International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 06 Issue 01 January 2023
DOI: 10.47191/ijcsrr/V6-i1-73, Impact Factor: 5.995
IJCSRR @ 2023
www.ijcsrr.org

Effect of Computer Technology Adoption on Sales Volume in Selected Supermarkets in Kampala Central Division, Uganda

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ABSTRACT: The study looked at the relationship between sales volume and the deployment of computer technology at a few specific supermarkets in Kampala's central division. The specific goal was to look at how the use of computer technology affected the amount of sales in supermarkets. The research used a cross-sectional approach. Approaches that combined quantitative and qualitative methods were used. Data was collected from a sample of 80 respondents in 20 supermarkets in the central division of Kampala using questionnaires and interviews. Data were analyzed using descriptive, correlational, and regression techniques. The results suggested that adoption of computer technology boosts grocery sales. Conclusion: Adoption of computer technology improves operational efficiency, according to the respondents' responses. However, there were a few areas that needed improvement so that efficiency would actually increase. It was advised that the owners of supermarkets purchase and employ improved accounting software, as well as effective monitoring systems and systems that can identify impending expirations and obsolescence and report them early so that action can be taken to prevent losses from expirations.

KEY WORDS: Computer Technology Adoption, Kampala Central Division, Sales Volume, Super Markets, Uganda.

1. INTRODUCTION

Many businesses have struggled with operational efficiency and other issues, in particular (Thomas, 2011). This is fairly exponential, and despite the business world's best efforts to manage the difficulties, they are still not making much headway. (Freel, 2009). If a corporation wants to succeed, operational effectiveness is crucial. Organizations including Enterprise Uganda, the Uganda Investment Authority, the Kampala Traders Association, and the Uganda Industrial Research Institute have developed a variety of operational efficiency improvement initiatives. They have nevertheless produced computer technology awareness, training, usage, and upkeep; they have not been effective. Despite all of these measures, the supermarkets in Kampala Central Division continue to have low business operational efficiency. Low sales, outrageous labor expenses, high accounting and inventory management and control costs, delayed and ineffective customer communications, and other issues plague supermarkets in the central division (Baldwin, 2009). This may be due to ineffective and outdated methods of managing commercial transactions as well as a lack of adoption of computer technology in terms of usage, training, awareness, and upkeep. If the aforementioned issues are not resolved quickly and effectively, the situation could get worse, which would result in the early closure of these stores. It is necessary to identify the aspects affecting efficiency in supermarkets if it is to be increased.

This study connecting specifically to sales volume, labor expenses, and accounting and control costs on computer technology adoption is necessary because, while there are numerous factors affecting the efficiency of these supermarkets, computer technology adoption may be playing a significant role.

The objective of the study was: To investigate the effect of computer technology adoption on sales volume in selected supermarkets in Kampala central Division.

2. LITERATURE REVIEW

Adoption of computer technology is one of the top priorities and goals in contemporary enterprises. Computer applications have an impact on work creativity, job productivity, customer satisfaction, and management control, according to Morton (2008). According to Klein (2010), the uptake of computer usage within a company results in a larger ratio of computer utilization to traditional processes. Computers may significantly increase production and efficiency in a variety of businesses, both public and commercial. Morton (2008) adds that firms that successfully adopt and deploy computer technology see considerable performance increases and competitive advantage. Computer use ensures a quick and reliable approach to complete all jobs.

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Finding a condition where the total input for any process is much lower than the output, resulting in a high output to input ratio, is the definition of operational efficiency (Bhattacherjee, 2008). Any organizational setup that intends to turn a profit will always work to ensure that the system's overall input always aims to produce more than it takes in.

The effective use of computers in an organization's operations is likely to reduce overall accounting and inventory management as well as labor costs, which will result in greater financial savings and a better financial position for the company. The relationship between the adoption of computer technology and operational efficiency is one that follows the other.

Bitler (2011) noted that businesses in various industries employed computers in various ways. Tests to determine whether these means are equal across groups reveal that businesses using computer technology also spend a lot less time contacting clients and carrying out sales transactions than do businesses without it, which has significantly improved their sales volumes. Morton (2008) adduces that firms with successful computer technology adoption and deployment processes are producing considerable performance benefits and competitive advantages over other organizations. Computer technology adoption ensures a quick, reliable approach to accomplish all jobs. Adoption of computer technology can significantly boost production and efficiency in a variety of businesses, both public and commercial.

According to Baldwin et al. (2012), the service industry and wholesale commerce have also greatly benefited from the enormous volumes of sales activities brought on by computer use. A person never truly performs agilely and leanly if they never use computer technology in business transactions or never use it efficiently. With one exception, retail trade firms were less likely to use computers for banking than were firms in other industries. There were little differences across the industry in the share of firms using computers for banking or to apply for loans. According to Campbell (2008), many businesses use technology to integrate sales in their sales personnel in an effort to improve output, communication, and client connections.Despite implementation failure rates in sales companies reaching up to 75%, anecdotal data suggests that deploying sales by technology in field organizations is frequently troublesome.

Malone & Siebel (2007), Additionally, it is expensive to automate sales tasks; for mid-sized sales forces, automation costs range from $2.5 to $6.25 million, with an average yearly operating budget of $1.25 million. Actually, automating the sales force is simpler to say than to implement. One danger of implementing sales technology is that certain salespeople may be reluctant to use it because they appear to be quite technophobic or self-willed. If organizational decision-makers want sales technology to produce better returns, they should concentrate on using the innovation at the individual level once they have opted to accept it (Bhattacherjee, 2008). It is remarkable that so few marketing studies have addressed how sales organizations are implementing new technology (Steenkamp, Hofstede, & Wedel, 2011). The main focus of research has been on organizational adoption or salespeople's adoption of selling new items (Anderson & Robertson, 2009).

Numerous empirical research over the course of the last few decades have concentrated on the causal link between company success and technology adoption, according to Nooteboom & Wedel (2008). However, the impact of technology adoption on company performance varies among industries and with firm size, even though the major findings are consistent with the notion that technology is linked to improved firm performance or higher operational efficiency. Additionally, different performance measures for businesses provide various outcomes. The most extensively researched performance measures in these studies include inventory control, sales volume, growth, profit level, and productivity.

According to Jorgenson & Stiroh (2009), the majority of research either concentrate on large organizations or on businesses in a certain industry. Researchers looking into how computers affect sales volume have discovered that these effects are both significant and large. According to Gordon (2009), the highly technological sectors may be the only ones experiencing a recent sales gain. According to several studies, smaller businesses are less affected by technology adoption than larger businesses.

According to Freel (2009), technical innovation in small businesses typically results in strong sales volumes and productivity growth, but it can also have a negative impact on absolute profit levels because of the high costs of inventive investment relative to their comparatively low asset levels. Bitler (2011) verified that there is a bigger correlation between computer use and profit for larger businesses than for smaller ones. His profit-reduction theory was not supported by tests of his model on a small sample of 228 small manufacturing firms classified by amount of innovation, which revealed that innovators are only slightly more productive than their contemporaries.

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When examining the relationship between computer use and company performance as measured by sales volume, Bitler (2011) found scant to no evidence. Different computer uses are regressed with various metrics of company performance while controlling for industry dummy in the researcher's study. According to research by Goldenberg (2007), businesses in the manufacturing and service sectors were statistically substantially more likely than other businesses to use computers for email, although businesses in the retail trade sector were less likely to do so. Retail trade and other businesses were less likely to utilize computers for buying or selling on the Internet than the service sector and wholesale trade businesses. Businesses in the manufacturing, wholesale, and retail sectors were more likely to utilize computers to manage inventories than businesses in the service sector and other industries. In this round of the study, businesses were also questioned about their usage of computers for commercial purposes. When companies said yes, we inquired about the precise tasks they utilized computers for. Adoption of computer technology might only be a stand-in for other traits of the company and its owner that actually affect operational effectiveness. For instance, attributes that have a favorable correlation with computer use, such as business size, age, owner education, or even other traits, may have a significant impact on a company's operational effectiveness (Moncrieff, Lamb & Mackay, 2011).

They discovered that the owner's education is very significant for small business computer technology adoption decisions, with a correlation value of 0.27, while the owner's experience is not that relevant, only associated to computer technology adoption level at a correlation coefficient of 0.03. In the following section, the impact of firm owner demographic characteristics will be further examined. The findings demonstrate that computer use intensity is still significantly positively correlated with sales volume after accounting for all potential confounders. The firm's sales volume will typically increase by 46% every time there is a level increase in the adoption of computer technology. This outcome contradicts Bitler's (2011) finding that there is no proof of a connection between computer use and company performance as measured by sales. When measuring the impact of the total number of computer technology adoption on performance, Bitler may not have taken into account all owner and business characteristics, which may be the cause of the discrepancy.

Their model also yields intriguing results for other covariates, with an average rise in sales volume of 21.8% when the size of small businesses increases by one level. This finding is consistent with the majority of research findings that show employment level has a substantial bearing on explaining performance as indicated by wage differences or sales and profit levels (Liu and Hammitt, 2009, 2011). (Bitler 2011). The average sales volume of all five types of businesses is the lowest for sole proprietorship businesses, which is roughly 68% less than the excluded category, limited liability companies. Partnerships follow, with higher average sales volumes but still 46% less than the limited liability companies. The educational background of the business owner does influence how effectively the company operates. Our findings indicate that for every degree of education above the firm owner's, the firm's sales volume will increase by 3%. The firm age is also important; older firms typically fare better than younger ones. Owner experience has also been proven to be crucial for enhancing small business success, with each additional year of ownership being associated with a 2% increase in sales volume. 2009 and 2011 (Liu and Hammitt).

This finding suggests that company owners' experience appears to be more essential in effectively raising sales volume and cost of sales compared to the influence of their education, with owners with two more years of experience being more effective than those with one level higher in education. The owner's involvement level in the small business has an impact on how well it performs (Zhang and Timothy, 2010). The results of our (OLS) ordinary least squares model show that the firms established by the current owners are the worst market players, with 33% lower expected sales volume, while those purchased by the current owners perform best on average, with about 26% higher sales volume than those inherited by the owners (Zhang and Timothy, 2010).

This might be because self-established small business owners are typically less driven and under pressure than those who buy businesses from third parties. Our results also show that small family businesses perform worse than non-family businesses, which roughly matches the findings of West head and Cowling (2010), who found that family businesses in U.K. don’t perform better in terms of sales revenue size and growth through the study of independent family and non-family unlisted limited liability companies in U.K (Zhang and Timothy, 2010).

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3. METHODS

With a case on empirical measures employing a questionnaire, interviews, and testing of validity and reliability, the study used an across-sectional research design that was descriptive and diagnostic in character. Data are gathered using an across-sectional design to show the characteristics of a sample or population at a specific period.

Because even the Kampala Capital City Authority lacked a precise numerical count of the existing supermarkets in Kampala central Division from which we could draw a sample, the study population was made up of all of the division's currently operational supermarkets. This left us with little choice but to pick carefully from the options that were presented. Owners and business owners as well as different employees made up the population of respondents. Since owners make the crucial choices, they were included. Because they are the ones who put these decisions into action, the employees were also included.

Sample size

The sample size of 80 respondents was selected. A population of 20 entrepreneurs, 20 finance and accounting staff and 60 sales/stock control staff, the required samples were 20, 20, and 40 respectively.

Table.1: Expected sample size

Category of Population	Total number (N)	Sample (S)	Sampling Technique
Entrepreneurs	20	20	Purposive
Finance and accounting staff	20	20	Simple Random sampling
Sales/stock control department staff	60	40	Simple Random sampling
Total	**100**	**80**	

Source: Primary 2021

Data Collection Methods

In the central division of Kampala, 80 questionnaires were delivered to respondents in supermarkets in order to gather data from respondents there. Because it has proven to be a valuable tool for gathering a variety of information from a big number of people, the questionnaire was utilized in this instance.

The survey approach, which utilized a semi-structured questionnaire, was employed to gather primary data from each respondent. The use of a semi-structured questionnaire for the survey was deemed appropriate since one section of the questionnaire gives respondents the option of selecting their replies from a list of choices, while the other section allows them to qualify their answers. both Turyasingura and Agaba (2022)

Data quality control

Validity

The researcher employed the professional judgment of his many experts to confirm the authenticity of the instruments' content. Two judges were called to assess the appropriateness of each instrument item to the goals in order to gauge this. Each item was given a relevant or not relevant rating by the experts. The Content Validity Index was then used to determine validity (C.V.I). C.V.I. is the number of items in the questionnaire that were deemed relevant by both judges divided by the total number of items, as shown in the table below.

$$CVI = \frac{\text{No. of items rated relevant}}{\text{Total no. of items}}$$

$$CVI = \frac{30}{33}$$

$$CVI = 0.909$$

As recommended by Agaba and Emenike (2019)., for the instrument to be valid, the C.V.I should be at least 0.7 Therefore, the tools were valid at 0.909

Reliability

When a research tool is used again at a later period, reliability refers to the extent to which the results are consistent across all of the components (Agaba and Sunday, 2020). The instruments underwent two pilot tests on the same subjects separated by four weeks in

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order to determine their dependability. (Orikyiriza and Agaba, 2022) state that test-retest reliability was used to gauge how well an instrument could yield consistent results when the same population was tested repeatedly under the same circumstances. The items in the instruments were changed based on the outcomes of the pretest.

Table 2: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.833	.888	33

To ensure reliability of quantitative data, the Cronbach's Alpha Reliability Coefficient for Likert-Type Scales test was performed. In statistics, Cronbach's alpha is a coefficient of reliability. It is commonly used as a measure of the internal consistency or reliability of a psychometric test score for a sample of examinees. According to Agaba, Kaaya *et al* (2022). some professionals as a rule of thumb, require a reliability of 0.70 or higher (obtained on a substantial sample) before they use an instrument. Upon performing the test, the result that was 0.909 and above was considered reliable.

Data Analysis

A computer program named Statistical Package for Social Sciences was used to examine the data (SPSS). Descriptive statistics like frequencies and percentages were devised, as well as metrics like standard deviation. Pearman's Correlation Coefficients were used to calculate correlations for inferences. To ascertain the impact of computer technology adoption on operational efficiency, regression and Anova's were also used.

4. RESULTS

Descriptive characteristics

The sample consisted of 80 respondents selected from 20 different supermarkets in Kampala central division. These respondents included 20 entrepreneurs, 20 finance and accounting staff, and 40 sales and stock control staff.

Table 3. Gender Respondents

Gender	**Frequency**	**Percentage**
Male	32	40
Female	48	60
Total	**80**	**100**

Source: primary data

Results in table 3. , depict that 48 female participants representing 60% participated in the study against male participants who were 32 (or 40%). This seems to suggest that there are more female workers in supermarkets in Kampala central division compared to male workers

Duration of employment of Respondents

The table below stipulates the different respondents and how long they had served in their respective supermarkets.

Table 4. Duration of employment of Respondents

Duration	**Frequency**	**Percentage**
Less than 2 years	21	26.25
2 to 5 years	27	33.75
6 to 10 years	27	33.75
Above 10 years	5	6.25
TOTAL	**80**	**100**

Source: primary data

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The study findings in table 4. above indicated that majority of respondents had worked in the supermarkets for more than two years, this is enough to indicate how exposed they were to computers and this is likely to improve their proficiency in using computers and handling other operational dynamics.

Level of Education of Respondents

Findings indicated that the respondent's education levels were good enough to be representative of people who understood computer usage thereby being able to use computers in a manner that enhances operational efficiency.

Table 5. Level of Education

Level	Frequency	Percentage
Postgraduate	2	2.5
Bachelors	40	50
Diploma	20	25
Certificate	12	15
Primary	6	7.5
TOTAL	**80**	**100**

Source: primary data

Table 5 also shows that the level of education of the respondents in computer using supermarkets is relatively diverse with 2.5% Being postgraduates, 50% Bachelor's Degree holders, 25% Diploma holders, 15% being certificate holders, and 7.5% primary school leavers. The majority of respondents interviewed being at least Degree holders and above, was therefore considered to be a group that is competent enough to assess the effect of computer technology adoption to operational efficiency.

Job Titles of the Respondents

Table 6. Categories of Respondents

Job titles	Frequency	Percentage
Entrepreneurs	20	25
Finance and accounting	20	25
Sales/stock control	40	50
Total	**80**	**100**

Source: primary data

Table 6 above also shows that the respondents were well selected. This is because most critical categories of employees that can establish whether the supermarkets are operating efficiently were considered for the study.

Computer Technology Adoption and Sales Volumes

Objective one was to investigate the effect of computer technology adoption on sales volumes in supermarkets in Kampala central division. Results on this objective are presented below.

Table 7: Responses on sales volume

Statement	Strongly disagree (1) SD	Disagree (2) D	Not sure (3) NS	Agree (4) A	Strongly agree (5) SA	Mean	Standard Deviation
Sales volumes	%	%	%	%	%		
Stock turnover is high because of computerization	2.5	5.1	2.5	72.2	17.7	3.97	.800

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Influx of customers into the supermarket is high because of computerization	2.5	7.6	3.8	70.9	15.2	3.89	.847
Business is growing because of computerization	0	5.1	13.9	63.3	17.7	3.94	.722
Types of stocks sold is increasing because of computerization	0	3.8	5.1	70.8	20.3	4.08	.636
Daily sales receipts are high due to computerization	1.3	10.1	2.5	73.4	12.7	3.86	.812

Source: Primary data

Table 7.: Shows the effect of computer technology adoption on sales volume, about whether stock turnover was high because of computer adoption, 17.7% strongly agreed to that position 72.2% of the respondents also agreed that stock turnover was high due to computerization. They actually attributed it to the fact that high stock turnover is as a result of quick sales transactions prevalence which motivates customers to make repeat visits to the supermarket s hence purchasing more and prompting high stock turnover as a result. This is another good indicator of computer driven operational efficiency that needs not to be taken for granted but built on for further improvement in efficiency. The total of 89.9% is quite a significant figure to even compel those who haven't yet adopted computerization to do so since it has been empirically proven that computers contribute to the supermarket s efficiency if optimally utilized. 2.5% of the respondents also said that they aren't sure whether computer adoption increases stock turnover, when further prompted, they said that they could see indicators of high stock turnover though they never knew the actual rate of turnover.

5.1% disagreed that computerization has led to high stock turnover sighting reasons like few customer prevalence due to un busy locations. 2.5% also strongly disagreed and said that computerization hasn't increased stock turnover saying that it is a multiplicity of reasons ranging from customer care, customer loyalty, and access due to the high numbers of residences in close proximity.

Whether the supermarket had a high flood of customers as a result of computerization was a topic on which 15.2% and 70.9% strongly agreed. The supermarket operators insisted that the use of computers has increased the influx of customers into supermarkets because it has resulted in high transaction rates that eliminate the prevalence of long lines, indicating that even the customers are appreciative and aware of the various advantages that come with their use. Computerization has increased traffic to the store, according to 86.1% of respondents. 3.8% disputed that computerization has boosted the number of customers entering the supermarket, 2.5% strongly disagreed, and 7.6% said it had never done so.

17.7% strongly agreed that business grew and is currently increasing as a result of the adoption of computers, whereas 63.3% agreed that business was growing as a result of computerization. If supermarket operators are to be effective, using computers should be benchmarked as a good practice in supermarkets. The overall statistic of 81% is illustrative of what supermarkets have gained from using computers. 13.9% of the operators were unsure whether business was expanding as a result of the adoption of computers, however after further discussion, some of the operators included more information, claiming that they weren't allowed to introduce such information. 5.1% of respondents disagreed, claiming that a multitude of interrelated reasons, not just computerization, are to blame for the expansion of business.

None of the respondents vehemently argued that computerization was causing business to expand.

20.3% strongly agreed and 70.8% agreed that there are different sorts of stocks being offered in the supermarkets that may not have been adequately handled if computer usage hadn't been embraced regarding the increase in stock types sold owing to computerization.

This demonstrates how using a computer has made it possible to capture and introduce pricing to various stocks, something that wouldn't be simple to perform manually or using one's mental faculties. A total of 91.1% indicated that a wide range of stocks were successfully sold and managed as a result of computerization, which is a sign of the effectiveness of computer use in supermarket operations. 3.8% disagreed, albeit none strongly, that the rise in stock kinds sold as a result of computerization.

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In regards to everyday sales being higher as a result of computerization, it was shown that 86.1% of respondents agreed. 12.7% of respondents strongly agreed, while 73.4% agreed, that daily sales were high and were directly influenced by the use of versatile computers in electronic sales activities. These activities saw high sales transaction cycles, which encouraged customers to return because they were impressed by the efficient and quick service. Only 2.5% weren't sure whether daily sales were high as a result of computer usage or not. 10.1% of the respondents disagreed and 1.3% strongly disagreed.

Table 8: Descriptive statistics of sales volumes in supermarkets

Sales volume	Mean	Std. Deviation
Stock turnover is high because of computerization	3.97	0.800
Influx of customers into the supermarket is high because of computerization	3.89	0.847
Business is growing because of computerization	3.94	0.722
Types of stocks sold is increasing because of computerization	4.08	0.636
Daily sales receipts are high due to computerization	3.86	0.812
Overall mean and standard deviation	**3.948**	**0.763**

Source: Primary data

Table 8. shows descriptive statistics for the responses on sales volumes, all the means to that effect are >2.5 and this shows that actually all respondents agreed with the investigating statements. The standard deviations were numerically small, suggesting that there was very little dispersion in respondent's perception on average. In other words, respondents did not differ much in disagreeing thereby indicating that sales volumes of these supermarkets were increasing.
Interview results also supported the descriptive statistics when most respondents agreed on most sales volume variables in their supermarkets.

Table 9: Correlation between computer technology adoption and sales volume in supermarkets

		Computer Technology Adoption	Sales Volume
Computer Technology Adoption	Pearson's Correlation	1	.278*
	Sig. (2-tailed)		.013
	N	79	79
Sales Volume	Pearson's Correlation	.278*	1
	Sig. (2-tailed)	.013	
	N	79	79

Correlation is significant at the 0.05 level (2-tailed).
Results in table 9, indicate that there is a low positive but significant relationship between computer technology adoption and sales volume ($r = 0.278$ and significance $= 0.013 < 0.05$). Assuming that this relationship was predictive, these results would imply that the more the supermarkets adopted computer technology, the higher their sales volume would be. This assumption necessitated the running of a linear regression model to establish whether the relationship was predictive or not. Results are presented in table 10

Regression results

Table 10 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.278[a]	.077	.065	.774

a. Predictors: (Constant), Q2_1_Supermarket _Uses[

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ANOVA[b]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.853	1	3.853	6.435	.013[a]
	Residual	46.097	77	.599		
	Total	49.949	78			

a. Predictors: Computer Technology Adoption
b. Dependent variable: Sales volume

Regression results in table 10 depict that computer technology adoption aspects are collectively explanatory variables of sales volume. (F = 6.435, sig = 0.013) accounting for only 6.5% in variations to sales volume (adjusted R square = 0.065) as also supported by the regression value 3.853 and residual value of 46.097, meaning that there are other factors that strongly affect sales volume of these supermarkets other than computer technology adoption.

5. FINDINGS

Computer technology adoption and sales volume in supermarkets

The results of objective one, which examined whether the use of computer technology has an impact on supermarket sales volumes, showed that the elements associated with computer technology adoption collectively account for the sales volumes of supermarkets in Kampala's central division. This demonstrates how the use of computers is crucial to accelerating across-the-counter sales transactions, which is something that every customer wants because it allows them to enter a supermarket swiftly and depart in just a few minutes after finishing their shopping. The best way to handle sales operations in supermarkets would be to analyze the time spent on each task, and if it can be significantly reduced and unnecessary time lost through manually writing, calculating transaction sums, and remembering what is in stock or not can be avoided, that would be the best way to go since it enhances the ability to increase sales volumes.

The results concur with Bitler's (2011) assertion that, among other things, computerization boosts sales volumes regardless of how close or far clients are. The findings further corroborate Morton's (2008) further argument that firms with successful computer technology adoption and deployment processes are producing considerable performance benefits and competitive advantages. Computers ensure a quick and reliable way to conduct all jobs. The findings are in line with those of Baldwin et al. (2012), who claimed that people who do not use computers in business transactions or do so ineffectively never truly operate agilely and leanly.

6. CONCLUSION AND RECOMMENDATIONS

CONCLUSION

The implementation of computer technology, according to the study's findings, significantly increased supermarket operating efficiency by raising sales volume. In order for this to continue to be the case, all supermarket owners must use computers in their stores and motivate staff members who aren't adept at utilizing them to develop their abilities so they can use them quickly and effectively.

RECOMMENDATIONS

Management using or planning to use computer technology for the purpose of increasing sales volume should be aware that the computer system is useful due to its nature of adaptability and can handle numerous jobs at once, which collectively contribute better to operational efficiency. The idea of focusing only on the sales process with the goal of having a very quick sales transaction cycle may not fully contribute to operational efficiency in isolation, but rather only to the whole concept of operational efficiency that was previously described. In addition, supermarket operators want to think about a group of software programs that collectively undeniably boost operational effectiveness. Electronic point-of-sale systems, inventory management systems, CCTV systems, expiry and obsolescence detection and reporting systems, among others, are a few examples of the various applications.
Since these new developments truly aim to increase operational efficiency, managers and store owners must also be prepared to implement better software as it becomes available through research and development.

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