

NETWORK RELATIONSHIPS AND FIRM PERFORMANCE

AN EMPIRICAL STUDY OF KENYAN MANUFACTURING FIRMS

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Abstract

The main objective of this paper is to investigate the influence of network relationships on the performance of Kenyan Small and Medium Enterprises. Inter-firm networking has been recognized as a vital element for survival and growth of SMEs. SMEs are key drivers in world economies and is a means of creating employment and hence poverty alleviation. There is evidence form literature that shows that network relationships influence the performance of firms. Network relationships was conceptualized under three variables. The three variables are Network structure, content and governance. The study used descriptive design and targeted firms in the Kenyan manufacturing sector. Data was collected using self administered questionnaires from a sample of 132 manufacturing SMEs operating in Kenya registered by Kenya Association of Manufacturers (KAM). Data was analyzed using SPSS version 21. The

study used multiple regression analysis to determine the relationship between the variables. Three hypotheses regarding network relationship were tested and accepted. It was evident that network structure, governance and content have positive and significant relationship on firm performance.

Keywords: SMEs, Network Structure, Network Content, Network Governance, Manufacturing, Firm Performance

INTRODUCTION

Today, most organizations have limitations in terms of resources they possess internally. The tendency therefore has been to develop some external linkages that act as conduits through which they can gain access to those resources possessed by others. Networking can be viewed as the process of building long term contacts with the motive to have access towards information and resources (George et al., 2001). Chetty & Wilson (2003) argue that inter-firm network provide firms access to a variety of important resources and complementary skills which leads to the building of specialized knowledge and achievement of economies of scale in operations and collaboration to acquire greater knowledge and capabilities. Though there are accrued benefits in regard to networking, SMEs are not motivated to seize the opportunities to networking (OECD 2004)

There is evidence from literature that network relationships play a role in the SMEs performance. Distinct characteristics in network relationships such as structure, content and governance significantly affect the performance of small and medium enterprises.

Background

Organizations today are faced with massive globalization, demanding customers with rapidly changing desires, shrinking response time, shrinking product lifecycles and demanding employees. This requires organizations to become fast, flexible, and participative and focused on customers, competition, teams, time and process (Susan & Johnson 2003). In this regard, if an organization can network with its suppliers, buyers and competitors, it becomes a crucial ingredient to avoid competition and achieve advantage (Johnson and Scholes, 2005). Through networks, organizations are able to identify opportunities, raise resources, achieve competitive advantage and hence achieve overall improved performance.

Individual SMEs experience difficulties in achieving economies of scale in purchase of inputs and are often unable to take advantage of market opportunities that require large production quantities, homogenous standards and regular supply (UNIDO, 2005). It is generally

acknowledged that isolation, rather than size, is the key obstacle, preventing SMEs boosting their competitiveness. Networking therefore offers an important route for individual SMEs to address their problems as well to improve their competitive position (Lorna, 2007).

SMEs in Kenya

In the year 2012, parliament passed in to law the Micro and Small Enterprise Act in order to set up new rules and institutions to support micro and small businesses in Kenya. According to the MSE Act (2012), A micro enterprise is a business that has less than Ksh. 5 million invested in it, or has sales of less than Ksh.500,000 a year or has 1-9 people working in it. A Small Enterprise is a business that has sales of between Ksh. 500,000- Ksh. 1 million a year, or has 10-50 people working in it. A medium enterprise is an enterprise with 50-99 employees, an annual turnover of above Ksh. 50M and below Ksh. 1 Billion (GoK 1992, CBS/ KREP, 1999).

Kenya government has recognized the importance of the informal sector in social economic development and has in the past prepared Sessional papers and support strategies for SMEs. In spite of these policy papers and support strategies, the performance of the SMEs is still dismal. SMEs, have a high death rate, (60 percent) closing down within their first year of operation, 40 percent less than 2 years old and 66 percent less than 6 years; thus hardly gain from experience (ROK, 1999). According to Sessional paper of 2005 No.2 SMEs in Kenya have high collapse rate with most of the SMEs die with 3 years of operation. A mere 30 percent of SME survive past the first generation (Dyer & Whetten, 2006) and only 10 percent to 15percent survive to a third generation (Dyer & Whetten, 2006).

The weak performance and high failure rate of SMEs may impact on their objectives of poverty alleviation, employment creation and economic growth. Bowen, Morara and Mureithi (2009) note that given the importance of SMEs to economic development and given their high failure rate, it becomes essential for researchers to unearth factors that will enable SMEs to survive and grow.

From the ongoing, it is essential for the government, policy makers, researchers and entrepreneurs to address the threats faced by SMEs. Such a consideration should focus on adopting modern approaches that will make them competitive and enhance their longevity.

Manufacturing Sector in Kenya

The manufacturing sector in Kenya constitutes 70 percent of the industrial sector contribution to GDP, with building, construction, mining and quarrying contributing the remaining 30 percent (KER, 2013). Kenya's manufacturing sector is among the key productive sectors of the economy identified under vision 2030 which can spur growth because of its immense potential

for value creation, employment generation and poverty alleviation (KAM, 2014). According to KNBS (2013), the manufacturing sector contributes directly to 10% of the Kenya's GDP. The sector comprises of 3,700 manufacturing units and employs 277,900 persons and nearly 500,000 indirectly which accounts for 13% of the labour force in the formal sector in Kenya.

The manufacturing sector has high, yet untapped potential to contribute to employment and GDP growth. Bigsten et al., 2010, notes that since the sector is not limited to land size, it has high growth prospects compared with agriculture sector. It is noted that its contribution to GDP has continued to stagnate at about 10 percent with its contribution to wage employment on a declining trend (KER 2013).

Kenya's share of manufacturing exports to the global market is dismal and stands at 0.02 percent. This figure is low compared with South Africa at 0.3 percent; Singapore and Malaysia have 2.4 percent and 1.3 percent respectively (KER 2013). Further, it is noted that low value addition and high costs of production impede competitiveness of Kenya's manufactured goods in the global market.

Table 1: Comparative World Share of Manufacturing Exports (%)

Country	2007	2008	2009	2010	2011
Kenya	0.016	0.018	0.019	0.017	0.018
Singapore	2.391	2.271	2.370	2.542	2.429
China	11.964	12.766	13.458	14.763	15.393
Malaysia	1.314	1.245	1.309	1.332	1.223
Tanzania	0.005	0.007	0.006	0.008	0.007
Uganda	0.004	0.006	0.006	0.005	0.006
South Africa	0.342	0.365	0.302	0.328	0.321

Source: World Trade Organization (2012)

From table 1, it is evident that Kenyan manufacturing sector though leading in East Africa lags behind major world economies. UNIDO (2008) notes that widespread informality, weak inter-firm linkages and lack of innovation and export competitiveness are major challenges impeding Sub-Saharan Africa's industrialization. In this regard, the government should develop policy incentives to promote inter-firm linkages and FDIs to enhance progression of SMEs to large-scale competitive firms.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The concept of networking includes four components: actors; links; flows and mechanisms (Conway *et al.*, 2001; Conway and Jones 2006). The actors are the individuals and entities who make up the network. Links or ties are the arches that connect individuals and represent the

relationship between actors. The flows indicate the exchanges that occur between the actors within network and largely involve flow of resources. Finally, the mechanisms of the network are the modes and rules of interaction employed by actors within the network

Beth *et al.*, (2007), notes there are accrued benefits on SMEs regarding business networking: 1) There is increased employment and wealth creation by local firms 2) There is acceleration of knowledge transfer and technology upgrading 3) Enhanced skills, standards and capacity 4) Attraction of FDIs in cluster effects 5) More diversified client and market structures 6) More stable relationships to buyer /producer organizations 7) Risk- sharing through joint funding operations 8) facilitation of access to finance 9) There are opportunities to innovate, upgrade and increase competitiveness. Further, OECD (2001a) points several other benefits including: 1) Increased scale and scope of activities 2) Shared costs and risks 3) Improved ability to deal with complexity 4) Enhanced learning 5) Flexibility and efficiency in knowledge management 6) speed and 7) Resilience

Despite the fact these benefits accrue to networking firms, irrespective of their size and activity, empirical studies suggest that most SMEs face both internal and external obstacles to seizing networking opportunities (OECD, 2004). In addition, major reason why SMEs do not take full advantage of networking opportunities is their lack of motivation to do so (OECD 2004).

Business relationships and networks are perceived as sources of competitive advantage (Ford *et al.*, 2003; Gulati 2007). Performance of the firm remains the ultimate indicator for success as evidenced in both empirical and theoretical models (Man *et al.*, 2002). Performance of a firm may be affected by both internal and external factors (Pearce and Robinson 2002).

Network Relationships and Firm Performance

Networking relationships can be viewed in three perspectives: structure, governance and content (Amit and Zott 2001; Hoang and Antoncic 2003). Allee (2008) suggest that network relationships in business are distinguished as purposeful networks consisting of specific role and value interactions oriented towards the achievement of a particular outcome

Network Structure and Firm Performance

Network structure is defined as “the pattern of ties between different actors” (Hoang and Antoncic 2003). Network literature has considered embeddedness of firms in networks of external relationships with other organizations crucial (Gulati et al., 2000) and has emphasized the importance of external resources and capabilities to the firm through its networks (Zaheer & Bell, 2005; McEvily and Marcus, 2005). Hoang and Antoncic (2003) posit that within a network structure, network size and centrality determine the amount of resources an actor can access.

In addition, network structures centre on differential network positioning that exerts an influence on resource flow (Hoang & Antoncic, 2003; Moran 2005). Since structure influences resources flow, a clearly defined structure is likely to influence performance. From the ongoing it is hypothesized that:

H1: *There is a positive relationship between network structure and firm performance in small and medium enterprises*

Network Governance

Network governance is the element of coordination of the network exchange (Hoang & Antoncic, 2003). It is the mechanism that governs the relationship among actors, the legal forms of actors, and the incentives for participations within networks. These mechanisms are based on power, influence, relationship reciprocity, and trust support the network sustainability more than legal enforcement (Amit and Zott, 2001). Larson (1992) posits that reciprocity refers to mutual connection between two actors within a directed network. Proper coordination of the network exchange is vital for enhanced firm performance. It can therefore be hypothesized that:

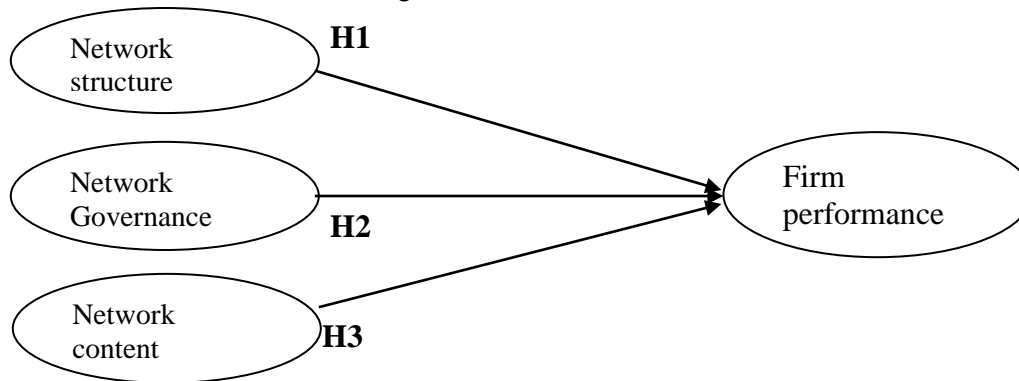
H2: *There is no relationship between network governance and firm performance in small and medium enterprises*

Network Content

Content within a network refers to exchanging resources (Amit and Zott, 2001). Research on networks often adopts resource based view of the firm and views firm as dependent upon the external environment to prove resources and capabilities as opposed to normal market transactions. These resources vary and include: advice (Watson, 2007), encouragement and financial resources (Starr and MacMillan, 1990), contacts (Bruderl and Preisendorfer, 1998) and legitimacy (Elfring and Hulsink, 2003). Further, resources may also include ideas, information and advice (Smeltzer et al., 1991). Resources are major constraint hindering SMEs performance, when they are acquired sustainably the implications is enhanced firm performance. In this regard it is hypothesized that:

H3: *There is a positive relationship between network content and firm performance in small and medium enterprises*

Figure 1: The Research Model



METHODOLOGY

The target population for this study was manufacturing SMEs registered by the Kenya Association of Manufacturers (KAM). The study targeted CEOs and owners. Systematic random sampling was used to select a sample of 132 firms from 660 firms registered under KAM in the small and medium enterprises category. A questionnaire was used as the main tool for data collection for this study. Further, the questionnaire was developed in consistent with previous studies with respect to construct measurements. In order to increase the reliability of the data collected and minimizing the possibility of errors in the test instrument, pretesting was done targeting twenty firms. The study used both descriptive and inferential statistics. Analysis was done using statistical package for social sciences (SPSS) version 21.

Statistical Model

Multiple regression was used to determine the relationship between independent and dependent variables. It evident from literature that a number of scholars have used multivariate analyses such as structural equation modeling and multiple regression to test hypotheses when investigating relationship between network elements (Kaasa 2009; Stam & Elfring, 2008). However, the study uses multiple regression analysis to determine the relationship between independent and dependent variables. The multiple regression equation that was used in discussed below.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Y = FP = Firm performance

X₁ = NS = Network Structure

X₂ = NG = Governance

X₃ = NC = Content

Measurements and Operationalization of Variables

The constructs were operationalized by selecting measurement scale items and scale types. Hair et al., (2006) notes that in a survey research, operationalising a construct involves a series of scale items in a common format such as a likert scale or a semantic differential scale. The study is guided by the dependent variable (performance) and independent variables (network structure, governance and content) which form the component of network relationships.

Table 2: Operationalization of Variables

Variable Type	Construct	Indicator	Measurement	Relevant Literature
Dependent	Performance	Profitability, sales growth	likert scale	Roberston & Chetty (2002), Sousa (2003), Loxton & Weerawardena (2006)
Independent	Network content	Density, centrality and ties	likert scale	Hoang and Antoncic (2001)
	Network Governance	Reputation, reciprocity and trust	likert scale	Hoang and Antoncic (2001)
	Network structure	Information quality, Information diversity	likert scale	Hoang and Antoncic (2001), Human and Provan (1997)

Response Rate

It refers to the percentage of subjects who respond to questionnaires. Mugenda & Mugenda (2003) asserts that 50 % is adequate, 60% is good and above 70% is very good. The number of questionnaires that were administered totaled to 132 while that that were returned were 100. This represents 76% response rate which can be considered very good.

ANALYSIS AND FINDINGS

Cronbach Coefficient Alpha

Table 3: Reliability Test

Cronbach's Alpha	N of Items
.876	100

From table 3, the value of Cronbach's Alpha was 0.876. According to George and Mallery (2003) a value of 0.7 is acceptable. This therefore indicates that the test instrument was reliable.

Profile for the Companies Sampled for the Study

Descriptive statistics in terms of frequencies and percentages were used to describe the characteristics summarizes the characteristics of the 100 firms that responded for the study.

Table 4: Firm Demographics

Firm Characteristics	Categories	Responses	Percentages
Age of Company in Years	1-3 Years	4	4
	4-6 Years	6	6
	7-10 Years	3	3
	Over 10 Years	87	87
Total		100	100
Number of Employees	10-30	30	30
	30-50	25	25
	50-70	17	17
	70-90	6	6
	90-100	23	23
Legal Status of Company	Limited Company	89	89
	Partnership	6	6
	Sole Proprietorship	5	5

In terms of the characteristics of the enterprises, more than one third (30.0%) of the sample employed fewer than 30 full time employees, and 25% employed between 30 and 50 employees. The majority of respondents indicated that more than 20% (23) of the sample employed had employees between 90-100 employees. It also emerged that over 80% (89) of the firms legal status is limited company, only 6% are partnership while 5% are the sole proprietors. From the data obtained it emerged that most of the firms' 87% that participated in this study have been in existence for over 10 years, 6% have a period of 4-6 years, 4% for 1-3 years, 3% for 7-10 years.

Estimation and Interpretation of Results

To determine levels of relationship to which extent the explored variables affect the firm performance of SMEs multiple regression analysis was used.

Table 5: Multiple Regression Results

Multiple R	0.7892
R Square	0.6228
Adjusted R Square	0.5984
Standard Error	0.4440

Table 5, illustrates the model fitness of the regression equation that was mapped on the relationship between the Dependent variable and the independent variables. A total of 100 observations (n) were used in estimating the model. The overall model fitness was found to be 0.6228 given by the R^2 value. It is therefore inferred that 62.28 % of the variation in Y (firm performance) around \bar{Y} which is its mean is explained by the regressors or independent variables jointly.

Table 6: Test of Joint Regressors' Significance- Analysis of Variance

	df	SS	MS	F	Significance F
Regression	3	317252.881	105758.908	23.29	0.000
Residual	97	317081.715	4540178.78		
Total	100	636344.596			

The general linear multiple regression model the study examined is given by;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

The column labeled F in the table above gives the overall F-test of the hypothesis that;

H_0 : $\beta_1 = \beta_2 = \beta_3 = 0$ versus;

H_a : at least one of $\beta_1, \beta_2, \beta_3, \beta_4$ and β_5 does not equal to zero where $\beta_1, \beta_2,$ and β_3 are coefficients of X_1, X_2, X_3 respectively.

The F statistic (23.29) has the associated P-value of 0.00. Since 0.00 is < 0.05 , we reject H_0 at significance level 0.05 which is to say that at least none of the regressor coefficients are equal to zero and indeed all the independent variables (network structure, governance and content) jointly have a statistically significant influence on changes in the dependent variable i.e. Firm performance in SMEs

Table 7: Test Hypothesis of Zero Slope Coefficients in the Model

	Coefficients	Standard Error	t- Stat	P-value	Lower 95%	Upper 95%
Intercept	23.90	6.56	3.33	0.00	25.90	33.89
X ₁ :Structure	10.70	0.40	4.90	0.00	8.20	9.11
X ₂ : Governance	7.80	0.89	2.88	0.03	5.90	8.09
X ₃ :Content	8.90	0.45	3.90	0.01	6.20	9.03

From table 7, it can be deduced that the fitted line for regression is

$$Y = 23.90 + 10.70 X_1 + 7.80 X_2 + 8.90 X_3 + \varepsilon$$

The coefficient of structure (X_1) was found to be 10.70. It has an estimated standard error of 0.40, t-statistic of 4.90 and an associated p-value of 0.00. This implies that structure influences firm's performance and it is statistically significant at significance level $\alpha=0.05$ since $p<0.05$. In this regard, the hypothesis (H_1) was accepted that there is a statistically significant relationship between network structure and firm's performance.

The coefficient of governance (X_2) was found to be 7.80. It has an estimated standard error of 0.89, t-statistic of 2.88 and an associated p-value of 0.03. This implies that the impact of governance influences firm's performance is statistically significant at significance level $\alpha=0.05$ since $p<0.05$. In this regard, the hypothesis (H_2) was accepted that there is a statistically significant relationship between network governance and firm's performance.

The coefficient of network content (X_3) was found to be 8.90. It has an estimated standard error of 0.45, t-statistic of 3.90 and an associated p-value of 0.01. This implies that network content has an impact on network members and how they are able to establish relationships among other firms and its influences the firms performance statistically significant at significance level $\alpha=0.05$ since $p<0.05$. In this regard, the hypothesis (H_3) was therefore accepted that there is a statistically significant relationship between network content firm's performance.

DISCUSSION AND IMPLICATIONS

It is evident from the study that network structure positively and significantly influences firm performance. It is through the structure that ties are established which results to embeddeness of firms in networks of external relationships with other organizations (Gulati *et al.*, 2000). Through network structure firms are able to gain strategic positions in the networks that may enhance flow of resources.

The findings of this study are consistent with the study by Goce (2009) on "Competitive strategy, alliance networks and firm performance". The study targeted 125 firms from computer and electronic industries and found that dense network structure is more beneficial for firms that have superior either advantage creating or advantage-enhancing capabilities whereas firms with inferior capabilities can benefit more from a sparse network structure. Further, the study findings are consistent with the findings by Yang and Liu (2012) in their study on "Boosting firm performance via enterprise agility and network structure". Their study targeted 250 companies in Taiwan glass industry and they found that network structure is a critical competitive strategy source of firm performance.

Network governance acts as a gel that facilitates network exchange. It forms the basis of trust which blends mutual relationships between network participants. The findings in this study

are consistent with those of Chou (2013) in the study “The impact of network governance on the performance of Information Technology Outsourcing (ITO)”. The study targeted 191 companies from Taiwanese industries and found that relational governance has a positive effect on performance.

There are various forms of resources that are exchanged between networks. Firms must therefore strive to understand the resources owned by others. Such resources forms the basis of social capital which is the aggregate of resources embedded within, available through and derived from the network relationship possessed by an individual or organization (Inkpen and Tsang 2005). The findings of this study have established a positive and significant relationship between network content and firm performance. In addition, it was established that some key reasons that make SMEs to network include resource acquisition capability and competition.

The longevity of SMEs largely depends on how effective they can network and build on social capital. Due to their economies of scale SMEs are not able to compete nor subcontract with large enterprises. It is therefore important for SMEs managers to look for beneficial networks that are able to give them a competitive edge. On the other hand, policy makers must develop policies aimed at encouraging SMEs not to operate in isolation so as to enhance their performance.

CONCLUSION

This research was able to establish that networking is vital for enhanced performance of SMEs. The results of this study not only enriches literature on SMEs from developing countries but also has indicated specifically that networking relationships (structure, governance and content) influences their performance. With globalization and emergence of trading blocks worldwide, managers and SMEs practitioners have an opportunity to seek business networks that can spur growth of their firms.

LIMITATIONS OF THE STUDY

Though the study has made valuable contributions it was not without limitations. The study focused only on Manufacturing SMEs registered under KAM. The manufacturing sector has huge dynamics at the industry level and therefore those factors may contribute to their differential performance. For instance, agro-based manufacturers are usually affected by weather patterns. However, this can be managed in further research by stratifying the sample at the industry level. The study used the questionnaire method to collected data from single

respondent from the target population. This may be subject to bias from the respondent. Future research may target several respondents from the same organization.

AREAS OF FUTHER RESEARCH

This study considered networking relationships among manufacturing SMEs. Future studies should consider networking in large enterprises. This is because SMEs are not small scale of large enterprises. Another prime area for future research would be to assess how networking evolves and its sustainability in dynamic sectors that are high technology driven such as ICT. Finally, future researchers should investigate how firm characteristics such as age, size and managerial competencies impact on networking and hence firm performance.

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