

# DBA AFRICA MANAGEMENT REVIEW

VOLUME 12 NO 1  
**2022**

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CHARTERED PUBLIC AND PRIVATE UNIVERSITIES IN  
KENYA**

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A Quarterly publication of the Department of Business Administration,  
Faculty of Business and Management Sciences  
University of Nairobi

ISSN NO: 2224-2023

# DBA Africa Management Review

Received Date

01/01/2022

Accepted Date

11/04/2022

## ORGANIZATIONAL AGILITY AND PERFORMANCE OF CHARTERED PUBLIC AND PRIVATE UNIVERSITIES IN KENYA

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### Abstract

University education in Kenya experienced rapid changes in 80s and 90s which magnified in the 2020s to create challenges in meeting the expectations. Some of the changes were double intakes of 1984-1985, 1987-1988, 1990-1991 and later 2010-2011 academic years. University intake of 1987-1988 alone, increased student population by 75.2% but later reduced in 2016-2017 intake. A myriad of other complex agility related factors caused challenges but also created opportunities for higher education. For example, USIU-Africa and Strathmore universities, registered positive performance in the year 2009-2015 while many others experienced challenges compared to the previous years which implied that either rapid negative agility factors were affecting universities differently or there were certain contingent competitive advantage strategies that were contributing to the difference in performance. The enumerated factors motivated the commencement of the study whose objective was to determine the relationship between organizational agility and performance of chartered universities in Kenya and a corresponding null hypothesis was formulated to the effect that; there was no relationship between organizational agility and performance of chartered universities in Kenya. The study was anchored on general systems theory and adopted positivism philosophical research view with descriptive, cross sectional and survey as research designs. The unit of analysis was 48 chartered universities whereas the unit of observation was 271 Deans of Faculties/ Schools. Each sector was analysed separately because of significant variance in responses. The finding indicated a significant positive relationship between organizational agility and performance of public universities but the same was negative and insignificant with respect to private universities contrary to the notion that poor performance of universities in Kenya was caused by rapid changes associated with agility. Private universities also had superior capabilities and reacted better to drivers of agility. However, market drivers of agility affected both equally. The findings offered various contributions to theory, policy and practice. The proposition of the theory was found to underlie the relationship because of continuous interaction between the internal and external environments of the universities which in turn influence performance. Policy makers can utilize the findings as a guide to formulate and implement policies that focus on drivers, enablers and response to agility. Findings will create awareness of how universities can take advantage of opportunities created by agility rather than attributing failures on agility. Future studies may focus more on effect of individual dimensions of organizational agility and measures of performance on public and private universities separately. A modified replication of the study across industries is recommended on a continuous basis because drivers of agility are diverse and keep changing with time, geographical location, social and economic circumstances.

**Key Words:** Organizational agility, drivers, enablers and responses to drivers of agility.

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## Introduction

Effect of organizational agility on performance of firms had been conceptualized for over two decades prior to the study and literature on the concepts indicated a clear agreement that agility is a dynamic concept. Studies by Huang and Li (2008); Sajdak; Wendler (2013) and McKinsey and Company (2018) showed that the concrete knowledge about the nature of organizational agility was limited and agile factors that influenced performance of one firm or industry were contingent. Earlier studies conducted by Dove (1992); Gunasekaran (1998); Goldman, Nagel and Preiss (1995) and Sharifi and Zhang, (1999) showed that organizational agility consisted of various dimensions which were contextual to time and environment. Each of these dimensions did not necessarily happen simultaneously neither did they have similar effects on firm performance. These observations and conclusions about agility motivated the need to explore the gaps further with respect to the rapid changes that were occurring in Kenyan university education.

Over the 80s through to 90s and 2020s, universities in Kenya experienced rapid changes that created challenges in meeting the expectations of the stakeholders. The double intakes increased universities' capacity while unprecedented drastic measures of curbing examination cheating at Kenya Certificate of Secondary Examination (KCSE) in 2016 led to a sudden reduction in enrolment for 2016-2017 academic years (Leftie, 2016). The measure had been prompted by a previous unusual exam pass rate at KCSE level that spurred increased capacity in universities between 2007 and 2015 (Wanzala, 2015). This agility occurrence caused idle capacity and related consequences especially the reduction of income by almost all the universities. As a result, Inoorero University was permanently closed and Presbyterian University of East Africa had a temporal closure due to insolvency. In the same period, some universities that were not meeting the set standards were warned by Commission

for University Education (CUE) for non-compliance (Wanzala, 2018).

A myriad of other complex issues such as over stretched resources, decreased government funding, unit based costing, un-responsive and poorly aligned curricula to market needs resulted to threats but also created opportunities for higher education (Kitavi, 2017 ; Nyangau, 2012 ; Gudo, Olel & Oanda, 2011). Subsequently, public universities started module II programmes that admitted self – sponsored students to broaden revenue stream and support government policy of providing higher education for all qualified citizens (Chacha, 2004). Middle level colleges were upgraded to university status to expand services to rural areas. Satellite campuses were established in urban centres and liberalization of university education led to setting up of new private universities and expansion of those that were already in existence (Oanda & Jowi, 2012). Despite the difficult times experienced, USIU-Africa and Strathmore universities increased enrolment between 2009 -2015 unlike others (Strathmore, 2015; USIU-Africa, 2016). This implied that either agility was affecting universities differently or there were university specific strategies that contributed to the difference in performance.

Empirical studies on agility issues such as quality, expansion and challenges that were affecting higher education in Kenya conducted by Malenje (2014); Gudo, Olel and Oanda (2011) and Tarus, Gichoya and Muumbo (2015) used a single variable approach as a predictor of performance and yet various agile underlying forces do not affect a firm in isolation (Dove, 1992: Sharifi & Zhang, 1999). The research methodologies that were used had weaknesses which limited reliability in making conclusions about agility factors that affected performance of Kenyan universities. All of the combined aforementioned issues triggered an interest in the study which led to the question; did organization agility affect performance of chartered universities in Kenya?

### ***Organizational Agility***

The term agility emerged at Iaccocca Conference of Lehigh University in 1991 where scholars and practitioners contextualized the phenomenon that was affecting manufacturing firms. It was defined as a rapid change in business environment that required firms to respond rapidly by being adaptable and flexible (Dove, 1992; Goldman & Preiss, 1991). Capabilities of agile firms were identified as hard and soft means that encompassed infrastructure, information, skilled and competent employees and technologies aligned and integrated to enable a firm react rapidly in order to satisfy customer needs. The evolution of the concept was characterised by shifting focus on the causes and responses to environmental turbulence which led to creation of various models that attempted to adequately describe it. The model by Yusuf et al., (1999) explained that for organizations to be agile they needed to sense, perceive and anticipate change in the business dynamics implying, that the focus was external as opposed to some of the models that emphasized on the state of an agile organization. Wendler (2013) observed that agility consisted of various perspectives and dimensions contingent to the industry which in turn necessitated certain adaptability as they tried to enhance performance. Whereas aspects of agility impacted on organizations with diverse resultant magnitudes, Chabonier-Voirin (2011) opined that organizational agility was the most critical aspect that ensured survival of a firm. On a similar line of argument Zitkiene and Deksnys (2018) consolidated all the models into; enabler- capability framework, organizational agility framework and sense-response of organizational agility. In the 2020s, higher education faced numerous disruptions from government regulation, market demand and volatility, economic pressures and technology. Murkajee (2014) cited organizational agility as a crucial factor for survival of a university in the era of Massive Open Online Learning (MOOC's), blended learning, collaborative models, free education

and emergence of elite universities. In view of Literature drawn from other parts of the world, the successive fast challenges witnessed in the 80s all through to 2020s in Kenyan universities had semblance of effects of agility and therefore the motivation of the study to investigate the relationship between organizational agility and performance.

### ***Chartered Universities in Kenya***

A chartered university in Kenya is an establishment of higher education that has been granted permission by the president of the republic to confer academic awards to qualified persons in accordance to provisions of universities Act 2012, (CUE, 2014). The first university to be established was University of Nairobi in 1970 (Nyangau, 2014; Okioga, Onsongo, & Nyaboga, 2012). Mackay report led to the establishment of Moi University in 1984 (Chacha 2004) and in 1985 Kenyatta University College was elevated to university. In late 1988 an act of Parliament made Jomo Kenyatta College of Agriculture and Technology a full-fledged university in 1994. Egerton University was upgraded to university in 1987, Maseno University attained university status in 2000 and Masinde Muliro University of Science and Technology became a university in 2007.

Commission for Higher Education (CHE) established in 1995 accredited and regulated private universities and as a result, private universities attained legal chartered status before some of the oldest full-fledged public universities whose charter was assumed by virtue of their prestige (Chacha, 2004). The Commission for University Education (CUE) replaced CHE with wider mandate of regulating university education (CUE, 2014); consequently, 13 public universities were awarded chartered status in 2013 as a formality and in compliance with the law that placed them under the regulation of CUE. By 2016, there were 30 chartered public and 18 private universities making a total of 48 (CUE, 2016). These were the main players in university education while other universities operated on

a letter of interim or as affiliates of foreign universities.

The study focused on universities because at global level, it had been observed that they remained stable in their performance and retained a distinctive culture over a long period of time, when agility was ravaging other industries. Over that period, the phenomenon caused some of the organizations to change their original missions or wound up due to turbulence in their operating and business environment. However, beyond the 90s universities came under pressure to change their offering, processes and approaches when dealing with students, other consumers of knowledge and at the same time uphold the unique identity on which they were founded. Most of the instability resulted from government regulation, increased demand for pedagogical learning, global competition, changing nature of work, evolving information technology and blurred boundary between industries (Twindle & Nichols 2013)

### ***Performance of a University***

Performance is the extent to which an entity accomplishes objectives in order to achieve the overall goal (Kaur & Kumar, 2014). Traditional firms used accounting measures of performance as indicators of how well the goals were being accomplished. However, Kaplan and Norton (1992) introduced the Balanced Score Card (BSC) that provided a wider view of organizational performance in terms of financial, customer, learning and growth as well as internal processes. Performance of a university can therefore be reflected better by both financial and non-financial measures because universities have multiple, contradictory and complex missions that include teaching, research, service to communities and revenue generation (Charkarbaty, 2002 : Bogt & Scapens, 2009).

The study adopted measures of non-financial performance namely-; customer perspective, growth and development and internal processes. Oanda et al. (2008) observed that in

the Kenyan context, even private universities have to meet the public good before any other consideration implying that a positive performance in non-financial performance is a reflection of a better financial position. Therefore, the indicators selected were-; degree programmes offered, number of graduates, recruitment of staff, and support for staff progression, research funding, ranking, information technology facilities, research output, faculties and department establishments.

### **Literature Review**

Ideas concerning agility found their way into literature in 1950s (Wendler, 2013) but the concept gained more prominence after the Iacocca conference of 1991 (Goldman & Preiss, 1991). The term agility was coined and defined as the ability of a manufacturing system to meet the rapidly changing needs of the market place (Dove, 1992). The forum observed that such an organization needed to have systems with capability of shifting quickly among product models and product lines in order to take advantage of the opportunities as well as minimize the impact of threat from competitors and emerging technologies.

Literature review indicated a non-consensus on the dimensions of agility that led to emergence of various explanatory models. Among them was that of Sharifi and Zhang (1999) who divided the concept into three constructs namely drivers, enablers/capabilities and providers/responses. In all the models, drivers of agility were acknowledged as a major source of change in performance of firms. These were identified as market dynamics, competitor activities, customer requirements, technology and social factors. Enablers were defined as abilities that organizations required to respond to the changes in the external environment. Providers were identified as means by which organizations achieved their capabilities.

Another significant model was that of Yusuf, Sarhadi, and Gunasekaran (1999) that classified agile attributes along 10 decision domains which had 32 sub domains. Gligor, Holcomb, and Stank (2013) expanded the model by adding alertness, accessibility, decisiveness, swiftness and flexibility to the taxonomy. Equally, Sambamurthy, Baradwaj and Grover, (2003) identified customer agility, partnership agility and operational agility in relation to supply chain performance. Worley and Lawler III (2010) explained that in addition to systems agility, mind-set agility, adaptable organizational design and leadership were a necessity for an agile organization. Charbonier-Voirin (2011) summarized the views of various models and concluded that all earlier frameworks referred to organizational propensity to read the markets, utilize resources, improvise and innovate transformational processes, mobilize and align human resources to the strategic prospects. Therefore, organizational agility was found to play a critical role in achieving competitiveness as opposed to the entire concept of agility and the study adopted this view to focus on the organizational agility and performance of universities

Effect of agility on universities tended to conform to the suggestions of Sharifi & Zhang (1999) model which was supported by Twindle and Nichols (2013) who identified the following as drivers of agility in many of western universities. Global competition in research, expectations of higher standards by governments, increased comparative evaluation through national and global university rankings, changes in sources of funding (typical decline in government funding), limits to the possible growth of fees charged to students and the potential disruptions by emerging technologies. Less well educated students from various institutions of higher learning was also cited as another driver of agility which made students to prefer certain universities that were thought to produce more qualified professionals.

Bogt and Scapens (2009) observed that universities in the United Kingdom (UK) and Netherlands experienced a myriad of pressures that necessitated agile reactions. These ranged from requirement to promote economic growth, internationalization of the university education, need to control costs, adaptation to the professional management standards, decentralization of teaching units, greater control of the outputs, increase in the number of students, decrease of student sponsorship by government, introduction of loans to the students and increase of numbers of students funding their studies. Chakraborti, (2002) referring to the drivers of agility Universities in United States of America ( USA), observed that there was a reduction in public funding, increased cost of operations of institutions of higher learning that outpaced the other indices of price increase, augmented funding through sponsored research as well as the need to collaborate with industries

The evidence from the reviewed literature showed that agility phenomenon was manifesting itself in various forms in universities in other parts of the world in the 2020s though possibly with less magnitude compared to manufacturing firms. This may have explained the less output in researches regarding the effect of agility in higher education. Consequently the turbulence witnessed in the Kenyan universities required attention because of apparent negative impact of agility that was gradually diffusing to social –economic status of the country (Kinyanjui, 2007; Kitavi, 2017)

### ***Organizational Agility and Performance***

The extant relationship between organizational agility and performance across firms was not clear because of non- consensus on the concise dimensions of the concept of agility. Studies by Huang and Li (2008) and Wendler (2013), showed that the dimensions of agility were varied, evolved over time, and were contingent to the industry or a firm. Bessant, Knowles, Francis, and Meredith (2001) developed agility framework with themes that addressed physical

processes, strategy and the linkages as part of agile enterprise. (Sajdak, 2015) researched on people agility as part of corporate culture and performance, work force characteristics and performance as well as customer relations and performance, where findings showed that each dependent variable had a positive relationship. The studies revealed that firms focused on dimensions of agility such as drivers, capabilities and responses as separate independent variables without attempting to identify the joint effect on performance.

The earliest link of agility and universities was proposed by Willies and Dove (1996) and raised an alert on effect of agility on performance of faculties. Related studies included an empirical study on work values and agility by Salamzadeh, Najeti and Salamzadeh (2014) in virtual universities of Iran where a significant relationship was identified. Drivers of agility on Kenyan universities were studied by Tarus et al. (2015) and Gudo et al. (2011) with an emphasis on quality, challenges and opportunities in higher education. The two studies used a descriptive single variable approach that was not linked to performance. Research by Sambamurthy et al., (2003), Seemathraju (2006) and Richardson, Kettinger, Banks, and Quintana (2014) indicated that even within manufacturing firms, different factors of organizational agility were contingent to firms. The studies also majored on general concept of agility while literature was clear that only certain aspects of agility were specific to a particular industry, sector or firm. Charbonier-Voirin (2011) argued that organizational agility had a greater influence on performance of a firm compared to other forms of agility.

The empirical researches reviewed, indicated clearly that gaps existed in discovery of the precise relationship between organizational agility and performance of organizations. Even where the studies had been conducted, the nearly amorphous nature, continuous change of agility and diversity of organizations provides opportunities for an almost constant investigation of challenges and opportunities

that emerge. Specifically, agility literature described the nature of agility in the manufacturing firms in developed countries while substantial study of service industries was lacking and the findings could not be generalized for all industries. A further limitation of wide application of the discoveries was that most of the studies were exploratory as indicated by approaches in research designs where case studies were common and qualitative data collected by interviews and focus groups. The reviewed studies on Kenyan universities focused on a single variable, had methodology weaknesses and did not include all sectors of the industry, neither did they use a survey design that enable inclusivity in deductions.

Subsequently, apparent gaps existed on effects of organization agility on Kenyan universities and the study sought to establish the dimensions of agility that were affecting them and whether there was a relationship between organizational agility and their performance. The following specific objectives guided the study ; To determine the factors of agility that were affecting chartered universities in Kenya, whether there was a relationship between organizational agility and performance of chartered universities in Kenya. A corresponding null hypothesis was formulated as; there was no relationship between organizational agility and performance of chartered universities in Kenya.

### **Research Methodology**

Ontology, epistemology and paradigm anchor credible research, upon which the findings can be believed and replicated (Saunders, Lewis & Thornhill, 2009). These explain nature of the world and how a researcher discovers reliable knowledge (Guba & Lincoln, 1994). If knowledge discovered is independent of the researcher, the paradigm becomes positivism and if otherwise intepretivism. The study adopted positivism approach because the aim was to generalize the findings on universities in similar background. Research designs applied were descriptive; cross sectional and survey

designs with intention of describing the variable, collected data in a short duration from all the chartered universities in Kenya. The suitability of these research designs was explained by Zikmud (2003) who emphasized the importance of describing the nature and dynamics affecting a business within a given period of time.

Population of the study was the 48 chartered universities in Kenya and the unit of observation was the all the Deans of Schools or Faculties (Universities Websites, 2016). Deans were chosen because they were responsible for academic operations and management. A structured questionnaire with items rated on a Likert scale was analysed by use of confirmatory Factor Analysis and Linear regression models;  $PUB = \beta_0 + \beta_1OA + \varepsilon$  and  $PIV = \beta_0 + \beta_1OA + \varepsilon$  were used to predict the relationship between organizational agility and performance. PUB was performance of public university; PIV private university; OA organizational agility;  $\beta_0$  the intercept;  $\beta_1$ , population parameter; and  $\varepsilon$  error term.

### ***Validity and reliability***

Zikmud (2003) defined validity as the ability of a research instrument to measure what it is supposed to. While some constructs such as distance can be measured objectively, there are others that are based on attitude without precise determinants and ascertaining the validity of such concepts is important in providing a true reflection of the findings. In social sciences, a measure of instrument validity is important minimizing systematic errors which cause actual measurement to be consistently higher or lower than what is considered to be a mean average of a given population parameter. Construct validity can be sub- divided into face, content, predictive, criterion, discriminant and nomological (Mooi, Sarstedt & Mooi-Reci, 2018). Different data collection instruments may require different measures of validity depending on the variable construct in focus. However, all instruments must meet face and content validity which in this study was established by use of literature review and

consultation with the academic experts on issues of clarity, readability, specification and representativeness.

Reliability on the other hand, is the ability of research instrument to yield consistent results when data is collected from the same respondents more than once (Tavakol & Dennick, 2011). The most commonly used indicator is Cronbach's alpha developed in 1951 to explain the internal consistency of items contained in an instrument (Cronbach, 1951). The scale of test ranges from 0 to 1 and various scholars have suggested different levels of measures that are acceptable. Nunnally (1967) explained that Cronbach's level of 0.5 to 0.6 can suffice in measuring reliability. This measure was revised to between 0.6 and 0.7 (Nunnally, 1978) while Kaplan and Saccuzzo (2009) suggested reliability levels of 0.7 to 0.8 and therefore, the study adopted 0.5 value as the minimum Cronbach's alpha of reliability.

### **Data analysis and conclusions**

The objective of the study was to establish the relationship between organizational agility and performance of chartered universities in Kenya. The analysis included response rate, demographics, confirmatory factor analysis, regression and discussions of the findings.

### ***Response Rate***

The unit of analysis was 48 chartered universities and the unit of observation consisted of 271 Deans of Faculties or Schools (University Websites, 2016) subsequently, 271 questionnaires were sent out and 192 returned duly completed. Two public and five private universities did not respond to the request for data collection and overall 41 universities participated and seven did not. Two public and one private university declined to grant permission for data collection while seven of the 18 private universities were relatively small with no clear administrative structures and they required permission to be granted by the vice chancellors who were not available because of their busy schedules.



Response rate attained in public universities was 93.3 percent, private 72.2 percent and overall 85.4 percent which compared favourably with response rate on studies published in three top international journals studied by Baruch (1999) whose findings showed that on average, response rate by top managers was 55.6 percent. Morton, Robinson and Carr (2012) also conducted a similar study that analysed response rates achieved in researches over a period of time and found that it had declined from 90 percent to 70 percent. The outcome revealed that it was becoming increasingly difficult to get data from target population in the area of management as a result of work pressure on managers. The findings led to the conclusion that the response rate attained in this study was adequate to make deductions on what the objectives set out to achieve.

### ***Demographics***

On demographic information, the 28 public universities were owned by the government, three private universities belonged to individuals and ten to groups or institutions. Eleven private universities had local ownership, two foreign while three had both. Individuals owned the least number of universities possibly because of heavy investment, strict requirement for establishment of a university and competition from public universities. Nine universities were associated with faith based ownership while four had none and it was concluded that religious groups and institutions owned the majority of private universities, a finding that was supported by an earlier study conducted by Abagi, Nzomo and Otieno (2005).

Regarding distribution of academic disciplines 16.7 percent of the programmes in public universities were business studies, 11.1 percent physical sciences, 9.7 percent agriculture, 7.6 percent education and social sciences each, 6.9 percent computer and information technology while the rest had frequencies below 6 percent. In private universities, business studies led with 18.8 percent, social science and physical

sciences at 10.5 percent each, law studies 8.3 percent, information technology 6.3 percent and the rest had frequencies of four and below. Therefore, public universities had the highest number of disciplines compared to the private ones and physical science such as engineering, dental surgery, veterinary medicine, architecture were predominant while private universities had more theological studies.

On the question that sought to identify the clusters of programmes, a combination of undergraduate degree, masters and PhD in the same discipline topped the list in public universities with 19.4 percent, certificate, diploma, undergraduate degree, masters and PhD cluster followed at 16.7 percent. Diploma, undergraduate degree, masters and PhD cluster compared favourably at 14.6 percent. Certificate, diploma, undergraduate degree, masters and PhD combination was the highest cluster in private universities at 37.5 percent and undergraduate degree level was second at 16.7 percent. The observed trend of universities offering certificate and diploma programmes, might have resulted from the need to grow the numbers from one level to another as a result of competition that originated from rapid expansion of university education between 2007 and 2016 (Wanzala, 2018).

On the statement that sought to identify the fastest growing programme, undergraduate degree indicated the highest growth at 78.5 percent in public universities and 50 percent in private. This was followed by diploma level at 13.2 percent in public and 27.1 percent in private. Masters degree level was growing faster at 12.5 percent in private universities compared to 9.0 percent in public universities and PhD at 5.0 percent compared to 1.0 percent in public universities. Diploma level was also growing twice as fast in private universities compared to public. The growth of undergraduate degree programme was probably caused by the growing numbers of students transiting from secondary schools to university. A majority of them were sponsored to a great

extent by the government which also did the placement through the joint admissions board. The other programmes had less growth probably because many students funded their education.

The trend of growth of programmes was an indicator of demand in the market, shorter range of courses in the universities or lack of resources to implement them at post graduate level and conceivably unaffordability. The evidence can assist the government in policy formulation regarding the degrees offered in the universities and align them to the market requirements. The slow growth of the PhD

programmes needed attention because of the increased number of universities in the country and research spurred by innovations in products, organizational processes and systems. University managers can also use the data in formulating strategies necessary for taking advantage of agility triggered opportunities while minimizing the impact of threats.

**Validity and Reliability**

Cronbach’s alpha test was conducted to determine the level of reliability and the values for each dimension of agility and performance were tabulated as indicated on table 4.1.

Table 4.1 Cronbach’s alpha values for dimensions of agility

Variable	Cronbach’s Alpha	Number of Items	Interpretation
Organizational agility	0.853	39	Reliable
Government drivers of organizational agility	0.760	12	Reliable
Market drivers of organizational agility	0.604	6	Reliable
Enablers of organizational agility	0.774	12	Reliable
Response to drivers of agility	0.641	9	Reliable
Performance	0.863	18	Reliable

Source: Field data, 2019

As shown, all the values obtained were above 0.600 and were accepted as an indicator of reliability of the statements in line with recommendation of Cronbach (1951) and Kaplan & Saccuzzo (2009). The data was further subjected into various analysis processes to determine the factors of agility that affected universities. Prediction tests on the relationship between organizational agility and performance were conducted in order to provide conclusive insights as to what was affecting the Kenyan universities.

**Factors of Agility in the Universities**

Data was subjected to Component Factor Analysis (CFA) to establish those organizational agility factors that affected each sector of the university. The analysis began with Kaiser-Meyer-Olkin (KMO) and Barlett’s test of sphericity on items of organizational agility as a prerequisite for further analysis by factor analysis and results presented as shown on Table 4.2.

Table 4.2: Kaiser-Meyer-Olkin and Barlett’s Test for Organizational Agility of Public Universities

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.680
Bartlett's Test of Sphericity	Approx. Chi-Square	2597.933
	df	741
	Sig.	0.000

Source: Field data 2019

The KMO and Barlett's tests results of 0.680, 2597.933 respectively and p-value of 0.001(<0.05) obtained implied that further analysis could be carried out. Correlation of

items was then determined to assess commonality of the statements and results presented on table 4.3.

**Table 4.3: Correlation of Organizational Agility Items for Public Universities**

Statements	Extraction
Whether decreased government funding has caused any change in operations in the faculty	.610
Whether differential degree funding by the government has caused changes in operations of the faculty	.594
Whether Introduction of module 11 (parallel programmes) caused changes in faculty operations	.711
Change of CUE guidelines caused restructuring	.613
Delinked admission to bed capacity caused congestion	.624
Promotion based on CUE policy caused shortage of talent in administration	.690
Placement of students in all universities decreased numbers	.695
Closure of campuses decreased numbers	.612
Regulation by CUE decreased rate of programme introduction	.636
Phasing out pre-university decreased enrolment	.697
Decreased unit exceptions for diploma holders has decreased enrolment	.736
Number of students qualifying for university increased since fees subsidy at secondary school	.535
Flexible modes of learning increased enrolment	.634
Low degree costing in other universities caused lowering of fees	.692
Some degree programmes were phased out due lack of students	.730
Faculty introduced new programmes due to demand	.735
Change in technology led to introduction of new programmes	.523
Nature of students admitted made university to be proactive in operations	.664
University has enough facilities	.696
Administrative processes are supported by best technology	.547
University has enough competent faculty staff	.742
University has supportive welfare departments	.649
University is well stocked with learning resources	.607
Recreation facilities are adequate for staff and students	.668
There is a wide range of programmes or students to choose from	.637
University has adequate equipped laboratories	.791
University has ultra-modern virtual campus	.695
University has collaborated widely with industry	.568
Acceptance of exemptions and credit transfers contributed to high enrolment	.647
Flexible modes of learning contributed to high enrolment	.696
University opened campuses when enrolment increased before 2017	.694
University added modes of learning when enrolment increased before 2017	.737
University expanded facilities when enrolment increased	.627

University increased diploma and certificate causes from 2017	.552
University laid off staff with decrease of module 11 students	.769
Programmes have been phased out after decrease in demand	.755
There is heavy promotion of programmes by the university	.560
University introduced new programmes	.634
University has diversified sources of income after decrease in student enrolment	.624
Extraction Method: Principal Component Analysis.	

Source: Field data 2019

All items had correlation values of between 0.535 and above 0.791 and it was concluded that they were adequately correlated to describe the variable. Principal Component Analysis

(PCA) was then performed to identify the variance explained. Factors that best depicted the variable were extracted and presented on Table 4.4 below.

Table 4.4: Total Variance Explained for Organizational Agility of Public Universities

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	Percent of Variance	Cumulative Percent	Total	Percent of Variance	Cumulative Percent	Total	Percent of Variance	Cumulative Percent
1	6.030	15.462	15.462	6.030	15.462	15.462	5.009	12.842	12.842
2	5.059	12.971	28.433	5.059	12.971	28.433	3.762	9.647	22.489
3	2.862	7.338	35.771	2.862	7.338	35.771	3.220	8.257	30.746
4	2.802	7.185	42.956	2.802	7.185	42.956	2.541	6.514	37.261
5	2.123	5.444	48.400	2.123	5.444	48.400	2.286	5.862	43.123
6	1.648	4.226	52.625	1.648	4.226	52.625	2.031	5.208	48.331
7	1.456	3.734	56.359	1.456	3.734	56.359	1.880	4.819	53.150
8	1.344	3.446	59.805	1.344	3.446	59.805	1.778	4.559	57.709
9	1.193	3.058	62.863	1.193	3.058	62.863	1.726	4.427	62.136
10	1.110	2.845	65.708	1.110	2.845	65.708	1.393	3.572	65.708
11	.986	2.527	68.235						
12	.898	2.303	70.538						
13	.871	2.232	72.771						
14	.835	2.140	74.911						
15	.758	1.944	76.855						
16	.710	1.822	78.676						
17	.696	1.786	80.462						
18	.627	1.608	82.070						
19	.606	1.553	83.623						
20	.588	1.509	85.131						
21	.543	1.392	86.523						
22	.536	1.373	87.897						
23	.469	1.203	89.100						

24	.445	1.140	90.240						
25	.435	1.116	91.355						
26	.397	1.018	92.373						
27	.374	.960	93.332						
28	.338	.868	94.200						
29	.321	.824	95.024						
30	.316	.811	95.835						
31	.275	.705	96.540						
32	.264	.677	97.216						
33	.220	.564	97.780						
34	.198	.507	98.287						
35	.178	.456	98.743						
36	.147	.377	99.120						
37	.132	.339	99.459						
38	.131	.335	99.794						
39	.080	.206	100.000						
Extraction Method: Principal Component Analysis.									

Source: Field data 2019

As shown, 10 of the factors had eigenvalues greater than 1.00 and explained almost 66 percent of the variance. In addition, data was subjected to varimax rotation with Kaiser

normalization to enable better interpretation of the output. Values were controlled for less than 0.400 and the results presented on Table 4.5 below.

Table 4.5: Rotated Component Matrix for Organization Agility in Public Universities

	Component					
	1	2	3	4	5	6
University has supportive welfare departments	.800					
University is well stocked with learning resources	.789					
Administrative processes are supported by best technology	.776					
University added modes of learning when enrolment increased before 2017	.765					
Recreation facilities are adequate for staff and students	.749					
University has enough facilities	.691					
University expanded facilities when enrolment increased	.634					
University has collaborated widely with industry	.427					
University has enough competent faculty staff		.759				
University increased diploma and certificate causes from 2017		.715				
There is heavy promotion of programmes by the university		.665				
University has ultra-modern virtual campus		.580				
Flexible mode of learning contributed to high enrolment		.513				
Flexible modes of learning increased enrolment		.509				

Nature of students admitted made university to be proactive in operations			.746			
University has adequate equipped laboratories			.719			
University opened campuses when enrolment increased before 2017			.569			
Change in technology led to introduction of new programmes			.524			.464
University has diversified sources of income after decrease in student enrolment			.503	.475		
Some degree programmes were phased out due lack of students			.468			
Phasing out pre-university decreased enrolment				.817		
Closure of campuses decreased numbers				.686		
Promotion of staff based on CUE policy caused shortage of talent in administration				.447		
Decreased unit exceptions for diploma holders has decreased enrolment					.745	
Change of CUE guidelines caused restructuring					- .671	
Low degree costing in other universities caused lowering of fees					.635	
Regulation by CUE decreased rate of programme introduction						.724
Acceptance of exemptions and credit transfers contributed to high enrolment						.540
University laid off staff with decrease of module 11 students						.445
Faculty introduced new programmes due to demand						
Whether decreased government funding has caused any Change in operations in the faculty						
Whether Introduction of module 11 (parallel programmes) caused changes in faculty operations						
Delinked admission to bed capacity caused congestion						
Whether differential degree funding by the government has caused changes in operations of the faculty						
Number of students qualifying for university increased since fees subsidy at secondary school		.434				
There is a wide range of programmes or students to choose from						
Placement of students in all universities decreased numbers		.427				
Programmes have been phased out after decrease in demand						
University introduced new programmes						

Source: Field data 2019

From the data, organizational agility in public chartered universities was explained by six factor extraction. The cluster of the eight statements on component one was interpreted to refer to capabilities of organizational agility that chartered public universities possessed. Therefore, factors that enabled chartered public universities to react to drivers of agility were physical facilities, different modes of learning, welfare support and collaboration with the industry. Component two had loadings that

were understood to represent drivers of agility which were; competent faculty staff, promotion of courses on offer, demand for certificate and diploma courses, virtual learning, flexible modes of learning, increased number of students transiting from high schools and placement of all qualified students by government to universities

The third component was taken as indicators of responses by public universities to drivers of agility which led to the conclusion that public

universities reacted to drivers of agility by being proactive to nature of students admitted, increased laboratory equipment, added more campuses before 2017, introduced new academic programmes, diversified sources of income and phased out some of the programmes that did not attract students. Component four consisted of items that referred to drivers of agility that were caused by CUE in the process of regulating university education which required universities to phase out pre-university programmes, close campuses that did not meet quality standards and promote academic staff based on regulator guidelines (CUE, 2014).

The fifth component comprised of drivers of agility associated with CUE policies that led to decrease in revenue such as decreased unit exceptions for diploma courses, low degree costing in other universities and change of CUE guidelines that caused restructuring in universities. The cluster of sixth component included the statements; regulation by CUE, decreased rate of programme introduction; acceptance of exemptions and credit transfers contributed to high enrolment and university laid off staff with decrease of module 11 students, referred to drivers of agility that caused variation in number of students in public universities.

The conclusion drawn was that the factors that determined organizational agility of chartered public universities were physical facilities, technology, government policies and regulation, variation of student enrolment and introduction or phasing out of academic programmes. Therefore, public universities experienced both negative and positive drivers of agility which originated from government, market and student expectations which in turn caused them to respond by acquiring capabilities necessary for continued operations. The PCA extraction supported drivers, enablers/capabilities and responses of agility dimensions similar to Shariffi and Zhang (1999) model that suggested that these three were components of agility. The same opinions had been suggested by other scholars such as Goldman & Preiss (1991), Dove (1992), Goldman et al. (1995) and Gunasekaran (1998) and it followed that typical propositions applied to higher education sector.

Similar data was analysed to determine factors of organizational agility that affected chartered private universities and the KMO - Bartlett's tests were performed to determine the suitability of the items for further analysis. The results were presented on table 4.6 below.

Table 4:6 Kaiser-Meyer-Olkin and Bartlett's Test for Organizational Agility of Private Universities

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.302
Bartlett's Test of Sphericity	Approx. Chi-Square	1519.240
	df	741
	Sig.	0.000

Source: Field data 2019

Results of KMO - Bartlett's tests in table 4.6 above were 0.302, and 1519.240, respectively with p-value of 0.001(<0.05) which implied that the factors considered were valid in describing the variable. However further analysis was not carried out because the KMO value of 0.302 was low with reference to

Kaiser (1974) explanation that; a factor index below 0.500 is unacceptable for purpose of interpreting an output of factor analysis. There was a probability that organizational agility did not affect private universities significantly possibly because they anticipated the change or the need to enhance value motivated creation of

processes that placed them favourably in the industry.

**Indicators of Performance in Chartered Universities**

Indicators of performance in chartered universities were investigated by use of CFA through similar procedures to those used to extract factors of organizational agility. These were ability to handle complaints and requests from staff and students; processing inquiries and dissemination of information; updating information technology; processing of exams and tracking of results; improvement of facilities and collaboration with the industry; curriculum reviews and development of new academic programmes. Performance indicators in private universities were ; execution of requests and feedback to complaints, access of services by both staff and students, modes of learning offered to students, improvement of facilities, updating of information technology, processing of exams, tracking of results, receiving of inquiries and disseminating of information. Others included collaborations with the industry and introduction of new academic programmes. The pattern of loadings indicated that customer service was the highest determinant of performance, followed by internal processes, modes of offering of academic programmes and introduction of new programmes. These were similar to those used by University of Toronto in Canada (University of Toronto, 2014).

**Organizational Agility in Public and Private Universities**

Independent samples t-test was carried out to determine if there was a significant difference

Table 4.8: Independent Samples T-test for Organizational Agility in Public and Private Universities

Organizational Agility		Levene's Test for Equality of Variances		
		Sig	T-test for Equality of Means	
			Sig (2-tailed)	Mean difference
GDOA	Equal variances assumed	.011	.000	8.708
	Equal variances not assumed		.000	8.708
MOA	Equal variances assumed	.498	.477	-.597

between organizational agility in public and private universities. The results were presented as shown on Tables 4.7 and 4.8 below, where Table 4.7 shows the descriptive statistics for the data while Table 4.8 contains Levene’s test of equality of variances and t-test statistics.

Table 4.7: Means and Standard Deviations of Organizational Agility in Public and Private Universities

Statement	Type of University	Population	Mean	Standard Deviation
Government drivers of organization of agility	Public	28	37.00	8.983
	Private	13	28.29	9.558
Market drivers of organizational agility	Public	28	18.59	4.793
	Private	13	19.19	5.689
Organizational enablers of agility	Public	28	34.06	6.918
	Private	13	39.02	10.430
Response to drivers of agility	Public	28	27.19	6.472
	Private	13	31.27	5.378
Organizational agility	Public	28	116.82	21.044
	Private		117.77	23.942

Source: Field data 2019

Table 4.7 presents the sector of the university, population, means and standard deviations of organizational agility and its dimensions and Table 4.8 indicates Levene’s test for equality of variances and t-test results for equality of means.



	Equal variances not assumed		.515	-.597
OAE	Equal variances assumed	.845	.000	-4.965
	Equal variances not assumed		.003	-4.965
RDA	Equal variances assumed	.588	.000	-4.076
	Equal variances not assumed		.000	-4.076
OA	Equal variances assumed	.799	.794	-.951
	Equal variances not assumed		.807	-.951

GODA is government drivers of organizational agility; MOA is market drivers of organizational agility; OAE is organizational enablers of agility; RDA is response to drivers of agility and OA is organizational agility.

Source: Field data 2019

As shown, numerically, mean for public universities was higher than that of private and standard deviations had a difference of about 1.5. Levene's test of equality of variances indicated that equal variance was not assumed and means were statistically significant. Government drivers of agility affected public universities more than the private universities. The explanation was that the disbanded CHE closely monitored and regulated the private universities such that, when government instituted education regulatory measures for all universities, they were already compliant as opposed to the public universities. When CUE replaced CHE it began enforcing compliance and reduction of funding by government was also another source of rapid change.

On market drivers data p-value on Levene's test was 0.498 ( $> 0.05$ ) and therefore equal variances was assumed. T-test indicated that means were not statistically significant and therefore public and private universities bore the same impact of market drivers of agility possibly because of similar expectations of self-sponsored students. Public universities introduced module II programmes and admitted self-sponsored students who demanded value for their money comparable to those in private universities. Similar findings by Bogt & Scapens (2009) and Chakrabarti (2002) about universities in UK and US respectively, indicated that students who paid for their education behaved differently compared to those who had sponsorship. Expansion of universities and acceptance of graduates from

private universities by the market also raised competition for applicants.

On enablers/capabilities of organizational agility data, equal variances of means was assumed because t-test scores showed a statistical significance between the means. Numerically, the mean for private universities was higher, which suggested that private universities had superior enablers/capabilities compared to public universities which might have positioned the private universities to cope better with drivers of agility, a view that was supported by Chacha (2004). Means for responses to drivers of organizational agility indicated a higher numerical mean for private universities and from Levene's test results equal variances was assumed. The t-test score led to the conclusion that mean difference was statistically significant and since the mean for private universities was higher, it implied that the response to drivers of agility was better compared to that of public universities.

Results for overall mean for organizational agility inferred that the means for public and private universities were not statistically significant. Consequently, organizational agility affected the universities in the same way, but individual dimension were contingent to each sector. This led to the conclusion that government drivers of agility affected public universities more compared to private universities. Private universities had different capabilities that facilitated them to react differently to the drivers but market drivers impacted on the universities in similar ways.

Consequently, further analysis on the relationship between organizational agility and performance of public and private universities was determined separately. The null hypothesis that was being investigated was split into two to reflect each sector and were stated as follows as follows;- there was no significant relationship between organizational agility and performance of chartered public universities and there was no significant relationship

between organizational agility and performance of chartered private universities.

**Organizational Agility on the Performance of Public Universities**

Linear regression model;  $PUB = \beta_0 + \beta_1OA + \varepsilon$  was used to predict the relationship between organizational agility and performance of public universities and results presented on Table 4.9 below.

Table 4.9: Regression of Organizational Agility on Performance of Public Universities

Model	R	R Square	Adjusted R Square		
1	.553 <sup>b</sup>	.306	.279		
ANOVA a					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	810.985	1	810.985	11.464	.002 <sup>c</sup>
Residual	1839.301	26	70.742		
Total	2650.286	27			
Coefficients a					
Model	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.
(Constant)	28.115			3.189	.004
Organizational Agility	.255		.553	3.386	.002
a. Whether the university is public or private = public					
b. Predictors: (Constant), Organizational Agility					
Dependent Variable: Performance					

Source: Field data 2019

Table 4.9 above shows R squared value of 0.306, which meant that organizational agility explained 30.6 percent of variation in performance of public universities. The overall model was significant (P=0.002, <0.05) and null hypothesis which stated that there was no significant effect of organizational agility on performance of public universities was rejected. The predictive equation was  $PUB = 28.115 + .255OA$  meaning that one unit increase in organizational agility led, on average to a change of .255 units in performance. These results were interpreted together with those of description of organizational agility which showed that

student population in public universities increased because of government fee subsidy in secondary schools and Introduction of module II programmes. This could have increased revenue collection that enabled public universities to raise more funds to bridge the deficit from exchequer and also opened up new campuses before 2017. Accordingly, positive relationship between organizational agility and performance was attributed to greater number of students that enhanced higher productivity.

**Organizational Agility on the Performance of Private Universities**

Linear regression model;  $PIV = \beta_0 + \beta_1OA + \epsilon$  was used to assess the relationship between

organizational agility and performance with respect to private universities and results presented in Table 4.10 below.

Table 4.10: Regression of Organizational Agility on Performance of Private Universities

Model	R	R Square	Adjusted R Square		
1	.484b	.234	.164		
ANOVA a					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	336.702	1	336.702	3.361	.094 <sup>c</sup>
Residual	1101.963	11	100.178		
Total	1438.665	12	100.178		
Coefficients a					
Model	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.
(Constant)	98.953			5.568	.000
Organizational Agility	-.264		-.484	-1.833	.094
a. Whether the university is public or private = private					
b. Predictors: (Constant), Organizational Agility					
Dependent Variable: Performance					

Source: Field data 2019

Table 4.10 above indicates R squared of 0.234 but explanatory power of organizational agility on performance was insignificant because the overall model was not fit ( $P=0.094, >0.05$ ). Consequently, there was failure to reject null hypothesis and therefore organizational agility did not affect performance of private universities significantly. The possible explanation was that government drivers of agility did not have considerable effect on private universities probably because they had complied with the policies. They also had better enablers and response to drivers of agility and when the opportunity to increase number of students arose, they responded by offering superior facilities and flexible modes of learning which attracted more students.

**Summary of the findings**

The objectives and the corresponding null hypothesis sought to determine whether organizational agility had any contribution to

the performance of chartered universities in Kenya. Organizational agility contributed 30.6 percent to performance of public universities and the null hypothesis was rejected but a negative insignificant contribution of 23.4 percent ( $R\ squared=.234$ ) for private universities. This led to failure to reject null hypothesis and hence, organizational agility did not influence performance of private universities significantly. The resultant mixed results concurred with empirical studies elsewhere in the world which explained that agility is a multifaceted concept that has diverse dimensions (Huang & Li 2008; Wendler (2013). The outcomes were also supported by earlier findings of Goldman et al. (1995), Sharifi & Zhang(1999) and others that followed such as (Sajdak, 2015) whose studies concluded that the impact of agility on various manufacturing firms depended on type of industry, environment, contextual

circumstance, time interval and the triggering events.

Studies by Nganga, (2010), Nyangau, (2012) and Odhiambo (2018) described the impact of rapid changes on universities as having an indirect association with high demand that did not match the corresponding investment in facilities, manpower and government funding. Data from Kenya National Bureau of Statistics (2015) showed that student admissions to universities rose by 213 percent in the period between 2009/2010 and 2014/2015 academic years. The numbers were enormous in comparison to the resources needed to support them and it is possible that the sudden increase instigated the challenges and opportunities that led to establishment of satellites campuses whose quality standards did not meet the compliance criteria (CHE, 2014).

The contributions of the finding to the body of knowledge was that organizational agility created opportunities for university education in Kenya, contrary to the belief that it was the source of numerous problems witnessed in public universities. It also does not affect firms that are adaptable to rapid change significantly and its influence on service industries is similar to that of manufacturing firms. The study also provided a quantitative approach that led to generalization of findings as opposed to the studies reviewed whose methodologies and designs were exploratory, qualitative and or case studies.

### **Summary, Conclusions and Recommendations**

The unit of analysis for the study was the 48 chartered universities in Kenya (CUE, 2016) and unit of observation were Deans who represented either a Faculty or a School. A structured questionnaire that contained statements constructed on a likert scale were used to collect data, out of which 192 were completed and returned. The 28 public universities that took part in the study were owned by government, 11 private universities had local ownership, two by foreigners, three

had both ownership while a majority were owned by religious institutions.

Literature review indicated that a difference between public and private universities in terms of sources of financing, nature of students that joined each, ownership among others existed. This necessitated factor analysis to isolate factors that best described the state of the variables in each. Physical facilities, technology, government policies and regulation, variation of student enrolment and introduction or phasing out of academic programmes were isolated as factors of organizational agility that affected public universities. The extraction supported Shariffi and Zhang (1999) model which identified drivers, enablers/capabilities and responses as dimensions of agility. Factor analysis for organizational agility was not performed for private universities because the KMO value of 0.302 was too low and did not meet the threshold for further analysis.

Results of independent two-sample t-test indicated that the difference between average means of public and private universities was statistically significant and consequently regression analysis was determined for each. A variance of 30.6 percent in performance of public universities was explained by organizational agility and null hypothesis was rejected. The overall model for private universities was not significant and there was failure to reject null hypothesis; consequently, organizational agility did not affect performance of private universities.

Following the findings, government policies should enable public universities to strengthen module II programmes, add flexible modes of learning and introduce new programmes when opportunities arise because they may not be long lasting especially in social sciences and information technology. Public universities should be fully empowered to run autonomous public and private facilities where the public entity plays the role of investor in the private entity. This will enable earning of revenue from resources owned by government by

providing university education to private students willing to pay for services similar to what is paid to private universities especially for degree programmes not offered by private universities such as physical sciences and technology. Innovative ways of utilizing idle capacity in universities are vital.

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