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TRANSACTION ACCEPTANCE SALES MONITORING (TRASM) MODEL

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ABSTRACT: This study investigated how an extended acceptance model will be used for monitoring sales transactions in a dairy farm. In achieving this, the researcher was guided by the set out objectives. First to investigate the hitches on the adoption of transaction system in a Dairy Farm, secondly to determine the tracking of sales through a Transaction Processing System and thirdly a Transaction Acceptance Sales Monitoring (TRASM) model was developed. The set out objectives were achieved through employing the questionnaire and observation methods under the methodology. The researcher used both open ended and close ended questionnaires to collect the views of the respondents. The researcher found out that costs incurred was the major challenge facing the adoption of TRASM and appropriate monitoring of sales would be done via milk appropriate milk production recording. In solving this, the researcher came up a Transaction Acceptance Sales Monitoring (TRASM) Model. In conclusion, the researcher was of the view that adopting the model would free the Dairy Farm from its effort by making their work easier. The researcher also gave room for further research on the same as research has no end, it is a continuous process.

KEYWORDS: TRASM, Acceptance Transaction, Monitoring, Sales.

1 INTRODUCTION

Businesses have adopted transaction processing for different reasons and at different rates. One of the primary goals of a transaction processing system is to allow several users to interact with the data in the system simultaneously while preserving the illusion that each user is executing alone. In order to do this, users interact with the data through transactions. The adoption of transaction processing by business has not been as widespread as would have been expected.

Business organizations such as those engaged in milk production have adopted the use of information systems. The use of these systems especially Transaction Processing Systems was to assist in monitoring dairy sales. The introduction of these system has become a frustrating activity as argued by Lynch *et al*. (2009).This is due to the user characteristics such as age, education, experience, and goals (Alvarez and Nuthall ,2010).However, various models have been developed to enhance Perceived Ease of Use (PEOU) and Perceived Usefulness (PU), (Davis 1989).These models have not been applied on the monitoring of sales at Simbauti Dairy Farm. This was the focus of this study in trying to use the user frustration in adopting Sales Transaction Processing System. This introduces us to the main objectives and specific objectives of this study as discussed below.

2 TRANSACTION MONITORING SYSTEM

Transaction processing systems were among the first computerized systems developed to process business data, a function originally called data processing. In terms of general ICT use on Australian dairy farms, study found more than half of Australian dairy farms use computers Abare, 2011. Transaction processing systems provide access to a shared database for many concurrent users. They are used in a variety of applications to enable the user to execute pre-planned functions, Stairs and Reynolds, G. (2010).This introduces us to the next section about the independent variable as discussed further below.

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Customers and products in this case which is milk are the main attributes in dairy farm sales. This research study on Dairy Farm sales mainly focused on the milk produced in Simbauti Farm. A study by Lubulwa and Shafron.(2007) found approximately half of Dairy Farms used computers for farm management, in particular for budgeting and financial purposes, maintenance of breeding records, and milk production recording .Additional tools are currently in development, such as rumen sensors, inline milk quality sensors, automated weighing, remote video monitoring, satellite and ground-based pasture measurement, and targeted fertilizer application. (García and Fulkerson 2005, Yule and Eastwood 2003).

TAM is an information systems theory that models how users come to accept and use a technology. This research study purposively adopted the Technology Acceptance Model.TAM was developed by Fred Davis and Richard Bagozzi (Davis 1989, Bagozzi, Davis & Warshaw 1992). The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it. This research study therefore adopted two variables notably: Perceived usefulness which is the degree to which a person believes that using a particular system would enhance his or her job performance and Perceived ease-of-use which is the degree to which a person believes that using a particular system would be free from effort, (Davis 1989).

The purpose of this model was to predict the acceptability of a tool and to identify the modifications which must be brought to the system in order to make it acceptable to users. Technology Acceptance Model postulates that the use of an information system is determined by the behavioral intention, but on the other hand, that the behavioral intention is determined by the person's attitude towards the use of the system and also by his perception of its utility. However, the researcher finds it necessary to adopt some attributes of the model in her research. The researcher will only look at perceived usefulness and perceived ease of use based David's original model.

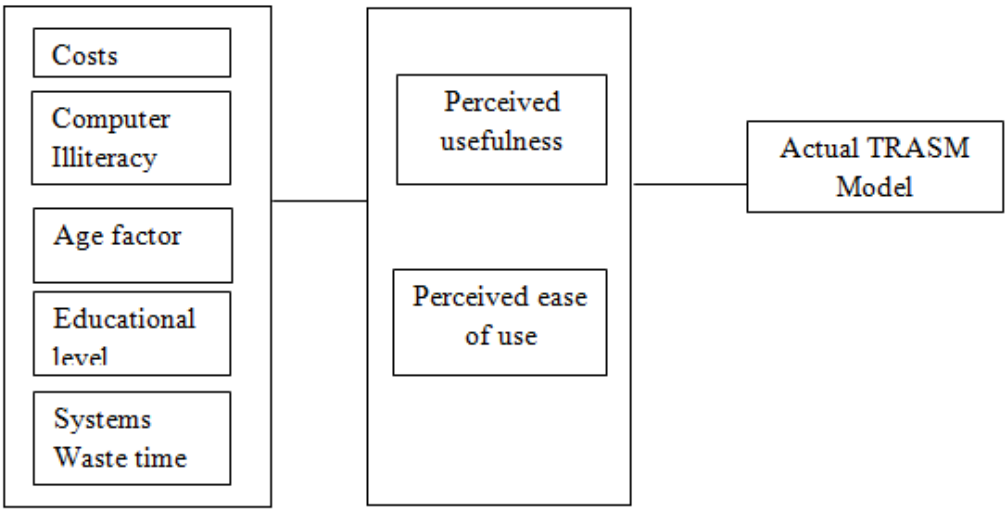

Figure 1. The Proposed Technology Acceptance model

Figure 1 is an extract from the original model proposed by Davis in 1998.The researcher modified some areas of the model so that they can suite her case. Below is a conceptual framework depicting the proposed model of the researcher and its attributes .

The conceptual framework of the proposed system by the researcher consisting of the independent, dependent and moderating variables and their attributes.

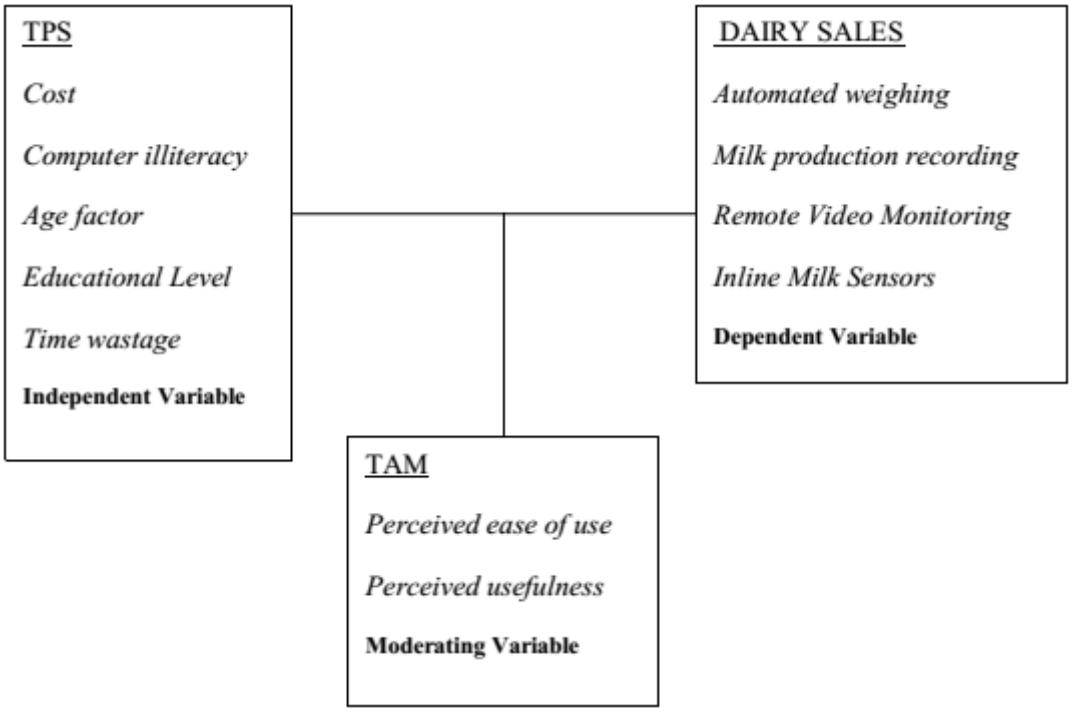

Figure 3: Conceptual framework

The figure 3 explains the independent variable, dependent variable, moderating variable and their various attributes. Below are the descriptions of variables and their attributes.

COST

Business dictionary.com defines the term cost as the amount that has to be paid or given up in order to get something. A survey suggested more than half of the respondents use TPSs to reduce their transactions costs (Perkowski 2008). Computer illiteracy also means lack of knowledge and skills to use a computer.

3 RESEARCH METHODOLOGY

The researcher carried out a study that evaluates the human computer interface mechanisms in order to identify the best that can be applied in a Transaction Processing System. The researcher mainly used questionnaires to collect data from the respondents. Each questionnaire was titled clearly indicating the reason for the questionnaires and proper instructions on what to be done on each question. After designing the questions were dispatched to them by hand. After five days, the researcher collected back the questionnaires and collated the responses. Tables, graphs, spreadsheets and word processor were used to analyze and present findings from where the conclusions were drawn, answer research questions and recommendations made. The researcher targeted the employees of Simbauti Farm. In the targeted group, the researcher had questionnaires for the employees at the middle management level and top management level.

The researcher applied Probability sampling method to pick her samples. In particular, simple random sampling method was applied to pick the sample population. Each employee in the Company in the identified categories had an equal chance of being selected to the sample and each choice was independent of any other choice.

4 RESULT PRESENTATION, ANALYSIS AND DISCUSSION

Gender has been defined as the state of being male or female. This is typically with reference to social and cultural differences rather than biological ones. This is a definition according to the Oxford Advanced Learners Dictionaries. The researcher wanted to know exactly the representative percentages of the gender of the employees in the business.

The researcher came up with a graph to represent the data collected about the age bracket as shown in figure 4.

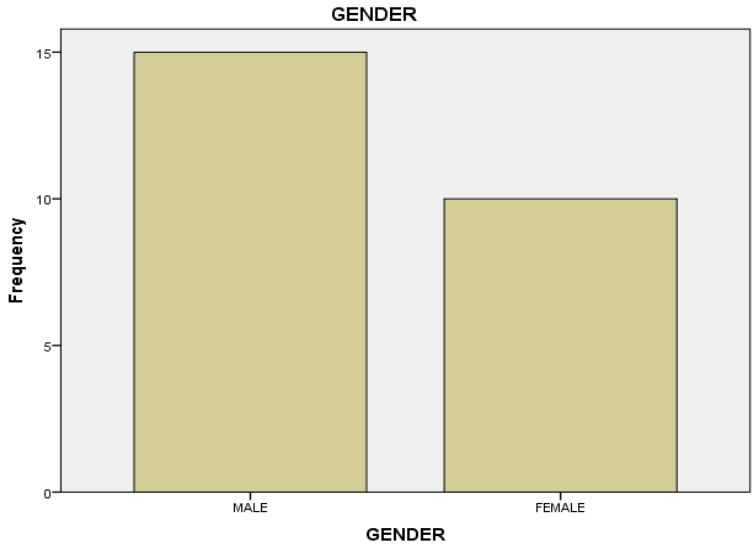

Figure 4: Respondents' Gender

From figure 4, it is observed that the male employees take a larger portion than the female employees. This therefore shows that there still exists gender imbalance in our modern world more especially in our job places.

There are several definitions of the term age some say age is just a number but according to the online dictionary, age is the period of human life, measured by years from birth, usually marked by a certain stage or degree of mental or physical development and involving legal responsibility and capacity.

Figure 5 portrays exactly the bracket which was highly represented in the farm during the time the research was conducted.

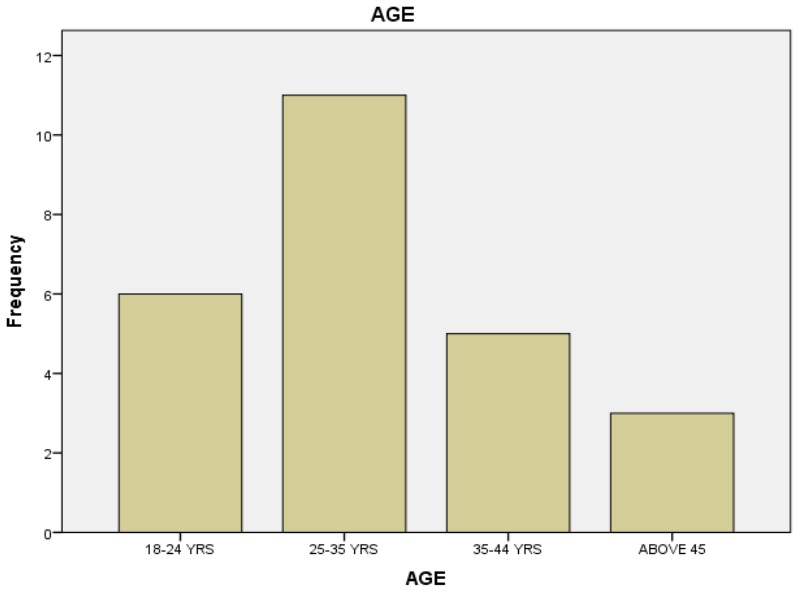

Figure 5: Respondents' Age

From figure 5, the age group of between 25-35 years is highly represented while above 45 years is lowly represented. This indicates that the farm's employees were young people for high productivity since at their young age they are still energetic and hardworking.

The researcher investigated the challenges facing adoption of a TPS and wanted to know if the challenges she had quoted earlier on in this study work like cost, computer illiteracy, age factor, educational level and perception that computers are time wasters are the major challenges facing adoption of a TPM, the following chart shows the results as obtained.

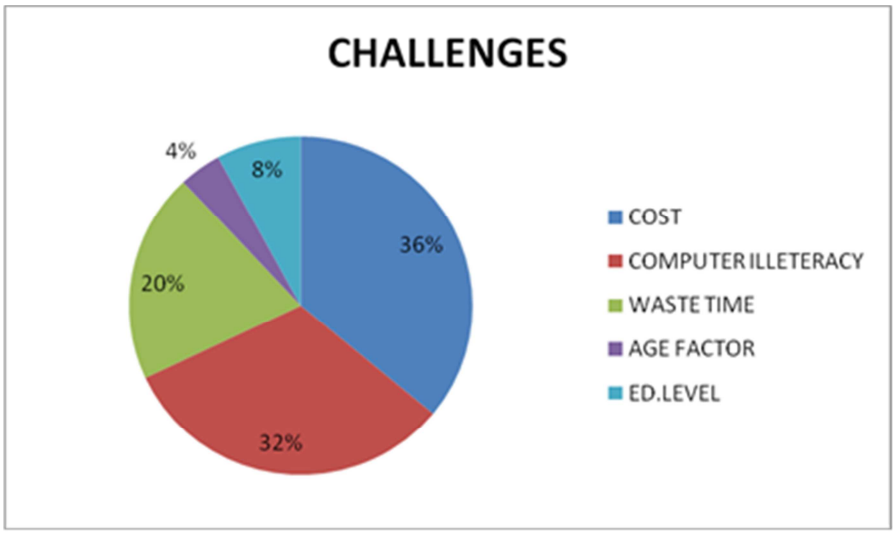

Figure 6: Challenges Faced

From the above figure, 36% strongly agreed that cost is a major challenge facing adoption of a TMS and another 32% say that computer illiteracy is a major problem when it comes to cost in matters pertaining to adoption of a TPM. After presenting the results of the dependent variable, here next come the results of the dependent variable as shown below.

Monitoring sales can be done in various ways according to the words of various scholars in chapter two of this document. Below, frequency (N) is the total number of respondents who are for or are supporting that corresponding Monitoring technique.

The table 3 gives the frequency of each respondent's view on the best sales monitoring mechanism(s).

Table 3: Monitoring Mechanisms

	Monitoring Mechanisms	Frequency (N)
1	Milk production recording	12
2	Automated weighing	6
3	Remote video monitoring	4
4	Inline sense monitoring	3
	Total	25

Table 3 shows the various monitoring techniques employed and their corresponding frequencies according to the views of each employee in the dairy farFrom table 2, a pie chart was drawn to represent the findings in percentage form. In a scale of between 1 and 4, number one is highly represented with the percentages as shown in figure 9.

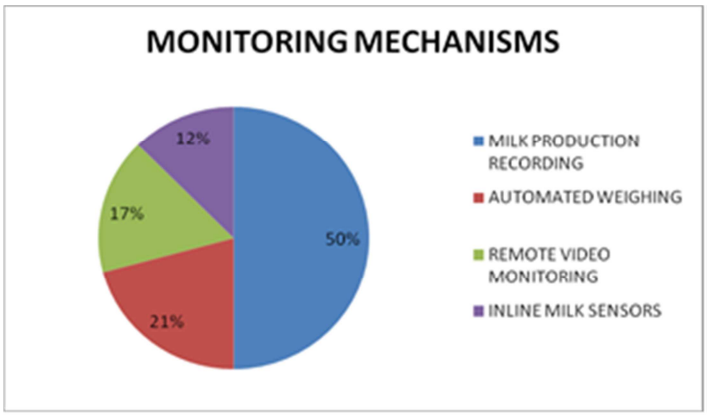

Figure 7: Monitoring Mechanisms

Figure 7 shows that half of the respondents were of the view that Milk production Recording is the best mechanism for monitoring the sales. Another 21% said that automated weighing is the best and the rest of the people are for the other techniques.

4.1.1 SALES TRANSACTION MONITORING MODEL

Under the technology acceptance model the researcher looked at perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness is the degree to which one thinks that using a system will free him or her from effort while perceived ease of use is how one believes that using a system will enhance his or her job performance. From the research, the following scale was used {1, 2, 3 for yes, no and not sure respectively}.

The figure below shows how various users rate perceived usefulness.

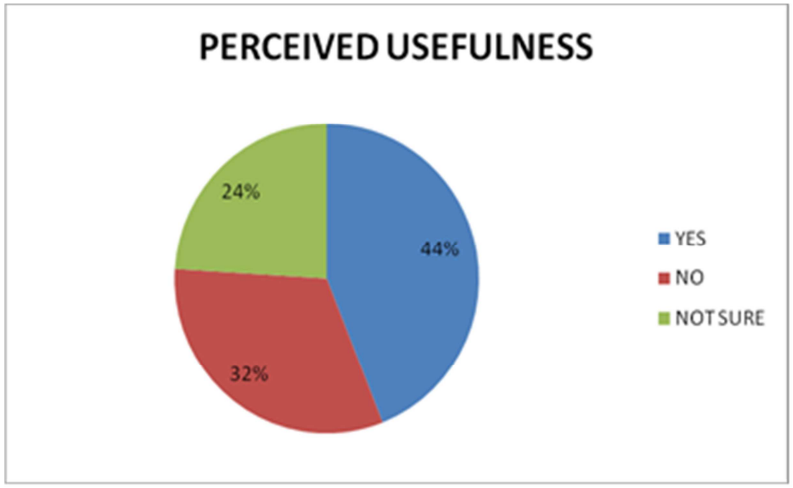

Figure 8: Perceived Usefulness

Figure 8 show that 44% agree that indeed it is true that a system can enhance job performance. The remaining ones deny that it can enhance job performance and the rest are not sure. Perceived ease-of-use is the degree to which a person believes that using a particular system would be free from effort. Figure 11 shows the results obtained from the respondents concerning Perceived Ease of Use.

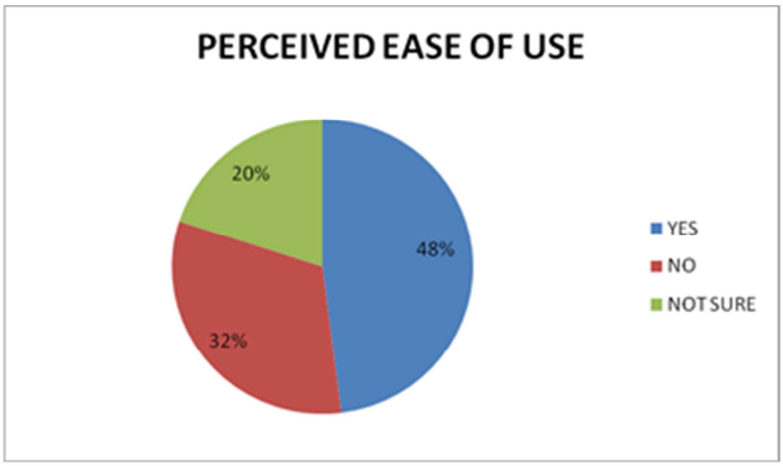

Figure 9: Perceived Ease of Use

From figure 9, it is evident that 48% say that using a system can free one from effort. The next part of this document after this is the analysis of the results as discussed below.

4.2 ANALYSIS

Various challenges facing various farms according to various scholars were identified under chapter two of this research study which included individual user characteristics like personality, experience, age, education and goals among other challenges were of importance.

Some said that many people systems as time wasters and there was no need to change from the already established methods. They did not see the ICT that matched their business due to illiteracy and the benefits that outweigh the costs. Lynch *et al*. (2009), cited research indicating people were frustrated by systems requiring double-entry of data into separate software packages, or requiring collection of data not usually collected by the user. Of those challenges mentioned above, the researcher also wanted to inquire if the very same challenges face her client .It was indeed true that some of those challenges cited by other researchers face her client too. They were the ones respondents face in adopting a transaction processing model. She presented the various challenges faced by employees in a pie chart as shown in figure 8 above under result presentation. Some of those challenges faced that were found to affect the farm are discussed briefly below.

Business dictionary.com defines the term cost as the amount that has to be paid or given up in order to get something. From the findings, it was evident that cost was a major challenge facing the farm with a representative percentage of 36% under figure 8.

This was also another challenge. Computer illiteracy means lack of knowledge and skills to use a computer. This was a representative figure of 32% showing that there were illiterate in the farm according to figure 8 under the presentation of results sub-topic. The results have been represented in a bar graph. 20% of the respondents said that systems waste time in figure 8Figure of the challenges experienced. Systems sometimes require double entry into separate software packages. In any organization, there must be some people who fear change even if the change is for better improvement of that business. The researcher is of the view that the 20% figure was constituted of those employees that have fear of change. 4% of the total respondents were of the view that age was a challenge when it comes to adopting a system. It is perceived that many old people don't want to use a system simply because sometimes systems lead to lose of jobs. This is a perception that most employees in organizations without taking into note that systems can lead to losing jobs as well as creating jobs. A very small number of the respondents were for this challenge and therefore the researcher did not consider it as a major challenge.

8% of the respondents said that educational level affects TPS adoption. Majority of the people who are not well educated will not prefer using a system as they find it cumbersome. From the findings, the level of education in the target group was very and only a small figure was not literate. According to the researcher, the 8% cannot affect adoption of a TRASM model since their representative percentage figure is minimal.

The dairy farm deal with one product which is milk .It is essential to monitor dairy farm sales for more profit. The researcher identified some of the mechanisms for monitoring sales and of those mechanisms, milk production recording was

found to be the most appropriate according to the responses of the employees. This had a representation of half of the target group which was 50%.

The figure 10 shows the various frequencies of the most appropriate monitoring technique according to the views of the respondents.

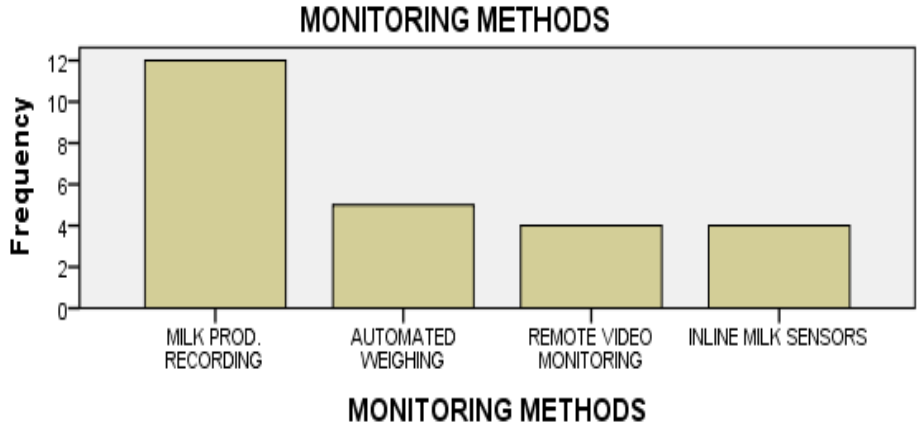

Figure 10: Monitoring Methods

Figure 10 analyzes the various methods in relation to the way each user preferred a method over another. The above techniques were further discussed below;

Milk Production Recording

This means that as the milk is brought to the farm, immediate recording is done since the milk comes in large quantities and can easily forget and record inaccurate figures. Most of the respondents were for this technique and the reason behind this was because most of them were familiar with this technique compared to the other techniques.

Automated Weighing

This is by use of automated weighing scales of milk, a technique which 21% of the people said were comfortable with. Many of the dairy farms use this technique and so they at least have some knowledge on how it works.

Remote Video Monitoring

Installing cameras to provide 24 hour surveillance of the various operations taking place.17% were for this mechanism. The researcher inquired further why the 17% were for this mechanism and there was those who were of the view that remote video monitoring should be done throughout since some customers bring milk to the farm during odd hours for instance late hours in the evening or very early in the morning. The number of people supporting this technique was small given that many did not know how the mechanism worked.

Inline Milk Sensors

This is equipment that helps the farm to sustain regular premium milk status and improve its feeding for production regime**.** A few who were familiar with the technique supported it although the figure which was 12% that was for it was very minimal. The rest of the people did not have knowledge about it and even some were not for it.this marks the end of the analysis section as we are introduced to the next section analyzing the results about the developed TRASM model.

4.2.1 TRASM MODEL DEVELOPMENT

Under the technology acceptance model the researcher looked at perceived usefulness (PU) and perceived ease of use (PEOU). TAM is an information systems theory that models how users come to accept and use a technology.

Perceived Usefulness

According to Davis 1989, Perceived usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance. There is strong evidence to support that perceived usefulness is a prime

motivator for the adoption of transaction processing in businesses. From the results, figure ten a under result presentation gives the percentages which indicate that 44% of the employees agreed that indeed a system has a positive impact on the job performance of any individual.32 % said otherwise and the remaining 14 % were not quite sure of which answer to give. Figure 11 shows the results as obtained with the corresponding frequencies.

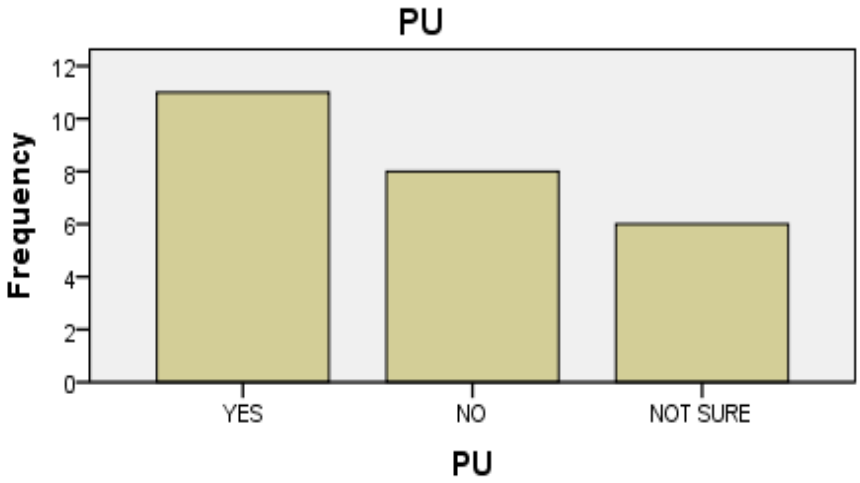

Figure 11: Perceived Usefulness

From figure 11, majority of the employees were of the view that indeed it is true that a system has positive influence on job performance. The rest of the employees were not sure and the remaining percentage of employees did not support the idea that systems influence job performance.

Perceived Ease of Use

Perceived ease-of-use is the degree to which a person believes that using a particular system would be free from effort (Davis 1989).Figure eleven under result presentation shows that 48% of the employees agreed that using a system will free you from effort, 32% said it is not true a system can free you from effort and another 20% percent were also not very sure of which answer to give.

Figure 12 is an extract from the result presentation showing how the results were obtained under figure eleven.

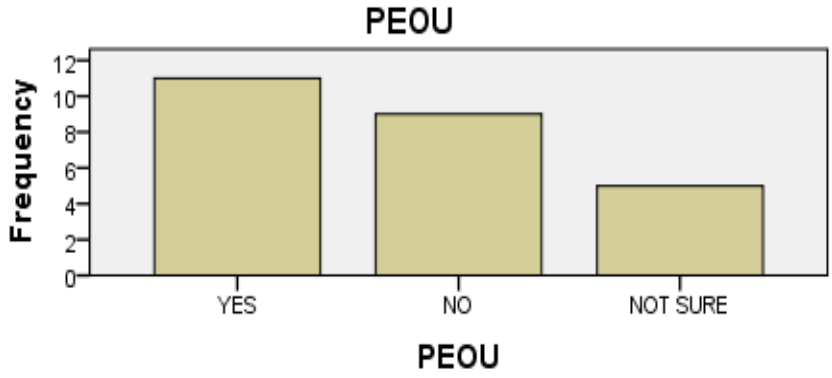

Figure 12: Perceived Ease of Use

Figure 12 indicates that a bigger percentage of employees were of the view that using a system enhances job performance by making work easier. The rest of the employees said otherwise. This marked the end of the analysis of results as we get introduced to the discussion part if the results. This is as discussed below.

4.3 DISCUSSION

This sector has presented the collected data analysis and the conclusions. In this research the method used for collecting data is the questionnaire. From the analyzed results, it showed clearly that it was important to implement a transaction processing model. Below is a discussion on each of the objectives in its own paragraph.

In answering the first objective, five challenges for not adopting a Transaction processing model were identified. Of the five challenges, cost was found to be the major challenge facing its adoption. From a sample population of 25 respondents, 36% were of the view that cost affects most. Therefore the researcher concluded that cost is the main challenge in adoption of a TRASM among the other challenges. This was due to the fact that many people in management have the fear that adopting a system will cost them a lot of money. This majorly becomes a challenge if the business is not making enough profit. Computer illiteracy was also another challenge which was represented by 32% in figure 8 showing that there were computer illiterate people in the farm according to the results. This therefore would hinder adoption of a system given that computer illiterate people have little knowledge on the advantages of using systems in dairy farms.20% of the respondents were of the view that systems waste time given that systems require double entry to various software packages. The researcher is of the view that the 20% figure constituted of those employees that have fear of change.4% of the total respondents were of the view that age was a challenge when it comes to adopting a system. It is perceived that many old people didn't want to use a system simply because sometimes systems lead to lose of jobs. This is a perception that most employees in organizations without taking into note that systems can lead to losing jobs as well as creating jobs. A very small number of the respondents were for this challenge and therefore the researcher did not consider it as a major challenge given that they were lowly represented.8% of the respondents said that educational level affects TRASM adoption. Majority of the people who are not well educated will not prefer using a system as they find it cumbersome to use it as it requires knowledge and skills. From the findings, the 8% cannot affect adoption of a TRASM model since their representative percentage figure is minimal.

The second objective was also to determine how sales would be tracked. The various monitoring techniques were looked at for instance; milk production recording was highly represented with a frequency of 12 people. Most of them were familiar with this technique and the reason behind this was because most of apply the same technique in their businesses. The second technique was automated weighing, a technique which 21% of the people said were comfortable with. A lot of dairy farms have adopted this mechanism thus they have an idea on how it works. Remote Video Monitoring was another technique of installing cameras to provide surveillance of the various operations taking place.17% were for this mechanism given that there were those who were of the view that remote video monitoring should be done throughout since some customers bring milk to the farm during odd hours for instance late hours in the evening or very early in the morning. The number of people supporting this technique was small given that many did not know how the mechanism worked. Only those with knowledge on how it works supported the idea fully. Inline Milk Sensors was also another mechanism**.** A few who were familiar with the technique supported it .12% were for the same given that they might be having some understanding of the benefits of that technique. The rest of the people did not have knowledge about it and even some were not for it.

Technology Acceptance Sales Monitoring (TRASM) Model development is the third objective to be discussed herein. Perceived Usefulness and Perceived Ease of Use were looked at**.** From figure 10 the percentages indicated that 44% of the employees agreed that indeed a system has a positive impact on the job performance in an organization.32 % said otherwise and the remaining 14 % were not quite sure of which answer to give. From the findings it was evident that the 44 % of employees agreed that a system can enhance job performance given that they had used a system before. The rest of the employees denied the allegations and even others were not sure of the same. In Perceived Ease of Use, Figure 11 shows that 48% of the employees agreed that using a system will free one from effort, 32% said it is not true a system can free you from effort and another 20% percent were not sure of which answer to give.

Generally, cost should not be a major factor facing adoption of systems, having systems in place will free the organizations more especially dairy Farms of the losses they get day in day out. Therefore adopting a model is the only best option an organization can take as it has been depicted below its converging variables and the relationship between the latent variables.

4.4 TECHNOLOGY ACCEPTANCE SALES MONITORING (TRASM) MODEL

4.4.1 CONSTRUCTS RELIABILITY

The measure the internal consistency of given number of variables that are grouped together is what is meant by constructs reliability. Reliability in this case refers to the ability of a system or component to perform its required functions

for a specific period of time .This is a definition from the internet according to Wikipedia. Constructs reliability measures how well a test experiment measures up to its claims. It captures the degree to which a set of measures indicate the common latent construct. (Abanti et *al*, 2014) says that Construct reliability evaluates captures the extent to which a set of evaluates indicate the common latent construct. Various Scholars mainly use three methods to estimate the reliability of their measures: test-retest reliability, inter-item reliability, and inter-rater reliability.

The researcher used the Alpha coefficient to determine the internal variable consistency of the variables using the Lisrel Software for student version 9.10The Lisrel model has defined the latent variables that were used and its corresponding observed variables. From the model relationships were established according to the specifications of the researcher when the model was executed. The figure below shows the model and its corresponding figures from the relationships that were established.

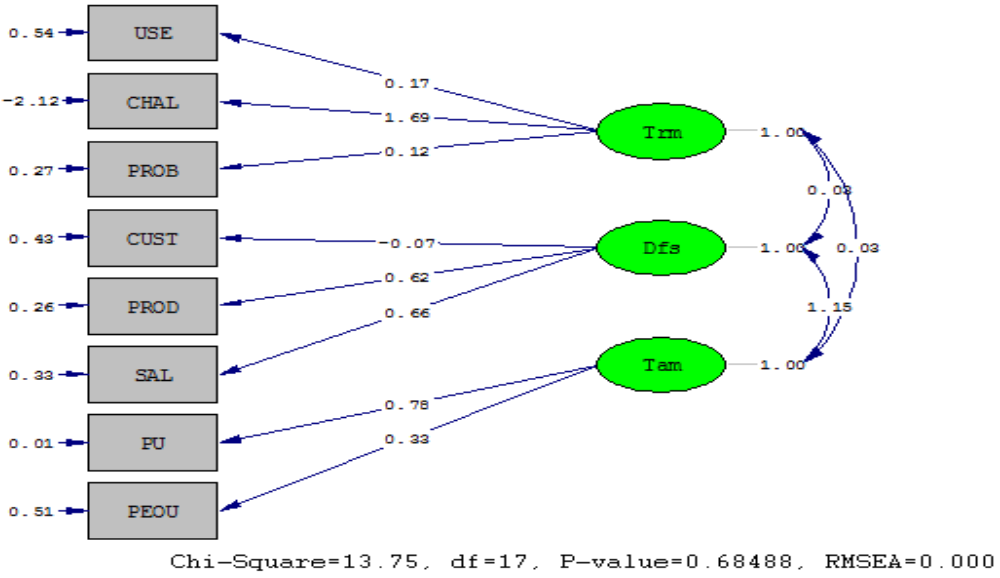

Figure 13: Transaction Acceptance Model Path Diagram

From the model above, only the figures between 0.5 and 0.9 were considered to be useful for model development. Those variables that did not meet the requirements were considered as obsolete. The output shows the path diagram and the chi-square goodness-of-fit test, as well as the RMSEA test. The chi-square statistic's p-value should be more than 0.05. The standardized loadings represent the correlation among each observed and latent variable, they are as follows:

TRAM: 0.17 For Tram usage, 1.69 for challenges in Tram usage and 1.12 for problems in adopting Tram

DFS: 0.07 for customers, 0.62 for product and 0.66 for sales

TAM: 0.78 for Perceived Usefulness, and 0.33 for Perceived Ease of Use.

T.use, Chall, Prob, Cust, and PEOU have poor factor loadings at the level below 0.05 and others more than 0.09 meaning that they should not be part of model development. PU, sales and product meet the threshold meaning that they are fit for model development.

4.5 ACTUAL TECHNOLOGY ACCEPTANCE SALES MONITORING (TRASM) MODEL

Figure 14 depicts the final model that was developed using Lisrel 9.1 software for student.

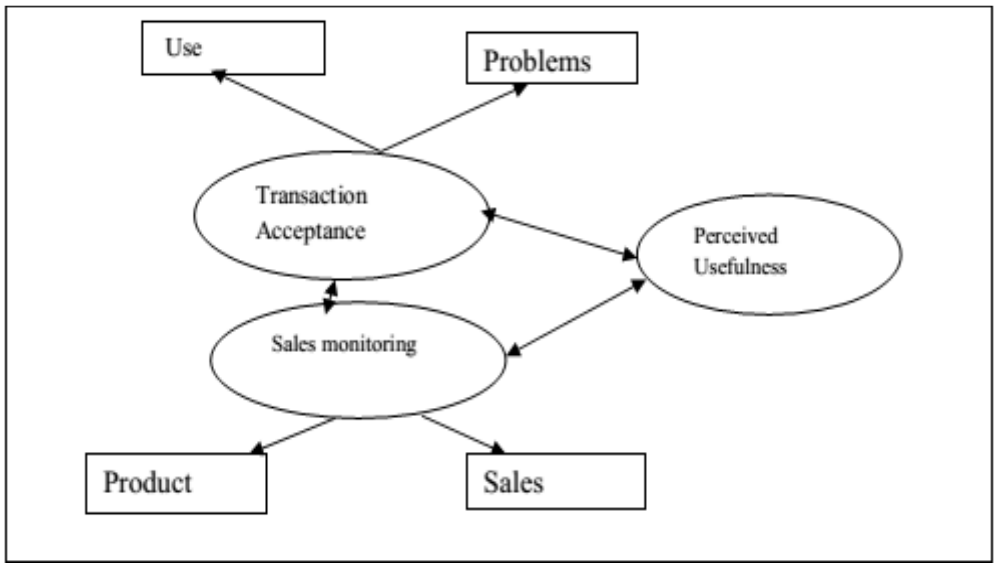

Figure 16, shows the final model that was developed from those variables that converged. It is evident that a relationship exists between the latent variables. For instance, there is a relationship between Transaction Acceptance and Sales Monitoring. The same applies to Perceived usefulness by both latent variables. This introduces us to the last topic in this document whereby we will look at the summary, conclusion and recommendation as discussed further below.

5 CONCLUSIONS

This study provided an understanding that affects the adoption of Transaction Acceptance Model and the mechanisms to be employed in monitoring the sales. Dairy of the challenges Farms should evaluate their organizations and be proactive in adopting transaction processing technologies. Costs incurred being a major challenge in adopting a system can only be eliminated by employing appropriate mechanisms to monitor the sales appropriately. This appropriate monitoring of sales will be done via adopting an appropriate system. So the three objectives in this research study are interdependent thus they should all be taken into account. The researcher is of the view that Dairy Farms would benefit greatly by adopting systems to increase their customer base and reduce transaction costs. Therefore, Dairy Farms should adopt Transaction Models to improve their sales and be competitive in the market.

Finally, the researcher believes that this is a fertile area for future research and encourages others to continue this stream of work.

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