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INFLUENCE OF STRATEGIC CAPABILITIES ON PERFORMANCE OF TERTIARY LEARNING INSTITUTIONS IN COAST REGION OF KENYA

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ABSTRACT

The purpose of the study was to establish the influence of strategic capabilities on the performance of tertiary learning institutions in the Coast Region of Kenya. As such, it was limited to four independent variables: strategic personnel capability, strategic information technology, strategic network capability and strategic innovation capability. This study was guided by four theories; the Human Capital Theory, the Resource-Based View, the Strength of Weak Ties Theory and; the Intellectual Capital Theory. Descriptive survey research design was adopted for the study which used a quantitative primary data obtained through the questionnaire administered to 120 respondents at the management level in the Tertiary Learning Institutions in Kenya. Data was analyzed using both descriptive and inferential statistical analysis. The study established that Personnel Capability, Information Technology Capability, Network Capability, Innovation Capability all significantly performance of the Tertiary education institutions in the Coastal Region of Kenya. Institutions with well-educated, skilled, and experienced staff achieved higher levels of operational efficiency, innovation, and competitiveness. Institutions that effectively integrated IT infrastructure, governance systems, and digital learning platforms achieved greater efficiency, transparency, and competitiveness. Institutions that maintained strong linkages, strategic partnerships, and effective stakeholder collaborations exhibited superior performance in resource mobilization, innovation, and academic excellence. The study recommended that tertiary learning institutions strengthen their human resource development frameworks by institutionalizing continuous professional training, mentorship programs, and structured competency assessments. Tertiary institutions strengthen their IT infrastructure and governance systems by investing in integrated digital platforms that enhance collaboration, transparency, and real-time monitoring. Tertiary institutions strengthen network capability through strategic partnerships with academia, industry, and government. Tertiary learning institutions should strengthen innovation management systems by promoting staff creativity, investing in research, and integrating technology across academic and administrative processes.

Key Words: Personnel Capability, Information Technology Capability, Network Capability, Innovation Capability

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INTRODUCTION

Governments are increasingly understanding that the entire educational system, from early childhood through tertiary education, must reflect the new social and economic needs of the global knowledge economy, which increasingly demands a better-trained, more skilled, and adaptable workforce (World Bank, 2019). Tertiary education which refers to all formal post-secondary education, including public and private universities, colleges, technical training institutes, and vocational schools has, therefore, come into focus. Tertiary education benefits not just the individual, but society as a whole. Consequently, tertiary education has not only become an individual imperative but also a national development discourse (Alam & Forhad, 2022). Tertiary technical and vocational education and training can provide an effective and efficient complement to traditional university studies in providing students with skills and knowledge relevant to the labor market.

Present day organizations find themselves operating in an increasingly complex and competitive world. Basically, everything in the world is evolving chief among them technology which is changing at an unprecedented pace. The policy environment and the customer demands are also rapidly evolving placing huge delivery demands on organizations. In the tertiary education sector, for example, enrolment in tertiary education today has more than doubled. There are around 220 million tertiary education students in the world, up from 100 million in the year 2000 underscoring the growing importance of tertiary education. Tertiary education institutions must, therefore, increase their capacity and strategic capabilities in order to match this development and deliver quality education.

Strategic capability refers to a business' ability to harness all its skills, capabilities and resources in order to gain competitive advantage, and thus survive and increase its value over time. Strategic capability includes resources and competences that an organization utilizes to compete in its business environment. It can therefore constitute a firm's strengths and weaknesses, and be a source of competitive advantage or disadvantage over its rivals. Chen et al., (2021) assert that the capabilities of a firm allow it to daily operate, grow, adapt to changes and to achieve a competitive advantage in the industry. On the other hand, Eshima and Anderson (2017) viewed strategic capabilities as the ability of the firm that allows it to grow and survive in the marketplace as affected by the firm's competences and resources. Afzal and Lim (2022) observed that capabilities mainly refer to skills or resources that help the firm prosper and get ahead of their competition.

Performance can be described as an umbrella term for all concepts that consider the success of a firm and its activities. Kerzner (2022) defined performance as the achievement of results ensuring the delivery of desirable outcomes for a firm's stakeholders. Organizational performance contextualizes performance to the organization setting and is, therefore, defined as the ability of the organization to meet set targets for production and profit as well as development and growth envisioned by the Leader/Founder. Achievement of goals/objectives like maximum profit, good quality product, increased share in the market, profitable financial results and an effective strategy for development and growth form part of organizational performance (Nyathi & Kekwaletswe, 2023). Organizational performance also refers to standing of the organization in relation to other organizations in terms of profit earned by the organization during a period, quality of its product in comparisons with others, and captured market share in that Industry. Organizational performance, however, is more of a survival and profitability of an organization.

Different organizations view performance differently depending on their objectives, structures and missions. This, therefore, makes the measurement of organizational performance to be different across organizations. However, there are four main dominant approaches in assessing organizational performance, these are; the Goal Approach, the Systems Resource Approach, the Constituency Approach and the Competing Values Approach (Sharma & Singh, 2019; Vlachou et al., 2023). In the Goal Approach, it is argued that people create organizations for a specific purpose which is determined by the stakeholders, and organizational performance is, therefore, the ability of the organization to achieve the goals of the stakeholders. The Systems Resource Approach explores the relationship between the organization and the environment and an

organization is performant and effective it it takes advantage of its environment in the acquisition of high value and scarce resources to endorse its operations. In terms of the Constituency Approach, Yadav, Pandita and Singh (2022) asserts that organizations with more control over resources are likely to have more influence over performance. Finally, the Competing Values Approach posits that organizations may have different criteria to measure performance and stakeholders support the adaptability of their organizations, they prefer them to be flexible, stable and effective. Therefore, as expected, performance measurement will vary by context.

Accrding to Bedford, Bisbe and Sweeney (2019), performance measurement as one of the tools which help firms in monitoring performance, identifying the areas that need attention, enhancing motivation, improving communication and strengthening accountability. In general, performance can be measured taking into consideration two types of performance: financial performance and non-financial performance (Mio, Costantini & Panfilo, 2022). Measures of performance, thus, may include revenue earned, net profit, reputation, growth and development etc. Performance is equivalent to the famous 3Es, that is, economy, efficiency, and effectiveness of a certain program or activity (Wahyudin et al., 2021). Performance measurement is critical both in service as well as manufacturing sector (Nagariya et al., 2022; Zanon et al., 2021). Awino (2021) asserts that for an organization to be successful it has to record high returns and identify performance drivers from the top to the bottom of the organization.

Statement of the Problem

Tertiary education institutions are viewed by countries around the world as engines for accelerating growth through human capital development needed for knowledge-based economies and bridging the technical skill gap. Therefore, governments are making significant investments in the Tertiary education sector so as to increase their international competitiveness. However, several challenges still face the Tertiary institutions among them increased competition from other HEIs like universities, poor industry-institution linkages that results in institutions producing graduates who are not industry ready, resource limitations, and funding among other challenges (Agumbi, 2013; Yego, 2016). The challenges in public TVETs are even more pronounced as the funding envelope is often constrained, most of them do not have adequate infrastructure and equipment to support the teaching of the national competency-based curriculum. Many instructors have not received appropriate training to teach technical skills. As a result, compared to private Tertiary education institutions, public Tertiary education institutions have lower enrolment rates and have poor confidence ratings among the students and their parents.

Further, an evaluation report of the Performance of Ministries, State Corporations and Tertiary Institutions for the Financial Year 2019/2020 (GoK, 2020) revealed that tertiary education institutions performed below average and in all cases their performance lagged behind Ministries and State Corporations. For instance, in terms of performance on Absorption of Allocated Funds (GoK) based on actual expenditure at the close of the Financial Year against total receipts, the average absorption rate for the 366 Ministries Directories and Agencies (MDAs) was 87.41%. Tertiary Institutions was 83.36 % which was below average and also lagged behind State Corporations (89.23%) and Ministries (90.59%). Evaluation of performance on Absorption of Externally Mobilized Funds also revealed that Tertiary Institutions (66.67%) performed below the MDAs average absorption rate of 79.73% and also behind State Corporations (83.47%). Also, in terms of the Core Mandate performance criterion, the tertiary education institutions (54.62%) still lagged behind the Ministries (70.84%) and State Corporations (55.76%) in performance. The average Project Completion Rate based on the commitments in the Performance Contracts was 69.82%, 79.04% and 65.09% for Ministries, State Corporations and Tertiary Institutions respectively.

Therefore, the imperative is for the public Tertiary education institutions to leverage their strategic capabilities in order to gain and retain a competitive position in the tertiary education sub-sector. Among these are technologies, personnel, innovation, social networks and finance. Information technology and human capital

are the key factors that lay the foundation for the achievement of improved performance by an organization (Pattanayak, 2020). The strategic capabilities developed and achieved through and after the challenges is key to the survival and competitiveness of sectors and industries within the economies. Existing studies, however, suggest that strategic management in many tertiary learning institutions in Kenya is still not optimally developed and this has led to low performance of the institutions as evidenced by low enrolment, poor financial management, shortages of staff and lecturers and academic performance of learners ((Kariuki et al., 2021; Kwanya et al., 2020; Nderitu et al., 2021).

Few studies have, however, examined the strategic capabilities of the Tertiary education institutions in Kenya, that is, King'oo (2020) and Endende, Kwasira and Makhamara (2022). King'oo (2020), however, exclusively focused on private universities in Kenya. Therefore, the scope of the study limited its application to public Tertiary education institutions such as TVETs. Endende et al., (2022) focused knowledge creation capabilities and employee performance in TVETs. However, other strategic capabilities were not considered. Hence, there is very limited empirical information regarding the impact of strategic capabilities and performance of tertiary learning institutions in Kenya. The study, therefore, examined the influence of strategic capability on the performance of tertiary learning institutions in Coastal Region of Kenya.

Research Objectives

The general objective of the study was to establish the influence of strategic capability on the performance of tertiary learning institutions in Coastal Region of Kenya. The specific objectives;

- To assess the influence of personnel capability on the performance of tertiary learning institutions in Coastal Region of Kenya
- To establish the influence of information technology capability on the performance of tertiary learning institutions in Coastal Region of Kenya
- To determine the influence of network capability on the performance of tertiary learning institutions in Coastal Region of Kenya
- To establish the influence of innovation capability on the performance of learning institutions in Coastal Region of Kenya

The study hypothesis

- **H₀₁:** Personnel capability has no significant influence on the performance of tertiary learning institutions in Coastal Region of Kenya
- **H₀₂:** Information technology capability has no significant influence on the performance of tertiary learning institutions in Coastal Region of Kenya
- **H₀₃:** Network capability has no significant influence on the performance of tertiary learning institutions in Coastal Region of Kenya
- **H₀₄:** Innovation capability has no significant influence on the performance of tertiary learning institutions in Coastal Region of Kenya

LITERATURE REVIEW

Theoretical Framework

Human Capital Theory

The Human Capital Theory (HCT) developed from the seminal works of Schultz (1961) provides a perspective that value addition by people within an organization can contribute to better firm performance. According to the theory, people are regarded as assets and not a cost. Further, according to Bontis (2013) human capital is the human resources of a firm that are made up of skills, intelligence and expertise that enables the firm to be different in character. Human capital is described as an intangible asset not owned but benefits the firm that employs it. The theory further argues that despite the lack of formal ownership by the

firm, the company can gain from high levels of training and knowledge of their employees through strategies like creation learning corporate cultures or vocabulary terms to create cohesion (Almendarez, 2010). This is because, the HCT emphasizes the added value that people can contribute to an organization's performance a situation referred by Boxall and Purcell (2011) as human capital advantage.

As posited by Bontis (2013) human capital in a firm has different skills and competencies that can be used to provide solutions to problems and using their intellectual abilities to maximize performance. Human capital exists in various forms such as educational background, HR training and development, experience of the human resources, and talent, innovativeness etc. All these impact organisational performance differently and at different times. However, generally, human capital improves organisational health and raise earnings. Bontis (2013) further advances that human capital in a firm has different skills and competencies that can be used to provide solutions to problems and using their intellectual abilities to maximize performance, the different skills and competencies sum up to the unique HR capabilities that the organization possesses and that it can leverage on in order to be competitive.

Resource Based View

The resource-based view (RBV) of the business, a paradigm that draws heavily from Penrose (1959) philosophy of entrepreneurial development and is popularized by works by Wernerfelt (1984) and Barney (1991), has become the methodological foundation for a number of studies. The RBV's conventional models first theorized in 1991 and are still known as one of the most effective frameworks for researching and evaluating resource management partnerships after 20 years. (Barney et al.,2011). This principle underlines the value of organizational internal resources to gain a competitive advantage. When they act rationally, a resource holder can maintain a relative position vis-à-vis other holders (Wernerfelt, 1984). Moreover, Barney (1991) arguments that undertakings in the same sector may be heterogeneous in terms of their own capital and because resources cannot be easily transferred between undertakings, the heterogeneity and the consequent competitive advantage acquired could be long-lasting.

The resource-based view (RBV) defines an enterprise as a pool of resources and expertise (Nath et al., 2010) capable of creating and the competitive advantages (Talaja, 2012). Barney (1991) identified four resource characteristics capable of maintaining the competitive advantage of a business, namely durability, scarcity, imperfect imitability and imperfect replaceability. The resource-based view (RBV) provides valuable insights into why firms with valuable, rare, inimitable, and well organized resources at their disposal may have a competitive edge over the others and enjoy superior performance. Resources are either tangible or intangible in nature. Barney (1995) observes that the RBV formulates the firm to be a bundle of resources, in other words, it is these resources and the way that they are combined that distinguishes firms from each other. It is essentially an inside-out approach of analyzing the firm implying that the starting point of the analysis is the internal environment of the organization. Moreover, the resource-based view is grounded in the perspective that a firm's internal environment, in terms of its resources and capabilities, is more critical to the determination of strategic action than is

Strength of Weak Ties Theory

The strength of weak ties emerged from the seminal works of Mark Granovetter (1973) This theory is concerned with the control of informational flow across members of a group or alliance. Granovetter defines a tie (and its strength) as, “ a combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie. “ The theory suggests that there is a “ forbidden triad” which says that if A and B are connected, and A and C are also connected, then B and C will also be connected. This is mostly the case if any two people have strong ties. It implies that stronger alliance can benefit from partners who are not necessarily member of the network (Blau, 1980). Granovetter (1983) contends that some ties function as a “bridge” (with reference to a brokerage position) that spans parts of a

social network and connects otherwise disconnected social groups. He, however, strongly maintains that “no strong tie is a bridge.”

The reasoning is that if someone is strongly tied to someone else, those around their tie will also be tied to them and ties will be redundant (Lomnitz, 1977). Therefore, Granovetter submits that for information diffusion across a network, it is the weak ties that are most valuable. Accordingly, Weak ties have a higher probability of linking together different groups and, hence, can provide a way of connecting small groups or families with the entire ecosystem. The argument further asserts that acquaintances (weak ties) do often interact less socially with each other than close friends (strong ties). The set of people made up of any individual and his or her acquaintances comprises a low-density network (one in which many of the possible relational lines are absent) whereas the set consisting of the same individual and his or her close friends will be densely knit (many of the possible lines are present) (Field, 1981).

Intellectual Capital Theory

Intellectual capital has received considerable treatment among academics and practitioners since the 1990s as a factor that is essential in value creation for the firm's shareholders. The theory of intellectual capital has been a source of attention and it also seen as a theory that can guide a firm to achieve great performance with time. The key emphasis of the theory is that tangible assets such as equipment, land, money and buildings might not be as valuable as intangible assets which often are not part of the organisations balance sheet. According to this model, the wealth of a business comes from its consumer, structural and human capital. Creation of value occurs when one capital turns into another. For instance, when human resources which is the human capital comes up with business processes or structural capital which improves the service delivery to customers and their loyalty which is the consumer capital then this creates value. Intellectual capital capability is intangible and it is often said to be a hidden asset.

Based on the attributes of intellectual capital of being intangible, has relationships with partners and customers, innovative, infrastructure and the possibility that it can be used to make profits in the future this theory will be used to support the construct of strategic innovation capability on the performance of learning institutions in Kenya.

Empirical Review

Futher, Li et al. (2022) empirically tested dynamic capability path and resource-based path of ability-enhancing, motivation-enhancing and opportunity-enhancing (AMO) strategic human resource management as influencing factors on performance using data from 441 managers of science and technology enterprises to empirically test the model. On the other hand, Al-Hawary and Al-Rasheedy (2021) empirically examined the impact four dimensions of strategic learning had on the dynamic capabilities of the workforce. The study used a questionnaire-based survey targeting 110 managers working at different levels in these airline companies and tested the model through multiple regression analysis. AlQershi et al. (2022) used a quantitative approach and sample of 174 Malaysian hospitals. The study's hypotheses were tested using the Partial least squares-structural equation modelling (PLS-SEM). The present study will, however, use both correlation and multiple regression models to test both bivariate and multivariate models. Further, the studies used only quantitative techniques, however, the present study will use both qualitative and quantitative techniques.

Al-Hawary and Al-Rasheedy (2021) established that strategic learning had a significant impact on the dynamic capabilities of the workforce in airline companies in Kuwait with regards to the four dimensions studied. AlQershi et al. (2022) found that talent management mindset (TMM), but not talent management strategy (TMS), has a significant relationship with HC and SBP. HC has a significant direct relationship with SBP, and also mediates the relationship between TMM and SBP but not between TMS and SBP. Li et al. (2022) on the other hand showed that AMO-enhancing strategic human resource management affects organizational performance through organizational emotional capability and organizational intellectual capital in the start-up stage. Ability-and opportunity-enhancing strategic human resource management affected

performance through organizational emotional capability and organizational intellectual capital in the development and mature stages. The findings while underscoring the importance of SHRM in improving strategic human resource capability, focused on human resource capability models such as AMO-enhancing strategic human resource management and strategic learning. The present study will, however, focus on, Education, Talent and Experience as capability enhancers of human resource.

In the EU, digital technology capability and readiness of organizations has attracted considerable research interest and provided insight into how learning institutions leverage their performance on these capabilities especially in times of crisis. For example, Zalite and Zvirbule (2020) assessed digital readiness and competitiveness of the EU higher education institutions focusing on the COVID-19 pandemic impact. Through a desk study, social survey, comparative analysis and logical construction research methods, the study revealed the digital gap that still exists between the more developed Nordic European countries and the less developed Southern and Eastern European countries. However, detailed analysis of the situation in Latvia leads to the conclusion that Latvian higher education institutions have significantly increased the amount of digital content in both external and internal communication systems and can offer competitive educational services that comply with the contemporary education requirements. These findings suggest that the digital capability of the learning institutions across the EU's HEIs varied and this could be attributed to their state of readiness. However, the study examines the readiness of the HEIs digital technology in the context of the Covid-19 pandemic in the EU while the current study will examine the tertiary education institutions information technology capabilities in Kenya in the post pandemic period.

Leveraging theory from the dynamic capability literature, Bai, Um and Lee (2023) explored how information technology (IT) capability influences firm agility and subsequently translates into firm performance under the COVID-19 outbreak. The study investigated the proposed relationships by using survey data from a sample of 296 Chinese retail firms. Structural equation modeling is used to test this study's hypotheses. The study established a direct effect of IT capability on firm agility; firm agility has a direct impact on firm performance; and the indirect effect of IT capability on firm performance via firm agility is demonstrated (i.e. partial mediation). The study established the relationship between IT capability and firm performance under the mediation of firm agility. However, in the present study, the direct effect of IT capability and organizational performance will be explored. Further, the study will focus on tertiary education institutions rather than retail firms as was the case in the study by Bai et al. (2023).

Wegner, Foguesatto and Zuliani (2023), therefore, examined firm performance in uncertain times: focusing on the importance of networking capabilities, the managers' perceptions of environmental uncertainties and how this perception influences NC development and subsequent firm performance, especially during the COVID-19 crisis. A quantitative research approach was used to survey 212 North American firms most of which were small- and medium-sized. Data were analyzed via the partial least squares structural equation modeling technique. The study established that managers' perception of environmental uncertainties positively impacts the NCs to initiate and develop relationships, which is associated with better firm performance during crises. The capability to initiate and develop relationships supports the firm's access to relevant resources that may be converted into business performance. The study was, however, carried out in the North American business context focusing on North American firms and used the PLS-SEM. The present study will, however, focus on tertiary education institutions in Kenya and will test hypothesis through the OLS.

Yang et al. (2018) examined the double-edged sword of networking focusing on the complementary and substitutive effects of networking capability in China. The empirical study which used a sample of 106 Chinese firms, revealed that networking capability can increase performance growth while raising the variability of firm performance. Further, the study examined the capability of portfolio strategies to understand the joint effects of networking capability combined with customer- and technology-related capabilities. The results showed that networking and technology-related capabilities increase performance

growth, while networking capability strengthens the negative effects of technology-related capability on performance variability. In contrast, networking capability attenuates the positive effect of customer-related capability on performance growth, and networking and customer-related capabilities increase performance variability. The findings indicated that networking capability benefits the firm but at the cost of performance variability, while from a configuration perspective, it complements technology-related capability but substitutes for customer-related capability. Thus, networking capability functions as a double-edged sword. While the study was able to show the double-edged sword of networking capabilities, it did not explore aspects of networking such as positioning and partnerships. Further, the study focused on 106 Chinese firms while the current study will focus on tertiary educational institutions in Kenya.

Yang (2021) examined the moderating effect of innovation capability on the relationship between logistics service capability and firm performance for ocean freight forwarders. Four critical logistics service capabilities were identified based on factor analysis: *logistics service reliability capability*, *logistics value-added service capability*, *flexibility capability*, and *logistics information service capability*. Multiple regression analysis was subsequently employed to examine the main effects of innovation capability and logistics service capability on firm performance in terms of customer service and financial performance. Results showed that innovation capability, logistics service reliability capability, and flexibility capability had significant positive effects on firm performance. Finally, multiple moderated regression was utilised to examine the moderating effect of innovation capability on the relationship between logistics service capability and firm performance. The results indicated that innovation capability positively moderates the effect of logistics service reliability capability on financial performance as well as the effect of flexibility capability on financial performance. While the study showed that innovation capability significantly influenced firm performance, its effects were examined both as an explanatory variable and as a moderator variable. Further, the study's focus was on freight firms. However, in the present study, the focus will be on tertiary education institutions in Kenya and innovation capability will be examined as an explanatory variable.

Bahta, Yun, Islam and Ashfaq (2021) examined corporate social responsibility (CSR) and its effect on small and medium enterprises' (SMEs) innovation capability and financial performance from the perspective of a developing country. The mediating role of innovation capability was also explored in the linkage between CSR and SMEs' financial performance. The study used primary data collected through a questionnaire distributed among managers/owners of a sample of 402 Eritrean firms. Using a data set of and partial least squares structural equation modeling, direct and mediating effects were tested. The result reveals that CSR has a positive and significant effect on the financial performance and innovation capability of SMEs. Besides, innovation capability has a positive and significant effect on the business performance of SMEs. The result also supports a partial mediation effect of innovation capability on the association between CSR and firm performance. The study established both the explanatory and mediating effect of innovation capability on firm performance using PLS-SEM and focused on SMEs. However, the current study will focus on the explanatory effect of innovation capability and will focus on tertiary education institutions in Kenya.

Strengthening this important segment of the higher education system will therefore require significant efforts to train instructors more thoroughly, establish close links to industry, modernize the training infrastructure, and deploy existing resources in the most efficient way. At present, the private segment of the TVET subsector is twice as large as the public one in terms of enrollment. Until a few years ago, the quality and relevance of many private institutions was unlikely to be more satisfactory than what is offered in the public segment, as many private institutions operated without proper registration or accreditation. Now that they must all get duly registered and accredited the quality and relevance of their programs should be of higher standards. Looking forward, the Kenyan government may consider promoting the establishment of postsecondary community colleges based on the North American or Korean model as a useful component of the non-university subsector that could be better perceived by Kenyan parents and students than the existing

TVET colleges. Recent developments in the United States have revealed that many community colleges tend to offer vocationally oriented programs that give the middle and high-level skills required for entry into many professions. In fact, specialists nowadays tend to look at TVET institutions and community colleges as performing similar functions and label them as providers of technical and career education. The Georgetown University's Center on Education and the Workforce estimates that, between now and 2024, "the United States will be home to some 16 million openings for middle-skill jobs—those requiring more education than a high school diploma but typically not a bachelor's degree.

For the institutional diversification strategy of Synergies and Complementarities to work in the long term, it is important to define clear policies regarding the respective roles of the various types of institutions. One of the challenges that many countries in the developing world face is to dispel the perception that non-university institutions and programs are second-rate options compared to the traditional universities. In that regard, it would be useful to think through the functional links among the various types of higher education institutions. Universities and non-university institutions should not operate as parallel, unrelated subsectors but rather as complementary parts of a well-articulated system that offers multiple learning paths. To achieve this complementarity, student progression could be encouraged by removing all the barriers among the segments of the higher education system, among institutions within each segment, and among disciplines and programs within institutions. The promotion of open systems can be achieved through recognition of relevant prior professional and academic experience, degree equivalencies, credit transfer, tuition exchange schemes, easy access to national scholarships and student loans, and creation of a comprehensive qualifications framework. Full implementation of the regulations set out by the Kenya National Qualifications Agency (KNQA) would help eliminate existing rigidities that hinder accumulation, recognition, and transfer of individual qualifications from one institution to another and from one subsector to another.

METHODOLOGY

Research Design

The study used a descriptive survey research design. Descriptive survey research design has been described as an efficient method for systematically collecting data across a broad spectrum of individuals. The researcher can then use statistical techniques to make conclusions about the population based on the sample. The design is deemed appropriate because it can be used to assess the opinions and attitude on events people and procedures (Kothari, 2004). It also enabled generalizations to be made on the outcome of the study (Oso & Onen, 2006). Therefore, since this study sought to obtain descriptive and self-reported information on the influence of strategic capability on the performance of tertiary learning institutions in the Coastal Region of Kenya, the descriptive research design will be the most appropriate in the above regards.

Population

Population as defined by Kothari (2011), is a universal set of the study of all members; real or hypothetical set of people, events or objects to which an investigator wishes to generalize the result. The study's target population consists of public tertiary education institutions in the Coastal Region of Kenya. However, the study will only consider non-degree awarding and non-teacher training tertiary education institutions in Kenya. Medical training institutions were also not being considered. In this regard, therefore, the unit of analysis will be the national Technical Training Institutes (TTIs), national Institutes of Technology and national Polytechnics under the Technical and Vocational Education and Training Authority (TVETA). Currently, there are 10 such institutions in the Coastal Region of Kenya; 2 national Technical Training Institutes (TTIs), 7 national Institutes of Technology under TVET and 1 national Polytechnics under TVET Authority.

Sampling techniques

Both purposive and systematic random sampling were used in the study to obtain maximum variation while ensuring respondent specificity and randomness. The study adopted purposive sampling to select the top management members while middle level managers such as faculty and department heads were selected using systematic random sampling technique. Purposive sampling, also known as judgmental, selective, or subjective sampling, is a form of non-probability sampling in which researchers rely on their own judgment when choosing members of the population to participate in their study (Ames, Glenton & Lewin, 2019).

Data Analysis

Data obtained from the questionnaires will be first cleaned and edited before being coded and subjected to further analysis. The Likert scales in closed ended questions in the questionnaires will be converted to numerical codes and be scored on 1-5 point scale in order of magnitude of the construct being measured. They will then be entered into the Statistical Package for Social Sciences (SPSS) version 21.0 computer program. Descriptive statistical analysis will be done using, frequencies and percentages to describe the basic characteristics of the data. Inferential data analysis will be done using the Pearson's Product-Moment Correlation Coefficient to test the bivariate relationship of the independent and dependent variables while multiple regression will be used to explore the relationship of the independent and dependent variables in a joint model. The multiple regression model used in the study will be assumed to hold under;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \dots\dots\dots 1$$

Where,

Y is the dependent variable- Performance of Tertiary Learning Institutions in Kenya

β_0 is the intercept

$\beta_{1...4}$ are the coefficients of the independent variables

X_1 represents Strategic Personnel Capability

X_2 represents Strategic Information Technology Capability

X_3 represents Strategic Network Capability

X_4 represents Strategic Innovation Capability

ε represents 'Error Margin of Regression Models'

Model tests were performed prior to carrying out the multiple regression analysis to determine whether the models fit the specifications to avoid engendering of spurious results.

FINDINGS

Descriptive Analysis Results

This section presents the results of the descriptive statistical analyses of the data and their interpretations. The descriptive statistics helped to develop the basic features of the study and form the basis of virtually every quantitative analysis of the data. The results were presented in terms of the study objectives.

Personnel capability and the performance of tertiary learning institutions in Coastal Region of Kenya

The first objective of the study was to assess the influence of strategic personnel capability on the performance of tertiary learning institutions in Coastal Region of Kenya. This variable was described based on four key constructs: Education, Talent, Strategic learning, and Experience. A five point Likert scale was used to rate responses of this variable and it ranged from; 1 = strongly disagree to 5 = strongly agree and was analyzed on the basis of the mean score and standard deviation. The closer the mean score on each item was to 5, the more the agreement concerning the statement. A score around 2.5 would indicate uncertainty while scores significantly below 2.5 would suggest disagreement regarding the statement posed. The findings are presented in Table 1.

Table 1: Personnel capability and performance of tertiary learning institutions

Statement	SA f(%)	A f(%)	N f(%)	D f(%)	SD f(%)	Mean	St. Dev
Our institution has well educated employees	17(20)	32(38)	28(33)	5(6)	3(3)	3.64	0.989
There is a high fit for education/training of employees and their placement within the institution	9(11)	45(54)	5(6)	17(20)	8(9)	3.36	1.199
Most of the staff are well experienced in their roles in the institution	14(17)	52(62)	7(8)	9(11)	2(2)	3.80	0.929
We have regular staff competency assessments to assess the staffs ability to perform their tasks	8(9)	35(42)	9(11)	24(29)	8(9)	3.14	1.210
Our staffs undergo sponsored training in various technical and management issues	20(24)	44(52)	10(12)	8(10)	2(2)	3.86	0.971
Strategic learning is encouraged by the institution	14(17)	48(57)	17(20)	3(4)	2(2)	3.82	0.838
The management recognizes talent among employees	18(22)	41(49)	15(18)	7(8)	3(3)	3.76	1.001
There is focused talent management of employees in the institution	17(20)	38(45)	16(19)	8(10)	5(6)	3.65	1.085
Aggregate Score						3.629	1.028

Based on the table assessing the influence of strategic personnel capability on the performance of tertiary learning institutions in the Coastal Region of Kenya, the findings indicate a generally positive perception of strategic personnel capability among respondents, with an overall mean score of 3.629 (S.Dev = 1.028).

Specifically, most respondents agreed that staff in their institutions are well experienced in their roles, with a mean of 3.80 (S.Dev = 0.929). This suggests that experience is a key strength in enhancing institutional performance, implying that institutions can leverage experienced personnel for mentorship, knowledge transfer, and efficiency in operations.

Additionally, the study shows that strategic learning is encouraged, with a mean of 3.82 (S.Dev = 0.838), and that sponsored staff training is common, mean = 3.86 (S.Dev = 0.971). These findings imply that continuous professional development and institutional support for learning significantly contribute to improved performance, aligning employee skills with organizational goals.

The recognition of talent among employees (Mean = 3.76; S.Dev = 1.001) and focused talent management (Mean = 3.65; S.Dev = 1.085) further indicate that institutions actively identify and nurture high-performing personnel, which likely boosts staff motivation, retention, and overall institutional effectiveness.

However, areas such as staff competency assessments (Mean = 3.14; S.Dev = 1.210) and alignment between employee training and placement (Mean = 3.36; S.Dev = 1.199) scored comparatively lower, suggesting gaps in systematic performance evaluations and role-specific training. The implication is that institutions may need to implement more rigorous assessment frameworks to ensure that employees' skills are continuously evaluated and optimally utilized.

Overall, the findings highlight that strategic personnel capability, through experience, training, talent recognition, and strategic learning, is a significant driver of performance in tertiary learning institutions in the Coastal Region, though targeted improvements in assessment and placement alignment are needed to maximize outcomes.

Information technology capability and performance of tertiary learning institutions in Coastal Region of Kenya

The second objective of the study was to assess the influence of information technology capability on the performance of tertiary learning institutions in Coastal Region of Kenya. This variable was described based on four key constructs: IT Infrastructure, IT Teaching & Learning, IT Governance and IT Business Support. A five point Likert scale was used to rate responses of this variable and it ranged from; 1 = strongly disagree to 5 = strongly agree and was analyzed on the basis of the mean score and standard deviation. The closer the mean score on each item was to 5, the more the agreement concerning the statement. A score around 2.5 would indicate uncertainty while scores significantly below 2.5 would suggest disagreement regarding the statement posed. The findings are presented in Table 2.

Table 2: Information technology capability and performance of tertiary learning institutions in Coastal Region of Kenya

Statement	SA f(%)	A f(%)	N f(%)	D f(%)	SD f(%)	Mean	St. Dev
The institution has invested in adequate IT infrastructure to support institution to institution (I2I) transactions	9(11)	13(15)	12(14)	45(54)	5(6)	2.71	1.136
The institution has invested in adequate IT infrastructure to support Business to Client (B2C) transactions	9(11)	46(55)	18(21)	9(11)	2(2)	3.61	0.905
We have adequate IT infrastructure to support Teaching and Learning	18(22)	41(49)	15(18)	7(8)	3(3)	3.77	1.001
We have been able to migrate some of our courses to online modules	16(19)	38(45)	17(20)	8(10)	5(6)	3.62	1.085
Our IT management enables the monitoring of all internal and external operations	16(19)	29(35)	13(15)	12(14)	14(17)	3.25	1.370
Our IT governance is capable of protecting integrity of system at all times	12(14)	69(82)	2(2)	1(1)	1(1)	4.06	0.567
Our IT business support ensures that most of our transactions are able to be carried out online	9(11)	45(54)	12(14)	13(15)	5(6)	3.48	1.069
We are able to carry out procurement functions successfully through our institutional IT	11(13)	49(58)	9(11)	11(13)	4(5)	3.69	0.734
Aggregate Score						3.524	0.983

The analysis of the findings on the influence of strategic information technology capability on the performance of tertiary learning institutions in the Coastal Region of Kenya reveals a generally positive perception, with an overall mean score of 3.524 (S.Dev = 0.983). This indicates that institutions moderately agree that IT capability enhances institutional performance, though improvement is still possible in certain areas.

The results show that the institutions have notably strong IT governance systems (Mean = 4.06; S.Dev = 0.567), suggesting that most institutions have reliable mechanisms for safeguarding the integrity of their digital systems. This has important implications for data security, system reliability, and stakeholder trust, which are critical for institutional efficiency and reputation. Similarly, adequate IT infrastructure to support teaching and learning (Mean = 3.77; S.Dev = 1.001) and successful IT-supported procurement functions (Mean = 3.69; S.Dev = 0.734) indicate that digital technologies are effectively integrated into core academic and administrative processes, enhancing transparency and operational productivity.

Institutions have also migrated some courses to online modules (Mean = 3.62; S.Dev = 1.085) and invested in IT for Business-to-Client transactions (Mean = 3.61; S.Dev = 0.905), demonstrating a growing embrace of digital learning and service delivery. The implication is that digital transformation is expanding access, flexibility, and responsiveness in institutional operations, aligning them with modern educational demands.

However, weaknesses were observed in IT infrastructure for Business-to-Business transactions (Mean = 2.71; S.Dev = 1.136) and IT management systems for monitoring internal and external operations (Mean = 3.25; S.Dev = 1.370). These lower ratings suggest inefficiencies in digital collaboration with external partners and limited system integration for real-time oversight. The implication is that such gaps could constrain efficiency, accountability, and the ability to leverage data-driven decision-making.

Overall, the findings indicate that while tertiary institutions in the Coastal Region have made significant progress in IT governance, teaching support, and online service delivery, they need to strengthen IT infrastructure for inter-institutional collaboration and invest more in comprehensive monitoring systems to fully optimize performance outcomes.

Network capability and the performance of tertiary learning institutions in Coastal Region of Kenya

The third objective of the study was to assess the influence of network capability on the performance of tertiary learning institutions in Coastal Region of Kenya. This variable was described based on four key constructs: IT Infrastructure, IT Teaching & Learning, IT Governance and IT Business Support. A five point Likert scale was used to rate responses of this variable and it ranged from; 1 = strongly disagree to 5 = strongly agree and was analyzed on the basis of the mean score and standard deviation. The closer the mean score on each item was to 5, the more the agreement concerning the statement. A score around 2.5 would indicate uncertainty while scores significantly below 2.5 would suggest disagreement regarding the statement posed. The findings are presented in Table 3.

Table 3: Network capability on the performance of tertiary learning institutions

Statement	SA f(%)	A f(%)	N f(%)	D f(%)	SD f(%)	Mean	St. Dev
We do initiate network relationship with other potential partners	16(19)	39(46)	11(13)	10(12)	8(10)	3.54	1.207
We have joined networks of institutions and organizations that can foster our growth	22(26)	32(38)	13(16)	9(11)	8(9)	3.61	1.252
We always strive to strategically position ourselves in areas where we have high visibility in the networks	26(31)	29(35)	12(14)	9(11)	8(9)	3.67	1.283
We constantly assess our network value to ensure that we remain in the relevant network	15(18)	40(48)	14(17)	8(9)	7(8)	3.57	1.144
We have developed partnerships with several educational institutions at all levels such as universities, research institutions and also other TVETs	14(17)	39(46)	7(8)	15(18)	9(11)	3.40	1.262
We have strategic partnerships with non-educational institutions such as banks, suppliers and potential employers	4(5)	36(43)	36(43)	7(8)	1(1)	3.42	0.764
We constantly revise our objectives so as to be more accommodative to our members	9(11)	45(54)	5(6)	17(20)	8(9)	3.36	1.199
Our management exercises oversight over our network performance objectives frequently	18(21)	46(55)	9(11)	9(11)	2(2)	3.92	0.805
Aggregate Score						3.561	1.115

The findings in Table 3 revealed that tertiary learning institutions in the Coastal Region of Kenya exhibited moderate to high levels of network capability across several dimensions. The statement “Our management exercises oversight over our network performance objectives frequently” recorded the highest mean score (Mean = 3.92; S.Dev = 0.805), indicating that institutional leaders actively monitored and evaluated network activities to ensure alignment with organizational goals. This suggested a strong governance structure and commitment to maintaining productive partnerships.

The statement “We always strive to strategically position ourselves in areas where we have high visibility in the networks” also recorded a high mean (Mean = 3.67; S.Dev = 1.283). This implied that institutions recognized the importance of visibility within their networks to attract collaborations, funding, and academic linkages. Similarly, “We have joined networks of institutions and organizations that can foster our growth” had a relatively high rating (Mean = 3.61; S.Dev = 1.252), showing that institutions proactively pursued partnerships that could enhance institutional capacity and performance.

Moderate ratings were reported for statements such as “We constantly assess our network value to ensure that we remain in the relevant network” (Mean = 3.57; S.Dev = 1.144) and “We do initiate network relationships with other potential partners” (Mean = 3.54; S.Dev = 1.207). These findings indicated that institutions made consistent efforts to maintain relevance within their networks and sought new partnerships, though some may have faced constraints related to capacity or resources.

The statements “We have developed partnerships with several educational institutions at all levels” (Mean = 3.40; S.Dev = 1.262) and “We have strategic partnerships with non-educational institutions such as banks, suppliers, and potential employers” (Mean = 3.42; S.Dev = 0.764) showed that linkages extended beyond academia to include industry and service sectors. This diversity of partnerships was vital for improving employability outcomes and resource mobilization, though the moderate means implied potential for strengthening inter-institutional collaborations.

The lowest mean (Mean = 3.36; S.Dev = 1.199) was recorded for “We constantly revise our objectives so as to be more accommodative to our members.” This suggested that while institutions valued inclusivity, there was room to improve adaptability and responsiveness to stakeholder needs within network frameworks.

The overall aggregate score (Mean = 3.561; S.Dev = 1.115) reflected a generally positive perception of network capability among tertiary institutions. This indicated that while networking was recognized as a critical driver of performance, institutions still faced challenges in optimizing the full potential of their partnerships.

The findings implied that strengthening network capability, through enhanced strategic positioning, continuous evaluation of partnerships, and diversification of collaborations, could significantly improve institutional visibility, innovation, and competitiveness. Regular oversight by management and alignment of network goals with institutional priorities were found to be key enablers of improved performance. However, the moderate mean scores across several indicators highlighted the need for more structured and goal-oriented networking strategies, supported by adequate funding and leadership commitment.

Innovation capability on the performance of learning institutions in Coastal Region of Kenya

The fourth objective of the study was to assess the influence of innovation capability on the performance of tertiary learning institutions in Coastal Region of Kenya. This variable was described based on four key constructs: Product Innovation, Process Innovation, Market Innovation, and Organizational Innovations. A five point Likert scale was used to rate responses of this variable and it ranged from; 1 = strongly disagree to 5 = strongly agree and was analyzed on the basis of the mean score and standard deviation. The closer the mean score on each item was to 5, the more the agreement concerning the statement. A score around 2.5 would indicate uncertainty while scores significantly below 2.5 would suggest disagreement regarding the statement posed. The findings are presented in Table 4.

Table 4: Innovation capability on the performance of learning institutions

Statement	SA f(%)	A f(%)	N f(%)	D f(%)	SD f(%)	Mean	St. Dev
We often strive to develop new and competitive products for the market such as tailored courses that are demand in the market	15(18)	43(51)	21(25)	4(5)	2(2)	3.78	0.882
We scan the environment and invest substantially in product design to ensure our products are well subscribed to	9(11)	43(51)	17(20)	9(11)	6(7)	3.49	1.058
We often review our processes and develop innovative approaches to improve their efficiency	9(11)	45(54)	12(14)	13(15)	5(6)	3.48	1.069
We innovate processes without loss of fidelity in the systems	12(14)	29(35)	16(19)	14(17)	13(15)	3.15	1.303
Our institution always provide funding for all the research activities	14(17)	52(62)	7(8)	9(11)	2(2)	3.80	0.928
We often do market research before developing products for it	16(19)	38(45)	17(20)	8(10)	5(6)	3.62	1.086
We use market information to configure our production systems	11(13)	49(58)	11(13)	9(11)	4(5)	3.64	0.834
Our staff are encouraged and supported to provide innovative solutions to challenges facing the institution	20(24)	44(52)	10(12)	8(10)	2(2)	3.86	0.971
Aggregate Score						3.603	1.016

The analysis of the findings on the influence of strategic innovation capability on the performance of learning institutions in the Coastal Region of Kenya reveals a generally positive perception, with an overall mean score of 3.603 (S.Dev = 1.016). This indicates that innovation practices are moderately strong across institutions, contributing meaningfully to their performance and competitiveness.

The results show that staff encouragement and support for innovation are among the most prominent aspects, with a mean of 3.86 (S.Dev = 0.971). This suggests that institutions actively foster a culture of creativity, empowering employees to develop novel solutions to institutional challenges, an approach that enhances adaptability and operational effectiveness. Similarly, institutional funding for research activities scored high (Mean = 3.80; S.Dev = 0.928), implying a strong institutional commitment to evidence-based decision-making, product development, and academic advancement.

Efforts to develop new and competitive products, such as demand-driven courses, also ranked highly (Mean = 3.78; S.Dev = 0.882), signifying that institutions align their programs with market needs. This enhances institutional relevance, enrollment, and employability outcomes for graduates. Moreover, the use of market information to configure production systems (Mean = 3.64; S.Dev = 0.834) and conducting market research before developing products (Mean = 3.62; S.Dev = 1.086) indicate that institutions are increasingly data-driven in their strategic planning and curriculum design, improving service delivery and sustainability.

However, moderate scores were recorded in process innovation (Mean = 3.48; S.Dev = 1.069) and environmental scanning for product design (Mean = 3.49; S.Dev = 1.058), implying that while innovation exists, it may not be systematically embedded across all operations. A lower mean was observed for process innovation without loss of system fidelity (Mean = 3.15; S.Dev = 1.303), highlighting potential risks in maintaining quality and consistency during innovation transitions.

Overall, these findings suggest that strategic innovation capability significantly enhances institutional performance through research funding, employee creativity, and market-oriented product development. Nevertheless, institutions should strengthen process-oriented innovation systems, environmental scanning, and quality management mechanisms to ensure that innovation leads to sustainable and high-quality institutional growth.

Performance of learning institutions in Coastal Region of Kenya

The study also sought to assess the status of performance of tertiary learning institutions in Coastal Region of Kenya. This was the dependent variable, and was described based on four key constructs: Enrolment, Finance, Manpower/staff/lecturers, and Academics. A five point Likert scale was used to rate responses of this variable and it ranged from; 1 = strongly disagree to 5 = strongly agree and was analyzed on the basis of the mean score and standard deviation. The closer the mean score on each item was to 5, the more the agreement concerning the statement. A score around 2.5 would indicate uncertainty while scores significantly below 2.5 would suggest disagreement regarding the statement posed. The findings are presented in Table 5.

Table 5: Performance of learning institutions in Coastal Region of Kenya

Statement	SA f(%)	A f(%)	N f(%)	D f(%)	SD f(%)	Mean	St. Dev
We have high annual net enrolment ratio	16(19)	38(45)	17(20)	8(10)	5(6)	3.62	0.712
Our programs are well subscribed to by students	12(14)	14(17)	16(19)	29(35)	13(15)	2.80	1.063
Our annual audited accounts show that the college and the departments are performing well	11(13)	16(19)	10(12)	39(46)	8(10)	2.89	1.081
Able to attract significant funding for programs projects	2(2)	14(17)	19(23)	47(56)	2(2)	2.61	1.024
Projects are completed in time according to the planned budget	9(11)	49(58)	11(13)	11(13)	4(5)	3.57	0.834
Our college has accrued less debts in the last 5 years compared to the past	5(6)	23(27)	13(15)	38(45)	5(6)	2.82	1.009
We have minimal staff turnover	16(19)	38(45)	17(20)	8(10)	5(6)	3.63	1.085
Our graduation rates are often above the set thresholds	9(11)	45(54)	12(14)	13(15)	5(6)	3.48	1.069
Most of our graduates are readily employed by the relevant organizations	14(17)	52(62)	7(8)	9(11)	2(2)	3.80	0.929
Aggregate Score						3.247	0.978

The analysis of the findings on the performance of learning institutions in the Coastal Region of Kenya indicates a moderate overall performance, with an aggregate mean score of 3.247 (S.Dev = 0.978). This suggests that while institutions exhibit strengths in certain areas such as enrollment, staff retention, and graduate employability, other performance indicators such as financial health and funding remain weak, limiting sustainable growth and competitiveness.

The findings show that most institutions report high graduate employability rates (Mean = 3.80; S.Dev = 0.929), implying that the quality and relevance of academic programs align well with labor market needs. This contributes positively to institutional reputation and student enrollment. Similarly, minimal staff turnover (Mean = 3.63; S.Dev = 1.085) suggests stability in human resources, indicating effective retention strategies that preserve institutional knowledge and teaching continuity. High annual net enrollment (Mean = 3.62; S.Dev = 0.712) also reflects growing student confidence in institutional programs, enhancing financial sustainability and public trust.

However, moderate performance was observed in timely and budget-compliant project completion (Mean = 3.57; S.Dev = 0.834) and graduation rates above thresholds (Mean = 3.48; S.Dev = 1.069). These imply that while project execution and academic progress are generally satisfactory, there is room for improvement in operational efficiency and student completion rates through better resource allocation and academic support systems.

Conversely, several areas reflected weak performance. For example, the ability to attract significant funding (Mean = 2.61; S.Dev = 1.024) and maintain favorable audited financial outcomes (Mean = 2.89; S.Dev = 1.081) were rated low, indicating institutional dependence on limited revenue streams. Similarly, the relatively low mean for debt reduction (Mean = 2.82; S.Dev = 1.009) suggests challenges in financial management and sustainability. Additionally, the low subscription to programs (Mean = 2.80; S.Dev = 1.063) points to gaps in market relevance or promotional strategies, which could hinder institutional growth.

Overall, these findings imply that the performance of learning institutions in the Coastal Region is driven mainly by academic quality and human resource stability but constrained by weak financial capacity and limited project funding. Strengthening financial management systems, diversifying income sources, enhancing program marketing, and ensuring timely project delivery could significantly improve institutional performance and sustainability.

Inferential Statistical Analysis

Correlation Analysis

In this subsection a summary of the correlation analyses is presented. The table presents Pearson correlation coefficients between four independent variables; Personnel Capability, Information Technology Capability, Network Capability, Innovation Capability, and the dependent variable, Performance of Tertiary Learning Institutions in Coastal Region of Kenya. These results are summarized in Table 6.

Table 6: Correlation Matrix

		Personnel Capability	Information Technology Capability	Network Capability	Innovation Capability	Performance of Tertiary Institutions
Personnel Capability	Pearson	1				
	Correlation					
	Sig. (2-tailed)					
	N	84				
Information Technology Capability	Pearson	.322*	1			
	Correlation					
	Sig. (2-tailed)	0.021				
	N	84	84			
Network Capability	Pearson	0.124	0.135	1		
	Correlation					
	Sig. (2-tailed)	0.261	0.040			
	N	84	84	84		
Innovation Capability	Pearson	-0.035	0.094	0.105	1	
	Correlation					
	Sig. (2-tailed)	0.75	0.103	0.099		
	N	84	84	84	84	
Performance of Tertiary Institutions	Pearson	.476**	.435**	.612**	.504**	1
	Correlation					
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	
	N	84	84	84	84	84

The results show that personnel capability has a moderate positive and significant correlation with institutional performance ($r = 0.476$; $p < 0.01$). This implies that improving the education level, experience, and talent management of staff significantly enhances the performance of tertiary institutions in the Coastal Region. Institutions that invest in competent personnel are likely to experience better service delivery, innovation adoption, and student outcomes. The results also indicate that education, talent, and experience among staff substantially enhance institutional effectiveness. This aligns with Li et al. (2022), who showed that ability-, motivation-, and opportunity-enhancing (AMO) strategic human resource management improves performance through intellectual capital and emotional capability. Similarly, Al-Hawary and Al-Rasheedy (2021) established that strategic learning significantly influences workforce dynamic capabilities, while AlQershi et al. (2022) highlighted the role of talent management mindset in shaping sustainable business performance. These findings underscore that human resource competencies are foundational to organizational success. Locally, Endende et al. (2022) found knowledge creation practices vital to employee performance in Kenyan TVETs, reinforcing the role of personnel capability in performance outcomes. Thus, the current findings affirm that strategic investment in employee education, experience, and talent management is a decisive performance driver for tertiary institutions in Kenya.

Similarly, information technology capability is positively and significantly correlated with performance ($r = 0.435$; $p < 0.01$). This finding suggests that investment in robust IT infrastructure, governance, and digital learning systems enhances institutional efficiency, transparency, and competitiveness. It underscores the growing importance of digital transformation in improving institutional operations and educational service delivery. This finding aligns with Bai, Um, and Lee (2023), who established that IT capability enhances firm agility, which in turn drives performance under dynamic conditions such as the COVID-19 pandemic. Similarly, Wei, Xu, and Liu (2022) found that IT capability broadens organizational knowledge bases, fostering digital innovation and performance. The results also resonate with Tahar et al. (2022), who demonstrated that IT governance and orchestration capability significantly improve higher education institutions' performance through process agility. These studies collectively validate that robust IT infrastructure, governance, and systems integration strengthen organizational adaptability and productivity. The present findings confirm that strategic IT capability—encompassing digital infrastructure, governance, and business support—directly enhances institutional efficiency, transparency, and performance in Kenya's tertiary education sector.

The strongest correlation with performance is observed in network capability ($r = 0.612$; $p < 0.01$), indicating that institutions with strong partnerships, collaborations, and stakeholder linkages tend to perform better. This highlights the critical role of strategic alliances and external relationships in resource mobilization, knowledge exchange, and institutional growth. The findings further imply that partnerships and stakeholder linkages substantially enhance institutional success. This finding resonates with Anser et al. (2021), who found that network capability strengthens structural flexibility, leading to improved strategic business performance. Likewise, Kurniawan et al. (2021) demonstrated that networking enhances market orientation and agility, which ultimately improve firm outcomes. Although Yang et al. (2018) viewed networking as a “double-edged sword” capable of increasing both growth and performance variability, they acknowledged its complementary role in technology-driven growth. The current study's results support the positive dimension of networking, highlighting that collaborations and partnerships are instrumental in resource mobilization, information exchange, and innovation diffusion. Therefore, for tertiary institutions in Kenya, fostering strategic networks with government, industry, and academia is vital for improving performance and competitiveness.

Innovation capability also shows a positive and significant correlation with performance ($r = 0.504$; $p < 0.01$), implying that institutions that foster creativity, research, and process improvement are more likely to achieve higher performance outcomes. This emphasizes the importance of fostering an innovation-driven culture in higher education institutions. The correlation analysis further suggests that fostering creativity, research, and

process improvement enhances performance outcomes. This aligns with Rajapathirana and Hui (2018), who confirmed that innovation capability positively affects multiple aspects of firm performance, including market and financial outcomes. Similarly, Bahta et al. (2021) found that innovation capability mediates the relationship between corporate social responsibility and financial performance, emphasizing its strategic importance. Yang (2021) and Ahmed et al. (2020) further demonstrated that innovation capability strengthens service reliability, flexibility, and overall performance in dynamic environments. Locally, Mugambi and Kinyua (2020) reported that innovation capability significantly improved performance among Kenyan commercial banks. Thus, the present study's findings reinforce that continuous innovation, through product design, market research, and process enhancement, is a key strategic enabler of institutional growth, sustainability, and competitiveness within Kenya's tertiary education sector.

Overall, the matrix indicates that all strategic capabilities, especially network, innovation, and personnel capabilities, positively influence institutional performance. This underscores the importance of a balanced strategic approach where human resources, technology, partnerships, and innovation are integrated to enhance the overall performance and sustainability of tertiary learning institutions in Kenya's Coastal Region.

Regression Analysis

Multivariate regression analysis was used to determine the multiple regression model hypothesized in chapter three held. It was also used to determine how the independent variables influenced the dependent variable collectively. The analysis was also meant to establish the extent to which each independent variable affected the dependent variable in such a collective set up and which were the more significant factors. The results are summarized in Table 4.10.

Table 7: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.813 ^a	0.6609	0.6011	3.458623

a. Dependent Variable: Performance of Tertiary Learning Institutions in Coastal Region of Kenya

b. Predictors: (Constant), Personnel Capability, Information Technology Capability, Network Capability, Innovation Capability

The model summary in Table 7 shows a multiple correlation coefficient ($R = 0.813$), indicating a strong positive relationship between the combined predictors, strategic personnel capability, information technology capability, network capability, and innovation capability, and the organizational performance of tertiary learning institutions in the Coastal Region of Kenya. This suggests that as these strategic capabilities improve, institutional performance tends to increase correspondingly. The R Square value of 0.6609 indicates that approximately 66.1% of the variation in organizational performance can be explained jointly by the four predictor variables. This proportion reflects a substantial explanatory power, implying that the model effectively captures most of the factors influencing performance in tertiary institutions. The remaining 33.9% of unexplained variation could be attributed to other organizational, environmental, or policy factors not included in the current model.

The Adjusted R Square of 0.6011 refines this estimate by accounting for the number of predictors in relation to the sample size, confirming that about 60.1% of the performance variance is explained after adjusting for model complexity. The standard error of the estimate ($S.E = 3.4586$) shows a moderate average deviation between the observed and predicted performance values, indicating that the model's predictions are reasonably accurate. The results demonstrate that the joint contribution of personnel, IT, network, and innovation capabilities substantially enhances institutional performance. This implies that tertiary institutions in Kenya's Coastal Region can improve their competitiveness, efficiency, and service delivery by strategically strengthening these capabilities. The high explanatory power of the model underscores the importance of adopting an integrated strategic capability framework to drive institutional excellence and sustainability.

Field (2011) states that the appropriateness of the multiple regression model as a whole can be tested using F test. Therefore, the study also performed an ANOVA on the independent and dependent variables and the results are summarized in Table 8.

Table 8: Summary of ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	386.72	4	96.67875	8.082105	.000 ^b
Residual	945.00	79	11.96208		
Total	1331.72	83			

a. Dependent Variable: Performance of Tertiary Learning Institutions in Coastal Region of Kenya

b. Predictors: (Constant), Personnel Capability, Information Technology Capability, Network Capability, Innovation Capability

Table 8 presents the results of an Analysis of Variance (ANOVA) test conducted to determine the overall significance of the multiple regression model predicting the organizational performance of tertiary learning institutions in the Coastal Region of Kenya. The results show that the regression sum of squares is 386.72, while the residual sum of squares is 945.00, yielding a total sum of squares of 1331.72. This distribution indicates that a substantial portion of the variation in institutional performance is explained by the four predictors, strategic personnel capability, information technology capability, network capability, and innovation capability. The Mean Square value for the regression model is 96.679, while the Mean Square for the residuals is 11.962, resulting in an F-statistic of 8.082 ($p = 0.000$). Since the significance value is less than 0.05, the model is statistically significant at the 95% confidence level. This means that the combined effect of the independent variables on the dependent variable is not due to random chance, and that the regression model provides a good fit for the data.

The results confirm that the model is statistically valid and appropriate for predicting institutional performance. The significant F-value indicates that strategic personnel capability, information technology capability, network capability, and innovation capability collectively have a meaningful influence on the performance of tertiary learning institutions in the region. This underscores the importance of integrating these strategic capabilities within institutional management frameworks to enhance efficiency, innovation, and competitiveness. In essence, the ANOVA results validate that the regression model significantly explains the observed variations in organizational performance, reinforcing its reliability for strategic decision-making and policy formulation in the education sector.

In order to determine which of the strategic capability had the most influence on the performance of tertiary learning institutions in Coastal Region of Kenya, the standardized coefficient (Beta) and level of significance (p-value) were used. The results are summarized in Table 9.

Table 9: Summary of Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	14.21	3.759		3.7803	0.001
Personnel Capability	0.357	0.117	0.278	3.0598	0.000
Information Technology Capability	0.176	0.083	0.162	2.1084	0.032
Network Capability	0.563	0.108	0.455	5.2140	0.000
Innovation Capability	0.443	0.084	0.407	5.2857	0.000

a. Dependent Variable: Organizational Performance of Tertiary Learning Institutions in Coastal Region of Kenya

Table 9 presents the regression coefficients for the predictors of organizational performance of tertiary learning institutions in the Coastal Region of Kenya. The results show that all four strategic capability variables, personnel capability, information technology capability, network capability, and innovation capability, have positive and statistically significant effects on institutional performance. The constant ($B = 14.21$; $p = 0.001$) represents the baseline level of organizational performance when all predictors are held constant. This indicates that even without the influence of the four strategic capabilities, tertiary institutions maintain a moderate performance level, likely due to other operational or contextual factors.

Personnel Capability has a positive and significant coefficient ($B = 0.357$; $\beta = 0.278$; $t = 3.0598$; $p = 0.000$), implying that a one-unit improvement in personnel capability leads to an average increase of 0.357 units in institutional performance. This suggests that institutions with highly skilled, experienced, and motivated staff achieve higher levels of efficiency and competitiveness. The finding that personnel capability significantly and positively influences organizational performance aligns with Li et al. (2022), who found that ability-, motivation-, and opportunity-enhancing strategic HRM (AMO framework) enhances organizational performance through intellectual and emotional capital. Similarly, Al-Hawary and Al-Rasheedy (2021) emphasized the critical role of strategic learning in strengthening workforce dynamic capabilities, which mirrors the present study's finding that education, experience, and talent enhance performance in tertiary institutions. AlQershi et al. (2022) also revealed that human capital (HC) mediates the relationship between talent mindset and strategic performance, highlighting the mediating role of personnel quality. Locally, Endende et al. (2022) affirmed that knowledge creation practices significantly influence employee performance in Kenyan TVETs. Collectively, these findings confirm that personnel capability, expressed through education, skills, and learning orientation, is a key driver of organizational excellence, validating Human Capital Theory in the context of Kenya's tertiary institutions.

Information Technology Capability also has a positive and significant coefficient ($B = 0.176$; $\beta = 0.162$; $t = 2.1084$; $p = 0.032$). This indicates that a one-unit increase in IT capability enhances institutional performance by 0.176 units. The finding demonstrates that investing in IT infrastructure, governance, and digital processes contributes meaningfully to improved operations, service delivery, and data-driven decision-making. The finding supports the view that IT capability enhances institutional agility, communication, and decision-making. This resonates with Bai, Um, and Lee (2023), who established that IT capability improves firm agility and, consequently, performance during the COVID-19 crisis. Similarly, Wei, Xu, and Liu (2022) found that IT capability broadens and deepens the knowledge base of firms, which enhances digital innovation and performance outcomes. Tirastittam et al. (2020) further demonstrated that IT capability serves as a key enabler of higher-order organizational capabilities. In the higher education context, Tahar et al. (2022) confirmed that IT governance and application orchestration capability significantly improve institutional performance in Indonesian HEIs. Consistent with these findings, the current study shows that leveraging IT systems, infrastructure, and digital processes improves operational efficiency and academic service quality in tertiary learning institutions.

Network Capability exhibits the strongest standardized effect ($B = 0.563$; $\beta = 0.455$; $t = 5.2140$; $p = 0.000$), signifying that strong partnerships, linkages, and stakeholder collaborations have the greatest influence on institutional performance. This underscores the importance of networking with industry, government, and other academic institutions for resource sharing, innovation diffusion, and policy support. This finding parallels Yang et al. (2018), who described networking capability as a "double-edged sword" that enhances performance growth when effectively aligned with technological and customer-related capabilities. Kurniawan et al. (2021) also found that networking capability positively influences market orientation and indirectly affects firm performance through business process agility, emphasizing its indirect but powerful effect. Similarly, Anser et al. (2021) demonstrated that network capability enhances structural flexibility, which mediates improvements in strategic business performance. The present finding extends these results to

the education sector, showing that strong institutional linkages with industry, government, and other learning institutions foster innovation diffusion, resource sharing, and competitive positioning—key elements for improving the performance and sustainability of tertiary education institutions in Kenya's coastal region.

Innovation Capability is also a significant predictor ($B = 0.443$; $\beta = 0.407$; $t = 5.2857$; $p = 0.000$), implying that a one-unit increase in innovation capability results in a 0.443-unit improvement in institutional performance. This finding highlights that institutions encouraging creativity, research, and continuous improvement achieve higher sustainability and competitiveness. The positive and significant relationship between innovation capability and organizational performance reinforces findings by Yang (2021), who established that innovation capability positively moderates the relationship between service capability and firm performance. Likewise, Bahta et al. (2021) found that innovation capability mediates the link between CSR and SMEs' financial performance, confirming its critical role as both a driver and amplifier of performance. Rajapathirana and Hui (2018) also observed a strong and direct association between innovation capability and firm performance across innovation and market dimensions. Locally, Mugambi and Kinyua (2020) confirmed similar results in Kenyan commercial banks, where innovation capability significantly enhanced competitiveness and efficiency. These results suggest that innovation capability, through creative problem-solving, technological adaptation, and process improvement, serves as a dynamic capability that strengthens institutional performance, aligning with Dynamic Capabilities and Resource-Based View theories within Kenya's tertiary education landscape.

The results collectively indicate that all four strategic capabilities significantly contribute to the performance of tertiary learning institutions. However, network capability ($\beta = 0.455$) and innovation capability ($\beta = 0.407$) are the strongest predictors, suggesting that collaborative engagement and creative problem-solving drive the greatest performance gains. Therefore, tertiary institutions in Kenya's Coastal Region should prioritize building strong inter-organizational networks and fostering a culture of innovation, supported by robust human resource and IT systems, to achieve sustainable institutional excellence.

Hypothesis Testing

The first hypothesis was tested as under;

H₀₁: Personnel capability has no significant influence on the performance of tertiary learning institutions in the Coastal Region of Kenya

The regression results show that personnel capability has a positive and significant influence on organizational performance ($B = 0.357$; $t = 3.0598$; $p = 0.000$). Since the p-value is less than 0.05, the null hypothesis (H01) was rejected, indicating that personnel capability significantly predicts the performance of tertiary institutions. This implies that institutions with well-educated, talented, and experienced staff exhibit superior performance outcomes. The finding aligns with Li et al. (2022), who found that ability, motivation, and opportunity-enhancing (AMO) HRM practices improve performance through organizational intellectual capital. Similarly, Al-Hawary and Al-Rasheedy (2021) and Endende et al. (2022) reported that strategic learning and knowledge creation practices significantly enhance workforce capability and institutional outcomes. The result reinforces Human Capital Theory, suggesting that the development of personnel competencies, continuous learning, and strategic talent deployment are pivotal in enhancing the performance of tertiary learning institutions.

The second hypothesis was tested as under;

H₀₂: Information technology capability has no significant influence on the performance of tertiary learning institutions in the Coastal Region of Kenya

Results indicate that information technology capability has a significant positive relationship with organizational performance ($B = 0.176$; $t = 2.1084$; $p = 0.032$). Since the p-value is below 0.05, the null hypothesis (H02) was rejected, confirming that IT capability significantly influences institutional performance. This finding suggests that tertiary institutions leveraging IT infrastructure, digital platforms, and

e-learning systems achieve better efficiency, decision-making, and service delivery. The result aligns with Bai, Um, and Lee (2023), who established that IT capability improves firm agility and performance. Wei, Xu, and Liu (2022) also demonstrated that IT capability broadens the knowledge base, enhancing innovation and competitiveness. Moreover, Tahar et al. (2022) confirmed a similar link between IT orchestration capability and performance in higher education institutions in Indonesia. Therefore, strategic investment in IT resources enables Kenyan tertiary institutions to modernize operations and strengthen performance outcomes through technological agility and digital integration.

The third hypothesis was tested under;

H₀₃: Network capability has no significant influence on the performance of tertiary learning institutions in the Coastal Region of Kenya

The regression results reveal that network capability has a strong, positive, and statistically significant influence on organizational performance ($B = 0.563$; $t = 5.2140$; $p = 0.000$). Given that the p-value is below 0.05, the null hypothesis (H03) was rejected, affirming that network capability significantly enhances institutional performance. This indicates that institutions with robust linkages, such as academic-industry partnerships, research collaborations, and inter-institutional alliances, tend to achieve higher performance outcomes. The result supports Yang et al. (2018), who found that networking capability promotes firm growth when aligned with technological capabilities. Similarly, Kurniawan et al. (2021) and Anser et al. (2021) demonstrated that networking capability enhances market orientation, structural flexibility, and strategic business performance. In the Kenyan tertiary context, effective networking allows institutions to share resources, attract funding, and co-develop innovative programs, reinforcing the importance of inter-organizational collaboration as a strategic driver of performance.

The fourth hypothesis was tested under;

H₀₄: Innovation capability has no significant influence on the performance of tertiary learning institutions in the Coastal Region of Kenya

The results indicate that innovation capability significantly predicts organizational performance ($B = 0.443$; $t = 5.2857$; $p = 0.000$). Since the p-value is less than 0.05, the null hypothesis (H04) is rejected, demonstrating that innovation capability has a positive and significant effect on the performance of tertiary institutions. This suggests that institutions that embrace creativity, curriculum renewal, and technological adaptation experience enhanced efficiency and competitiveness. The result is consistent with Yang (2021), who established that innovation capability positively moderates the relationship between service capability and firm performance. Similarly, Bahta et al. (2021) and Rajapathirana and Hui (2018) found that innovation capability directly improves firm performance across industries. In Kenya, Mugambi and Kinyua (2020) confirmed that innovation capability enhances competitiveness in commercial banks. Therefore, innovation serves as a dynamic capability enabling tertiary institutions to respond effectively to changing educational and technological environments, thereby improving overall organizational performance.

CONCLUSIONS AND RECOMMENDATIONS

The study concluded that personnel capability had a strong and statistically significant influence on the performance of tertiary learning institutions in the Coastal Region of Kenya. Institutions with well-educated, skilled, and experienced staff achieved higher levels of operational efficiency, innovation, and competitiveness. Strategic learning, talent recognition, and staff development emerged as major drivers of performance, highlighting the importance of human capital as a key resource for institutional success. However, weaknesses in regular competency assessments and the alignment of training with staff placement indicated areas needing improvement. Overall, strengthening personnel capability through continuous learning and systematic evaluation enhances institutional performance and sustainability.

The study concluded that information technology capability significantly enhanced the performance of tertiary learning institutions in the Coastal Region of Kenya. Institutions that effectively integrated IT infrastructure, governance systems, and digital learning platforms achieved greater efficiency, transparency, and competitiveness. The findings underscored that digital transformation is a key driver of institutional growth, improving academic delivery, operational processes, and stakeholder engagement. However, gaps in Business-to-Business digital integration and monitoring systems limited optimal performance. Strengthening these areas would ensure that institutions fully harness technology to improve service delivery, resource management, and innovation. Overall, IT capability remains a strategic asset for sustainable institutional excellence and competitiveness in higher education.

The study concluded that network capability had a strong and statistically significant influence on the performance of tertiary learning institutions in the Coastal Region of Kenya. Institutions that maintained strong linkages, strategic partnerships, and effective stakeholder collaborations exhibited superior performance in resource mobilization, innovation, and academic excellence. Robust management oversight and visibility within networks enhanced institutional competitiveness and sustainability. However, moderate ratings across several indicators revealed that many institutions had not fully optimized their networking potential. The findings affirmed that effective networking fosters knowledge sharing, partnership-driven growth, and adaptive capacity, making it a critical strategic enabler of institutional performance and long-term development.

The study concludes that innovation capability has a strong and positive influence on the performance of tertiary learning institutions in the Coastal Region of Kenya. Institutions that actively foster creativity, fund research, and develop market-responsive academic programs achieve higher competitiveness, operational efficiency, and sustainability. The findings underscore that innovation drives institutional transformation by enhancing adaptability, technological integration, and relevance to evolving educational and labor market needs. However, moderate performance in process and organizational innovations indicates the need for systematic approaches to embed innovation into all aspects of institutional operations. Strengthening innovation governance and aligning initiatives with institutional strategy are essential for achieving long-term growth and excellence.

The study recommended that tertiary learning institutions strengthen their human resource development frameworks by institutionalizing continuous professional training, mentorship programs, and structured competency assessments. Additionally, aligning employee skills with specific job roles and implementing strategic talent management systems would enhance staff productivity, motivation, and innovation, ultimately improving institutional performance and long-term competitiveness in the higher education sector.

The study recommended that tertiary institutions strengthen their IT infrastructure and governance systems by investing in integrated digital platforms that enhance collaboration, transparency, and real-time monitoring. Institutions should also expand Business-to-Business digital linkages, upgrade learning management systems, and continuously train staff in emerging technologies to improve efficiency, innovation, and overall institutional performance in a competitive education environment.

The study recommends that tertiary institutions strengthen network capability through strategic partnerships with academia, industry, and government. Institutions should institutionalize regular evaluation of partnerships, promote leadership-driven collaboration, and allocate resources for networking initiatives. Building structured, goal-oriented networks will enhance visibility, innovation, and competitiveness while ensuring that institutional objectives align with evolving educational and market demands.

Tertiary learning institutions should strengthen innovation management systems by promoting staff creativity, investing in research, and integrating technology across academic and administrative processes. Institutional leaders should establish structured innovation frameworks, enhance environmental scanning, and support

process-oriented improvements. Building innovation partnerships with industry and government can further enhance competitiveness, resource utilization, and sustainability in higher education.

Recommendations for Future Studies

Based on the above concluded study, empirical gaps emerged that need to be addressed in future studies, therefore, the following studies are recommended for future research;

Future research should explore how organizational culture and leadership practices influence innovation capability in tertiary institutions. This would provide insights into how institutional norms, management commitment, and employee engagement shape creativity, problem-solving, and innovation-driven performance improvement.

Further studies should investigate the effectiveness of process innovation strategies adopted by tertiary learning institutions. This would help determine how institutions can strengthen innovation systems in administration, teaching, and service delivery to improve efficiency, quality assurance, and institutional competitiveness.

Researchers should examine the role of environmental scanning and market intelligence in fostering innovation within tertiary institutions. This study would identify how institutions use market data, stakeholder needs, and emerging trends to inform product development, curriculum design, and strategic planning.

Future research could assess how institutional resources and infrastructure support innovation capability. Such a study would clarify the extent to which financial resources, technological tools, and research facilities enable institutions to develop new programs, adopt modern technologies, and enhance overall institutional performance.

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