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Full Length Research Paper

Role of strategic purchasing and supply management practices in firm performance: A lesson from public bus transport firms in Kenya

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In a census survey of 183 senior executives of public bus transport firms in Nairobi, Kenya, effect of strategic purchasing and supply management practices on performance was sought. A cross sectional survey design was adopted. Secondary and primary data were used. Descriptive statistics, Pearson's correlation, multiple regressions were used to analyze data. Content analysis was performed on interview schedule results and other qualitative data. The results indicated that Strategic purchasing and supply management practices were high among the firms and positively and significantly predict public bus transport firm performance. The adjusted R^2 value was found to be 0.398 implying that strategic purchasing and supply management practices accounted for 39.8% of the variance in the public bus transport firm performance. The results show that public bus transport firms practicing strategic purchasing and supply management have improved performance. This is important to the practitioners in the industry and other industries and the government as it implies that more emphasis should be made on this area. The regression results indicate a high error term that should be investigated further.

Keywords: Supplier Integration, Supplier Socialization, Supply Base Flexibility, Performance, Public Bus Transport Firm.

INTRODUCTION

Background of the Study

Strategic purchasing and supply management practices are decisions and actions that focus on building long term partnerships with suppliers with the aim of exchanging innovative ideas, co-development of products, and improvements in quality and service (Gil, 2009). It creates a strong positive influence on firm performance through the development of joint resources and the exchange of valuable knowledge.Theoretical literature links strategic purchasing and supply management to performance positively. Buvik and John (2000); Dyer (2000); Kale et

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al. (2000); Das and Teng (2000) Lorenzoni and Lipparini (1999) and Sanchez (1995) argue that strategic purchasing and supply management activities directly influence performance of firms. Research has stressed that strategic purchasing and supply management impacts on firms' performance (Ellram and Liu, 2002; Singhal and Hendricks, 2002; Krause *et al.,* 2007; Ragatz *et al*., 2002). In line with these theoretical and empirical advances, this study hypothesized that strategic purchasing and supply management practices can improve performance among the troubled public bus transport firms in Kenya.

Transport is an important aid to trade and an accelerator of development in society. Many authors view it as a tool for enhancement of national and international communication. In its wider multiplier effects, it is held that transport as a service can help reduce poverty (Rayner *et al*., 2006). In Kenya the transport, storage, and communication sector accounts for a significant proportion of the GDP. In the first quarter of the year 2012, it contributed Ksh 54 billion second to agriculture and forestry which brought in Ksh 77 billion to a total first quarter GDP of Ksh 391 billion. Earnings from road passenger traffic has continued rise steadily from Ksh 127 billion in 2007 to Ksh 190 billion in 2011 (G.o.K, 2012). The history of public bus transport in Kenya can be traced to 1934, when the Overseas Transport Company of London introduced the first local bus in Kenya using a fleet of 13 buses on 12 routes. In 1966 United Transport Overseas Services (UTOS) the then owners of Kenya Bus Services Ltd (KBS) won a monopoly franchise from City Council of Nairobi (CCN) to operate a bus service in return for a 25% shareholding stake in KBS (Aduwo and Obudho, 1992; Khayesi, 1997 and Odero *et al,* 2003). In the same period, the government, responding to pressure from local informal sector and high rural-urban migration, liberalized the public road passenger transport.

The public bus transport subsector is essential despite the numerous challenges that lead firms here to scale down operations and close down at a high rate. The challenges these firms face include increasing number of accidents giving rise to many deaths and numerous breakdowns resulting in delays in customer journeys. All these lead to dwindling profits. In the year 2011, for example, fatal accidents increased by 8.1% over the previous year (G.o.K, 2012). In the last 2 years, despite other firms emerging and some of the existing ones thriving, more than 30% of them scaled down and or ceased operations. In the year 2012 for example, Akamba Public Road Services Ltd, a leading a regional bus firm with operations covering East Africa was among those that collapsed after scaling down operations (TLB, 2013). Studies have unsuccessfully linked these problems to improper government policy, poor road infrastructure and customer laxity (Aduwo and Obudho, 1992; Asingo, 2004; Gachuki, 2004; Kapila *et al*., 1986; Khayesi, 1997; Muyia 1995; Odero *et al*., 2003; Mutongi, 2006). The contribution of the firms themselves to these challenges has not been tackled. This study therefore sought to investigate effect of strategic purchasing and supply management practices (SPSMP) adopted by the public bus transport firms in Nairobi on their performance.

Objectives of the Study

The overall objective of the study was to investigate effect of strategic purchasing and supply management practices on performance among public bus transport firms in Nairobi.

Specifically, the study sought to

i. Establish extent of strategic purchasing and supply management practices of public bus transport firms in Nairobi
ii. Establish extent of performance of public bus transport firms in Nairobi
iii. Determine effect of strategic purchasing and supply management practices on performance of public bus transport firms in Nairobi.

Hypotheses of the Study

This study will have the following hypotheses.
i. Public bus transport firms in Nairobi highly practice strategic purchasing and supply management
ii. Public bus transport firms in Nairobi have increased performance
iii. Strategic purchasing and supply management practices have effect on performance of public bus transport firms in Nairobi

Scope and Limitation of the Study

The study was conducted in Nairobi. Nairobi is the capital city of Kenya. It is also Kenya's commercial and industrial hub. Many organizations in Kenya have their head offices in this city including public bus transport firms. It focused on public bus transport firms based in Nairobi operating upcountry, town service or both and sought to determine effect of strategic purchasing and supply management practices on performance of these firms concentrating on supply base flexibility, supplier socialization and supplier integration as the research constructs of strategic

purchasing and supply management and profitability, growth and customer satisfaction as the constructs of firm performance. The term limitation as used in the context of this study implies limiting conditions or restrictive weaknesses encountered in the conduct of the research (Mutua, 2006). The study concentrated on service delivery firms. In this context the study warns that generalization should take into cognizance the nature of the firms dealt with. Some of the data collected was through open ended questions as in the parts of the questionnaire and interview schedule. Such data was difficult to analyze quantitatively therefore qualitative approach involving themes was adopted instead. The study encountered data not available for analysis. In line with earlier studies and recommendations, the variables discovered to have missing values more than 5% of the cases were deleted from further analysis. Outliers were also discovered in the study. Upon conversion of their scores to standard scores and realizing the same was above 3.0 yet the cases were less than 5% of the sample size, they were deleted from further analysis.

Justification of the Study

First, road transport contributes to Kenya's economy significantly. In 2011 it contributed to about Ksh 122 billion to the GDP (G.o.K, 2012). Secondly, a large proportion of Kenyan population lives below the poverty line. This group continues to rely on public bus transport as their main means of movement because other means are either expensive or have limited reach. Thirdly, a majority of supplies for the bus transport firms in Kenya are not manufactured locally. These include bus chassis and engine, bus upholstery, bus body building materials, fuel, spare parts, tyres, ICT and other electronics equipment, stationery, uniforms, furniture and other workshop and office supplies and services. In the wake of increasing resource depletion, heightened internationalization and globalization of firms, rising government intervention in supply markets, rapid advance in technology and increasing industrialization as indicated by Lysons and Farrington (2006) there was need for these Kenyan bus transport firms to interrogate their purchasing and supply management practices which by necessity stretches far offshore.

In summary, the study provides useful information for decision making not only to the government but also to the owners and managers of the public bus transport companies in Kenya. It gives insight to the owners and managers of the bus companies towards a shift from less effective to more effective upstream managerial practices and could help them reduce their current overreliance on policy macro framework for the correction of the challenges they face. The public bus transport passengers may reap benefits especially in the long run from a more improved and sustainable public bus transport system. The study adds to existing knowledge by exposing joint effect of multiple practices of strategic purchasing and supply management on performance of firms, as opposed to previous cases that dealt with individual SPSMPs and their isolated effects on different aspects of performance.

In figure 1.1, the independent variable, strategic purchasing and supply management practices predict the dependent variable, firm performance as pointed out by theoretical works (Ellram and Lui, 2001). Supplier integration, supplier socialization and supply base flexibility are the constructs of strategic purchasing and supply management practices (Cousins and Menguc, 2006) while the approach by Liptons (2003), Roberts (2004) and Perez *et al.*(2007) of using profitability, growth and customer satisfaction to measure overall performance was adopted.

RESULTS

Both primary and secondary data were used. The researcher gathered secondary data from the public bus transport firms' internal archives, reports and journals by various authorities such as KRA, Kenya Police Traffic Department and Ministry of Planning and Devolution. Primary data was obtained from the General Managers, Finance Managers and Procurement Managers of the firms. Both quantitative and qualitative primary data were sought.

Structured and semi structured questionnaire was used to obtain primary data from the sample. The items tapping the theoretical constructs were developed based on the literature review. In order to ensure high statistical variability among the survey responses seven (7) items for each construct were scored along a five (5) point Likert scale. The independent variable constructs were measured on a range of seven items and scored along a "Very High" to "Very Low" five (5) point Likert scale. With respect to the dependent variable (performance), respondents rather than being asked to indicate exact figures using common size statement approach which is complicated (Rose, 2010; Miller, 1991; Germain *et al.*, 2001, Allen and Helms 2006), they were required to indicate customer satisfaction in very specific elements such as decreased number of complaints, indicate growth in such elements as increased number of employees and indicate profitability in such elements as increased market share along a five (5) point Likert scales with specific anchors relevant to performance such as ''decreased significantly''. This approach may appear

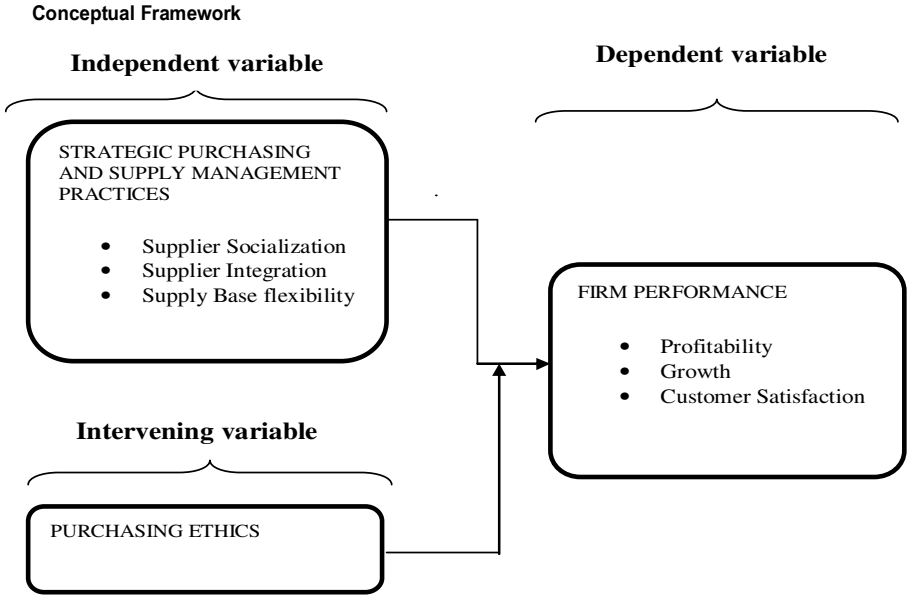

Figure 1.1: Relationship between Strategic Purchasing and Supply Management Practices, and Organizational Performance.
Source: Adapted from Liptons (2003) and Roberts (2004)

subjective for the subject of performance however it was found supported by Acquaah and Eshun (2010), Tang and Peng (2003) and Ojera *et al.*(2011).

Reliability Tests

Reliability test was aimed at determining consistency and stability. **T**o check the reliability of the, Cronbach's Alpha was used.

Reliability analysis in the current study was conducted for the three scales measuring strategic purchasing and supply management (i.e. supplier socialization, supplier integration, and supply base flexibility) and the three scales measuring firm performance (i.e. profitability, growth, and customer satisfaction). As shown in table 2.1, the reliability coefficients for four of the scales were above 0.7. The reliability coefficients for growth and customer satisfaction were however below 0.7 (i.e. 0.647 and 0.660 respectively). These scales were retained in line with suggestions by Hair et al (1998).

Validity Tests

Validity implies the extent to which the constructs of the study or measures in the survey instrument represent the study concept and the degree to which it is free from diversifiable risk or subjective error (Nunally, 1978). Prior to data collection, the survey instrument was reviewed for content and construct validity. In the first stage, *content validity* was tested by use of ten expert researchers and industry practitioners in this field who were asked to assess the extent to which the indicators sufficiently addressed the subject area based on theoretical and practical considerations (Dillman, 1978). On average, experts agreed the instrument addressed the research intention but urged that more areas that address the issues or variables be added. This was done and the scales for each raised from 4 item to 7 item for each. *Construct validity* was assessed by using experienced researchers who were asked to critique the questionnaire for ambiguity, clarity, and appropriateness of the items used to operationalize each construct (DeVellis, 1991).

Data Analysis and Presentation

Data collected through interview instruments and through the interview process was synthesized and coded, attaching scores to qualitative descriptions. Data was analyzed using descriptive and inferential statistics. Mean, Standard deviation, percentages and frequencies were used were used to analyze extent of practice of strategic purchasing and supply management among them and extent of their performance. Extent and direction of effect of SPSMP on performance was determined using Pearson r correlation and multiple

Table 2.1. Reliability Tests

Construct	Scale	Number of items	Reliability coefficient
Strategic Purchasing and Supply Management	Supplier Socialization	7	0.847
	Supplier Integration	7	0.920
	Supply Base Flexibility	7	0.941
Firm Performance	Profitability	7	0.808
	Growth	7	0.660
	Customer Satisfaction	7	0.647

Source: Survey Data (2013)

Table 2.2. Testing for Normality Requirements

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Socialization of Supplier	-.320	.191	.231	.379
Integrating Supplier	-.057	.191	-.336	.379
Flexibility of Supply base	-.324	.191	.208	.379
Firm Performance	-.049	.191	-.440	.379

Source: Survey Data (2013)

regression analysis. Content analysis was performed on qualitative data.

Assumptions in Application of the Multiple Regression Model

Since multiple regression analysis requires that the assumptions of normality, homogeneity of variances, linearity and uncorrelation of errors be met, these assumptions were therefore first tested.

Testing for Normality

Normality was assessed using measures of skewness and kurtosis (Tabachnick and Fidell, 2001). The distribution was considered normal if skewness and kurtosis values fell within the interval -2.0 to 2.0. As shown in Table 2.2, the skewness and kurtosis values for all variables were within the acceptable interval. Normality assumptions were therefore met.

Testing for Homogeneity of variances

The Levenne statistic for equality of variances was used to test for the assumption of homogeneity of variances. The study posited that the variance of each subgroup across bus service category was the same. Table 2.3 shows that in testing at the 0.05 level of significance; none of the Levenne statistics was significant. The assumption of homogeneity of variances was not violated.

Testing for Linearity

Pearson's product moment correlation coefficients were used to examine the assumption of linearity. Results displayed in Table 2.4 indicate that there were positive associations among predictor variables as well as between predictor variables and the criterion variable (firm performance). The linearity assumption was not violated.

Testing for Independence of Errors

The Durbin–Watson statistic was used to test whether prediction of dependence errors were correlated. The errors were deemed to be uncorrelated if the Durbin-Watson statistic was found to be within the interval 1.50 – 2.50 (Tabachnick and Fidell, 2001). As shown in Table 2.5, the Durbin-Watson statistic was found to be 1.997 which implies that the errors were uncorrelated.

Table 2.3. Testing for Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Socialization of Supplier	.136	2	159	.873
Integrating Supplier	1.054	2	159	.351
Flexibility of Supply base	.072	2	159	.931
Firm Performance	1.275	2	159	.282

Source: Survey Data (2013)

Table 2.4. Testing for Linearity

	1	2	3	4
1.Socialization of Supplier	1			
2.Integrating Supplier	.611**	1		
3.Flexibility of Supply base	.494**	.602**	1	
4.Firm Performance	.472**	.532**	.572**	1
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: Survey Data (2013)

Table 2.5. Regression Results of Strategic Purchasing and Supply Management Practices on performance of public bus transport firms

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.864	.240		3.601	.000		
	Supplier Socialization	.146	.072	.162	2.031	.044	.602	1.662
	Supplier Integration	.184	.074	.215	2.475	.014	.507	1.973
	Flexibility of Supply base	.414	.090	.363	4.595	.000	.612	1.634
	R			0.631				
	R^2			0.398				
	Adj.R^2			0.386				
	Durbin-Watson			1.997				
Dependent Variable: Public Bus Transport Firm Performance								

Source: Survey Data (2013)

Response Rate

The sample population consisted of senior managers drawn from three categories of Bus firms. A total of 183 questionnaires were distributed; 66 to town service bus firms, 75 to upcountry service bus firms and 42 to bus firms operating both upcountry and town service. As shown from the overall response rate was 91.3%. This response rate is acceptable since according to Fowler (2002), the whole point of conducting a survey is to obtain useful, reliable, and valid data in a format that makes it possible to analyze and draw conclusions about the target population.

Data Screening and Cleaning

Missing values in the current study were evaluated with respect to variables. Variable construct items which had valid cases with no missing values were found to be 43. One variable construct item had 14 missing values. A total of 31 values were found unavailable for analysis among 23 variable construct items

The one variable construct item with 14 missing values was deleted from further analysis basing on the recommendations by Tabachnick and Fidell (2001), that variables with missing values on more than 5% of the cases be deleted. The other variables had missing values

Table 2.6. Distribution of Missing Values on each Variable

Number of Missing values	Number of Variables Items	% age of missing values per variable item
0	43	0.0
1	8	0.6
2	10	1.2
3	2	1.8
5	1	2.9
6	1	3.5
14	1	8.2
TOTAL **31**	**66**	

Source: Survey Data (2013)

Table 2.7. Univariate Outliers Distributed by Variable

Variable	Case	Z-Value
Firm Performance	5	-4.64663
• Profitability	9	-5.27733
	34	-4.64663
	38	-5.27733
	5	-3.99767
• Firm growth	9	-4.70861
	31	-3.28673
	34	-3.99767
	38	-4.70861
• Customer satisfaction		
	5	-3.99767
	9	-4.70861
	31	-3.28673
	34	-3.99767
	38	-4.70861

on fewer than 5% of the cases. The missing values were therefore replaced by series means.

Univariate outliers are cases that have an unusual value for a single variable. The current study assessed univariate outliers for each of the independent, moderating and dependent variables. In order to identify univariate outliers, all scores for each variable were converted to standard scores. A case was then treated as an outlier if its standard score had an absolute value above 3.0 as suggested by Stevens (2002). As shown in Table 2.7, the three dependent variables had outliers in at most five cases. Profitability had outliers in case 5(z=-4.64663), case 9(z=-5.27733), case 34(z=-4.64663), and case 38 (z=-5.27733). Firm growth and customer satisfaction each had outliers in case 5 (z=-3.99767), case 9(z=-4.70861), case 31(z=-3.28673), case 34(z=-3.99767), and case 38(z=-4.70861). Since the cases with extreme scores were less than 5% of the total sample size, they were deleted in line with suggestions by Tabachnick and Fidell, (2001).

To detect multivariate outliers, Mahalanobis distance (D^2) was used. According to Tabachnick and Fidell (2001), Mahalanobis distance (D^2) indicates how far a case is from the centroid of all cases for predictor variables. A case was therefore deemed a multivariate outlier for the independent variables if the probability associated with its D^2 was to be 0.001 or less. None of the Mahalanobis (D^2) values had probability less than 0.001. The researcher concluded that there were no cases of multivariate outliers.

After screening data for outliers and deleting the five cases with univariate outliers, a total of 162 cases were retained for further analysis in this study.

Table 2.8. Public Bus Firm Profile (n=162)

Firm Specific Characteristics		frequency	Percent
Category of Bus service	commuter (town service)	57	35.2%
	Upcountry	68	42.0%
	both commuter and upcountry	37	22.8%
	Total	162	100.0%
size of firm by fleet of buses	10 and below	81	50.0%
	11 and 50	63	38.9%
	51 and above	18	11.1%
	Total	162	100.0%
Age of organization	less than 2 year old	10	6.2%
	3-4 year old	17	10.5%
	5-6 year old	55	34.0%
	7-8 year old	71	43.8%
	more than 9 years old	9	5.6%
	Total	162	100.0%

Source: Survey Data (2013)

Table 2.9. Rating of Supplier Socialization (n=162)

Supplier Socialization Activities	v.low		low		average		high		v.high		Total	
(F(2,159)=9.321, p<0.01)	f	%	f	%	f	%	f	%	f	%	M	SD
frequency of formal interactions with our suppliers to discuss issues	0	.0	0	.0	2	1.2	111	68.5	49	30.2	4.29	.48
extent of joint team building activities for ourselves and our suppliers	0	.0	0	.0	42	25.9	92	56.8	28	17.3	3.91	.65
Extent of supplier awareness of organizations norms	0	.0	0	.0	92	56.8	33	20.4	37	22.8	3.66	.83
frequency of communication with our suppliers	0	.0	2	1.2	93	57.4	44	27.2	23	14.2	3.54	.75
extent of supplier awareness of organizations values	0	.0	2	1.2	74	45.7	80	49.4	6	3.7	3.56	.59
extent of recognition of practices and activities targeting our suppliers e.g. award for best supplier or partner	0	.0	2	1.2	55	34.0	72	44.4	33	20.4	3.84	.76
extent of joint recreational activities involving us and our suppliers	0	.0	0	.0	57	35.2	72	44.4	33	20.4	3.85	.73

1-v.low, 2-low, 3-average, 4-high, 5-v.high
Source: Survey Data (2013)

Firm Specific Characteristics

The firm specific characteristics were assessed in terms of category of bus service, the size of the firm measured by fleet of buses, and the age of the firm, all of which were considered relevant. While the firm specific characteristics had no impact on the level of analysis of this study, their reporting was deemed to provide a generalized view in terms of Bus Company's participation in the transport sector. Table 2.8 shows that the sample was made mostly of upcountry bus services (42%). This was however closely followed by commuter (town service) firms (35.2%). The Table 4.4 also shows that majority of firms in this sample have 10 or less buses (50%). It further reveals that a large proportion of the Bus firms in Nairobi have been operating for between 7-8 years (43.8%), followed with those that have been in existence for between 5-6 years (34%)

Analyses for Objectives and Hypotheses

The Extent of Strategic Purchasing and Supply Management Practices Objective one of the study sought to establish the extent of strategic purchasing and supply management practices of public bus transport firms in Nairobi. Consequently, strategic purchasing and supply management as an explanatory variable was measured using three constructs namely; supplier socialization, supplier integration, and supply base flexibility. The extent of strategic purchasing and supply management was therefore assessed by analyzing the

Table 2.10. Rating of Supplier Integration (n=162)

Supplier Integration Activities (F(2,159)=16.921, p<0.01	low		average		High		v.high		Total	
	f	%	f	%	f	%	f	%	M	SD
frequency of suppliers participating in the design of our products or services such as design of a new travel schedule	0	.0	42	25.9	115	71.0	5	3.1	3.77	.49
extent of involvement of our suppliers in our buying decision e.g. the decision of what and how to buy	0	.0	44	27.2	73	45.1	45	27.8	4.01	.74
extent to which our suppliers are familiar with our production or operations process e.g. making journeys with our buses to experience the service delivery	0	.0	47	29.0	77	47.5	38	23.5	3.94	.72
number of times the organization trains suppliers on its processes e.g. ordering systems, production and other operations	0	.0	80	49.4	55	34.0	27	16.7	3.67	.75
extent of our involvement in our suppliers production decisions	2	1.2	74	45.7	59	36.4	27	16.7	3.69	.76
extent of our participation in our suppliers product or service design	2	1.2	48	29.6	107	66.0	5	3.1	3.71	.54
how frequently we are trained by our suppliers on their processes	2	1.2	44	27.2	77	47.5	39	24.1	3.94	.75

1-v.low, 2-low, 3-average, 4-high, 5-v.high *Source: Survey Data (2013)*

extent of each of these three constructs within public bus transport firms in Nairobi.

Supplier socialization was measured using seven items. Respondents were asked to rate how given supplier socialization activities were conducted within their firms. Responses were elicited on a 5-point scale (1-very low, 2-low, 3-average, 4-high, and 5-very high). These responses were then analyzed using means and standard deviations. Results presented in Table 2.9 suggest that the respondents tended to rate highly all the supplier socialization activities within their firms. The mean response score in all the items was approximately 4.00, coded as high. The most highly rated activity was the frequency of formal interactions with suppliers to discuss issues (M=4.29, SD=0.481) while the least rated activity was the frequency of communication with suppliers (M=3.54, SD = 0.748). Besides, the small values of the standard deviations imply that there were minimal variations in the responses.

These results imply that public bus firms in Nairobi are proactively engaging with suppliers on issues. They are concerned about the people in the supplier firm. This is however practiced significantly differently among different categories of bus firms F (2, 159 = 9.321 p<0.01).

These results support argument of Cousins *et al*. (2006) that supplier socialization is the level of interaction and communication of various actors within and between firms, which leads to the building of personal familiarity, improved communication, and problem solving and that by Carr and Smeltzer (1999) that firms that foster long term cooperative relationships and communication, achieve greater responsiveness to the needs of their suppliers. The results also show what supplier socialization is all about and supports Cox (1996) in his argument that it is the process that enables individuals in a buyer-supplier engagement to acquire knowledge each other's enterprise's social values including; rules of thumb, special language, ideology that helps to edit a member's every day experience, standard of relevance of work, prejudices, and models for social etiquette. Zollo *et al*. (2002), Nonaka and Tekeuchi, (1995) description of supplier socialization and its practice also agrees with the findings of this study. According to them, the dimensions of supplier socialization are frequency of open communication, frequency of joint team building activities, number of organization culture items shared such as rules and regulations and value systems and any other process of formal personal interaction that treats the supplier's indirectly or directly concerned with purchaser's supplies as human beings first then business partners. The argument by Lysons and Farrington (2006) that partnerships with suppliers develop joint resources and exchange of valuable knowledge and that by Lado et al (1997) that purchasing and supply management executives participate in articulating and communicating unique strategic vision through collaboration also agree with this result. Further agreement with this result is by Villena *et al*.(2011) who revealed high supplier socialization among Italian firms in which social capital is built. Humphrey (2003) also reported high supplier socialization among electronic manufacturing firms in Hong Kong. It was also revealed that different aspects of supplier socialization were held high with differing results among Korean firms in yet another study by Kyung *et al* (2010). Majolein (2010) too, reported high levels of trust and commitment among Dutch firms. Other studies also consistent with this study results are those of Paulraj *et al*.(2008), Cousins and Menguc (2006) and Hughes and Perrons (2011).

Supplier integration as an indicator of strategic purchasing and supply management was measured using seven items. Once again, respondents were asked

Table 2.11. Rating of Supply Base Flexibility (n=162)

Supply Base Flexibility (F(2,159)=21.134, p<0.01)	low		average		High		v.high		Total	
	f	%	F	%	f	%	F	%	M	SD
extent of success whenever we change order sizes	0	.0	44	27.2	110	67.9	8	4.9	3.78	.52
extent of success whenever we change order timings	0	.0	42	25.9	82	50.6	38	23.5	3.98	.70
number of times we successfully alter our order specifications in terms of design and quality	2	1.2	45	27.8	60	37.0	55	34.0	4.04	.82
frequency of renegotiations with our suppliers about terms of payment	2	1.2	51	31.5	80	49.4	29	17.9	3.84	.72
number of alternative suppliers we deal with	0	.0	40	24.7	80	49.4	42	25.9	4.01	.71
extent of success whenever we change delivery logistics	4	2.5	38	23.5	80	49.4	40	24.7	3.96	.76
number of times we successfully order only one when we need	2	1.2	40	24.7	90	55.6	30	18.5	3.91	.69

1-v.low, 2-low, 3-average, 4-high, 5-v.high
Source: Survey Data (2013)

to rate their firms in terms of supplier integration activities. As shown in Table 2.10 all the mean response scores to all the items were approximately 4.00 which indicate that respondents rated their firms high in terms of supplier integration. In addition the standard deviations in all cases were below one showing that there was less variations in the responses given. The extent of involvement of suppliers in buying decisions of the firms (M=4.01, SD=0.743) was the most highly rated supplier integration activity, while the number of times the firm train suppliers on its processes (M=3.67, SD = 0.746) was the least rated activity.

These results imply that public bus firms in Nairobi are committed to integrating suppliers within their operations. This is however, implemented significantly differently across the different categories of the firms (F (2,159) = 16.921, p<0.01).

The results support arguments by Buvik and John (2000) and Dyer (2000) who argue for emphasis on buyer supplier partnership activities. Further, the results reflect the findings by Danese and Romano's study (2011) that at low levels of supplier integration customer integration resulted in reduced efficiency in the firm. The study concurs with Armistead and Mapes (1993) survey on supply chain integration and performance among manufacturing firms in Greece in which results showed that high practice of integration does increase operating performance in quality, cost, delivery time, and flexibility. In agreement with these results also, is the review done by Fabbe-Costes and Jahre (2008). In the review of 38 firms, a majority of them registered high supply chain integration. Vickery *et al* (2003) also reported high supply chain integration activities in a census survey of firms in the UK as did Devaraj (2007), De Vijver (2011, Danese and Romano (2011), Prajogo (2012), Cousins and Menguc (2006) and Wagner (2006). Consequently, by adopting practices aimed at enhancing supplier integration, the public bus transport firms aim to maximize efficiency, quality, flexibility and minimize cost and delivery time.

Supply base flexibility was also measured using seven items. Respondents were asked to rate their firms with regards to activities aimed towards supply base flexibility. The mean response scores together with associated standard deviations indicate that respondents rated their firms highly in terms of activities undertaken to ensure supply base flexibility. 'The number of times order specifications were altered in terms of quality and design' (M=4.04, SD=0.818) was the activity that was rated most highly while 'extent of success whenever order sizes were changed' (M=3.78, SD = 0.523) was the least rated. Table 2.11 displays a summary of the ratings.

Once again, the results provide evidence that public bus transport firms in Nairobi conduct activities aimed at consolidating supply base flexibility. Results further show that supply base flexibility is conducted significantly differently across different categories of bus firms (F (2, 159) = 21.134, p<0.01). These results are important considering that flexibility capabilities impact positively on firm performance (Sanchez and Perez, 2006). Consequently, by adopting activities that enhance supply base flexibility, public bus transport firms are in essence hoping for superior performance. These results reflect arguments by Tonchia and Tramantona, (2001) that supply base flexibility refers to the degree to which a firm's key suppliers are able to customize products, be responsive to delivery changes, and to accept late 'mix' and volume change, adapting to the needs of the purchasers. The study also supports Cousins, (1999) who argues that firms should make effective use of their supply base and that by Guimares *et al*. (2002) who contend that many companies have achieved substantial cost savings by reducing the number of suppliers in their supplier base and deepening the relationships with remaining suppliers expecting to, among other things, improve their customer responsiveness (Johnston *et al*., 2004).

The descriptive results arising from the analysis of the three constructs were further supported with the findings from the interviews conducted with one of the senior

Table 2.12. Ratings of Profitability (n=162)

Firm Profitability measures (F(2,159)=1.957, p>0.05)	remained same		increased		strongly increased		Total	
	f	%	f	%	f	%	M	SD
sales in the last one year	2	1.2	149	92.0	11	6.8	4.06.28	
market share in the last one year	2	1.2	139	85.8	21	13.0	4.12.36	
fares charged in the last one year	4	2.5	114	70.4	44	27.2	4.25.49	
bonuses paid to employees in the last one year	63	38.9	82	50.6	17	10.5	3.72.64	
profits shared to investors in the last one year	35	21.6	115	71.0	12	7.4	3.86.52	
expenses minimized in the last one year	42	25.9	109	67.3	11	6.8	3.81.54	
operating costs minimized in the last one year	42	25.9	93	57.4	27	16.7	3.91.65	

1-strongly decreased, 2-decreased, 3-remained same, 4- increased, 5-strongly increased
Source: Survey Data (2013)

managers and analyzed qualitatively. When asked to comment on supplier integration, supplier socialization and supply base flexibility in relation to supplier-buyer relationships, the managers concurred that the three practices contribute to the performance of their firms. They noted that the practices have created an understanding between the firms and their suppliers resulting in efficiency, quality and profitability. They also observed that the three contributed significantly to their firm's performance owing to the fact that materials and spare parts came from trusted suppliers.

Results arising from the analysis of the three constructs therefore provide sufficient evidence to suggest that public bus transport firms in Nairobi highly practice strategic purchasing and supply management. This is achieved through enhanced flexibility in the supply base as well as in integrating and engaging suppliers in decisions regarding the firm.

Extent of Performance of Public Bus Transport Firms in Nairobi

Public bus transport performance was conceptualized as the dependent variable in the current study. Consequently, the second research objective focused on establishing the extent of performance of public transport firms in Nairobi. Firm performance was measured via three constructs namely: profitability, growth, and customer satisfaction.

A total of seven items were proposed to measure profitability in bus transport firms in Nairobi. Respondents were asked to comment on the behaviour of profitability of the firm in the last one year (May 2012 – May, 2013). Responses were elicited on a 5-point scale (1-strongly decreased, 2–decreased, 3–neutral, 4-increased, 5-strongly increased). The mean response scores in all the items were approximately 4.00. This implies that respondents were of the view that profitability in the firms had increased. Besides, the standard deviations were quite minimal suggesting that variations in the responses were also minimal. In particular, while sales (M=4.06, SD = 0.279) and market share (M=4.12, SD=0.359) increased in the last one year, minimization of expenses (M=3.81, SD=0.540) and minimization of operating costs (M=3.91, SD=0.648) also increased. Table 2.12 presents a summary of the senior managers' ratings. Results further show that profitability was not significantly different among the three categories of public bus transport firms (F (2,159) = 1.957, p>0.05).

Customer Satisfaction as a dimension for measuring firm performance was also measured via a 7-item scale. Responses were elicited on a reverse coded 5-point scale (1-strongly increased, 2–increased, 3–neutral, 4–decreased, 5–strongly decreased). The scale was reverse coded since the items were of a negative nature. Results presented in Table 2.13 indicate that respondents tended to approve of customer satisfaction as practiced within the firms. There was a decrease in most activities perceived to lead to customer dissatisfaction. Respondents reported a decrease in the last one year in among others; delays in bus journeys (M=4.41, SD = 0.542); number of journey breakdowns (M=4.40, SD=0.540); level of customer exit (M=4.17, SD=0.463); delay in handling customer issues (M=4.16, SD = 0.458); and in the number of complaints from customers (M=4.00, SD = 0.223). In general customer satisfaction was found not to be significantly different among the three bus service categories (F (2, 159) = 0.466, SD > 0.05).

The final dimension of firm performance to be analyzed was firm growth. Firm growth was measured using seven items. Respondents were once again asked to rate firm growth related activities in the last one year. As shown in table 2.14, the mean response scores were approximately 4.00 in all items. This indicates that respondents were of the view that the bus transport firms growth had increased in several areas within one year. The key areas reported to have increased included; sales volumes (M=4.11, SD=0.411); addition of branches/booking offices (M=4.18, SD = 0.529), and addition of other related businesses (M=4.00, SD =

Table 2.13. Ratings on Customer Satisfaction (n=162)

Customer Satisfaction elements (F(2,159)=0.466, p>0.05)	remained same		decreased		strongly decreased		Total	
	f	%	f	%	f	%	M	SD
number of complaints from customers in the last one year	4	2.5	154	95.1	4	2.5	4.00	.22
number of services and bookings scheduled but cancelled by customers in the last one year	4	2.5	148	91.4	10	6.2	4.04	.29
number of delays in bus journeys in the last one year	4	2.5	87	53.7	71	43.8	4.41	.54
number of journey breakdowns in the last one year	4	2.5	89	54.9	69	42.6	4.40	.54
number of accidents in the last one year	4	2.5	129	79.6	29	17.9	4.15	.43
level of customer exit	6	3.7	123	75.9	33	20.4	4.17	.46
delays in handling customer issues	6	3.7	124	76.5	32	19.8	4.16	.46

1-strongly increased, 2-increased, 3-remained same, 4-decreased, 5-strongly decreased
Source: Survey Data (2013)

Table 2.14. Ratings of Growth (n=162)

Activities for Firm Growth (F(2,159)=0.493, p>0.05)	decreased		remained same		increased		strongly increased		Total	
	f	%	f	%	f	%	f	%	M	SD
additional buses in the last one year	0	.0	2	1.2	160	98.8	0	.0	3.99	.11
additional new employees in the last one year	0	.0	6	3.7	154	95.7	1	.6	3.97	.21
branches(booking offices) added in the last one year	0	.0	11	6.8	112	69.1	39	24.1	4.17	.53
additional garage and maintenance in the last one year	0	.0	36	22.2	119	73.5	7	4.3	3.82	.48
other related businesses added in last one year e.g. petrol station	0	.0	6	3.7	150	92.6	6	3.7	4.00	.27
other unrelated businesses added in the last one year e.g. restaurant for travelers	0	.0	76	46.9	86	53.1	0	.0	3.53	.50
sales volumes in the last one year	2	1.2	0	.0	139	85.8	21	13.0	4.10	.41

1-strongly decreased, 2-decreased, 3-remained same, 4- increased, 5-strongly increas
Source: Survey Data (2013)

0.273). Results also showed that firm growth was not significantly different across the three bus service categories (F (2, 159) = 0.493, p> 0.05).

The results regarding firm profitability, customer satisfaction and firm growth reported from the surveyed bus transport firms provide evidence to suggest that performance of public bus transport firms in Nairobi is high in terms of profitability, customer satisfaction and firm growth. It was found that within a period of one year, firms had increased their sales, minimized general expenses and operating costs, investors had increased profit shares. Besides, firms had become more efficient handling customers, with reduced delays in bus journeys, number of journey breakdowns and accidents within the same period. In addition, the study established that firms had grown in terms of additional buses, branches and sales volumes.

Predictive model and Hypotheses Testing

Research objective three sought to determine the effect of strategic purchasing and supply management practices on performance of public bus transport firms in Nairobi. The study conceptualized that performance of public bus transport firms was a function of strategic purchasing and supply management practices (supplier socialization, supplier integration and supply base flexibility). Consequently, a multiple regression model was hypothesized. The construct scores were estimated by obtaining the average response score of all items per case under each construct.

After testing assumptions of multiple regressions, the study went on to establish whether strategic purchasing and supply management practices had an effect on performance of public bus transport firms in Nairobi. Results of the multiple regression analysis (Table 2.15) indicate that the three strategic purchasing and supply management practices were significant predictors of performance of public bus transport firms. In particular, supplier socialization ($\beta = 0.162$, $p<0.05$); supplier integration ($\beta= 0.215$, $p<0.05$); and flexibility of supply base ($\beta = 0.363$, $p<0.01$) were found to positively and significantly influence public bus transport firm performance. The R^2 value was found to be 0.398 implying that the hypothesized strategic purchasing and

Table 2.15. Regression Results of Strategic Purchasing and Supply Management Practices on Public Bus Transport Firm Performance.

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.864	.240		3.601	.000		
	Supplier Socialization	.146	.072	.162	2.031	.044	.602	1.662
	Supplier Integration	.184	.074	.215	2.475	.014	.507	1.973
	Flexibility of Supply base	.414	.090	.363	4.595	.000	.612	1.634
	R				0.631			
	R^2				0.398			
	Adj.R^2				0.386			
	Durbin-Watson				1.997			
Dependent Variable: Public Bus Transport Firm Performance								

Source: Survey Data (2013)

supply management practices accounted for 39.8% of the variance in the public bus transport firm performance. In addition, the variance inflation factors (VIF) were less than 2.0 which showed that there was no multi-co linearity.

The significant standardized coefficients for supplier socialization, supplier integration and flexibility of supply base indicate that, a unit change in supplier socialization is likely to lead to a change in firm performance by 0.162. Similarly, a unit change in supplier integration is likely to result in change in public bus transport firm performance by 0.215. Lastly, a unit change in flexibility of supply base is likely to lead to change in public bus transport firm performance by 0.363. The study therefore developed the analytic model shown below for predicting public bus transport firm performance.

Public bus transport performance = 0.864 + 0.162 supplier socialization + 0.215 supplier integration + 0.363 flexibility of supply base.

The finding in the current study that supplier socialization was a positive and significant predictor of public bus transport performance contradicts the findings by De Vijver *et al* (2007) which indicated an inverse relationship between supplier socialization and the communication dimension of operational performance. This could be explained by the fact that while the study concentrated on communication only as a measure of performance, the current study considered profitability, growth and customer satisfaction as the dimensions of measuring performance, thereby explaining the contradictory results.

The finding that that supplier integration was a significant predictor of bus transport firm performance is consistent with the findings by Armistead and Mapes (1993). In a survey conducted on supply base integration and performance among manufacturing firms in Greece, these authors found out that increasing the level of integration led to an increase in operating performance in terms of quality, cost, delivery time, and flexibility. Besides, the finding also supports findings by Devaraj *et al* (2007). In a survey on the impact of e-business technologies on operational performance, these authors found out that supplier integration positively impacted cost, quality, flexibility and delivery performance. Cousins and Menguc (2006) concur that supplier itegration predict buyer performance positively. According Fabbe-Costes and Jahre (2008), supply chain integration does not always improve performance while Vickery (2003) also reports no relationship between supply chain integration and performance. The two studies contradict the current findings. This can be explained by the context of the studies that varied considerably. Prajogo (2012) also reported contradiction with these results by indicating that different aspects of supplier integration had different performance results among Australian firms. This in essence implies that indeed supplier integration leads to better performance while in some cases it may not predict performance at all or may even affect it negatively.

Furthermore, the study found out that flexibility of supply base directly and significantly impacted public bus transport performance. This is consistent with the findings by Sanchez and Perez (2006). These authors found a positive relation between high capabilities in flexibility and firm performance. The finding that the three independent variables had different effects on public bus transport performance (indicated by the difference in beta values) supports the findings by Prajogo (2012), that different supplier management practices have different unique effects on different operational performance measures.

CONCLUSION AND RECOMMENDATIONS

Research objective one sought to establish the extent of strategic purchasing and supply management practices of public bus transport firms in Nairobi. The study found out that the three practices namely supplier socialization, supplier integration and flexibility of supply base were treated as key among the public bus transport firms in Nairobi. In particular, as indicated by the mean scores for each of the items in the 7-item scale, the transport firms in Nairobi were found to be proactive in activities designed to address supplier socialization. The study found out that the firms were committed to integrating suppliers within the operations, while at the same time putting in place activities aimed at consolidating supply base flexibility. The study however also established that these practices are conducted differently across the three categories.

Objective two sought to establish the extent of performance of public bus transport firms in Nairobi. The study found out that within the last one year (May 2012-May 2013), profitability in most of the firms had increased; in addition, the study established that activities that could have led to customer dissatisfaction such as delays in journeys had reduced within the same period. With regards to firm growth, the study established that most bus transport firms surveyed had grown in terms of sales volumes, branches, bus fleets and other related businesses.

Objective three tested for effect of strategic purchasing and supply management practices on performance of public bus transport firms in Nairobi. It was found out that the three strategic purchasing and supply management practices were significant predictors of performance of public bus transport firms. They positively and significantly influence public bus transport firm performance. The hypothesized strategic purchasing and supply management practices accounted for a significant proportion of performance of public bus transport firms.

In conclusion, all the hypotheses as spelt out in the study were all confirmed. It reports that Public bus transport firms in Nairobi highly practice strategic purchasing and supply management, perform highly with strategic purchasing and supply management practices significantly predicting their performance.

This study highlights the role of public bus transport firms in developing a more efficient transport system in Kenya. It explains the relationship between management of upstream activities and firm performance and has revealed it is positive. The industry practitioners should continue to emphasize strategic purchasing and supply management

practices in their day to day operations. This is because the results confirm their contribution to performance. Other industries should also embrace and focus on the same practices. The government is urged to review its interventions on the public bus transport subsector with a view to making the firms more internally focused in handling the overall industry challenges. It is also suggested to academicians to investigate the other predictors of public bus firm performance left out in the model suggested. The study should also be extended to other contexts including non service firms.

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