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## **Effect of Financial Access and Technology Adoption on the Performance of Family Owned Matatu Businesses in Nairobi; Kenya**

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# Effect of Financial Access and Technology Adoption on the Performance of Family Owned Matatu Businesses in Nairobi; Kenya

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## Abstract

Matatus are the informal industry in Kenya that provide service to millions of people each day and are essentially the backbone of the transportation system in Kenya. It account for an estimated 80% of the total public transport in the country. Nevertheless, there is lack of proper management skills by the owners especially in the family owned Matatu business, total failure by the regulatory authorities in properly playing their part, and excessive interference by various tertiary unauthorized groups are some of the features manifested in the public transport sector in the country. Premised on these phenomenon, the study established the effect of financial access and technology adoption on the financial performance of family owned Matatu business in Nairobi Kenya. The study employed descriptive research design. The target population of the study included of 7000 Matatu owners in Nairobi and a sample size of 364 registered Matatu owners were selected using random sampling method. Questionnaires were used to collect data that was analyzed using descriptive and inferential statistics. A multiple linear regression analysis model was used to determine the relationship between financial access, technology adoption and the financial performance of family owned Matatu business. Findings indicated that financial access and technology adoption had a positive and significant effect on the performance of family owned Matatu Business in Nairobi. The study concluded that financial access and technology adoption were a decisive field within the environment of the Matatu business.

**Keywords:** *Financial access, Technology adoption, Performance, Family-owned and Matatu sector*

## 1.0 Introduction

### 1.1 Background of the Study

Many sectors of the economy will offer opportunities to investors and the transport industry is one such an avenue. Transport industry offers much diversity that encompasses wide areas such as rail transport, air transport, motor vehicle transport and transport by sea. In investing capital to a business, the focus of an entrepreneur is purely to succeed and to have the business live to be

enjoyed by the future generation. Researchers have put performance stories of new business living to envisage the vision of the founders to be about 50 % ( Klein, & Sorra, 1996). Business Administration (SBA) have indicated that seven out of ten new employer establishments survive at least two years and 51 percent survive at least five years. This is a far cry from the previous long-held belief that 50 percent of businesses fail in the first year and 95 percent fail within five years. The extra challenge would be how many of those which perform live to be inherited by a future generation past the 5<sup>th</sup> year. One such an enterprise that is domiciled in the transport industry is the much hyped public transport. While in other parts of the world the type of enterprise is performance story, the same performance has not been emulated in Kenya. There are multiple of contributing factors that negate such in this industry that has been christened as chaotic sector (Klein, & Sorra, 1996).

The Matatu industry in Kenya dates back in the pre-colonial period. It was informal sector and most entrepreneurs had only one Matatu which they used to carry passengers. There were other multinational companies which run at the time such as the Kenya bus service. The Matatu industry have seen through hard times where the government have come up with very severe legislations such as the famous Michuki Rules, the amended traffic rules of 2012 and the Kenya transport policy. The Kenya transport policy proposes the banning of 14 seater Nissan Matatus. The Kenya government is on the other hand urging the operators to upgrade with 25 seats and above minibuses. This is an attempt to reduce the traffic jams witnessed in Nairobi in the last few years (Graeff, 2012). The performance of the Matatu industry may be looked at through the growth indicators. These indicators could be the number of new Matatus that enter the designated routes, the profitability of the sector, the lifespan of the Matatus, the number of jobs the sector creates every year, the growth of the Matatu SACCOs and the lawlessness in the sector (Chitere, 2004).

Family owned Matatu business are an often overlooked form of ownership. As family owned Matatu business expands from their entrepreneurial beginnings, they face unique performance and governance challenges. The generations that follow the founder, for example, may insist on running the company even though they are not suited for the job. And as the number of family shareholders increases exponentially generation by generation, with few actually working in the business, the commitment to carry on as owners can't be taken for granted. Indeed, less than 30 % of family owned Matatu business survives into the third generation of family ownership. Those that do, however, tend to perform well over time compared with their corporate peers, according to recent McKinsey research. Their performance suggests that they have a story of interest not only to family businesses around the world, of various sizes and in various stages development, but also to companies with other forms of ownership (Caspar, & Elstrodt, 2010).

Over decades, family develop oral and written agreements that address issues such as the composition and election of the company's board, the key board decisions that require a consensus or a qualified majority, the appointment of the CEO, the conditions in which family members can (and can't) work in the business, and some of the boundaries for corporate and financial strategy. Any appointment to them must be approved both by the owners' board, which represents the family, and the advisory council, a group of independent business advisers who provide strategic guidance to the board. As families grow and ownership fragments, family institutions play an important role in making continued ownership meaningful by nurturing family values and giving new generations a sense of pride in the company's contribution to society (Caspar, & Elstrodt, 2010).

## **1.2 Statement of the Problem**

Matatu business plays two very vital roles to the public that is the provision of transport services and as a source of economic income to the many in the country. Contrary to the expectation, these two major benefits have remained a mirage due to lack of proper management skills by the owners especially in the family owned Matatu business. It has been characterized by a total failure by the regulatory authorities in properly playing their part, and excessive interference by various tertiary unauthorized groups. The family and their employees are not trained or well developed for the long term need of the industry. Lack of innovativeness, risk taking proactivity and overall poor entrepreneurial culture/orientation has negatively impacted on the Matatu industry. The aforementioned investors are not economically and technically capable of dealing with the dynamics and frequent changes that take place within the industry and neither do their employees provide the much needed after sales service to their clients who are the passengers.

Various studies related to this study have been conducted have focused on general phenomenon on the transport sector. Chitere (2004) conducted a study on Matatu Industry in Kenya: A study of the performance of owners, workers and their associations and potential improvement, Nairobi Institute of Policy Analysis and Research: Government press. Wairimu, (2014) conducted a study on the effect of corporate governance on financial performance of registered transport savings and credit cooperatives in Nairobi county. McCormick, Mitullah, Chitere, Orero, & Ommeh, (2011) conducted a study on institutions and business strategies of Matatu operators in Nairobi: A scoping study. From these studies, it is evident that none focused on the financial access and technology adoption as factors affecting the performance of family owned Matatu business. Therefore this study wished to bridge the gap by focusing effects of financial access and technology adoption on the performance of family owned Matatu business in Nairobi, Kenya.

## **1.3 Specific Objectives**

- i. To examine the effect of financial access on the performance of family owned Matatu Business in Nairobi, Kenya.
- ii. To establish the effect of technology adoption on the performance of family owned Matatu Business in Nairobi, Kenya.

## **1.4 Research Questions**

- i. What is the effect of financial access on the performance of family owned Matatu Business in Nairobi, Kenya?
- ii. What is the effect of technology adoption on the performance of family owned Matatu Business in Nairobi, Kenya?

## **2.0 Literature Review**

### **2.1 Theoretical Review**

The theories that supported the study include Resource Based View Theory and Rogers's diffusion of innovation Theory. These are presented in figure 1.

#### **2.1.1 Resource Based View Theory**

The resource-based perspective argues that sustainable competitive advantage (SCA) is generated by the unique bundle of resources at the core of the firm (Colbert, 2004). Resources are said to have a sustainable competitive advantage if they are rare, valuable, hard to copy and not substitutable. In other words, the resource-based view describes how business owners build their



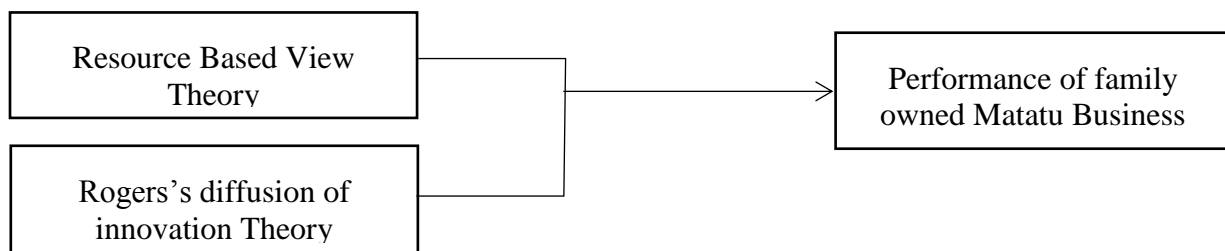
businesses from the resources and capabilities that they currently possess or can acquire (Dollinger, 2009). The term resource was conceived broadly as anything that can be thought of as strength or a weakness of the firm. The theory addresses the central issue of how superior performance can be attained relative to other firms in the same market and posits that superior performance results from acquiring and exploiting unique resources of the firm. Implicit in the resource-based perspective is the centrality of the venture's capabilities in explaining the firm's performance.

This theory was relevant to study topic because it informed financial access variable. Based on the resource-based theory, it is plausible to argue that previous entrepreneurial experience is a valuable resource to the family business. Research shows that an entrepreneur's management skills contribute to venture performance and growth. The propensity of the entrepreneur to employ and apply a variety of skills has been recognized.

### 2.1.2 Rogers Diffusion of Innovation Theory

A conceptual framework for analyzing adoption of technology patterns is provided by Everett Rogers'(1995) theory of the diffusion of innovations, which defines diffusion as "the process by which an innovation is communicated through certain channels over time among the members of a social system". The four main elements are the innovation, communication channels, time, and the social system. Rogers (1995) defines an innovation as an idea, practice or object that is perceived as new by the individual and diffusion as the process by which an innovation makes its way through a social system. For our purposes, the innovation is instructional technology for teaching and learning, and diffusion is the extent to which all higher education institution has adopted this innovation.

Because individuals in a social system do not adopt an innovation at the same time, innovativeness is the degree to which an individual is relatively earlier in adopting new ideas than other members of a system. According to Rogers' theory of the diffusion of innovations, the factors that influence innovation adoption include; relative advantage, compatibility, complexity and observability. Therefore Rodgers theory of the diffusion of innovations was deemed relevant since it informed the technology adoption variable. Family may need to adopt new technologies for proper operation of the Matatu business.



**Figure 1: Theoretical Framework**

## 2.2 Empirical Review

Blasco and Teruel, (2009) conducted a study on Small firms, growth and financial constraints. Using panel data from Spanish manufacturing firms for the period 2000-2006, the study investigated the effects of internal and external financial access on firm growth. In particular, it examines three dimensions of these financial sources: a) the performance of the firms' capital

structure in accordance with firm size; b) the effects of internal and external financial sources on growth performance; c) the combined effect of equity, external debt and cash flow on firm growth. The study found that low-growth firms were sensitive to cash flow and short-term bank debt, while high-growth firms were more sensitive to long-term debt. Furthermore, equity capital seemed to reduce barriers to external financial access. The study deduced that during the start-up phase, firms were unable to increase their financial leverage and so their capital structure failed to promote correct investment strategies. However, as their equity capital increased, alternative financial mechanisms, in particular long-term debt, become available, which had a positive impact on firm growth.

Njehia and Mwirigi (2010) conducted a study on the effects of enterprise resource planning systems on firm's performance: A Survey of Commercial Banks in Kenya. The study had five objectives of finding out how the financial resource availability, organizational complexities, employees' perception, regulatory requirements, and having a top management support affects the effective implementation of an Enterprise Resource Planning (ERP) system which in turn will affect the firm's performance. This study found that financial resource availability, organizational complexities, employee's perceptions, regulatory requirements; and having a top management support all affects the effective implementation of an ERP system which in turn affected the firm's performance.

Musso and Schiavo (2008) conducted a study on the impact of financial constraints on firm survival and growth. The study proposed a new approach for identifying and measuring the degree of financial constraint faced by firms and use it to investigate the effect of financial constraints on firm survival and development. Using panel data on French manufacturing firms over the 1996 - 2004 period, we find that (i) financial constraints significantly increase the probability of exiting the market, (ii) access to external financial resources has a positive effect on the growth of firms in terms of sales, capital stock and employment, (iii) financial constraints are positively related with productivity growth in the short run. The study interpret this last result as the sign that constrained firms need to cut costs in order to generate the resources they cannot raise on financial markets.

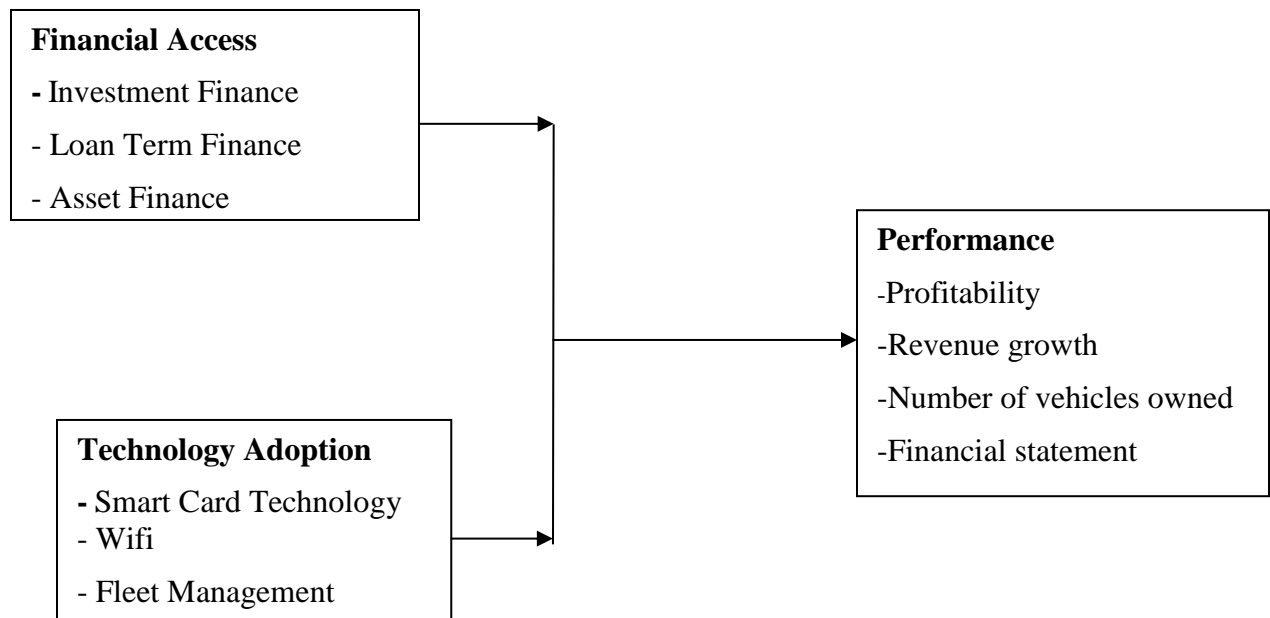
Palacios, Juste, Redondo and Grünhagen (2014) conducted a study on technological opportunism effects on IT adoption, intra-firm diffusion and performance: Evidence from the US and Spain. The paper pursues a joint analysis of the direct influence of the level of a firm's technology opportunism capability on performance and on the adoption and intra-firm diffusion of Internet-based technologies. The study here examines the mediating effect that intra-firm diffusion exerts on the relationship between capabilities and performance. This study uses the results from a survey of 100 Spanish and 109 American franchise firms. Results indicate that the firm's level technological opportunism influences the adoption and intra-firm diffusion of technology and also has a positive impact on performance. While intra-firm diffusion is a driver of performance, adoption has no influence. Finally the indirect impact of technological opportunism on performance differs across countries. While for American firms, the integration of technologies into activities that related to communication with partners has a positive impact on performance; Spanish managers should focus on the integration of these technologies into back-end functionalities.

Barney (2004), pointed out that technology adoption cultivates organizational capabilities that enable the firm to outperform their competitors. However, adoption of information technology alone may not be a source of competitive advantage because of their wide availability in the

market, only when the information technology is embedded into organizational processes (e.g. strategy making), it is expected to offer sustainable benefits. The increasing role of supply chain technology has contributed to the evolution of the competitive supply chain management. According to Regan and Song (2001), the following trends are evident as a consequence of the impact of technology adoption in supply chain management, development of new services, new functions, formation of new alliances etc.

### 2.3 Conceptual Framework

The study focused on the relationship between financial access, technology adoption and performance of family owned Matatu business in Nairobi, Kenya. Each of the variables had indicators that could be used to show the relationship of the independent variables and dependent variable. This was graphically represented in figure 2.



**Figure 2: Conceptual framework**

### 3.0 Research Methodology

The study adopted a descriptive research design. The targeted population was 7000 registered family Matatu owners and a sample size of 364 respondents was obtained using stratified random sampling. The strata were based on route taken by the Matatu and these included North, South, West and East of Nairobi County. Questionnaires were used to collect data, which was analyzed using descriptive and inferential statistics. Correlation and multiple linear regression analysis model was used to test the relationship between the financial access, technology adoption and performance of Matatu business.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \mu$$

Where;

Y=Performance of family owned Matatu business

$X_1$  = Financial Access

$X_2$  = Technology Adoption

$\mu$ =Error term

## 4.0 Results and Findings

### 4.1 Response Rate

A total of 312 out of 364 questionnaires were properly filled and returned. This represented an overall performance response rate of 85.71% as shown on Table 1. According to Mugenda and Mugenda (2003) a response rate of above 50% is adequate for a descriptive study. Based on this assertions, 85.71% response rate was excellent for the study.

**Table 1: Response Rate**

Response	Frequency	Percent
Returned	312	85.71%
Unreturned	52	14.29%
<b>Total</b>	<b>364</b>	<b>100%</b>

## 4.2 Descriptive Statistics

### 4.2.1 Financial Access

The study assessed the effects of financial access on the performance of family owned Matatu Business in Nairobi. The responses were rated on a five likert scale and the results presented in Table 2. 71.50% (31.40%+40.10 %) of the respondents agreed that performance in Matatu business depended on the investment financial access of the owner of business, 69.6% of the respondents agreed that performance in Matatu business depended on the total assets(asset financial access) of the owner of business, 73.4% of the respondents indicated that Performance in Matatu business depended on the availability of long term financing, while 67% of the respondents indicated that Matatu business could sometimes be financed using borrowings from friends or relatives. The results implied that financial access influenced the performance of family owned Matatu Business since majority of the respondents agreed with most of the statements. On a five point scale, the average mean of the responses was 3.86 which meant that majority of the respondents agreed with the statements; however the answers were varied as shown by a standard deviation of 1.27.



**Table 2: Financial Access**

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Std. Dev.
Performance in Matatu business depends on the investment financial access of the owner of business	6.40%	17.60%	4.50%	31.40%	40.10%	3.81	1.303
Performance in Matatu business depends on the total assets(asset financial access) of the owner of business	10.90%	11.20%	8.30%	23.40%	46.20%	3.83	1.397
Performance in Matatu business depends on the availability of long term financing.	6.70%	4.80%	15.10%	35.60%	37.80%	3.93	1.152
Matatu business can sometimes be financed using borrowings from friends or relatives	6.10%	9.90%	17.00%	25.00%	42.00%	3.87	1.234
<b>Average</b>						<b>3.86</b>	<b>1.27</b>

#### 4.2.2 Technology Adoption

The study determined the effects of technology adoption on the performance of family owned Matatu business in Nairobi. The responses were rated on a five likert scale and the results presented in Table 3. 54.8% (23.0%+31.8%) of the respondents indicated that adoption of fleet management system technology contributed greatly to the performance of family owned Matatu business, 51.9% respondent agreed that the use of W.i.f.i technology contributed greatly to the performance of family owned Matatu business, 53.6% of the respondents agreed with that the use of smartcard Matatu technology contributed greatly to the performance of family owned Matatu business while 50.6 % of the respondents agreed that blow test technology that could check drivers for sobriety contributed greatly to the performance of family owned Matatu business. The results implied that technology adoption influenced the performance of family owned Matatu business as shown by majority of the respondents who agreed with most of the statements. On a five point scale, the average mean of the responses was 3.79 which meant that majority of the respondents agreed with the statements; however the answers were varied as shown by a standard deviation of 1.16.

**Table 3: Technology Adoption**

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Std. Dev.
Adoption of fleet management system technology contributes greatly to the performance of family owned Matatu business	4.50%	15.40%	25.30%	23.00%	31.80%	3.12	1.087
The use of W.i.f.i technology contributes greatly to the performance of family owned Matatu business	4.50%	18.70%	25.00%	32.00%	19.90%	3.8	1.078
The use of smart Matatu technology contributes greatly to the performance of family owned Matatu business.	4.50%	14.90%	27.00%	23.20%	30.40%	3.88	1.185
Blow test technology that could check drivers for sobriety contributes greatly to the performance of family owned Matatu business.	9.00%	17.30%	23.10%	24.40%	26.20%	3.76	1.287
<b>Average</b>						<b>3.79</b>	<b>1.16</b>

### 4.3 Correlation Analysis

Correlation analysis was conducted to establish the association between financial access, technology adoption (independent variables) and dependent variable performance of family owned Matatu. Results established that financial access and performance of Matatu business were positively and significantly related ( $r=0.246$ ,  $p=0.000$ ). Similarly, the results showed that technology adoption and performance of Matatu business were positively and significantly related ( $r=0.169$ ,  $p=0.003$ ). This implies that there was a direct association ship between the two independent variables and the performance of the Matatu business. Results were presented on table 4.

**Table 4: Correlation Matrix**

		<b>Performance</b>	<b>Financial Access</b>	<b>Technology Adoption</b>
<b>Performance</b>	Pearson			
	Correlation	1.000		
<b>Financial Access</b>	Pearson			
	Correlation	.246**	1.000	
	Sig. (2-tailed)	<b>0.000</b>		
<b>Technology Adoption</b>	Pearson			
	Correlation	.169**	-0.094	1.000
	Sig. (2-tailed)	<b>0.003</b>	0.096	

\*\* Correlation is significant at the 0.01 level (2-tailed).

#### 4.4 Regression Analysis

The study established the relationship between the management style, entrepreneurial culture and performance of family owned Matatu Business in Nairobi, Kenya. The results presented in table 5 present the fitness of model used for the regression model in explaining the study phenomena. Financial access and technology adoption were found to be satisfactory variables in explaining performance. This was supported by coefficient of determination/R square of 51.8%. This meant that financial access and technology adoption explained 51.8% of the variations in the performance of Matatu business. This results further meant that the model applied to link the relationship of the variables was satisfactory.

**Table 5: Model Fitness**

<b>Indicator</b>	<b>Coefficient</b>
R	0.72
R Square	0.518
Adjusted R Square	0.162
Std. Error of the Estimate	0.46779

If the significance number found is less than the critical value also known as the probability value (p) which is statistically set at 0.05, then the conclusion would be that the model is significant in explaining the relationship; else the model would be regarded as non-significant. Table 6 provided the results on the analysis of the variance (ANOVA). The results indicated that the overall model was statistically significant. Further, the results implied that financial access and technology adoption were good predictors of performance of family owned Matatu business. This was supported by an F statistic of 16.014 and the reported p value (0.000) which was less than the conventional probability of 0.05significance level.

**Table 5: Analysis of Variance**

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	14.017	4	3.504	16.014	<b>0.000</b>
Residual	67.181	307	0.219		
Total	81.199	311			

Regression of coefficients results in table 7 shows that financial access and performance of Matatu business were positively and significant related ( $r=0.221$ ,  $p=0.000$ ). The findings informed that of Njehia and Mwirigi (2010) who conducted a study on the effects of enterprise resource planning systems on firm's performance. This study found that financial resource availability, organizational complexities, employee's perceptions, regulatory requirements; and having a top management support all affects the effective implementation of an ERP system which in turn affected the firm's performance.

Similarly, it indicated that technology adoption and performance of Matatu business were positively and significant related ( $r=0.147$ ,  $p=0.000$ ). The findings agreed to that of Barney (2004) who pointed out that technology adoption cultivates organizational capabilities that enable the firm to outperform their competitors. However, adoption of information technology alone may not be a source of competitive advantage because of their wide availability in the market, only when the information technology is embedded into organizational processes

**Table 7: Regression of Coefficients**

Variable	B	Std. Error	t	Sig.
(Constant)	1.241	0.377	3.295	0.001
Financial access	0.221	0.043	5.097	<b>0.000</b>
Technology adoption	0.147	0.04	3.635	<b>0.000</b>

Thus, the optimal model for the study is;

$$\text{Performance of Matatu business} = 1.241 + 0.221X_1 + 0.147X_2$$

Where:

$X_1$ = Financial Access

$X_2$ = Technology Adoption

## 5.0 Conclusions

Based on the findings above the study concluded that financial access and technology adoption had a positive and significant effect on the performance of family owned Matatu Business in Nairobi. In addition, the study also concluded that technology adoption cultivates organizational capabilities that enable the firm to outperform their competitors. However, adoption of information technology alone may not be a source of competitive advantage because of their wide availability in the market, only when the information technology is embedded into organizational processes it is expected to offer sustainable benefits.

## 6.0 Recommendations

The study recommended that Matatu owners need to access both internal and external finance since it had a positive effect on the growth of firms in terms of sales, capital stock and employment. The study also recommended for Matatu owners to invest more resources on technology. It was the feeling and agreed opinion that technology eased the operations of the business and thus earned in more revenue for most business that had embraced the same.

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