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# DATA MANAGEMENT SYSTEM AND ORGANIZATIONAL EFFICIENCY OF DEPOSIT MONEY BANKS IN PORT HARCOURT, RIVERS STATE

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## ABSTRACT

*This study investigated the relationship between data management systems and organizational efficiency of deposit money banks in Port Harcourt, Rivers State, Nigeria. The study adopted the descriptive survey research design. The instrument of data collection employed to obtain relevant data for analysis was questionnaire. The study population comprised of the twenty one (21) deposit money banks operating in Port Harcourt as released by central bank of Nigeria (2020). Five (5) copies of questionnaire were administered to top management staff from each of the twenty-one (21) deposit money banks, giving a total of one hundred and five (105) respondents. The data was analyzed using the Pearson's Product Movement Correlation statistic through the aid of statistical packages for social science version 23.0. The result revealed that there is a*

*significant positive relationship between data management systems and organizational efficiency of deposit money banks in Port Harcourt. The study concluded that data management system is needful and necessary in ensuring efficiency in the banks. The study also recommended that banks should maximize the use of data management systems as a powerful tool in their decision making process so as to achieve efficiency in the deposit money bank.*

Keywords: Data Management System, Organizational Efficiency, Cost Reduction, Real Time

## INTRODUCTION

Data management system is the process of storing, organizing and maintaining the data created and collected by an organization. Data management is a crucial piece of deploying the information technology systems that run business applications and provide analytical information to help derive operational decision making and strategic planning by corporate executives, business managers and other end users. Data is seen as a corporate asset that can be used to make more informed business decisions, improve marketing campaigns, optimize business operations and reduce costs, all with the goal of increasing revenue and profits (Jack 2019). But a lack of proper data management systems can saddle organizations with incompatible data that can affect the organization efficiency. An efficient and effective data management system helps in minimizing potential errors and reducing the damages caused by bad data. Therefore, an effective data management strategy must be implemented to better control the most valuable asset of the business. Managing data as a resource is an important managerial task in any organization today. It is evident that business success depends not only on the possession of resources, but on the efficient utilization of resources, data and information within an organization and its environment form part of the strategic, tactical and operational resources of an enterprise (Lessing & Scheepers 2001). Data management system results in reduction of time to find necessary information which increases employee efficiency. Banks are considered to be the backbone of the financial system; they play an important role in the economic development as they play the role of intermediary to transfer funds from surplus units to deficit units. So, the efficiency of a bank is essential and needs to be paid more attention. However, due to the immensity in the information reservoirs across the banking sector facilitated by increased customer base, banks have seriously embraced the data management systems with high levels of programming being experienced across

all the departments of their operations. Many organizations have over the years experienced customer loss to their competitors as a result of many factors, such as speed of service delivery, and quality of service provided. This has called for the use of technology to aid in spearheading improved performance within the banking sector.

Organizational efficiency is the organizations degree of success in using the least possible input in order to produce the highest possible output. Efficiency is a vital factor to the effectiveness of the organization's acquisition of resources and the use of those resources to implement its plan. However, efficiency can also be seen as the ability to do things well, successfully, and without waste. Efficiency signifies a peak level of performance that uses the least amount of inputs to achieve the highest amount of output. Organizational efficiency as a factor is important in gauging a business' organizational effectiveness, but it is by no means the only factor of importance. In the view of Portela and Thanassoulis (2005) productivity and efficiency in the banking industry can be measured from the perspective of profit, transaction, and operations. Bank efficiency can also be measured in terms of cost and profit as established by Thaguna and Poudel (2013).

Efficiency summarizes the idea to produce with the best manner, which means that efficiency is focused on the use of minimum inputs to produce the best output, in other words, the optimized use of resources to generate the best products with the minimum costs. Previous researches on data management systems and organizational efficiency do not provide adequate knowledge for managers in the Nigerian context on how data management system impacts an organizational efficiency. This is because most of such studies are foreign and conducted using other performance measures. Alhassan and Ohene-Asare (2016) used bank efficiency on Ghanaian banks. There are little or no empirically evidenced studies on the relationship between data management system on organizational efficiency in Port Harcourt to the best of the researcher's knowledge. The researcher believes that this study will contribute significantly in filling the identified gap and deliver organizational efficiency in deposit money banks in Port Harcourt. Hence, the thrust of this paper is to investigate the theoretical and empirical relationships between data management system and organizational efficiency of deposit money banks in Port Harcourt, Rivers State. This is the gap in literature which the present study sought to address. The study variables, dimensions and their relationships examined are laid out in the conceptual

framework.

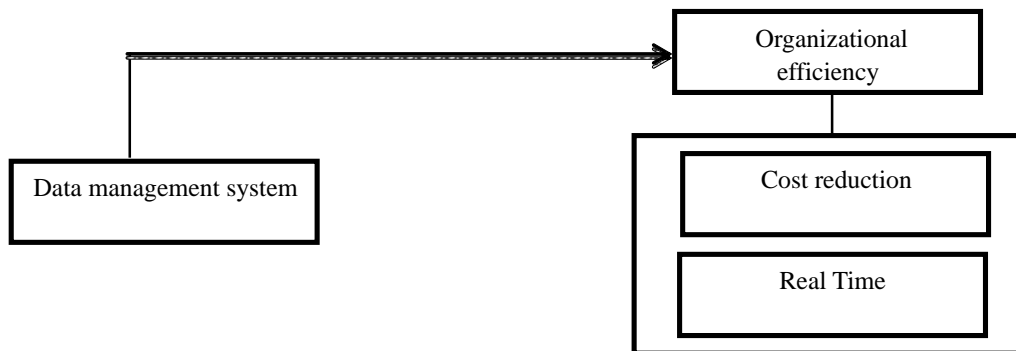


Fig. 1: Conceptual framework of the relationship between data management system and organizational efficiency.

Source: Research Desk (2021)

## LITERATURE REVIEW

### Data Management System

Data management system is the process of storing, organizing and maintaining the data created and collected by an organization. According to Janakiraman and Sarukesi (2017), data management systems keep data that are needed for decision making process, managed by computer software called database management system (DBMS). It allows users to insert or delete, modify, and query the data. Data management systems perform the function of storing, organizing, and maintaining the data that are needed for decision making process. The data management system includes a database and data warehouse.

The database is an organized collection of [data](#), generally stored and accessed electronically from a computer system which contains relevant data for the situation and is managed by software called the database management system (DBMS). Database is the collection of records kept for a common purpose and a database management system (DBMS) "is a program product for keeping computerized records about an enterprise. A database is a repository for stored data. The database management subsystem can be interconnected with the corporate data warehouse, a repository for corporate relevant decision-making data. This ensures data integrity and consistency at any time when the datasets

are accessed and allows controlled data access according to the access rights defined in the systems manager. Access to data in the database is usually provided by a "database management system" (DBMS) consisting of an integrated set of computer software that allows [users](#) to interact with one or more databases and provides access to all of the data contained in the database. The DBMS provides various functions that allow entry, storage and retrieval of large quantities of information and provides ways to manage how that information is organized. An organization must have accurate and reliable data for effective decision making. Generally, a database is an organized collection of related information (Rob & Coronel, 2000). The organized information or database serves as a base from which desired information can be retrieved or decision made by further recognizing or processing the data.

Data warehouse is an information system that contains historical and commutative data from single or multiple sources. It simplifies reporting and analysis process of the organization. It is also a single version of truth for any company for decision making and forecasting. According to Inmon (2005) a data warehouse is a collection of data that support decision making processes. A data warehouse is an integrated, subject-orientated, time-variant, non-volatile database that provides support for decision-making (Rob & Coronel 2000). Data warehouses are subject-oriented because they hinge on enterprise-specific concepts, such as customers, products, sales, and orders. On the contrary, operational databases hinge on many different enterprise-specific applications. We put emphasis on integration and consistency because data warehouses take advantage of multiple data sources, such as data extracted from production and then stored to enterprise databases, or even data from a third party's information systems. Data warehouse provide a unified view of all the data.

### Organizational Efficiency

Organizational efficiency is the organizations degree of success in using the least possible input in order to produce the highest possible output. Efficiency signifies a peak level of performance that uses the least amount of inputs to achieve the highest amount of output. Efficiency is a term that recently has come to the forefront of the scientific world. As the world struggles to accommodate the enormous growth in population and to manage the distribution of resources, the effort to make things more efficient has become increasingly more relevant. Qayyum and Khan (2007) suggest efficiency as being the ratio output per unit input. A firm is said to be technically more efficient than another firm if it can

produce more output using a given amount of inputs as compared to another firm.

Banks play an important role in the economic development as they play the role of intermediary to transfer funds from surplus units to deficit units. So, the efficiency of a bank is essential and needs to be paid more attention. Efficiency involves more effort when working toward a goal. It is more of a time and process-oriented strategy that focuses on how you can achieve results using minimum input. So basically, it is figuring out how to maximize performance while putting in the least amount of effort and money. The term efficiency is different from the term effectiveness, both are used to describe the performance of an entity but according to Jouadi and Zorgui (2014), efficiency summarizes the idea to produce with the best manner, which means that efficiency is focused on the use of minimum inputs to produce the best output, in other words, the optimized use of resources to generate the best products with the minimum costs. Isrova (2010) stated that efficiency supports the fruitfulness of implemented macroeconomic policies, which generate the durable development, economic growth, and welfare for society; this is the same meaning that McKnley and Banaian (2000) stated as they define efficiency in terms of cost minimization and profit maximization. Diallo (2018) stated that efficiency makes banks more resilient to shocks, thereby positively and significantly affecting growth. Bank efficiency relaxes credit constraints and creases the growth rate for financially-dependent industries during the crisis. Waheed and Younus (2010) provide quantitative support to the view that the financial sector's development is crucial to economic growth and the efficiency of the financial sector is potentially important to the long-term growth performance of the countries. The measures of organizational efficiency are shown and discussed below.

### Cost Reduction

This is a process of identifying and eliminating unnecessary costs to improve the profitability of a business. ACCA Study Text (n.d.) defines cost reduction as the reduction in unit cost of goods or services without impairing suitability for the use intended. Cost reduction means reducing cost associated with production or other cost activities without affecting the quality of product or service as well as activities, cost reduction is a planned positive approach to reduce expenditure. The aim of cost reduction is to see whether there is any possibility in bringing about a saving in cost incurred material, labour, overheads, etc. It certainly provides competitive advantage which is essential in this hyper competitive



market or business world. In competitive industry, there is need to incur reasonable cost and management has to ensure careful and efficient use of resources so as to achieve the set of standard. Therefore, cost reduction is important in an organization in order to help to bring about increase in market demand in term of competitive market. The significance of cost reduction derived from its function in profit maximization. Any organization that is successful using cost reduction can have an edge over its competitors without reducing its quality. Lockey (2002) stated that, having price competitive advantage, the company can increase its market share and become a market leader. The importance of cost reduction scheme within an organization cannot be overstated especially when the organization is struggling to maintain profitability.

Every organization that wants to survive and maintain its consumers must seek to improve on its product. Therefore, in order not to exceed their budget and not to run at loss, as well as not to reduce the quality of their products, organization needs to ensure maximum efficiency in the activities of the organization. With the banking industry facing low margins and hefty compliance investments, banks need to remain vigilant and keep costs well under control. Therefore, banks need to find ways in which they can become more efficient. Cost reduction in banks can only be achieved when there is efficiency in operational activities and transaction process that improved productivity. Over the years, banks have grown large and unwieldy, with several financial institutions accelerating their growth through acquisitions without complete and holistic integration of their new products, processes, and systems. Cost reduction measures need to be part of an overall efficiency strategy, designed to maximize effectiveness and service efficiency, reduce organizational complexity, enhance customer service, and improve customer retention. An added advantage is that it will allow banks to position themselves better for the wave of consolidation that is expected to hit the industry in coming years. Banks are engaged in the intermediation of services between lenders and depositors. Banks provide a wide array of services such as low risk assets, credit and payment services, and etc. inefficiencies in banks can lead to huge financial loss within the banking sector. Therefore, banks ensure efficiency has concentrated on cost reduction that can enhance profitability in the organization. The widespread availability of automated machines in many public places makes it to be easily accessed by customers. ATMs are considered to be cost effective, user friendly, efficient, reliable and convenient. Thus, increasing efficiency and reducing banking costs for customers.



## Real Time

Real time is the actual time during which a process or event occurs. It is also an act of achieving goals or providing result at the exact time that is to be done. Efficiency in operational activities and transaction process in the banks improves speed, on time delivery and various other process baselines. Organizational efficiency minimizes the waste of resources including time while accomplishing the desired result. Real time can only be achieved in an organization that is efficiently managed. Banks are multi-product institutions; many of their services are jointly or independently produced (e.g. they offer different kinds of loans or investments). Efficiency in the banks ensures responding to customers' needs in the most important strategy for creating superior customer loyalty. Customers have so many choices available to them that they can be more demanding than before, and firms need to have the ability to track and predict changes in customer preferences, and provide timely responsiveness. The operational efficiency deals with all operations that go into banking activities. Thus, operational efficiency helps improve the speed of all the operational activities in the banks that saves time of the bank and that of the customers. Therefore real time captures productivity of bank staffs employed in the performing of value-added services.

According to Portela and Thanassolious (2005), electronic banking platforms such as ATMs, mobile banking, internet banking and provides new distribution channels for banking operations. This channel are made available and accessible to customers which help save time in the bank and also enable those that don't have the time to go to the bank or are in a haste to carry out their transaction. The output improves speed that helps saves time for banks and customers as well as increases the productivity of banks and also makes customers happy and satisfied. Online banking has increased efficiency and save time for customers through the reduced need for queuing in the bank for some transaction which should have been done otherwise. The improvement of efficiency in the banking sector has help to save time as a result of the efficient use of resource and equipment to generate more input.

## Data Management System and Organizational Efficiency

This findings support the empirical finding of Daniel (2017) who surveyed management of liquidity and its impact on efficiency of banks. The period covered a total of 25 years (1986–2011). The target population was based on 24 banks. Test data for the research was obtained from secondary data and analyzed

using the SPSS package. The results of this study indicated that liquidity management positively influences the operations of deposit money banks.

Alhassan and Ohene-Asare (2016) examined the relationship between competition and efficiency in the Ghanaian banking industry. Data on 26 banks from 2004 to 2011 was used to estimate technical and cost-efficiency scores by the data envelopment analysis while the Boone indicator was employed to proxy for competition. Controlling for bank size, lending, income diversification, tangibility, leverage and profitability, ordinary least squares, instrumental variables and fixed effects estimations were used to estimate the panel regression model. The authors also applied the growth convergence theory to examine the existence of efficiency convergence. The results points to improvements in cost efficiency and competition within the banking industry. From the empirical estimations, the findings suggested that competition exerts a positive influence on cost efficiency. The authors also found evidence of convergence in both technical and cost efficiency. The study recommended that efforts at improving competitiveness of the banking industry will translate into lower interest rate spread through improved cost efficiency. This will ultimately improve access to bank credit and impact positively on economic growth.

Ho<sub>1</sub>: There is no significant relationship between data management system and organizational efficiency of deposit money banks in Port Harcourt.

Ho<sub>2</sub>: There is no significant relationship between data management system and cost reduction of deposit money banks in Port Harcourt.

Ho<sub>3</sub>: There is no significant relationship between data management and real time of deposit money banks in Port Harcourt.

## METHODOLOGY

The study adopted descriptive survey research design. The study population comprised of the twenty-one (21) deposit money banks operating in Port Harcourt as released by central bank of Nigeria (CBN, 2020). The sample size of the study was the same as the population given the small population size. However, the researcher administered five (5) copies of the questionnaire to top management staff from each of the twenty-one (21) deposit money banks, making it total of one hundred and five (105) respondents. Categories of the management staff include Branch Managers, Operation Managers, Marketing Managers, Customers' Service Managers and Internal Auditors. Ninety (90) copies of questionnaires were retrieved and were usable for the data analysis. Pearson's Product Moment Correlation coefficient technique was used in

testing the various hypotheses in order to determine the conjectural relationship between the predictor variable (data management system) and the criterion variable (organizational efficiency) with the help of the Statistical Packages for Social Sciences version, 23.0.

### DATA ANALYSIS

The primary data analysis was carried out through univariate and bivariate statistics. Pearson's Product Moment Correlation tool was used at a 95% confidence level. Specifically, the tests cover hypotheses  $Ho_1$  to  $Ho_3$  which were bivariate at all stated in the null manner. The study relied on the Pearson's Product Moment Correlation coefficient tool to carry out the analysis. Thus, the probability criterion of 0.05 significance level was adopted for accepting the null hypotheses at ( $P>0.05$ ) or rejecting the hypotheses at ( $P<0.05$ ).

#### Univariate Analysis

Table 1: Showing Descriptive Statistics for data management system

Item	Questionnaire	SA (4)	A (3)	D (2)	SD (1)	Mean (x)	Standard Deviation
1.	The use of computerize account system helps in tracking the flow of expenses	67	18	3	2	3.67	.2659
2.	Cost reduction in the organization depends on the record of employees performance	47	25	13	5	3.27	.8350
3.	Details of customers stored in the system enhance real time.	68	15	5	2	3.66	.7067
4.	The use of computerize account system fasten customers transactions	63	22	5	0	3.64	.7638

Source: Research Data 2020 (SPSS output version 20.0)

Table 1: Illustrate the response rate and descriptive statistics for data management system from the analysis of the responses, all the four items recorded high mean scores ( $x>2.5$ ) which serve as base for moderate agreement levels. Where  $x>2.5$  represents a substantial agreement level while  $x<2.5$

represents poor or inadequate agreement levels.

Table 2: Showing Descriptive Statistics for Organizational Efficiency

Item	Questionnaire	SA (4)	A (3)	D (2)	SD (1)	Mean (x)	Standard Deviation
1.	organization efficiency is achieved when right decision made by management of the organization.	67	22	0	1	3.72	.1523
2.	Organization efficiency limits waste of resources and time.	69	18	3	0	3.73	.6992
3.	Organizational efficiency enables transactions to be done on time in the bank	70	15	2	3	3.69	.8971
4.	The use efficient of computerize system can lead to organizational efficiency	35	45	6	4	3.23	.8675

Source: Research Data 2020 (SPSS output version 20.0)

Table 2: Illustrating the descriptive statistics for the measures of the dependent variable; organizational efficiency recorded high mean scores ( $x > 2.5$ ) based on the 4-point Likert scaling adopted.

Table 3 Showing descriptive statistics for Cost Reduction (CR)

Item	Questionnaire	SA (4)	A (3)	D (2)	SD (1)	Mean (x)	Standard Deviation
1.	Reduction in cost in an organization depends on the decision made by management of the organization.	67	22	0	1	3.72	.1523
2.	Little or no expenses is achieved when accurate decisions are made.	69	18	3	0	3.73	.6992
3.	Bad decision made by management can lead to huge financial loss	70	15	2	3	3.69	.8971
4.	The use of computerize system save cost for customers	35	45	6	4	3.23	.8675

Source: Research Data 2020 (SPSS output version 20.0)

Table 3: Illustrate the response rate and descriptive statistics for Cost Reduction. From the analysis of the responses, all the four items recorded high mean scores ( $x > 2.5$ ) which serve as base for moderate agreement levels. Where  $x > 2.5$  represents a substantial agreement level while  $x < 2.5$  represents poor or inadequate agreement levels.

Table 4. Showing descriptive statistics for Real Time (RT)

Item	Questionnaire	SA (4)	A (3)	D (2)	SD (1)	Mean (x)	Standard Deviation
1.	Data management system reduce decision cycle time	66	20	2	2	3.66	.1667
2.	Accurate and timely decision saves time for both customers and the organization	67	13	6	4	3.58	.9084
3.	Customers are happy when transactions are done on time in the bank	72	18	0	0	3.8	.5084
4.	Data stored on the computerized systems make transactions faster	65	15	7	3	3.57	.9148

Source: Research Data 2020 (SPSS output version 20.0)

Table 4: Illustrate the response rate and descriptive statistics for Real Time. From the analysis of the responses, all the four items recorded high mean scores ( $x > 2.5$ ) which serve as base for moderate agreement levels. Where  $x > 2.5$  represents a substantial agreement level while  $x < 2.5$  represents poor or inadequate agreement levels.

## Bivariate Analysis

### Test of Hypotheses

$H_{01}$ : There is no significant relationship between data management system and organizational efficiency of deposit money bank in Port Harcourt Rivers State,

Nigeria.

Table 5: Extent of Relationship between data management system and Organizational Efficiency

		Data management system	Organizational efficiency
Data management system	Pearson Correlation	1	.898**
	Sig. (2-tailed)		.000
	N	90	90
Organizational efficiency	Pearson Correlation	.898**	1
	Sig. (2-tailed)	.000	
	N	90	90

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Research Data 2020 (SPSS output version 20.0)

From the SPSS output on Table 5, shows the correlation of hypothesis one show a significant correlation at  $r = .898^{**}$  where  $P\text{-value} = .000$  ( $P < 0.001$ ). This implies a strong and significant relationship between both variables at 95% level of confidence. We therefore reject the null hypothesis ( $H_0$ ), and upheld the alternate and restated, thus, there is a significance relationship between data management system and organizational efficiency of the deposit money banks in Port Harcourt, Rivers State.

$H_0$ : There is no significant relationship between data management system and cost reduction of the deposit money bank in Port Harcourt Rivers State, Nigeria.

Table 6: Extent of Relationship between Data management system and cost reduction

		Data management system	Cost Reduction
Data management system	Pearson Correlation	1	.898**
	Sig. (2-tailed)		.000
	N	90	90
Cost Reduction	Pearson Correlation	.898**	1
	Sig. (2-tailed)	.000	
	N	90	90

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Research Data 2020 (SPSS output version 20.0)

From the SPSS output on Table 6, shows the correlation of hypothesis one show a significant correlation at  $r = .898^{**}$  where  $P\text{-value} = .000$  ( $P < 0.001$ ). This implies a strong and significant relationship between both variables at 95% level of confidence. We therefore reject the null hypothesis ( $H_0:2$ ).

$H_0:3$ : There is no significant relationship between data management systems and real time of the deposit money bank in Port Harcourt Rivers State, Nigeria

Table 7: Extent of Relationship between Data Management System and Real Time

		Data Management System	Real Time
Data Management System	Pearson Correlation	1	.971**
	Sig. (2-tailed)		.000
	N	90	90
Real Time	Pearson Correlation	.971**	1
	Sig. (2-tailed)	.000	
	N	90	90

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Research Data 2020 (SPSS output version 20.0)

From the SPSS output on Table 7, shows the correlation of hypothesis one show a significant correlation at  $r = .898^{**}$  where  $P\text{-value} = .000$  ( $P < 0.001$ ). This



implies a strong and significant relationship between both variables at 95% level of confidence. We therefore reject the null hypothesis ( $H_0$ ).

### DISCUSSION OF FINDINGS

This study examined the relationship between the predictor variable (data management system) and the criterion variable (organizational efficiency) in money deposit bank in Port Harcourt, Rivers State. The empirical finding revealed a positive and significant relationship between data management systems and organizational efficiency using the Pearson Product Moment Correlation Coefficient at 95% confidence interval, using Statistical Package for Social Science (SPSS) version 20. This finding supports the empirical finding of Daniel (2017) who surveyed management of liquidity and its impact on efficiency of banks. The period covered a total of 25 years (1986–2011). The target population was based on 24 banks. Test data for the research was obtained from secondary data and analyzed using the SPSS package. The results of this study indicated that liquidity management positively influences the operations of deposit money banks. The study further explained the data using correlation analysis and found that equity returns and cash liquidity reserve ratio are positively related, while equity returns and deposit loan ratio are negatively related. He recommends that banks should adopt optimum liquidity strategies for the smooth running of the business.

The third hypothesis show that, there is a strong positive relationship between data management system and measure of organizational efficiency real time, of which the outcome is  $onr=0.971$ ;  $p= 0.000 <0.05.$ , at 95% confidence interval leading to the rejection of the null hypothesis ( $H_{02}$ ), stated in the chapter one, and upheld the alternate and restated thus; there is a significant relationship between data management system and real time. This finding supports the empirical finding of X. Liu et al., (2016) in their study of internet of things, they concluded that, timeliness of processing requires the ability to collect, transfer, process, and present the stream data in real-time. As the value of data may vanish over time rather rapidly, the streaming architecture needs to perform all the calculation and communication on the fly with the data that has newly arrived.

### CONCLUSION AND RECOMMENDATION

In line with the findings of this study and to the extent of its consistency with results of similar previous studies, we conclude that data management system has a significant positive relationship with organizational efficiency of deposit money banks in Port Harcourt.

Based on the findings, the study recommends that deposit money banks in Port Harcourt should employ the use of data management system as a powerful tool in running the activities of the bank for organizational efficiency to be sustained.

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