

INFLUENCE OF STRATEGIC CONTINGENT ORGANIZATIONAL FACTORS ON PERFORMANCE OF LARGE MANUFACTURING FIRMS IN KENYA

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ABSTRACT

Even though Kenya has been praised for its robust economy and that is set to become one of the top five fastest-growing in sub-Saharan Africa, manufacturing output remains low compared to other sectors. Kenyan manufacturers have registered stagnation and declining profits of over \$330 million annually and government loses of \$67 million in potential tax revenue for the last five years due to contingencies. It is estimated that manufacturing companies have lost 70 per cent of their market share in East Africa and this has resulted in some firms announcing plans to shut down their plants and shift operations to Egypt. The general objective of the study was to establish the influence of strategic contingent organizational factors on performance of large manufacturing firms in Kenya by reviewing organizational structure as the study variable with legal and regulatory environment as the moderating effect. The study adopted a mixed research design of cross-sectional research design and descriptive survey design and the research philosophy was positivism. The study population study was 499 large scale manufacturing companies with a sample size of 217 managers from each of the 217 companies. Data was collected through the administration of questionnaires to the relevant managers. The findings of the study revealed that majority of the companies had a written down IT policy, high rate of both IT software and hardware adoption in their companies and also train to sharpen their IT skills. The findings also indicated that IT hardware adoption, IT software adoption and training employees to sharpen their IT skills are positively and significantly related with ROE. The findings of the study also revealed that

written down IT policy, IT software adoption and training employees to sharpen their IT skills was positively and significantly related to profit before tax while IT hardware adoption, IT software adoption and training employees to sharpen their IT skills had a positive and significant relationship with ROA. The study concluded that information technology has significant effect on performance of large manufacturing firms in Kenya. The sub-constructs of information technology that is written down IT policy, rate of both IT software and hardware adoption and sharpen of IT skills influence performance positively. The study recommended that large manufacturing firms in Kenya should have an improved information technology system as it leads to better performance. The firms should have written down IT policy, high rate of both IT software and hardware adoption and frequently sharpen IT skills of the employees through training.

Key words: *Strategic contingent, Information technology, organizational factors, Large manufacturing firms, performance, Kenya.*

INTRODUCTION

Background and Research Gap

The manufacturing sector is the third biggest industrial sector after agriculture and transport and communication. It is the third leading sector contributing to GDP in Kenya. The sector has experienced fluctuations over the years under different financial conditions mostly contingent in nature (KPMG, 2014). Although Kenya is the most industrially developed country in East Africa, the manufacturing sector in Kenya constitutes 10 per cent of the industrial sector contribution to GDP (RoK, 2014). The growth in manufacturing industry has declined to 3.3 per cent in 2011 as compared to 4.4 per cent in the year 2010 mainly due to a challenging operating environment (KNBS, 2012)

The contingency theory of Organizations predicts that the relationship between an organization's factors such as its structure, information technology, dynamic capabilities and leadership characteristics and firm's performance depend upon the level of their contingent nature (Donaldson, 2006). Sedera, Gabbie and Chan (2003) observed that Information Technology (IT) is a key ingredient of contingency factors that is known to influence performance of manufacturing firms. It is further argued that IT being contingent in nature, adoption of new technologies should

always be adjusted to meet the current needs of a firm thus a necessary requirement to factor in the contingency elements. Adoption of technologies that are responsive to the dynamic environment demand that they be contingent. This allows easy adoption of automated materials handling systems, robotics, computer-controlled machines and computer integrated manufacturing systems that lead to a programmed flexibility which eventually transforms to manufacturing of variety of products with minimal change-over and set-up disruption, maximizing both flexibility and production. This helps the firm accrue benefits in terms of flexibility, reduced lead-times, improved quality and customer responsiveness thus impacting positively on performance (Richard & Amrik, 1999).

Problem Statement

Kenya has been experiencing turbulent times with regard to its organizational practices and this has resulted in declining profits in the manufacturing sector of the economy (Mutindi, Namusonge & Obwogi, 2013). Statistics from World Bank show that Kenyan manufacturers of large scale firms have registered stagnation and declining profits for the last five years due to a turbulent operating environment (WB, 2014). It is estimated that large manufacturing companies have lost 70 per cent of their market share in East Africa largely attributed to contingencies (RoK, 2014a). Many large Manufacturing firms have relocated or restructured their operations, opting to serve the local market through importing from low-cost manufacturing areas such as Egypt therefore resulting in job losses (Nyabiage & Kapchanga, 2014) citing turbulent operating environment and high operating costs. This is an indication that many manufacturing firms in Kenya are experiencing performance challenges with many reporting profit warnings due to challenges in the operating environment (RoK, 2014).

Previous studies have shown that contingent organizational factors are critical drivers to performance of organizations (Brewster & Mayrhofer, 2012). Organizations seek to fit their organizational factors to contingencies in order to achieve high performance and to avoid any losses resulting from the misfit when contingencies change (Donaldson, 2006). In addition, previous empirical findings show that contingent firm factors measures have lacked precision and consistency by providing no clear direction on the influence of contingent organizational factors on firm's performance (Walters & Bhuian, 2004; Lee *et al.*, 2001). Many studies have focused on financial performance measures ignoring non-financial indicators like environment (Kargar & Parnell 2009). It is therefore inadequate to merely analyse firm's performance by financial performance especially under today's changing operating environment (Qi, 2010).

The manufacturing sector in Kenya has a huge untapped potential contribution to employment and GDP if the challenges facing this sector are properly addressed (Wagana & Kabare, 2015). The study would eventually help in determining what is needed to stop manufacturing firms from failing, stagnating in performance or relocating from Kenya resulting to job losses and therefore continue in operation to the foreseeable future. This study forms the basis to fill this gap.

Study Objectives

The general objective of the study was to establish the influence of strategic contingent organizational factors on performance of large manufacturing firms in Kenya. Specifically, the study sought to establish the influence of information technology on performance of large manufacturing firms in Kenya.

RESEARCH METHODOLOGY

The study adopted a mixed research design of cross-sectional research design and descriptive survey design. Using cross-sectional design, the researcher was able to obtain research data over the same period of time. While descriptive research design was used to establish the cause and effect relationship between the dependent variable (Firm Performance) and the independent variable (Contingent organizational factors). The study population study was 499 large scale manufacturing companies. Stratified random sampling method was applied to come up with the sample size, since the population is heterogeneous. The study used a sample size of 217 large manufacturing firms. Data was collected through the administration of questionnaires to the relevant managers. An odds regression model was used to establish the relationship between firm performance and organization structure.

The multiple regression model took the form below:

$$\text{Odds of } Y/ X = \beta_0 + \beta_1 \text{ Information technology} + \varepsilon$$

Where:

Y = Firm performance (Binary dependent variable [High performance = 1, Low performance = 0])

and ε = Random or Stochastic term

FINDINGS AND DISCUSSION

Response Rate

The number of questionnaires that were administered was 217. A total of 157 questionnaires were properly filled and returned. This represented an overall successful response rate of 72.4% as shown on Table 1. Babbie (2004) asserted that return rates of 50% are acceptable to analyze and publish, 60% is good and 70% is very good. Based on these assertions from renowned scholars 72.4% response rate is adequate for the study.

Table 1: Response Rate

Response	Frequency	Percent
Returned	157	72.4%
Unreturned	79	27.6%
Total	217	100%

Information Technology

The study sought to establish the influence of information technology on performance of large manufacturing firms in Kenya. The measures of information technology were IT Policy, IT software adoption, IT hardware adoption and employee IT skills.

IT policy

The respondents were asked whether their company had a written down IT policy. Results indicated that 84% of the respondents agreed that they have a written down IT policy as indicated in Figure 1.

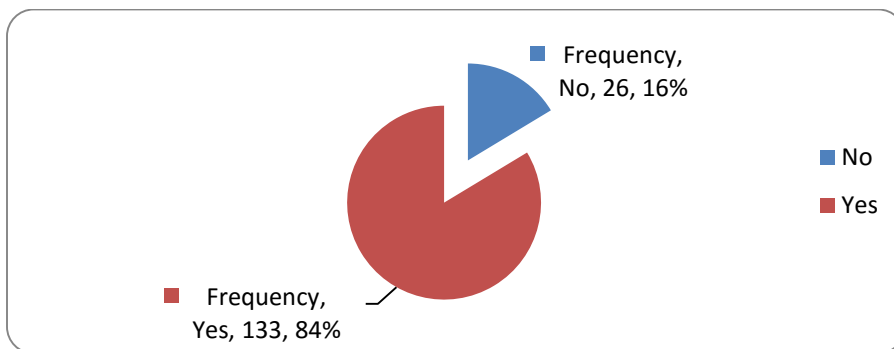


Figure 1: IT policy

The results in Table 2 indicates that 50.0% of the respondents agreed that having a written down IT policy improved performance by 6-10 percent while the another 50% also agreed that it

improved performance by more than 10%. A majority of 60% of those respondents who did not have IT policy believed that it decreased performance by 6-10%.

Table 2: IT policy and performance

	Indicator	Frequency
Written down IT policy and Performance	Improved performance by 0-5%	0.0
	Improved performance by 6-10%	50.0
	Improved performance by more than 10%	50.0
Lack of written down IT policy and Performance	Decreased performance by 0-5%	0
	Decreased performance by 6-10%	60.0
	Decreased performance by more than 10%	40.0

IT software adoption

The respondents were asked to state the rate of IT software adoption in their companies. Majority of the respondents, 89%, stated that there was a high rate while 11% stated low rate.

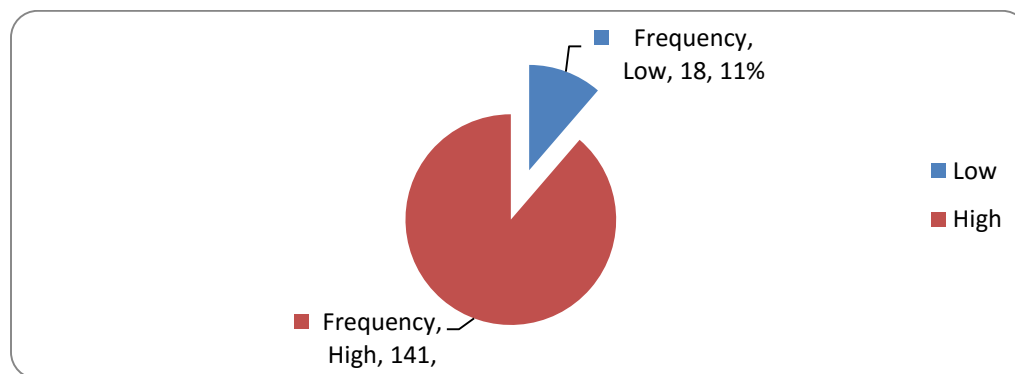


Figure 2: Rate of IT software adoption

The results in Table 3 indicate that majority of the respondents, 56.7%, whose companies' rate of IT software adoption is high, stated that it improved performance by more than 10%. 55.6% of the respondents who had low rate of IT software adoption stated that it had decreased performance by 6-10%. According to the World Bank (2006), firms that use ICT grow faster, invest more, and are

more productive and profitable than those that do not. These study findings confirms the argument by World Bank (2006)

Table 3: IT software adoption and performance

	Indicator	Percent
High rate of IT software adoption and performance	Improved performance by 0-5%	0.0
	Improved performance by 6-10%	43.3
	Improved performance by more than 10%	56.7
Low rate of IT software adoption and performance	Decreased performance by 0-5%	0.0
	Decreased performance by 6-10%	55.6
	Decreased performance by more than 10%	44.4

IT hardware adoption

The respondents were further asked to state the rate of IT hardware adoption for their companies. Majority of the respondents, 82%, stated that there was a high rate of IT adoption in their companies.

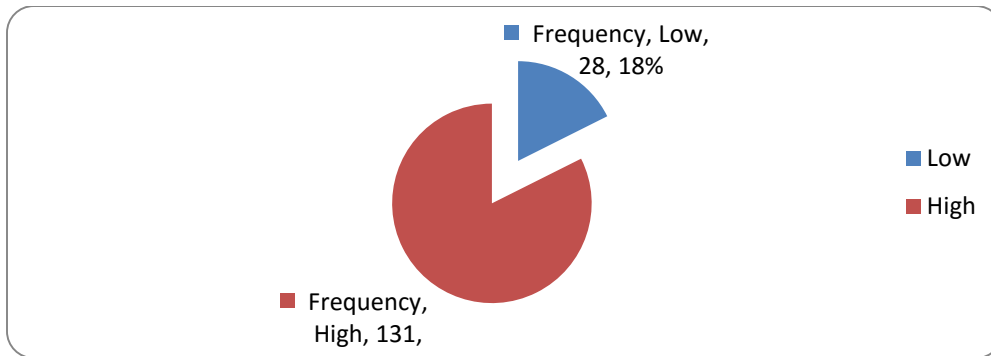


Figure 3: Rate of IT hardware adoption

The results in Table 4 revealed that 55% of the respondents who admitted to having high rate of IT hardware adoption agreed that it improved performance by 6-10%. Majority, 53.6%, of those

whose companies had low rate of IT hardware adoption agreed that it had decreased performance by 6-10%. The findings of the study confirm the argument by Richard and Amrik (1999) that adoption of technologies that are responsive to the dynamic environment and are contingent helps the firm accrue benefits in terms of flexibility, reduced lead-times, improved quality and customer responsiveness thus impacting positively on performance.

Table 4: IT hardware adoption and performance

	Indicator	Percent
High rate of IT hardware adoption and performance	Improved performance by 0-5%	0
	Improved performance by 6-10%	55.0
	Improved performance by more than 10%	45.0
Low rate of IT hardware adoption and performance	Decreased performance by 0-5%	0.0
	Decreased performance by 6-10%	53.6
	Decreased performance by more than 10%	46.4

Employee IT skills

The respondents were asked to state whether employees in their companies train to sharpen their IT skills. Majority of the respondents, 76% stated that employees receive the training. The results are as shown in Figure 4.

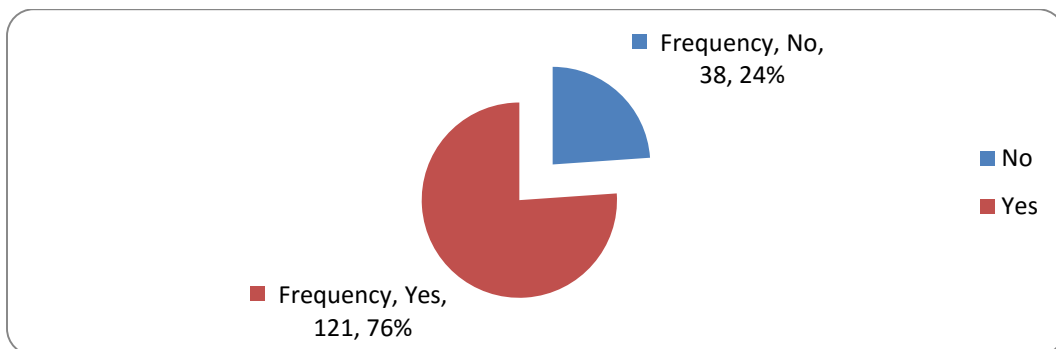


Figure 4: Training to sharpen Employee IT skills

Those who had indicated that there was training were further requested to state the frequency of training. Majority of the respondents, 58%, stated that frequency of training was 2 times per year while the other 42% said that it was more than 2 times per year. The results are indicated in Figure 5.

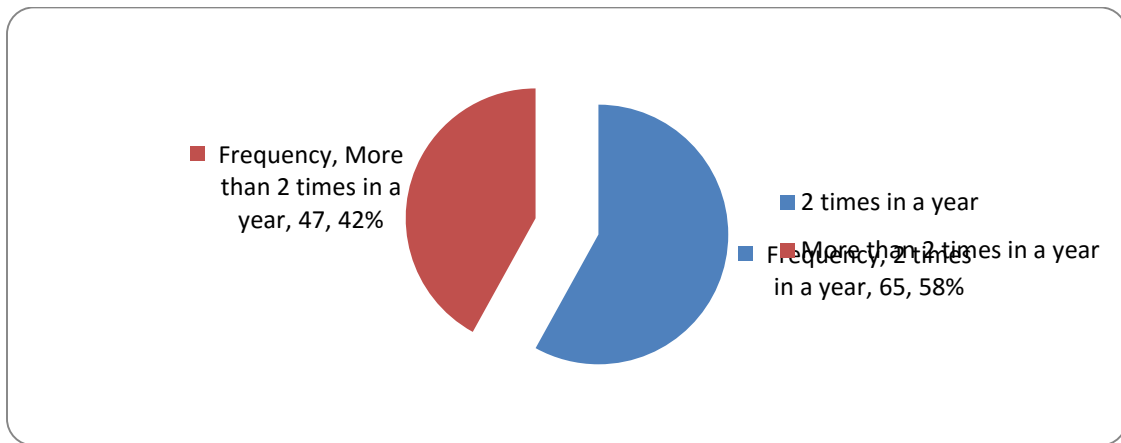


Figure 5: Frequency of Training to sharpen Employee IT skills

Furthermore, results in Table 5 revealed that majority of the respondents, 51.8% stated that training on IT skills improves performance by 6 to 10%. On the other hand, 55.3% of the respondents who had not implemented training to improve employee IT skills stated that it decreased performance by over 10% while 44.7% stated that it decreased performance by 6-10%. The results are in line with the results of a study by Ifinedo and Nahar (2009) which stated that firm management must ensure that continuous acquisition of relevant IT skills and expertise is adequately provided for to enhance success with such technologies so as to realize positive performance.

Table 5: IT hardware adoption and performance

	Indicator	Percent
Training on IT and performance	Improved performance by 0-5%	0.0
	Improved performance by 6-10%	51.8

Lack of Training on IT and performance	Improved performance by more than 10%	48.2
	Decreased performance by 0-5%	0.0
	Decreased performance by 6-10%	44.7
	Decreased performance by more than 10%	55.3

Relationship between Information Technology and ROE

Results in Table 6 show the results of the odd ratio regression with regard to Return on Equity. The results reveal that IT hardware adoption was positively and significantly related to ROE. The odds of observing a better ROE was 6.252 times higher for those firms with high IT hardware adoption as compared to those firms who had lower IT hardware adoption. The results also reveal that IT software adoption is positively and significantly related to ROE. The odds of observing a better ROE was 4.096 times higher for those firms with high IT software adoption compared to those with low adoption. Further, the results reveal that training employees to sharpen their IT skills had a positive and significant relationship with the odds of better ROE. The odds of observing better ROE was 4.069 times higher for those firms where employees received training to sharpen their IT skills. The findings support the contingency theory which states that management can achieve higher levels of success in firm's performance with their IT systems by matching organizational factors with relevant contingencies (Mabert *et al.*, 2003). The results are however contradicting the findings of a study by Lefebvre and Lefebvre (1996) which concluded that "IT-productivity connection remains elusive, with contradictory results from study to study".

Table 6: Odd Ratio Regression for Return on Equity

	B	S.E.	Wald	df	Sig.	Exp(B)
IT policy	0.736	0.602	1.494	1	0.222	2.088
IT software adoption	1.639	0.422	9.789	1	0.024	4.096
IT hardware adoption	1.833	0.503	13.273	1	0.000	6.252
IT skills	1.403	0.477	8.643	1	0.003	4.069
Constant	-2.606	0.78	11.169	1	0.001	0.074

Relationship between Information Technology and Profit before tax

Results in Table 7 show the results of the odd ratio regression with regard to Profit before tax. The results reveal that written down IT policy was positively and significantly related to PBT. The

odds of observing a better PBT was 3.366 times higher for those firms with a written down IT policy as compared to without a written down IT policy. The results also reveal that IT software adoption had a positive and significant relationship with the odds of better PBT. The odds of observing a better PBT was 3.522 times higher for firms with high IT software adoption compared to those with low adoption. Further, the results show that training employees to sharpen their IT skills had a positive and significant relationship with the odds of better PBT. The odds of observing better PBT was 4.228 times higher for those firms where employees received training to sharpen their IT skills. The findings of the study confirm the argument by Baldwin and Sabourin (2007) that many studies that cover the experience of developed countries conclude to a positive relationship between ICT use and superior performance.

Table 7: Odd Ratio Regression for Profit before tax

	B	S.E.	Wald	df	Sig.	Exp(B)
IT policy	1.214	0.583	4.34	1	0.037	3.366
IT software adoption	1.259	0.708	3.158	1	0.046	3.522
IT hardware adoption	0.546	0.579	0.89	1	0.346	1.727
IT skills	1.442	0.477	9.129	1	0.003	4.228
Constant	-2.289	0.792	8.35	1	0.004	0.101

Relationship between Information Technology and ROA

Results in Table 8 show the results of the odd ratio regression with regard to Return on Assets. The results reveal that IT hardware adoption was positively and significantly related to ROA. The odds of observing a better ROA was 8.281 times higher for those firms with high IT hardware adoption as compared to those firms who had lower IT hardware adoption. The results also reveal that IT software adoption had a positive and significant relationship with ROA. The odds of observing a better ROA was 9.235 times higher for those firms with high IT software adoption compared to those with low adoption. Further, the results also reveal that training employees to

sharpen their IT skills had a positive and significant relationship with the odds of better ROA. The odds of observing better ROA was 13.491 times higher for those firms where employees received training to sharpen their IT skills. This implies that training employees to sharpen their IT skills results to better ROA. Studies by Sedera, Gabbie and Chan (2003); Morton and Hu (2004); Lee and Lee (2004), observed that Information Technology (IT) is a key ingredient of contingency factors that is known to influence performance of manufacturing firms. It is further argued that IT being contingent in nature, adoption of new technologies should always be adjusted to meet the current needs of a firm thus a necessary requirement to factor in the contingency elements. The findings of the current study confirm the findings by these studies.

Table 8: Odd Ratio Regression for Return on Assets

	B	S.E.	Wald	df	Sig.	Exp(B)
IT policy	-0.373	0.724	0.265	1	0.607	0.689
IT software adoption	2.006	0.506	11.895	1	0.049	9.235
IT hardware adoption	2.114	0.500	17.852	1	0.000	8.281
IT skills	2.602	0.505	26.508	1	0.000	13.491
Constant	-1.074	0.666	2.598	1	0.107	0.342

The findings of the study confirm the findings of a study by Mouelhi (2008) which found out that there is a clear positive relationship between efficiency and ICT variable. ICT, by exposing firms to greater information on product characteristics, updated technologies and market trends, provide companies with learning opportunities that allow them to get on a steeper learning curve than firms that do not use ICT. This in turn improves efficiency and performance of the firms.

Conclusion

The general objective of the study was to assess the influence of strategic contingent organizational factors on performance of large manufacturing firms in Kenya. The study concluded that information technology has significant effect on performance of large manufacturing firms in

Kenya. The sub-constructs of information technology that is written down IT policy, rate of both IT software and hardware adoption and sharpen of IT skills influence performance positively

Recommendations

The study recommended that large manufacturing firms in Kenya should have an improved information technology system as it leads to better performance. The firms should have written down IT policy, high rate of both IT software and hardware adoption and frequently sharpen IT skills of the employees through training.

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