used purposive sampling based on the knowledge of the population and purpose of the study and also due to the fact that the population of the target group is not too large, thereby allowing the researcher to provide treatment to each of the respondent.

Findings and Discussion

Data presentation and analysis are discussed according to the paper objectives

.Impact of Management Information System use in NBTE

The first objective was to identify the impact of the use of MIS in National Board for Technical Education Kaduna. In order to achieve this objective, list of areas of operations were provided for the respondents to where applicable. Table 2 and 3 represent the responses of the respondents respectively.

Table 1: Positive Impact of the use of MIS in NBTE

S/N	Positive Impacts	Respondent	Percentage (%)
1.	Improved the day to day control and planning of operations	7	12.28
2.	Improved choosing alternative course of action	-	-
3.	Increased access to information	10	17.54
4.	Integration of information made possible across various TVETS	14	24.56
5.	Information generation and dissemination improve	4	7.01
6	Improved communication networking between colleagues and other institutions	10	17.54
7.	Free flow of information within and across organization	-	-
8.	Speed and accuracy of decision making and planning performance	7	12.28
9.	Availability of consistent data	5	6.77
10.	Minimized information over load	-	-
	Total	57	100

Table 1 showed the various ways in which the use of MIS can impact the organization/ management activities, the respondents indicated that MIS has improved the following areas: the day to day control and planning of operations, increased access to information, integration of information possible across various TVETS in Nigeria, improved information generation and dissemination, improved communication networking between colleagues and other institutions, increased speed and accuracy of decision making and planning performance and improved availability of consistent data for the management to work with. According to the analysis above, majority of the respondents 24 (24.56%) indicated integration of information across various TVETS by way of having a website that contains all necessary information about the institutions and the website can be accessed by both management, staff and students of these institutions. There is also a

database created only for the TVETS in this case it is not accessible to every management. The least affected area as indicated by 4 (7.01%) of the respondent is the information generation, process and dissemination. This implies that management travelling for the aim of generating data for use has not improved because they still need to visit some of the TVETS to get data to work with and information is still disseminated manually thereby incurring cost and thereby hampering the quality and speed of processing information.

1(b) Negative impacts of the use of MIS in NBTE

Information Systems (MIS) implementation creates negative consequences for an organization that use it, therefore managers of organizations have to understand these effects in order to design and run systems that provide only benefits for the organization and avoid the risk that occur from

information system tools. In order to identify the negative impact, the respondents were provided with

list of options to choose from.

Table 2: Negative impacts of the use of MIS in NBTE

S/N	Negative impacts	Respondent	Percentage (%)
1.	MIS changes the pattern of powers and influence in and between groups	-	-
2.	MIS alters the skills required by individuals to do their job	13	22.81
3.	Diminishes level of social interaction between workers	-	
4.	Reduces numbers of workers required for certain task	22	38.60
5.	Alters work processes	14	24.56
6	Sets in frustration among employees due to errors in system set up as well as unfamiliarity with the new system	8	14.04
7.	Others please specify		
	Total	57	100

From the responses in table 2, majority of the respondents (22: 38.60%) indicated that MIS reduces number of workers required for certain task, while(8: 14.04%) indicated that the system sets in frustration among employees due to errors in system set up as well as unfamiliarity with the new system. This finding is in line with Rikhardson and Kraemmergaard's (2006) which stressed that information system can create frustration among employees due to the fact that some problems occur from errors in the system, together with the fact that users are unfamiliar with the new system. According to them this leads employees to become resistant to change. It is observed from the analysis that the major consequences experienced by the management of NBTE in the course of using MIS are: reduction of numbers of workers required for certain task, alter work process and lastly alters the skills required by individuals to do their job. Obviously individual skills and knowledge are required in order to be able

to use the information system. Lucey (2005); Chan (2000); Davies (2009) and Rikhardson and Kraemmergaard (2006) posited that technology modifies the skills requirements for individuals and as a result it changes jobs and the way they operate a routine. Therefore, the users have to be trained and educated; the reason is to ensure they can use the system efficiently and effectively. This takes the researcher back to the earlier barriers identified where the respondents were emphasizing on training if they must be efficient and effective in the use of the information system. The consequence of resistance to change of the people who are to use the system can be concluded that it depends on how well the system and change are managed. The implication of this is that, it encourages resistance to change, loss of job, fear of usage and low work productivity. Research Question two sought to find out the barriers to the use of management information system in

NBTE Kaduna. Respondents were asked to tick from the options provided. The results of the analysis of the responses were presented in table 3

Table 3: Barriers to the use of MIS in NBTE

Main Barriers	No of Respondents	Percentage (%)
Organizational	12	21.05
Technological	15	26.32
Individual	10	17.54
Financial	20	35.09
Total	57	100

As can be seen in table 3, financial and technological barriers are of prime importance. Among these barriers, the financial barrier were found to be of highest importance in order among them with 20 respondents (35.09%) followed by technological barrier with 15 (26.32%). Organizational barrier is very close with (12: 21.05%) respondents, then the least individual barrier with 10 (17.54%). It can be seen from the analysis that the major barrier to the use of MIS in NBTE is financial barrier. The implication of this is that without adequate provision of finance for the development, implementation and maintenance of MIS facilities there will continue to be poor usage of the information system, knowing that adequate fund takes care of the other numerous barriers. The least important which is the individual barrier is a serious problem because if the staff lacks the required knowledge/skills to operate the facilities and to maintain them desired result will not be achieved. It is one thing to have a well structured MIS and another thing to have well trained and capable staff to operate and manage it.

It is observed from the overall analysis of the barriers that most evident challenge to the use of MIS in National Board for Technical Education Kaduna is financial constraint. The researcher is made to understand during the interview section that all other challenges are seriously embedded in each other. According to them if the financial constraint is solved every other barrier will be secondary and until the top

management realizes these challenges and deal with them, information generation, process and dissemination will continue to be handled manually. This finding is in line with a study by Okiy (2005) who found that, lack of fund and lack of management support led to non use of ICTs in Nigerian University Libraries similarly. Hann (1995) stated in his findings that organizational, cultural and human factors are key factors that can affect the use of IT. In the same vein, Sani and Tihamiyu (2005), pointed out in their work that poor funding, employees attitude towards the use of IT and irregular power supply stood as a barrier towards the effective use of IT in Nigeria.

Summary of Findings

Arising from the data collected and analyzed, the following major findings were made.

- (a) The study discovered that few areas of operation are impacted positively as a result of the use of MIS which includes: integration of information made possible across various TVETS, access to information and communication networking between colleagues and other institutions, speed and accuracy of decision making and planning performance, and improvement in the day to day control and planning of operations. The study also revealed the negative impacts of the use of MIS in NBTE to include : reduces number of workers required for certain task, alters the skills required by individuals to do their jobs and sets in frustrations as a result of error in system set up and unfamiliarity with the system.
- (b) Main barriers identified in the study were financial barrier, technological barrier, organizational barrier and individual barriers. Majority of the management indicated financial constraints for high cost of maintenance, specialized manpower and training as a sub-criterion under financial barrier as the major barrier, data and information security, lack of top management support, lack of adequate budget, and poor infrastructural facilities respectively as a sub-criterion under organizational barrier and lack of training and retraining as a sub-criterion of individual barrier.

Conclusion

Arising from the findings of the study, it is concluded that the use of MIS in National Board for

Technical Education Kaduna is very low. The low usage is attributed to lack of top management support which has resulted to lack of adequate budget, lack of constant training of the management staff, poor MIS facilities and lack of technical support for maintenance of IT systems. It is therefore, concluded that the major barriers to effective utilization of MIS in NBTE is lack of funds which if properly made available will definitely take care of the other barriers identified.

Recommendations

Based on the findings and conclusion of this study, the following recommendations are proffered

1. The National Board for Technical Education top management should provide adequate fund for the acquisition and maintenance of MIS facilities.
2. National Board for Technical Education Kaduna should regularly train and educate its managers on the use of IT (MIS) so as to effect all operations positively.
3. The National Board for Technical Education Kaduna to provide technical unit that will ensure that the available facilities are adequately maintained and also to support the staff when the need arises.

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