Influence of Operational Processes on the Performance of Manufacturing Firms: Empirical Evidence from SMEs in Kenya

Victor K. Kering, James M. Kilika and Jane W. Njuguna

Abstract — Manufacturing firms in Sub-Saharan Africa are facing both internal and external pressures from intense global competition, turbulent markets, and the increasing sophistication of manufacturing technologies which influences its performance. This increasing rate of change in the sector is compelling firms to pay attention to the operational processes. Due to this reason, the study sought to determine the effect of operational processes on the performance of manufacturing SMEs in Kenya. The study adopted an explanatory design had a sample size of 136 firms which was drawn using proportionate stratified sampling. Primary data collection involved the use self–administered questionnaires and instrument validation was achieved through the development of constructs from previous studies, scale development, instrument pre-testing and validation. The instrument was subjected to inter-consistency test using the Cronbach’s coefficient with a value ≥ 0.70 affirming that the research instrument was reliable. The results show that operational processes cumulatively explain 37% of the variations in firm performance, therefore, the study concluded that the operational processes have a significant and positive effect on firm performance. The study recommends that the management of these firms should attempt to improve on the strategy processes and contents based on models that have been applied successfully in other contextual areas.

Index Terms — Manufacturing firms, operational strategy, operational processes, Small and medium enterprises (SMEs), firm performance.

I. INTRODUCTION

The manufacturing sector is regarded as a key driver of structural change both tentatively and empirically [70] in that it has a critical role in the growth of the economies, particularly those with relatively low income per capita [82]. Manufacturing has been recognized as an engine of growth for sub-Saharan Africa countries [26]. In the Sub-Saharan African region, manufacturing accounts for only about 13 per cent of gross domestic product (GDP) and only about one-quarter of exports [25].

Manufacturing in Africa faces significant internal and external challenges which constraint the firm’s growth and vary from country to country, sector, and firm size. They include low labour cost and productivity, access to finance, business environment and electricity, among others but, the African manufacturing has a conditional advantage in productivity and sales growth [25]. Further, the reliance on imports of industrial supplies implies that there is a need to strengthen the value chains to create both backward and forward linkages in the economy [43].

In Kenya, the manufacturing sector is classified into either modern or informal sector based on firm size and the level of technology used [21]. More than two – thirds (67%) of all the manufacturing firms are classified as Micro, Small and Medium-sized Enterprises (MSMEs) [83] and contribute 14% of sector's GDP, while the medium- and large-sized enterprises account for 86% of sector's GDP and 71% of the sector’s employment (KIPRA, 2014). The Government of Kenya considers manufacturing as one of the economic pillars for creating employment and wealth [83] and due to this reason, the Government has sought to increase the share of the manufacturing sector from the current 9.2% to 15% in the Medium-Term Expenditure Framework (MTEF 2018–2020) and 20% as per the vision 2030[32].

In terms of the output, productivity and the performance of the manufacturing sector is subdued as indicated by its contribution to GDP, value addition, growth and employment which were 7.50%, 6.03%, 3.20% and 12.1% respectively [45]. The sector has been contracting and is thought to be undergoing premature de-industrialisation in a context where manufacturing and industry are still relatively under-developed [83]. Further, the sector is underperforming, and due to its importance to the economy, the current government has made several initiatives to improve the fortunes of the sector [32].

Manufacturing firms have to compete effectively not only in the local context but in wider regional and global marketplaces [64]. In comparison, the best performing firms in SSA compare well to their counterparts internationally, but the averagely performing firms are less productive than best performing firms in East Asian countries [25]. This shows that firms in SSA have mixed performances which arise from the firm competitiveness, a fact that is attributable to intense global competition, dynamic markets, and the increasing technological sophistication [42]. But then firm performance strongly correlates with the quality of management practices [52], thus, higher performance is dependent on unique internal firm characteristics [14].

In most instances, developed countries have better-qualified management than those of the developing countries, with the observable differences in the managerial quality [28]. Thus, the performance differences are attributable to the

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DOI: http://dx.doi.org/10.24018/ejbmr.2020.5.6.614

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differences in the application of the firm’s operational processes as informed by the participation or non-participation of production/manufacturing managers. This was confirmed by [76] who observed that managers of manufacturing firms tend to spend little time on long-term planning and thereby ignoring the operational processes altogether. Their non-participation would in the long-run lead a disconnect between the overall firm’s long-terms objectives with the goals of its manufacturing unit or department.

II. PROBLEM STATEMENT

The manufacturing sector in Kenya is perceived to have relatively high levels of managerial skill when compared to the East Africa region but, lags behind other manufacturing sectors of developed economies. This is due to the several management challenges that include: the low management capacity, endemic and wanting productivity, lack of access to finance and difficulties in attracting and retaining skilled individuals [83]. Other studies have attributed weak/inadequate performance and/or low productivity to the poor institutional framework, and inadequate managerial, technical, and entrepreneurial skills [25], [31] or lack of managerial attention to strategic issues [5]. Due to the aforementioned challenges, the study examined the nature of the operational processes in the manufacturing SMEs.

Empirical studies on operational processes focused attention on the impact of strategy processes [2], [6], [76], [77] manufacturing configurations [81], [18] and competitive priorities [2], [18], [34]. These studies highlighted the impact of the distinct components of the operational processes in isolation and lacked functional integration. Moreover, the studies explored the manufacturing firms in the developed economies except for [4], [60], [72] studies which were done in developing countries. Due to the dearth in studies seeking to measure the process-based perspective of the operational processes of manufacturing firms in sub-Saharan Africa, the paper sought to provide a new in-depth understanding of the operational processes and the consequent organizational outcomes in Kenya. Thus, the main objective of the paper was to determine the role of operational processes on the performance of manufacturing SMEs in Nairobi City County, Kenya.

III. LITERATURE REVIEW

A. Theoretical Review

The theoretical arguments on the operational processes are provided by the resource-based view, dynamic capability and cognition theories. These theories seek to explain why and how operational processes account for the effect on firm performance. First, the RBV theory views the firm as a bundle of resource and that each firm possesses heterogenous resource base which enables them to participate and compete in the market place [51]. These resources serve as inputs to the organizational processes and are typically not embedded within the organizational processes [12]. This is different in the case of the manufacturing sector, where the firm’s resources are often used up in the production process, and this may confer the firm with competitive advantages with an ensuing effect on firm performance [60].

Resources per se do not lead to the differences in the firm performance [51], but the deployment, employment or the usefulness of the resources to generate economic rents for the firm [33]. In exploiting resources, the firm’s distinct organizational processes help shape the firm’s operations capability [48]. This action would determine the optimal operational strategy based on the constellation of a firm’s resources and capabilities [9]. Therefore, the alignment of the firm’s resources and competitive priorities is critical to the development of an operations strategy [16] which is not only affected by its resources, but also by the business environment [19].

Secondly, the dynamic capability theory indicates that the dynamic capabilities aid firms to build, integrate, and reconfigure operational capabilities to strengthen their environmental fit as well as improve effectiveness and efficiency [44], [46]. Inherently, the firm’s capabilities include firm-specific attributes, information and knowledge bases that shape the firm’s managerial skill, its organizational processes, and routines [10]. These managerial processes by their nature can be construed as a form of dynamic capabilities that control and reconfigure the organization’s resource base and therefore, impact on the organization’s ability to attain or enhance organizational performance [13]. Further, the development of higher-order dynamic capabilities is entrenched by the perpetual utilization of the management processes which institutionalizes the firm’s unique routines to enable the firm to modify its resource base and generate success in the long-run [37].

Thirdly, the linkages between the firm’s cognitive structure and its decision processes are of critical importance to the firm’s operational processes [7]. The underlying framework is drawn from the cognition at individuals, workgroups, workgroup functions, organizational structures, and routines and within the broader industrial setting [20]. The individual and collective cognitive features at firm level drives the managerial cognitive processes of scanning, sense-making and decision-making and determine the value-addition attributes [7] and its ensuing firm’s corporate and business strategies. Thus, the cognitive aspects of strategy processes are precursors to the firm’s strategic behaviour [17] and the adaptation to or the lack of it [55]. The firm’s behaviour explains its strategy in the marketplace and may significantly influence the firm’s strategic choice and the basis for competitive strategies [57].

When the managerial cognition is coupled with routines and processes, they are translated into capabilities which are either dynamic or operational to reflect the firm’s capability to perform a specific activity or function [63]. In this manner, the firm’s resources shape its capabilities to efficiently use its resources, and, in turn, the management’s experience influences the way the firm develops its capabilities and determines firm’s success [58]. Therefore, firms need to require critical managerial experience in order to develop strategic process capabilities, the appropriate organizational structure for planning, monitoring, and controlling system and the existing social relationships to generate the competitive advantage that indirectly determines its performance [50].

DOI: http://dx.doi.org/10.24018/ejbmr.2020.5.6.614

Vol 5 | Issue 6 | December 2020
B. Empirical Review

The central themes in operational processes includes the need to distinguish between strategy content and strategy processes. The strategy processes relate to the mechanisms, pattern and/or procedure for developing and implementing strategy [64], while the strategy content concern the selection of competitive priorities and the alignment of the manufacturing strategy configuration into the overarching firm’s strategies [39], [56]. Strategy processes are dynamic [20] and rely on maturity levels of management, leadership, employee involvement, culture, and more importantly, organizational alignment to its environment [64]. Strategy content is more stable over certain periods of time and constitute the development of a competitive priority, a precursor to the manufacturing strategy configuration. The competitive priorities and plans constitute the firm's manufacturing strategy, which ultimately affects the firm's operational capabilities and organizational [19].

Studies have indicated a direct and positive link between strategy-making and performance, but processual differences exist between firms [78]. For instance, [3] observed the effect of strategic planning on performance across industries in stable environments, however, these effects exist concomitantly with autonomous firm action in dynamic environments. Ates [6] indicated that manufacturing SMEs tend to have both emergent and rational dimensions, but these processes are dynamic and rely significantly on the maturity levels of management leadership, employee involvement, organizational culture [64]. Further, a firm’s strategy processes are contingent upon the internal factors such as firm size, nature of the business, firm’s life cycle, organizational culture and top management characteristics and other contextual factors such as industry competitiveness [47].

Protogerou, Caloghirou and Lioukas (2011) observed differences in the approach and the practice of the strategy processes among Greek Manufacturing firms with most firms using planning and learning – by – experience. Several authors including [6], [13], [35], [76] studied the UK manufacturing sector and their contributions to the strategy processes are enormous. Ates [6] apportioned the differences in the strategy processes of the UK manufacturing SMEs to the use of both emergent and planned dimensions, while [13] indicated the preference of deliberate strategy process. Tell [76] observed that SMEs tend to use informal processes with limited application of strategic management techniques.

Several studies have detailed the effect of strategy processes on firm performance. Tegarden et al. [77] affirmed that leadership aspect has varied impacts on firm performance. In this context, leadership imply the participation of the top management in the strategic planning process. The study showed that rational and symbolic processes signifying leadership highly correlated with operational performance while the generative and transactive processes which reflect employee involvement improved the overall firm performance. In support of these findings, [2] also reported that command, symbolic and rational processes directly impacted on the financial performance. However, environmental dynamism has a moderating effect. Ates [6] also confirmed that the leadership aspects in the strategy processes differ according to the firm size, structural and cultural environment. Kiridena et al. [47] observed that a firm's strategy processes affect the performance of the Sri Lankan apparel sector.

The discussion on the strategy processes broadly covers the leadership attributes with a consequent effect on performance. Furthermore, strategy processes differ according to the nature of the industry, the firm's internal context, the lifecycle of the firm and environment dynamism. Besides that, most of these studies have been carried out in the developed world context with little or no study being done in Sub-Saharan Africa. Based on the review and suggestion by previous researchers on the strategy processes, this research examined the relationship between strategy processes and business performance of manufacturing SMEs in Nairobi City County, Kenya. Thus, the study formulated the following hypothesis to support empirical literature.

Hypothesis 1: A firm’s strategy processes influence its business performance of manufacturing SMEs in Nairobi City County, Kenya.

The conceptual literature indicates that competitive priorities as a dimension supports the firm’s production system to meet the market demands [8] and is closely linked to the industry and the environment [22]. This viewpoint is indicated by the fact that manufacturing firms differ based on the emphasis laid on the specific competitive priorities [80] and the strategic emphasis on the development of specific manufacturing capabilities that bolster a firm’s position in the marketplace. This special emphasis guide decisions concerning the production processes, capacity, technology, planning, and control [16] with a commensurate alignment of the information systems, technologies, and human capital [80].

The strategic emphasis seeks the development of certain intended competitive capabilities such as cost, quality, delivery, and flexibility [16] and therefore, distinct competitive priorities would influence decisions regarding management practices, technology, production process and capacity [24]. Thus, firms investing in advance manufacturing systems do so to reduce the cost and improve on the quality. In contrast, firms must invest in physical assets such as machinery and computer information systems, to improve on the delivery and flexibility priorities [19]. Therefore, choosing a competitive priority is an important element of operational capability [71].

The earlier studies considered the four main basic dimensions of competitive priorities, the quality, delivery, flexibility, and cost [2], [19], [41]. However, several authors have added various themes to the four original priorities: innovativeness [4], innovation and customer focus [15], customer focus, and know-how [62]. The manufacturing firms differ based on the emphasis laid on the specific competitive priorities which would translate to the commensurate alignment of the information systems, technologies, and human capital [80].

The terminologies: competitive priorities and competitive capabilities often lack clarity in construct definitions [59] [75]. However, the practical application, the definition of competitive priorities involves the translation of firm’s strategic objectives (competitive priorities) into coordinated actions and activities (operational capabilities) [24]. Therefore, a strategic objective of new product development
would emphasize innovation with cross-functional product development approach, while a firm choosing to compete on efficiency and cost need to implement continuous improvement and process management to improve efficiency and reduce costs.

The empirical literature examining the relationship between competitive priorities and business strategy and performance and the trade-off between the competitive priority dimensions [24]. These studies have taken two perspectives; the identification/classification and the determination of the impact of the competitive priorities on firm performance. Several studies on the identification and selection of competitive priorities have been carried out in several contexts ranging from the US, Europe, and Asian firms. Grant, et al. [34] developed and ranked the taxonomy of priorities of Irish manufacturing firms into quality, consistency and delivery dependability using discriminant analysis on Irish manufacturing firms.

In Turkey, [2] used exploratory factor analysis and observed that customer satisfaction and quality were the most important competitive priority among these firms. In Eastern Europe, [66] indicated that managers of Slovenian manufacturing firms rated delivery and quality dimensions as the most important manufacturing priorities. Phusavat and Kanchana [61] identified and ranked the customer-focus, quality, and delivery as the major competitive priorities while Indian manufacturing companies underscore more on quality dimension and the less on flexibility dimension [72]. Lastly, [4] identified cost and differentiation as the most important competitive priorities in the Ghanaian manufacturing sector.

Several studies have provided empirical support to competitive priority – performance linkages. First, there are those studies have highlighted the direct impacts of competitive priorities on performance [24] while [1] observed that competitive priorities have a varying effect on the operational performance of manufacturing firms. Jitpaiboon, Gu & Truong [40] reported that cost and quality priorities have a stronger effect size when compared to other priority areas. Among the SMEs, [65] observed that quality, delivery, and flexibility dimensions affect firm performance, while the cost dimension had no effect, while [38] observed that quality and flexibility priorities improve firm performance in the high technology industry. Avella et al. [7] observed that certain competitive priorities selectively impacted on performance. The other set of studies have highlighted the indirect effects on competitive priorities on firm performance where researchers have provided conceptual support to the mediating effects of competitive priorities on the operational capabilities – performance linkages [24]. These studies have underscored the indirect effects of a firm’s competitive priority [81].

Moreover, the studies on the manufacturing sector in the developed countries context [34], [18], [81] have focused on the delineation of competitive priorities. The only study carried out in the sub-Saharan African context indicated that a firm’s competitiveness indirectly affects performance [4]. The studies have highlighted the influence of individual processes but lacked the functional integration at the process level and that the differences in the context and techniques confer other researchers with an opportunity to examine the nature of the associations between these processes and performance. Based on the review and suggestion by previous researchers on the competitive priorities, this research examined the relationship between competitive priorities and business performance of manufacturing SMEs in Nairobi City County, Kenya. Thus, the study formulated the following hypothesis to support the earlier empirical literature.

**Hypothesis 2:** A firm’s choice of competitive priority influences its business performance of manufacturing SMEs in Nairobi City County, Kenya.

Past studies have indicated that the development of a manufacturing strategy demands a trade-off of competitive priorities [54], [69], therefore, firms typically emphasize some priorities and place less emphasis on others, resulting in different strategies [19]. Manufacturing strategy is how the manufacturing unit deploys its manufacturing resources and effectively uses its manufacturing strengths to complement the business strategy [74]. The development of a competitive priority constitutes the first step towards the development of a manufacturing strategy, and together, the competitive priorities and plans constitute the firm’s manufacturing strategy. Specifically, firms perform the environmental analysis while considering the asset base and operating capabilities to determine their manufacturing strategy [19].

The fundamental definition of a firm’s manufacturing strategic configuration is to be drawn from the Porter’s [1985] generic business strategies of low price, differentiation, or focus which coexist to explain multiple manufacturing strategies in an industry [29] and is linked to the firm’s business strategy [36]. Low-price business strategies are set by low-cost producers focusing on internal operations because on average 67% of all costs reside in manufacturing. Conversely, firms pursuing differentiation businesses strategy seek to be unique along multiple dimensions that are widely valued by buyers [61]. Several authors have clustered manufacturing strategic configurations into different categories. Miller and Roth [54] identified three clusters of Niche differentiator (ND), broad differentiator (BD) and cost leader (CL). Mills, Platts & Gregory [53] clustered them into cost-based, technology-based, and market-driven strategies. Cagliano et al. [18] identified product-based, capability-based, market – based and price- based configurations.

Past empirical studies have indicated that manufacturing strategy determines business performance within that context [27], while later studies explored the extent to which changes in manufacturing strategy configurations are reflected in changes in performance [18]. The notable feature of these studies is the fact that both the context and strategy affect firm performance. As observed by [27] the strategic configuration has varied effects on several performance dimensions, and this is informed by several studies done in the US, China, and Ghana. The studies have underscored both direct and indirect effects of manufacturing strategy on firm performance.

First, the studies highlighting the direct effects have linked strategic configurations to the firm performance. Ward and Duray [81] observed that the presence of a manufacturing strategy influences the business performance of the US manufacturing sector. This manufacturing strategy – performance linkage was also validated by [23] in an international Manufacturing Strategy Survey covering several countries. Singh and Mahmood [73] observed a
significant linkage between manufacturing strategy and the performance of exporting SMEs in Malaysia. The other line of studies has emphasised on the indirect linkage between manufacturing strategy to firm performance. Koufteros et al. [42] identified the moderating effect of the manufacturing strategy on the firm’s strategy-performance linkages. The finding by [4] showed strong linkages between manufacturing strategy and competitive priority.

The studies identified the role that various manufacturing configurations play [2], [81] while other studies have highlighted and linked the impact of various strategic configurations on performance [4], [42]. These configurations differ based on the context and with few studies being done in Sub-Saharan Africa. Based on the review and suggestion by previous researchers on the manufacturing strategy configurations, this research examined the relationship between manufacturing strategy configurations and business performance of manufacturing SMEs in Nairobi City County, Kenya. Thus, the study formulated the following hypothesis to support empirical literature.

Hypothesis 3: A firm’s manufacturing strategic configuration affects its business performance of manufacturing SMEs in Nairobi City County, Kenya.

The literature on operational processes describes the nature of decisions that outline the firm’s operational capabilities and their contribution to the firm's overall strategy. These processes are distinguished into strategy processes and the operational strategy which describes how operations create the firm's competitive advantage based on the strategy content. These processes detail the patterns of decisions that shape the long – term capabilities of the firm's operations [67] and provide the conditions that determine or shape the firm’s resources, competencies, and capabilities at the business unit level [47]. As indicated by [30] an alignment between business strategies, manufacturing strategy configurations and manufacturing capabilities influences business performance.

Based on the review and suggestion by previous researchers on the operational processes, this research examined the relationship between operational processes and business performance of manufacturing SMEs in Nairobi City County, Kenya. Thus, the study formulated the following hypothesis to support empirical literature.

Hypothesis 4: A firm’s operational processes affect its business performance of manufacturing SMEs in Nairobi City County, Kenya.

IV. METHODOLOGY

A. Research Design

The research was explanatory in design as it sought to establish a causal relationship between the study variables. Usually, explanatory designs are used in a distinct context where the phenomenon of interest is explicitly known and, thus, the researcher only seeks to establish the linkages between the study variables. The study used a survey approach because it allowed for the collection of sets of both qualitative and quantitative data. Further, it allows the generation of findings based on a representative sample [68].

B. Sampling Procedure

The study targeted 439 manufacturing firms under Kenya Association of Manufacturers (KAM), which are clustered into 12 productive sectors of Food & Beverages, Building, Construction & Mining, Energy, Electrical & Electronics, Metal & Allied, Paper & Board, Motor Vehicle & accessories, Plastics & Rubber, Leather & Footwear, Chemical & Allied, Pharmaceuticals & Medical Equipment, Timber, Wood & Furniture and Textile & Apparel [43]. Stratified random sampling technique was considered appropriate because the industrial grouping used by the representative industry association (KAM) is homogenous.

A sample size of 196 was arrived at through the use of the published tables [11]. Because the target population was finite, a finite correction factor given by the equation below was used:

\[ n = \frac{n_0 N}{n_0 + (N - 1)} \]

where \( N \) is the population and \( n_0 \) is the sample size without considering the finite population correction factor.

Then, the actual sample size

\[ n = \frac{196 \times 439}{196 + (439 - 1)} = \frac{86044}{634} = 136 \]

Thus, the study used 136 firms who were stratified according to the industrial grouping.

V. RESEARCH INSTRUMENTS

A. Instrument Development

The instrument development process involved several processes. First, the study identified and adopted indicators from earlier studies on strategy processes [77], manufacturing configuration [7], [18] and competitive priority [42], [81]. Secondly, the researcher used members of the faculty of the School of Business at Kenyatta University to review the instrument and the measurement. Accordingly, the research paper used a monadic five-point Likert – type scale which is often used with metric measures. In order to further assess the tool validity, the questionnaire was pre-tested in a pilot study in Eldoret town whose manufacturing sector was distinctly separate from the study location. Lastly, the study cross-validated the instrument by measuring its construct validity. The values for the average variance extracted and composite reliability were 0.5345 and 0.7073 respectively and met the threshold of 0.5 for convergent validity and 0.70 for construct validity correspondingly. Lastly, the researcher ran a reliability index for the instrument and the Cronbach alpha coefficient for the items was above 0.70 indicating that the instrument had the acceptable level of measurement and scale.
VI. DATA ANALYSIS

Data were analysed using the descriptive and inferential statistics and the outputs were presented in a tabular format. The researcher then used the geometric mean to reduce the vast quantity of information and summarized the individual responses to a single numerical index used for further analysis. Diagnostic tests were carried out before the linear regression was conducted. The research used linear regression to test for the effect of operational processes on firm performance modelled as \( Y = \beta_0 + \beta_1X_1 + \epsilon \), where \( Y \) was the dependent variable (firm performance) measured by sales growth over three years, while \( X_1 \) was the independent variable, (operational processes).

VII. RESULTS AND DISCUSSION

A. Descriptive Analysis

In the study, the variable operational processes were conceptualized to describe the processes adopted and used by the firm to determine, shape the firm’s future, and relate to two main activities of strategic planning processes and the value addition processes. The variable was operationalized by 31 items of that variable that was broken into three sub-variables: strategy processes, manufacturing configurations, and competitive priorities/bases.

<table>
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<th>TABLE 1: DESCRIPTIVE STATISTICS ON OPERATIONAL PROCESSES</th>
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<td>Strategy processes</td>
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<td>Manufacturing strategy</td>
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<td>Competitive priorities/bases</td>
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<td>Operational processes</td>
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Source: Research Data (2020).

The first sub-variable was indicated by strategy processes which were measured by 12 items whose aggregate mean score was 3.748 and a standard deviation of 0.990. From the statistics, the most prevalent strategy processes are not command nor generative in that there are discernible participation other management levels, and therefore it can be said to contain both symbolic and rational process and are based on formal analysis. Though, there are certain transactive processes where there is an ongoing iterative process that involves feedback from key stakeholders and mutual adjustment through learning. This form of strategy processes takes the form that was advocated by [77].

The second sub-variable denoted manufacturing configurations which were measured by 10 items with an aggregate mean score was 3.921 and a standard deviation of 0.867. These firms preferred the differentiation - based configurations of flexibility, quality, and variety as it gave these firms the latitude to manoeuvre around the market demands and offer them scope in determining the market niches as opposed to the cost-based configurations of cost and pricing. Though, there are varied configurations the results reflect the configurations of manufacturing firms in developing economies [4], [61], [72] as opposed to those of developed countries [2], [34], [42].

The third sub-variable indicated the competitive priorities and was measured by nine items with an aggregate mean score was 4.184 and a standard deviation of 0.867. The results show that the firms prefer flexibility-based priorities of quick response, flexibility, quality improvement offer these firms as it gave them a larger scope in the market as opposed to the use of the firm's strengths such as brand, technology and capabilities.

Overall, the mean for the variable was 3.939 with a standard deviation of 0.909 while the sub-variable with the highest mean score was the competitive priorities (Mean = 4.184, SD = 0.833), with manufacturing configurations (Mean = 3.921, SD = 0.870) and strategy processes (Mean = 3.7481, SD = 0.990). The results show that firms place more emphasis on the search for competitive priorities than all the other operational processes.

B. Diagnostic Tests

The study tested for following assumption: normality, linearity, linear association, heteroscedasticity, and collinearity. The test for normality used Shapiro-Wilk (N>2000) and the test, W=0.96620, p > 0.05, indicating that data was drawn from a normally distributed population. The linearity test was carried out using pictorial patterns of scatter plots and curve-fitting and he indications from the scatter and curve-fitting plots are that the independent and dependent variables take the linear functional format, where \( y = a + bx \).

The test for heteroskedasticity was carried out through the use of Breusch-Pagan-Godfrey test and the results, \( \chi^2 = 2.27, p > 0.05 \) indicating that homoscedasticity in the data could be assumed. The test for collinearity was carried out using the variance inflation factor (VIF) \( \leq 10 \) and a tolerance figure, \( 1 / \text{VIF} \geq 0.1 \). The results were VIF = 1.00, while \( 1 / \text{VIF} \geq 0.1 \) thus multicollinearity among the data wasn't encountered. Lastly, test for linear association between variable was carried out using Pearson's Correlation coefficient, and the result was, \( r = 0.5542, p < 0.05 \). This indicated that strategy processes positive correlates with firm performance.

C. Hypothesis Testing

The research surveyed a sample of small and medium-sized manufacturing firms in Nairobi City County, Kenya. The three variables studied were: Strategy Processes, Manufacturing Strategy and Competitive Priorities and with the regression analysis was conducted to test the hypotheses as shown in Table 2. The study tested four models to determine the effect size of each sub-variable.

<table>
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<th>TABLE 2: REGRESSION ANALYSIS RESULTS</th>
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* at 0.05 Significance levels.
Source: Research Data (2020).

Table 2 gives a summary results of the regression analysis of the influence of the operational processes and business.
performance of the manufacturing firms. To test Hypotheses 1, 2, 3, and 4, the three dimensions of the operational processes were included in the regressions examining their effects on business performance as measured by sales growth. As shown in Table 2, only two dimensions of the operational processes had significant and positive effects on business performance. The results of show that the regression coefficient of strategy process ($\beta = 0.5542, p < 0.05$) was significantly larger than the coefficients of competitive priorities ($\beta = 0.4201, p < 0.05$). The coefficient for manufacturing strategy ($\beta = 0.2896, p > 0.05$) was not statistically significant.

Moreover, the analyses of relative weights indicate that strategy processes explained the largest percentage of variance in business performance (31%), followed by competitive priorities (18%). Collectively, the three dimensions of the operational process were found to have significant positive effects and on business performance. As hypothesized, the influences of strategy processes ($\beta = 0.4806, p < 0.05$) and competitive priorities ($\beta = 0.3242, p < 0.05$) were significantly stronger in explain business performance (38%).

Overall, these results provide strong support for Hypotheses 1, 2 and 4 indicating that two dimensions of operational processes influence the business performance of manufacturing firms in Nairobi City County, Kenya.

D. Discussion

The tests of hypothesis 1(strategy process) and hypothesis 2 (competitive priorities) add to prior research examining the effect of operational strategies capabilities of manufacturing firms. The performance effects of these hypotheses have also been subjects of considerable empirical research [2], [7], [77], [81] with the results supporting the study findings. This tests on hypothesis 3(manufacturing strategies) in a linear regression model and with an objective, externally audited measure of financial performance, will help clarify and support the previous findings which indicated that performance effect is not exclusively a result of manufacturing strategy choices [27]. Further, the results provide a rationale as to why some studies have found indirect effects in the relationship between manufacturing strategy and firm performance [4], [42].

The relationship between the three dimensions of operational processes and business performance measures in hypothesis four has been investigated differently at piecemeal arrangements where each of the dimensions are measured against firm performance individually. This remains the mainstay of the study and thus provides evidence of the functional integration of the operational processes at a departmental level as well as firm-level. The primary contribution of this study is the examination of the dimensions of operational processes as a source of variance in business performance effects. Based on the results of the regression-based tests, the three dimensions of the operational processes have a significant effect on the business performance of manufacturing firms.

This finding is supported by [77] who observed similar effects of strategy processes with an effect size of about 26% variance in firm performance. Kiridena et al. [47] and [2] found that the alternative configurations of strategy process modes led to higher performance. Accordingly, the strategy processes are applied in several contexts with little similarities [49], [79]. Strategy processes are also linked to the choices of the business strategy that support the selection of the most appropriate basis for competition in the market place. This is supported by several studies which reported similar effects of the manufacturing strategic configuration on business [81] and financial performance [23]. The studies that have highlighted the contribution of competitive priorities on firm performance of European firms [2], [34] [18]. Within the developing economies, [61], [72] and [4] reported similar effects of the competitive priority.

The conclusion to the hypothesis is based on the empirical studies which show that the strategy processes provide an outlay of the path to be taken by the firm in the determination of its objectives. It is also applied by these firms to drive up performance through the selection of the most appropriate strategy that can sustain the firm's activities in the environment. The strategy is also linked to the choices of the most appropriate basis for competition within the market place. This conclusion raises a fundamental question of how manufacturing strategic configuration mediates or moderate the operational strategies/processes - financial performance relationship.

VIII. CONCLUSION AND RECOMMENDATION

A. Conclusion

Based on the findings, the study concludes that the distinct operational processes explain the differences in performance. Based on this conclusion, the researcher noted that the findings raised an important implication regarding the operational processes of these firms. Given that the strategy processes among these firms take the top-down approach, these firms' strategy review is not likely to be optimized in relation to the market needs because of cognitive inertia, and this has a consequent effect on firm performance.

B. Recommendation

The management of these firms should improve on the approaches to strategy processes which may include moving away from the formalized approach to strategic planning. Firm's performance is also reliant on the industry, environmental business conditions and general macroeconomic conditions. Any improvement in the firm's managerial aspects is bound to improve the performance, but managers must take cognizance of the external factors that influence performance, industry, business condition and macro-environment.

C. Contributions, Limitations and Suggestions for Future Research

Based on the findings, conclusion and explanations advanced by the results, the study contributes to the existing knowledge in strategic management. Although extant literature had argued for the presence and use of a manufacturing strategy configuration in the determination of performance among firms in the developed countries [18], [42], [81] the case of Ghana [4] highlights the impact of the same determinants on firm performance but the rest of Sub –
Saharan Africa remains unexplained. The current study findings extend those earlier findings using the case of Kenya and making it possible to generalize in a similar context given that the current study findings agreed with the earlier researches. Secondly, the finding contributes towards the understanding of the measurement of the effect of strategy process (strategy crafting process) and strategy content (the selection of competitive priority and manufacturing configuration) in the developing country context. Previous researches on these dimensions of operational processes had been done in a developed country [23], [42], UK [6], [76], and developing country contexts [2], [4], [47].

The study focused on defining and delineating the construct operational processes among the manufacturing firms in Kenya and captured the manufacturing SMEs in Nairobi City County and as such generalization falls short, therefore, other studies may attempt to study the representative population of the manufacturing sector in Kenya. This is based on the fact that subsidiaries of multinational firms tend to localize their management approaches but standardize their managerial aspects.

REFERENCES


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