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The Impact of the Activity-Based Costing on SMEs' Financial Performance in Lusaka, Zambia
- Part II -

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Abstract

While several studies have been conducted regarding the impact of Activity-based costing (ABC) system on the financial performance of a firm, to a larger extent they were focused on large enterprises who are mainly established in developed economies. There have been very few studies focused on small and medium sized enterprises and specifically those in the developing/emerging economies. This project therefore sought to explore the impact of Activity-based costing on the financial performance of small and medium sized enterprises based in Lusaka, Zambia, being a developing economy. The specific objectives of the study were to investigate the relationship between Activity-based costing and financial performance in SMEs based in Lusaka, the impact of the implementation of ABC in SMEs on cost control and cost reduction, and the reasons why the majority of SMEs have not adopted the use of the ABC system.

An analysis of the responses from 20 participants in the survey revealed that only seven respondents (35%) had implemented the ABC system, while the other 13 (65%) were still using a traditional costing system. The study further revealed that all the SMEs who had adopted the ABC system had reported a positive impact on their financial performance, as well as on cost control and cost reduction. Furthermore, the study showed that there were three major reasons that the respondents indicated for not adopting the system, namely being satisfied with the traditional costing system (53.85% of the respondents), the high cost of implementing the ABC system (30.77% of the respondents), and lack of expertise to implement the ABC system (15.38% of the respondents). The contribution of this study to the body of knowledge is that the findings will contribute to the understanding of the impact that the adoption and implementation of the ABC system has on the financial performance of SMEs particularly those based in Lusaka, this being the first study on this topic. In addition, the findings of the study will contribute to the understanding of the reasons for low implementation of the ABC system among SMEs in Lusaka.

Key terms: Activity-based costing (ABC), costing systems, small and medium enterprises, overhead costs, traditional costing system

JEL Classification: M10, M41, M49, D24

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3. Research methodology

3.1. Introduction

This chapter describes in five sections the research methodology used in conducting this study as follows: section 1 – the research design used in the study, section 2 – the research site and participants, section 3 –

sample size determination and sampling, section 4 – data collection approach/procedure, section 5 – data management, processing, and analysis, and finally section 6 describes ethical considerations.

3.2. Research design

In order to meet the specific objectives of the study and arrive to the findings, quantitative methodology approach was used. This is the most appropriate approach because the study seeks to investigate the causal and effect relationships among variables. Basias and Pollalis (2018) argue that the choice to use a quantitative or/and qualitative research approach is dependent on the aim of the research, its objectives, and the research questions formulated. For research where there is need to verify a hypothesis or test a theory that involve cause and effect, the most appropriate research methodology to use is quantitative research as it involves the use of statistics and processing of numerical data (Basias and Pollalis, 2018). This is also supported by Creswell (2003) who argued that quantitative research is most appropriate where the investigator seeks to investigate a phenomenon whose cause or explanation is in question and therefore leads to reduction of specific variables and hypothesis as well as the testing of theories. Since our research's aim is to investigate the impact of the ABC system on financial performance of SMEs it will require us to collect data necessary to prove the hypothesis formulated. This will imply the use of statistics and hence quantitative approach is the most appropriate method for our research.

3.3. Study site and population/study frame

The target population for this study consisted of small and medium sized enterprises based in Lusaka, Zambia. Lusaka was chosen for two reasons, firstly due to time and limited financial resources, it was easier and more cost effective to undertake the study within Lusaka rather than including other cities in Zambia. Secondly, Lusaka being both the capital and commercial city of Zambia, its business environment was similar to the rest of the cities in Zambia and also most of the companies are either based in Lusaka or have branches in Lusaka hence Lusaka was the best choice for the population. The target population was, however, limited to small and medium sized enterprises. The Zambian Ministry of Commerce, Trade and Industry (2008) defines small and medium sized enterprises as those companies with a number of employees between 10 to 100. Therefore, the research population was restricted to companies that had between 10 to 100 employees. Therefore, the criteria for inclusion in the study was based on the number of employees a company had, all those with employees above 100 were not included in the study as they were considered to be large enterprises.

3.4. Sample size determination and sampling

The survey was the method undertaken to collect primary data from the sample population. The population in this case consisted of all the SMEs based in Lusaka. Systematic sampling was used in picking the sampling units and convenient sampling was undertaken were necessary. Zikmund (2003) defines systematic sampling as a probability sampling "in which an initial starting point is selected by a random process, and every nth number on the list is selected". Zambian Yellow Pages website was used to select the companies to be included in the survey. The initial starting pointing was randomly selected as the 6th company on the list and thereafter every 6th number was selected as a company to be part of the sample. From this process a total of 50 small and medium enterprises were selected. The sample size was restricted to 50 because of time constraints on the part of the researcher as well as due to limited financial resources. The advantage of using systematic sampling is that due to the fact that it is a probability sampling procedure, the sampling units have an equal probability of being selected and therefore minimises the sampling error (Zikmund, 2003). A total of 50 questionnaires were sent in person to the selected companies. Out of the 50 questionnaires sent, 20 properly filled in questionnaires were received giving a response rate of 40%.

Prior to the administering of the questionnaires to the target companies, a pre-test was undertaken using six companies. The purpose of pretesting was to ensure that any anomalies which may arise were addressed. When the questionnaires were returned only minor adjustments were made.

3.5. Data collection approach/procedure

The survey was used in the collection of primary data. Zikmund (2003) defines a survey as a research technique that researchers use to collect data from the sample population through the use of interviews or questionnaires. A structured questionnaire was used as the instrument for data collection. The questionnaire had two sections: Section A collecting demographic information about the company, which included the size in terms of number of employees and the length of its existence, and Section B having two types of questions with the first one seeking to know the type of costing method a respondent uses while the rest of the questions used a five-point Likert scale in which respondents were instructed to tick the most appropriate answer. The scale was from 1 to 5 as shown below: 1. Strongly disagree; 2. Disagree; 3. Neutral; 4. Agree; 5. Strongly agree.

Structured questionnaires were delivered in person to the sampled companies and were given to chief financial officers and/or management accountants. Chief financial officers and management accountants were targeted because these were the people who were directly involved in cost accounting and therefore were in the best position to provide validated information. Hence data was validated only by dealing with personnel who was responsible for accounting information and in this case accountants and/or chief financial officers. The collection of primary data was undertaken over a period of two weeks from 28th February 2022 to 14th March 2022.

3.6. Data management, processing and analysis

All questionnaires received from the study participants were verifies to ensure that they were properly filled in and that they were complete. Out of the 50 questionnaires distributed, 20 complete were received which represented a response rate of 40%. Microsoft Excel was used in processing data for both descriptive and statistical analysis. For statistical analysis, the t-test was used as it was the most appropriate test due to the sample size. Zikmund (2003) argues that for smaller sample sizes of less than 30, where researchers may wish to test a hypothesis concerning a population mean, the t-distribution is the most appropriate to use. Since the sample size in this study was small, namely less than 30, the t-test was used to test hypothesis and was also complimented by the analysis of variance (ANOVA). Before a t-test was used, the F-test was used to determine whether to use the t-test that assumes equal variance or the t-test that assumes unequal variance. Following this determination, a t-test assuming unequal variances was used.

4. Data presentation and analysis

4.1. Introduction

This chapter presents the data collected through the survey conducted on SMEs in Lusaka. The presentation and analysis of data utilises both descriptive and statistical analysis. This chapter is organised as follows: section 1 – introduction, section 2 – descriptive data presentation and section 3 – statistical data analysis.

4.2. Data presentation

✓ ***Level of adoption of the ABC system and reasons for low adoption among SMEs in Lusaka***

Table 1 shows SMEs in Lusaka who adopted the Activity-based costing system and those who did not. From the table below, it is clear that there has been a low adoption of the ABC system among SMEs in Lusaka. Out of the 20 companies surveyed, only seven have adopted the use of the ABC system in product/service costing,

representing 35%, while the other 65% have not adopted the ABC system but have been using the traditional costing system.

All the following tables and graphics are the authors' contribution.

Table 1. Adoption of the ABC system among SMEs in Lusaka

	No.	Percentage	Cumulative percentage
Users of the ABC system	7	35	35
Non-users of the ABC system	13	65	100
Total	**20**		

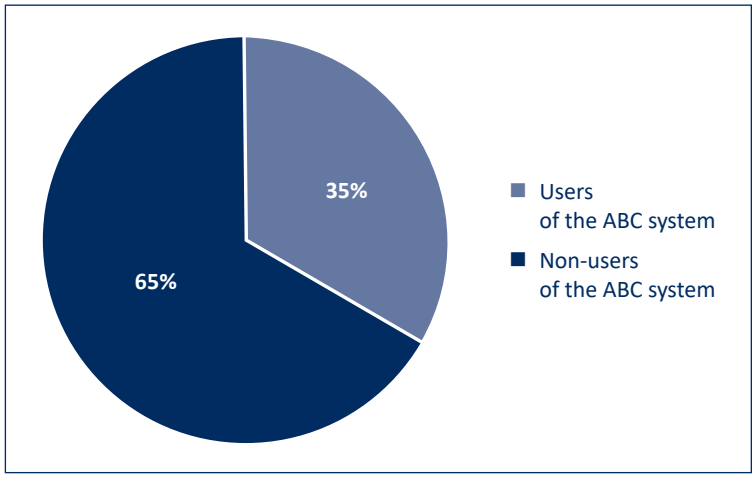

Figure 1. Adoption of the ABC system among SMEs in Lusaka

The low adoption of the ABC system among the SMEs in Lusaka has been attributed to several reasons. The main reason for non-adoption of the ABC system, however, has been that SMEs are satisfied with the traditional costing system that they have been using. More than 50% of respondents indicated that they did not adopt the ABC system because they were satisfied with the traditional costing they were using and therefore did not see the need to switch to the ABC system. While 30.77% of respondents indicated that they could not adopt the use of the ABC system due to the high cost of implementation. Table 2 shows the reasons indicated by non-users of the ABC system for not adopting it.

Table 2. Reasons for not adopting the ABC system by SMEs in Lusaka

	No. of respondents	Percentage	Cumulative percentage
High cost of implementing ABC	4	30.77	30.77
Lack of expertise to implement ABC	2	15.38	46.15
Costly demands on staff time	0	-	46.15
Difficulties in identifying activities	0	-	46.15
Satisfied with the current system	7	53.85	100.00
Difficulties in identifying cost drivers	0	-	100.00

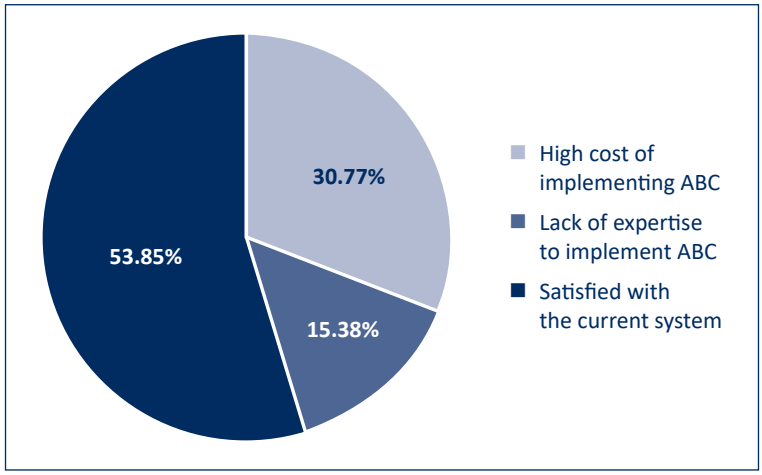

Figure 2. Reasons for not adopting the ABC system by SMEs in Lusaka

✓ ***ABC system adoption and profitability***

The adoption and implementation of the ABC system has had a positive impact on the profitability of the majority of SMEs in Lusaka. Among the respondents who indicated that they had adopted and implemented the ABC system in their product/services costing, 71.43% indicated that the use of the ABC system helped them improve profitability, while 28.57% of the respondents indicated that they were not sure if their profitability could be attributed to the use of the ABC system. Table 3 below shows the adoption of the ABC system and improvement in profitability.

Table 3. Adoption of the ABC system and profitability

	No. of respondents	Percentage	Cumulative percentage
Agree	5	71.43	71.43
Neutral	2	28.57	100.00
Total	**7**		

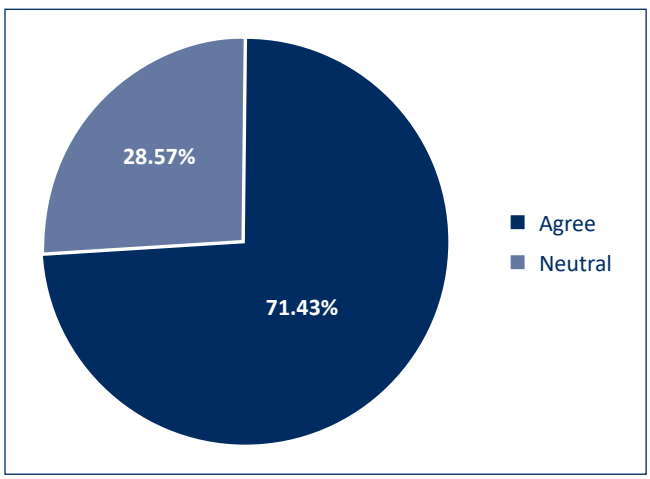

Figure 3. Adoption of the ABC system and profitability

✓ ***The ABC system and cost control and cost reduction***

All SMEs who adopted and implemented the Activity-based costing system indicated that the adoption and implementation of the ABC system had enabled them to improve cost control and reduce costs through the identification of cost drivers. The adoption and implementation of the ABC system has therefore enabled SMEs in Lusaka to reduce and better control costs. Table 4 shows the responses from SMEs on the impact of the ABC system on cost control and cost reduction.

Table 4. The ABC system adoption and cost control and cost reduction

	No. of respondents	Percentage	Cumulative percentage
Improved cost control and reduction	7	100	100
Has not improved cost control and reduction	0	-	100

✓ ***Hypothesis testing***

In order to test the statistically significant differences between the users of the ABC system and non-users among the SMEs on the impact of the ABC system on cost control and cost reduction as well as on financial performance, t-test was the statistical analysis method used and confirmed with the use of analysis of variance (ANOVA). This was used because the sample size was less than 30 and, as Zikmund (2003) stated, when the sample size is small, the most appropriate statistical analysis method to use is the t-distribution. Before using the t-test, the F-test was used in order to determine whether to use the t-test assuming equal variance or t-test assume unequal variance. The F-test result indicated that the variance was significance between the two means and therefore the t-test assuming an equal variance was used. A significant level of $\alpha = 0.05$ was used. This significance level meant that if $p < 0.05$ then the null hypothesis is rejected in favour of the alternative hypothesis, while on the other hand if $p > 0.05$ then the null hypothesis is accepted. In this statistical analysis, a two tail values were used as the approach taken was a two sided.

4.3. Findings

✓ ***The use of the ABC system and cost control and cost reduction***

In order to determine the statistical significance of the differences between users and non-users of the ABC system on the impact of the implementation of the ABC system on cost control and cost reduction, the responses from the two groups were tested. The following hypothesis was formulated:

H_0: There is no significant difference between the users and non-users of the ABC system on the impact of the adoption of the ABC system on cost control and cost reduction.

H_1: There is a significant difference between the users and non-users of the ABC system on the impact of the adoption of the ABC system on cost control and cost reduction.

Table 5 below shows the results of the t-test, while Table 6 shows the results of analysis of variance.

Table 5. The ABC adoption and cost control and cost reduction

t-Test: Two-Sample Assuming Unequal Variances

	ABC users	Non-users of the ABC
Mean	4.14285714	3.11538462
Variance	0.55952381	0.42307692

	ABC users	Non-users of the ABC
Observations	7	13
Hypothesized Mean Difference	0	
df	11	
t Stat	3.06365324	
p (T ≤ t) one-tail	0.00539070	
t Critical one-tail	1.79588482	
p (T ≤ t) two-tail	0.01078140	
t Critical two-tail	2.20098516	

The result in Table 5 above shows p = 0.005 for one tailed and p = 0.011 for two tailed. Since p < 0.05, we rejected the null hypothesis in favor of the alternative hypothesis and concluded that there is significant difference between the users and non-users of the ABC system on the impact of the adoption of the ABC system on cost control and cost reduction. The mean score for the users of ABC is 4.1 which means that on average they had agreed to the statement that the adoption of the ABC system had a significant positive impact on cost control and cost reduction.

Table 6. Analysis of variance (ANOVA)

SUMMARY

Groups	Count	Sum	Average	Variance
ABC users	7	30.0	4.28571429	0.23809524
Non-users of the ABC	13	39.5	3.03846154	0.39423077

ANOVA

Source of variation	SS	df	MS	F	p-value	F crit
Between groups	7.078159341	1	7.07815934	20.6851472	0.00024914	4.41387342
Within groups	6.159340659	18	0.34218559			
Total	**13.237500000**	**19**				

The analysis of variance (ANOVA) as shown in Table 6 confirms the results of the t-test shown in Table 5. Based on the analysis of variance, the p-value of 0.000249 is less than 0.05 and the F-value of 20.68 is significantly high. Since the p-value is less than 0.05, the null hypothesis is rejected in favor of the alternative hypothesis and, therefore, we concluded that there is significant difference between the users and non-users of the ABC system on impact of the adoption of the ABC system on cost control and cost reduction. This analysis confirms the result of the t-test.

✓ ***The ABC system use and profitability and financial performance***

In order to determine the statistically significant difference between the users and non-users of the ABC system on the impact of the adoption of the ABC system on profitability and financial performance the t-test and ANOVA were used. The following hypothesis was formulated:

H_0: There is no significant difference between the users and non-users of the ABC system on the impact of the adoption of the ABC system on company profitability and financial performance.

H_1: There is significant difference between the users and non-users of the ABC system on the impact of the adoption of the ABC system on company profitability and financial performance.

Table 7 shows the results of the t-test, while Table 8 shows the ANOVA results.

Table 7. The ABC system adoption and profitability and financial performance

t-Test: Two-Sample Assuming Unequal Variances

	ABC users	Non-users of the ABC
Mean	4.14285714	3.03846154
Variance	0.55952381	0.39423077
Observations	7	13
Hypothesized Mean Difference	0	
df	11	
t Stat	3.32598865	
p (T ≤ t) one-tail	0.00337957	
t Critical one-tail	1.79588482	
p (T ≤ t) two-tail	0.00675915	
t Critical two-tail	2.20098516	

The result in Table 7 shows that p = 0.003 for one tailed and p = 0.0067 for two tailed. Since p < 0.05, we rejected the null hypothesis in favor of the alternative hypothesis and concluded that there is a statistically significant difference between the users and non-users of the ABC system on the impact of the ABC adoption on profitability and financial performance of SMEs.

Table 8. Analysis of variance (ANOVA)

SUMMARY

Groups	Count	Sum	Average	Variance
ABC users	7	29.0	4.14285714	0.55952381
Non-users of the ABC	13	39.5	3.03846154	0.39423077

ANOVA

Source of variation	SS	df	MS	F	p-value	F crit
Between groups	5.549587912	1	5.54958791	12.3508492	0.00247638	4.41387342
Within groups	8.087912088	18	0.44932845			
Total	**13.637500000**	**19**				

The analysis of variance (ANOVA) as shown in Table 8 confirms the results of the t-test shown in Table 7. Based on the analysis of variance, the p-value of 0.00247 is less than 0.05 and the F-value of 12.35 is significantly

high. Since the p-value is less than 0.05, the null hypothesis is rejected in favor of the alternative hypothesis and, therefore, we concluded that there is a statistically significant difference between the users and non-users of the ABC system on the impact of the adoption of the ABC system on profitability and financial performance. This analysis confirms the result of the t-test.

4.4. Discussion

The findings of this research show that the adoption and implementation of the ABC system has a positive impact on both cost control and cost reduction. It further shows that not only do the ABC system adoption and use have an impact on cost control and cost reduction, but they also have a positive impact on the profitability and financial performance of the firm. All respondents to the survey who indicated that they implemented the ABC system noticed that the system enabled them to improve their control of costs and that it helped them reduce the costs. The non-users of the ABC system on the other hand were neutral on the cost control and cost reduction. The statistical test of the differences between the two groups on the impact of adoption of the ABC system on cost control and cost reduction revealed that there was significant difference as both the t-test and the ANOVA produced similar results with both having the p-value of less than 0.05 enabling the researcher to reject the null hypothesis in favor of the alternative hypothesis. This finding meant that the adoption of the ABC system among SMEs in Lusaka helped them improve cost control and therefore experienced a cost reduction. Therefore, the implementation of the ABC system among SMEs had a positive impact on cost control and cost reduction among SMEs who implemented it.

The findings also revealed that SMEs who adopted the use of the ABC system had reported improvement in their financial performance and profitability. Out of the seven respondents who implemented the ABC system five respondents, representing 71.43%, indicated that the implementation of the ABC system helped them increase their profitability, while two respondents, representing 28.57%, indicated that they were not sure if the ABC system implementation helped them increase their profitability. However, all the seven respondents reported that they generally experienced improvement in financial performance after the implementation of the ABC system. The statistical test on the differences between the users and non-users of the ABC system on the impact of the ABC adoption on financial performance of SMEs showed that there was significant difference as both the t-test and the ANOVA produced similar results. The findings of the study revealed that the adoption and implementation of the ABC system among SMEs in Lusaka, Zambia, had a positive effect on their financial performance as it helped them improve.

This study confirms the findings of Mohammed (2019) who reported in his study regarding the impact of the ABC system on the performance of SMEs in Lagos State, Nigeria, that there was a relationship between the adoption and implementation of the ABC system and cost control and cost reduction as evidenced by the firms surveyed who reported reduction in costs due to the implementation of the ABC system. Equally these findings on the impact of the ABC implementation on firm profitability and financial performance confirm the findings of Pham *et al.* (2021) who reported in their empirical research that the successful implementation of the ABC system had a positive impact on the firm's financial performance.

In this survey, all the SMEs surveyed that implemented the ABC system indicated that the adoption and implementation of the ABC system helped them improve on cost control and enabled them to reduce costs as the system enabled them to identify cost drivers. Further, the respondents had indicated that the use of ABC system has had a positive impact on their financial performance as it had helped them improve.

The study also revealed that the adoption and use of the ABC system among SMEs in Lusaka has not been widespread as only about 35% had adopted the ABC system. Out of a total number of 20 respondents,

only seven respondents, representing 35%, indicated that they adopted and implemented the ABC system, while the other 13 respondents, representing 65%, indicated that they did not implement the ABC system. There have been several reasons advanced for non-adoption of the ABC system which include the high cost of implementation of the system with 30.77% of respondents indicating that they did not implement it because of high cost of implementation. However, the main reason for non-use of the ABC system among SMEs in Lusaka is that SMEs were satisfied with the traditional costing system that they were using and therefore they saw no need to switch to the ABC system as they do not perceive any additional benefits that may come with the use of it. 53.85% of the respondents indicated that they were satisfied with the traditional costing system, this being the reason for not adopting the ABC system despite its benefits. The other reason advanced by 15.38% of the respondents for not adopting the ABC system was the lack of expertise necessary to implement the system.

4.5. Practical implications, limitations of the study and future study

This study investigated the impact of implementing the ABC system on the financial performance of SMEs in Lusaka. Hopefully, the findings of this study will motivate more SMEs in Lusaka to implement the ABC system as it has shown that the ABC system does have a positive impact not only on the cost control and cost reduction but also on the profitability and financial performance of the company. In terms of contribution to the academic body of knowledge, this study has been one of the first to show the level of adoption of the ABC system by SMEs in Lusaka and the impact that the ABC system has on the financial performance of these companies.

The study, however, has several limitations among which is the limited nature of the study. Due to the limited time and financial resources, this study was only limited to SMEs that are based in Lusaka district, making it difficult to make inference to other regions of Zambia. Another limitation of this study was that it did not take into account the contribution of other organisational initiatives such as Just-in-time (JIT) and Total quality management (TQM) besides the ABC system to the positive financial performance as well as cost control and cost reduction. In view of these limitations, future studies should be directed at increasing the study population by including all the important geographical areas of Zambia where most of the SMEs are located such as the Copperbelt Province. Further, the study should be extended to include contribution that other organisational initiatives such as JIT, TQM present to the positive financial performance of SMEs when combined with the implementation of the ABC system.

5. Conclusions

The main objective of this study was to investigate the impact of the Activity-based costing on financial performance of small and medium sized enterprises in Lusaka, Zambia. The study sought to find out if the adoption and implementation of the ABC system had any impact on reducing cost and improving financial performance of SMEs in Lusaka. With the increased competition on the global marketplace, it has become imperative that SMEs should adopt systems that will help them create competitive advantage. The findings of this study show that those SMEs in Lusaka who adopted the ABC system experienced better cost control and have been able to reduce cost. Further, the findings of the study revealed that apart from better cost control and cost reduction, SMEs that use the ABC system have improved their financial performance in terms of increased profitability.

The findings of the study also revealed that in Lusaka, the adoption of the ABC system among SMEs has been very low, namely 35%. The study has further revealed that there are a few reasons that SMEs have indicated for not adopting the ABC system, the main one being that they were satisfied with the traditional costing system they had been using, followed by the reason that the ABC system was expensive to adopt and that there was generally a lack of expertise necessary to implement the ABC system.

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