

Platform as a Service and Human Resource Information System Effectiveness of Major International Oil Companies in Nigeria

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Abstract

This study examines the relationship between platform as a service and human resource information system effectiveness of major international oil companies in Nigeria. Primary data was generated through the structured questionnaire using the 5-point Likert scale. The study adopted a cross sectional survey in its investigation of the variables. The population of this study was the five (5) registered major international oil companies in Nigeria. The respondents were made up of 103 human resource managers, sectional heads and supervisors. The reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. The hypotheses were tested using the Spearman's Rank Order Correlation Coefficient. The tests were carried out at a 95% confidence interval and a 0.05 level of significance. The study findings revealed that there is a significant relationship platform as a service and human resource information system effectiveness of major international oil companies in Nigeria. The study recommends that top management of major international oil companies in Nigeria should carefully select platform as a service by identifying the strengths and weaknesses in terms of the processing type considered, enables organisations to build and develop on software solutions to ease their work.

Keywords: *Platform as a Service, HRIS Effectiveness, Information Effectiveness, Administrative Effectiveness, Operational Effectiveness.*

Introduction

Human resource information system is a human resource management tool that enables an organization to design and manage a comprehensive human resources strategy through information technology. Human resource information system is one of the most important management information systems which contribute to human resource service delivery of an organization. Organisations that are fully integrated with the human resource information system have the capacity to interface with other systems which enhances the communication between departments, payroll system, accounting system, staffs streamlining day-to-day processes etc, which will assist the human resource managers to take effective decisions and gain a competitive advantage that enable the manager to track ongoing employee data. Regrettably, this is not the case with most international oil companies. The international oil companies in Nigeria carries out their human resource functions activities manually during recruiting, training, etc which is very complex.

The continuous use of the manual processes have made these companies unable to manage their human resource function activities from a single location while moving onto other human strategic tasks with the human resource information system in the organisation. However, these deficiencies has caused the human resource personnel's of these companies slow-down in carrying out their human resource functions because they find it comfortable with the continuous use of manual human resource process in the workplace. In addition, this however has also led to the inefficiency of their administrative, operational and operational systems. Furthermore, the undependable human resource manual system process explains why significant decisions are not based on accurate and timely information which compromises the HRIS effectiveness of major international oil companies in Nigeria. However cloud computing services have been introduced into the field of human resource management in achieving innovative solutions for organizations such as the international oil company's sustainability (Haines & Petit, 2017).

Cloud computing services are a new computing paradigm that provides novel perspectives in internet working technologies. The wide popularity of cloud computing services has resulted in significant involvement of individual as well as commercial players, like: Microsoft, Amazon, Google etc, (Jaeger, Lin & Grimes, 2019). In the company of cloud computing services is the platform as a service (Haines & Petit, 2017). Platform as a service seems to have a relatively small market share. However, it is expected to offer much more as it is compared with its counterpart's software as a service and Infrastructure as a service.

Platform as a service offers a number of IT and business based benefits, e.g. it offers more business agility to an enterprise than a traditional software development approach. The development of an application in platform as service offers better TTV (Time to Value) factor because such applications can be developed so quickly and can be deployed so faster (Preston, 2011) . This study therefore examines the relationship between platform as a services and human resource information system effectiveness of major international oil companies in Nigeria. Furthermore, this study was guided by the following research questions:

- i. What is the relationship between platform as a service and information effectiveness of major international oil companies in Nigeria?
- ii. What is the relationship between platform as a service and administrative effectiveness of major international oil companies in Nigeria?
- iii. What is the relationship between platform as a service and operational effectiveness of major international oil companies in Nigeria?

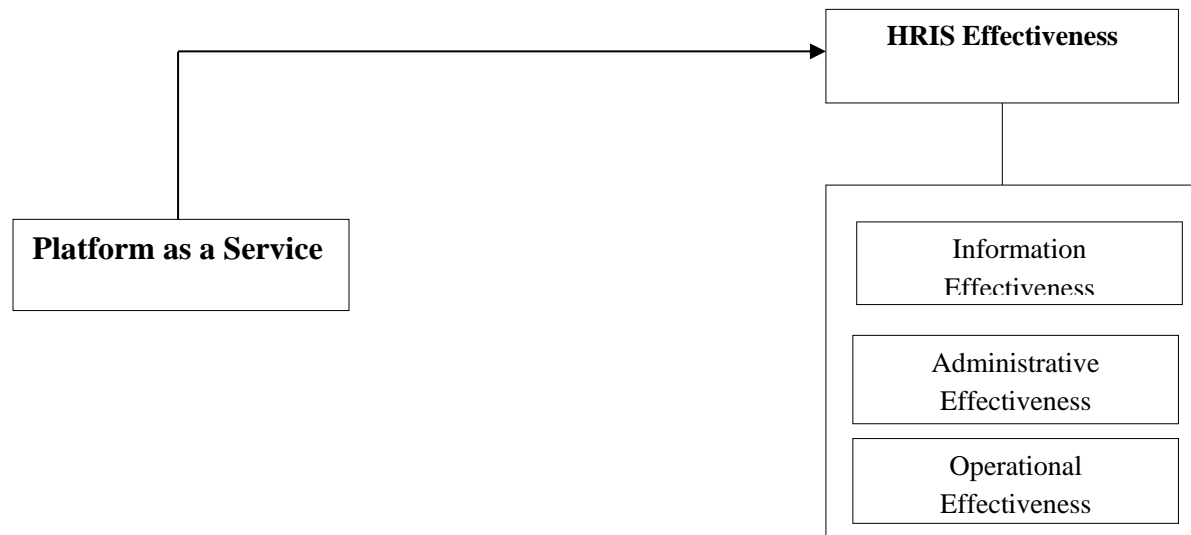


Fig.1 Conceptual framework for the relationship between Platform as a Service and HRIS Effectiveness
Source: Desk Research (2020)

Theoretical Foundation (Adaptive Structuration Theory)

Adaptive Structuration Theory (AST) was propounded by Gerardine *DeSanctis* and Marshall Scott *Poole* in 1994. It assumes that information systems and organizations are interrelated. Adaptive Structuration Theory (AST) is relevant to today's organizations due to the expanding influence that advancing technologies have had with regard to the human-computer interaction aspect of AST and its implications on socio-biologically inspired structuration in security platform applications. AST provides the model whereby the interaction between advancing information technologies, social structures, and human interaction is described, and which focuses on the social structures, rules, and resources provided by information technologies as the basis for human activity. Adaptive Structuration Theory views organizations as systems of communication. When individuals desire to create a group, they begin by communicating. The

individuals express their expectations for the group, and soon a set of rules, or structure, begins to emerge. The individuals establish the group by accepting the rules.

In this way, AST shows how communication allows groups to evolve while remaining stable. Indeed, without communication, organizations would cease to exist. This theory is formulated as the production and reproduction of the social systems through members' use of rules and resources in interaction. DeSanctis and Poole (1994) adapted Giddens theory to study the interaction of groups and organizations with information technology, and called it Adaptive Structuration Theory. AST criticizes the techno centric view of technology use and emphasizes the social aspects. Groups and organizations using Information Technology for their work dynamically create perceptions about the role and utility of the technology, and how it can be applied to their activities. These perceptions can vary widely across groups. These perceptions influence the way human resource management information system is used and hence mediate its effect on organization performance.

Platform as a Service (SAAS)

Goyal (2013) states that platform as a service (PaaS) is a category of cloud computing that provides a platform and environment to allow developers build applications and services over the internet. PaaS services are hosted in the cloud and accessed by users simply via their web browser. PaaS allows users to create platform applications using tools supplied by the provider. PaaS services can consist of preconfigured features that customers can subscribe to; they can choose to include the features that meet their requirements while discarding those that do not. Consequently, packages can vary from offering simple point-and-click frameworks where no client side hosting expertise is required to supply the infrastructure options for advanced development. The infrastructure and applications are managed for customers and support is available. The services offered by PaaS to its users are: operating system, database management system, server platform etc (Goyal, 2013).

Human Resource Information System Effectiveness

Human resource information system has grown in popularity since the 1960s (Lederer, 1984). Anitha and Aruna (2015) affirmed that the human resource information system (HRIS) is a computerized system that was widely developed in size and scope with simple record-keeping systems. As explained by Lippers and Swiercz (2015), the first generation of computerized human resource information system involved conversion of manual information records keeping to a computerized system. At that time the human resource experts were referred to as personnel staff and they performed basic record keeping with limited interaction on main business functions and other strategic human resource functions (Kavanagh & Johnson, 2017). Over time, human resource information systems have progressed from simple record-keeping to complex analytical tools. With the innovation and use of technology in human resource management it has expanded enormously and has changed the human resource management activities, which in turn have affected the executives, managers, and employees (Flynn, Mathis, Jackson, & Valentine, 2015).

Information Effectiveness

According to DeLone and Mclean (2002), information quality refers to the quality of outputs the information system produces, which can be in the form of reports or online screens. Huh, Keller, Redman and Watkins (2000) define four dimensions of information quality: accuracy, completeness, consistency, and currency. Accuracy is agreement with an attribute about a real world entity, a value stored in another database, or the result of an arithmetic computation. Completeness is defined with respect to some specific application, and it refers to whether all of the data relevant to that application are present. While consistency refers to an absence of conflict between two data sets, currency refers to up-to-date information. Researchers have used a variety of attributes for information quality. However, in achieving the quality of HR information, speed of HR information, flexibility of information in an organization, it is important that such information is accurate, complete, and consistent that has currency (Huh, Keller, Redman & Watkins, 2000).

Administrative Effectiveness

Hussain, Wallace and Cornelius (2007) noted that the use of HRIS reduces staff involvement levels in everyday administrative tasks, while maintaining quality work performance and creating a more efficient working environment. The utilization of HRIS assists in meeting HR staff requirements where they can facilitate administrative activities and contribute to HR strategic activities. Hussain *et al.* (2007) further asserted that using HRIS facilitates the day to day tasks, decision making, and HR planning and forecasting are achieved. Lengnick-Hall and Moritz (2017) argue that getting non-strategic tasks done faster, cheaper, and with less reliance on HR staff creates the opportunity to focus on new ways to add value to the organisation. In this study, HR staff satisfaction with HRIS is measured according to affective feelings concerning the contribution of HRIS towards performing their routine and strategic tasks and supporting their status or professional standing. The issue of administrative effectiveness is further discussed hereunder.

Operational Effectiveness

Operational effectiveness measures the cost reductions in using HRIS as well as increasing compensation costs for employees and emergence of other demands related to employment opportunity, occupational safety and health administration (Ball, 2015). The intention of HRIS is to develop strong planning systems, as well as responsive information output systems, and ensure that HRIS databases remain current and up-to-date, thus enabling HRIS to support management in their workforce-related activities which will reflect the performance of an HR department. Applications of HRIS aid in achieving goals for example, cost control, client satisfaction, productivity improvement and innovation, service improvement and productivity improvement (Ruël, Bondarouk&Velde, 2007).

Platform as a Service and Human Resource Information System Effectiveness

A study on platform as a service offering in service integrator model was carried out by Hovila (2016) in the Haaga-helia University of applied sciences in Finland. The goal of this thesis is to define data center platform service offering value position in the ITIL based end-to-end service management process within the three layer model of the service integrator. This study investigates if data center platform service offering still creates business value, brings efficiency and cost savings to customer after the outsourcing took place. The study targets are also to get customer feedback about current data center platform service offering and information about improvement areas. Company X outsourced 70% of IT services and personnel using new outsource model called service integrator. Data Center platform service management was part of the outsourced services. Data was collected using a research method called survey research which involves questionnaires and interviews. The interview type was semi-structured with room for open discussion. In addition company internal material like contracts, process handbook and process training material were used. From the foregoing point of view, we hereby hypothesized thus:

H₀₁: There is no significant relationship between platform as a service and information effectiveness of major international oil companies in Nigeria.

H₀₂: There is no significant relationship between platform as a service and administrative effectiveness of human resource information systems effectiveness of major international oil companies in Nigeria.

H₀₃: There is no significant relationship between platform as a service and operational effectiveness of human resource information systems effectiveness of major international oil companies in Nigeria.

METHODOLOGY

Primary data was generated through the structured questionnaire using the 5-point Likert scale. The study adopted a cross-sectional survey in its investigation of the variables. The population of this study was the five (5) registered major international oil companies in Nigeria. The respondents were made up of 103 human resource managers. The reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. The hypotheses were tested using the Spearman's Rank Order Correlation Coefficient with the aid of Statistical Package for Social Sciences version 23.0. The tests were carried out at a 95% confidence interval and a 0.05 level of significance.

DATA ANALYSIS AND RESULTS

Bivariate Analysis

The level of significance 0.05 was adopted as a criterion for the probability of accepting the null hypothesis in ($p > 0.05$) or rejecting the null hypothesis in ($p < 0.05$).

Table 1 Correlation for Platform as a Service and measures of HRIS Effectiveness

			Platform Services	Information effectiveness	Administrative effectiveness	Operational effectiveness
Spearman's rho	Platform as a Service	Correlation Coefficient	1.000	.771**	.892**	.878**
		Sig. (2-tailed)	.	.000	.000	.000
		N	71	71	71	71
	Information effectiveness	Correlation Coefficient	.771**	1.000	.845**	.917**
		Sig. (2-tailed)	.000	.	.000	.000
		N	71	71	71	71
	Administrative effectiveness	Correlation Coefficient	.892**	.845**	1.000	.909**
		Sig. (2-tailed)	.000	.000	.	.000
		N	71	71	71	71
	HRIS Operation	Correlation Coefficient	.878**	.917**	.909**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	71	71	71	71

** . Correlation is significant at the 0.5 level (2-tailed).

Source: SPSS output version 23.0

RQ1-What is the relationship between platform as a service and information effectiveness of major international oil companies in Nigeria?

Table 1 shows a Spearman’s correlation coefficient (rho) of 0.771** on the relationship between platform as a service and information effectiveness. This value is high, implying that a positive strong relationship exists between platform as a service and information effectiveness of major international oil companies in Nigeria. This implies that increase in information effectiveness is dependent on the adoption platform as a service in the studied major international oil companies in Nigeria. Therefore, there is a positively strong correlation between platform as a service and information effectiveness of major international oil companies in Nigeria.

H01: There is no significant relationship between platform as a service and information effectiveness of major international oil companies in Nigeria.

Displayed in table 1 is the statistical test of significance (p - value), which makes possible the generalization of our findings to the study population. From the result obtained the probability value is (0.000) < (0.05) level of significance; hence the researcher rejects the null hypothesis and concludes that there is a significant relationship platform as service and information effectiveness of major international oil companies in Nigeria.

RQ2-What is the relationship between platform as a service and administrative effectiveness of major international oil companies in Nigeria?

Also, table 1 shows a Spearman's correlation coefficient (ρ) of 0.892** on the relationship between platform as a service and administrative effectiveness. This value is very high, implying that a positive very strong relationship exists between platform as a service and information effectiveness of major international oil companies in Nigeria. This implies that increase in administrative effectiveness is dependent on the adoption platform as a service in the studied major international oil companies in Nigeria. Therefore, there is a positively strong correlation between platform as a service and administrative effectiveness of major international oil companies in Nigeria.

RQ3-What is the relationship between platform as a service and operational effectiveness of major international oil companies in Nigeria?

Lastly table 1 shows a Spearman's correlation coefficient (ρ) of 0.878** on the relationship between platform as a service and operational effectiveness. This value is very strong, implying that a positive very strong relationship exists between platform as a service and administrative effectiveness of major international oil companies in Nigeria. This implies that increase in operational effectiveness is dependent on the adoption platform as a service in the studied major international oil companies in Nigeria. Therefore, there is a positively moderate correlation between platform as a service and operational effectiveness of major international oil companies in Nigeria.

Ho₃: There is no significant relationship between platform as a service and operational effectiveness of human resource information systems effectiveness of major international oil companies in Nigeria.

Also, as displayed in table 1 is the statistical test of significance (p - value), which makes possible the generalization of our findings to the study population. From the result obtained the probability value is $(0.000) < (0.05)$ level of significance; hence the researcher rejects the null hypothesis and concludes that there is a significant relationship platform as service and operational effectiveness of major international oil companies in Nigeria.

The findings from the first set of hypotheses with regards to the relationship between platform as service and HRIS effectiveness are stated as follows:

- i. There is significant strong relationship between platform as a service and information effectiveness of major international oil companies in Nigeria.
- ii. There is a significant strong relationship between platform as a service and administrative effectiveness of major international oil companies in Nigeria.
- iii. There is a significant moderate relationship between platform as a service and operational effectiveness of major international oil companies in Nigeria.

DISCUSSION OF FINDINGS

The results from the tests of hypotheses four, five and six deduced from table 2 revealed that there is a positive strong significant relationship between platform services and HRIS effectiveness of major international oil companies in Nigeria. This finding is corroborated in a study on platform service offering in service integrator model carried out by Hovila (2016) in the Haaga-helia University of applied sciences in Finland. The goal of this thesis is to define data center platform service offering value position in the ITIL based end-to-end service management process within the three layer model of the service integrator. This study investigates if data center platform service offering still creates business value, brings efficiency and cost savings to customer after the outsourcing took place. The study targets are also to get customer feedback about current data center platform service offering and information about improvement areas. Company X outsourced 70% of IT services and personnel using new outsource model called service integrator. Data Center platform service management was part of the outsourced services. Data was collected using a research method called survey research which involves questionnaires and interviews. The interview type was semi-structured with room for open discussion. In addition company internal material like contracts, process handbook and process training material were used.

Going further, the current finding as deduced in table 2 received support in the previous study of Kariuki (2017) who carried out a study on the use of Whatsapp as an organizational communication platform: a case of Kenya's Safaricom technology division. However, with the use of technology in communication has proliferated in the last decade, more so with the advancement of mobile technology which has made information dissemination and reception more instantaneous. With the advancement in mobile communication technology, platforms have come up and have been adopted by many who find them appealing. One of these

platforms is WhatsApp, whose adoption rate has enormously grown from its inception in 2009, with the current number of users surpassing 1 billion in over 180 countries (Kamel, Giustini, & Wheeler, 2016).

CONCLUSION AND RECOMMENDATION

This study therefore concludes that platform as a service significantly predicts HRIS effectiveness of major international oil companies in Nigeria. Top management of major international oil companies in Nigeria should carefully select platform as a service by identifying the strengths and weaknesses in terms of the processing type considered. As this will enable organisations to build and develop on software solutions to ease their work.

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