CONTRACT AUDITING IN PUBLIC HEALTHCARE CONSTRUCTION PROJECT DELIVERY IN NIGER STATE: ANALYSIS OF BARRIERS

Nma MAGANA¹ and Abdulganiyu Adebayo OKE ²

¹ MTech Candidate, Dept of Quantity Surveying, Federal University of Technology Minna ² Lecturer, Dept of Quantity Surveying, Federal University of Technology Minna

¹ magana.nma@gmail.com

² abdganioke@futminna.edu.ng

ABSTRACT

Healthcare facilities are complicated and challenging undertakings, having an element of uncertainty which increases the complexity of their construction and maintenance. This study explored the use of contract auditing for monitoring the performance of hospital projects. The aim of this study is to assess the barriers to the adoption of contract auditing in the delivery of public healthcare construction projects in Niger State. The objectives of the paper include determining the level of adoption of contract auditing, identifying the barriers to the adoption of contract auditing and eveluating strategies to improve the use of contract auditing on public healthcare construction projects. A quantitative research design approach was adopted based on the use of structured questionnaires. Data was collected from 34 construction project professionals (architects, builders, engineers and quantity surveyors) involved in the construction of public healthcare construction projects within the study area. Mean Item Score and Relative Importance Index were employed in the analysis of the data. The research found that there is a low level of adoption of contract auditing in public healthcare construction projects. One of the key barriers is the 'policy' issue of senior managers' commitment, the absence of which makes the adoption of contract auditing on healthcare projects impossible. Other significant barriers are the difficulty in obtaining close collaboration from the numerous stakeholders on healthcare projects, absence of timely enforcement of audit rules and regulations on public healthcare construction projects. It was concluded that the adoption of contract auditing is low in public healthcare projects, owing to the presence of five key barriers that are rooted in policy, communication, culture and compliance issues. Key strategies for improving the adoption of contract auditing in the sector are that top government functionaries need to openly declare support for the adoption of contract auditing in order for the full benefits of such audits to be harvested. Penalties and sanctions laid down in regulations governing the management of public healthcare projects construction must be applied in a timely manner.

Keywords: Audit, Barriers, Construction, Contract, Healthcare, Project.

INTRODUCTION

Healthcare projects, of which hospitals are the commonest example, are characterized by the inclusion of multiple building components and systems, the serving of distinct stakeholders' needs, and continuous use of innovations in science and technology. Healthcare facilities are complicated and challenging undertakings, having an element of uncertainty which increases the complexity of their construction and maintenance (Doulabi and Asnaashari, 2016). The different functions served by healthcare projects necessitate the inclusion of a complex network of services in the construction of these facilities. Building services in hospital buildings cost about 50% of the total expenditure on construction, according to Nelson (1990). Rapid changes in both medicine and technology mean that the design of healthcare projects must be flexible (Olsson and Hansen, 2010).

These unique characteristics of healthcare projects serve to highlight the important role of construction professionals for their successful implementation. However, the success rates of construction projects, including healthcare projects, leave much to be desired. According to the Standish Group International (CHAOS Report 1999), 34% of projects executed were successful (on time, within budget and according to original specifications). 15% of projects failed (abandoned or terminated) while 44% of projects were challenged (completed, over budget, over time and with fewer features). The majority of healthcare projects are not completed on time and within budget, the

quality aspect is also below par, whether for new or refurbishment projects (Ahmad, 2021). Hence, to address these shortcomings in healthcare construction projects a dedicated study on the use of contract auditing for monitoring and evaluation of such projects is required. As a measure to ensure that clients obtain what they set out to achieve, contract audits have been instituted. A contract audit systematically and independently examines specific things, procedures and systems in order to ascertain whether such things, procedures and systems together with the associated end results conform to what was originally planned, in terms of scope, efficiency and goals (Environment, 2002).

The phenomenon of cost overrun and schedule delay in hospital construction in developing countries has not received the desired attention. Kim *et al.* (2016) analysed the factors that cause delay the time of hospital projects in Vietnam using factor analysis, survey of experts and the concept of correlation. Doulabi and Asnaashari (2016) identified the success factors of healthcare facility projects by interviewing practitioners with substantial experience in the construction of healthcare facilities in Iran. Only limited attempts have been made to investigate hospital project delays. To fill the knowledge gap, this study explored the use of contract auditing for monitoring the performance of hospital projects. The aim of this study was to assess the barriers to the adoption of contract auditing for delivery of public healthcare construction projects in Niger State. The objectives of the paper include determining the level of adoption of contract auditing; identifying the barriers to the adoption of contract auditing identifying the barriers to the adoption of contract auditing; identifying the barriers to the adoption of contract auditing identifying the barriers to the adoption of contract auditing; identifying the barriers to the adoption of contract auditing; identifying the barriers to the adoption of contract auditing in projects auditing on public healthcare construction projects.

LITERATURE REVIEW

Adoption of contract auditing on public healthcare construction projects

A project audit helps ascertain fair administration of project cost and to identify lessons learned that can help improve the performance of future projects by undertaking a detailed review to uncover problems to be avoided. However, owing to ingained perception of the contract auditor as an interloper, a witch hunter or problem finder, contract audits are not embraced as freely as they should be. Researchers have investigated the challenges associated with establishing audit departments in the public sector in developing countries such as South Africa, Sudan and Ethiopia (Brierley *et al.*, 2001; Mihret *et al.*, 2012; Mihret and Yismaw, 2007; Unegbu and Kida, 2011; Van der Schyf, 2000). Researchers have also examined the effectiveness of the audit services thus provided. Although construction contract auditing is a popular aspect of construction management, it has not enjoyed an outstanding recognition in the Nigerian construction industry, when compared to some other aspects of project management.

Barriers to the Adoption of Contract Auditing

Alvarez *et al.* (2019) conducted a literature review on sustainability barriers in small and medium enterprises and synthesized 175 obstacles from a range of industries. They assumed that the source of these barriers can be either inside or outside of organizations. The line of research on sustainable construction distinguishes between intra-organizational and extra-organizational domains. The former domain focuses on the internal processes, structures, and tools that organizations employ to approach sustainability while the latter domain emphasizes the role of external stakeholders and their impact on sustainability initiatives (Gelderman *et al.*, 2017). A review of the barriers in previous construction research revealed key areas that need to be considered in the study of adoption of contract auditing barriers: these are explained as follows:

Resources: Sustainability outcomes relate to the capabilities of resources and their allocation both at the inter-organizational and intra-organizational level (Raitu *et al.*, 2015). Construction contract auditing implementation requires proper use of resources both inside and outside of organizations, the lack of which may result in major problems. Nowotarski and Paslawski (2015) mentioned difficulty in acquiring financial capital and access to expert human resources. Neto *et al.* (2017) emphasized outdated equipment and tools as an important resource-related obstacle that hinders sustainability, while Alvarez *et al.* (2019) established the impact of low-quality logistics infrastructure.

Policies: The set of policies that are applied in the procurement and delivery of construction projects impact their sustainability outcomes. In a construction organization, the commitment of senior managers to adopting proper policies can encourage the whole organization to practice contract auditing (Wijethilake and Lama, 2019). Otherwise, it is probable that different levels of organization resist the implementation of contract auditing (Ghazilla *et al.*, 2015). Sustainability outcomes are also impacted by the policies adopted at a higher level by governing bodies (Kylili and Fokaides, 2017). The absence of policies for the implementation of sustainability has been asserted as a key obstacle hindering contract auditing in the construction industry (Ghadge *et al.*, 2017).

Compliance: Effective management of contract auditing policies both at the organizational and government level need to be coupled with timely enforcement of sustainability rules and regulations through controls and auditing mechanisms (Bamgbade *et al.*, 2017). The incorporation of contract auditing regulations in the contractual agreements with contractors enables clients to ensure adherence to sustainability requirements by third parties involved in the procurement process (Alvarez *et al.*, 2019). Lack of laws that regulate the management of contract auditing (Ghadge *et al.*, 2017) and the ignorance about regulations have been acknowledged as a barrier that needs to be taken into account (Lewis *et al.*, 2015).

Culture: The combination of beliefs, values, norms, and attitudes shapes the sustainability culture at the organizational or industry level. The establishment of robust culture and maintaining a high level of relevant capabilities help to align structures, people, and processes to bring the most value to the achievement of sustainability objectives (Matinaro and Liu, 2017). An improved industry culture supports the implementation of contract auditing through the construction supply chain. The absence of perceived benefits and values among stakeholders is also considered as a culture-related barrier hindering contract auditing objectives (Hasan, 2016).

Communication: Implementation of sustainable auditing is a collaborative process requiring close coordination. Various teams may be involved in the auditing management process and their effective communication is necessary to ensure the achievement of its goals. This capability extends beyond organizations' boundaries through longterm collaborations between the private and public sectors (Pero *et al.*, 2017). According to Ho *et al.* (2010), the government's involvement in the form of public partnership encourages private organizations to practice sustainability. In the construction industry, public organizations can more effectively implement sustainability objectives with the active participation of private organizations since many subcontractors and service providers that are

involved in construction projects are among private organizations (Dawson and Probert, 2007). Lack of stakeholder involvement is also a barrier acknowledged in the literature (Alvarez *et al.*, 2019).

Strategies for Improving the Use of Contract Auditing

Some strategies have been identified that can be applied to ensure the smooth development of contract audits in construction projects.

Establishing a sound contract audit system

Tasks that need to be accomplished in this section include formulating the supervision mechanism and ensuring the impartiality of supervision. supervision personnel need to track the whole process of construction to ensure the quality and safety of each link. This must begin even before the establishment of the construction project, in terms of the feasibility of the project and of the relevant enterprises that will be involved (Xiuzhen, 2016).

Strengthening evidence collection

Construction contract audits should be based on the evidence of the design drawings, budget and site records. The practice where some construction enterprises design false drawings, excessive budget or falsify engineering quantities, which are different from what is actually constructed on site, results in the failure of contract audits because auditors are unable to obtain audit data accurately. To circumvent this situation, auditors need to conduct field surveys tracking the construction process to fully understand the construction situation. Other information that must be collected include the price of building materials, price volatility and the ease of obtaining building materials (Xiuzhen, 2016).

Following a strict procedure for variation order audits

Uncertainty and risk in construction projects inevitably cause some changes to designs and budgets. Such changes must be documented in a strict manner that followed every time a change occurs. Following a strict procedure for auditing changes to the project plan, design and budget will guarantee objectivity on the part of the auditors (Xiuzhen , 2016).

RESEARCH METHODOLOGY

In this study, what was required was the perceptions of the key construction professionals that work on public healthcare construction projects within the study area towards the awareness, adoption, barriers and effects of contract auditing on public healthcare construction projects. A large number of these professionals can be reached within a relatively short period of time through the use of a survey. This formed the bases for the selection of the survey approach for this research work. A quantitative research design approach was adopted based on the use of structured questionnaires. The questionnaires contained six sections, five of which used a 5 - item Likert scale to interrogate the research objectives, while the sixth section collected demographic data on the respondents. Data was collected from a purposive sample of 34 construction projects within the study area. Although 112 professionals were contacted initially, only 42 have worked on public healthcare projects. Of these number, only 34 correctly filled in and returned the research questionnaires. Relative Importance Index was employed because the paper was interested in respondents'

perception of the barriers inhibiting the adoption of contract auditing. Relative Importance Index is calculated as $RII = \Sigma W / (A^*N)$, where W is the weighting given to each factor by the respondents (ranging from 1 to 5), A is the highest weight (i.e. 5 in this case), and N is the total number of respondents. Higher values of RII indicate greater importance of the barriers being examined. The results obtained were presented in Tables.

RESULTS AND DISCUSSION

Demographics of survey respondents

The respondents were from four different professional backgrounds, since builders and estate surveyors were not captured; this was unintentional, simply owing to unavailability of the two professionals when the survey was carried out. Quantity surveyors at 41.2% of the sample were the most numerous, followed by other unspecified professionals (mainly health information managers) at 35.3%. These results are presented in Table 1. Only three out of 43 respondents were female (8.8%), reflecting the general trend of construction as a male-dominated industry. Most of the respondents had obtained bachelor degrees or higher national diplomas (64.7%); 44.1% worked exclusively for public sector clients (classed as 'others' in the questionnaire).

Aspect	(n)	(%)	Aspect	(n)	(%)
Profession of respondent			Gender of respondent		
Architect	4	11.8	Female	3	8.8
Builder	0	0.0	Male	30	88.2
Engineer	1	2.9			
Estate Surveyor	0	0.0	Work experience of respondent		
Quantity Surveyor	14	41.2	Less than 5 yrs	3	8.8
Town Planner	2	5.9	5 yrs – 15 yrs	15	44.1
Other (specify)	12	35.3	16 yrs – 25 yrs	12	35.3
			More than 25 yrs	4	11.8
Educational attainments			-		
OND/NCE	0	0.0	Employer		
HND/B.Sc	22	64.7	Client	6	17.6
M.Sc	11	32.4	Consultant	8	23.5
Ph.D	1	2.9	Contractor	2	5.9
			Others (please specify)	15	44.1

Table 1: Respondent demographics

Adoption of contract auditing

The results of analysis of the data obtained from survey of professionals revealed that construction professionals agreed with the need to adopt contract auditing ('based on time and cost performance of public healthcare construction projects, do you believe that there is a need for contract auditing of such projects'?; RII=0.72; ranked 1st). There was however no clear agreement as to whether contract auditing had in fact been adopted on healthcare projects ('Since I began working on public healthcare construction projects, I have never been involved in contract auditing'?; RII=0.62; ranked 3rd). In fact respondents ranked the categorical adoption of contract auditing 6th out of 7 statements ('contract auditing is always carried out on all public healthcare construction projects that I participate on'?; RII=0.58; ranked 6th).

The above statements and their relative positions on an importance scale show that adoption of contract auditing is low in healthcare projects, nothwithstanding any protestation to the contrary by stakeholders. Respondents however disagreed with the assertion that there was no need to adopt contract auditing in healthcare projects ('I do not believe that contract auditing should be carried out on public healthcare construction projects'; RII=0.46; ranked 7th). In all, respondents fully agreed with only one out of seven statements about the adoption of contract auditing on healthcare construction projects.

Table 2. Auopuon of contract	i auu	ung		
Adoption of contract auditing	SD	RII	Rank	Average Level of Agreement
Based on time and cost performance of public healthcare construction projects, do you believe that there is a need for Contract Auditing of such projects?	1.39	0.72	1st	Agree
Sometimes parts of the public healthcare construction projects that I participate on are reviewed, but I am not sure if this qualifies as Contract auditing;	1.17	0.64	2nd	Somewhat Agree
Since I began working on public healthcare construction projects, I have never been involved in Contract auditing?	1.24	0.62	3rd	Somewhat Agree
Because we do not use Technology to a high extent on the public healthcare construction projects that I have participated on, Contract Auditing will not have many sources of information to rely on.	1.17	0.61	4th	Somewhat Agree
I do not think that the 'bosses' that control Public healthcare construction projects will allow are that Contract auditing should be carried out public healthcare construction projects.	1.24	0.58	5th	Somewhat Agree
Contract Auditing is always carried out on all public healthcare construction projects that I participate on?	1.12	0.58	6th	Somewhat Agree
I do not believe that Contract auditing should be carried out on public healthcare construction projects;	1.25	0.46	7th	Disagree

Table 2:	Adoption	of contract	auditing

Barriers to the adoption of contract auditing

The results of analysis of the data as presented in Table 3 revealed that the top factor that bars the adoption of contract auditing on healthcare construction projects was ('commitment of senior managers to adopting proper policies for contract auditing of public healthcare construction projects is important'; RII = 0.74; ranked 1st). This result can be interpreted to mean that not having the commitment of senior managers, which is a 'policy' issue, adoption of contract auditing on healthcare projects becomes impossible. The next highest ranked barrier was a 'communication' issue ('contract auditing of public healthcare construction projects is a collaborative process requiring effective communication for close coordination of the various teams involved in the auditing process to ensure achievement of goals'. RII=0.74; ranked 2^{nd}). This underscores the difficulty of obtaining close collaboration from stakeholders on healthcare projects. The third highest ranked barrier had to do with 'compliance' ('to be effective, contract auditing policies must be coupled with timely enforcement of rules and regulations, especially where lapses are uncovered in public healthcare construction projects'; RII=0.72; ranked 3^{rd}). Stakeholders do not believe that timely

enforcement of rules and regulations is carried out on public healthcare construction projects.

It was however interesting that respondents only agreed somewhat with the notion that there is ('difficulty in acquiring financial capital and access to expert human resources for contract auditing of public healthcare construction projects'; RII=0.58; ranked 17th), which was a 'resource' issue. In all, respondents fully agreed on only 5 out of 17 factors that serve as barriers to the adoption of contract auditing on healthcare construction projects.

Category	Barriers to the adoption of contract auditing	SD	RII	Rank	Average
					Level of Agreement
Policies	Commitment of senior managers to adopting proper policies for contract auditing of public healthcare construction projects is important.	1.41	0.74	1st	Agree
Communi cation	Contract auditing of public healthcare construction projects is a collaborative process requiring effective communication for close coordination of the various teams involved in the auditing process to ensure achievement of goals.	1.36	0.74	2nd	Agree
Complian ce	To be effective, contract auditing policies must be coupled with timely enforcement of rules and regulations, especially where lapses are uncovered in public healthcare construction projects.	1.37	0.72	3rd	Agree
Communi cation	Lack of stakeholder involvement in contract auditing for public healthcare construction projects is a barrier.	1.35	0.71	4th	Agree
Culture	A positive industry culture will support the implementation of contract auditing for public healthcare construction projects.	1.31	0.71	5th	Agree
Complian ce	The incorporation of contract auditing clauses in contractual agreements for public healthcare construction projects enables clients to ensure adherence by contractors to agreed performance targets.	1.39	0.68	6th	Somewhat Agree
Complian ce	Ignorance about laws/regulations guiding contract auditing for public healthcare construction projects is a significant barrier.	1.31	0.68	7th	Somewhat Agree
Resources	Low-quality logistics planning has a high impact on the contract auditing of public healthcare construction projects.	1.57	0.66	8th	Somewhat Agree
Policies	The absence of clear policies for the implementation of contract auditing for public healthcare construction projects is a key obstacle.	1.53	0.66	9th	Somewhat Agree
Complian ce	Lack of Legislation (Acts, Decrees, Edicts) that regulate contract auditing for public healthcare construction projects is a barrier that needs to be taken into account.	1.51	0.66	10th	Somewhat Agree
Communi cation	Lack of collaborations between the private and public sectors on contract auditing for public healthcare construction projects.	1.31	0.65	11th	Somewhat Agree
Culture	Organisational culture, roughly defined as 'how we do things around here' has a great impact on hindering contract auditing for public healthcare construction projects	1.35	0.63	12th	Somewhat Agree

Тa	abl	e	3:	B	arriers	to	the	ado	ption	of	contract	auditing
									-			

Category	Barriers to the adoption of contract auditing	SD	RII	Rank	Average Level of Agreement
Policies	Adopting contract auditing policies only at higher level of management can be resisted by lower levels of the organization	1.28	0.63	13th	Somewhat Agree
Culture	The absence of perceived benefits and values among stakeholders is a culture-related barrier hindering contract auditing for public healthcare construction projects.	1.18	0.63	14th	Somewhat Agree
Culture	Organisational culture, which is based on fundamental assumptions learned and shared by organisations in response to solving issues, is highly influenced by the general societal culture.	1.13	0.63	15th	Somewhat Agree
Resources	Lack of both internal and external resources is a major problem in contract auditing of public healthcare construction projects.	1.47	0.59	16th	Somewhat Agree
Resources	Difficulty in acquiring financial capital and access to expert human resources for contract auditing of public healthcare construction projects.	1.41	0.58	17th	Somewhat Agree

Strategies to improve the use of contract auditing on public healthcare construction projects

The results of analysis of the data as presented in Table 4 revealed that the top three measures that could be adopted in order to improve the use of contract auditing on public healthcare construction projects are ('utilization of information technology; can reduce costs, improve operational efficiency, execute faster transactions and minimize human error'; RII=0.79; ranked 1st); followed by ('quality versus quantity; audit should have clearly defined parameters and time durations to prevent efforts from being diluted'; RII=0.76; ranked 2nd). The third measure was ('independence of contract audit; allows auditors to be able to state their opinions honestly, without fear that this may threaten their position'; RII=0.73; ranked 3rd).

Strategies to improve the use of contract auditing on public healthcare construction projects	Mean Score	SD	RII	Rank	Average Level of Agreement
Utilization of Information Technology; can reduce costs, improve operational efficiency, execute faster transactions and minimize human error.	4.09	1.26	0.79	1st	Agree
Quality versus Quantity; audit should have clearly defined parameters and time durations to prevent efforts from being diluted	3.79	1.34	0.76	2nd	Agree
Independence of contract audit; allows auditors to be able to state their opinions honestly, without fear that this may threaten their position.	3.65	1.3	0.73	3rd	Agree
Strengthening Audit Investigation and Evidence Collection	3.62	1.48	0.72	4th	Agree
Competence of internal auditors; capability of an individual to perform a specific task or execute a job in an appropriate way; possession of a specific set of skills, knowledge and behaviour.	3.81	1.31	0.72	5th	Agree

	Table 4:	Strategies	to improve	the use of	contract	auditing
--	----------	-------------------	------------	------------	----------	----------

Strategies to improve the use of contract auditing on public healthcare construction projects	Mean Score	SD	RII	Rank	Average Level of Agreement
Size of the contract audit team; the audit team must be equipped with adequate resources to effectively perform its responsibilities, number of contract audit staff compared to the amount of work responsibilities.	3.70	1.21	0.72	6th	Agree
Top management support; auditors need to maintain a close relationship with the organization's management	3.529412	1.4	0.71	7th	Agree
Motivation of contract audit staff; Motivation can arise from tangible incentives or intangible reward from performing the activity.	3.454545	1.33	0.67	8th	Somewhat Agree

From these results presented in Table 4, it was apparent that respondents considered that improving the audit process itself was enough to result in increased use of contract auditing. Giving auditors cutting edge IT tools, clearly defining the priorities of the audit and guaranteeing the independence of the auditors from outside interference are the measures identified by respondents. However, respondents only agreed somewhat with the notion that ('motivation of contract audit staff; motivation can arise from tangible incentives or intangible reward from performing the activity'; RII=0.67; ranked 8th) would significantly help in increasing the use of contract auditing. In all, respondents fully agreed on 7 out of 8 strategies that could help ensure increased use of contract auditing.

Discussion of Results

This paper has established that there is low adoption of contract auditing in public healthcare construction projects, nothwithstanding any protestations to the contrary by stakeholders (respondents fully agreed with only 1 out of 7 statements). At the same time however, stakeholders did not agree that there was no need to adopt contract auditing in healthcare projects. this result was in line with the findings of Brierley et al. (2001) in the Sudanese public sector, where a host of factors impacted negatively on the effectiveness of audits. This paper has found that not having the commitment of senior managers, which is a 'policy' issue, makes the adoption of contract auditing on healthcare projects impossible. There is also difficulty of obtaining close collaboration from the numerous stakeholders on healthcare projects. To make matters worse, stakeholders do not believe that timely enforcement of rules and regulations is carried out on public healthcare construction projects. These findings align perfectly with that of Mihret and Yismaw (2007) on the factors mitigating against the effectiveness of audits in Ethiopia. This paper has also established that improving the audit process itself would be enough to result in increased use of contract auditing. Giving auditors cutting edge IT tools, clearly defining the priorities of the audit and guaranteeing the independence of the auditors from outside interference all align with the findings of Ahmad et al. (2009) in Malaysia. However, this paper has found scant evidence that the use of contract auditing can be increased through 'Motivation of contract audit staff arising from tangible incentives or intangible rewards'; this finding was contrary to that of Brierley et al. (2001).

CONCLUSION

This study set out to assess the barriers to the adoption of contract auditing for delivery of public healthcare construction projects in Niger State, through determining the level of adoption; identifying relevant barriers; and suggesting strategies to improve the use of contract auditing on public healthcare construction projects. This paper has found that although there is a low adoption of contract auditing in public healthcare construction projects, stakeholders did not agree that there was no need to adopt contract auditing in healthcare projects. Furthermore, without the commitment of senior managers, which is a 'policy' issue, the adoption of contract auditing on healthcare projects become impossible. Other significant barriers are the difficulty of obtaining close collaboration from the numerous stakeholders on healthcare projects, absence of timely enforcement of audit rules and regulations on public healthcare construction projects. The paper concluded that the adoption of contract auditing is low in public healthcare projects, owing to the presence of five key barriers that are rooted in policy, communication, culture and compliance issues. Key recommendations put forward in this paper include the following:

- i. The top level government functionaries need to openly declare support for the adoption of contract auditing in order for the full benefits of such audits to be harvested.
- ii. Collaboration between stakeholders on healthcare construction projects needs to be improved so that the effectiveness of contract audits can be increased.
- Penalties and sanctions laid down in regulations governing the management of public healthcare projects construction must be applied in a timely manner. This will improve the effectiveness of contract audits.

REFERENCES

- Ahmad, N, Othman, R, Othman, R & Jusoff, K 2009, 'The effectiveness of internal audit in Malaysian public sector', *Journal of Modern Accounting and Auditing*, 5(9), 53-62.
- Ahmad, R. (2021). Niger gov investigates commissioner, MD over condition of IBB hospital. Punch newspaper of 3/10/21, accessed at <u>https://punchng.com/niger-gov-investigates-commissioner-md-over-condition-of-ibb-hospital/</u> on 03/10/21.
- Alvarez ´Jaramillo, J., Zartha Sossa, J.W., Orozco Mendoza, G.L., (2019). Barriers to sustainability for small and medium enterprises in the framework of sustainable development L iterature review. *Bus. Strat. Environ.* 28, 512–524.
- Bamgbade, J., Nawi, M., Kamaruddeen, A., (2017). Construction firms' sustainability compliance level. J. Eng. Sci. Technol. 12, 126–136.
- Brierley, J. A., El-Nafabi, H. M., and Gwilliam, D. R. (2001). The problems of establishing internal audit in the Sudanese public sector. *International Journal of Auditing*, 5(1), 73-87.
- Dawson, G.F., Probert, E.J., (2007). A sustainable product needing a sustainable procurement commitment: the case of green waste in Wales. *Sustain. Dev.* 15, 69–82.
- Doulabi, R. Z., & Asnaashari, E. (2016). Identifying success factors of healthcare facility construction projects in Iran. *Proceedia engineering*, 164, 409-415.
- Gelderman, C.J., Semeijn, J., and Vluggen, R., (2017). Development of sustainability in public sector procurement. *Public Money Management* 37, 435–442.

- Ghadge, A., Kaklamanou, M., Choudhary, S., and Bourlakis, M., (2017). Implementing environmental practices within the Greek dairy supply chain. *Industrial Management Data Systems* 117, 1995–2014.
- Ghazilla, R.a.R., Sakundarini, N., Abdul-Rashid, S.H., Ayub, N.S., Olugu, E.U., and Musa, S. N., (2015). Drivers and barriers analysis for green manufacturing practices in Malaysian SMEs: a preliminary finding. *Procedia CIRP* 26, 658– 663.
- Hasan, M.N., (2016). Measuring and understanding the engagement of Bangladeshi SMEs with sustainable and socially responsible business practices: an ISO 26000 perspective. *Soc. Responsib. J.* 12, 584–610.
- Ho, L.W., Dickinson, N.M. & Chan, G.Y., (2010). Green Procurement in the Asian Public Sector and the Hong Kong Private Sector-eds. *Natural resources forum* Wiley Online Library, 24-38
- Kylili, A., and Fokaides, P.A., (2017). Policy trends for the sustainability assessment of construction materials: a review. *Sustainable Cities and Society* 35, 280–288.
- Lewis, K.V., Cassells, S., Roxas, H., (2015). SMEs and the potential for a collaborative path to environmental responsibility. *Bus. Strat. Environ.* 24, 750–764.
- Lopes, J. M. R. (2012). *A evolução da formação em auditoria: o caso OROC* (Doctoral dissertation, Instituto Superior de Economia e Gestão).
- Matinaro, V., Liu, Y., (2017). Towards increased innovativeness and sustainability through organizational culture: a case study of a Finnish construction business. *J. Clean. Prod.* 142, 3184–3193.
- Mihret, D. G and Yismaw, A.W. (2007). 'Internal audit effectiveness: an Ethiopian public sector case study', *Managerial Auditing Journal*, 22(5), 470-484.
- Mihret, DG, Mula, JM and James, K (2012). 'The development of internal auditing in Ethiopia: the role of institutional norms', *Journal of Financial Reporting and Accounting*, 10(2), 153-170.
- Nelson, J. (1990). Bill of quantity: tendering for building services. In *Integration and coordination of specialist building services seminar, Hong Kong.*
- Neto, G.C.O., Leite, R.R., Shibao, F.Y., Lucato, W.C., (2017). Framework to overcome barriers in the implementation of cleaner production in small and medium-sized enterprises: multiple case studies in Brazil. *J. Clean. Prod.* 142, 50–62.
- Nowotarski, P., Paslawski, J., (2015). Barriers in running construction SME–case study on introduction of agile methodology to electrical subcontractor. *Procedia Engineering* 122, 47–56.
- Olsson, N. O., & Hansen, G. K. (2010). Identification of critical factors affecting flexibility in hospital construction projects. HERD: *Health Environments Research & Design Journal*, 3(2), 30-47.
- Pero, M., Moretto, A., Bottani, E., Bigliardi, B., (2017). Environmental collaboration for sustainability in the construction industry: an exploratory study in Italy. *Sustainability* 9, 125.

- Standish Group International (1999). CHAOS Report on the completion of projects. http://standishgroup.com/sample_research/PDFpages/chaos1999.pdf.
- Unegbu, A.O & Kida, M.I. (2011). 'Effectiveness of internal audit as instrument of improving public sector management', *Journal of Emerging Trends in Economics and Management Sciences*, 2(4), 304-309.
- United Nations Environment Programme (UNEP) With a Foreword by Kofi Annan, UN Secretary-General. (2002). Global Environment Outlook 3: past, present and future perspectives. *Environmental Management and Health*, 13(5), 560-561.
- Van der Schyf, D (2000). 'Obstacles in establishing and operating a public sector internal auditing function in a developing country: the South African experience', Meditari: *Research Journal of the School of Accounting Sciences*, 8(1), 145-181.
- Wijethilake, C., Lama, T., (2019). Sustainability core values and sustainability risk management: moderating effects of top management commitment and stakeholder pressure. *Bus. Strat. Environ.* 28, 143–154.
- Xiuzhen D. (2016). Analysis and solution of common problems in construction project audit[J]. *Research on Modern State-owned Enterprise*. (20): 214-215.