Thematic Overview of Corruption in Infrastructure Procurement Process

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Introduction

Many public and private enterprises globally regard corruption in Infrastructure Procurement (IP) as an inescapable fact of life. This is not uncommon in the developing countries as corruption adversely influences the day-to-day modus operandi of the procurement of infrastructure projects, goods, and services. Corruption in this context refers to the abuse of position, regulatory, legal or political leverage to extract extra costs allocated to the procurement of infrastructure projects (Le et al., 2014). In this event, the project financier or developer may never recoup the loss incurred, and the perpetrators mostly deny their involvement thereof (Wang et al. 1999; Shan et al., 2016). According to the World Bank, corruption has been one of the utmost barriers to socioeconomic development which does not only result in misappropriation of resources but also, loss of lives and properties (Lewis 2003). Corruption destabilizes development by weakening the economic foundations of institutions and distorting the rule of law (Tabish and Jha 2011). In infrastructure projects, some of the widely identified adverse effects of corruption include the execution of sub-standard construction works and the distortion of the entire procurement process. This is often due to the criticality, fragility, and vulnerability of the entire procurement process to corrupt behaviours (Le et al. 2014). Bower (2003) also indicated that a construction project is an intricate process organized through different links and integrates the interests

34   of many stakeholders with the aim of achieving a built facility, possibly at the best price, highest quality

35   and within the best specified time frame. The procurement process of every construction or

36   infrastructure project is identified to be a very vital process of project's realization. Simply put, a

37   transparent and successful procurement process is a key determinant of completing a project promptly

38   and within the estimated budget.

39   According to Clough et al. (2000) and Martins (2009), procurement includes purchasing, sourcing and

40   every other activity connected to providing supplies, materials, equipment, workforce, knowledge,

41   management services, and supervision to accomplish stipulated objectives of an infrastructure project.

42   Procurement usually connects a highly fragmented supply side, typically professionals in the

43   construction industry which include contractors, architects, engineers, suppliers, surveyors, labourers,

44   and builders to a less fragmented demand side which includes clients, project representatives, owners

45   and financiers. Bower (2003) highlighted that since every construction project goes through a

46   procurement phase, there is a high potential for procurement as a practice to influence project

47   management in the positive direction. Likewise, a possible flaw in procurement can create an adverse

48   effect on project management. The susceptibility of any procurement phase to corruption exposes an

49   entire project to the risk and awful impacts of corruption. There is, therefore the need to critically and

50   empirically access the vulnerabilities and other associated risks the procurement process faces regarding

51   corruption.

52   Over the past two decades, there has been a growing interest in IP, contributing immensely to

53   the increase in the body of knowledge in the subject area. However, there is an absence of unified view

54   and a systematic review of research studies dedicated to IP over the years which is essential for further

55   studies. This study, therefore, aims to conduct a systematic and a holistic review of corrupt practices in

56   IP processes. While carrying out the stipulated aim, the following specific objectives will be addressed

57   in this study: 1. Identify the degree of thematic or topical coverage of the subject matter in construction

58   and engineering management research; and 2. Determine and propose future research directions on

59   corruption research in IP. This study explores these two objectives in the subsequent sections. This

60   study would serve as a valuable reference for industrial practitioners and researchers interested in

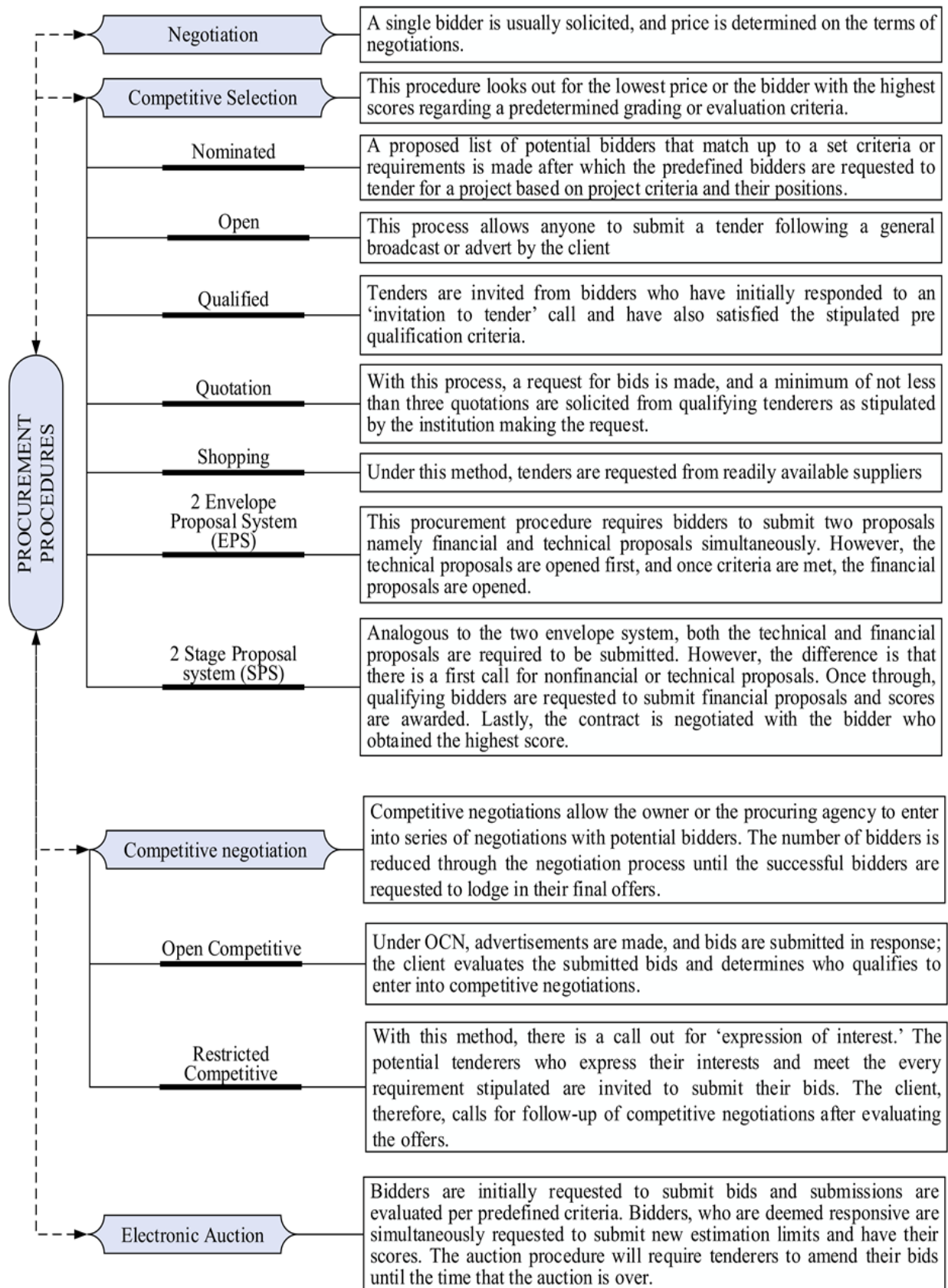61   corruption and how to deal with it in IP.

62

63   **Understanding IP Systems, Policies, and Procedures**

64   Procurement is simply as an act of purchasing or obtaining goods, works or services at the best 'value-

65   for-money' rate (Love et al., 1998). Procurement systems, on the other hand, are best described as the

66   organizational systems that delegates responsibilities and powers to individuals and firms and explicitly

67   outline all the possible elements in the construction of an infrastructure or a project (Love et al., 1998;

68   Liu and Wilkinson, 2011). According to Ogunlana (1999), the procurement systems regulate labour

69   division among the experts or parties involved and also controls the modus operandi of all the processes

70   along with associated rules and the contractual relations. The primary considerations for any

71   procurement system include the condition of contract, project delivery method and the price formation

72   method (Eriksson and Westerberg, 2011; Sutt, 2011). To ensure the success of a building project, one

73   of the primary factors to put right is the construction delivery method or system to be adopted (Bennett

74   and Grice 1990; Chan 2000). The selection of an apropos procurement system is therefore regarded as

75   a very vital step in the process of any construction project. Construction managers or project owners

76   are however duty-bound to determine a suitable procurement system right after the objectives and goals

77   of the project are determined. Moreover, the person responsible for the determination of the listed

78   criteria should do so as per the specific needs of the project and also the project's participants abilities

79   to tolerate risks (Sutt 2011).

80   An independent advisor can be called upon to help a client or a project's financier identify any

81   potential risks or vulnerabilities associated with the procurement process. For example a trusted project

82   risk manager (Akintoye et al. 2008). Also, in drawing up measures to check or control any possible

83   procurement risk, there is a need for the procurement entity to develop suitable and comprehensive risk-

84   mitigating plans that encapsulate measures to deal with any possible occurrence of corruption at any

85   stage of the IP process (Tabish and Jha, 2011). If a client makes a wrong choice, the penalty incurred

86   may be time and cost overruns, project's quality may be compromised and a possibility of general

87 dissatisfaction to the client (Lædre et al. 2006). Even though studies have shown that the wrong choice

88 a procurement system for a project may cause a serious adverse effect on the project, another adverse

89 situation that hinders the success of efficient delivery of a project is corruption at any stage of the

90 procurement process. The procurement method selected for a specific project will, therefore, have a

91 direct influence on the stipulated project objectives and also the level of integration that will exist among

92 the project team members. Other influencing variables include the nature of the project, client's

93 resources, the ability to make changes and other external factors such as potential changes in interest

94 rates, changes in legislation and so on. The systems of procurement that are frequently mentioned and

95 adopted include fixed price contracting (lump sum contracting), design and construct, construction

96 management, on-call contracting, guaranteed maximum price, full-cost reimbursable, total package

97 options, partnering, public-private partnerships (PPP), performance-based contracting, and force

98 account (Ruparathna and Hewage 2013).

99   Whereas procurement systems outline the possible organizational structures for carrying out

100 procurement, procurement procedures and policies provide the premises for selecting a suitable

101 contractor to support or carry out the ideal and chosen procurement system. The policies are usually

102 shaped by client organization values (ISO 2008). Procurement policies can be categorized into three

103 main constructs, according to Touran et al. (2008). They are value-based procurement, qualification-

104 based procurement and low bid procurement. While the primary causes of procurement issues are

105 attributed to low-bid procurement, procurement units are consequently pursuing value-based and

106 qualification-based procurement policies. Governments, usually aim to achieve the best value or value

107 for money (Langdon and Everest, 2004; European Commission, 2011). However, due to corruption,

108 this objective is normally difficult to achieve, although this argument cannot be generalized. Value for

109 money in IP refers to the realization of the best and ideal amalgamation quality and full life cost to

110 achieve demands or needs of the customer. The different types of procurement procedures with their

111 respective descriptions are illustrated in figure 1. Detailed notes on most of the procedures captured in

112 Figure 1 can be found in the references provided (i.e., ISO 2008; Ruparathna and Hewage, 2013).

Negotiation	A single bidder is usually solicited, and price is determined on the terms of negotiations.
Competitive Selection	This procedure looks out for the lowest price or the bidder with the highest scores regarding a predetermined grading or evaluation criteria.
Nominated	A proposed list of potential bidders that match up to a set criteria or requirements is made after which the predefined bidders are requested to tender for a project based on project criteria and their positions.
Open	This process allows anyone to submit a tender following a general broadcast or advert by the client
Qualified	Tenders are invited from bidders who have initially responded to an 'invitation to tender' call and have also satisfied the stipulated pre qualification criteria.
Quotation	With this process, a request for bids is made, and a minimum of not less than three quotations are solicited from qualifying tenderers as stipulated by the institution making the request.
Shopping	Under this method, tenders are requested from readily available suppliers
2 Envelope Proposal System (EPS)	This procurement procedure requires bidders to submit two proposals namely financial and technical proposals simultaneously. However, the technical proposals are opened first, and once criteria are met, the financial proposals are opened.
2 Stage Proposal system (SPS)	Analogous to the two envelope system, both the technical and financial proposals are required to be submitted. However, the difference is that there is a first call for nonfinancial or technical proposals. Once through, qualifying bidders are requested to submit financial proposals and scores are awarded. Lastly, the contract is negotiated with the bidder who obtained the highest score.
Competitive negotiation	Competitive negotiations allow the owner or the procuring agency to enter into series of negotiations with potential bidders. The number of bidders is reduced through the negotiation process until the successful bidders are requested to lodge in their final offers.
Open Competitive	Under OCN, advertisements are made, and bids are submitted in response; the client evaluates the submitted bids and determines who qualifies to enter into competitive negotiations.
Restricted Competitive	With this method, there is a call out for 'expression of interest.' The potential tenderers who express their interests and meet the every requirement stipulated are invited to submit their bids. The client, therefore, calls for follow-up of competitive negotiations after evaluating the offers.
Electronic Auction	Bidders are initially requested to submit bids and submissions are evaluated per predefined criteria. Bidders, who are deemed responsive are simultaneously requested to submit new estimation limits and have their scores. The auction procedure will require tenderers to amend their bids until the time that the auction is over.

113

114   **Figure 1:** Procurement Procedures. (Adapted from ISO 2008; Ruparathna and Hewage, 2013)

115   **Research Methodology**

116   This study employed the methodological processes employed by Chan and Owusu (2017), Le et al.

117   (2014), and Osei-Kyei and Chan (2015) to guide the selection of relevant papers for the review. A two-

118   stage method, which includes targeted journal search and a desktop search, was used to identify and

119   select the relevant reviewed documents. This method was also used in previous similar review studies

120   (Chan and Owusu, 2017). This two-stage method is described below.

121

122   **Stage 1-Target Journal Search**

123   The first stage consisted of papers retrieval from targeted journals. This study followed a similar trend

124   of other construction management (CM) review studies where consultations are mostly made to Chau's

125   (1997) rankings of CM journals. Although some scholars regard Chau's (1997) ranking system to be

126   very old due to the emergence of new journals, other scholars still see it to be very useful and continue

127   to refer to this list regarding CM journal selection and choice of papers for consultations. However, to

128   clear all arguments concerning the publications selection process for this review, a desktop search with

129   the help of Scopus was also conducted at the second stage which is detailed out in section titles **'stage**

130   **2'**. Most CM review studies normally refer to the top six journals in Chau's (1997) ranking list,

131   however, to increase the anticipated number of research papers, this study consulted the 12 leading

132   journals in Chau's list. That is the journals with average scores of 60 percent and above, per the scores

133   used in ranking the journals. The 12 identified journals are Journal of construction engineering and

134   management(JCEM), Engineering Construction and Architectural Management(ECAM), International

135   Journal of Project Management(IJPM), Construction Management and Economics(CME), Journal of

136   Management in Engineering (JME), Building Research and Information(BRI), Automation in

137   Construction(AIC), Journal of Construction Procurement(JCP), International Journal of Construction

138   Information Technology(CIT), Cost Engineering(CEN), Transactions of American Association of Cost

139   Engineers(AAC) and the Proceedings of the Institution of Civil Engineers-Civil Engineering (PICE-

140   CE). The respective virtual libraries(VL) of these journals were identified, to begin with, the search.

141   The VLs of the identified journals included the American Society of Civil Engineers(ASCE) Library,

142 Science Direct, Taylor and Francis Online, Emerald insight and the Institution of Civil Engineers

143 Virtual Library. These VLs were directly consulted together with their search engines to retrieve the

144 initial required papers. The following keywords were used in all the search engines to retrieve the initial

145 papers, "corruption, infrastructure, procurement, and construction." The keywords were limited to these

146 four to identify only the papers discussing the topic under review. At the end of the first search, the

147 relevant publications retrieved included: JCEM(41), ECAM(10), IJPM(34), CME(38), JME(24),

148 BRI(19), AIC(1), and PICE-CE(3). However, the following journals recorded no paper on the subject

149 matter: JCP, CIT, CEN, and AAC. After retrieving all the papers at the end of the initial search, a

150 rigorous visual examination which consisted of a deep reading of all the papers was conducted to select

151 the valid papers relevant for this review. Therefore, at the end of the visual examination, the valid papers

152 that passed for the review are JCEM(6), ECAM(2), IJPM(4), CME(7), JME(3), BRI(2), AIC(0), and

153 PICE-CE(3) summing up to 27 papers.

154

155 **Stage 2 – Secondary Desktop Search**

156 After retrieving the valid papers in stage, one using Chau's (1997) rankings, the authors noticed that

157 other recent potential journals had not been captured in Chau's (1997) list. This propelled the

158 commencement of a desktop search using Scopus database. In this case, relevant papers explicating the

159 subject matter could be identified and selected. This approach has been adopted by Darko and Chan

160 (2016) and Hong et al. (2014). Analogous to the search approach used in stage one, the following

161 keywords "corruption, procurement, infrastructure, construction, and engineering" were searched in the

162 Title/ Abstract and Keyword field. A total of 53 papers were retrieved initial after the first search from

163 various journals. However, the journals that were already identified in stage one were discarded. Again,

164 another deep visual examination of the retrieved papers was conducted to discard any paper that did not

165 cover the topic for the review. At the end of the desktops search 21 new and relevant papers including

166 six from LME, four from Journal of Professional Issues in Engineering Education and Practice

167 (JPIEEP)were retrieved and 11 from other potential journals were added to the final papers from stage

168 1. In all 48 Papers were regarded valid for the review.

169   **Results and Discussions**

170   After the identification of the 48 relevant publications, content analysis was employed to explicate the

171   findings of this study. Thus, thorough readings were conducted on all the papers to establish the most

172   discussed themes on the subject matter. Four main themes that had dominated the papers selected for

173   this review were identified. They include causes of corruption, variants or forms of corruption, anti-

174   corruption measures and their associated barriers.

175

176   **Causal Mappings with Corruption**

177   To create or develop strategic and effective anti-corruption measures, there is the need to determine the

178   causal factors or instigators behind the identified corrupt act (Chan and Owusu, 2017). As indicated

179   earlier, corruption does not just happen in a vacuum, it transpires as a result of certain causal factors.

180   Causes of corruption simply refer to the factors that give rise or triggers the incidence of corruption.

181   Categorically, the factors may include organisational causes, psychosocial factors, regulatory factors,

182   statutory factors and project-specific factors which encapsulates complex contractual stipulations

183   guiding a specific project in a given context (Zhang et al. 2016; Shan et al. 2016; Brown and Loosemore

184   2015; Le et al. 2014; Stansbury 2009). Under these identified, categorical or thematic constructs lie

185   most of the causal factors or individual variables that give rise to corruption in the process of realizing

186   any infrastructural project. Aidt (2003) and Locatelli et al. (2017) reported three conditions that serve

187   as the breeding grounds for corruption to flourish. They include discretionary powers; economic rents

188   and weak institutions. Also, other events such as humanitarian emergencies which may include putting

189   up infrastructural projects for deprived or underdeveloped communities or countries also creates room

190   for corruption to thrive (Saharan 2015). For example, in an emergency, the provision of services and

191   amenities such as electricity, public transport, water, gas, restoration of infrastructure and others are

192   often provided or done in haste which may lead to syphoning of funds (Saharan 2015).

193   Other causes include: excessive greed, low salaries, lack of supervisory skills, the belief among

194   supervisory staff that the payment to the contractors is insufficient for them to make a profit (Danert et

195   al. 2003); establishing improper or unnecessary prequalification requirements and then allowing only

196   selected firms to bid (Deng et al. 2003); lack of veracity by public servants entrusted with IP, weak

197   accountability, bad governance, manifested by lack of transparency (Osei-Tutu et al. 2010); lack of

198   auditing procedures (Bowen et al. 2012); political instability, low level of professionalism of the

199   bureaucracy, lack of transparency and accountability, (Del Monte and Papagni, 2007; Neupane et al.

200   2014; Kolstad & Wiig, 2009); monopoly power over a good or service (Klitgaard1988).

201   According to Boyd and Padilla (2009), this issue of corruption is deeply rooted in the very core

202   of public enterprises and in sectors where employees are not satisfied with their remuneration, they tend

203   to supplement it with proceeds of corruption. These kinds of causal factors are regarded as systemic

204   corruption and would be difficult to wipe out without palpable and major alterations in government

205   practice. Analogous to IP, due to the intricate process, systems and procedures involved, corruption

206   may be very difficult to identify unless proper auditing and mitigating measures are put in place.

207   Therefore, to deal with the menace of corruption, it is expedient to deal with it from the causes as listed

208   above, although taking other factors into consideration such as the forms of corruption to be dealt with

209   and others. This notion has underpinned the need for researching corruption purely to identify the causes

210   behind the act.

211

212   **Corruption Variants in IP**

213   The evolution of corruption over the years has resulted in many different and unique forms of corrupt

214   practices and can be termed as the different faces or manifestation of corruption (Chan and Owusu

215   2017). Transparency International (2005) broadly categorize the CFs into two main constructs, namely

216   petty and grand corruption, this review identified 16 forms of corruption. They include collusive

217   tendering, bribery, patronage, nepotism, collusion, kick-backs, bid rigging, cartels, fraud, ghosting,

218   front companies, embezzlement, conflict of interest, favoritism (Deng et al. 2003; Danert et al. 2003;

219   Boyd and Padilla 2009; Neupane et al. 2014; Bowen et al. 2012; Ameh and Odusami 2010; Saharan

220   2015). Whereas petty corruption is concerned with smaller contracts, for instance, minor infrastructural

221   or developmental projects for local governments, grand corruption involves large contracts usually

222   executed by state or central governments through self-funding or help from donors irrespective of the

223   form in which the corrupt act manifests (TI, 2005). Each one of these forms may have their relative

224   causative instigators or common causes, and their nature and characteristics may also vary widely from

225   one another although some of the forms share some common traits. For instance, Chan and Owusu

226   (2017) identified a number of forms pertaining to the construction industry in general and categorized

227   under five main factors. The variables under these components shared either common meanings or

228   terms that were used interchangeably. The five main categories of CF in the construction industry

229   include bribery acts, fraudulent acts, collusive acts, extortionary acts and discriminatory acts.

230   Whereas some researchers are of the view that the tendering stage of most IP processes records

231   the highest incidents and forms of corrupt practices, Deng et al., (2003) is of the view that the most

232   critical and highest forms of corruption normally takes place at the project performance stage, that is,

233   after the contract is awarded. The authors emphatically pointed out that it is at this stage that the

234   purchaser or the contractor fails to enforce suitable and stipulated standards of the contract objectives.

235   For example, the failure to enforce quality and performance standards; the ability of the contractor to

236   sidetrack delivered goods meant for a project; resell or divert the project's resources for personal use;

237   request for other private rewards or benefits such as trips, gifts, and many others. The authors also

238   reported that if a bidding procedure is less transparent, there is a higher risk for the bid to be rigged.

239   Sahara (2015) indicated that in the process of providing infrastructural projects for humanitarian

240   assistance in less privileged environments, the common forms of corrupt practices exemplified include

241   embezzlement or diversion of aid resources, misuse, and abuse of support agency assets, fraud, and

242   bribery. Ameh and Odusami (2010) also highlighted that bribery at the contract award stage is the most

243   evident or noticeable CF in IP. On the stance of favouritism, Kaufman (2003) indicated that it is one of

244   the most noted forms of corruption at the evaluation stage of every bidding process and remains the

245   number one corrupt practice in the OECD member countries as compare to the other corrupt public

246   governance sources.

247   **Anti-Corruption Measures (ACMs) and associated Barriers in IP**

248   After identifying the forms and causal factors of corruption in IP, the third theme that was captured in

249   most of the papers was ACM. An ACM simply refers to any effective strategy or framework aimed at

250   suppressing or annulling corruption (any form with associated causative factors). Previous studies

251   conducted on ACMs classified the variables that emerged under this construct into three different

252   categories. They are proactive or preventive measures, promotional measures and punitive or reactive

253   measures (Tabish and Jha 2011; Narasimhan 1997).

254   In simple terms, proactive measures are set to prevent the incidence of corruption, promotional

255   measures are made to raise awareness and educate the entire public and the public servants on

256   corruption, and reactive measures are also set to render punitive actions to culprit or offenders. Punitive

257   measures are often established and enforced by legal principles, rules and approaches for conducting

258   effective and pragmatic investigations, disciplinary actions, and other deliberate means to daunt corrupt

259   practices. They consist of measures such as dismissing employers (project parties) from employment

260   coupled with other disciplinary actions such as confiscating properties obtained by means of corruption,

261   offering harsh punishment such as long-term or life imprisonment to offenders, barring identified

262   culprits from taking part in future projects among others (Stansbury 2009; Shan et al. 2015; Sohail and

263   Cavil 2008; Boyd and Padilla 2009). However, the problem identified in adopting and applying the

264   ACMs in different contexts does not lie in dispensing any of the measures but rather, how to

265   strategically and efficiently integrate and coordinate the three to treat different kinds of corruption cases

266   in different contexts (Narasimhan, 1997). Confronting corruption in a sustained manner during the

267   procurement of infrastructure works would require comprehensive and integrative approaches that

268   combine preventive, public education and punitive elements. Over the past two decades, different

269   measures and frameworks have been developed by researchers, anti-corruption institutions and

270   policymakers in both public and private sectors, with the aim of thwarting the incidence of corruption

271   in IP. Most consulting organizations and governments give their maximum output to develop and define

272   anti-corruption policies. However, a number of them lack the consistency of daily execution of such

273   stipulated policies. Others also are unsuccessful to acquire regular and systematic responses which may

274   tend to enhance their transparency management systems. This has resulted in the ineffectiveness of

275   some of the measures (Meagher 2004; Tangri and Mwenda 2006; Owusu et al. 2017). Not because the

276   measures are impotent to check corruption, but rather, there is no one to enforce that the stipulated anti-

277   corruption measures must be observed. This in itself forms a barrier to ACMs that is discussed in the

278   next paragraph. According to Osei-Tutu et al., (2010) remedying the problem of corruption begins from

279   the awareness and recognition of its prevalence. Raising the awareness of corruption does not only

280   inform the audience about the practices of corruption but also the reactive measures that a culprit may

281   receive. Also, there is some evidence from construction and other sectors that improved transparency,

282   especially when combined with thorough oversight, can improve development outcomes through its

283   impact on the quality of governance (Kenny 2012). Deng et al. (2003) also indicated that a well-

284   designed surety system reinforces transparency and restricts the opportunities for corrupt behaviour,

285   while a poorly designed surety system can foster corruption. All these and more have been identified

286   either empirically or theoretically by various researchers with how they can be implemented or adopted

287   and applied to mitigate corrupt practices.

288   On the contrary, whiles great efforts are constantly devoted to the development of new and

289   innovative ACMs and frameworks to help mitigate corrupt practices in IP, there are other factors

290   different from the causal measure, that hinder the full effectiveness of ACMs. These factors attack

291   ACMs either by hampering the adoption of the measures of the effective applicative thereof. As an

292   emerging thematic area that has not been deeply explored yet, one of the early works on this construct

293   was reported by Bowen et al. (2012). The authors highlighted the barriers that affect the effective

294   reporting of corrupt practices in the South African construction industry. These identified barriers make

295   it difficult to achieve the full potencies of ACMs. Some of the identified barriers include the fear of

296   being marginalized, fear of being caught reporting, social or occupational stigma and rejection,

297   bureaucratic process of reporting corrupt cases, lack of independence, fear of victimization,

298   inappropriate internal institutional coordination / interagency relations, the perception of no better end

299   result, distrust in system, inadequate staffing, lack of understanding and knowledge of rights within a

300   contractual environment, difficulty in providing concrete evidence among others were reported in the

301   study of Bowen et al., (2012) in the South African context. This area may need more research

302   exploration to constructively deal with corruption in IP.

303

Limitations and Future Research

First, it must be emphasized that the topic of corruption in infrastructure procurement is a very

broad and comprehensive subject matter. Dealing with the topic of corruption is itself a

complicated issue due to its nature. Moreover, conducting corruption research in procurement,

therefore, increases the magnitude of complexity due to the complex nature of procurement

and especially in different contexts (for example, countries in Europe and others). This is

because the subject does not only deal with the constructs of corruption but also the contextual

scopes involved. This, therefore, raises the number of concerns to be addressed. However, this

forum cannot explore all the thematic constructs of corruption as well as the contextual

disparities reported on the subject matter into detail due to the specificity of the nature of

corruption in different contexts. Moreover, the word and space allowance allotted limits

detailed explorations to be conducted especially in the case of forum manuscripts. The authors,

therefore, acknowledge that this forum is limited in addressing all the constructs involving the

dynamic physiognomies of corruption regarding specific contexts. On the other, this forum

explores the overview of the thematic constructs of corruption captured in IP on a generic scale.

Considerable efforts have been made to identify the several variables under the thematic

constructs identified in this study which include, causes and forms of corruption and anti-corruption

measures suitable for curbing corrupt practices. Other reviews have also gone a long way to identify

risk composing variables, or what other studies term as vulnerability to corruption (Le et. 2014) or

corruption indicators (Shan 2016), which are more context-specific. This review revealed a significant

theme which was briefly discussed by Bowen et al. (2012) but was hardly identified or noted in other

publications known as the barriers to the effective application of anti-corruption measures. Just as the

three constructs above (forms, causes, and ACMs) have been deeply explored, there is the need to look

into the measures that serve as hindrances to the effective application of anti-corruption measures in

different contexts since these barriers may be context-specific. This direction is deemed important

because, in some instances, apropos measures can be put in place to check corrupt practices, however,

330   due to some internal or external constraints, the measures set may be ineffective. However, the

331   ineffectiveness may not be attributed to the actual measures per se but rather the constraint forces that

332   have not been explored. It is therefore very keen and vital that a direction is taken to explore and address

333   these constraint forces.

334   Moreover, exploring the relationships between the major constructs of both corruption and IP

335   is very vital for the future of procurement practice. For instance, there is a need for research to be

336   conducted to draw the relationship on how the major constructs under corruption namely causes, forms,

337   risk indicators, anti-corruption measures (ACMs) and barriers to effective adoption and application of

338   ACMs influence or affect the systems, policies, procedures and the processes involved in IP.

339   Investigating the causal correlations empirically will help reveal the pressing variables of the various

340   constructs of corruption and their causal effects on the various categories of IP and how strategic

341   measures or frameworks can be drawn to deal with this menace in IP. This will also help influence and

342   inform clients, project financiers or managers on the best system and procedure to adopt for a specific

343   project. For example, a research study can be conducted to investigate the most insistent causes and

344   forms of corruption in any of the procurement system, say guaranteed maximum price or public-private

345   partnership taking into consideration effective measures to check any impending or forecasted barriers

346   to the effective application of ACM. The findings will help develop the best strategic and

347   comprehensive measures or framework to adopt to mitigate or help check corruption in these mentioned

348   systems. The findings will also go a long way to influence the choice of the best system in terms and

349   procedures to consider or adopt regarding clean procurement. Other interesting findings may crop up

350   that will help the future of IP practice.

351   Lastly, another interesting observation made is attributed to the disparities regarding

352   projective inefficiencies meaning from administrative or managerial inefficiencies. It must be

353   emphasized that inasmuch as there might be a fine line between corruption and inefficiencies,

354   some forms of administrative inefficiencies such as asymmetric information amongst project

355   parties as well as the absence of efficient and responsible administrative systems have been

356   captured as indirect organizational-specific causal factors of corrupt practices (Sohail and

357   Cavill 2008; Bowen et al. 2012; Shan et al. 2105). In other instances, Owusu et al. (2017) have

358   identified these as risk indicators that can allow corrupt acts to thrive. In their argument,

359   inasmuch as some organisational inefficiencies may not be direct causes of corruption, they

360   create the room for corruption to flourish. For instance, a number of reports indicate that

361   corruption thrives because of systemic and organisational inefficiencies (Owusu et al. 2017).

362   However, the etymology and contextual underpinnings of these two terms need to be defined

363   in order to explicitly draw the disparities and relationships between these two. This is as well

364   recommended for further discussions.

365

366   **Conclusions**

367   This study sought to explore the various constructs captured under the subject matter of corruption in

368   the context of infrastructure procurement. Following the works on the subject matter conducted in this

369   area in these past years, there has been a significant increase in the body of knowledge on this subject

370   matter. With the achievements of such enormous progress, a gap in the unified view of these constructs

371   and the systematic review of the relevant literature regarding the constructs and their effects on IP

372   practices which are vital for future endeavour remained unexplored. This reason triggered the direction

373   and the aim for conducting this review study. After a systematic and a comprehensive search for

374   publications on the topic was conducted, 48 relevant articles were retrieved and formed the foundation

375   for further analysis. The review revealed the prevalent thematic areas of corruption explored in IP. They

376   included forms, causal mappings, and the risk indicators, the ACMs developed so far and the barriers

377   that impede the effective adoption and application of these measures in IP. Also, the constructs

378   identified under IP included the systems, processes, policies, and procedures. Each of the corruption

379   constructs is composed of individual variables that affect the IP constructs directly or indirectly.

380   Examining the identified constructs was conducted using the content analysis technique, and directions

381   for future research such as the investigation of the causal correlations among the constructs were

382   proposed. As an introductory review study, this forum is aimed at provoking a detailed discussion and

383   need for more research works to be conducted on the subject matter aimed at extirpating the

384   proliferation of corruption in IP.

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391   **References**

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