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COMPETENCY REQUIREMENT FOR PROFESSIONALS INVOLVED IN PUBLIC CONSTRUCTION PROCUREMENT PROCESS: A REVIEW

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ABSTRACT

Due to its complexity and a series of interdependent activities, public construction procurement (PCP) is often prone to problems such as cost overruns, time overruns, quality compromises and fraud and corruption. These problems ultimately lead to disputes challenging value for money (VFM), which is anticipated particularly in public construction projects. The success of public construction projects ensures VFM, and it is heavily dependent on the competencies of professionals involved in the procurement process. It was revealed that limited research has been conducted, shedding light upon the competencies required by the professionals in the procurement team specifically for the public construction procurement process. Therefore, the research aimed to explore competencies required by professionals, such as Quantity Surveyors, Engineers, and Architects, who are engaged in the procurement team in the public construction procurement process. The research is conducted with a particular focus on laying the foundation to explore these competencies to overcome the identified problems. Accordingly, a comprehensive literature review was conducted. The findings revealed 14 problems in the public procurement process (PPP), and the competencies expected from the leading professionals in the procurement team, including Engineers, Architects, and Quantity Surveyors, were detailed and analysed according to the competency requirements of the selected professional institutes. The findings suggest that procurement professionals must possess a robust understanding of legal, financial, and technical aspects, alongside strong communication and negotiation skills, to navigate the complexities of public construction procurement. The findings of this research will contribute to minimising disputes and improving the efficiency of public construction procurement processes.

Keywords: *Competencies; Disputes; Procurement Team; Public Construction Procurement; Sustainability.*

1. INTRODUCTION

The construction industry is a key contributor to the national economy of any country (Oguntona & Aigbavboa, 2020). Construction procurement plays a crucial role in achieving project goals and defines the structure of responsibilities among participants

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(Gajaman et al., 2019). Within the construction industry, PCP accounts for a substantial proportion of the national economy, leveraging public investment, infrastructure facilities and enabling employment while guaranteeing VFM (National Procurement Commission [NPC], 2024; Uduwage-Don et al., 2024). However, due to its inherent complexity, public procurement is often prone to problems such as additional costs, delays and poor quality, which can escalate into disputes, consuming a substantial amount of money and time (Dita et al., 2020). Therefore, avoiding conflicts at the outset is advantageous, as effectively addressing the problems can prevent them from escalating into disputes (Mitkus & Mitkus, 2014; Gajaman et al., 2019).

Since the construction procurement is a structure which represents a shared responsibility among the parties, problems can be addressed effectively, and successful execution of procurement activities in the right manner is ensured when the professionals possess the requisite expertise (Gajaman et al., 2019; Shehu et al., 2019). Similarly, Komakech (2016) emphasised that, given the complexity and risks involved in public procurement today, the procurement team should possess specific competencies to perform efficiently, maximise VFM, and reduce corruption. The study focuses on Architects, Quantity Surveyors, and Engineers, as they are the key professionals directly involved in pre-contract activities and are formally recognised in relevant institutional competency frameworks (Construction Industry Development Act, 2014).

Effective public procurement is essential for good public services and good government. Since the government spends money on behalf of taxpayers, it is essential for the government to apply the highest professional standards (Publications Office of the European Union, 2020). Therefore, in order to ensure meeting the required quality of the public needs, the public procurement workforce is required to undergo professionalisation (Publications Office of the European Union, 2020).

Problems in the PPP can lead to disputes in the post-contract stage if the problems are not effectively addressed. Poor quality performance, cost overrun, risk overrun, deliverables not fit for purpose, lack of communication, fraud and corruption, and shortage of highly qualified and motivated professionals are some of the problems that ultimately result in disputes (Asiedu et al., 2021; Gunawardana et al., 2021; Uduwage-Don et al., 2024; Ayopo et al., 2016; Naude, 2017; Adhikari, 2015; Construction Industry Development Act, 2014). Therefore, to minimise and avoid disputes, the client needs to obtain services from a professionally well-trained staff of procurement professionals to address these problems. When appointing the procurement team, clients must have a thorough understanding of the required competencies essential for successful PCP.

Even though studies have been conducted on knowledge requirements for the procurement process (Shehu et al., 2019; Komakech, 2016), competencies for Quantity Surveyors (Chamikara et al., 2020; Yogeshwaran et al., 2018), and construction project managers (Moyo & Chigara, 2023) as well as for dispute management (Rajapakshe, 2019), limited research has focused on the competencies required by the professionals in the procurement team specifically in PCP. Thus, there is a need to fill this knowledge gap by comprehensively investigating and synthesising the required competencies of the procurement team involved in PCP based on the existing literature, which primarily focuses on individual professionals. Therefore, this paper aimed to review the competencies required by Architects, Engineers and Quantity Surveyors for the PCP process. The objectives of the research are to analyse the problems in PPP and to

investigate the competencies required by the professionals in the procurement team of public construction projects.

This paper initiates with an introduction followed by the research methodology, the research findings, discussion, contribution of the research and conclusion with recommendations.

2. RESEARCH METHODOLOGY

Research methodology is identified as a series of steps followed by a researcher with the aim of solving a research problem in a logical manner (Kumar & Praveenkumar, 2025). A literature review represents an organised, transparent and replicable process for existing literature (Snyder, 2019). In order to ensure the quality and credibility of the literature review, it is essential to scrutinise high-quality sources such as journal articles, books, and conference proceedings with proper citations (Xiao & Watson, 2019). Therefore, this research relied on journal articles, books, and conference papers to guarantee the reliability and academic consistency of its findings.

Accordingly, this study adopted a comprehensive literature review approach to explore the updated and structured overview of the existing body of knowledge on competency requirements for professionals involved in PCP (Pautasso, 2019). In order to ensure the quality of the review, relevant articles were identified through databases confining to Scopus, ScienceDirect, and Google Scholar using keywords including "competency requirements," "construction procurement," "public construction projects," and "professional competencies in construction". The search was limited to publications from 2001 to 2025 and restricted to English language sources. Studies were included if they discussed competencies in the context of construction procurement, particularly within public sector projects. Non-peer-reviewed articles, non-English studies, and studies unrelated to construction were excluded.

Likewise, a comprehensive literature review was carried out to achieve the aim and objectives of the study by using well accepted academic databases, as noted above, and filtering a sufficient number of relevant research publications through keyword searches while excluding outdated studies. A background study and comprehensive literature review were conducted to examine the PPP, its problems, and competency requirements expected by the Engineers, Quantity Surveyors and Architects. Moreover, the findings were also extended to include the literature from the sources of professional institutions. The study is not limited to the Sri Lankan context and global contexts were considered.

3. RESEARCH FINDINGS

3.1 PUBLIC CONSTRUCTION PROJECTS

Public construction projects are often funded through taxes or government loans and are typically managed by government agencies or private contractors (Delmon, 2017). They are essential to infrastructure development, covering a wide range of sectors such as transportation, education, and healthcare (United Nations Development Programme, 2017). Additionally, these projects contribute to the achievement of sustainable development goals by promoting social, economic, and environmental sustainability (Uenk & Telgen, 2019). Overall, public construction projects play a crucial role in shaping the built environment and fostering economic growth and advancement. They

require careful planning, management, and funding to ensure that they meet the needs of communities and provide lasting benefits for years to come (Uenk & Telgen, 2019).

3.2 PUBLIC PROCUREMENT PROCESS

3.2.1 Public Procurement

Public procurement involves acquiring significant inputs for public investments through the most appropriate means of public funds or external funds and guided by the core principle of VFM (National Procurement Commission [NPC], 2024). PCP is a subset of public procurement which refers to the process by which public bodies acquire goods, services, or works from selected suppliers, from routine goods to large-scale contracts for infrastructure projects (Office of Government Procurement, 2019). Public procurement is now recognised as a profession that plays a key role in the effective management of public resources (Ambe & Badenhorst-Weiss, 2012). PCP plays a vital role in infrastructure development and significantly contributes to the national economy, especially in developing countries like Sri Lanka (Uduwage-Don et al., 2024; Central Bank of Sri Lanka [CBSL], 2014).

3.2.2 Procurement Process

The construction procurement process is a complex process that involves several stages and is essential for establishing and managing contracts (Diófási-Kovács & Tátrai, 2025). There are various construction procurement methods, such as Traditional, Design and Build, Management Contracting, Construction Management, Partnering, Public Private Partnerships, Private Finance Initiatives, and Collaborative Agreements that are selected based on the client's specific project requirements (Osifo, 2024). This research is focused on the procurement process based on the traditional procurement system.

Successful construction procurement depends on aligning each activity within the procurement process with professionals who possess the necessary competencies (Shehu et al., 2019). Further to the author, by performing duties and tasks in an appropriate manner, problems can be avoided beforehand without escalating them into conflicts and finally into disputes.

3.3 PROBLEMS IN PUBLIC PROCUREMENT PROCESS

PPPs are susceptible to problems that diminish VFM, erode public trust, delay project delivery, and compromise quality, affecting successful completion (World Bank, 2018). These problems and poor procurement practices can be identified as the prominent causes for hampering the economic growth of a country (Delmon, 2017; Raymond, 2008). Irrespective of whether a country is developed or developing, problems are prevalent in the PPP. The following Table 1 outlines problems in the PPP in the construction industry.

Table 1: Problems in public procurement process

Problem No.	Problem in the public procurement process	Authors
P-01	Cost overrun	1, 12, 15, 25, 26
P-02	Time overrun and delays in project implementation	1, 12, 15, 22, 25
P-03	Poor quality performance	6, 9, 10, 11, 20, 22, 24, 25, 26

Problem No.	Problem in the public procurement process	Authors
P-04	Deliverables not fit for purpose	3, 4, 8, 9, 13, 14, 25
P-05	Inadequate social and environmental cost valuation	4, 8, 25
P-06	Lack of communication	2, 15, 5
P-07	Risk Management Failures (Risk Overrun)	1, 12, 15, 25
P-08	Outdated Technology	6, 9, 10, 11, 25
P-10	Inadequate VFM assessment	6, 7, 9, 25
P-11	Shortage of highly qualified and motivated professionals	28, 17
P-12	Biased award procedures	27
P-13	Price inflation and overcharging	24
P-14	Recalling the tendering process	19

1.Dubois and Gadde (2002), 2. Chartered Institute of Building (CIOB, 2010), 3. Jones (2007), 4. Organisation for Economic Cooperation and Development [OECD] (2007), 5. Raymond (2008), 6. Walker and Brammer (2009), 7. Dawson et al. (2011), 8. Ameyaw et al. (2012), 9. World Bank (2023), 10. Amemba et al. (2013), 11. Adhikari (2015), 12. Decarolis and Palumbo (2015), 13. Ogunsanya et al. (2019), 14. Naude (2017), 15. Gyawali et al. (2018), 17. Chigudu (2014), 18. Musanzikwa (2013) 19. Uduwage-Don (2024) 20. Dinar & Zayed (2012) 21. Jones (2007) 22. Asiedu et al. (2021), 23. Chimwani et al. (2014) 24. Dinar and Zayed (2012) 25. Gunawardana et al. (2021), 26. Weisheng et al. (2013), 27. Jaafar and Radzi (2013), 28. Ofori (2007)

According to Sinha (2018), common problems in public construction projects include delayed project delivery, poor project planning, cost overruns, poor quality, corruption, safety concerns, inadequate project management skills, and lack of stakeholder engagement (Sinha, 2018). Lack of communication has been identified as one of the major problems in procurement through a survey conducted in the United Kingdom (CIOB, 2010). Among the problems shortage of highly qualified and motivated professionals in public procurement is responsible for the low reputation and undervaluing of public procurement (Ofori, 2007). Jaafar and Radzi (2013) stated that the problems originate with the industry players, who often possess insufficient knowledge of the procurement process. Conversely, disputes in public construction projects frequently arise from various procurement problems within the procurement process itself.

Similarly, disputes can significantly affect construction projects, leading to problems such as project delays, cost overruns, reputational damage and strained relationships among stakeholders (Alaloul et al., 2019; Rauzana, 2016). Therefore, proactive conflict management concentrating on the approach to prevent or mitigate problems from the inception of the project is essential for effectively resolving conflicts and disputes (Mitkus & Mitkus, 2014). In another standpoint, rather than conflict management, it is more effective to address the problems in PPP to minimise subsequent disputes. By fostering awareness and offering targeted training on the causes and prevention of disputes, the construction project leaders can focus on improving the competencies of the procurement team.

3.4 PROFESSIONALS IN THE PROCUREMENT TEAM

"Procurement professional" is defined as an individual who possesses professional qualifications in procurement from a recognised institution and is expected to possess a range of skills to manage the procurement process (Basheka, 2010). Moreover, Kaufman et al. (2017) stated that procurement professionals are not 'purchasing agents', but managers who possess physical and intellectual knowledge.

Public Procurement and Asset Disposal Act No. 33 of 2015 defines a "Professional" as an individual possessing professional qualifications in a specialised area and who is engaged in practising a skill or trade and has completed relevant formal academic and professional training, including practical learning through apprenticeship or tutelage under the supervision of a suitably qualified and experienced individual in the relevant field. Jabar (2012) argued that pre-contract stage activities are carried out by a number of stakeholders, such as the employer and the design team professionals, such as Engineers, Architects, Quantity Surveyors, Land Surveyors, Landscape Architects and Interior Designers. Meanwhile, many researchers have highlighted that most of the problems occur due to errors caused by professionals such as Architects, Engineers and QSs, which leads to disputes (Yadollahi et al., 2014; Francis et al., 2022). Therefore, this research focuses on Engineers, Architects, and Quantity Surveyors from the above identified professionals who are involved in the procurement action in PPP. Similarly, under the Construction Industry Development (CIDA) Act no 33 of 2014, these qualified persons are identified as Engineers, Architects, and Quantity Surveyors who are in consultation with the relevant professional bodies in Sri Lanka. In order to have the best performance in procurement, it is crucial to have competent procurement professionals (Rathod, 2011 as quoted in Shehu et al., 2019; Chimwani et al., 2014).

3.5 COMPETENCIES REQUIRED FOR PROCUREMENT TEAM MEMBERS

Karna and Gotovac (2015) define competency as a combination of skills, knowledge, and abilities necessary to achieve satisfactory performance within an organisation. Moreover, Paloniemi (2006) defined competence as the integration of knowledge, skills and attitudes. Therefore, "Skill" is a subset of "Competency" which must be enhanced along with personal qualities (Karunasena et al., 2015). Knowledge refers to awareness of factual information, while skills refer to the ability to apply knowledge to specific circumstances (Baartman & de Bruijn, 2011).

Further, Briscoe et al. (2001) categorised skills as hard skills, which are primarily vocational, and soft skills, which are non-specific and acquired through on-the-job experience. According to Roggema-van (2004), a competent professional can apply the necessary expertise along with effective behaviour in practice. Furthermore, experience is a key competency that supplements educational qualifications and technical skills (Paloniemi, 2006).

Given the complexity of construction projects and the diverse nature of work involved in public procurement, procurement professionals are required to possess a wide range of skills, knowledge and experience to enhance procurement performance (Chimwani et al., 2014). Therefore, Fazekas and Blum (2021) emphasised the growing importance of identifying, developing and assessing the competencies of public procurement officers to ensure compliance with legislation and obtain VFM. Raymond (2008) stated that professionalism involves education, qualifications, and ethical conduct. Further, the

author contended that scholars have to showcase professionalism and competence while executing their responsibilities within their field of study. Jones (2007) argued that possessing procurement capacity involves understanding internationally recognised procurement principles, being knowledgeable about national laws, regulations and procedures, and maintaining a commitment to ethical responsibilities.

Summarised competencies and skills expected from Architects, Engineers and Quantity Surveyors are presented in Table 2 as identified by the reputed professional bodies and previous studies.

4. DISCUSSION

The study highlights the critical role of professional competencies, particularly among Architects, Engineers, and Quantity Surveyors in ensuring the success of public construction projects by effectively addressing issues prevalent in the PPP. Accordingly, the study identified 14 problems and 31 competencies. Out of the 14 problems corruption, and fraud risks, and poor-quality performance were the most frequently cited in the literature. While each profession has different roles, many important competencies are shared. For example, all three professionals need good communication, problem-solving, and decision-making skills. Findings further revealed that Engineers focus more on safety and planning, Quantity Surveyors handle cost and contracts, and Architects lead the design. However, by working together with the right mix of skills, problems and disputes in projects can be avoided. Even though soft skills such as teamwork, ability to act fairly and impartially are rarely highlighted, they are highly valued in professional standards, implying the importance in practice to avoid conflicts. Furthermore, the study emphasises the need for ethical conduct in public procurement to prevent corruption and ensure transparency.

Addressing competency gaps, by promoting the recruitment and training of competent procurement professionals for public procurement, not only improves individual project outcomes but also contributes to the broader objectives of sustainable development by promoting efficient use of public resources and delivering higher quality infrastructure that serves communities effectively.

. Table 2: Competencies expected from Engineers, Quantity Surveyors and Architects

Competency Group	Engineer		Quantity Surveyor		Architect	
	Competencies	Ref	Competencies	Ref	Competencies	Ref
Knowledge and application of Construction Technology	Knowledge and practical application of engineering principles	[1]	Knowledge on Construction Technology (construction processes, building materials and suitability to project climate)	[2]	Knowledge of Construction Technology and Design development.	[4], [5]
Producing Designs to satisfy Overall Requirement	Design work and drawings and design Calculations	[1], [9]			Marketing Studies, Feasibility Study, Concept Design and Schematic Design, Design Development, Specification writing	[4], [5]
Cost Estimation, Management and Reporting	Managing and planning budgets	[1]	Cost Estimation, Management and Reporting	[2], [3]	Manage and plan budgets	[4], [5]
Procurement and Tendering	Design work and drawings	[1]	Procurement advice/Procurement and Tendering	[2]	Procurement advice/ Procurement and Tendering	[4], [5] [8]
Contract Administration	Manage and plan budget, tasks, resources	[1]	Contract Administration and knowledge on contractual implications	[2]	Administer the building contract impartially between the client and the contractor.	[4], [5], [8]
Legal knowledge and Understanding	Knowledgeable about relevant legislation	[1], [9]	Understanding regulations and guidelines related to construction	[2]	Building and other legislation, knowledge on statutory requirement and consultation with authorities	[4], [5] [8]
Agreement Drafting Skills			Agreement drafting skills	[2]	Agreement drafting skills	[5]
Financial Management	Commercial leadership – manage and plan budget	[1]	Understand accounting principles and economic concepts	[2]		

Competency Group	Engineer		Quantity Surveyor		Architect	
	Competencies	**Ref**	**Competencies**	**Ref**	**Competencies**	**Ref**
Competence in Dispute Resolution	Competence in Dispute resolution	[1]	Competence in Dispute resolution	[3]	Competence in Dispute resolution	[8]
Ethical Practice	Ethical Practice	[1], [9]	Ethical Practice	[2]	Comply with the code of professional conduct set by SLIA	[4], [8]
Risk Management	Risk Management	[1]	Risk Management	[2]		
Scope and Change Management	Manage budget	[9]	Variation process up to finalization of variation accounts	[2]	Variation orders, advise the client of the consequences of the subsequent changes on the cost and programme.	[4], [5], [8]
Co-ordination and Integration	Provide technical, commercial and managerial leadership	[1]	Co-ordination and Integration	[2]	Co-ordination and Integration	[4], [5], [8]
Health and Safety Management	Health and Safety Management	[1], [9]				
Quality Management	Quality management	[1], [9]		[3]	Inspection/Quality control	[8]
Time Management	Effective project planning	[1], [9]	Time Management	[3]	Time Management	[5]
Leadership and Management	Leadership and management	[1]	Leadership and Management		Leadership and Management	
Resource Management	Manage and plan resources	[1]	Resource Analysis and Management	[2]		
Data and Information Management	Data and Information Management	[1]	Data and Information Management	[2]	Data and Information Management	[5]
Analytical Skills	Analytical Skills	[1]	Analytical Skills	[2]	Analytical Skills	[4]
Logical Thinking	Logical Thinking	[1], [9]	Logical Thinking	[7]	Logical Thinking	[7]

Competency Group	Engineer		Quantity Surveyor		Architect	
	Competencies	Ref	Competencies	Ref	Competencies	Ref
Evaluation Skills	Evaluate solutions	[1]	Evaluating variations, tender evaluation, evaluation of design solutions	[2]	Tender evaluation, valuation of variations	[4], [5]
Skills in Interpreting	Interpretation Skills	[1]	Interpretation Skills	[2]	Interpretation Skills	[5]
Decision Making Skills	Making decisions	[1]			Decision making Skills	[5]
Computer Skills	Use of computer applications relevant to engineering	[1], [9]	Use of computer applications relevant to quantity surveying.	[2]	Computerized analysis and modelling	[5]
Planning Skills	Effective project planning solutions	[1]	Project implementation and procurement plan	[2]	Planning Skills	[4], [5], [8]
Communication Skills	Communication skills	[1], [9]	Communication and presentation skills	[2]	Communication and presentation skills	[4], [6]
Team Working Skills	Team working Skills	[1]	Team working skills		Selection and engagement of consultants	[5]
Emotional Intelligence and Cultural Competence	Treats people with respect	[1]	Treats people with respect		Treats people with respect	[5]
Ability to Act Fairly and Impartially	Ability to act fairly and impartially	[9]	Ability to act fairly and impartially		Ability to act fairly and impartially	[5]
Self –Development Skills	Continuous professional development	[1]	Continuous professional development	[2]	Continue with her/his own professional development	[8]

[1] (Institution of Engineer's Sri Lanka [IESL],2022), [2] (Institute of Quantity Surveyors Sri Lanka [IQSSL], 2020), [3] (Australian Institute of Quantity Surveyors [AIQS], 2012), [4] (Sri Lanka Institute of Architects [SLIA], 2015), [5] (SLIA, 1998), [6] (Ministry of Works and Human Settlement, 2021), [7] (Rajapakshe, 2019), [8] (SLIA, 2014), [9] (Engineers Australia, 2023)

5. CONTRIBUTION OF THE RESEARCH

The findings of the research contribute to both academic fields and industry practice. For academia, the research provides a cornerstone for further studies to explore the linkage between identified problems and the competencies required to address them according to each profession. For the industry, it offers clients a better understanding of recruiting suitably competent professionals to their procurement teams while enabling professionals to self-direct competency development. Moreover, professional institutes can utilise the findings to conduct workshops, continuous professional development activities, seminars and courses to ensure that the respective professionals possess the lacking competencies. By promoting the recruitment and development of competency-equipped professionals, other than minimising disputes, this research also supports the integration of sustainability principles into procurement practices, contributing to the delivery of sustainable public construction projects.

6. CONCLUSIONS AND RECOMMENDATIONS

This study was designed to investigate the competency requirements of the professionals in the procurement team in the PCP by conducting a comprehensive literature review. PCP is often prone to problems such as time overrun, cost overrun and quality compromises, leading to disputes and challenging to this principle of "VFM". The study identified 14 problems, and it is essential to avoid these problems at first instance as they may consume a lot of money and time to resolve. It was understood that the problems could be overcome by building up the necessary competencies by the professionals in the procurement team. Architects, Engineers and Quantity Surveyors are mainly focused on the study since most of the problems stem from the activities performed by them. Accordingly, 31 relevant competencies were identified as essential for effectively addressing these procurement challenges and ensuring the success of public construction projects.

Based on the findings of the study, it is recommended that future researchers conduct empirical studies to establish links between the identified competencies and specific problems in the PPP. Moreover, a competency framework is recommended to develop linking each competency to the relevant professionals, which could serve as a practical tool for public sector recruiters to assess and select competent professionals for procurement teams, ultimately enhancing the effectiveness and accountability of PCP.

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