UDC 658.5:338.4:684 JEL Classification: L68, M11, N67 DOI: 10.15587/2706-5448.2024.310175

Jane Nasimiyu Were EVALUATING TECHNOLOGY CAPABILITY IN STRATEGY IMPLEMENTATION AND FIRM PERFORMANCE OF THE FURNITURE MANUFACTURING SECTOR IN KENYA

The object of the study is the performance of the furniture manufacturing sector in Kenya. The paper utilized descriptive and explanatory research design. The study targeted a population of 686 managerial staff and 195 CEOs in the furniture manufacturing sector. Structured questionnaires were distributed to the senior managers and a factor analysis was used to reduce the number of variables and establish the underlying constructs while analysis of moments of structures was applied to develop the theory.

Technology capability was found to explain 49 % of the variance in the firm performance. The fit indices suggested that the data was an adequate fit of the hypothesized model relating to technology capability and firm performance NFI=0.604, RFI=0.501, IFI=0.639, TLI=0.539 and CFI=0.634 with a p-value > 0.05. In addition, the study found out that technology capability and firm performance had a positive and statistically significant contribution at 0.05 level of significance. This was depicted by the significance of the standardized regression coefficient of technology capability hypothesized path (β =0.878, S.E.=0.75, C.R.=11.743, and p-value<0.05). The findings also revealed that the size and age of the firm do not moderate technology capability in strategy implementation on firm performance. This was depicted by the significance of the standardized regression coefficient of firm size and firm age hypothesized path (β =-0.171, S.E.=2.015, C.R.=-0.085 and p-value>0.05). Therefore, the alternative hypothesis that size and age have a negative moderating contribution on firm performance was rejected at 0.05 level of significance.

To enhance a firm's performance in terms of profitability and growth, it is crucial to manage and sustain technology capabilities through an effective strategy implementation process. The study not only adds value to the existing body of knowledge in strategic management practice but points out that when implementing strategy, CEOs and senior managers should consider technology capability factors to improve the firm performance.

Keywords: technology capability, strategy implementation, firm size and firm age, firm performance.

Received date: 18.07.2024 Accepted date: 31.08.2024 Published date: 31.08.2024

© The Author(s) 2024 This is an open access article under the Creative Commons CC BY license

How to cite

Were, J. N. (2024). Evaluating technology capability in strategy implementation and firm performance of the furniture manufacturing sector in Kenya. Technology Audit and Production Reserves, 4 (4 (78)), 16–24. https://doi.org/10.15587/2706-5448.2024.310175

1. Introduction

The world economy has been globalized due to technological advances, scarcity, and abundance of resources in many parts of the world, plus moving knowledge and expertise in the current knowledge-based economy. These trends pose a competitive world in doing business in many countries. Companies are engaging in a sustainable competitive approach and technology strategy to effectively manage their resources [1].

Innovation management combines internal and external resources to pursue business opportunities, enhancing the creation of new products and processes valued by stakeholders [2]. The fact that world furniture manufacturing industry has been revolutionized over the past several decades, most of the commercial and production furniture is created by large machinery, much of it automated and controlled by computer. The prevalence of high-tech machinery increases the accuracy and speed of manufacture but also removes much of the craftsmanship involved. When used well and with high-quality materials, machines can make solid and attractive furniture.

Despite the rapid technological development, the Kenyan furniture manufacturing sector suffers from a lack of raw materials and components, availability of skilled labor, low investment in technology, R&D, innovation, design, and relevant policies affecting the sector. With the rapidly increasing penetration of mobile technology and the growing popularity of online shopping, the Kenyan furniture manufacturing sector is not adapting to the changing times. Hence, technology uptake capability is considered the best way to promote the stagnating furniture manufacturing sector because value creation results in a better-balanced economic structure and increased competitiveness is the most preferred route towards import substitution and export promotion.

Rapid technological development has not been fully adopted in the Kenyan furniture manufacturing sector and this has led to low labor productivity as a result of limited training opportunities and low investment in new technologies. Technology innovation is considered the best way to promote the stagnating furniture manufacturing sector because value creation results in a better-balanced economic structure and increased competitiveness is the route towards import substitution and export promotion. The business environment is becoming more uncertain and unpredictable for both profit and non-profit organizations. Hence, managers and leaders of various firms must think, learn and act strategically [3]. An evident approach with wide-range planning techniques like the strategic management process must be adopted to adapt the environmental changes.

An organization's strategy is a plan that is implemented to achieve its objectives by conducting its operations, staking out a market position, compete successfully to attract and satisfy customers in the marketplace [4]. The central thrust of a company's strategy is the undertaking of moves to build and strengthen its long-term competitive position and financial performance by gaining a competitive advantage over rivals and being able to earn the company above-average profitability [5]. Implementing the organization's strategic plan is more important than its strategy [6]. Strategy implementation is important because failure to actualize the strategy can render opportunities lost. Sadly, the majority of the organizations that have strategic plans fail to implement them. It is noted through a review of the published literature that many organizations do not succeed in implementing more than 70 percent of their new strategic plans, and 30 percent fail to achieve anything at all [7]. Accordingly, the focus in the field of strategic management has now shifted from strategy formulation to strategy implementation. Lack of implementation creates problems in maintaining priorities and achieving organizational goals [8].

In Kenya, several past studies have mainly focused on the nexus between strategic planning practices and the performance of the firm. Only a handful of studies have focused on the influence of strategy implementation and organizational performance [9–13], and this gap requires further investigation. Empirical studies were conducted by, [14–20], and based on the literature reviewed, there is need for research to scientifically explore the contribution technology capability in strategy implementation on the performance of the furniture manufacturing firms in Kenya. This study, therefore, contributes to the body of knowledge on strategic management practice and, more specifically, strategy implementation.

Many reviewed studies focused on strategy formulation in the developed world, overlooking the developing world. Few studies examined the manufacturing sector, with none in Kenya exploring technology capability's influence on strategy implementation and the performance of the furniture manufacturing sector. The aim of this study is to evaluate technology capability in strategy implementation using the indicators of machines, knowledge and skills, tools, and research and development on the performance of the furniture manufacturing sector in Kenya with firm size and firm age as the moderating variable.

2. Materials and Methods

2.1. Theoretical Background

2.1.1. Theoretical Literature. The resource-based view was adopted for this study to explain the contribution of technology capability in strategy implementation and firm performance. The resource-based view of strategic management (RBV) theory has been introduced by [21] as being the inside-out perspective of a firm as a «pool of resources» attributing to its competitive advantage. Later on, the theory was further developed by several researchers such as [22]. Resource-based view theory is based on two assumptions; first, the heterogeneous base of firms' resources and internal capabilities, and second, their distinctiveness to encourage firms' competitive advantage via resource immobility. The RBV theory points out that firms' competitiveness even in the same industry varies based on a firm's resources and capabilities. A firm's strategic resources include tangible resources such as human, physical, technology, and financial components and intangible resources such as brand name, reputation, innovations, and knowledge. A study by the Finnish sawmills found that their success depended on both intangible (personnel, collaboration, technological know-how, reputation, and services) and tangible (raw material and geographic location) resources.

Resources in a firm can either be internal or external and may be acquired or already owned by the firm. The process through which the firm coordinates and deploys these resources will eventually affect its competitive advantage. Furthermore, as an extension of the resourcebased-view theory, have introduced a dynamic capability view to emphasize the necessity of resources to firstly, adapt to the business context and secondly, adapt to the dynamic environmental conditions to maintain a firm's sustained competitive advantage [23]. In other words, dynamic capabilities reflect firms' adaptability in responding to a rapidly changing business environment.

According to [24], leadership is crucial in using the process factors and in manipulating the internal environment to create a context receptive to change. Key issues in this model include the CEO's involvement in strategy formulation and implementation and maintaining effective communication about the project's importance. The third group includes the organizational processes that incorporate operational planning. This is the process of initiating the project and the operational planning of the implementation activities and tasks. This involves preparing and planning implementation activities, obtaining feedback from different management levels and functional areas, and considering the initial pilot project, knowledge gained, and resource procurement timeline. The second key variable in the organizational process is resource allocation which ensures that all the necessary time, technology, financial resources, skills, and knowledge are made available.

The Conceptual Framework is shown in Fig. 1.

ECONOMICS OF ENTERPRISES: ECONOMICS AND MANAGEMENT OF ENTERPRISE



Fig. 1. Moderating variables

2.1.2. Empirical literature. With the emergence of the information technology era and thanks to the internet, regardless of their size, companies may enter the global market without facing any problems [25]. These new technologies and the internet transformed even very small local markets into global markets and local players into global players. This reality caused all the bricks to fall and changed the rules of business life. In this fast-paced global market, therefore, every businessman who wants to establish a sustainable business or just wants to survive in the global business jungle must think, calculate, and act globally.

Effective technology management is essential due to rapid technological advancements, requiring a multidisciplinary approach involving shortening product life cycles, reducing development time, and creating a more flexible organization to stay competitive through responsiveness to technological changes [26]. State that technology management entails strategies set up to ensure consistent development of knowledge through research and development and application of the knowledge generated to address current issues in the diverse fields [27]. Technology management is a continuous process and leads to the discovery and development of new technologies, improvement of the understanding of technology in existing products, and better understanding of the manufacturing processes. Technology management is a key factor in accomplishing sustainable development since sustainable new technologies and innovation lie at the core of economic, social, and technological processes. Technology management is measured and tracked by indicators at different levels. In this way, priorities are set for future actions to improve management areas that are not developed enough and to achieve the overall goal of efficiency and effectiveness of technology management.

Technology and innovation management is placed at the center of policies and strategy development for firms, industries, national economies regions, and sectors. It has further, been made an objective in large and well-managed technology-based firms. This entails practices and actions that are envisioned to explore innovation and technology management toward organizational performance. Well-structured innovation and technology management practices lead to the development of organizational culture and climate that impact positively on attitudes towards innovation and technology adoption. value proposition. Incorporating customer input from the start is crucial for effective product definition. Effective cross-functional teams are essential for improving the launch system. Good innovation and technology management practices promote knowledge generation from multidisciplinary teams, leading to increased customer satisfaction.

Technology refers to knowledge, products, processes, instruments, procedures, and systems used by organizations as platforms for value creation and delivery, to create value in the form of goods and services. An organization's technological capability allows it to implement technology strategies that best fit its goals. The experience gained from implementing technology strategy feeds back into the technological capabilities which then enable the firms to improve and build core competencies to support and sustain their competitive advantage.

In a dynamic environment that characterizes business organizations, the development of technological capabilities becomes very vital to cope with the ever-changing demands of society. New and innovative technological competencies are needed for survival in a highly competitive environment.

Information technology is a crucial business function, with high expectations for future benefits including cost reduction, increased productivity, and competitive advantage. Technology has become a new competitive frontier for many organizations in the world and thus has become the area that has been explored widely by many researchers over the years. Organizations view technology in terms of computers and other information technology facilities. In the past, technology was widely deployed in organizations to assist with routine administrative and clerical jobs. Unlike in the earlier years when technology was used just as a recording and data processing tool, this perspective has changed and it is now widely acknowledged that technology is a competitive weapon with abilities to change an industry's structure. According to opportunity recognition, some people can see and realize new business strategies whereas others are not [29]. A manufacturing firm has a higher level of strategy implementation compared to an average firm and successful corporate strategy implementation is the sum of an enterprise's innovation, renewal, and venturing efforts. There have been many studies on how entrepreneurial innovation affects strategy implementation. Some empirical studies found that those enterprises that have adopted entrepreneurial innovation have exhibited superior strategy implementation. However, researchers who have found the link between entrepreneurial innovation and strategy implementation also note the paucity of empirical documentation.

Technological innovation is about the adoption of a new idea that directly influences the basic output processes, whereas administrative innovations include changes that affect the policies, allocation of resources, and other factors associated with the social structure of the organization. The created innovation leads to lower production costs, new knowledge, new products, new production processes, new working techniques, and new working procedures which in turn generate competitive advantage in the long run. The innovation factor generates value added to the organization through strategy, behavior, support, and motivating activities under 5 principles:

1) customer satisfaction (internal and external);

- 2) best practices;
- 3) teamwork;
- 4) challenging spirit;

5) the effective communication in integrating derives to achieve objectives.

According to [28], innovation and technology management practices help create unique products with a strong

From different views, invention is the narrowest definition of innovation. Product innovation, as the name suggests reflects the change in the end product or service offered by the organizations, whereas, process innovation represents changes in the way firms produce end products or services. Some researchers have categorized innovation into technological and administrative innovations [30].

In [31] identified the big components of strategy implementation. Scholars refer these to as the strategy implementer's action agenda. These elements cut across most studies on strategy implementation; resource allocation, reward systems, management or leadership drive to move forward, continuous improvement, communication, leadership role, shaping the work environment (culture), and building an organization with competencies and capabilities. The banking sector and financial institutions are currently rethinking the future success of their investment post-crisis and have come to realize that conduct, culture, and technology are vital elements of their agenda. Fresh opportunities for competitive advantage are emerging for organizations able to leap forward in key areas such as culture and technology. Hence, Kenyan furniture manufacturing firms are experiencing poor technology knowhow that is affecting the quality of the products leading to the loss of the market to imports from developed countries.

2.1.3. Firm size and firm age. The characteristics of a firm, such as its size and age, have been shown in [32, 33] to have an impact on its performance. Firm size is widely recognized as a factor that affects performance [34, 35]. The relationship between firm size and performance has been studied extensively, with mixed results, but there is generally a positive correlation between firm size and profitability [36]. As firms get older, profitability tends to decrease because costs increase, growth slows down, assets become outdated, and investment and R&D activities decrease [37].

2.1.4. Firm performance. The firm's performance hinges on profitability and sales turnover satisfaction. Business growth fundamentally entails expansion, aiming to increase the company's scale, broaden its market presence, and ultimately enhance its profitability. Key indicators to measure growth include overall sales, staffing levels, market share, and turnover [38]. Obtaining information on financial performance can be intricate due to potential non-cooperation from firm owners or unavailability of data. In [32, 33] shown that performance is a pivotal construct in management, with academic and professional efforts consistently seeking to establish correlations with firm performance, predominantly articulated in financial terms [39]. This multifaceted construct encompasses three distinct areas:

1) financial performance (profits, return on assets, and return on investment);

2) market performance (sales, market share);

3) shareholder return (total shareholder return, economic value added).

2.2. Research questions. The research questions the study sought to answer were:

1. How can leveraging technological capabilities in strategy implementation drive superior performance for furniture manufacturing firms in Kenya?

2. How do firm size and firm age affect the impact of strategy implementation on the performance of furniture manufacturing firms in Kenya?

2.3. Data and method. The study was conducted in eight counties of the furniture manufacturing sector in Kenya targeting senior-level management in strategic positions. It used descriptive and explanatory research design and collected data using quantitative and qualitative approaches. A total of 686 questionnaires were distributed, using a 5-point Likert scale with 572 received, showing a response rate of 83.3 % [32, 33]

2.4. Sample size. The study categorized the population into micro, small, medium, and large firms, ensuring a comprehensive representation. Applying Sloven's formula, the researcher identified 910 suitable respondents. From this pool, 686 respondents were selected using a probability proportional to size (PPS) method. This rigorous approach resulted in the participation of 280 furniture manufacturing firms, providing invaluable insights. Moreover, to mitigate non-response, the sample size was bolstered by 10 %, culminating in 309 participating firms. The decision to employ a 95 % confidence level reflects the standard in esteemed business research, solidifying the study's credibility. By meticulously selecting heads of departments from a finite population of 280 firms, the research design ensures robust and reliable results at a 5 % level of confidence, as per Sloven's formula:

$$n = \frac{N}{1 + N \cdot \alpha^2},\tag{1}$$

where *n* stands for the total sample size; *N* stands for the total population; $\alpha = 0.05$.

The sampling technique efficiently categorized the population into four distinct strata, reflecting the spectrum of large, medium, small, and micro firms. Each stratum was depicted through a proportional selection of managers based on the firm's size. The variables [40] of technology capability, firm size, age, and firm performance were meticulously analyzed using a Likert scale, ensuring comprehensive insight. Rigorous validation and reliability checks were conducted, employing methodologies such as Cronbach's alpha coefficient. Additionally, advanced statistical techniques including factor analysis and principal component analysis were utilized to extract meaningful insights [32, 33], and streamline the data points into more coherent constructs. The analysis of moments of structures further reinforced the measurement and structural model, contributing to the formulation of a robust theory. Stringent assessments for multicollinearity, multivariate normality, and homoscedasticity were also executed, ensuring the validity and integrity of the research findings.

3. Results and Discussion

3.1. Results. The research data was summarized using frequencies and percentages to capture the biographic characteristics of the respondents while descriptive statistics were used to summarize the characteristics of the variables. From Table 1, the respondents were male, female, and intersex. This implies that males dominate the furniture manufacturing sector in Kenya. The age of the respondents ranged from 20 years to over 60 years and this implies that the majority of the senior managers are in their mid-ages. The level of education holders indicates that the majority are secondary and diploma certificate holders. Education levels affect management practices hence the higher the education level

ECONOMICS OF ENTERPRISES: ECONOMICS AND MANAGEMENT OF ENTERPRISE

attained by the managers the more it is assumed that they can make better decisions to grow the business. Designated positions comprised senior-level management, middle-level management, and operational-level management of the firm. The literature and real-life experience have it that the CEOs or their representatives are the chief architects of strategies in organizations. This implies that data was collected data from the right sources as presented in Table 1.

Respondents' characteristics

Table 1

Demographic Characteristics	Categories	Frequency	Percentage %	
Sex	Males	465	81.27	
	Females	90	15.72	
	Intersex Total	17 572	3.004 100	
	Under 20 years	11	2.0	
	21-25 угз.	50	8.9	
	26–30 yrs.	78	14.0	
	31—35 угз.	86	15.4	
	36—40 yrs.	104	18.6	
Age	41-45 yrs.	98	17.5	
	46–50 yrs.	73	13.1	
	51-55 yrs.	51	9.1	
	56—60 yrs.	7	1.3	
	Over 60 yrs. Total	1 572	0.2 100	
Highest level of education	Postgraduate	28	3.887	
	Undergraduate	86	14.94	
	Diploma	181	31.63	
	Secondary certificate	201	35.16	
	Primary certificate Total	85 572	14.84 100	
	Senior level management	213	37.6	
Designated	Middle-level management	202	35.7	
positions	Operational level Total	151 572	26.7 100	

3.2. Individual construct reliability. The Structural Equation Method (SEM) was used to answer the study objective of evaluating the influence of technology capability in strategy implementation on firm performance by extracting the relevant set of factors through factor analysis based

on factor loadings. The extracted factors were then used to determine the reliability of the components of the retained models for both the independent and dependent variables. The SEM model allowed for the performance of several diagnostic tests to ensure that the basic assumptions underlying the relevance of the data and the model used were not violated. From Table 2, the construct of technology capability in strategy implementation was construed using 16 items on a 5-point Likert scale. The reported reliability for these items was Cronbach's alpha value of 0.605 which passed the threshold value of 0.6. The KMO test statistic reported a value of 0.798 (Chisquare 1449.907) and Bartlett's test of Sphericity and had a p-value of 0.000 which was less than 0.05. The Test for firm size and firm age was estimated using 8 items and had a KMO value of 0.796 and (Chi-square 980.155) Bartlett's test of Sphericity and a p-value of 0.000 which was less than 0.05 [41]. The construct of firm performance was constituted using 14 items and a KMO value of 0.785 (Chi-square 1455.842), Bartlett's, and a p-value of 0.000. The cut-off value for tolerance is not less than 0.01 while the Variance Inflation Factor is not more than the value of 10.

The tolerance values for technology capability ranged from a minimum of 0.236 to a maximum of 0.779. For firm size and firm age, the tolerance values ranged from a minimum of 0.216 to a maximum of 0.635. The tolerance values for firm performance ranged from a minimum of 0.216 to a maximum of 0.846.

Regarding variance inflation factor scores, technology capability had a minimum score of 1.284 and a maximum score of 4.233. For firm size and firm age, the scores ranged from a minimum of 0.574 to a maximum of 4.635. Meanwhile, the variance inflation factor scores for firm performance ranged from a minimum of 1.182 to a maximum of 4.635. All scores were within the acceptable range of values. A Likert scale used was and rated from 1-5where: strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). The results are presented in Table 2.

After subjecting the technology capability variables to principal component analysis, it emerged with four themes. The technology capability had Eigenvalues of 3.720 and 1.030 and a cumulative variance of 49 %. The firm size and firm age had Eigenvalues of 3.006 and 1.169 and a cumulative variance of 60 %. The firm performance had Eigenvalues of 3.615 and 1.002 for the themes and a cumulative variance of 56 %. This implies that four indicators of technology capability accounted for 49 % variance while two indicators of firm size and firm age accounted for 60 % variance and four indicators of firm performance accounted for 56 % variance (Table 3).

Variable characteristics and factor analysis for technology capability and firm size and firm age on firm performance

Table	2

Variables	KMO	Bartlett's	N	Approx. Chi-square	Df	Cronbach's Alpha	Tolerance	VIF
Technology capability (TC)	0.798	0.000	16	1449.907	105	0.605	Min 0.235 Max 0.779	Min 1.284 Max 4.233
Firm size and firm age (FS&FA)	0.796	0.000	8	980.155	21	0.582	Min 0.216 Max 0.635	Min 1.574 Max 4.635
Firm performance (FP)	0.785	0.000	14	1455.842	78	0.515	Min 0.216 Max 0.846	Min 1.182 Max 4.635

_____ 20

Table 3

Component	Initial eigenvalues			Rotation sums of squared loadings			
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	
Technology							
TCTheme1	3.720	24.799	24.799	2.358	15.721	15.721	
TCTheme2	1.441	9.609	34.408	2.171	14.472	30.192	
TCTheme3	1.191	7.942	42.350	1.809	12.061	42.254	
TCTheme4	1.030	6.865	49.215	1.044	6.962	49.215	
Size and Age							
S Theme 1	3.006	42.937	42.937	2.380	34.006	34.006	
A Theme 2	1.169	16.697	59.633	1.794	25.627	59.633	
Firm Perf.							
FPTheme1	3.615	27.809	27.809	2.535	19.499	19.499	
FPTheme2	1.493	11.485	39.295	2.022	15.556	35.055	
FPTheme3	1.201	9.239	48.533	1.396	10.736	45.791	
FPTheme4	1.002	7.704	56.237	1.358	10.447	56.237	

Total variance explained of technology capability, firm size, and firm age on firm performance

3.3. Findings of research questions. To answer the technology capability strategy questions, the study carried out several operations to transform the data through the application of the Structural Equation Modeling (SEM) model that requires one to perform several procedures. These original data were screened to remove multivariate outliers by examining the Mahalanobis distances. 122 outliers were removed out of 572 cases and 450 remaining cases were reasonable and within the acceptable range for a researcher to generalize the findings [42]. KMO and Bartlett's Test for factor analysis was carried out to reduce the items of technology uptake and was construed to use 16 items to identify the suitable measure and had a value of 0.798 and Chi-square 1449.907, p < 0.000. The p-value was less than 0.05 and this result confirmed that the construct of technology uptake could be factor analyzed [41, 43, 44].

3.3.1. Factor analysis rotated component matrix for technology capability. Based on the rotated component matrix, the four themes could be used to create the summated index.

The first theme, which focuses on the firm promoting strong use of technology to integrate key functions, had the highest factor loading of 0.793. The second statement, which involves the firm conducting research to identify new markets, had a factor value of 0.743. Finally, the third statement, which pertains to the firm supporting the exchange of knowledge amongst the different departments, had a factor value of 0.719.

Theme two: the statement that the firm updates and improves the ICT systems had the highest factor loading of 0.801 while the statement that the firm has a technology audit committee to review the technology loaded a factor value of 0.697.

The third theme: the statement that the firm has adequate tools that enable employees to work well had a factor loading of 0.652 while the statement that the firm applies the knowledge into products and processes to operate the technology had a factor value of 0.623.

Theme four: the statement that the firm's level of technology has greatly assisted in implementing strategies had a factor value of 0.775.

3.3.2. Factor analysis rotated component matrix for firm size and firm age. The study found that two themes could be used to create a summated score of firm size and firm age. In the rotated component matrix, for the firm size index, «enjoyed economies of scale» had the highest factor loading of 0.857, and «high sales growth» had the lowest factor loading of 0.679.

Other statements that the firm is more flexible and actively seeking market opportunities had a factor loading of 0.825. Theme two of firm age, the statement that the firm benefits from experience and reputation had the highest factor loading of 0.776 while the statement that the firm's total assets have increased over the last five years was the lowest with a factor loading of 0.658.

3.3.3. Factor analysis rotated component matrix for firm performance. The study found that four themes could be used to create a summated score of firm performance. Based on the rotated component matrix the four themes extracted were: the statement that the quality of the products has improved tremendously had the highest factor loading value of 0.804 while the statement that the firm has sufficient cash flow from operations had the lowest factor loading of 0.627. Other statements that the firm's capital investment influences the firm's performance had a factor loading of 0.797 and the firm had launched new products in the last five years had a factor loading of 0.626. These two statements of the firm's new customer acquisition have been on the rise was the highest and had a factor loading of 0.694 while the statement that the firm has reduced defect rate was the lowest with a factor loading of 0.643. Theme three the statement that the market share has been increasing had a factor loading of 0.721. Theme four; the statement that the firm is satisfied with the returns from the investment of the assets had a factor loading of 0.744.

3.4. Model fit statistics. The study found that technology capability in strategy implementation and firm performance had a positive and statistically significant contribution at 0.05 level of significance without being moderated by the size and age of the firm. This was depicted by the significance of the standardized regression coefficient of the technology capability hypothesized path (β =0.88, S.E.=0.075, C.R.=11.743 and *p*-value<0.05).

The results show that technology capability in strategy implementation has a positive and statistically significant impact on firm performance at the 0.05 level of significance. Additionally, the hypothesis that firm size and firm age negatively contribute to strategy implementation and firm performance was not supported at the 0.05 level of significance (β =-0.171, S.E.=2.015, C.R.=-0.085 and *p*-value=0.932>0.05). Therefore, a unit increase of technology capability leads to 0.88 increase in firm performance as presented in Fig. 2.

3.5. Discussions. The study evaluated the influence of technology capability in strategy implementation on the performance of the furniture manufacturing sector in Kenya. The constructs used in the test of the hypothesis stated that technology capability influences positively and statistically significant in strategy implementation on firm performance. The technology capability constructs integrated machines, knowledge and skills, tools and research and development. The four themes examined were considered critical for the sector under study.

The machine's variables reported that strong technology capabilities integrate key functions like finance and marketing within the firm and involve researching new markets and exchanging knowledge among different departments to support strategy implementation programs.

IT in business enables the firm to become more productive, by streamlining communications and enhancing managerial decision-making to improve customer experience. In [45] reported that no matter the size of the firm, technology has both tangible and intangible benefits that meet customer expectations and demands. The sub-themes extracted from knowledge and skills were updating and improving the ICT systems and technology audit committee. In [46] underscored the importance of information technology in implementing Customer Relationship Management (CRM) strategy and reported a positive contribution between information technology and strategy implementation. The technology audit committee to review the technology is responsible for overseeing the process of identifying and addressing financial reporting risks that may include cyber risks. In [34] reported that understanding IT as a business driver is important for the audit committee to properly gauge risks. This includes assessing the role and importance of IT in the company's strategy and the primary business by tailoring the information requirements to effectively govern the processes and procedures.

The sub-themes extracted from the tools were that the adequacy of tools and application of knowledge enable the employees to work well. Having the right tool is imperative to the successful completion of the task at hand. In addition, the right tools allow employees to complete their tasks efficiently by providing opportunities to expand their range of skills and capabilities. In [47] reported that technology had the highest influence on the manufacturing SME firms' performance and confirmed that technology is a vital dynamic capability required by all manufacturing firms to attain superior performance. The applications of firm knowledge facilitate the production of products and services by ensuring the control and consistency of outcomes. In IBM South Africa, reported that the alignment of information technology was one of their top three challenges in strategy implementation [48]. Understanding how information technology influences strategy implementation is vital and it allows organizations to better align technology to drive their strategies. In [49] reported that technological innovation is the combination of knowledge techniques and management skills from different areas and by strengthening them, the company can build organizational competitiveness.



Fig. 2. Structural model for technology capability

Sub-theme extracted from research and development reported that the level of technology assists in implementing strategies. In [27] reported that technology management guides the consistent development of knowledge through research and development and the application of the generated knowledge to address current issues in diverse fields.

The sub-themes extracted from firm size and firm age were economies of scale, flexibility in seeking market opportunities, and high sales growth. Firm age was experience and reputation, increased assets and cannot moderate the contribution of strategy implementation on firm performance. This implies that all firms whether young, small, or large engage and participate in the strategy implementation. Any firm can succeed in the strategy implementation process so long as proper attention is given to machines, knowledge and skills, tools, and research and development.

The firm's performance shows improved product quality, influenced by capital investment leading to new product launches. There is sufficient cash flow from operations, with increased customer acquisition and reduced product defect rates. Increased market share supports a satisfactory return on assets if the strategy implementation process is effectively managed through technology capability by the furniture manufacturing firms.

Theoretical implications: Although this study provides original insights into the evaluation of technology capability in strategy implementation on furniture manufacturing firm's performance, it is also opening avenues for further research. The study contributes to the theory by pointing out that, the four drivers of technology capability can be best explained by resource-view theory, systems theory, competency theory, and strategy implementation frameworks.

Practical implications: The study contributes to the practice by pointing out that technology capability has a significant statistical relationship with the firm performance. This is an indication that when implementing strategy, CEOs and senior managers should consider these factors to improve firm performance.

Originality/Value: This study is unique in the sense that it provides an expansion of the conceptualization of the technology capability framework. Future studies will build on the research findings of this study.

The study findings were solely based on the manager's/ owners' views, and therefore, more studies should incorporate other stakeholders namely consumers, suppliers, and dealers. The study was only based on furniture manufacturing firms in eight counties and therefore, the generalizability of the finding could be limited to only the eight Counties. Thus, more studies should be carried out to include other Countries making the study more/national/international.

4. Conclusions

The study concluded that to enhance firm performance in the furniture manufacturing sector, the CEOs and managers need to pay attention to machines, knowledge and skills, tools, and research and development when implementing business strategy. Providing a clear direction of how the strategy implementation process can be improved and create a competitive advantage in the sector, requires the managers to constantly monitor, evaluate, and adjust their strategic initiatives in response to the rapid technological advancements in the industry. The study findings were solely based on the manager's/owners' views. Thus, more studies should incorporate other stakeholders namely consumers, suppliers, and dealers to present more objectivity in the findings and since the study was only based on the furniture manufacturing firms in eight counties, the generalizability of the findings could be limited to eight counties. To compensate, a recommendation for future comparative studies to be undertaken in this important sector of the economy worldwide.

Acknowledgments

Sincerely grateful for the valuable advice of my doctoral thesis advisors Dr Kellen Kiambati, Prof. Levi Mbugua, and Prof. Dominic Mwenja.

Conflict of interest

The author declares that she has no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this paper.

Financing

There was no external support for this study.

Data availability

There is no data associated with the manuscript.

Use of artificial intelligence

The author confirms that artificial intelligence technologies were not utilized in the creation of the current work.

References

- Alkatheeri, H. B., Jabeen, F., Mehmood, K., Santoro, G. (2021). Elucidating the effect of information technology capabilities on organizational performance in UAE: a three-wave moderated-mediation model. *International Journal of Emerging Markets*, *18 (10)*, 3913–3934. https://doi.org/10.1108/ijoem-08-2021-1250
- Silva, J. J. da, Cirani, C. B. S. (2020). The capability of organizational innovation: systematic review of literature and research proposals. *Gestão & Produção*, 27 (4). https://doi.org/ 10.1590/0104-530x4819-20
- Almajali, D. A., Masa'deh, R., Tarhini, A. (2016). Antecedents of ERP systems implementation success: a study on Jordanian healthcare sector. *Journal of Enterprise Information Management*, 29 (4), 549–565. https://doi.org/10.1108/jeim-03-2015-0024
- Alenezi, H., Tarhini, A., Sharma, S. K. (2015). Development of quantitative model to investigate the strategic relationship between information quality and e-government benefits. *Transforming Government: People, Process and Policy, 9 (3)*, 324-351. https://doi.org/10.1108/tg-01-2015-0004
- Obeidat, B. Y., Al-Hadidi, A., Tarhini, A., Masa'deh, R. (2017). Factors affecting strategy implementation. *Review of International Business and Strategy*, 27 (3), 386–408. https://doi.org/ 10.1108/ribs-10-2016-0065
- Balarezo, J., Nielsen, B. B. (2017). Scenario planning as organizational intervention: an integrative framework and future research directions. *Review of International Business and Strategy*, 27 (1), 2–52. https://doi.org/10.1108/ribs-09-2016-0049
- Miller, S., Wilson, D., Hickson, D. (2004). Beyond planning: strategies for successfully implementing strategic decisions. *Long Range Planning*, 37 (3), 199. https://doi.org/10.1016/j.lrp.2004.03.008
- Obeidat, B. Y., Al-Suradi, M. M., Masa'deh, R., Tarhini, A. (2016). The impact of knowledge management on innovation: An Empirical Study on Jordanian Consultancy Firms. *Mana*gement Research Review, 39 (10), 1214–1238. https://doi.org/ 10.1108/mrr-09-2015-0214

- Awino, Z. B., Wamalwa, R. W., Imaita, I., K'Obonyo, P. (2013). Challenges facing the implementation of the Differentiation Strategy at Mumias Sugar Company Limited. *Prime Journal of Business Administration and Management (BAM)*, 1 (12), 58–67.
- Gakure, R., Amurle, G. (2013). Strategic planning practices in ICT SMEs in Kenya: What other SMEs can learn. *Prime Journal of Social Sciences*, 2 (6), 336-349.
- Gathogo, G., Ragui, M. (2014). Effects of Capital and Technology on the Performance of SMEs in the manufacturing sector in Kenya. Case of selected firms in Thika Municipality. *European Journal of Management and Science*, 6 (7), 308–311.
- 12. Kiganane, L., Bwisa, H., Kihoro, J. (2012). Assessing the influence of firm characteristics on the effect of mobile phone services on firm performance: A case study of Thika Town in Kenya. *International journal of economics and management sciences*, 1 (10), 12–22.
- Mosoti, Z., Kamau, M. (2014). Assessing the Implication of Strategic Planning on Performance of Small Sized Organizations: A Case Study of Small Enterprises in Thika Town. *Journal of Research in Business and Management*, 2 (3), 1–13.
- Adupong, R. (2011). Strategies for the Protection and Promotion of Local Manufactured Furniture in Ghana. *Commissioned by* the Wood Workers Association of Ghana-Western Region (WWAG-WR) for the Busac Project, 31.
- 15. Abinom, G. S. (2015). Value Chain Analysis of Chip Wood and Furniture Companies: The Case of Ethiopian Chip Wood and Furniture Share Company (Ecafco S.C). Available at: https://figshare. com/articles/thesis/Value_chain_analysis_of_chip_wood_and_furniture_companies_the_case_of_Ethiopian_Chipwood_and_Furniture_Share_Company_ECAFCO_S_C_/26459923?file=48108973
- 16. Hareebin, Y., Aujirapongpan, S., Siengthai, S. (2018). Creating sustained strategic capabilities through organizational dynamic capabilities and strategies: A case study of rubber wood export industry in Thailand. Asian Academy of Management Journal, 23 (1), 117–150. https://doi.org/10.21315/aamj2018.23.1.6
- Hansen, M. T., Birkinshaw, J. (2014). The innovation value chain. Harvard Business Review, 85 (6), 121.
- Hansen, E., Nybakk, E., Panwar, R. (2014). Innovation Insights from North American Forest Sector Research: A Literature Review. *Forests*, 5 (6), 1341–1355. https://doi.org/10.3390/f5061341
- Wan, M., Lähtinen, K., Toppinen, A. (2015). Strategic transformation in the value-added wood products companies: Case study evidence from China. *International Journal of Emerging Markets*, 10 (2), 224–242. https://doi.org/10.1108/ijoem-09-2012-0107
- 20. Vukmirović, V., Petrović, D., Kostić-Stanković, M. (2017). Strategic management and its effects on Serbian wood industry. Management: Journal of Sustainable Business and Management Solutions in Emerging Economies, 22 (3), 37. https://doi.org/ 10.7595/management.fon.2017.0027
- Penrose, E. T. (1959). The Theory of the Growth of the Firm. New York: John Wiley.
- 22. Grant, R. M., Verona, G. (2015). What's holding back empirical research into organizational capabilities? Remedies for common problems. *Strategic Organization*, 13 (1), 61–74. https://doi.org/ 10.1177/1476127014565988
- Teece, D. J. (2014). A dynamic capabilities-based entrepreneurial theory of the multinational enterprise. *Journal of International Business Studies*, 45 (1), 8–37. https://doi.org/10.1057/jibs.2013.54
- 24. Okumus, F. (2003). A framework to implement strategies in organizations. *Management Decision*, 41 (9), 871–882. https:// doi.org/10.1108/00251740310499555
- **25.** Aslan, M., Pamukcu, A. (2017). Managerial competencies and impact on management levels. *International Journal of Advanced Research in Management and Social Sciences*, 6 (9).
- 26. Pervan, M., Pervan, I., Ćurak, M. (2017). The Influence of Age on Firm Performance: Evidence from the Croatian Food Industry. Journal of Eastern Europe Research in Business and Economics, 1–9. https://doi.org/10.5171/2017.618681
- 27. Kalko, M. M., Erena, O. T., Debele, S. A. (2022). Technology management practices and innovation: Empirical evidence from medium- and large-scale manufacturing firms in Ethiopia. *African Journal of Science, Technology, Innovation and Development*, 15 (1), 107–123. https://doi.org/10.1080/20421338.2022.2040828
- 28. Han, J., Park, C. (2017). Case study on adoption of new technology for innovation. Asia Pacific Journal of Innovation and Entrepreneurship, 11 (2), 144–158. https://doi.org/10.1108/ apjie-08-2017-031

- 29. Zahra, S. A., Garvis, D. M. (2000). International corporate entrepreneurship and firm performance: The Moderating Effect of International Environmental Hostility. *Journal of Business Venturing*, 15 (5-6), 469–492. https://doi.org/10.1016/s0883-9026(99)00036-1
- 30. Bi, K., Huang, P., Wang, X. (2016). Innovation performance and influencing factors of low-carbon technological innovation under the global value chain: A case of Chinese manufacturing industry. *Technological Forecasting and Social Change*, 111, 275–284. https://doi.org/10.1016/j.techfore.2016.07.024
- Wheelen, T., Huger, J. (2016). Concepts in Strategic management and Business policy. Boston: Pearson/Prentice Hall.
- 32. Were, J. N. (2021). Innovation Capability Strategy and Firm Performance in The Furniture Manufacturing Sector in Kenya. *Journal of Economics, Business, & Accountancy Ventura, 24 (2),* 233–245. https://doi.org/10.14414/jebav.v24i2.2735
- 33. Were, J. (2022). Managerial Competencies and Firm Performance in the Furniture Manufacturing Sector in Kenya. European Journal of Management Issues, 30 (1), 25–35. https://doi.org/10.15421/192203
- Hu, L., Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6 (1)*, 1–55. https://doi.org/10.1080/10705519909540118
- 35. Yasuda, T. (2005). Firm Growth, Size, Age and Behavior in Japanese Manufacturing. *Small Business Economics*, 24 (1), 1-15. https://doi.org/10.1007/s11187-005-7568-y
- Al Nawaiseh, M. A. L. I. (2020). The Effect of Firm's Age, Size and Growth on Its Profitability: Evidence from Jordan. *European Journal of Business and Management*. https://doi.org/ 10.7176/ejbm/12-5-10
- Loderer, C., Stulz, R., Waelchli, U. (2017). Firm Rigidities and the Decline in Growth Opportunities. *Management Science*, 63 (9), 3000–3020. https://doi.org/10.1287/mnsc.2016.2478
- Rylkova, Z. (2015). Measurement of organizational performance about competitors. *Economics and Management*, 7 (2), 13–19. https://doi.org/10.12846/j.em.2015.02.02
- Barnat, R. (2019). Tools for developing organizational strategies. *Introduction to Management*.
- 40. Watkins, M. W. (2018). Exploratory Factor Analysis: A Guide to Best Practice. *Journal of Black Psychology*, 44 (3), 219–246. https://doi.org/10.1177/0095798418771807
- Field, A. P. (2017). Discovering statistics using SPSS. London: Sage Publications.
- Kline, R. (2011). Principles and Practices of Structural Equation Modelling. New York: The Guilford Press.
- 43. Bartlett, M. S. (1954). A Note on the Multiplying Factors for Various χ² Approximations. *Journal of the Royal Statisti*cal Society Series B: Statistical Methodology, 16 (2), 296–298. https://doi.org/10.1111/j.2517-6161.1954.tb00174.x
- 44. Kaiser, H. F. (1974). An index of factorial simplicity. Psychometrika, 39 (1), 31–36. https://doi.org/10.1007/bf02291575
- 45. Krume, N. (2012). The Role of Information Technology in the Business Sector. International Journal of Science and Research, 3 (12), 303-309.
- 46. Chung, Y. C., Hsu, Y. W., Tsai, S. C., Huang, H. L., Tsai, C. H. (2012). The correlation between Business Strategy, Information technology, Organizational Culture, Implementation of CRM, and Business Performance in a high-tech Industry. *South African Journal of Industrial Engineer*, 23 (2). https:// doi.org/10.7166/23-2-326
- Kihara, P., Bwisa, H. M., Kihoro, J. M. (2016). The Role of Technology in Strategy Implementation and Performance of Manufacturing Small and Medium Firms in Thika, Kenya. *International Journal of Business and Social Science*, 7 (7), 156–164.
 Kappelman, L., Mclean, E., Johnson, V., Gerhart, N. (2014).
- Kappelman, L., Mclean, E., Johnson, V., Gerhart, N. (2014). The 2014 SIM IT Key Issues and Trends Study. *MIS Quarterly Executive*, 13, 237–263.
- 49. Guan, J. C., Yam, R. C. M., Mok, C. K., Ma, N. (2006). A study of the relationship between competitiveness and technological innovation capability based on DEA models. *European Journal* of Operational Research, 170 (3), 971–986. https://doi.org/ 10.1016/j.ejor.2004.07.054

Jane Nasimiyu Were, PhD, School of Business Administration, California Miramar University, Nairobi, Kenya, ORCID: https:// orcid.org/0000-0002-1180-8633, e-mail: nasiwere2013@gmail.com