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RESEARCH ARTICLE

THE INFLUENCE OF PERFORMANCE CONTRACT IMPLEMENTATION ON INNOVATIONS IN PUBLIC TECHNICAL UNIVERSITIES IN KENYA

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ABSTRACT

Resulting from increasing enrolments and inadequate resources, Public Technical Universities in Kenya are viewed as providing low quality education that doesn't support research and innovation, and drive Vision 2030.Does implementing Performance Contract stimulate innovation in Public Technical Universities? The purpose of the study was to establish the influence of Performance Contract Implementation in stimulating innovations in Public Technical Universities in Kenya. The specific objective of the study was to establish: the influence of Performance Contract Implementation on Innovations in Public Technical Universities. The study utilised the Goal Setting theory advanced by Locke and Latham (2018), which states that goal setting in an organization enhances employee and organization performance. The study employed the Explanatory Survey research design. The study was carried out at the Technical University of Kenya and Technical University of Mombasa where the total study population was 15104 which comprised of 14592 Students, 109 Administrative staff and 403 Lecturers. From the population, a sample size of 377 was obtained as guided by the Morgan Krejcie formulae for determining sample size. Data for the study was collected by the use of 5-point Likert scale questionnaire. Content validity of the instrument was ensured by expert judgement. Reliability of study instruments was ascertained by Cronbach alpha where all achieved above the 0.5 threshold index. Qualitative data yielded was analysed by use of content analysis based on identifiable categories. Quantitative data was analysed by use of Factor analysis and Simple regression. Data was presented by use of tables and figures. Based on the study objective the findings revealed that Performance Contract implementation accounted for 66.6% innovation in Public Technical Universities. From these findings, the study concludes that Performance Contract Implementation has a positive influence on innovations in Public Technical Universities. The study therefore recommends that Performance Contracting should be implemented and strengthened as a management tool to increase efficiency and stimulate innovations in Public Technical Universities. The findings of this study should thus inform policy framework on Performance Contract Implementation for Public Technical Universities.

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INTRODUCTION

Performance Contracting (PC) is an agreement by a contract aimed at executing a service guided by the terms agreed upon within a specific time frame, and with a stipulated use of performance standards and resources. Performance Contracting constitutes diverse management instruments used to explain expectations and responsibilities between parties to attain agreed-upon results (Mbua *et al*., 2016). Performance Contracts essentially involve two parts; assurance of performance targets agreed upon by all the parties involved and review and evaluation of performance in stipulated time periods. Performance management can thus be ascertained through Performance Contract Implementation, monitoring and evaluation. Armstrong (2017) views Performance Contracting as a Memorandum of Understanding (MOU). MOU is rooted in on evaluation system, which not only binds but also ensures invigorated improvement of performance management of industries by making the autonomy and accountability aspect clearer and more transparent. It can thus be understood that the main objective of Performance Contract Implementation is the control, monitoring and evaluation of employee's performance which is a major determinant to the performance of the organization.

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Performance Contract Implementation provides a framework for generating desired behaviour in the context of devolved management structures. Performance Contract Implementation is a useful tool to employers in defining clearly the objectives as well as supporting new management control and monitoring methods, while leaving daily operations of management to managers at the same time. Organizations have embraced Results-based Management (RBM) approach in order to survive the organizational turbulence occasioned by externalities. RBM calls for a major change in perspective where managers are required to define expected results, set targets, measure performance regularly and objectively, gather and interpret information, make reviews and improve efficiency and effectiveness(Gabriele, 2018). The integration of strategic management and Results-based Management has necessitated the introduction of Performance Contracting as a mechanism to ensure effective implementation of strategies to realize desired performance. Public Technical Universities are mandated to research and yield innovations have also resorted to implementing performance contracts.

According to a study by Kinyanjui *et al*, (2020) on performance based contracting, findings identified both sectors, that is, public and private, use the tool as an efficient way of acquiring and delegating quality goods and services with the available resources at their disposal. However, these studies do not explicitly indicate how Public Technical Universities have been influenced in the area of innovation by Performance Contracting. GOK (2010) summarizes the objectives of Performance construct Implementation as improved service delivery; improved efficiency in resource utilization, institutionalization of performance oriented culture in the Public service, measurement and evaluation of performance; linking rewards and sanctions to measurable performance; retention or elimination of reliance of public agencies on exchequers funding; instilling accountability for results at all levels and enhancing performance. Performance Contracts are reported to have started in France in the 1970's as quest for better performance of public enterprises. In Asia, the Performance Contract has been used in Bangladesh, China, India, Korea, Pakistan and Sri Lanka. In Africa, Performance Contracting have been implemented in Benin, Burundi, Cameroon, Cape Verde, Congo, Cote devour, Gabon, Gambia, Ghana, Madagascan, Mali, Mauritania, Morocco, Niger, Senegal, Togo, Tunisia and Zaire. In Latin America, they have been used in Argentina, Brazil, Bolivia, Chile, Colombia, Mexico, Uruguay and Venezuela (Kinyanjui, *et al*., 2020). Experience from The New Zealand indicate that Performance Contract has be concerned not only with structures and systems, but also with roles, responsibilities and relationship in pursuit of performance improvement, improving the system as an evolutionary process, and the environment within which public sector management takes place.Kinyanjui, *et al*. (2020) reported that Performance Contracting was first introduced in Kenya, in the management of State Corporations in 1989 as a way of responding to the needs of the taxpayers. This was against the backdrop of the government's key priorities of implementing and institutionalizing public sector reforms that would lead to an efficient, effective, ethical delivery of services to the citizens. A Parastatal Reform Strategy paper, approved by the cabinet in 1991 was the first official recognition of the concept of Performance Contracting as part of the policies that were recommended to streamline and improve the performance of State Corporations (Mwiti *et al*, 2013). The reported success stories on the implementation of Performance Contract in the public sector entities makes a case for the present study to investigate the role of Performance Contract Implementation in stimulating innovations in Public Technical Universities in Kenya. The concept fuelling Performance Contracting approach in public sector is that once performance can be measured and performance shortfalls identified (including non-performance), actions can be taken to address the shortfall (Kimiri, 2018). The current study sought to establish if Performance Contract Implementation has stimulated performance of Public Technical Universities, through increased innovations. Currently, all state-owned enterprises in Kenya (SOE) and all Public Technical Universities sign and implement Performance Contracts, where they report on the achievements at the end of the cycle. Public Technical Universities, which fall under State Corporations, are funded by the exchequer and their core mandate is research, education, training and extension (outreach) that leads to innovation which informs development (Ngigi, 2016). This underpins the fact that education and research have been identified as key to poverty reduction and national development.

Performance Contract Implementation in Public Technical Universities is seen as a tool for improving public budgeting, promoting a better reporting system and modernizing management while enhancing efficiency in resource use and effectiveness in service delivery (Bajaj, 2018). Public Technical Universities in Kenya are required to be leading in innovation. Such innovations should transform Universities into active pace-setters in matters development and dealing with problems of modern society (CUE, 2019). Present reviewed literature does not explicitly show how adopting Performance Contract Implementation has enhanced innovation output for Public Technical Universities. The studies focus more on other factors that stimulate innovation. Gonzalez-Bvambila (2016) postulate that access to research funding made available to universities on the basis of their research and consequent research output increases innovation. Kendagor *et al* (2012) reporting on study findings on productivity of academic staff at Moi University in Kenya concluded that respondent characteristics correlated with the number of publications and innovations. Similarly OECD (2014) established that adequate policy framework supported the thrust of innovation. Polder *et al*. (2016) explains that innovation can be seen in the various types thus product, process, market and organizational innovation. The current study focusses on the four types of innovation, as influenced by Performance Contracting in Public Technical Universities. The PC presents itself as a way of providing quality goods and services in an environment of limited resources effectively (Piper, *et al*., 2017). Smith (2019) observed that the use of performance indicators in the public sector is more complex than in the private sector where there is a superficially much less complex model of accountability, in which investors are the principal management agents. The objective of this study was, therefore, to establish the potency of Performance Contract Implementation on innovations in Public Technical Universities whose core function is teaching, research and innovation.

Statement of the Problem: Studies show that Performance Contracting adoption in State Corporations was informed by

the perception that the performance of the public sector has been consistently falling below the expectation of the public due to excessive controls, multiplicity of principles, frequent political interference, poor management and outright mismanagement. Most studies on Performance Contracting have focused on management of the process and employee perception in the commercial and service State Corporations. There is scanty and inadequate information on how the implementation of Performance Contracting has influenced innovation in Public Technical Universities despite their enormous task of supporting Vision 2030 and National development agenda. Studies on innovation in Public Technical Universities reveal that personal factors (age, experience, and level of education) institutional factors (research, culture, workload, research assistance) and funding have contributed to marginal output in regard to innovation. It is not known how Performance Contract Implementation has stimulated innovations in Public Technical Universities, despite research and innovation being a core mandate of the University enterprise. It is for this reason that the researcher was motivated to undertake this study to establish the efficacy of Performance Contract Implementation in stimulating innovations in Public Technical Universities in Kenya.

Research Hypotheses: This study was be guided by the following research null hypothesis,

H_{01}: There is no statistically significant influence of Performance Contract implementation on innovations in Public Technical Universities.

Significance of the Study: The result of this study may inform policy decisions and actions in streamlining continual implementation of Performance Contracting in Public Technical Universities, by the government, to assure increased innovation. Study findings may be used by the University in identifying areas of weakness that may hamper realization of benefit of Performance Contracting. The study findings may also inform government policy on Performance Contracting. Stakeholders in the Education sector may utilize the findings in justifying adoption of Performance Contracting, as a management tool of improving performance of Public Technical Universities.

Theoretical Framework: This study was guided by Goal Setting Theory (GST) developed by Latham and Locke in 1979. The theory states that motivation and performance are higher when individuals and organization set specific goals (Armstrong, 2017). Goals significantly influence employee behaviour and performance in organizations and management practice (Locke & Latham, 2016). Based on a number of studies, goal setting is important since individuals who are provided with specific, difficult but attainable goals perform better than those given easy, non-specific or no goals at all. At the same time, however, the individuals must have sufficient ability, accept the goals and receive feedback related to performance (Latham, 2018). Such feedback should be in tandem with the set goals and aspirations of the organization. Since goals are interrelated in a hierarchical format, Institutions should thus develop goals that meet the threshold. Erez and Zidon (2017) also reiterate the need for accepting the goals which will lead to commitment to achieve during implementation.

Roux *et al*. (2016)explains that goals inform individuals to achieve a particular level of performance in order for them to direct and evaluate their actions while performance feedback allows the individual to track how well they have been doing in relation to the implementation process. Such goals if well set, motivate behaviour. Goal Setting Theory (GST) informs the present study on the premise that Public Technical Universities as State Corporations are bound to set their goals, identify requisite resources, assign task and responsibilities and conduct reviews periodically for feedback. Ultimately, this gives information on how PC has helped Public Technical Universities improve their performance, which is anchored on research and innovations.

LITERATURE REVIEW

Influence of Performance Contract Implementation on Innovation in Public Technical Universities: Public Technical Universities were brought on board to start implementation of PC in the financial year 2008/2009. For effective implementation of Performance Contracting in Public service, a Performance Contract Steering Committee (PCSC) was established in August 2003 and gazetted on 8th April 2005 with a mandate to spearhead the process. In the implementation of Performance Contract, the steering committee is assisted by an Ad-hoc Negotiation and Evaluation Task Forces whose members are drawn from outside the Public service to increase the team's objectivity (Simiyu 2016). Performance Contract implementation constitutes a range of management strategies used to define responsibilities and expectations between parties to achieve mutually agreed results (Magugui, Kogei, Yano, Chepkemoi, and Chebet 2016). Performances Contract implementation bestows bigger responsibilities to managers, who are than held accountable for results, as they are required to implement, monitor and report as a way of feedback.

In his study on Performance Contract implementation in Kenya, Osborne *et al*., (2017) established that implementation involved corporate planning and the ordering of annual work plans, adequately supported by budgeting provision and delineation of tasks in addition to levels of responsibility for performance as well as measurement as an effective tool for management of public resources. Currently, reduced funding to University education makes a case for prudent use of inadequate resources. The present study therefore sought to find out if responsibility of implementation of PC is clear, as well as if all departments are well coordinated during the PC implementation since this would contribute to organizational innovation. These findings aforementioned brings to the fore the fact that work plans are critical for performance. However, economic constraints have often driven governments into effecting budgetary cut-backs without due warning, thus throwing in disarray most of the projections in the work plans and implementation of PC targets. Simiyu (2016) reports that Performance Contracting started in France in the 1960s. The World Bank found 565 PCs in 32 developing countries in 1994, where they were used for large utilities and other monopolies and another 103,000 in China where they were used for manufacturing industry for state owned enterprises. This reveals lack of attention on the education service industry, and more specifically, Public Technical Universities in the literature.

Kinyanjui, *et al*. (2020) notes that elsewhere, Performance Contracting has been implemented in Malaysia, Bangladesh, India, Korea, Pakistan and Sri Lanka, Latin America. In Africa, PC has been implemented in countries like Senegal, Benin, Burundi, Kenya, and more recently in Rwanda. The implementations of PC often involve the establishment of mission and vision of an organization. In the study of Performance Contract as a tool for improving performance in local Authorities in Kenya, Simiyu (2016) identifies vision, mission and strategic objectives as Performance Contracting resource factors. The author further explains that Visions create possibilities that are inspirational and unique which then directs and offer a new order. These items are aligned to the objectives of the organization. However, the literature does not provide adequate information on the experience of Performance Contract implementation in Public Technical Universities. Whereas mission and vision of an entity are inputs to the implemented targets, the present study sought to obtain information on the experience of Public Technical Universities in implementation of Performance Contracts, in respect to assigning of responsibilities, allocation of adequate resources, and the efficiency of implementation.

Ngigi (2016) studying on Performance implementation in public secondary schools in Limuru-Kenya established that, there is the setting of the strategic plans which clearly define where the firm is, where it wants to be and how this is to be achieved. Musiega (2016) found out that Performance Contracting is multi-faceted in its implementation it involves internal processes, of an organizational structure, monitoring and evaluation and provision of feedback. Musiega's (ibid) findings support the present study that identifies various components of Performance Contracting implementation in Public Technical Universities. Since its inception in 2004, when only a few State Corporations were participating, PC is now being implemented in all of the Ministries, Departments, and Agencies (MDAs) (GoK, 2018). This includes Public Technical Universities. However, it is not documented how this implementation has enabled Public Technical Universities enhance innovation, in their process. The decision to implement and extent coverage to all MDAs was a result of the benefit that were beginning to manifest in participating institutions through improved administrative and financial performance as well as improved service delivery (Mbua and Sarisar, 2016). Despite this, no study has been undertaken focusing specifically on Public Technical Universities, as public entities to ascertain how implementation of PC has helped improve performance as may be measured through innovation and other mandate related aspects and roles. Public Technical Universities in Kenya face myriad of challenges from underfunding to over enrolment and shortage of facility and staff. It would be important to find out how implementation of PC has enabled Public Technical Universities overcome these problems and improve performance as envisaged by the government and the public at large. Kinanga (2016) observes that for Performance Contract to effectively have impact on employee performance, managers must be willing to involve employees in yearly performance objectives. This creates unity of purpose. Employees who exhibit any form of inadequacy should be supported through training and other strategies. Armstrong (2016) asserts that performance management is concerned with inputs as knowledge, skills and competence required to produce expected results.

Ong'ondo *et al.* (2019) notes that institutions with employees who are specialized will achieve targets more than those with little training. Better performance of employees on PC implementation should be supported by appropriate training and skill acquisition as a continual process. Public Technical Universities enlist, particularly in the academic division; highly qualified and skilled persons. It is thus expected that their performance and output is high. However, this has not been the case. It was thus important to conduct a study to establish if there exists a significant relationship between PC implementation and innovation.

Product Innovation and Performance Contracting: Olabisi *et al* (2016) established that innovation was a significant changes made to products, processes or service that makes them new. Schmitz, *et al*., (2017) view innovation as part and parcel of strategic actions implementation that improves organization performance. Innovation purpose is to provide a basis for creating modern business with adequate monitoring mechanism, value addition and reduced risks. Innovation is critical in improving performance of an enterprise, which is seen through increased profitability and market share growth (Flyvbjerg, 2017). The views above inform the present study which appreciates that Product Innovation in Public Technical Universities are capable of improving performance, as catapulted by implementation of Performance Contracting. Innovation is by and large an essential input for competitiveness as it improves organizational structures, processes, product and services. Innovation enhances an organizations strategic orientation to overcome the problems they face within working to achieve sustainable competitive advantage (Kuratko, 2016). Innovation has great commercial value resulting from its capacity to increase the efficiency and profitability of organizations.

According to (Flyvbjerg, 2017), the motivating factor for innovativeness is the need of firms within an industry to achieve higher performance and increased competitive advantage. It is thus notable that enterprises obtain increased competitive advantage and market share and dominance according to the importance they give to innovations. Yet again such innovations should increase customer satisfaction, efficiency and enhance cost-effective service delivery. From the literature, competitiveness is a critical element as it's useful in Performance Contract evaluation, and ranking. This applies to Public Technical Universities, which require to be competitive since they are ranked by the web metrics in terms of performance and are also expected to keep growing. Product innovation involves a good or service which is greatly improved in terms of technical features, component and material, incorporated software, user friendliness and other qualities that increase its utility. In the Public Technical University sector, product innovations may encompass new curriculum, new educational software, established consultancies, publications, conference papers, among others. When University education is delivered through innovative products, it becomes easier to cope with challenges of costs, accessibility, greater success and efficiency. Such products are aligned to the market, industry and individual sector needs (Sangwa et. al. 2016). Such initiatives would yield prudence in resource use. Much of the product innovation literature shows that new product that fit with firm competencies is more likely to be successful. Product innovation requires the firm to have competencies

relating to technology and relating to customers. Competency enables the firm to accomplish service delivery by using a set of material like equipment, machinery, and other non-material resources. This assumption rests well with Performance Contract Implementation perspective which gives due regard to employee skills and knowledge. A number of studies have been undertaken on product innovation. Such studies include Subramanian and Nilikanta (2016) and Atuahene – CIMA (2016). Their studies focused on product innovation and performance of commercial entities in the market. The present study focused on innovation in Public Technical Universities – a social service delivery sector. The concepts of Performance Contracting and Innovation are important meditators and variables in this study. This is because Performance Contracting as a management tool can spur product innovations, as a core mandate of a University and this would result into improved Performance. Mingers *et al* (2017) studied strategic innovations and performance in public Universities and noted that product innovation in Kenyan Public Universities can be seen through new programmes, operationalizing open learning, aligning academic programmes to Vision 2030, online access to results, online student clearing, automated school fees payment system, increased and visible corporate social responsibility, public private partnerships, branding, increased research output and marketing, among others. The standpoint of the present study is that this can be replicated in Public Technical Universities. It was important to find out if PC influenced this and what production innovative strategies had been realised to improve performance.

Kuratko, (2016) argue that product innovations provide organizations a strategic base to deal with the challenges they face as they move towards achieving competitive advantage. Innovation cuts across the organization spectrum of products, processes, marketing and the organizations of business. Similarly, innovation enables profitability resulting from efficiency in the general way of doing business. The main purpose of innovativeness is the need of firms to realize increased performance and an enhanced competitive edge. Organizations obtain more competitive advantage and market leverage according to the value to attach to innovation, which ultimately are key inputs for organizations to build a reputation with the public and customers in the sector and hence increase their market share. Schmitz, *et al*., (2017) notes that innovation is not always difficult to interpret and technical in characteristics. It can still be social, for example, study materials that enable universal learning of language and pedagogy that allow mass teaching. Stowey and Grider (2016) in evaluating innovation found out that key aspects would include creativity, problem recognition, implementation and value addition. Devoid of creativity, a team or an organization will not translate a problem into a chance for innovation. Meaningful implementation also implies creating additional value for the market at a price that enables the organization makes profit. This shows that innovations are systematic and should be beneficial to the public (market consumers) and the organizations. Public Technical Universities in Kenya are not immune to this since they have products and services to sell and operate in a sector that is full of competition from private and foreign Universities. Product innovation facilitates brand switching. Business can use product innovation to entice customers and make them switch from one model of a brand to the other; innovations would have enabled the attractive brand possess unique, and superior characteristics to meet the specific needs of the customer (Ngware *et al*. 2019). Notwithstanding the challenges, this advantage can be seen in the popularity of online learning in Public Technical Universities. Yet again, it is important to establish if implementation of PC has contributed to this scenario in Public Technical Universities. Ukpabio *et al*. (2017) proposed guidelines for collecting and interpreting technological innovation data. The guidelines identify barriers that hinder innovation in higher education and universities. They include markets, governance, political management or risk, investment in educational research and development, quality of research and development, knowledge management, teacher motivation, school climate and the private demand for innovations. The present study sought to find out how PC helped counter this challenges, in Public Technical Universities. Innovations in Public Technical Universities have been stifled by inadequate investment in education, research and development. Kyalingoza *et al*, (2015) posit that Africa lags behind in total public expenditure on research and development. This situation has resulted in Africa having the lowest ratio of scientist in research and development in the world. The paradigm shift in funding focus from higher education to primary and post primary education further complicates this matter. In Kenya, the government's commitment to offer free primary education (FPE) have impacted negatively on the availability of resources for higher education particularly research institution and Public Technical Universities. This is a major setback to research and subsequent innovation. As a coping strategy, Public Technical Universities have gradually moved away from their technical and scientific orientation (Shisia *et al*, 2018). Similarly, inadequate funding had denied Public Technical Universities research infrastructure and other relevant support services. Performance Contracting vouches for efficient use of resources. The current study sought to find out if Public Technical Universities still conduct research, innovate and showcase their innovations despite the reduced funding as stimulated by Performance Contract Implementation.

From the foregoing discussion, it can be seen that the impediments to innovations are enormous and real and require concerted efforts to surmount. Quality of research and development where this happens, then research can be widely accepted as a panacea to most developmental challenges. This would result in acceptability and consequent support for innovation. From the discussion, it can be seen that there exist a number of bottlenecks to innovations in Public Technical Universities. These impediments should ignite counter strategies to make Public Technical Universities remain innovative. Government strategies, like the introduction and implementation of Performance Contracting is expected to counter this challenge. The current study sought to establish to what extend this is true and how Performance Contract Implementation has stimulated innovations in Public Technical Universities.

METHODOLOGY

Research Design: The study employed explanatory survey research design as it sought to describe and establish the associations among the key study variables, namely, Performance Contracting and innovation. Walliman, (2017) explain that explanatory survey design is concerned with conditions or relationships that exists, practices that exist,

processes that are going on, effects that are being felt or trends that are developing. Explanatory design is used where theories are used as a basis for understanding and explaining practices or procedures (Dhanabadi, 2016). A survey-based method was deemed appropriate to examine the relationships between the variables in the innovation model.

Target Population: Target population comprised 2 Public Technical Universities in Kenya. Technical University of Kenya and Technical University of Mombasa are the focus of the study. Leyden, *et al*. (2017) define a Technical University as a career-oriented institution of higher learning that focus and concentrates on problem-solving in their research and engagement with the society. This definition informed the choice of the two Universities. Similarly, CUE (2016) identify the two Universities as Technical Universities hence making them appropriate focal points for the present study, whose focus on innovation as a dependent variable is key. Target population comprised of 109 Administrators, 403 Lecturers and 14,592 students totalling 15,104. The higher education sector is deliberately chosen for this study since Universities have a high propensity to Innovation.

Sample and the Sampling Techniques

Probability Sampling Method: Probability sampling method was used for this study. Probability sampling is most commonly associated with survey-based research where a researcher needs to make inferences from the sample about a population to answer research questions or to meet set objectives (Quinlan *et al*., 2019).

Sampling Techniques: The study population comprised of Students, Lecturers and Administrative staff. It therefore became necessary for better results to utilise stratified random sampling and simple random sampling. The stated categories of the population formed the three strata, namely Students, Lecturers and Administrators. These were mutually exclusive groups. Simple random sampling was then utilised to pick the required respondents using the lottery method.

Sample Size: The sample size was determined by using statistical table for determining sample size from a given population which was developed by Krejcie, *et al* (2017). Based on the Krejcie table a study population of 20,000 yielded sample size of 377.All the study population existed in similar geographical and operational environment and yielded information that was inferred to the entire population. Specifically, the sample size was calculated from each of the strata, thus Students, Lecturers and Administrators were identified as N1, N2 and N3 respectively. This was done in proportion to the sample size (n) relative to the population size (N) as follows

$N1+N2+N3=N$

Thus

$14,592+403+109=15,104$

Therefore the sample size from each of the strata was computed thus;

$N1 = (N1/N)*n = (14,592/15,104)*377 = 364$

$N2 = (N2/N)*n = (403/15,104)*377 = 10$

$N3 = (N3/N)*n = (109/15,104)*377 = 3$

This yielded a sample size (n) of 377. The information is summarised in Table 1.

Table 1: Sample Size Determination

S/No	Strata	Population	Sample
1	Students	14,592	364
2	Lecturers	403	10
3	Administrators	32	3
Total			377

Source: Research Data (2017)

Data Collection Procedure: Data collection procedure commenced with obtaining permission to collect data from the School of Post Graduate Studies-Kisii University. A research permit was then obtained from National Council for Science, Technology and Innovation (NACOSTI) before seeking permission from individual institutions to collect data. Primary data was collected using a questionnaire. The questionnaires were distributed to the respondents in the Public Technical Universities in Kenya to respondents willing to participate in the research. A total of377 copies of the questionnaire were administered to the participants in the entire study.

Data Collection Instrument: Close-ended questionnaire was designed based on five-point Likert-type scales. The questions were constructed to generate data in answer to specific target research questions and help to achieve the objectives of the study. The questionnaire was developed as informed by study variables.

Data Analysis and Presentation: Data collected from the study was analysed using descriptive and inferential statistics. Specifically, simple regression and Factor analysis were used. Walliman, (2017) assert that regression enables researchers to predict and gauge statistically, the relationship between two or more explanatory (independent) variables and an explained (dependent) variable. Regression analysis is appropriate as a quantitative research method which is used when the study involves analysing several variables where the relationship includes a dependent variable and one or more independent variables (Salkind, 2016). To establish the statistical significance of the respective hypotheses, analysis of variance (ANOVA) or F-tests as well as simple linear regression analysis were conducted as appropriate at 95 percent confidence level ($\alpha = 0.05$). This technique is appropriate to this study as it sought to establish the efficacy of Performance Contract Implementation in stimulating innovations which is measured by product, process, marketing and organizational innovation. The questionnaires returned from the field were coded, edited and keyed into the computer to facilitate statistical analysis. Statistical package for social sciences (SPSS) version 22 was used to assist in the analysis. Analysed data was interpreted and presented in prose explanative narration, percentages and tables.

Data Analysis and Discussion

Introduction: This section presents the correlation analysis and result of hypothesis testing. These findings are presented as guided by the research objectives. The objective of the study was to;

Table 2. Summarized Performance Contract Implementation factor analysis results

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.787
Bartlett's Test of Sphericity	Approx. Chi-Square	1349.155
	Df	10
	Sig.	.000

Total Variance Explained						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.888	77.764	77.764	3.888	77.764	77.764
2	.540	10.796	88.560			
3	.302	6.037	94.597			
4	.175	3.493	98.091			
5	.095	1.909	100.000			
Extraction Method: Principal Component Analysis.						

Component Matrix[a]	
	Component
	1
Responsibility for implementation is clear	.824
University has adequate resources for implementation	.910
Department are well coordinated	.897
Efficiency in implementation	.867
Signing of Performance Contract is done annually	.909
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Establish the influence of Performance Contract Implementation on innovations in Public Technical Universities. Summarised results are presented in Table 2.

Performance Contract Implementation on Innovation in Public Technical Universities

Table 2 Summarized Performance Contract Implementation factor analysis results: The results showed that 5 items for implementation are sorted and clustered into one component. The results of Principal Component Analysis indicate that, there is one factor whose Eigenvalue exceed 1.0. For implementation, the factor has Eigenvalue of 3.888. The factor identified in this study explains 77.764% of the total explained variance. The percentage of variance combined for succeeding items to make up 100 % variance. The value was calculated on the basis of the common variance, which is smaller than the total variance, incorporating 77.764% of variance. Rotated sum of square loadings depicts the distribution of the variance after Varimax rotation. From Table 2, the calculated Kaiser-Meyer-Olkin (KMO) has a measure of 0.787, which is above the threshold of 0.5 (Field, 2017). The Bartlett's test is significant for implementation with Chi-Square= 1349.155 (p-value< 0.05). Therefore, the KMO value of 0.787 and significance of Bartlett's statistic confirm the appropriateness of the factor analysis for implementation. According to the result presented in Table 2, the extracted factor, exhibited heavy loadings for the five items operationalized in PC implementation. This factor consisted of factor loadings for responsibility for implementation is clear (0.824), University has adequate resources for implementation (0.910), departments are well coordinated (0.897), efficiency in implementation (0.867) and signing of Performance Contract done annually (0.909).

Factor analysis presented a good fit between the implementation data and the proposed model. The goodness-of-fit statistic indicates that the model is acceptable and statistically significant. The Chi-square value of 1349.155 and (p-value< 0.05) indicates a good fit between the model and the implementation data and there exists an adequate correlation among the extracted variables.

Relationship between Performance Contract Implementation and Innovations in Public Technical Universities: To assess the influence of Performance Contract Implementation on Innovations in Public Technical Universities, the study had set the following null hypothesis:
Ho_2: There is no significant relationship between Performance Contract Implementation and innovations in Public Technical Universities. Simple regression analysis was employed to test the hypotheses. Simple regression analysis is applied to analyse the relationship between a single dependent variable and independent variable (Hair *et al*., 2017). The regression analysis results are shown in Table 3. The F-statistics produced (F = 594.584) was significant at 5 per cent level (Sig. F < 0.05), thus confirming the fitness for the model. Therefore, there is a statistically significant relationship between implementation and innovation. The coefficient of determination R^2 was 66.6 per cent. Thus, implementation can significantly account for 66.6 per cent in innovation. Based on Table 3, it indicated that the extent to which implementation affect innovation is implementation (β= 0.587, p-value< 0.05). Hence, H_{02} is rejected since the $\beta i \neq 0$ and the p-value is less than α. Field data analysis indicated that there was significant relationship between PC implementation and Innovation in Public Technical Universities. The null hypothesis is thus dismissed and the alternative hypothesis withheld. The present findings agree with Ogudha (2017) who conducted a study on effects of

Performance Contracting on TVET institutions. The study revealed that PC implementation accounted for a positive 18.5% on creativity and innovations. Mauya (2015) also found out that successful implementation of PC was made possible by clear targets and coordination during implementation. The present study found out that responsibility of implementation was clear. Wafula (2015) conducted a study on implementation of PC in Local Authorities and found out that PC implementation was done over a specific period. The present study concurs as it established that PC was implemented annually inPublic Technical Universities.

Other studies on PC implementation revealed that it supported innovative management (Chebet, 2013), involved corporate planning (Obong'o, 2016), required budgeting and resource mobilisation (Ngigi, 2016) automatically roped in employees in yearly performance objectives (Kinanga, 2016). On the other hand, Nganyi *et al*. (2014) conducted a study on PC implementation in public universities in Kenya. The study found out that implementation process required cascading which was hardly done. Similarly, there was low level of coordination. This is in contrast with the present study which established that departments were well coordinated in implementation ofPerformance Contracting.
Moraa (2015) conducted a study on challenges of the implementation of PC strategy at National Aids Control Council of Kenya. The study established a number of challenges to PC implementation which included inadequate documentation, organisation structure, culture, inadequate resources and poor reward system. The present study found out that PC implementation was achieved efficiently and there was adequate resources and coordination. The studies cited indicate keen interest in PC as a management tool. The present study addressed the issue ofrelationship between PC implementation and innovation in Public Technical Universities and ascertained a statistically significant positive relationship. This findings are critical as they make a case for systematic implementation of PC targets in a way that clear responsibilities are assigned. This is because implementation of PC targets stimulates innovations, in Public Technical Universities.

Conclusion and Recommendation

Influence of Performance Contract Implementation on Innovation in Public Technical Universities: The study sought to find out the influence of Performance Contract implementation on innovation in Public Technical Universities. From the data that was collected and analysed, by use of simple regression it was established that PC implementation accounted for a significant 66.6% in innovation, as indicated in Table 3. The study found out that the Performance Contract was signed annually, and the signing was a commitment to implement the full contract and thus the PC targets therein, as indicated in Table 2 of factor analysis results. Respondents indicated that once the PC targets are set and Performance Contracts signed, the specific target were cascaded to various Departments that were responsible for implementation. Factor analysis results summarised in Table 2 show that responsibility for implementation was clear. The current study found out that departments were properly coordinated during the implementation process**.** They had sufficient processes interactions and experience to implement the Performance Contract. The study thus concludes that Performance Contract Implementation significantly influenced Innovations in Public Technical Universities.

Recommendation

Based on the findings, the study recommends that Performance Contract Implementation be utilised as a management tool to spur innovations in Public Technical Universities.

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