

## **Adoption of Paperless Communication and Information System among Staff and Undergraduates of University of Ilorin as Strategy for Internal Communication**

**Tajudeen Olarenwaju Yusuf, \*Patrick Udende, PhD, Prof. Adesina Lukuman Azeez, & Ghaniyah Olaide Olaboye**

Department of Mass Communication, University of Ilorin, Ilorin, Nigeria

Email: [udendepatrick@yahoo.com](mailto:udendepatrick@yahoo.com)

### **Abstract**

Advancement in technology has presented unprecedented opportunities for staff and undergraduates to utilize paperless information and communication as tool of internal communication. This has triggered interest in scholarship on paperless information and communication. Despite interest among scholars and researchers on paperless studies, little is written on Nigerian setting and more specifically staff and students of Universities. Against this background, a study was undertaken to investigate level of adoption of paperless communication information system among staff and students of University of Ilorin, Nigeria. Based on Morgan's published table, a sample size of 380 was drawn from the entire population (50,484) while instrument of data collection was the questionnaire. The findings from the study revealed among other things that use of paperless communication ensures easy access to document backup and recovery as well as highly reliable working software that allows proper management of information. The study concludes that paperless communication and information system is essential tool for internal communication strategy. The study recommends among other things, sustained use of paperless which is a transition to an era of technology that calls for commitment for both staff and students.

**Keywords:** Adoption, communication, information, internal communication, paperless, technology

### **Introduction**

The 21st century university staff and undergraduates have found themselves in a technologically advanced age in which communication and information system has transited from a paper to paperless one. This makes the adoption of paperless communication and information management crucial as the traditional approach of internal communication is being greatly relegated. Paperless information and communication system entails a move from paper to electronic medium where employees work with electronic and documents are pre-fix with an "e" as in e-documents and e-forms, and documents distributed via e-workflow and e-distribution. Genesis and Oluwole (2018) define paperless system as a system environment in which the usage of paper is eliminated, removed or greatly reduced. The aim is to discharge paper documents as the carrier of information and work only with electronic documents.

Like other institutions of learning and corporate organisations, the university handles information. Information flows and serves as a basis for internal communication. Information should be stored safely, as it serves as evidence for any unforeseen event that the company or institution requires (Orantes-Jiménez, Zavala-Galindo & Vázquez-Álvarez, 2015). In addition, it supports the information and communication processes-oriented management of documents. This is why staff and students, who depend on useful information to update their profiles, respond to memoranda, and other academic and non-academic requirements, sometimes within short notice, should be eager and willing to key into paperless information and communication system.

Gainful as adoption of information and communication technology system may appear, universities were seemingly not in a hurry to key into the global demand. As Nwinyokpugi (2015) argues, universities in Nigeria with regard to their practice, scope and frequency of activities related to their duties and responsibilities should have embraced the introduction of automated office infrastructures to facilitate efficiency and effectiveness in their administrative functions but on the other hand neglected it, tagging it an expensive venture and futile investment simply because there were lack of comprehensive research in this regard.

A sizeable literature exists on paperless society generally. Obeidat (2015) investigates the factors that have made paperless office unsuccessful with a focus on employee attitude and behaviours toward accepting and using digital technology in offices. Similarly, Srimathi and Krishnamoorthy (2019) investigate on paperless administration in Indian higher education while

Sarka (2014) under studies tools of internal communication from knowledge transfer perspective. A twist to literature is a study by Ashby (2011), who examines the theory of a paperless workplace and its possible implementation in Extension, based on the advantages and disadvantages involved. A chord tying these studies is their emphasis on the impact of digital technology or information and communication technology on internal information and communication system in organisations or schools of learning.

Internal communication entails one that takes place within an organisation or institution the opposite being external communication. Internal communication system is the communication prepared and established within the workforce of the organisation (Sebastião, Zulato & Trindade, 2017), which is the focus of this study. According to Welch and Jackson (2007), internal communication system is the strategic management collaboration between stakeholders in the entire organisational hierarchy.

The advances into a digitised workplace create new opportunities for organisations to manage and facilitate internal communication. This, therefore, has the advantage of creating understanding among students and staff. Even as the wave of the future is the drive for paperless management of information and communication, institutions and organisations face difficulties to choose between all the available digital communication tools (Lipiäinen, Karjaluoto & Nevalainen, 2014). Beirne and Cromack (2009) discuss digital communication tools, such as intranet and e-mail as well as how these are changing the internal traditional communication landscape. By and large, issues about paperless society generally and specifically internal information and communication system can only be surmounted as we relentlessly continue to probe into new areas for solutions.

## **Statement of the Problem**

A remarkable increase in the use of electronic information and communication system has been witnessed in recent times. Research has followed the same pattern especially in investigating factors influencing the adoption and effectiveness of paperless society. However, little has been done to establish these factors in universities in developing countries especially Nigeria as compared to the developed countries. Profoundly, scanty literature exists on adoption of paperless information and communication system among staff and students in Nigerian universities. For example, Plimmer and Apperley (2014) study dwelt narrowly on effective utilisation of a software tool for the paperless marking of student assignments. Tiwari (2010) undertook a study on networking of paperless offices in Technical Institutes of India. A study by Chakava (2015) was to establish how technological factors influence service delivery and customer adoption of paperless banking in Kapenguria town West Pokot County. One of the pivotal factors that encourage paperless communication and information system is the readiness of stakeholders to adopt it as a viable tool of communication. The University of Ilorin being one of the outstanding Universities in Nigeria which prides as the most sought after for admission has for long migrated from paper to paperless information system. However, paucity in research on adoption of electronic information and communication system in Nigerian Universities creates a scholarship vacuum thus necessitating this study to fill the research void.

## **Research Questions**

- i. What is the level of adoption of the University of Ilorin staff and students of paperless communication and information system?
- ii. What is the attitude of the University of Ilorin staff and undergraduates to the adoption paperless communication and information system?
- iii. What is the level of satisfaction of the University of Ilorin staff and undergraduates with paperless communication and information system?
- iv. What factors militate against the University of Ilorin staff and undergraduates' adoption of paperless communication and information system?
- v. What is the level of the effectiveness of the use of the University of Ilorin staff and undergraduates' paperless communication and information system for internal communication?

## **Review of Related Literature**

### **Internal Communication**

Communication is vital for the smooth running of an institution. More significantly is the role internal communication plays in an institution or organisation. As Kottenstette and Antsaklis (2008) note, in any system there are internal communication mechanisms that allow components to interact and exhibit a collective behaviour. Furthermore, all stakeholders, not just managers and communication specialists, are understood to have a communication role within organisations and

contribute to sense-making (Mazzei, 2014). The ease with which internal communication is carried out depends on the new digital information communication technologies which seem a unique resource potential in the service of institutions for enhanced performance.

Among the various definitions of internal communication, the study rests on Vercic *et al* (2012) definition, who posit that internal communication is the term used to describe an organisation's management of its communication system, where employees are regarded as an internal public or stakeholder group. In our context, internal communication is information exchange within the university. Internal communication as a way of information exchange within the university can be vertical, horizontal and diagonal. Messages can be exchanged through personal contacts, telephone, e-mail, intranet (the website accessible only by staff and students) etc. Since our study is skewed to application of information and communication technology, emphasis on medium is computer and internet facilities.

As the main factor in the motivation and performance of staff and students, internal communication plays an important part in the competitiveness of the institution. It also creates value to staff, students and the university at large. According to Vercic *et al* (2012), the recognition of the importance of internal communication has resulted in a series of initiatives aimed at understanding and analysing the field and advocating it as an independent domain. Vercic *et al* point out that in 2010, practitioners of internal communication in the UK set up the Institute of Internal Communication with the website [www.ioic.org.uk](http://www.ioic.org.uk) as a separate entity from the Chartered Institute of Public Relations which website is [www.cipr.co.uk](http://www.cipr.co.uk) which has a space for internal communicators.

### **Paperless Information and Communication System**

Information and communications technology (ICT) has become, within a very short time, one of the basic building blocks of modern society. In recognition of this, university staff and students now key into understanding and adopting it as part of the core of academic environment.

The terms "paperless," "electronic," and "digital" are often used interchangeably to describe work which previously was done with paper, but which now has been adapted to information and communication technology (ICT) devices and software (Murthy, 2013). This entails a move from paper to electronic medium where staff and students work with electronic e-documents and e-forms among others distributed through e-workflow. Paperless information and communication system supports the academic work processes-oriented management of documents among members of staff.

The concept of a paperless information and communication began decades ago with the proliferation of personal computers in organisations and in homes (Shah & Tiwari, 2010). During this time, information technology was rapidly diffusing into organisations, such that Andersen and Turner cited in Obeidat (2015) projected that in year 2000, organisations would be entirely paperless. From that year to now, paperless information and communication has permeated all fields of human endeavour though at a disproportionate scale.

Orantes-Jiménez, Zavala-Galindo, Vázquez-Álvarez (2015) argue on the contrary that the impact of ICT is increasingly evident in the workplace, public or private setting, as they have automated most of their processes, achieving the improvement of procedures and products and services for customers, without significantly diminishing paper consumption. Sharing this concern, Obeidat (2015) reiterates that the concept of a paperless information and communication system has not been realised for the past three decades when computers begin to diffuse in offices; instead, the volume of paper consumed in office has gone up with increased use of digital technology in offices. The rationale for organisations and institutions to opt for paperless information and communication system is to, in part, escape hiccups like inefficiency, cost valuable office space, and security risks common with paper-based processes. Mills-Senn (2014) is emphatic that organisations that use paper-based processes “face security risks due to paper documents that have (a) been lost, (b) been damaged, (c) been misfiled, or (d) fallen into the wrong hands” (p.28). Transiting from paper to paperless and adoption of paperless system, however, depends largely on disposition of users and availability of infrastructure.

Given that university staff and students need to function optimally, there is need for enabling technologies to be in place. Any form of internal information and communication system has to leverage on Information and Communication Technology (ICT) which constitutes a set of increasingly effective tools to create and disseminate knowledge and its use (Orantes-Jiménez *et al*, 2015).

Enabling technologies that support in the electronic administration of documents consist of scanners that use image technology. Murthy (2013) explains the function of scanner that information in paper medium is converted to digital information and can be stored in multiple media such as microfilm. Other technologies include computer, internet facilities, and data bases. For message delivery to take place, documents have to be placed into a computer-readable set-up before they can be accumulated electronically. This probably inclined Cabero to say: "Overall we could say that the new technologies of information and communication are those that revolve around three basic means: computing, micro-electronics and telecommunications; but revolve, not only in isolation, but what is more significant in an interactive and interconnected way, allowing new communication realities” (Orantes-Jiménez *et al*, 2015).

### **Benefits of Paperless Information and Communication System**

It is the belief of organisations and institutions of learning which are able to identify and recognise issues connected to a paper-centric system that migrating to a paperless information and communication environment will help their operational activities become more efficient and effective. In more specific terms some of the benefits that are offered by going paperless are articulated by scholars and researchers (Davis, Hadley & Davis, 2015; Frear, 2014; Dykman & Davies, 2012; Brusco, 2011).

One benefit of paperless information and communication system is efficient use of resources. By distributing information electronically, efficiency is achieved by assigning tasks according to, for example, workload. Electronic templates furthermore eliminate repetitive administrative tasks,

improving productivity by allowing the employee to concentrate on the more intellectual tasks at hand. Increases in productivity and efficiency culminate in profitability and cost savings, while managing an increased workload.

Paperless information and communication system ensures economy of resources. It saves money on files, file cabinets, printer ink and paper itself. It also consolidates electronic forms, working documents, templates and procedures ensure standardisation. Additionally, reductions in paper-related expenses such as physical storage space increase employee productivity through easy access to information.

There is more access to information. Staff and students do not suffer much from having access to the information they require from their computer and sharing materials with collaborators or via e-mail or electronic fax as deemed necessary.

A key advantage of paperless information and communication system is located in process management. Electronic workflow has built-in control mechanisms like the triggering of activities, automated notifications and escalation as well as an audit trail to measure processing time and the quality of process output. The automated process allows tracking against predefined rules. The control over document updating and circulation ensures more accurate information, as employees will be using the most up-to-date version available. This culminates in improved efficiency and better quality.

Security wise, paperless system increases information security. It keeps confidential material securely locked away in electronic files that only the authorised user can access. This also reduces the worry about paper becoming damaged. Greenwood (2012) notes that “digitized information can be protected by controlling access or distribution, and by ensuring that any activity or amendment is tracked to form a comprehensive chain of custody” (p. 19). This type and level of security is not possible with printed documents.

Another benefit of paperless information and communication is speedy information delivery. Paperless information and communication system documents can be stored and delivered in various forms and formats, and delivered as a package to the user as, when and how required.

The system also proves to be more environmentally friendly. It helps reduce the amount of paper generated every year. The paperless system reduces the amount of paper produced and used, saving money for the organisation as well as making a tangible contribution towards protecting the environment.

### **Challenges of Paperless Information and Communication System**

The adoption or implementation of a paperless information and communication has many advantages as internal communication system for smooth functioning of an institution for both staff and students. However, the following factors conspire to thwart its effectiveness (Isaeva & Young, 2016; LaMonte, 2016; Ngim, 2015; Edho, 2014; Egwunyenga, 2009).

One of the challenges is difficulties in adoption or implementation processes, especially technical and cultural changes regarding attitude and aptitude of staff and students towards new

technologies. Disposition of some staff and students that can be linked to laggards is not encouraging at all.

The paperless information and communication system is affected by organisational cultural change, re-orienting staff, integration with existing system, verbatim implementation of traditional workflow, lack of network connectivity and power supply.

Another factor is the monumental financial investment involved in the enabling technology. Greater initial investment is needed in equipment and software (fax, scanner, databases, Internet, Intranet, etc.). This problem is compounded with great expenditure on maintenance of the technology and staff training, who are human resources responsible for information and communication management in the university.

There is also constant innovation of computer systems, which requires continuous renewal and this is financially involving. In the same vein, staff, who lacks competences due to lack of experience and interest may find it difficult to adapt to the designs of processes and services to computer formats which could ordinarily be easily handled.

There is indication that the paper process still dominates in the office administration and has increased the challenge on digital transformation. It is not surprising that chunks of paper messages are stacked in files in workplace even when paperless information is transmitted.

In view of the aforementioned challenges, Orantes-Jiménez, Zavala-Galindo & Vázquez-Álvarez, (2015) have argued that the impact of ICT is increasingly evident in the workplace, public or private setting, as they have automated most of their processes, achieving the improvement of procedures and products and services for customers, without significantly diminishing paper consumption. The causes are many and varied such as lack of new technologies, inappropriate use, and initial rejection of change, custom printing and the belief that a printed document is more valuable than a digital one.

### **Review of Empirical Studies**

Given the eminent status and attention paperless system has assumed over the years, researchers have conducted empirical studies that complement other writings to enrich literature on the issue. One of the empirical studies is that undertaken by Edho and Oluwole (2018). The study sought the possibility of a paperless Higher Education system in Nigeria. It examined the current system of information processing, dissemination and final storage in the school system. The objective was to unravel reasons for the outcry of poor management of records, ineffective storage, and ever increasing school population. The study established that the paperless system is a 21st century trend and should be embraced by our higher system of knowledge, the adoption of technology in information processing would make information faster, cheaper, increased audience, better retrieval of stored messages.

Udende, Yusuf and Aderinoye (2018) conducted a study titled: *Diffusion of Innovation Theory and Senior Staff Attitude Toward Paperless Information Processing and Communication in the Town Planning and Development Authority, Ilorin, Kwara State*. Against the backdrop that information and communication technologies are product of innovation which have become the bedrock of

human activities, the qualitative study was undertaken to ascertain employees' attitude toward paperless information processing and communication in the workplace. Anchored on Diffusion of Innovation theory, an in-depth interview was personally conducted with ten senior staff of Town Planning and Development Authority, Ilorin, Kwara State, Nigeria. Findings of the study revealed that most employees were desirous of having their workplace shift from a paper to paperless office due to ease of communication and other derivable advantages. Besides, lack of infrastructure confronts efforts at going paperless in the workplace. The study concluded that much of communication in most offices was greatly carried out through printed paper. The study therefore, recommended among other things the need for employers to take a holistic approach in ascertaining and providing basic infrastructure and training of staff to become computer literate so as to ensure an efficient paperless work environment.

A related study was undertaken by Tiwari (2010) titled: *Networking of Paperless Offices in Technical Institutes of India*. The opinions and perceptions were sought through well designed questionnaire from faculty members, officers and support staff of the two institutes. In case of Technical Institute P1 the opinion for adoption of paperless office was about 65% whereas in Technical Institute P2 it is slightly better. In almost all the items related to usages of IT tools and techniques, electronic communications and maintaining of records electronically, e-functioning of laboratories, e-library thorough use of Internet and others the officers' opinion was slightly reversed in comparison to that of faculty members. The support staff expressed similar opinion and was in favour that only 50% office part should be paperless. The networking of available paperless activities was excellent in both institutes. The training and upgrading of knowledge in the area of application of ICT tools were very much essential for having nearly paperless office of any institution. The advantages like easy storage, time savings, user friendly, security, efficiency and accessibility would be achieved if continuous efforts by all the human resources working in any organization are streamlined.

Nwinyokpugi (2015) carried out a study titled: *Electronic Information Interchange; Enhancing Paperless Office in Nigerian Universities*. This study was directed at identifying electronic medium of conducting routine businesses. Therefore, the research on electronic information interchange which showcased alternative platforms for information exchange was aimed at reducing the habitual usage of paper in the day-to day business of university administration and as well minimises cost to the university management. Three universities in Rivers State, Nigeria were covered in the study and 100 respondents sampled from the universities were studied using structured closed ended and complementary opened ended questionnaires. Results of the data analyses which were carried out using Spearman Rho Rank Order correlation coefficient showed that electronic information interchange has positive association with the attainment of the paperless office in the universities covered by the study.

In his study titled: *Empirical Analysis for the factors Affecting Realization of Paperless Office*, Obeidat (2015), investigated the factors that have made paperless office unsuccessful with a focus on employee attitude and behaviours toward accepting and using digital technology in offices. The study adopted a quantitative research approach, and collected data using structured questionnaire.



The sample for the study came from administrative and academic staff of Girne American University, selected using stratified random sampling. Data were analysed quantitatively using frequency/mean, reliability and multiple regression analysis to determine demographic characteristics, reliability of data and to find associations between the variables and employee willingness to accept and to use digital technology in offices. The findings indicated that IT and management support greatly influenced employee willingness to adopt technology. Findings revealed that employee experience of paperless system had little effect because employees preferred user support and training, which reduced the influence of experience. The study, therefore, recommended that IT department and the management must play an active role in training and motivating employees when shifting towards a paperless office.

### Theoretical Framework

This study used Technology Acceptance Model (TAM) proposed by Fred Davis in 1986 which has captured the most attention of the information systems community. According to Chuttur (2009) the wide acceptance of TAM is based on the fact that the model has a sound theoretical assumption and practical effectiveness. The model is an approach to understanding why and how people actively seek out specific media to satisfy specific needs. The model focuses on what people do with media based on the assumption that media are highly available products and the audiences are the consumers of the same products (Venkatesh & Davis in Lai, 2017).

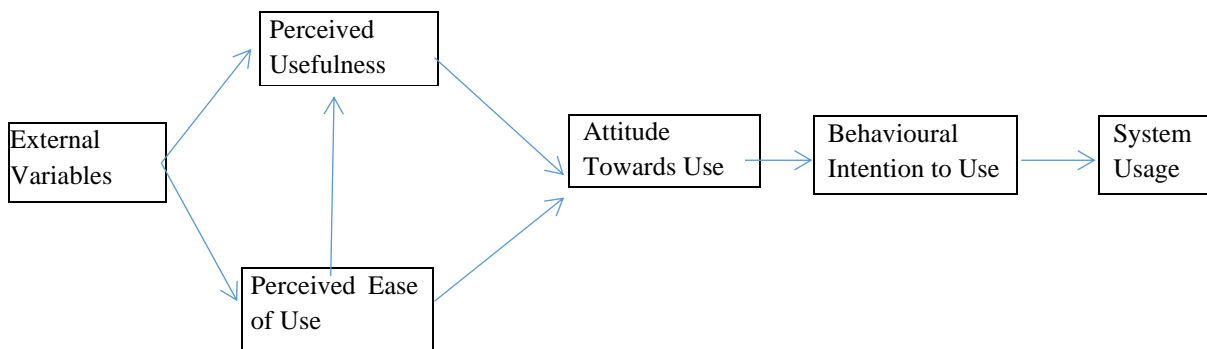


Fig.1: Technology Acceptance Model (1989 cited in Mugo1, Njagi, Chemwei & Motanya 2017)

The model as shown in figure 1 depicts certain constructs namely, perceived usefulness (PU), perceived ease of use (PEOU), attitude, behavioural intention to use and actual usage. Perceived Usefulness is defined as the potential user’s subjective likelihood that the use of a certain system will improve his/her action and Perceived Ease of Use refers to the degree to which the potential user expects the target system to be effortless (Davis cited in Lai, 2017). Commenting on the model, Park (2009) extends the argument that perceived usefulness (PU) and perceived ease of use (PEOU) positively affects the attitudes toward usage (ATU) of a technology. Among the constructs, PU and PEOU form an end-user’s beliefs on a technology and therefore predict his or

her attitude toward the technology, which in turn predicts its acceptance. The belief of the person towards a system may be influenced by other factors referred to as external variables.

Technology Acceptance Model has been subjected to series of criticisms. Accordingly, Lunceford cited in Bagozzi (2007) argued that the framework of perceived usefulness and ease of use overlook other issues, such as cost and structural imperatives that force users into adopting the technology. The implication is that cost involved in procurement or accessing a technology, for example, could constitute a barrier even as the willingness to accept the technology is there. Despite the limitations of the model, its suitability to this study is located in the element of technological advancement reflected in the way paper information and communication system is briskly transiting to a paperless one particularly in the university setting which staff and students utilise.

### Materials and Methods

The study adopted survey method that utilised questionnaire as the data collection instrument. The method particularly facilitates this study because it studied both large and small populations by selecting and studying samples chosen from populations to discover the relative incidence, distribution, and inter-relations of sociological and psychological variables (Osuala, 2007). Population of the study was undergraduates of the University of Ilorin which were (44,936), and senior non-teaching staff numbered 5,548 summed up to 50, 484 (COMSIT, Unilorin, 2019). Based on Morgan's published table, a sample of 381 was drawn from the population. To arrive at the sample, the researchers systemically selected the sample across the 15 Faculties of the University. Data harvested for two days were analysed with the use of SPSS 2.0 version and presented in tables.

### Data Presentation and Analysis

The data presented was based on all the 381 copies of the questionnaire administered and retrieved apart from one that was invalidated. This means only the 380 valid copies of the questionnaire were used. The major demographic information of respondents sought for in the study were undergraduates' study level, staff rank, respondents' age group, and gender presented in frequency and percentage format as contained in Table 1.

**Table 1: Respondents' Demographic Profile**

Demographic Profile	Frequency	Percentage
<b>Student Level</b>		
100	60	15.8
200	105	27.6
300	103	27.1
400	55	14.5
<b>Total</b>	<b>323</b>	<b>85.0</b>

**Staff Rank**

Level 9	9	2.4
Level 10	10	2.6
Level 11	13	3.4
Level 12	8	2.0
Level 13	5	1.3
Level 14	6	1.6
Level 15	6	1.6
<b>Total</b>	<b>57</b>	<b>14.9</b>

**Age Group**

14-19	62	16.3
19-25	165	43.4
25-30	99	26.1
30 above	54	14.2
<b>Total</b>	<b>380</b>	<b>100.0</b>

**Gender**

Male	262	68.9
Female	118	31.1
<b>Total</b>	<b>380</b>	<b>100.0</b>

**Result of the Findings**

**RQ1: What is the Adoption level of the University of Ilorin undergraduates and staff of Paperless Communication and Information system?**

Table 2: Adoption of Paperless Communication and Information system

Adoption Level (N=380)	Level of Agreement (%)				Mean.S.D		
	1	2	3	4	overall (%)		
I adopt excel-based template which provides a detailed leave management schedule template for each month of the year for the university staff.	31.6	54.2	9.5	1.6	45.0	1.80	.672
I use technology that is faster in sharing messages and information when it is necessary.	51.3	42.6	4.5	1.1	38.8	.634	1.55
I adopt paperless communication in carrying out a lot of my tasks.	35.5	50.0	9.5	2.6	35.8	1.79	.724
I use paperless communication to check valuable information	50.0	42.9	3.7	2.6	39.8	.691	1.59
<b>Total</b>					39.9	0.68	1.68

**\*Scale: 1 = Strongly Agree, 2= Agree, 3= Disagree, 4= Strongly Disagree**

To give answers to the adoption levels of the respondents, a 4 Point-Likert Scale item was developed, where respondents generally agreed to items (M= 1.68, SD= 0.68). Specifically, they mostly agreed to the fact that they adopted excel-based template which provided a detailed leave management schedule template for each month of the year for the university staff (M= 1.80, SD=.672). They also agreed to the fact that they adopted paperless communication in carrying out a lot of other tasks (M= 1.79, SD= .724).

**RQ 2: What is the Attitude of the students and staff to the adoption of paperless communication and information system?**

Table 3: Attitudes toward adoption of paperless communication and information system

Respondents Attitude (N=380)	Level of Agreement (%)				Mean S.D		
	1	2	3	4	overall (%)		
I adopt excel-based template which provides a detailed leave Use of paperless communication ensures easy access to document backup and recovery	51.6	39.5	6.1	2.9	40.0	1.60	.732
Use of a paperless communication system ensures highly reliably working software that allows proper managementof information.	44.7	47.4	5.8	1.6	41.0	1.64	.666
Use of paperless communication makes it possible to update and query large amounts of data in real time.	51.1	40.8	5.3	2.1	39.5	1.58	.691
Use of paperless communication office gives an access to your information anywhere in the world.	50.5	40.8	6.3	2.1	40.0	1.60	.703
Use of paperless communication allows that data integrity and communication security is ensured	42.4	41.8	12.6	2.6	43.8	1.75	.774
<b>Total</b>					<b>40.9</b>	<b>1.63</b>	<b>0.713</b>

**\*Scale: 1 = Strongly Agree, 2= Agree, 3= Disagree, 4= Strongly Disagree**

On respondents’ Attitude to the adoption of paperless communication and information system, they generally agreed to all items posed (M= 1.63, SD= 0.713) while their dimension of agreement to other responses are as follows: Use of paperless communication allows that data integrity and communication security is ensured (M= 1.75, SD= .774). Use of a paperless communication system ensures highly reliably working software that allows proper management of information (M= 1.64, SD= .666) Results imply that respondents agreed to all the features of paperless communication system.

**RQ 3: What is the level of University of Ilorin undergraduates and staff’s satisfaction with the paperless communication and information system?**

Table 4: Satisfaction with the paperless communication and information system

Level of Satisfaction (N=380)	Level of Agreement (%)				Mean.S.D		
	1	2	3	4	overall (%)		
Paperless communication helps individual to satisfy work and Interact with each other.	34.5	55.2	6.8	2.6	1.78	.706	44.5
Paperless communication Enhance Task Performance	37.1	52.9	7.1	1.6	1.74	.683	43.5
Paperless communication Facilitates Interactive with one Another.	33.9	48.4	11.1	2.4	1.83	.766	45.8
Paperless reduces the burden of carrying out tasks that could ordinarily be cumbersome. It facilitates management of information for me	47.1	42.4	6.8	.2	.68	.781	42.0
It makes access to information easy for me	44.7	.61	5.8	2.9	1.68	.755	42.0
It makes office work faster	47.4	3.2	4.5	2.9	1.64	.751	41.0
It makes academic activities easier	44.2	1.1	10.8	1.8	1.71	.776	42.8
<b>Total</b>					<b>1.71</b>	<b>.776</b>	<b>42.8</b>
	4.7	46.1	5.8	2.9	1.68	.775	42.0

\*Scale: 1 = Strongly Agree, 2= Agree, 3= Disagree, 4= Strongly Disagree

Table 4.4 revealed the results of data gathered from respondents on their level of satisfaction with the paperless communication and information system, results indicated that they generally agreed to all items in the section (M= 1.71, SD= 0.776). The most significant results show that paperless communication facilitates interaction with one another (M= 1.83, SD= .766). Also, paperless communication helps individual to satisfy work and Interact with each other (M= 1.78, SD= .706).

**RQ 4: What Challenges experienced by the Undergraduates and Staff when using paperless information and communication?**

Table 5: Challenges experienced

Challenges Using Paperless Communication (N=380)	Level of Agreement (%)				Mean.S.D overall (%)		
	1	2	3	4			
Paperless communication experiences difficulties in implementation processes	28.2	49.2	18.2	3.4	49.3	1.97	.779
Paperless communication experiences technical and cultural changes regarding attitude and aptitude towards new technologies	29.2	50.3	16.8	2.9	48.3	1.93	.760
Paperless communication suffers greater initial investor, computer oriented personnel and the expert in the use of software.	30.3	45.0	20.0	3.2	49.5	1.98	.822

Paperless communication experiences changes, environmental difficulties, integration of applications, and electronics.	33.4	43.2	18.9	3.9	48.3	1.93	.826
Paperless communication requires regular maintenance in form of time and adoption to innovations in technology.	37.1	44.5	15.3	3.2	6.0	1.84	.792
<b>Total</b>					<b>48.3</b>	<b>1.93</b>	<b>0.79</b>

**\*Scale: 1 = Strongly Agree, 2= Agree, 3= Disagree, 4= Strongly Disagree**

To arrive at the Challenges experienced by the Students and Staff when using paperless information and communication, a 5 item 4 point Likert Scale was developed where respondents agreed to all items posed under the construct (M= 1.93, SD= 0.79). Specifically, paperless communication suffers greater initial investment, dearth of computer oriented personnel and the expert in the use of software (M= 1.98, SD= .822). These mean that paperless communication experiences several difficulties in implementation processes.

**RQ 5: What is the level of the effectiveness of the use of paperless communication and information system for internal communication?**

Table 6: Level of the effectiveness

Effectiveness of Paperless Communication (N=380)	Level of Agreement (%)				Mean.S.D overall (%)		
	1	2	3	4			
Paperless communication reduces stress in carrying out tasks	48.9	41.3	6.8	2.9	1.64	.737	41.0
Paperless communication leads to optimal efficiency and Productivity	45.0	46.1	6.3	2.4	1.60	41.5	.704
Paperless communication discourages laziness in work place	32.9	42.4	19.2	4.2	1.95	.835	48.8
Paperless communication saves time on work accomplishment	43.4	42.1	8.4	4.7	1.74	.808	43.5
Paperless communication enables work processes with ease	41.6	45.8	10.0	2.4	1.73	.736	43.3
<b>Total</b>					<b>1.74</b>	<b>0.76</b>	<b>43.6</b>

**\*Scale: 1 = Strongly Agree, 2= Agree, 3= Disagree, 4= Strongly Disagree**

On the level of effectiveness of the use of paperless communication and information system for internal communication, all items were agreed to by the respondents which means they all acknowledge the fact that paperless communication and information system for internal communication is effective. Specifically, one of the most significant values shows that paperless communication discourages laziness in work place (M= 1.95, SD= .835).

## **Discussion of Findings**

This study investigated adoption of paperless communication and information system among staff and undergraduates of University of Ilorin as a strategy for internal communication. This was informed by the inroads advancement in technology has made in all fields of human endeavour including the University circles. Essentially, given that adoption of paperless has become an indispensable instrument for easy access which staff and students cannot do without lies the motivation for the study.

The data revealed an overwhelming rate at which both the students and staff adopt the paperless communication and information system as a strategy for internal communication. This contradicts what Obeidat (2015) posited that the paperless information and communication system has not been realised for the past three decades when computers began to diffuse in offices; instead, the volume of paper consumed in office has gone up with increased use of digital technology in offices. This is not surprising considering the present technological savvy environment which demands that academic and non-academic activities are e-oriented.

Various ways staff and students at the University of Ilorin adopt paperless system for include providing bio-data, access to leave approval, screening, admission processing, class assignments, having tutorials, getting academic helps and interacting with lecturers about registration of courses as well as accessing information about activities going on in the school. This lends credence to the finding by Conkova (2013), who averred that undergraduates adopt paperless system for discussions about their assignments payment of school fees, registration and other course works receive and send information among their peers, explore issues related to their course work and a host of others.

On account that attitude varies, results from the study do not establish a homogenous attitude among respondents towards the information and communication system. Whereas some respondents develop positive attitude towards the paperless system, others form a negative disposition towards it. Those who form positive attitude claim to enormously benefit from the system as it increases opportunities for team work and proper functioning of the institution in affirmation of Walker and Richard's (2009) findings that through collaborative or team learning through integration of paperless office, students establish positive contacts using the goal of working towards particular final results, both in offline and online modes. Finding of this study further reinstates the finding by Nwinyokpugi (2015), which showed that electronic information interchange has positive association with the attainment of the paperless office in universities. However, those who are opposes to paperless seem to make a valid point to justify why they have negative attitude towards paperless system. Echoing this position is Murthy (2013, p.88), who asserts that no office, organisation or institution can be completely paperless. "Some documents must remain on paper meaning that your home office can only be paper-less. Many of us simply remain more comfortable using paper to do some of our work. So any document management system you put together has to manage the mix of electronic and paper for a 'paperless' office" (p.88).

In as much as findings of this study suggest that a preponderance of respondents expressed satisfaction with the effectiveness of paperless system, they similarly attest to the fact that certain factors conspire to thwart its effectiveness. For example, apart from dearth of skills and competency to use the software, irregular maintenance of the available equipment and infrastructure burden the smooth operations of paperless system. This is in conformity with what scholars (Isaeva & Young, 2016; LaMonte, 2016; Ngim, 2015; Edho, 2014; Egwunyenga, 2009) surmised that technical and cultural changes regarding attitude and aptitude of staff and students towards new technologies constitute a great challenge to the success of paperless communication and information as an internal communication system in the University setting.

## **Conclusion**

Incontrovertibly, universities have evolved new ways of internal information and communication system. Staff and students are briskly adopting paperless technology to be abreast of global stakeholders in the educational industry. But paperless communication and information system is not achieved overnight. An institution of learning cannot get rid of paper a day after having implemented a paperless system. It is a progressive task. This is why universities as entities still do not rely on a 100% paperless system, given some inadequacies associated with paperless society. The paperless makes backup of information in the system, but also printed copies of paper are retained because users are not comfortable with not having tangibly records.

## **Recommendations**

Based on findings of this study, it is hereby recommended that both staff and students should continue to use paperless system considered as a transition era championed by information and communication technology. By committing to paperless system, they would be actively changing the core makeup of their academic and non-academic activities.

Those who develop negative attitudes towards paperless system should reconsider their stance by discarding misconceptions surrounding use of paperless and key into the new technological order which is fast shaping the direction to which activities are carried out.

It is also recommended that the university management should provide and sustainably maintain the basic infrastructure and equipment while staff and undergraduates sharpen their skills through staff development programmes, seminars, and workshops.

## **References**

- Ashby, L. (2011). Extension's progress in the paperless revolution: Balancing digital and paper. *Journal of Extension*, 49(1), 1-5.
- Bagozzi, R.P. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the Association for Information Systems*, 8; 244-254.
- Beirne, M. & Cromack, C. (2009). Managing creative coalition's: reflections on the social side of services innovation. *European Management Journal*, 27(2); 83-89.



- Brusco, J. (2011). Trending toward paperless. *AORN Journal*, 94(1); 13-18.
- Chakava, G.A. (2015). Factors influencing adoption of paperless banking: A case of West Pokot County, Kenya. Unpublished thesis submitted in partial fulfillment of the requirements for the award of the degree of Master of Arts in Project Planning and Management of the University of Nairobi.
- Chuttur, M.Y. (2009). Overview of the technology acceptance model: Origins, developments and future directions. *Working Papers on Information Systems*. 9(37), 9-37.
- COMSIT (2019). Computer service and information technology: University of Ilorin, Ilorin, Nigeria.
- Conkova, M. (2013). Analysis of perceptions of conventional and e-learning education in corporate training. *Journal of Competitiveness*, 5(4); 73-97.
- Davis, J. T., Hadley, J., & Davis, H. (2015). Paperless processes: Survey of CPA firms in a smaller market regarding obstacles, challenges and benefits of implementation. *International Journal of the Academic Business World*, 9(1); 49-59.
- Dykman, C. A., & Davis, C. K. (2012). Addressing resistance to workflow automation. *Journal of Leadership, Accountability & Ethics*, 9(3); 115-123.
- Edho, O.G. (2014). The relevance of information and communication technology in the effective management of information in tertiary institutions of Delta State. Unpublished Masters Dissertation, Delta State University, Abraka.
- Edho, O.G. & Oluwole, O.N. (2018). Towards a “paperless” higher education system in Nigeria: Concept, challenges and prospects. *Journal of Education, Society and Behavioural Science*, 24(2); 1-15.
- Egwyenyenga, E.J. (2009). Record keeping in universities: Associated problems and management options in south-west geo-political zone in Nigeria. *International Journal of Educational Science*, 1(2); 109-113.
- Frear, H. (2014). Fear of filing? EDM can help with paper overload and building customer relationships. *Credit Control*, 35(3/4); 87-89.
- Genesis, E.O. & Oluwole, O.N. (2018). Towards a “paperless” higher education system in Nigeria: Concept, challenges and prospects. *Journal of Education, Society and Behavioural Science*, 24(2); 1-15.
- Greenwood, P. (2012). Securing information in a paper-efficient environment. *Computer Fraud & Security*, (3); 18-20.

- Isaeva, M. & Young, Y.H. (2016) Paperless university – how we can make it work? International Conference on Information Technology Based Higher Education and Training (ITHET), IEEE Xplore.
- Kottenstette, N. & Antsaklis, P.J. (2008). Communication in automation, including networking and wireless. In S. Nof (Ed.), *Springer handbook of automation*, (Pp1-17), Springer.
- Lai, P.C. (2017). The literature review of technology adoption models and theories for the novelty technology, *Journal of Information Systems and Technology Management*, 14(1); 21-38.
- LaMonte, T. (2016). *Three reasons higher education pros are recruiting ECM*. AIIM White paper, [www.konicaminolta.co.uk](http://www.konicaminolta.co.uk)
- Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information and Management*, 40(3); 1- 14.
- Lipiäinen, H.S.M, Karjaluoto, H.E., & Nevalainen, M. (2014). Digital channels in the internal communication of a multinational corporation. *An International Journal*, 19(3); 275–286.
- Mazzei, A. (2014). Internal communication for employee enablement. *Corporate Communications: An International Journal* 19(1); 82 -95.
- Mugo, D., Njagi, K., Chemwei, B. & Motanya, J. (2017). The technology acceptance model (TAM) and its application to the utilization of mobile learning technologies. *British Journal of Mathematics & Computer Science*, 20(4); 1-8.
- Mills-Senn, P. (2014). How safe are your digital documents? *University Business*, 17(5); 27-30.
- Murthy, M.S.N. (2013). Paperless organisation. *Asia Pacific Journal of Marketing & Management Review*, 2(9); 87-97.
- Ngim, R. (2015). *Yale going paperless to save money, time and trees*. Yale ITS. Retrieved from <http://its.yale.edu/news/yalegoing-paperless-save-money-time-andtrees>
- Nwinyokpugi, P.N. (2015). Electronic information interchange; Enhancing paperless office in Nigerian universities. *International Journal of Application or Innovation in Engineering & Management (IJAIEM)*, 4(8); 6-17.
- Obeidat, M.A. (2015). Empirical analysis for the factors affecting realization of paperless office. *International Journal of Economics, Commerce and Management*, III(6); 773-792.
- Orantes-Jiménez, S.D., Zavala-Galindo, A. & Vázquez-Álvarez, G. (2015). Paperless Office: a new proposal for organizations. *Systemics, Cybernetics and Informatics*, 13(3); 47-55.

- Osuala, E. C. (2007). *Introduction to research methodology* (3rd ed.). Onitsha: African – First Publishers Ltd.
- Park, S.Y. (2009). An analysis of the technology acceptance model in understanding university students. Behavioural Intention to Use e-Learning. *Educational Technology & Society*, 12(3); 150-162.
- Plimmer B. & Apperley, M. (2014). Making paperless work. Retrieved from <https://www.researchgate.net/publication/220998429>. DOI: 10.1145/1278960.1278961.
- Sarka, H. (2014). Tools of internal communication from knowledge transfer perspective. *Journal of Competitiveness*, 6(4); 50-62.
- Sebastião, S.P., Zulato, G., & Trindade, A.D. (2017). Internal communication and organisational culture: The management interplay in the view of the Portuguese communication consultant. *Public Relations Review*, 43(4); 863–871.
- Shah, S. & Tiwari, M. (2010). Networking or paperless office in Technical Institutes of India. *International Journal of Computer Science and Network Security* 10(3); 177-181.
- Srimathi, H. & Krishnamoorthy, A. (2019). Paperless administration in Indian higher education. *International Journal of Engineering and Advanced Technology (IJEAT)*, 8(4); 760-764.
- Tiwari, M. (2010). Networking of paperless offices in Technical Institutes of India. Retrieved from <https://www.researchgate.net/publication/267856118>
- Udende, P., Yusuf, T. O. & Aderinoye, G.O. (2018). Diffusion of innovation theory and senior staff attitude toward paperless information processing and communication in the Town Planning and Development Authority, Ilorin, Kwara State. *CRUTECH Journal of Media, Communication & Languages*, 5; 50-57.
- Welch, M. & Jackson, P. (2007), Rethinking internal communication: a stakeholder approach, Corporate Communications. *An International Journal*, 12(2); 177-198.
- Vercic, A.T., Vercic, D. & Sriramesh, K. (2012). Internal communication: Definition, parameters, and the future. *Public Relations Review*, 38, 223– 230.