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Project Delivery Systems, Procurement Practices and Implementation of Building Construction Projects in the Kenyan Judiciary

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Abstract
Kenyan population increased from 20 million in 1985 to approximately 47.6 million in 2019 and with it, demand for justice also increased yet the growth did not come with improved Judiciary infrastructure. This attracted the World Bank through the Judicial Performance Improvement Project (JPIP) to fund 30 major court construction projects while the Kenyan Government also funded another 33 such projects from 2013. However, by January, 2020,only 10 projects had been completed and successfully handed over with all the 63 projects being out of the planned time and with variation on the original scope of works.This gave rise to this study that aimed to evaluate the influence of project delivery systems on implementation of building construction projects in the Kenyan judiciary as moderated with the procurement practices. The study was based on general systems theory. Pragmatism paradigm and convergent parallel mixed research design was adopted and proportionate stratified sampling was used to select a population of 234 consisting of judiciary staff, construction staff and consultants.Primary data was collected through use of questionnaires, interviews and document content analysis. Reliability was tested using Cronbach's Alpha while data was analyzed using descriptive statistics which included measures of central tendency. Qualitative data was subjected to thematic analysis to triangulate results derived from quantitative data. Inferential statistics was analyzed by correlation, simple linear regression and multiple regression analysis. Two hypotheses were tested to establish whether there were significant relationships between project delivery systems and implementation of building construction projects in the Kenyan Judiciary, namely 1.H_0: Project delivery systems have no significant relationship with implementation of construction projects in the Kenyan Judiciary and 2.H_0: There is no significant moderating influence of procurement practices on the relationship between project delivery systems and implementation of construction projects in the Kenyan Judiciary.The findings were that there was a significant influence of project delivery systems on the implementation of construction projects in the Kenyan Judiciary and that procurement practices significantly moderated the relationship between project delivery systems and implementation of building construction projects in the Kenyan Judiciary.The slope coefficient was significant when $p \leq 0.05$. The findings of the study will be beneficial to policy makers, project managers in public and private sectors and scholars regarding project delivery attributes on implementation of building construction projects.
Keywords: Project delivery Systems, Procurement Practices and Implementation of Building Construction Projects.
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Introduction

Project Implementation is an area of great concern to all stakeholders due to the immense resources committed to projects. Project Implementation (Project Performance) is the expectation of all stakeholders concerned. Even though, there are different definitions of Project implementation, (Muller, Geraldi and Turner, 2012) perceived Project performance to mimic project success. Existing statistics on project implementation has recorded 90% failure rate of major construction projects (Deloitte, 2017). In United Kingdom, construction projects are characterized by unreliable delivery procedures due to budget and time overruns (Ochieng and Price, 2009). The average World Bank project failure rate is 50% in Africa (Ika, Diall and Thuillier,2011). There is time and budget overruns in at least 90% and 28% in Africa respectively. This is lower than Kenyan average which is 47% for cost overruns and slightly higher than 87% for time overruns (Deloitte, 2017).

1.1 Statement of the problem

Kenyan population increased from 20 million in 1985 to approximately 47.6 million in 2019 and with it, demand for justice also increased yet the growth did not come with improved Judiciary infrastructure. This attracted the World Bank through the Judicial Performance Improvement Project (JPIP) to fund 30 major court construction projects while the Kenyan Government also funded another 33 such projects from 2013. However, by January, 2020,only 10 projects had been completed and successfully handed over with all the 63 projects being out of the

planned time and with variation on the original scope of works. Delay in delivery of the court building contracts amounts to delayed justice as the court building constructions are meant to reduce the distance to court and thus take justice closer to the people.This study was thus carried out with the aim of evaluating the influence of project delivery systems and the moderating effects of procurement practices on the implementation of the building construction projects in the Kenyan judiciary.

The Delivery of a project can be compared to a delivery of a manufactured good from one point to the other by different transport systems. This delivery can either be done through road, railway or air. These are synonymous to the delivery systems used to implement building construction projects. The delivery of the projects like delivery of goods is done through various project delivery attributes. For example, there are teams involved in whatever system that is chosen and efficiency and proper integration of these teams is necessary for seamless delivery of the product. The other important attribute in this process is the adoption of proper project management practices at every level, the user involvement or participation on this matter is also very important so that the right project that meet their needs is delivered. Resources in form of labor, raw materials and equipment are at the centre of the delivery of the building product. These are items that are affected by the procurement practices used by an organization from all stages of the supply chain. Study of use of alternative project delivery attributes rather than breadth of experience, empowerment, and cohesion as affecting the project success has been recommended (Marcus, Mark and Karen, 2010). Moreover, Debby, (2017) developed 39 performance attributes that are necessary during project implementation. The list included project delivery system issues amongst others. This study focuses on the influence of project delivery systems on the implementation of building construction projects in the Kenyan Judiciary.

The choice of the project delivery system affects the projects' success rate, (Huimin, Keli, and Pen 2015). Ribeiro (2001) notes that delivery of a construction project on schedule and within budget is still an increasingly complicated and risky business and that choosing and tailoring the most suitable project delivery approach to the customer's needs is crucial. According to Ibrahim, Costello, and Wilkinson (2013), as a response to the inconsistency and lack of alignment inherent in conventional procurement strategies (delivery methods or systems) there is increasing focus on team collaboration practices in the implementation of construction projects. Design, Bid and Build (DBB) conventional procurement approach does not promote collaboration, teamwork and cooperation amongst project teams needed to resolve this fragmentation, and any plan addressing the idea of team cohesion and the combined power of all project teams has the potential to impact project outcomes positively (Ibrahim, et al., 2013).

1.2 Research Objective

The purpose of this paper was to examine the influence of project delivery systems on the implementation of building construction projects in the Kenyan Judiciary and also examine the moderating influence of procurement practices on the relationship between project delivery attributes (Project delivery systems) and the implementation of building construction projects in the Kenyan Judiciary.

1.3 Hypothesis

The study sought to test the following hypotheses:

1.H_0: Project delivery systems have no significant relationship with implementation of building construction projects in the Kenyan Judiciary.

1.H_1: Project delivery systems have significant relationship with implementation of building construction projects in the Kenyan Judiciary.

2.H_0: There is no significant moderating influence of procurement practices on the relationship between project delivery systems and implementation of building construction projects in the Kenyan Judiciary.

2.H_1: There is a significant moderating influence of procurement practices on the relationship between project delivery systems and implementation of building construction projects in the Kenyan Judiciary.

2.0 Literature Review

This section covers the review of literature on project delivery systems and implementation of building construction projects, findings and the gaps that exist which this study sought to fill by answering the research questions posed so as to achieve the study objectives and resolve the study problem**.**

2.1 Project delivery systems and Implementation of Building construction Projects

Marcus, Mark and Karen (2010) used positivist and qualitative field study approach to investigate the role of the implementation team attributes in Enterprise Resource Planning (ERP) system adoption and ten participants were used; the current study will improve on the study by using 234 participants. The study found that support of organizational activities, stakeholder satisfaction, and system acceptance were the key project success determinants, noting that team empowerment and cohesion are not necessary precursors to project success. The

current study bases on these recommendations by using mixed research methodology to study the influence of project attributes that include project delivery system, project team integration, project management practices, user involvement as moderated by procurement practices on implementation of building construction projects in the Kenyan Judiciary.

According to Project Management Institute (PMI) (2008) a project delivery system is a coherent procedure depicting all steps to be followed from project commencement to satisfactory completion. Project delivery system shows roles and responsibilities of different actors until the project is delivered to the owner (Lampe, et al., 2015).In most cases a single or multiple model can be employed to achieve desired project results. There is no one best procurement method (Project delivery system) for all projects, (Naoum and Egbu, 2016).In a construction project users and owners are mostly concerned with how the specific project in process will be implemented.

There are different challenges which can be associated with project delivery. To mitigate these challenges in America, the American Institute of Architects (AIA) in 2007 developed an alternative project delivery system model which incorporated owners, architect, contractor and all other stakeholders who are involved directly during the project delivery. The delivery approach is known as integrated project delivery (IPD). The model elaborated project schedules and roles played by different stakeholders. Through this model, project owners are assured to benefit from coherent, multidisciplinary and collaborative pool of experts. Since, project development has different phases; the choice of delivery systems dictates roles and responsibilities to be undertaken by relevant stakeholders. Project delivery systems definition is hinged on contractual arrangement between contractors and owner and consideration of total contract cost during contractor's selection (Plusquellec, et al., 2016).

The traditional project delivery system in most countries is the Design, Bid and Build method. There are other methods which have gained prominence in the construction industry like; construction management at risk, multi prime contracting, design build and integrated project delivery (Park, Sae-Hyun, Hyun-Soo and Wooyoung, 2009). The proponents of these alternative delivery methods argue that each of them will render some benefits to its users once adopted in terms of project completion time, cost management and dispute resolution mechanisms (Park et al., 2009).In addition authors also state that use of alternative delivery system lead to delivery of projects faster, improve cost and schedule performance, take advantage of constructability and construction innovation, reduce disputes and improve relationship amongst stakeholders (Dai and Molenaar, 2014).

Dang and Le-Hoai (2016) carried out a study in Vietnam aimed to identify the correlation and causality between critical success factors (CSFs) and Design and Build (DB) project performance as measured by key performance indicators using a questionnaire survey. The results of correlation indicated that parties' capabilities play an important role in determining the success or failure of DB projects. In addition, the results of causality highlight six CSFs which significantly affect DB project performance. They include resolving conflicts quickly; overall managerial actions in planning, organizing, leading and controlling; project participants' satisfaction with the financial return from the project; competent multidisciplinary project team; project team members' good/active attitudes to the job; and adequate funding throughout the project. It was also shown that there is no significant difference about the project performance between public and private sector DB projects.

An empirical analysis by Korkmaz et al., (2010) of project delivery methods on project outcome of US buildings concentrated on three methods namely DBB, DB and CMAR. Data was collected via study interviews and questionnaire containing both close and open-ended questions. Qualitative analysis was done by pattern matching cross case synthesis and explanation. The research revealed that the level of integration in the delivery process had a significant impact on the final project outcomes. For the green projects CMAR and DB delivery systems performed better than DBB. Despite using small sample size in this study, they also relied heavily on external validation of the past study findings which in itself may lead to repetitive errors owing to the fact that integration and changes in the delivery methods change day in day out. Current study will overcome this by taking a larger sample size that will be used for intensive analysis of delivery methods.

According to McGraw Hill construction (2017), DBB has taken over the other delivery systems even though a quarter of architect and contractors are still using DB and CMAR. Though more than 40 percent of owners, architect and contractors expect greater height in integration in the project delivery, there are good signs that integration is gaining foothold in the building sector. McGraw Hill construction (2017) documented that the project stakeholders perceive cost and schedule as the critical success factor for a given project especially in the construction industry. McGraw further observes that upcoming delivery systems such as integrated project delivery (IPD) and Design-Build-Operate or Maintain (DBO/M) have been recognized differently by the projects stakeholders. IPD is seen to be a delivery system that suits improved communication among the project teams and improved process efficiency as well as improved productivity. On the other hand, DBO/M is seen to have low uptake owing to its resemblance with the familiar delivery systems. Due to this DBO/M is not expected to rise in coming years. Those hoping to complete project on scheduled time to their satisfaction are encouraged to adopt CMAR delivery systems which is suitable to those who aim to mitigate the risk of litigation (McGraw Hill

construction, 2017).

In choosing a project delivery system, owners have to put into consideration the following: budget, schedule, level of expertise, risk assessment and design. According to Peak et al., (2009) budgetary allocation has to be realistic since it will be a key pillar on project feasibility. Although, there are alternative financing approaches which can be adopted for every project, there is need to evaluate risk associated with each and choose the model which will be easier to finance and repay. In fact, project owners ought to determine project overall costs and determine risk which they will be exposed to if they adopt any financing model.

Further, construction projects are not void of risk which may be attributed to site safety, time and budget. Project owners must endeavor to understand all risks facing their projects and make appropriate allocations in their projects to all stakeholders. Risk allocation ought to mimic those parties who have clear understanding on measures which they can take to manage and mitigate (Peak et al., 2009). Finally, project owners must be familiar with construction management process and should depend on in-house management team rather than hire external parties to manage the process. The choice of project delivery method should be pegged on owner's ability to perform duties and responsibilities in heterogeneous construction projects.

In the study on an alternative classification of project delivery methods used in the United States building construction industry , Franz and Leicht (2016) hypothesized that project delivery methods in the US may be represented by patterns in related characteristics of contract responsibility, timing of involvement, prequalification, selection criteria and cost transparency. Ghadamsi and Braimah (2012) in their study summarized that different procurement methods (project delivery systems) are available for clients to choose from based on allocation of responsibilities, activities sequencing, process and procedure and organizational approach. These are the characteristics that are used as variables in this study to represent the project delivery systems.

Studies done in other parts of Africa have identified the various project delivery systems used. In South Africa Olubunmi and Atsango (2016) stated that the oldest and dominant method in construction industry is design and Build (DB). According to Design Build Institute of America (2014), DB is dominant in South Africa since it gives project owner capacity to identify project prior to construction, harmonize project delivery with project need and competitively procure contract services. Moreover, DB has the advantage of integrating teams which are more coherent and can easily expedite project logistics. In addition, DB teams have the strength of commissioning teams geared towards implementation of projects owing to their past history. Construction projects in Nigeria have average cost overrun of 46% which was above African average cost overrun (Okore, Akpan and Amade, 2017). In addition, the study revealed that level of risk exposure to users and contractors differed amongst project delivery system, 65% in DBB, contractors had risk exposure of 54% under CMAR. Regarding DB Users risk exposure was 20% and contractors was 33%. It was recommended that though the dominant delivery procedure in the public sector was DBB an alternative design should be adopted to minimize chances of cost overruns. Kenyan Judiciary construction industry is not void of challenges since the industry is characterized by delayed delivery of projects. There may be a need to recommend adoption of an alternative project delivery system based on the research findings so as to minimize chances of time,cost and schedule overruns in the Kenyan Judiciary building construction projects.

3.0 Methodology

In this section, research methodology which was used to achieve objectives is presented

3.1 Introduction

The study adopted a mixed research methodology whereby both quantitative and qualitative approaches were used to collect and analyse data concurrently. A thorough literature review was carried out on implementation of building construction projects, project delivery systems and procurement practices with the aim of addressing the objectives of the study. The research instruments were constructed after the objectives were stated and hypothesis formulated. They were tested for validity and reliability. This process was guided by pragmatism paradigm design.

Quantitative and Qualitative data was collected from 127 respondents which represented 54% response rate from Court User committee chair persons, Infrastructure committee members, clerk of works, Architects, Contractors, Quantity surveyors, Engineers and NEMA specialists.Quantitative data was collected from 108 respondents while Qualitative data was collected from 19 key informants (Project committee members and NEMA specialists). The researcher adhered to ethical issues inclusive of honesty and trust, voluntary participation, privacy, anonymity, disclosure, harm and risk policy.

3.2 Pilot Test

Data collection instruments were pilot tested on 30 respondents derived from 15 projects which were ongoing in Judiciary. According to Sekaran and Bougie (2013) pilot test is carried out to establish the validity, reliability

and accuracy of a research instrument prior to its administration. Through piloting viability of a research design can be examined. Cooper and Schnidler (2014) recommended pilot testing so as to identify challenges which may hinder correct data collection and any hurdle which may create uneasiness amongst the respondents. Thus, piloting was carried out to examine the ability of the research instruments to solicit for data required in the study. From piloting unclear, vague and ambiguous questions were reframed, deleted and replaced with those that enhanced attainment of study objectives. The pilot study established that the questionnaire was valid and reliable for all the target respondents except the NEMA Specialist who indicated that they were not preview to some of the information sought in the quantitative study thus could not complete the questionnaire, as such, the researcher moved their sample to the qualitative study.

3.3 Validity of Research Instruments

Validity is the ability of the research instrument to achieve the measurement of the contents desired in the study (Sekeran and Bougie, 2013). Moreover, Cooper and Schnindler (2014) argued that validity is the ability of the research instrument to be truthful, accurate and meaningful in measuring what it was supposed to measure as per study objectives and research questions. In this study validity of research instruments was enhanced through examination of their content and face validity. Content validity was established through trio expatriate opinion all hailing from University of Nairobi and they determined whether contents in the questionnaire captured the study contents. This was in tandem with recommendations by Cooper and Schindler (2014), that a three-judge bench comprising experts from an area under investigation can determine the accuracy of a research instrument.
To attain face validity, the research instruments were distributed amongst three independent project management experts who were tasked to scrutinize the research instruments to examine their contents in relation to study objectives. The feedback from the experts were incorporated in the research instruments prior to their distribution.

3.4 Reliability of the Research Instruments

Reliability is the ability of a research instrument to yield consistent results when administered on similar respondents at different times (Bryman and Bell, 2015). Further, Copper and Schindler (2014) argued that reliability is determined by the extent to which research instruments give similar results when administered on different respondents hailing from a similar population. Questionnaires were administered on court user committee chair persons, project managers, engineers, contractors' foremen, quantity surveyors and NEMA specialists drawn from 30 JPIP and 33 GOK projects. Cronbach Alpha was used to test for reliability. Alpha values (coefficients) range from zero (0) where there is no internal consistency to one (1) where there is total internal consistency. The higher the coefficient, the more reliable the measurements scale. The alpha co efficient was 0.945 which was greater than 0.7 a figure considered reliable.

3.5 Data Collection Procedure

Research introduction letter was sought from University of Nairobi. The letter was instrumental in applying for research permit from National Commission for Science, Technology and Innovation (NACOSTI), which was presented to the Kenyan Judiciary to get approval to collect data from completed and ongoing construction projects. The researcher administered questionnaires with the help of research assistants who understood the status of completed and ongoing construction projects. The Questionnaire was scripted online on Kobo Toolbox platform, thereafter, Computer Aided Personal Interviews (CAPI) were conducted where an interactive link was sent to the target respondents for them to fill the questionnaire, after which, they submitted the data to a cloud server, where the data was accessed and analyzed. This method was ideal given the prevailing COVID-19 situation in Kenya during the data collection period. The data was collected during the month of August, 2020.

4.0 Results

This section presents data analysis, results and discussions based on field-data collected from the targeted study participants. The findings presented formed a basis for drawing conclusions and recommendations for the study.

4.1 Demographic profiles of respondents

Demographic details of the respondents comprising role in project, gender of respondents, education level and duration of service in the project are presented in Table 1.The study was based on the whole population (census) and so the selection of respondents was not randomized. The respondents distribution was appropriate as all groups were well represented.

Table 1: Demographic profiles of respondents

Role in the Project.		
Respondents	Frequency(f)	Percentage %
CUC Chairperson/HoS	30	24%
Contractor Foreman	30	24%
Clerk of Works	18	14%
Engineers	15	12%
NEMA Specialists	11	9%
Architects	9	7%
ICM	8	6%
Quantity Surveyors	6	5%
Total	127	100
Gender of Respondents		
Gender	Frequency(f)	Percentage %
Male	93	86%
Female	15	14%
Total	108	100.0
Highest Level of Education – (Quantitative Study)		
Education Level	Frequency(f)	Percentage %
Undergraduate degree	68	63%
Postgraduate degree	25	23%
Diploma/ Certificate	15	14%
Total	108	100
Duration of service in the Project		
Respondents duration of service	Frequency(f)	Percentage %
Less than 3 years	28	26%
Between 5 and 3 years	31	29%
Above 5 years	49	45%
Total	108	100

From table 1 majority of the respondents (60;48%) were CUC Chairperson/Hos (Head of Stations) and Contractor's Foremen, followed by Clerk of works and Engineers (33; 26%). NEMA Specialists, Architects, Infrastructure committee members,(ICM) and Quantity Surveyors. This distribution is significant since the Court User Committee chair persons and clerk of works who are the majority respondents are on sites on daily basis thus their response on the project questionnaires are likely to be accurate. In addition the respondents like CUC (Head of Stations) NEMA specialist, Architects, Engineers, Infrastructure Committee members and Quantity Surveyors are conversant with the projects as they participated in designs and project supervision.

While majority of the respondents were male (93;86%) while only 15(14%) were female, implying that implementation of construction projects in the Kenyan Judiciary is male dominated. This is in line with other studies done in the construction industry. BORAQS (2012) found out that, women professionals in the industry accounted for only 6% of the construction industry professionals while National Construction Authority (2014) noted that women were underrepresented in the construction industry comprising of only 19% of employment with only 7% of them owning construction contracting firms.

Majority of the respondents (68% or 63%) also had first degree and postgraduate degrees (25or 23%) while 15 (14%) had Diploma/ Certificate after completion of form four. With all the respondents having tertiary college level of education and above it was expected that they were aware of the project requirements.

In addition majority of the respondents had more than 3 years' of service in the project (80; 74%) and only (28;26%) had worked in the project for less than 3 years'. This shows that most of the respondents had enough experience in the projects they were managing and could therefore ably respond to individual projects questionnaires.

4.2 Description of Project delivery system from Likert Scale Data

The aggregated scores were inserted under the individual scales as rated by the respondents.

Table 2: Project delivery System from likert scale data.

	Statements	N	Min	Max	Mean (M)	Std Deviation (SD)
1	**Contract responsibility**	**108**	**1**	**5**	**3.75**	**0.83**
1.1	The project delivery system used was suitable for speedy delivery of Design and Construction of the projects.	108	1	5	3.76	0.95
1.2	The project delivery system used enhanced quality delivery of the projects.	108	1	5	3.89	1.05
1.3	The project delivery system used contributed to the control of cost escalations in the project.	108	1	5	3.66	0.99
1.4	The project delivery system used enhanced reduction of dispute in all phases of the project.	108	1	5	3.68	1.12
		108	1	5	**3.75**	**0.83**
2	**Roles and Responsibility of the Parties**	108	1	5	**4.32**	**0.64**
2.1	The project delivery system used incorporates users, architects, engineers ,NEMA specialists, contractors and other stakeholders	108	1	5	4.52	0.77
2.2	The project delivery system used elaborates project schedules	108	1	5	4.18	0.83
2.3	The project delivery system used elaborates roles played by different stakeholders and enhanced use of multidisciplinary and collaborative pool of experts.	108	1	5	4.27	0.86
		108	1	5	**4.32**	**0.64**
3	**The general sequence of activities required to deliver the project**	108	1	5	**3.11**	**0.75**
3.1	The project delivery system used required drawings and bill of quantities to be completed and tendering to be done before appointment of contractor and commencement of construction works on site.	108	1	5	4.53	0.82
3.2	The delivery system used enabled the construction to begin on site as designs were ongoing.	108	1	5	2.57	1.46
3.3	The project delivery system used allowed contractor to be involved during project design.	108	1	5	2.07	1.31
3.4	The project delivery system used allowed sequential activities in delivering project, with little or no parallel sequencing of activities.	108	1	5	3.27	1.12
4	**Reduction of disputes**	108	1	5	**3.89**	**0.78**
4.1	The project delivery system used reduced disputes between contractor and consultants due to well prepared tender documents.	108	1	5	3.90	0.90
4.2	The project delivery system used reduced disputes between contractor and owner due to well prepared brief.	108	1	5	3.92	0.90
4.3	The project delivery system used reduced disputes between contractor, consultants and owner by providing proper checks and balances .	108	1	5	3.99	0.96
4.4	The project delivery system used reduced confrontation between the design teams and the team responsible for supervising construction;	108	1	5	3.83	0.92
	Composite Mean and Standard deviation	108	1	5	**3.78**	**0.54**

Results from Table 2 indicate that majority of the respondents agreed that the project delivery system used was suitable for enhancing contract responsibility in the implementation of building construction projects in the Kenyan Judiciary as it was suitable for speedy delivery of designs and construction of projects,enhanced quality

delivery of the projects , contributed to the control of cost escalations in the projects and enhanced reduction in dispute in all phases of the project.

Majority of the respondents further agreed that the delivery system used was suitable for enhancing roles and responsibilities of parties in the implementation of construction projects in the Kenyan Judiciary as it incorporated the users, Architects, Engineers, NEMA Specialists, Contractors and other stakeholders , elaborated project schedules , elaborated roles played by different stakeholders and enhanced use of multidisciplinary and collaborative pool of experts.

In addition, majority of the respondents were undecided that the delivery system used was suitable for enhancing general sequence of activities in the implementation of building construction projects in the Kenyan Judiciary as it required drawings and bill of quantities to be completed and tendering to be done before the appointment of contractor . They were also undecided that the delivery system used enabled construction to begin on site as designs were on going and allowed contractor to be involved during project design . They were also undecided that the delivery system used allowed sequencing of activities in delivering projects, with little or no parallel sequencing of activities.

On the other hand, the majority of respondents agreed that the delivery system used was suitable for enhancing reduction of disputes in the implementation of building construction projects in the Kenyan Judiciary as it reduced disputes between contractor, consultants and owner by providing proper checks and balances ,reduced disputes between contractor and owner for well-prepared brief, reduced disputes between contractor and consultant and owner by providing proper check and balances and reduced confrontation between the design teams and the team responsible for supervising construction.

Overall, respondents agreed that the project delivery system used was appropriate for the implementation of building construction projects in the Kenyan Judiciary. Results obtained from interviews ,focus group discussions and document content analysis indicated that the judiciary primarily used Design Bid and Build for delivery of its building construction projects. These results also confirmed that Design Bid and Build (DBB) was suitable for delivery of building construction projects in the Kenyan Judiciary. There is therefore no evidence from the study findings to suggest that an alternative delivery system, not DBB (Dai and Molenaar,2014) should be considered during the implementation of building construction projects in the Kenyan Judiciary

4.3 Inferential Analysis

Further examination using Pearson's correlation analysis was done to establish the direction and strength of the relationship between project delivery systems and implementation of construction projects. Linear regression analysis was then used to test the first hypothesis of the study which was stated as follows:

$1H_0$: Project delivery systems have no significant relationship with implementation of building construction projects in Kenyan Judiciary.

$1H_1$: Project delivery systems have significant relationship with implementation of building construction projects in Kenyan Judiciary.

The results are presented in Table 3

Table 3: Results of correlation and hypothesis test of Project Delivery Systems on Implementation of Building Construction Projects

Correlation analysis results on project delivery systems.			
	Implementation of building construction		Project delivery systems
Implementation of building construction	Pearson Correlation	1	
	Sig.(2-tailed)		
	N	108	
Project delivery systems	Pearson Correlation	.589**	1
	Sig.(2-tailed)	*0*	
	N	*108*	*108*

*** Correlation is significant at the 0.01 level (2-tailed)*

Model summary for regression of Project Delivery Systems on Implementation of Building Construction Projects

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.589a	0.347	0.341	1.4533

a Predictors: (Constant), Project delivery systems

ANOVA for regression of Project Delivery Systems on Implementation of Building Construction Projects

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	119.228	1	119.228	56.451	.000b
	Residual	223.88	106	2.112		
	Total	343.109	107			

a. Dependent Variable: Implementation of construction projects
b. Predictors: (Constant): Project delivery systems

Coefficients of Regression of Project Delivery Systems on Implementation of Building Construction Projects

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.734	0.56		4.879	0
	Project Delivery Systems	0.53	0.071	0.589	7.513	0

a. Dependent Variable: Implementation of Judiciary construction projects

The results from Table 3 indicate that Project delivery systems have positive and significant relationship with implementation of building construction projects (R=0.589, p< 0.01; 2-tailed). This suggested that Project delivery systems could have an influence on implementation of building construction projects in the Kenyan Judiciary.

The coefficient of determination $R^2 = 0.347$. This means that 34.7% of the variance in implementation of construction projects in the Kenyan Judiciary was explained by project delivery systems

ANOVA results show that the F-calculated (F=56.451) was greater than F-critical (3.94), with p=0.00< 0.05. The regression model was therefore a good fit for the data analyzed and may be used for predicting Implementation of Building Construction projects in the Kenyan Judiciary.

The null hypothesis that project delivery systems have no significant influence on implementation of building construction projects in Kenyan Judiciary was rejected and the alternative accepted that *project delivery systems have a significant influence on implementation of building construction projects in Kenyan Judiciary*. Implementation of Building Construction projects "Y" can be predicted, in part, by

Project Delivery Systems "X_1" using the model $Y = 2.734 + 0.53X_1$

This finding supports finding by Huimin, Keli and Pen (2015) who found that the choice of the project delivery system affects the projects' success rate. The study results from the interview guides and document content analysis revealed that the delivery system used by the Judiciary was only DBB. This rendered the comparison of DBB and other delivery systems as earlier proposed in this study not possible.

4.4 Moderating influence of Procurement Practices on the relationship between project delivery system and implementation of the building construction projects in the Kenyan Judiciary

Further examination using Pearson's correlation analysis was done to establish the direction and strength of the relationship between the moderated project delivery system and implementation of construction projects. Linear regression analysis was then used to test the second hypothesis of the study which was stated as follows:

2.H_0: There is no significant moderating influence of procurement practices on the relationship between project delivery system and implementation of construction projects in the Kenyan Judiciary.
2.H_1: There is a significant moderating influence of procurement practices on the relationship between project delivery system and implementation of construction projects in the Kenyan Judiciary.

Table 4: Results of correlation and hypothesis test of moderated project delivery system on Implementation of Building Construction Projects

Correlation analysis results on moderated project delivery system.

		Implementation of building construction	Moderated project delivery system
Implementation of building construction	Pearson Correlation	1	. 864**
	Sig.(2-tailed)		
	N	108	
Moderated project delivery system	Pearson Correlation	. 864**	1
	Sig.(2-tailed)	*0*	
	N	*108*	*108*

*** Correlation is significant at the 0.01 level (2-tailed)*

Model summary for regression of Moderated project delivery system on Implementation of Building Construction Projects

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change statistics		
					R square Change	F Change	Sig F Change
1	.870[a]	.757	.754	11.62189	.41	329.443	.000

a Predictors: (Constant), Moderated project delivery system

ANOVA for regression of moderated project delivery system on Implementation of Building Construction Projects

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	44497.360	1	44497.360	329.443	.000[b]
	Residual	14317.240	106	135.068		
	Total	58814.600	107			

a. Dependent Variable: Implementation of construction projects
b. Predictors: (Constant): moderated project delivery system

Coefficients of Regression of Moderated project delivery system on Implementation of Building Construction Projects

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.834	2.846		2.050	.043
	Moderated project delivery system	.792	.044	.870	18.151	.000

a. Dependent Variable: Implementation of Judiciary construction projects

From Table 4.the coefficient of determination R^2=0.757.This means that 75.7% of the variance in implementation of construction projects in the Kenyan Judiciary was explained by moderated Project delivery systems. The procurement practices moderated the relationship between project delivery systems and implementation of building construction projects with R^2 **Change =0.41 (p=.000 < 0.05).** The null hypothesis that there is no significant moderating influence of procurement practices on the relationship between project delivery systems and implementation of building construction projects in Kenyan Judiciary was rejected and alternative hypothesis that *there is a significant moderating influence of procurement practices on the relationship between project delivery systems and implementation of building construction projects in Kenyan Judiciary* accepted.

ANOVA results show that the F-calculated (F=329.443) was greater than F-critical (3.94), with p=0.00< 0.05. The regression model was therefore a good fit for the data analyzed and may be used for predicting Implementation of Building Construction projects in the Kenyan Judiciary.

Implementation of Building Construction projects "Y" can be predicted, in part, by
Project delivery systems "X" using the model $Y = 2.734 + 0.53X_1 + 0.792X_2$ From Table 3 and 4,
Where: Y – Implementation of building Construction Projects.

X_1- project delivery systems, and
X_2- moderated project delivery systems.

5. Conclusions

In conclusion, the first objective examined the influence of project delivery systems on the implementation of building construction projects in Kenyan Judiciary. The study sought to measure the suitability of the delivery system adopted by the Kenyan Judiciary on contract responsibility, roles and responsibilities of parties, general sequence of activities required to deliver a project and reduction of disputes. Project delivery systems was found to significantly influence implementation of building construction projects in Kenyan Judiciary. The project delivery systems is an important factor in the implementation of building construction projects as depicted by the case of the projects in the Kenyan Judiciary.

Finally, the second objective examined the moderating influence of procurement practices on the relationship between project delivery systems and the implementation of building construction projects in Kenyan Judiciary. The results indicated that there was a significant moderating influence of procurement practices on the relationship between project delivery systems and the implementation of building construction projects in Kenyan Judiciary. The study concludes that project procurement practices does significantly influence the relationship between project delivery attributes and the implementation of building construction projects.

6.Recommendations

This section presents recommendations according to the two objectives of the study. The first set of recommendations is made for practitioners in project management while the second set is for policy intervention. The last set of recommendations are addressed to Scholars of Project Management.

The study established that project delivery systems have a significant influence on implementation of building construction projects in Kenyan Judiciary and that 34.7% of the variance in implementation of construction projects in the Kenyan Judiciary was explained by Project delivery Systems. The study has thus revealed that Project delivery systems are some of the key success factors in implementation of building construction projects and should be given attention by Project management practitioners during project implementation.

The Judiciary can improve on the implementation of its building construction projects by closely monitoring and carrying out the best industry practices on the indicated attributes. Similar studies should be encouraged by the Government and Private Sector in all organizations undertaking projects as a continuous projects evaluation process to enable continuous projects improvement within the organizations concerned. Successful implementation of projects is required by all stakeholders in the construction industry. This study is beneficial to public sector organizations, project sponsors or patrons, investors in infrastructure projects, contractors, consultants, the domestic and international lending institutions and agencies including other governmental and non-governmental organizations interested in infrastructure projects as it provides them with information on project delivery attributes required for successful implementation of building construction projects in Kenya and developing countries with similar issues to Kenya.

The study has used system theory and introduced a new way of looking at project delivery in terms of a transport system where a project just like goods can be delivered by road, railways or air. The delivery of the projects just like the delivery of goods is done through various project delivery attributes e.g the procurement method used, integration of the teams involved, project management practices used, the user involvement on the process and the procurement practices used. Amongst these factors will be some that the author refer to as product production or manufacture factors. The delivery system can affect the quality of a product by making sure that it delivers the manufactured good without damages. So if the manufactured good is defective from the factory (Contractors team) the delivered project will be defective whatever system is used. There is need to develop this model so as to isolate and control contractors construction activities as this is key to project delivery. The attributes accessing contractors construction success need to be included in the project delivery attributes model for further evaluation.

The finding of the study that the delivery system used (DBB) encouraged project integration contradicts previous studies that have indicated that Design, Bid and Build (DBB) conventional procurement approach does not promote collaboration, teamwork and cooperation amongst project teams.

The results of the study revealed that only Design, Bid and Build (DBB) project delivery system was used to implement building construction projects in the Kenyan Judiciary therefore comparison with other delivery systems (DB and CMR) as had been done in other studies was not possible.

From the study, procurement practices is one of the key success factors that need to be properly managed in study of the relationship between project delivery systems and implementation of building construction projects as it enhances that relationship. There are other equally significant variables (for example contractors

construction attributes) that could influence the implementation of building construction projects in the Kenyan Judiciary that call for further studies. Further research could therefore be done but not limited to the following areas:Improve this study by adding more variables under the study attributes to improve on their explanatory power on the implementation of building construction projects.Identify more moderating variables that confound the relationship between project delivery systems and implementation of building construction projects, and similar study could be done in other organizations (e.g ministry of education projects, Ministry of health projects within the Central and County Governments) implementing building construction projects to enable comparison and development of best practices relevant to Kenya or any developing Country.

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