Organizational variables as predictors of implementation of digital reference services in university libraries in North-East, Nigeria

1Musa Dauda Bassi, PhD, 2Wavi Pur Mamza, PhD and 3Zainab Mohammed Abdullahi, PhD
Department of Library and Information Science, Modibbo Adama University, Yola, Nigeria
E-mail: 1musajoy37@gmail.com, 2mamzaone@gmail.com, 3Talk2zainabmautech@gmail.com

Abstract
This study was designed to determine the extent to which organizational factors predict implementation of digital reference services in federal university libraries in North-East, Nigeria. Eight research questions and four null hypotheses guided the study. The design of the study was correlational, and the area of the study was North-Eastern Nigeria. The population of the study was 201 comprising of the entire professional (102) and paraprofessional (99) staff of the federal university libraries in the North-East, Nigeria. The study used a structured questionnaire for the respondents, oral interview for the university librarians and observation checklist for data collection. The instruments were face validated by three specialists, and Cronbach's alpha was used to obtain the reliability of the instrument which an overall score of 0.94, indicating that the instrument had internal consistency. The Hypotheses were tested using ANOVA at 0.05 level of significance. The results showed that leadership style, management of staff, fund management and infrastructural provision significantly predicted implementation of digital reference services in federal university libraries in North-East, Nigeria. It was recommended that library managers in the region should come up with policies to ensure that effective implementation of digital references services.

Keywords: Organizational variables, digital reference service, university libraries, leadership, funding

Introduction
Universities are institutions saddled with the responsibility of providing necessary skills and developing high-level manpower needs for national development of any nation. As Boulton and Lucas (2008) rightly noted that, “a university is simply a place where students come from different backgrounds to exchange thoughts and generate knowledge for societal development”. Aguolu and Aguolu (2002) stated that the tripartite function of any university is to conserve recorded knowledge; to transmit or disseminate knowledge through teaching, conferences, seminars, publications and to advance knowledge through research. The fundamental functions of universities rest on teaching, learning, and research. No university can be effective in its academic work without a good and functional library. Hence, university libraries established in universities with the responsibility of providing relevant information resources and services that would enhance effective teaching, learning and research process of their parent institutions.

The university library as an important segment of the parent body is saddled with some basic functions that will enhance the achievement of the overall objectives of the parent body. In almost all cases, university libraries store and manage access to information bearing materials that support both general research and the specific programs and degrees offered at the institution. Reference service is one of the core services in university libraries aimed at promoting access and use of information resources provided by the libraries through personal assistance and instructions to the users. According to Das, Gurey and Saha (2009), reference services can be seen as the heart of library services. The sole aim of reference service is to establish contact between the user and the information to ensure that users’ information needs are satisfied or met. Udofot (2015) equally noted that
reference service is a deliberate and personal assistance provided by the reference librarian to translate the queries or questions posed by a library user into terms that can be met by given reference material.

With the advent of ICTs, and especially the internet, library services have transformed from just the traditional approach to a mixed-method that infuses ICT tools to expand and enhance the concept of service delivery. In view of this, reference services today can take place at both the reference desk, and at the cyberspace. As Ghasn and Dehghanri (2009) pointed out, these “new technologies have transformed information delivery and that widespread use of the Internet has changed users’ expectations towards how they access information. This development has helped university libraries to provide information services faster than before to users”. Consequently, the technological revolution has immensely altered the manner and ways through which reference service is provided in university libraries from traditional methods to technology-based, referred to as digital reference service.

Digital reference service is a service that is offered by libraries to users electronically via computer or any electronic device. The concept of digital reference is interchangeably used with terms such as “virtual reference”, “on-line reference”, “Internet information service”, “electronic reference” etc (IFLA, 2008). Reference Users Service Association (2010) has provided a comprehensive definition of virtual reference services thus:

Virtual reference is a reference service initiated electronically, often in real-time, where patrons employ computers or other Internet technology to communicate with reference staff, without being physically present. Communication channels used frequently in virtual reference include chat, videoconferencing, Voice over-IP, co-browsing, e-mail, and instant messaging (p. 1).

Furthermore, Singh (2012) rightly views digital reference as an advancement of traditional services that are emerging as natural solutions to meet the user’s information needs in the changing environment. It is clear that digital reference services involve the use of electronic devices to deliver information services over distance. Also, digital reference service is when a library’s reference service is conducted online, and the reference transaction is a computer-mediated communication. Digital reference services do not just bring innovation and dynamism to information service delivery, it is much more. With digital reference services, libraries in low-income environment, and those in regions with security challenges such as North-eastern Nigeria, will be able to deliver services with minimum challenges.

Leadership in any organization is very essential if that organization is to achieve its goals and objectives. According to Segun-Adeniran (2015), leadership simply involves influencing or affecting a group of people to take collective action in a particular direction to achieve an organizational goal. Akor (2014) perceived leadership style as a manner and approach of providing direction, implementing plans and motivating people to achieve predestined goals of an organization. Similarly, Cherry (2017) defined leadership style as a person’s way of governing, directing, and motivating followers towards achieving organizational goals. The researcher, therefore, sees leadership style as the attitude portrayed by a leader towards his or her subordinates to achieve organizational goals.

Another crucial organizational factor that can predict the implementation of digital reference service is the management of staff. No organization can achieve its goals and objectives without staff that is competent and efficient. According to Ugwuanyi and
Igbokwe (2014), the management of staff is defined as the effective and efficient utilization of human resources to carry out the predetermined objectives of an organization. It involves the selection, recruitment, training, and development of the needed workforce for the organization such as university libraries. The management of university libraries should give priority to the composition of staff that should include both professional and para-professional and other supporting staff for effective service delivery and implementation of digital reference services in the library. According to the Librarians’ Registration Council of Nigeria (2017), a professional librarian is a person that has obtained a minimum of first degree or postgraduate degree in library and information science.

Funds management is the third organizational factor that is capable of predicting the implementation of digital reference. According to Danbaki (2012) and Gwany (2014), funds enable libraries to acquire information resources, maintain buildings and other types of infrastructure, hire and train staff to enhance the achievement of its goals. They reiterated that without funds many if not all of the library plans and programs cannot be implemented. Similarly, Onlyeike and Eseyin (2014) see funds as a sum of money set aside for the execution of a project in an organization. With inadequate or no funds, no project or service can be executed in an organization. There is need to have proper funds management to achieve effective implementation of digital reference services. As noted by Ololube (2016), management funds involves the act of planning, organizing and controlling monetary activities in one’s care. University libraries need funds to recruit staff, train staff periodically, acquire new information technologies and maintain infrastructural facilities.

One more factor that this study considered important and capable of predicting the implementation of digital reference is the provision of infrastructural facilities. Infrastructure in this context includes telecommunication, Internet access, servers, application systems, software applications, power supply, electronic resources, and appropriate buildings or accommodations. Internet as an important component of ICT is also stressed by Afolabi in Eke, Omekwu, and Agbo (2014). The connectivity helps reference librarians to answer questions even in areas they do not have prior knowledge. This implies that without appropriate infrastructural facilities it will be difficult to implement digital reference services in federal university libraries in the North-East, Nigeria.

Despite the insurgency of Boko Haram in the zone, there is a quest for higher education in the North-East zone of Nigeria with the increase in students’ enrollment into tertiary institutions. This situation has put more pressure on university libraries for information needs by users. One of the ways to overcome this challenge is to provide services that can meet the needs of both physical and remote users. This is the reason for the need for implementation of digital reference services in federal university libraries in the North-East, Nigeria being the hub around which scholarship revolves. If digital reference services are implemented, distance learning students and other users who cannot always come to the library physically can still be reached with their information needs which will make the libraries use them.

Studies have shown that digital reference services are implemented globally in university libraries (Singh, 2012 & Tutu, 2016) and locally (Ekpenyong & Edem, 2010 and Eke & Ekwelem, 2014). However, based on personal observation by the researcher, some of the federal university libraries in North-East, Nigeria are not offering digital reference services and where they exist, it is not very clear as to what extent they are implemented. This necessitated the need for
the researcher to investigate the extent to which organizational factors are capable of predicting the implementation of digital reference service in federal university libraries in North-East Nigeria.

**Objectives of the Study**
The general purpose of the study is to determine how organizational factors predict the implementation of digital reference service in federal university libraries in North-East Nigeria. The specific objectives are to:

1. Determine the extent to which leadership style is a predictor of implementation of digital reference services in federal university libraries in North-East, Nigeria;
2. Determine the extent to which management of staff is a predictor of implementation of digital reference services in federal university libraries in North-East, Nigeria;
3. Determine the extent to which fund management is a predictor of implementation of digital reference services in federal university libraries in North-East, Nigeria;
4. Determine the extent to which infrastructural facilities provision is a predictor of implementation of digital reference services in federal university libraries in North-East, Nigeria.

**Hypotheses**
The following four null hypotheses are tested at 0.05 level of significance in this study:

- **Ho₁** Leadership style does not significantly predict implementation of digital reference service in federal university libraries in North-East, Nigeria.
- **Ho₂** Management of staff does not significantly predict implementation of digital reference service in federal university libraries in North-East, Nigeria.
- **Ho₃** Fund management does not significantly predict implementation of digital reference service in federal university libraries in North-East, Nigeria.
- **Ho₄** Infrastructural facilities provision does not significantly predict implementation of digital reference service in federal university libraries in North-East, Nigeria.

**Literature review**
Reference service is personal assistance provided to a user who has an information need, by a reference librarian who possesses the knowledge and skills of searching, guiding and providing relevant information to the user within or outside the library. According to Chandwani (2017), the primary aim of any library is to offer a variety of services to its clientele to meet their specific information requirements while saving the time of the user. Reference services is the library’s strategy of ensuring that users get the information they need. Singh (2012) identifies two major types of reference services, that is, Ready reference service/short-range reference service and Long-range reference service.

Traditionally, reference services are rendered within the walls of the library and at the reference desk where the patrons have to be physically present. With the development of technologies, especially Internet technology, libraries have developed virtual or digital reference services to provide efficient and effective reference services to patrons in and out of the library and even to users, not in the library’s usually service community (Cheng, 2008). As Tutu (2016) noted, digital reference service refers to information service that uses electronic communication to connect library patrons with librarians. Operationally, Reference Users Service Association (RUSA, 2010) defined digital reference services as references services initiated electronically, often in real-time, where patrons employ computers or other internet technology to
communicate with reference staff, without being physically present. Ekpenyong and Edem (2010)

The concept of organizational factors has been viewed by different authors from different perspectives. Barzekar and Karami (2014) see it as an important determinant of a successful project. Gwang (2014) view the concept as a managerial variable for effective organization of information resources. Interestingly, Alshibly, Chiong and Bao (2016) investigated the critical success factors for implementing electronic document management system in governments, identified 37 Critical Success Factors (CSF) which they categorized into six groups: technological readiness (Infrastructure readiness), top management support (top management leadership), training and involvement (providing employee with adequate information and training), resource availability (sufficient financial resource to support implementation), system-related factor (electronic documents management functionality and friendliness) and work environment and culture (policy guidelines). Therefore in the context of this study, organizational factors refer to organizational variables that need to exist to enhance effective implementation of digital reference services in libraries, and the capacity of those factors to determine the effectiveness of digital reference services in the libraries.

Studies by different authors on digital reference services identified some organizational factors that have a lot of influence in predicting the implementation of digital reference services in university libraries and other types of libraries. In a study conducted by Malik and Mahmood (2013) on infrastructure needs for digital reference, service revealed ICT infrastructures as one vital organizational factor needed for designing and implementation of DRS in Punjab, Pakistani libraries. Similarly, Dollah and Singh (2010) investigated the use of digital reference in academic libraries in Malaysia. They reported that the academic libraries had implemented digital reference services; however, the effectiveness of the service is hampered by some important organizational factors such as funding and staff that are trained for the effectiveness of the service. The authors also stressed that library leadership plays a crucial role in establishing new systems and policies as well as a positive and healthy work environment for better organizational performance.

Furthermore, Emojorho (2013) conducted a study on appraisal of digital reference services in Nigerian university libraries and reported that the use of digital reference facilities in reference services leads to better services; unfortunately, most references libraries are not equipped with digital facilities and staff are not skilled. Similarly, Rao and Choudhury (2010) conducted a study on influence of organizational factors in provision of networked services: an empirical study of India and reported that to provide networked services such as virtual reference, current awareness, online databases, multimedia databases, electronic thesis and dissertations (ETD), e-mail, video/teleconferencing etc., technological infrastructure are essential to allow users to access library resources residing locally and on remote sites through networked media. Therefore, organizational factors that form the focus of this study include leadership style, management of staff, fund management and infrastructural provision.

Leadership is indispensable in any organization. Any organization such as a university library without good and effective leadership is bound to fail in achieving its objectives. Important to leadership is the leadership style of the university librarian. Leadership style as an organizational factor for predicting the implementation of digital reference service is very critical. The concept of leadership has been defined by various scholars. Ogbah (2013) defined it as how the leader executes and motivates his subordinates
towards accomplishing the organizational goals. According to Segun-Adeniran (2015), leadership means influencing or affecting a group of people to take collective action in a particular direction to achieve an organizational goal. Similarly, Yusuf-Habeeb and Ibrahim (2017) view leadership as a social influence process that seeks to elicit cooperation and support of individuals towards the actualization of set goals. Additionally, Akor (2009) sees leadership as a management function that involves a dynamic and interpersonal process of planning, organizing, controlling, directing and coordinating as one interprets the organizational or institutional demands of the members in a way that is productive and satisfying.

The leadership style has been seen as a critical factor in implementing new programmes and services. According to Dubrin (2001), leadership style is the relatively consistent pattern of behavior that characterizes a leader. Similarly, Nanjundeswaraswamy and Swamy (2014) see leadership style as the abilities of a leader in influencing followers in a desired manner to achieve desired goals. On the other hand, Akor (2014) defined leadership style as a manner and approach of providing direction, implementing plans and motivating people towards the achievement of organizational goals. In light of the foregoing definitions above, the researcher view leadership style as the attitude portrayed by leaders towards their subordinates to achieve organizational goals. How effective the organization will achieve its objectives depends on the leadership style a leader adopts in his leadership function.

There are different types of leadership styles in university libraries and any other organization. Germano (2010) identified leadership styles to include: autocratic, bureaucratic, democratic, charismatic, situational, transactional and transformational styles.

Leadership and leadership style is crucial in any organization such as the university library to achieve their objectives. Good leadership style can pave the way to get an approval of top management support to provide an enabling environment for the implementation of digital reference services in the libraries. Good leadership style can attract staff support and put in their best towards the successes of the service.

The success and effectiveness of any organization are dependent on the competences of the staff in the organization. Staff or personnel in any organization are a great asset to the organization. And the proper management of staff has been attributed to organizational success. Ugwuanyi and Igbokwe (2014) defined management of staff as the effective and efficient utilization of human resources to carry out the predetermined objectives of an organization. It involves the selection, recruitment, training, and development of the needed workforce. Shafie, Baghersalimi, and Barghi (2013) noted that human resources are highly instrumental in any organization. Similarly, Segun-Adeniran (2015) noted that “set objectives of an organization cannot be achieved without the calculated and effective input of human beings” who constitute the staff. Adeniji, Babalola, and Adeniji (2012) reiterated that human resources are the key to sustainable library services in any organization.

Another organizational factor that can predict the implementation of digital reference service in federal university libraries is fund management. There is an adage that says money answers all things. Proper fund management is the backbone for the success of any organization. University libraries are not exempted from this important organizational factor that serves as the driving force for effective and efficient information services provided to users. Globally there are economic challenges that are making many organizations and university libraries inclusive.
to go into strategic planning to survive. In spite of this, there is an increase in demand for information daily by scholars, students, politicians, engineers, medical practitioners, etc for vital information to enhance their professional practices and to push the frontier of knowledge.

Olurotimi (2015) defined funding as “an act of providing resources, usually in form of money or other values such as an effort or time for a project, a person, a business, or any other private or public institutions. According to Oniyekere and Eseyin (2014) funds refer to a sum of money set aside for the execution of a project in an organization. The process of making this allocated money available for the facilitation of plans and programs is referred to as funding. Similarly, Inyang and Igwechi (2015) describe library funding as “an act of proving or making available financial resources for use in developing and equipping the library, these funds are needed to provide library services, materials, and development of human resources. Therefore, the concept of Fund management is defined by Ololube (2016) as the act of planning, organizing and controlling monetary activities in one’s care. One fundamental fact that is clear is that the effectiveness and efficiency of university libraries and any type of library in discharging their primary responsibilities of providing information resources and services to meet users’ needs are directly dependent on how funds made available are managed.

Infrastructure is a major factor in the implementation of virtual library services such as digital reference services. Generally, infrastructure according to Cardoso da Silva and Wheeler (2017) is defined as all elements of interrelated systems that provide goods and services essential to enabling, sustaining or enhancing social living conditions. Adeniran (2014) posited that building a sustainable virtual library requires appropriate technological infrastructure. The infrastructure includes telecommunication, Internet, servers, application systems, software applications, power supply, electronic resources, and appropriate buildings or accommodations. When an effective virtual library is implemented, it can easily pave the way for digital services such as digital reference services in academic libraries. Agreeing with the above view, Abbas (2014) stated that ICTs and telecommunications infrastructure deployment is the foundation on which the information society is built and flourish. Maintaining the ICT industry is therefore critical to understanding future ICT development, accessibility, and utilization in Nigeria especially in the institutions of higher learning to increase the capability, visibility, accessibility and responsiveness of their libraries in the information need of their community.

To meet the demands of information society libraries should be furnished with advanced technological tools. Reiterating the need for libraries that desire to implement DRS efficiently IFLA (2008) clearly stated that staff should be provided with an appropriate workspace- furnishing, hardware, software, paper resources, Internet access, web browsers and supporting email account, which is important for the service as what the clients see on their screens. Highlighting the benefits of ICTs in academic libraries Akintunde (2006) asserted that the application of ICTs in academic libraries has a lot of benefits and so all effort must be made to embrace it in Nigerian academic libraries. Doing this will make students and academia in Nigeria to be part of the global information community. The academic library will also be able to contribute to the global information and not just remain as consumers through various digitization processes of their local content such as theses, dissertations, newspapers and special manuscripts. Similarly, according to Ayeni (2015), the influx of ICTs in information services has not relegated reference services librarians to the background, but has only changed their roles, activities, and nomenclature and made their...
job more effective, user-friendly and yet challenging.

The theoretical model for this study is the general digital reference process model of asynchronous digital reference service. According to the general process model, there are five fundamental steps used by digital reference services thus:

(a) Question Acquisition: Is a means of taking patrons’ questions from e-mail, web forms, chat or embedded applications;
(b) Triage: This is the assignment and routing of a question to digital reference service and a reference librarian or subject expert within a service. This step may be automated or conducted via human decision support. Triage also includes the filtering of repeated questions or out-of-scope questions;
(c) Answer Formulation: Includes factors for creating good answers such as age and cultural appropriateness. Answers are also sent to the user at this point;
(d) Tracking: Is the quantitative and qualitative monitoring of repeated questions for trends. Tracking allows the identifications of hot topics and may indicate where gaps exist in the collection.
(e) Resource Creation: Concerns the use of tracking data to build or expand the collection and better meet users’ information needs.

The process model is presumed to apply to all asynchronous digital reference services, though different services employ variations of the process at each step. Some services may even skip steps, for example, not all services may archive questions or answers to create resources. Additionally, some steps may be repeated, especially if this model is seen to span more than one service, for example, a triage center at one digital reference services may receive a question and route it to different services which may then route it to an expert. This study can be anchored on this model because if appropriate infrastructure provision is properly acquired and installed it can conveniently be used by university libraries to implement digital reference services which can make it possible to
receive queries or questions from library users using e-mail communications system.

**Technology Acceptance Model (TAM) by Davis (1989)**

This model was developed by Davis (1989). TAM is a valid framework and reliable predictor of technology adoption. TAM postulates that intention to use technology is mainly influenced by two belief constructs: Perceived Usefulness (PU), and Perceived Ease of Use (PEOU). Perceived Usefulness (PU) refers to a prospective user’s perception that using the technology in question will increase his or her performance. Perceived Ease of Use (PEOU) is intended to capture perception about whether the use of the technology will be free of effort. Further, TAM theorizes that perceived usefulness has a direct and positive effect on perceived intention to use, while perceived ease of use has indirect and direct positive effects on a user’s intent to adopt a technology, or perceived intention to use. Perceived ease of use directly affects perceived usefulness and, therefore, perceived ease of use both indirectly and directly drives perceived intent to use. A representation of the TAM model is shown in Figure II.

![TAM Model Diagram](image)

**Fig. II: Technology Acceptance Model**

**Source:** Davis (1989)

According to Davis (1989), perceived usefulness as defined is relevant to this present study because if university libraries believe that implementing digital reference services will be useful in discharging their role as information providers to their users who are physically and remotely dispersed and want to access their information needs, it will propel them to seek for all necessary organizational factors that can predict...
implementation of digital reference services or adoption of the technology for this type of service in the library.

The perceived ease of use is another aspect of this model that is relevant to this study. The provision of adequate staff that are trained and have acquired appropriate competencies in technological skills and knowledge, in addition to the provision of funds with good leadership style in the university libraries will ease their use of the technology to implement digital reference services to carry out their work more proficiently and with ease. The perceived ease of use will reduce the natural problems associated with traditional face-to-face reference services especially in the technological era that users prefer to access their information electronically anywhere and anytime. Furthermore, the ease of use can be demonstrated in the aspect of accessing information, sharing resources and professional skills with colleagues in other libraries with ease.

Methods
The study adopted a correlation survey research design. This design is suitable for this study because it seeks to determine the extent to which the organizational factors predict the implementation of digital reference service in federal university libraries in North-East, Nigeria. The population of the study consisted of all the two hundred and one (201) professional and paraprofessional staff in the six (6) federal university libraries in the North-East, Nigeria. Due to the size of the population which is 201, it was considered manageable for the study. The research instruments used for data collection for this study include questionnaire, structured interview and observation checklist. The study used Linear regression as the method of data analysis to determine the extent of contribution of each predictor variable (leadership style, management of staff, fund management and infrastructure provision) on the criterion variable (implementation of digital reference service) at 0.05 level of significance.

Results
Hypothesis Ho1: Leadership style does not significantly predict the implementation of digital reference in federal university libraries in the North-East, Nigeria.

Table 1: ANOVA analysis on magnitude of prediction of leadership style on implementation of digital reference in federal university libraries in the North-East, Nigeria

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>8672.076</td>
<td>1</td>
<td>8672.076</td>
<td>125.070</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>11648.724</td>
<td>168</td>
<td>69.338</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20320.800</td>
<td>169</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: digital reference  b. Predictors: (Constant), Leadership style

Table 1 indicated F-ratio (F=125.07) with degree of freedom (df=169) and associate probability value (sig.=0.000). Since the associate probability value is less than level of significance (0.05) set for this study, the null hypothesis was not accepted, whereas the alternative was upheld. This means that leadership style significantly
Table 2: ANOVA analysis on magnitude of prediction of management of staff on implementation of digital reference in federal university libraries in the North-East, Nigeria

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>8544.880</td>
<td>1</td>
<td>8544.880</td>
<td>121.905</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>11775.920</td>
<td>168</td>
<td>70.095</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20320.800</td>
<td>169</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: digital reference  
b. Predictors: (Constant), management of staff

Table 2 shows F-ratio (F=121.905) with degree of freedom (df=169) and associated probability value (sig. =0.00). Since the associate probability value is less than level of significance (0.05) set for this study, the null hypothesis was not accepted, whereas the alternative was upheld. This means that management of staff significantly predicted the implementation of digital reference in federal university libraries in the North-East Nigeria.

Hypothesis Ho2: Management of staff does not significantly predict the implementation of digital reference in federal university libraries in the North-East, Nigeria.

Table 3: ANOVA analysis on magnitude of prediction of fund management on implementation of digital reference in federal university libraries in the North-East, Nigeria

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>6326.406</td>
<td>1</td>
<td>6326.406</td>
<td>75.947</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>13994.394</td>
<td>168</td>
<td>83.300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20320.800</td>
<td>169</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: digital reference  
b. Predictors: (Constant), Fund management

Table 3 reveals F-ratio (F=75.947) with degree of freedom (df=169) and associate probability value (sig.=0.00). Since the associate probability value is less than level of significance (0.05) set for this study, the null hypothesis was not accepted, whereas the alternative was upheld. This means that fund management significantly predicted the implementation of digital reference in federal university libraries in the North-East Nigeria.

Hypothesis Ho3: Fund management does not significantly predict the implementation of digital reference in federal university libraries in the North-East, Nigeria.

Hypothesis Ho4: Infrastructural facilities provision does not significantly predict the implementation of digital reference in federal university libraries in the North-East, Nigeria.
Musa Dauda Bassi, Wavi Pur Mamza, and Zainab Mohammed Abdullahi: Organizational variables as predictors of implementation of digital reference services in university libraries in North-East, Nigeria

Table 4: ANOVA analysis on magnitude of prediction of infrastructural provision on implementation of digital reference in federal university libraries in the North-East, Nigeria

<table>
<thead>
<tr>
<th>Odel</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>6551.844</td>
<td>1</td>
<td>6551.844</td>
<td>79.941</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>13768.956</td>
<td>168</td>
<td>81.958</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20320.800</td>
<td>169</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: digital reference  
b. Predictors: (Constant), infrastructural

Table 4 indicates F-ratio (F=79.941) with degree of freedom (df=169) and associate probability value (sig. =0.000). Since the associate probability value is less than level of significance (0.05) set for this study, the null hypothesis was not accepted, whereas the alternative was upheld. This means that infrastructural provision significantly predicts the implementation of digital reference in federal university libraries in the North-East, Nigeria.

Discussion
The study reveals that leadership style had a high positive relationship with the implementation of digital reference service in federal university libraries in the North-East, Nigeria. This suggests how critical leadership is in any organization. University libraries need leaders who are focused on planning how to effectively provide services that are relevant to the needs of their users in the technological age. The finding of this study is in agreement with the findings of Akinyemi and Ifijeh (2013) that explored leadership style and job commitment of library personnel in university libraries and found out that there is a significant relationship between leadership style and job commitment of staff. This implies that leadership style can predict the implementation of digital reference services and other services that university libraries provide. The finding is also in line with Idiegbeyan-Ose (2017) who reported that leadership style has a significant relationship with turnover intention in an organization (r=0.044, P<0.05). It also corroborates Tom Kwanya (2018) who found out that most academic and research librarians in Eastern and Southern Africa hold the view that the leadership style of their managers has a great impact on individual performance and overall organizational effectiveness in service delivery.

The findings of this study show that the management of staff had a high positive relationship with the implementation of digital reference service in federal university libraries in the North-East, Nigeria. This is because human resources in any organization, and fact university libraries, play a very vital role in the achievement of the organizational goals. The findings of this study are in line with IFLA (2008) guidelines for implementation of digital reference services that stress the need for: provision and training of staff, etc as critical factors in the implementation of digital reference services. The finding also corroborates the findings of Adeniji, Babalola, and Adeniji (2012) who reported that training of university library staff and the skills acquired, determine the success or failure of the organization in the provision of the needed services. The implication of training and re-training of staff being an essential component of management of staff is that training can result in staff motivation which can bring about more productivity and creativity in service delivery to users in the library. Furthermore, any university
library that fails to properly manage its staff is likely to lose them to other organizations and subsequently affect the general service delivery to the users.

The findings of this study revealed that fund management had a high positive relationship with the implementation of digital reference services in federal university libraries in North-East, Nigeria. This suggests how important fund and its management are in any organization. It serves as the backbone around which all the activities of the organization revolve. The fund is needed for recruitment, training, purchase of resources, building structures, payment of salaries, etc. However, without proper management of the fund no matter how adequate it is, may lead to failure of such an organization like the university library.

The finding of this study corroborated with the finding of Danbaki (2012) and Gwany (2014) who both reported that fund and how it is managed to enable libraries to acquire information resources, maintain buildings and other types of infrastructures, hire and train staff to enhance achievement of the libraries’ goals such as implementing digital reference services. This assertion is typical with implementing digital reference service, which requires the fund to acquire the appropriate infrastructure and to recruit and train the personnel that will manage the services.

The findings of this study show that infrastructural provision had a high positive relationship with the implementation of digital reference services in federal university libraries in North-East, Nigeria. The finding is in agreement with the findings of Adeniran (2014) that infrastructural facilities are necessary for the implementation of digital reference services. The author further noted that building a sustainable virtual library requires appropriate technological infrastructure. Similarly, Malik and Mahmood (2014) identified infrastructures needed for implementation of digital reference services to include computers, printers, Internet connectivity, library website, OPAC and official cell-phone, etc. Where effective virtual library is implemented, it can easily pave way for digital services such as digital reference services in academic libraries.

Related to the above finding, Shama, Kumar, and Singh (2014) stated that the Internet is an indispensable source of information and an effective information delivery medium that offers a platform for a wide range of existing and future reference services especially digital reference services. Furthermore, Tutu (2016) reported that the Internet has reduced in-person reference transactions in many academic libraries.

**Conclusion**

It is very evident from the results that organizational factors (leadership style, management of staff, fund management and infrastructural provision) predicted implementation of digital reference services in federal university libraries in North-East, Nigeria. The implication is that library managers should take this factors into serious consideration in the planning of digital library services in order to achieve desired results. The findings of this study could be applied in a variety of institutions, especially libraries in developing economies that are striving to offer digital reference services.

Based on the findings of the study, the following recommendations are made:

1. The university/ library management should develop standard policies that will ensure the implementation of digital reference services last long in the libraries by adhering to the International Federation of Library
Musa Dauda Bassi, Wavi Pur Mamza, and Zainab Mohammed Abdullahi: Organizational variables as predictors of implementation of digital reference services in university libraries in North-East, Nigeria

Association and Institutions (IFLA) and Reference Users’ Service Association (RUSA) digital reference services implementation guidelines.

2. The university/library management should encourage proper management of staff by recruiting appropriate staff, training and retraining and motivation through formal training, conferences, seminars, and workshops for the staff and users. This will facilitate the provision of efficient and effective services by the staff to enhance easy and fast access to information by users.

3. The university/library management should provide appropriate infrastructural facilities such as effective internet connectivity, computers, electricity supply, etc since digital reference services implementation is a power-driven service. The facilities should also be periodically maintained.

4. The library management should adequately sensitize the stakeholders on digital reference services, provide training on DRS for both staff and users, ensure good planning, and solicit for improved funding from government and other donor agencies and philanthropists, etc. to overcome some challenges that can impede implementation of digital reference services.

References


Barzekar, H. & Karami, M. (2014). Organizational factors that affects the


Musa Dauda Bassi, Wavi Pur Mamza, and Zainab Mohammed Abdullahi: Organizational variables as predictors of implementation of digital reference services in university libraries in North-East, Nigeria

submitted to Department of Information Resources Management College of Management Sciences Babcock University, Ilisan-Remo, Ogun State.


Musa Dauda Bassi, Wavi Pur Mamza, and Zainab Mohammed Abdullahi: Organizational variables as predictors of implementation of digital reference services in university libraries in North-East, Nigeria

