Journal of African Interdisciplinary Studies (JAIS): **ISSN 2523-6725** (online)
April 2022 Vol. 6, No. 4

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies,* 6(4), 37 – 54.

The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda

By

[1]Judith Iradukunda, [2]Dr. Moses Mpiima Kibirango and [3]Prof. Philip Maiyo
Judith Iradukunda, [1]University of Eastern Africa, Baraton. Email: rajudy05@gmail.com
[2]Dr. Moses Mpiima Kibirango, University of Eastern Africa, Baraton. Email: kibirangom@ueab.ac.ke
and
[3]Prof. Philip Maiyo, University of Eastern Africa, Baraton. Email: maiyop@ueab.ac.ke

Abstract

While the utilization of Information System is widely regarded to have a great impact, on employee productivity, and acceptance, past research has found inconsistent associations between IS usage and employee productivity. The IS usage variable investigated in this study included IS usability, IS quality, technology interaction and task-technology adaptation while the dependent variable which was investigated in this study was employee productivity with work time reduction, innovation and creativity, cost reduction, competitiveness and motivation as the indicators. The study focused on employees in Bralirwa, Rwanda. This study used self-administered questionnaire as the instrument to gather data. The study was done in the two branches; Limonaderie of Kigali and the brewery of Gisenyi. This study used descriptive cross-sectional research design. The population of this study were all the 546 employees of Bralirwa Company, Rwanda. The population of the study comprised of the employees in the branches of Bralirwa LTD. Sample size was calculated using the Krejcie & Morgan (2010) table in selecting the employees. The sample size was derived from the study population of 546 employees working at the Company. Data that was gathered in this study was coded and entered into SPSS which was the software to be used in for data analysis. The study found out that in Bralirwa Company, employee productivity was high as the researcher found a total average mean of 4.326. Information system was used almost every time, and the study also found that information system usability, quality, technology interaction and technology adaptation effected Bralirwa employee to a large extent as evidence by the means of 3.986, 3.972, 3.996 and 4.022 respectively. The study found that there was a significant relation between employee productivity and IS usage (sig = 0.000). Among IS users, employee productivity has a positive weak and moderate relationship with IS usage, technology interaction and adaptation respectively. Among IS non-users, there is a moderate and strong negative significant relationship between employee productivity and technology adaptation, IS usage and IS quality respectively.

Key words: Rwanda, Information system usage, Employee productivity.

Journal of African Interdisciplinary Studies (JAIS): **ISSN 2523-6725** (online)
April 2022 Vol. 6, No. 4

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies,* 6(4), 37 – 54.

The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda

By

Judith Iradukunda, Dr. Moses Mpiima Kibirango and Prof. Philip Maiyo

Introduction

The world has been undergoing a shift known as computer technology revolution since the early 20th century. Information Technology (IT) has been extremely important in various areas in this century, including manufacturing, finance, human resource management, and marketing. As a result, IT has improved efficiency, social welfare, and possibilities for productivity in a variety of organizations (Morakanyane, Grace & O'Reilly, 2017). Through the emergence of the internet, organizations that have used IT have advanced and improved the end-user computing experience in terms of work time reduction, innovation and creativity, cost reduction, competitiveness, motivation, and eventually economic growth.

The use of Information System (IS) is essential in the industry today, as it has grown over time to become an integral part of its activities to enhance productivity (Afandi, 2017). The use of IS in recent years has improved efficiency not just for companies, but also for people and also governments (Awan, 2016). To demonstrate quality content, IS must be coordinated, controlled and efficiently disseminated (Baur, 2017). The information system facilitates tasks such as the identification of new personnel, the maintenance of comprehensive records for current workers, and the development of projects to improve employee innovation and creativity, motivation (Shukla, 2009).

IS productivity for employees was associated with the market awareness of services with increased feedback from customers and brand change. The productivity of employees may be understood clearly as the worker's associated tasks and the performance of those activities (Macey, Schneider, Barbera, & Young, 2011). Often corporate staff directors then evaluate each staff member's annual and quarterly effectiveness to help workers find points of change that have been proposed (Macey et al., 2011).

Zutshi and Sohal (2015) observed that IS supports job assignment through coordination efficiency, collaboration and harmonization among the participants and other stakeholders, contributing to better and better processes. The IS also determines and makes a contribution to the general success of the organization. The purpose of IS is to increase employee morale and productivity in every organization, only when IS is warmly welcomed and used by company employees. Many companies lack IS inclusion processes, which result in workers' non-productivity (Gapp, Fisher & Kobayashi 2012).

Today, the government provides both the old personnel and new employees with instruction in the use of the information system, but the many old staff seems not interested in the basics and the information system, although the young staff is very interested in using this new system. The researcher was interested to know whether it is the use of IS by the young employees that makes them to do better or the older who are not interested in IS perform better. The results of IS use on employee productivity are thus identified in this study.

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies*, 6(4), 37 – 54.

Statement of the Problem

Technological transition is skill-based and high skill demand for low-skilled jobs is increasing as evidenced in many countries. Highly skilled employees are technology complementary, whereas low-quality workers may be replaced. Organizations who wish to increase their competitiveness and production have to live up to the changing trend to deal with globalization's impact and IS creativity. Although most staff, in particular the administrative and management staff, have not fully absorbed the IS use of their offices (Albion, 2019).

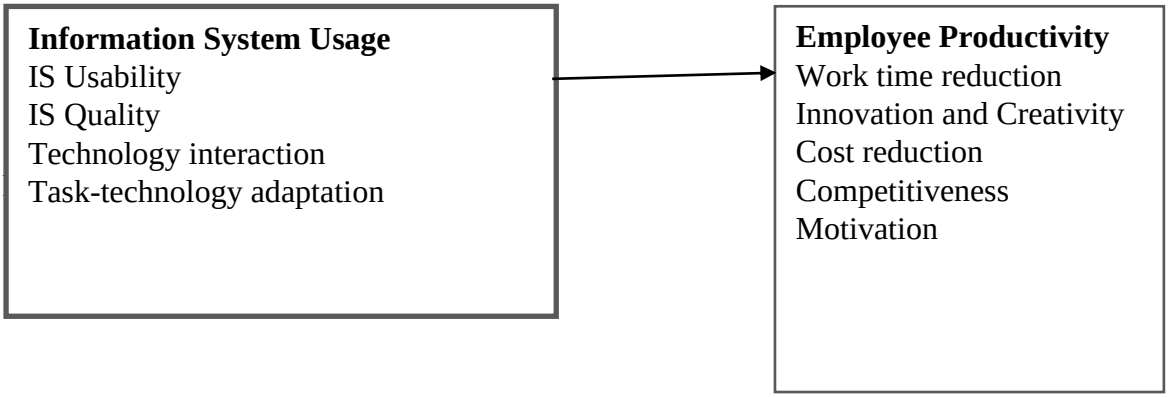
Research shows that companies in Rwanda are reported that the majority of their computers and information systems (IS) are not working and are usually not being used (Rogers, 2017). While IS can be regarded as essential in improving employee productivity and companies have launched strategies and made them a major element in their programs, despite its being an expensive undertaking, some workers especially the old staff of companies are still resisting the great need to gain appropriate skills and hence, high productivity in the use of IS. The failure of most staff to use IT according to Obaji (2012) resulted affecting productivity between companies in negative side.

The government of Rwanda has provided training to all old staff and new ones to cope the situation of IS amidst major resistance especially from the old staff. Many of these old staff lack basic knowledge and yet they continue to resist the adaption and use of IS. They use and prefer the traditionally old manual system of recording and posting of transactions and they perform well. It was however, not well evidenced in Bralirwa LTD whether there was significant relationship between information system usage and employee productivity among IS non-users' and IS users' and whether BRALIRWA's employee usage of IS enhance employee productivity.

Framework.

Conceptual Framework

Independent Variables **Dependent Variable**



Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies,* 6(4), 37 – 54.

Research Questions

1.What is the level of employee productivity in Bralirwa, Rwanda?
2.What is the level of Bralirwa, Rwanda IS usage by employees in terms of:
a. IS Usability?
b. IS Quality?
c. Technology interaction?
d. Task-technology adaptation?
3.Is there a significant relationship between:
a. IS Usability and employee productivity in Bralirwa Ltd, Rwanda among Bralirwa employees?
b. IS Quality and employee productivity in Bralirwa Ltd, Rwanda among Bralirwa employees?
c. Technology interaction and employee productivity in Bralirwa Ltd, Rwanda among Bralirwa employees?
d. Task-technology adaptation and employee productivity in Bralirwa Ltd, Rwanda among Bralirwa employees?

Null Hypothesis

Ho: There is no significant relationship between IS usage and employee productivity in Bralirwa Ltd, Rwanda among Bralirwa employees.

Review of Related Literature

Al-Gharaibeh and Malkawi (2013), did a study on the impacts of management information systems on the performance of governmental organizations at Jordanian ministry of planning. This study aimed to identify the impact of management information systems on the performance of governmental organizations, Jordanian Ministry of Planning as a case study. A sample of 77 employees was used, the study found: there is no impact of hardware and software equipment on the performance of governmental organizations, there is a significant impact of networks, individuals and procedures, and management information system as a whole on the performance of governmental organizations. They recommended that the ministry updating MIS continuously, engage employees in building systems, and train then on the system.

From the viewpoint of managers at the Kosar Financial Corporation, Sahragard Jahromi (2005) studied the impact of IS on employee productivity. To assess the effect of IS on these factors, efficiency elements, working speed, job methods and cost of the organization have been chosen. According to the findings, the use of IS is beneficial for accelerated job speed, improving work processes, reducing organizational costs, and improving the overall competitiveness in the Organization, according to managers in the organization studied.

Another problem that increased the need for IS is the increasing number of data and the need for common decision-making, says (Watson-Manheim, Bélanger 2007). In this, IS plays a key role. The knowledge overload and the way people deal with these phenomena is one of the biggest issues of all time on IS. An excess of information happens where information retrieval needs are higher within the time frames than the capacity to process it within today's firms, not just the volume of transmitted information but also the kind of information it receives. Individuals are increasingly involved in the work of science. The effort to decrypt and decode details has also increased (Oladapo, 2011).

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies,* 6(4), 37 – 54.

The discussions were about how much these inventions had both positive and negative consequences. These innovations also allowed the individual to adapt when and how such information is sent and received. It has also become a better way to get the right person informed in good time. The downside is that users are most often informed on many networks and that not all the information is available to the recipient. Several studies have shown that any external input received by an organism increases its efficiency. But this is just valid to a degree. After that point, more data does not increase the effectiveness of the employee, but simply makes it worse (Eppler & Mengis, 2014).

Any new tendency and development in today's quick, dynamic world is followed by new challenges, often difficult, which cannot be solved without new methods and technology and the implementation of them. Increasing acceptance and a strategic and realistic role in societies, in particular in organizations and companies, is one of the emerging innovations, which has (IS). The IS has played a significant role in inspiring organizations in recent years. Furthermore, the pace of growth of organizations with regard to IS usage can be used as one of the key development metrics (Almazán, Tovar & Quintero, 2017).

Researchers dealing with company-level data have recently identified important IS efficiency contributions (Almazán et al., 2017). Some of the study's findings reveal that there is a negligible association between IT expenditures and profitability or inventory measures for their analysis. The result of that is that IT expenditure is not quite efficient.

Methodology

This study adopted descriptive and correlation research design. The descriptive nature of this study provided the validity for generalizing its findings to a larger population. The relationship between information usage and employee productivity was determined by correlation analysis.

Sampling Technique

The sampling technique employed in this study was stratified random sampling. The respondents were divided into two strata according to the Bralirwa's branches (Limonaderie of Kigali and the brewery of Gisenyi) in which they belong. The sample frame was derived by requesting for a list of regular employees from human resource office. Simple random sampling was employed in picking out the sample from the different strata.

Research Instrument

The study used a self-administered questionnaire to collect primary data. The questionnaire consisted of close-ended questions only where the respondents were expected to give a rating on their agreement to a set of questions. Each item in the questionnaire was developed to address specific research questions. The questionnaire contained close-ended questions with a Likert scale which were used to scale responses in the study with means ranging from 1-5, where 1=strongly disagree, 2= disagree, 3= neutral, 4= agree and 5= strongly agree (Merriam, 2014). The researcher was guided by the dependent and independent variables of the study in developing the questionnaire.

Statistical Treatment of Data

Data that was gathered in this study was coded and entered into SPSS version 25 for windows for statistical analysis which was the software to be used in for data analysis. Cronbach's alpha was used to test the reliability and validity. Both descriptive and inferential statistical

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies*, 6(4), 37 – 54.

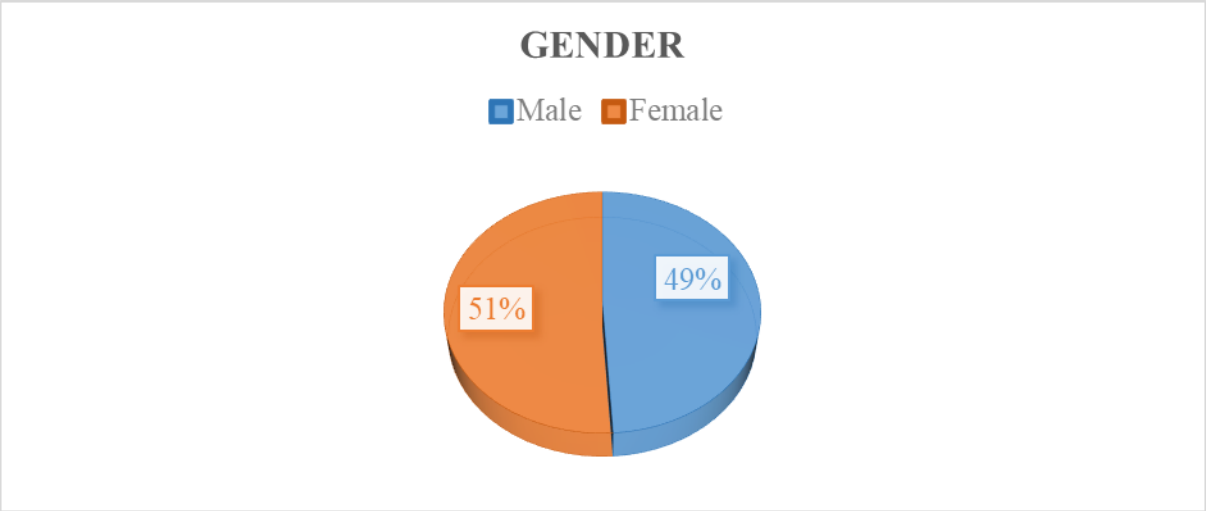
techniques were used during statistical analysis of data. Descriptive statistics include included mean and standard deviation. Inferential statistics was correlation analysis of the relationship between IS and employee productivity. The researcher used tables, graphs and charts for presentation of findings. This formed the basis of interpretation, discussion, conclusion and recommendations of the research (Giudici, Ingrassia & Vichi, 2013).

Ethical Considerations

The study observed anonymity, informed consent, confidentiality, avoidance of risk, avoidance of harm, permissions, academic integrity and objectivity. The questionnaires were coded to conceal the identity of individual respondents from the different branches. Once the data was obtained, questionnaires were kept in a safe place where third party cannot access them.

Presentation of Findings

Chart1: Gender of Respondents

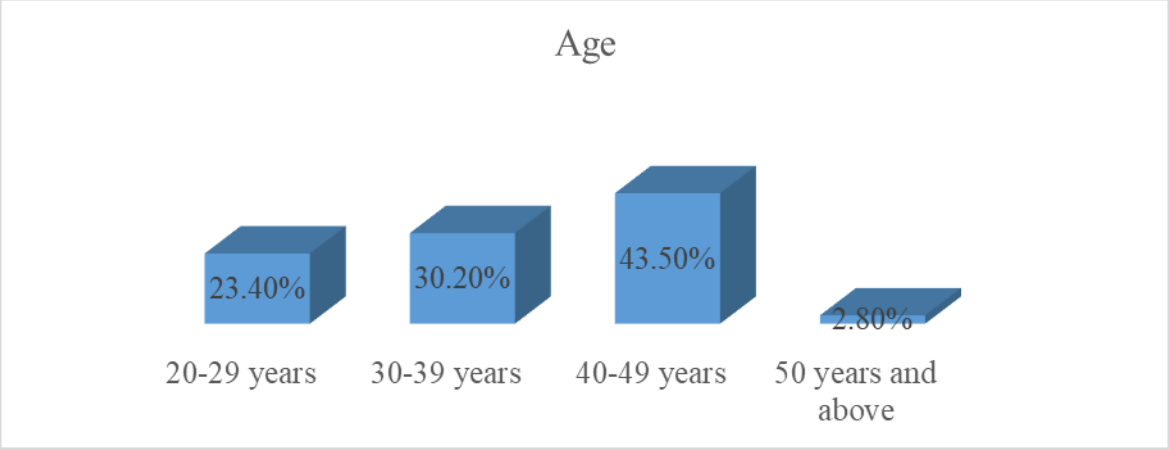


Source: Field data

The respondents were almost equally represented, whereby (51%) were male and 49% of the respondents were female. To know the gender of the respondents was important in this study as it reveals the gender disparity in the company. Therefore, this confirms that there was no bias on the study since both male and female gender was represented. However, the results reveal that the company has a small gap between male and female employees.

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies*, 6(4), 37 – 54.

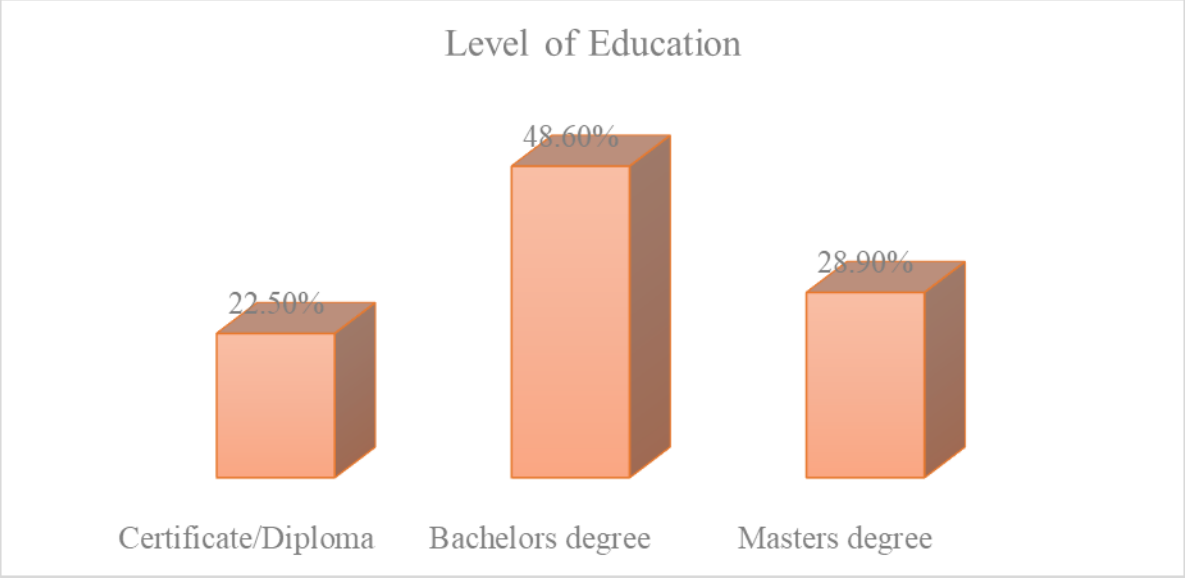
Chart 2: Age of Respondents



Source: Field data

To find out the ages of the respondents, the researcher summarized the ages as follows. 43.5% of the respondents belonged to 40-49 years' age bracket, 30.2% belonged to 30-39 years' age bracket, and 23.4% belonged to 20-29 years' age bracket with only 2.8% of the respondents being aged 50 years and above. The government of Rwanda has provided training to all old staff and new ones to cope the situation of IS amidst major resistance especially from the old staff. Many of these old staff lack basic knowledge and yet they continue to resist the adaption and use of IS. And according to the finding the age of the respondents was crucial to this study as the reliability of the information from respondents corresponds to their ages. It revealed that the majority of using IS was the youngest staff (97.1) while the old staff was (28%) only.

Chart 3: Level of Education

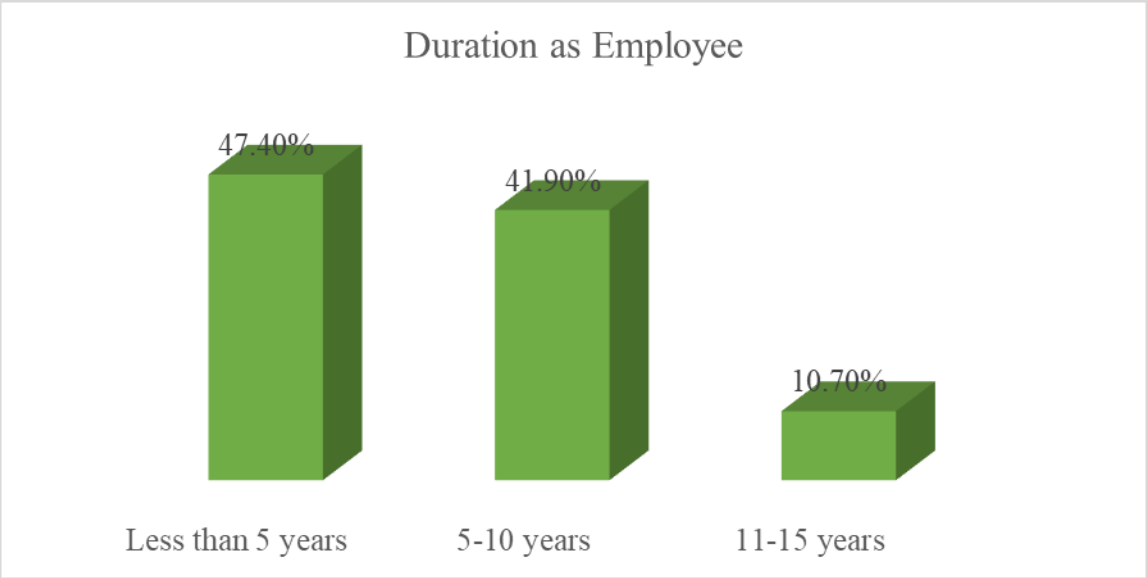


Source: Field data

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies*, 6(4), 37 – 54.

Education reveals the perception of respondents on the topic of study. It is believed that respondents who are more learned can handle the topic of study better than the respondents with low level of education. From chart 3 above, majority of the respondents (48.6%) had bachelor's degree, 28.9% had master's degree with only 22.5% having certificate/diploma levels of education. And the majority of the respondents were (77.5%) which means that the information's got from them were satisfactory.

Chart 4: Duration as an Employee

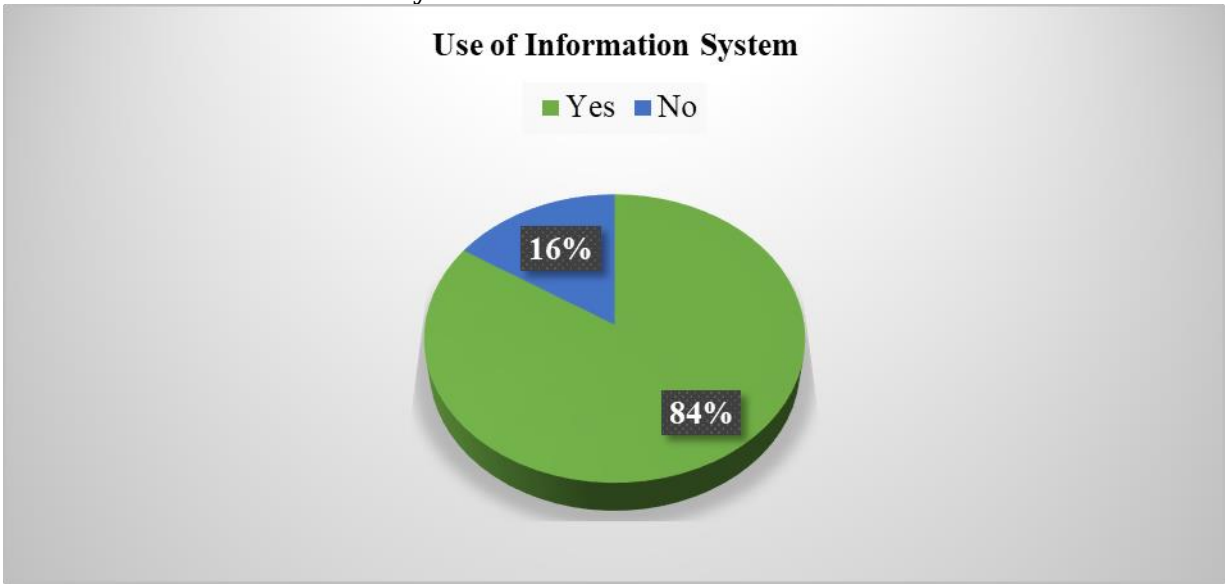


Source: Field data

This study looked at the number of years the employees have worked in the company, finding out the number of years worked by the employee's reveals experience that the employees have had in the company relating to efficiency in the environment. From figure 5 above, majority of the respondents (47.4%) had worked for less than 5 years, 41.9% of the respondents had worked for 5-10 years and only 10.7% had 11-15 years of experience. The high duration as an employee in the company helped the researcher to get useful analysis based on their experience (52.6%).

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies*, 6(4), 37 – 54.

Chart 5: Use of Information System



Source: Field data

The researcher also found out the fraction of employees who use information system. From chart 5 above, majority (84%) reported to have been using information system with only 16% of the employees indicating that they did not use information system. This result was positive result as far as the study was concerned. This implies that Bralirwa Company practice the use of information system hence it was the best company which the researcher could use to meet the objectives of this study.

Table 1: Employee Productivity

Descriptive Statistics			
	N	**Mean**	**Std. Deviation**
We are able to reduce work time as employees	253	4.22	.608
In my department, innovation and creativity is witnessed	253	4.45	.638
In my department, cost reduction has been witnessed	253	4.23	.778
We practice healthy competition as employees	253	4.30	.664
The company motivates all the employees	253	4.43	.666
Employee Productivity	**253**	**4.326**	**.6708**

Source: Field data

From table 1 above, respondents indicated that they are able to reduce work time as employees, in their department, innovation and creativity is witnessed, cost reduction has been witnessed, they practice healthy competition as employees and the company motivates all the employees with means of 4.22, 4.45, 4.23, 4.30 and 4.43 and standard deviations of 0.608, 0.638, 0.778, 0.664 and 0.666 respectively. These findings imply that the employee was very good at reducing work time, innovation and creativity, reduce cost, healthy competition and the company was very good at motivating all the employees.

On an average, the findings on employee productivity produced a mean of 4.326 and a standard deviation of 0.6708 which is a low standard deviation indicating that the response on

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies,* 6(4), 37 – 54.

productivity tends to be closer to the mean. This means that the employee productivity at Bralirwa Company, Rwanda was very good (3.50 – 4.49 very good productivity). This implies that there is a very good level of employee productivity at Bralirwa Company, Rwanda.

Table 2: Information System Usability

Descriptive Statistics

	N	Mean	Std. Deviation
The use of information system improves our service towards work time reduction	253	3.91	.574
The use of information system facilitates innovation and creativity in my department at a faster rate	253	3.92	.551
Information system helps us in our departments to achieve cost reduction.	253	3.74	.803
Our competition is enabled by information system within the company	253	4.10	.694
The better motivation provided by the company to the employees is enhanced by the use of information system	253	4.26	.656
Information System Usability	**253**	**3.986**	**.6556**

Source: Field data

From table 2 above, respondents agreed that their competition is enabled by information system within the company and the better motivation provided by the company to the employees is enhanced by the use of information system with means of 4.10 and 4.26 and standard deviations of 0.649 and 0.656. Respondents were neutral that the use of information system improves their service towards work time reduction, facilitates innovation and creativity in their departments at a faster rate and helps them to achieve cost reduction with means of 3.91, 3.92 and 3.74 and standard deviations of 0.574, 0.551 and 0.803 respectively.

On an average, this study produced a mean of 3.98 and a standard deviation of 0.6556. This was a low standard deviation which means that all the responses were very closer to the mean. This means that the information system was used almost every time at Bralirwa Company, Rwanda (3.50 – 4.00 used almost every time). This finding implies that at Bralirwa Company, Rwanda, information system is used almost every time.

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies,* 6(4), 37 – 54.

Table 3: Information System Quality

Descriptive Statistics			
	N	**Mean**	**Std. Deviation**
Effective work time reduction in my department results from the quality of information system	253	3.92	.517
The quality of innovation and creativity witnessed in all departments originates from the quality of information system	253	4.14	.657
The cost reduction witnessed in all departments produces the quality of information system	253	3.77	.657
The company encourages qualitative competition through quality of information system	253	3.96	.632
All departments are able to achieve their goals and objectives through the quality of information system which the company encourages through productive motivation	249	4.07	.767
Information System Quality	**252**	**3.972**	**.646**

Source; Field data

From table 3 above, respondents agreed that the quality of innovation and creativity witnessed in all departments originates from the quality of information system and all departments are able to achieve their goals and objectives through the quality of information system which the company encourages through productive motivation with means of 4.14 and 4.07 and a standard deviation of 0.657 and 0.767. Respondents were neutral that effective work time reduction in their department results from the quality of information system, the cost reduction witnessed in all departments produces the quality of information system and the company encourages qualitative competition through quality of information system with means of 3.92, 3.77 and 3.96 and standard deviations of 0.517, 0.657 and 0.632 respectively.

Averagely, the study yielded mean of 3.972 and a standard deviation of 0.646. This was a low standard deviation implying that the individual responses were closer to the mean. This means that there was a high information system quality at Bralirwa Company (3.50 – 4.49 high quality). This implies that there is a high quality of information system at Bralirwa Company, Rwanda.

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies*, 6(4), 37 – 54.

Table 4: Technology Interaction

Descriptive Statistics			
	N	**Mean**	**Std. Deviation**
We are able to reduce our work time through technology interaction.	249	4.04	.665
Our innovation and creativity as employees is effective when with technology interaction	249	4.04	.680
The cost of reduction witnessed in the departments is continually improved by technology interaction	249	3.88	.736
Through technology interaction, competition presents to us better opportunities as employees	249	3.92	.691
Our productivity is increased by delivery of excellent motivation through technology interaction	253	4.10	.727
Technology Interaction	**250**	**3.996**	**.6998**

Source: Field data

From table 4 above, respondents agreed that We are able to reduce our work time through technology interaction, our innovation and creativity as employees is effective when with technology interaction and Our productivity is increased by delivery of excellent motivation through technology interaction with means of 4.04, 4.04 and 4.10 and standard deviations of 0.665, 0.680 and 0.727 respectively. Respondents were neutral that the cost of reduction witnessed in the departments is continually improved by technology interaction and through technology interaction, competition presents to us better opportunities as employees with means of 3.88 and 3.92 and standard deviations of 0.691 and 0.727 respectively.

On an average, the study yielded a mean of 3.996 and a standard deviation of 0.6998. This was a low standard deviation which means that the responses on technology interaction were closer to the mean.

This means that the technology interaction at Bralirwa Company Rwanda was good (3.50 – 4.49 good interaction). Therefore, the finding of this study implies that at Bralirwa Company, Rwanda, there is a good technology interaction.

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies,* 6(4), 37 – 54.

Table 5: Technology Adaptation

Descriptive Statistics			
	N	**Mean**	**Std. Deviation**
Our work time reduction strategy in the departments is evaluated through task	253	4.11	.635
Our creativity and innovation is aided by the task technology adaptation and helps us to improve our productivity.	253	3.98	.672
In my department, the cost of all followed procedures is reduced through task technology adaptation	253	3.90	.741
We develop a permanent system of competition through task technology adaptation	253	4.04	.697
Our task technology adaptation is a tool which is used as our motivation	253	4.08	.795
Technology Adaptation	**253**	**4.022**	**.708**

Source: Field data

From table 5, respondents agreed that their work time reduction strategy in the departments is evaluated through task, they develop a permanent system of competition through task technology adaptation and their task technology adaptation is a tool which is used as their motivation with means of 4.11, 4.04 and 4.08 and standard deviations of 0.635, 0.697 and 0.795 respectively. Respondents were neutral that their creativity and innovation is aided by the task technology adaptation and helps them to improve their productivity and in their department, the cost of all followed procedures is reduced through task technology adaptation with means of 3.98 and 3.90 and standard deviations of 0.672 and 0.741 respectively.

On average, the findings of this study produced a mean of 4.02 and a standard deviation of 0.708. The low standard deviation is an indication that the individual responses were closer to the mean.

This means that technology adaptation at Bralirwa Company, Rwanda was excellent (4.50 – 5.00 excellent adaptation). This finding implies that at Bralirwa Company, Rwanda, there is an excellent technology adaptation.

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies*, 6(4), 37 – 54.

Table 6: Correlation between Information System Usage and Employee Productivity

Correlations

Do you use information system?			Employee Productivity	IS Usability	IS Quality	Technology Interaction	Technology Adaptation
Yes	Employee Productivity	Pearson Correlation	1	.308**	-.025	.368**	.436**
		Sig. (2-tailed)		.000	.722	.000	.000
		N	213	213	209	209	213
	IS Usability	Pearson Correlation	.308**	1	.479**	.623**	.392**
		Sig. (2-tailed)	.000		.000	.000	.000
		N	213	213	209	209	213
	IS Quality	Pearson Correlation	-.025	.479**	1	.530**	.253**
		Sig. (2-tailed)	.722	.000		.000	.000
		N	209	209	209	209	209
	Technology Interaction	Pearson Correlation	.368**	.623**	.530**	1	.393**
		Sig. (2-tailed)	.000	.000	.000		.000
		N	209	209	209	209	209
	Technology Adaptation	Pearson Correlation	.436**	.392**	.253**	.393**	1
		Sig. (2-tailed)	.000	.000	.000	.000	
		N	213	213	209	209	213
No	Employee Productivity	Pearson Correlation	1	-.563**	-.499**	-.174	-.312**
		Sig. (2-tailed)		.000	.001	.282	.050
		N	40	40	40	40	40
	IS Usability	Pearson Correlation	-.563**	1	.914**	.655**	-.151
		Sig. (2-tailed)	.000		.000	.000	.351
		N	40	40	40	40	40
	IS Quality	Pearson Correlation	-.499**	.914**	1	.617**	-.169
		Sig. (2-tailed)	.001	.000		.000	.296
		N	40	40	40	40	40
	Technology Interaction	Pearson Correlation	-.174	.655**	.617**	1	.329**
		Sig. (2-tailed)	.282	.000	.000		.038
		N	40	40	40	40	40
	Technology Adaptation	Pearson Correlation	-.312**	-.151	-.169	.329**	1
		Sig. (2-tailed)	.050	.351	.296	.038	
		N	40	40	40	40	40

**. Correlation is significant at the 0.05 level (2-tailed).

Source: Field data

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies*, 6(4), 37 – 54.

As indicated in table 7 above, there was a weak positive significant correlation between IS usage and employee productivity among IS users (Pearson correlation coefficients of 0.308 and a P value of 0.000). There was a moderate positive correlation between technology interaction and employee productivity among IS users (Pearson correlation coefficients of 0.368 and a P value of 0.000). There was a moderate significant correlation between technology adaptation and employee productivity among IS users (Pearson correlation coefficients of 0.436 and a P value of 0.000). There was no significant correlation between IS quality and employee productivity among IS users (P value of 0.722).

As indicated in table 7 above, there was a strong negative significant correlation between IS usage and employee productivity among IS non-users (Pearson correlation coefficients of -0.563 and a P value of 0.000). There was a strong negative correlation between IS quality and employee productivity among IS non-users (Pearson correlation coefficients of -0.499 and a P value of 0.001). There was a negative moderate significant correlation between technology adaptation and employee productivity among IS non-users (Pearson correlation coefficients of -0.312 and a P value of 0.050). A negative relation, also known as inverse relation, is a relationship between two variables in which when one variable's value is high, the other variable's value is likely low. This means that when IS usage is low, the employee productivity among IS non-users is high, when IS quality is low, employee productivity among IS non-users is high and when technology adaptation is low, employee productivity among IS non-users is high. However, there was no significant correlation between technology interaction and employee productivity among IS non-users (P value of 0.282).

From the analysis, the correlation matrix indicates that the independent variables are very crucial determinants of the employee productivity as indicated by their positive and negative relationship with the dependent variable; employee productivity. The findings of this study reveal that among the IS users, employee productivity has a weak positive significant correlation with IS usage, a moderate positive correlation with technology interaction and adaptation. Among IS users, there was no correlation between employee productivity and IS quality. The findings of this study also reveal that among IS non-users, there was a strong negative significant correlation between employee productivity and IS usage. There was a negative moderate significant correlation between employee productivity and technology adaptation. However, there was no significant correlation between employee productivity and technology interaction among IS non-users because they were not interested in using IS.

Therefore, this study found out that among IS users, employee productivity has a positive weak and moderate relationship with IS usage, technology interaction and adaptation respectively. However, there is no relationship between employee productivity and IS quality. This implies that a change in IS usage, technology interaction and adaptation will positively influence employee productivity. A change in IS quality does not influence employee productivity. Among IS non-users, there is a moderate and strong negative significant relationship between employee productivity and technology adaptation, IS usage and IS quality respectively. However, there is no relationship between employee productivity and technology interaction among IS non-users. This implies that a change in IS usage and quality and technology adaptation will have a negative influence on employee productivity. A change in technology interaction will have no influence on employee productivity.

The findings of this study do not deviate from the viewpoint of managers at the Kosar Financial Corporation, Sahragard Jahromi (2005) who also determined that the use of IS is

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies*, 6(4), 37 – 54.

beneficial for accelerated job speed, improve work processes, reduce organizational costs and improve the overall competitiveness in the Organization, according to managers in the Organization studied. This was still the same as Aghaei (2005) analysis on the IS-productivity relationship of the Gas Complex Company South Pars where they concluded that IT implementation would improve productivity. Therefore, it is crucial for Bralirwa Company, Rwanda to invest on the use of information system to obtain maximum productivity from the employees.

Conclusion

The researcher was in a position to make the following conclusions as based on the findings of this study. First, it established that employee productivity at Bralirwa Company, Rwanda is very good. Second, the study found out that the information system was used almost every time at Bralirwa Company, Rwanda. Third, there is a high information system quality at Bralirwa Company Rwanda. Fourth, the technology interaction at Bralirwa Company, Rwanda is good. Fifth, the technology adaptation at Bralirwa Company, Rwanda is excellent. Sixth, among IS users, employee productivity has a positive weak and moderate relationship with IS usage, technology interaction and adaptation respectively while there is no relationship between employee productivity and IS quality. Among IS non-users, there is a moderate and strong negative significant relationship between employee productivity and technology adaptation, IS usage and IS quality respectively while there is no relationship between employee productivity and technology interaction among IS non-users.

Recommendations

The researchers were in a position to make the following recommendations with reference to the findings from this study. First, it recommends that Bralirwa Company, Rwanda should invest on IS usage, technology interaction and adaptation because they positively contribute to the employee productivity. The company can also benefit from information system usage of other similar companies as a benchmark to help in improving the information system usage to enhance more productivity of its employees. Second, with reference to findings of this study, there is need for Bralirwa Company, Rwanda to improve on the quality of information system in order to enhance employee productivity.

Recommendation for Further Studies

This study was focused on IS usability, IS quality, technology adaptation and interaction as the measures for information system usage. Similar studies to be conducted on other information system usage measures other than IS usability, IS quality, technology adaptation and interaction. Finally, this study used Bralirwa Company, Rwanda as a case study, other studies are therefore recommended to be done in other companies to help in confirming the findings of this study.

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies,* 6(4), 37 – 54.

References

Abrego Almazán, D., Sánchez Tovar, Y., & Medina Quintero, J. M. (2017). Influencia de los sistemas de información en los resultados organizacionales. Contaduría y administración, 62(2), 303-320.

Afandi, R.R., & Jali, M.Z (2017). ChoCD: usable and secure graphical password authentication scheme. *Indian Journal of Science and Technology*, 10(4).

Al-Gharaibeh, S. M., & Malkawi, N. M. (2013). The impact of management information systems on the performance of governmental Organizations-Study at Jordanian ministry of planning. *International Journal of Business and Social Science, 4(17), 101-109.*

Awan, A.G. & Rana Ejaz A. Khan (2014) "*The Engima of US Productivity Slowdown*: A Theoretical Analysis", American Journal of Trade and Policy, Vol 1 (1):7-15.

Baur, A. W. (2017). Harnessing the social web to enhance insights into people's opinions in business, government and public administration. *Information Systems Frontiers, 19(2), 231–251.*

Comi, A., Bischof, N., & Eppler, M. J. (2014). Beyond projection: Using collaborative visualization to conduct qualitative interviews. *Qualitative Research in Organizations and Management: An International Journal*.

Gapp, R., Fisher R., & Kobayashi, K. (2012). Implementing 5S within a Japanese context: an integrated management system. *Management Decision, 46(4), 565 – 579.*

Giudici, P., Ingrassia, S., & Vichi, M. (2013). *Statistical models for data analysis/editors Paolo Giudici, Salvatore Ingrassia, and Maurizio Vichi*. Switerland: Springer International publishing.

Macey, W. H., Schneider, B., Barbera, K. M., & Young, S. A. (2011). *Employee engagement: Tools for analysis, practice, and competitive advantage. John Wiley & Sons.*

Morakanyane, R., Grace, A. A., & O'reilly, P. (2017). Conceptualizing Digital Transformation in Business Organizations: *A Systematic Review of Literature. Bled eConference, 21*.

Obaji, S. G., Cooper, R., & Somauroo, J. (2012). Chiari network: a protective filter against pulmonary embolism in a case of polycythaemia. Case Reports, 2012, bcr0520114289.

Sharma, V., Shukla, R. K., Saxena, N., Parmar, D., Das, M., & Dhawan, A. (2009). DNA damaging potential of zinc oxide nanoparticles in human epidermal cells. *Toxicology letters, 185(3), 211-218.*

Rezaei, M., Rezaei, M., Zare, M., Akbarzadeh, H., & Zare, F. (2014). The effects of information technology (IT) on employee productivity in Shahr Bank (case study of Shiraz, Iran). Applied mathematics in engineering, management and technology, 9(1), 1208-1214.

Rostkowski, P., Horwood, J., Shears, J. A., Lange, A., Oladapo, F. O., Besselink, H. T., ... & Hill, E. M. (2011). Bioassay-directed identification of novel antiandrogenic compounds in bile of fish exposed to wastewater effluents. Environmental science & technology, 45(24), 10660-10667.

Watson-Manheim, M. B., & Bélanger, F. (2007). Communication media repertoires: Dealing with the multiplicity of media choices. *MIS quarterly*, 267-293.

Citation: Iradukunda, J; Kibirango, M. M & Maiyo, P. (2022). The Effect of Information System Usage on Employee Productivity: A Case of Bralirwa Limited, Rwanda. *Journal of African Interdisciplinary Studies,* 6(4), 37 – 54.

Wilkin, C. L., Couchman, P. K., Sohal, A., & Zutshi, A. (2016). Exploring differences between smaller and large organizations' corporate governance of information technology. *International Journal of Accounting Information Systems, 22, 6-25.*

Willig, C., & Rogers, W. S. (Eds.). (2017). *The SAGE handbook of qualitative research in psychology*. Sage.

Wu, T., & Albion, P. (2019). Investigating remote access laboratories for increasing pre-service teachers' STEM capabilities. *Journal of Educational Technology & Society, 22(1), 82-93.*