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Adoption of IT within an organization by employees

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Abstract

People live currently in a dynamic world where technology is at the center of everything. Organizations implement sophisticated information technologies in their businesses to achieve competitive advantage, and also to achieve their objective goals. Currently, information technologies aid organisation success as they support business processes and operational functions. This has placed a challenge on employees as they find themselves keeping up with the changes. This study will look at how new and changing information technology can be adopted by employees, as the success of implementation of any technology in an organisation lies in employees adapting to the change. The study will be investigated at Fan Milk PLC a leading manufacturer and marketer of healthy, nutritious and safe frozen dairy and non-frozen dairy food products with distribution channels across the length and breadth of Nigeria. The focus will be on factors that influence employee's adopting changing information technology. User resistance, user acceptance, individual performance, individual experience, level of education and age difference will be the factors to be considered. The positive and negative influence of these factors on an organisation will be determined and discussed in this study.

Keywords

user resistance, user adaptation, individual performance, age difference.

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1. Introduction

The introduction of different technologies or new technologies in organizations has brought challenges to the employees and the organization itself; as they have to take some time (considerable time or too long a time depending on individuals who are to adopt the new or changing technology) to fully understand and utilize the full functions of the innovation.

Change in information technology has come to affect the performance of the employee hence, affecting the business as a whole. It is a necessity in most if not all organisations to upgrade their information systems, adding business tools, advancing in-house information technologies and adding features of applications in the technology frequently.This study focuses on: user resistance, user acceptance, individual performance, individual experience, level of education and age difference as constructs that affect adoption of technology. [6], explained resistance behaviour as a response to threats that an individual associates with a new system. While previous researchers have explored the reasons for user resistance, this study will explore user resistance in the context of adapting to technological change. [3], user adoption is an effort performed by users or employees to cope with significant information technology events that occur in their work environment. The introduction of new technology can turn to be stressful to employees hence can affect their performance on assigned tasked.

Adoption of new technology is also directly affected by the planning and management process, making it easier for the employees who play a major role in implementing the technologies [2]. When it comes to level of education, after adoption employees who are more educated usually adapt quickly to new technology than the less educated ones. While on the other end when it comes to age, some researchers may argue that after adoption younger employees adapt faster than older employees to new technology implemented in organizations.This paper is informed by a case study of Fan Milk Plc., a leading manufacturer and marketer of healthy, nutritious and safe frozen dairy and non-frozen dairy food products in Nigeria.

The objectives of the study were to;

i. To determine whether user resistance plays a role in employee's adoption of new technology or new information systems in an organizations.
ii. Determine how different employee age groups adopt new information systems in an organisation.
iii. Determine whether Hedonic motivation foster user acceptance of new technologies or new information system in an organisation environment.
iv. To determine whether individual performance is affected by the adoption to changing information systems.
v. To determine the effect of level of education on technology adoption
vi. To determine the effect of individual experience on technology adoption

2. Related Work

[5], examine "employee's reaction to adaptation of technology innovation along the lines". The researcher discovered that 'perceived compatibility of the changes being assimilated was inversely related to employee perception of stress for both men and women'. He focused on stress in women and men hence, this study will not look at gender when it comes to adoption but on an employee as an individual. However, that does not signify that such findings will be ignored as they can stretch the understanding of the researcher. [7] looked at age as an influence comparing older workers, younger workers in adopting technology, on this research we will compare the two to determine which age group adopt information technologies faster.

[9], on their research examined the relationships between employee reactions to specific technological changes and job-related attitudes for these employees. The results of this research indicated that individuals involved in making decisions related to the technology changes reacted more positively to the changes than individuals with low levels of involvement. We can translate these findings to mean that individuals with higher pre-change level of role ambiguity reacted more negatively to the technology changes. This paper has proven this hypothesis.

[4], researched on how to determine who will be mostly impacted by the introduction of new technology into an organization. This gave organizations insight to employees who will be impacted by the introduction but, this still did not state the influencing factors. They identified lack of planning and managing the new introduced technology as the main problem. These problems directly affect employees when adopting new technology. This study will, closely examining the impact of the change on employees.

[8], provides empirical evidence that supports education as a means to enhance technology adoption and diffusion. However, it did not compare experience and level of education in order to deduce their relationship and link to its effect to adoption. This study will compare the two and how they relate to the adoption process of technology. The general assumption is that individuals who are more educated and have lots of experience adopt technology easily, than those who are more educated while having less experience. This research will test on that hypothesis.

[1] Asserts that, SMEs are exposed to high competitive pressure. When they wish to survive current business competition, they have to search for new business opportunities. This effort has to be significantly supported by information and technologies. But the implementation of ICT can cause a number of issues for SMEs, such as insufficient financial sources, lack of experience with ICT and insufficient knowledge and skills in the area of computer literacy of employees.

This means that whenever organizations are to adopt innovations they have to put in considerations a lot of factors that affect the adoption. This is why this research is of much importance so that organizations may use it to identify the hidden threats that are likely to happen if they are to adopt any technology.

3. Methodology

This empirical study was conducted by using a survey approach. A structured closed-ended questionnaire was administered to Fan Milk Plc., employees to examine how employees adopt new information systems in the organization. Participants for this study were selected from top, middle and low level management. Only participants who are involved in decision making within the organization were sampled. Simple random sampling was used for this study. According [10], simple random is an example of probability sampling. This is when a list containing all of the population is created and used to obtain

participants by random selection. This random selection guarantees that each individual has an independent and equal chance of being selected. This method is very fair, unbiased and easy to carry out. 300 questionnaires were distributed and 269 were usable, so the results obtained are based on the 269 usable questionnaires.

Based on the quantitative research approach selected, this study was more exploratory. The study was set to determine patterns in data during analysis so as to make significant conclusions. The intention was to get information of how the identified factors influence the adoption of technology. Hence, this study followed the positivism paradigm.

4. Research findings

SPSS (statistical package for social sciences) was used to analyse the data. More specifically the model used to analyse the data was a descriptive statistics analysis. It analysed and produced the frequency of responded per question.

4.1 User resistance

For user resistance the above questions were asked to conclude if resistance was an influencing factor to employee adoption. Key word or key questions were asked to analyses what could be the course of the resistance, e.g. training, management support and employee feedback. This key element allowed the researcher to look into their response.

Table 4.1: User resistance

User resistance	Yes	No
In the past year or so has the organisation changed systems, added new feature or implement a totally new system?	100	0%
Were the system changes major on the system?	67%	33%
Were you told about the system changes before they were implemented?	75%	25%
Was your input required in the system development phase?	38%	62%
Were you asked to select the system to be implemented?	12%	88%
Were you part of the decision making to implement the system?	12%	88%
Did you think it was necessary for the change of the system?	88%	12%
User resistance	Yes	No
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Was your input required in the system development phase?	38%	62%
Were you asked to select the system to be implemented?	12%	88%

4.2 Age

Table 4.2: Age group (20-35 & 35 and above)

	Age between 20-34		**Age above 35**	
	YES	NO	YES	NO
Do you think your age is a barrier in learning the system?	100%	0 %	7%	93 %
Do you think age influence the way you are learning the system?	30%	70 %	21 %	79 %
Is the system easy to use?	100%	0 %	78 %	22 %
Do you think age has a role to play in using the system with ease?	40%	60 %	50 %	50 %

This section was the most sensitive, the questions were structured to try and avoid users feeling offended. Few elements were used to view the impact of age on adoption, age as a barrier.

4.3 User acceptance

Table 4.3: User acceptance

User Acceptance	YES	NO
Are the system features you use to perform your job easy to use?	75%	25%
Are you finding it difficult to operate the system?	91%	9%
Do you think it will make your job easy?	30%	70%
Do you enjoy working on the system?	75%	25%
Do you feel any pressure when using the system?	763%	37%
Do you operate the system with any difficulties?	75%	25%

In user acceptance the aim was to determine acceptance on the new systems in the organization. Looking on the results table above there is no doubt that the system was accepted according to the employee's responses.

4.4 Individual performance

Table 4.4: Individual performance

Individual performance	YES	NO
Did the system change affect your performance	58%	42%
Has the change of system impacted your performance negatively	9%	91%
Do you think you have the right skills to operate the new system	76%	24%
Do you take twice the time to finish a task that tool you less time before the change	17%	83%
Do you sometimes need assistance with completing a task using the system	56%	44%
Does using the system make you more productive	82%	18%
Are there any features of the system that you do not understand	45%	55
Do you think the system will improve your performance	95%	5%
Will using the system in your job enable you to accomplish personal goals in your job	91%	9%

This study also examined individual performance of employees in the changing information systems environment. Individual performance can be affected by the introduction of new technology since it can be stressful to an employee. The demand on the employees associated with constant learning and updating of their technical skill sets can pose a heavy burden. The figure below shows the response of the employees to the questions.

4.5 Level of education

Table 4.5: Level of education

	YES	NO
Do you think your level of education affected adoption of the system?	88%	12%
Do you think your level of education influence the way you are learning the system?	90%	10%
Do you think level of education has a role to play in using the system with ease?	60%	40%

The research also investigates how adoption was affected by level of education. The aim was to determine the relationship between adoption and level of education. From the results obtained above the level of education does affected adoption. However generally 40% of the users of the system think that once the system has been adopted using the system at ease is independent of the level of education

4.6 Age versus level of education

Table 4.6: Age versus level of education

	Age between 20-34			Age above 35	
	YES	NO		YES	NO
Do you think your level of education affected adoption of the system?	100%	0%		75%	15%
Do you think your level of education influence the way you are learning the system?	100%	0%		27%	83%
Do you think level of education has a role to play in using the system with ease?	86%	14%		55%	45%

The comparison of age versus level of education brought out the fact that young people who are just coming from university or school are very convinced that level of education plays a role in adoption of technology. While on the other hand adults though they feel it affects adoption in the positive by some percentage think it doesn't affect adoption.

5. Finding discussion

5.1 User Resistance

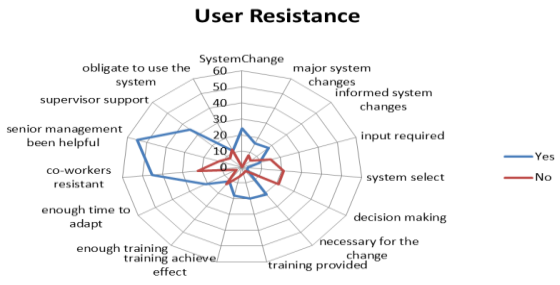

Figure 5.1: Graphical representation of user resistance

This graphic presentation shows the finding in a clearer way the responses that are clustered at the centre are said to be weak than on the far end where it shows one that is strong among the participant. Eighty-two (82%) percent of the employee said that senior management has been helpful with the change, meaning they showed their support. Looking at the co-worker response, more employees (67%) said that there was no resistance among their co-worker which is more than those who said co-workers are resistant to the change. From the analyses it is noticed that employees are not happy with the lack of Management support. They felt there was no clear reason for the change from management. Employees felt that management must have ensured that employees have all resources (including training) required for smooth transition. Observing the graph, 54% responded saying the training was not enough. This can be the cause of the employees' resistance (user resistance). The graph also shows that 88% of responded said they were not consulted if there is need for adoption of the new technology and they were not part of the decision making, we can conclude that this element do cause resistance among employees.

5.2 Age

The graph below clearly shows that employees between the ages of 20-35 see age has no barrier in learning the new system. The graph shows the value next to zero, has less response in yes or no and the values towards 12 shows a stronger responses. This group shows that for them it will be easy to use the system. From the data we can deduce that age is a factor for them (age 20-35) to adopt system changes.

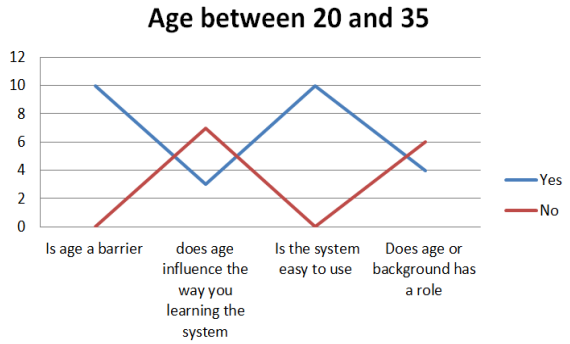

Figure 5.2.1: Graphical representation of ages between, 20-34.

Figure5.3 below clearly shows the differences in the responses of the two age groups. 50% of responded said yes age play a role on learning the system and the same among of employee felt no its not.

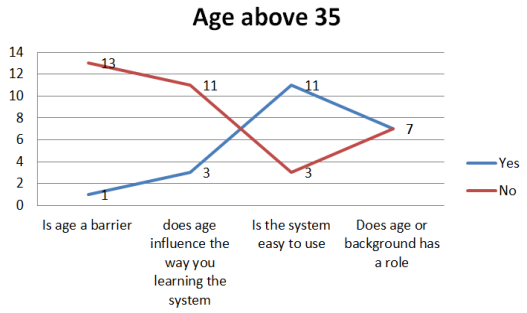

Figure 5.2.2: Graphical representation of age above 31

Observing both age groups, one can deduce that age in both groups is not a barrier adapting to the new system but, from the analysis it can be deduced that older group has difficulties in learning new systems. Hence one can deduce that age is a factor in adoption but, it does not show itself strongly hence someone else can agree with it otherwise. Comparing the two groups from the analyses, we can say that the younger group performs their task faster. Age may not be a factor strongly represented in this research but, it certainly plays a role in the adoption.

5.3 User Acceptance

Figure5.4 below shows that in every element used to measure user acceptance, more respondents, responded with a positive answer, which signifies the acceptance of the system in the company. This does not signify that there is no employee who found it hard to utilise but, the positive (yes) response outweighs the negative (no) responses. Hence, from these analyses we can conclude that the new system will be accepted. This clearly shows that user acceptance affects adoption in a positive way in this study.

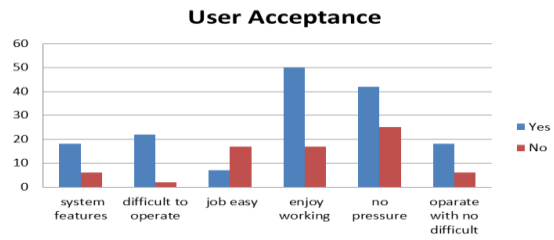

Figure 5.3: Graphical representation of user acceptance.

5.4 Individual performance

Individual performance is presented below in percentage in yes and no's values. The graphs shows that ninety-one (91%) per-cent said the system will not affect them negatively which signifies that only nine (9%) per-cents perceives a negative impact by the change. We can conclude by saying from the finding that change will not have a negative impact on individual performance. But at the same time forty-five (45%) per-cent said there are parts of the system that they might not understand which might affect the individual performance negatively.

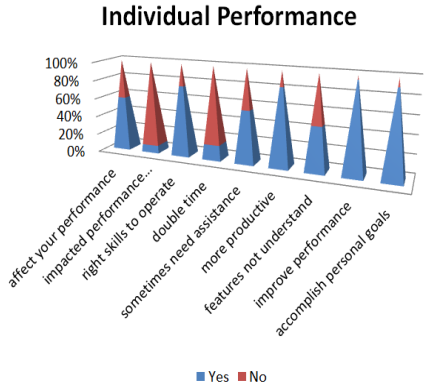

Figure 5.4: Graphical representation of individual performance.

5.5 Level of education

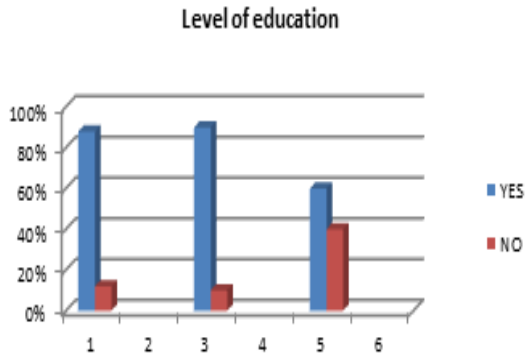

Figure 5.5: Graphical representation of level of education.

Figure5.5 above shows that in every element used to measure user level of education, more respondents, responded with a positive answer, which signifies that age indeed affect adoption of technology positively. This means as the level of age increases the adoption of technology becomes highly feasible and easy. However the positive (yes) response outweighs the negative (no) responses. Hence, from these analyses we can conclude that the new system was adopted well. This clearly shows that the level of education affects adoption in a positive way in this study.

5.6 Age versus level of education

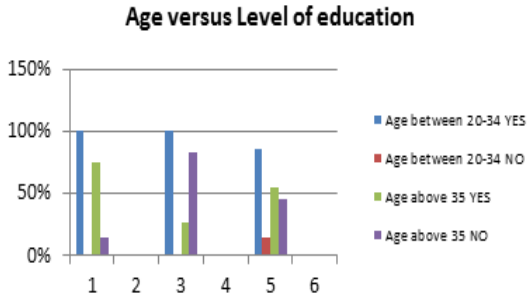

Figure 5.6: Graphical representation of level of education.

Figure5.6 above shows a comparison of age and level of education with respect to particular elements. Basically on any respective element the age group between 20-24 is fully convinced that education plays a bigger role in technology adoption. For example element 1 and 3 that is age group 20-34 are actually convinced that level of education fully plays a bigger role in technology adoption. In contrary users who are in the age group above 35 feel though level of education affects adoption positively there is an extent to which it affects it. This clearly shows that age and the level of education affects adoption in a positive way in this study. That is young users who are highly educated adopts quickly than users who are older and less education at the same time.

6. Further research

More factors should be identified, considered, and addressed to avoid failures in system adoption and hence implementation. Further research should be carried out on individual performance, as well as age and experience looking at stress caused by the change, which in-turn affects employee performance. Another research approach can be adopted to have more in-depth knowledge of this study. Lastly, this study was based on the company's business process so further research on the factor within other companies in Nigeria as well as other countries could help with validating these factors.

7. Conclusion

In conclusion, from the research results and research literature review one can say that lack of management support was a cause of user resistance. The results showed that the systems will be accepted and individual performance will not negatively impact the adoption of the new information technology. Level of education and age were found to strongly and positively affect adoption of technology in this study. Lastly, from the analyses, organisations should give more preference to staff training when new system is planned to be introduced. The employees should also be part of the decision team when the organisation is planning to implement a new technology.

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