

1 **Thematic Overview of Corruption in Infrastructure Procurement Process**

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17 18 **Introduction**

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

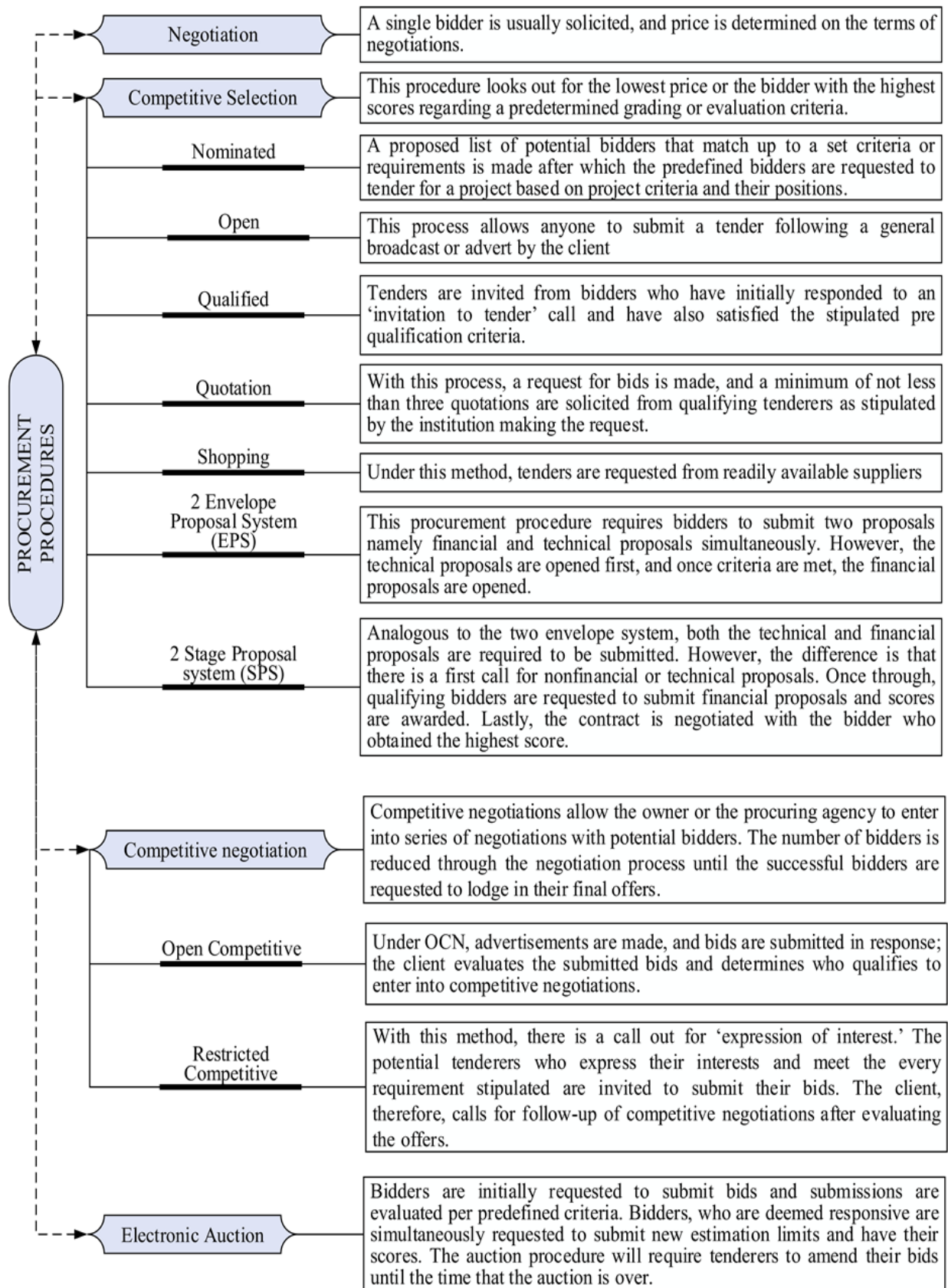
63 **Understanding IP Systems, Policies, and Procedures**

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).



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, while 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

304 **Limitations and Future Research**

305 First, it must be emphasized that the topic of corruption in infrastructure procurement is a very
306 broad and comprehensive subject matter. Dealing with the topic of corruption is itself a
307 complicated issue due to its nature. Moreover, conducting corruption research in procurement,
308 therefore, increases the magnitude of complexity due to the complex nature of procurement
309 and especially in different contexts (for example, countries in Europe and others). This is
310 because the subject does not only deal with the constructs of corruption but also the contextual
311 scopes involved. This, therefore, raises the number of concerns to be addressed. However, this
312 forum cannot explore all the thematic constructs of corruption as well as the contextual
313 disparities reported on the subject matter into detail due to the specificity of the nature of
314 corruption in different contexts. Moreover, the word and space allowance allotted limits
315 detailed explorations to be conducted especially in the case of forum manuscripts. The authors,
316 therefore, acknowledge that this forum is limited in addressing all the constructs involving the
317 dynamic physiognomies of corruption regarding specific contexts. On the other, this forum
318 explores the overview of the thematic constructs of corruption captured in IP on a generic scale.

319 Considerable efforts have been made to identify the several variables under the thematic
320 constructs identified in this study which include, causes and forms of corruption and anti-corruption
321 measures suitable for curbing corrupt practices. Other reviews have also gone a long way to identify
322 risk composing variables, or what other studies term as vulnerability to corruption (Le et. 2014) or
323 corruption indicators (Shan 2016), which are more context-specific. This review revealed a significant
324 theme which was briefly discussed by Bowen et al. (2012) but was hardly identified or noted in other
325 publications known as the barriers to the effective application of anti-corruption measures. Just as the
326 three constructs above (forms, causes, and ACMs) have been deeply explored, there is the need to look
327 into the measures that serve as hindrances to the effective application of anti-corruption measures in
328 different contexts since these barriers may be context-specific. This direction is deemed important
329 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.

385

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390

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