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Actualization of a cashless construction industry in Nigeria: Perceptions of stakeholders in Anambra State

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Abstract
This study examined the view of construction stakeholders on cashless society and how to make the construction sector cashless in Nigeria. The Survey research approach was adopted for the study, via the distribution of questionnaires to construction stakeholders in Anambra State, Nigeria. Four towns, namely: Onitsha, Nnewi, Awka and Ekwulobia were purposefully selected, since they represent the construction hub of the study area. From these towns, 200 construction stakeholders each were randomly selected from each town and a total of 800 questionnaires were administered. 540 copies of the questionnaires were completed, returned and found useful, thus, giving a response rate of 67.5%. Findings indicated that most of the construction practitioners are in support of the cashless society. Because, they believe it will improve traceability and accountability, reduce the rate of corruption/theft/sharp practices, reform construction practice and improve productivity of the sector by eliminating idle time. However, inadequate Point of Sale (POS) machines, lack of knowledge of ICT, frequent power outages, cyber theft, indiscriminate deductions from banks, unreliability of internet services and fear of the unknown are the major reasons militating against cashless society in the construction sector. The research therefore recommends that: ICT content of construction education should be improved, construction stakeholders should be properly sensitized on cashless society and the need to have bank accounts, internet services should be improved and subsidized, adequate POS and other technology infrastructure should be provided and cyber theft curbed.

Keywords: Anambra State, Cashless Society Construction Industry, Construction Stakeholders, Payment system.

Introduction

[1] defines a cashless system as a system of payment where transactions are performed without using coins or banknotes but credit cards or electronic transfer of funds. In a cashless society, currency and notes are converted into data which are transmitted through telephone lines and satellite transporters.

There is tremendous interest worldwide, among policy makers, the academia and commercial enterprises to explore the possibility of moving towards a cashless economy. This shift according to [2, 3] is necessitated by a need to address certain perceived anomalies in the economic landscape, drive the entire process of economic transformation and encourage networking, which is the bedrock of any modern and specialised economy. [3] suggest that this transformation should not centre on payment system only but should be extended to other sectors.

Despite the recent upsurge in ICT globally, researches on payment system have observed that cash remains the predominant mode of payment in the world and Nigeria in particular [2, 4, 5]. According to [6], the reason for this is the low service fees of cash-based transactions, especially on the consumer's side and the ease and convenience of usage when compared with e-payment services. Consequently, this has helped in breeding corruption and other sharp practices in the Nigerian society today [6, 7, 8]. Effects of these sharp practices in the construction sector are: increased cost of construction, dearth of both middle and low-income housing, delays, cost overruns and reduced project quality [8]. More so, most projects that are abandoned by successive Nigeria government are due to high level of corruption that take place between government officials and contractors [5].

Against these backdrops, the Central bank of Nigeria (CBN) introduced the cashless policy in 2011, with the intention of promoting efficiency and effectiveness of payment systems; safety and protection of systemic risks, audit transparency and full transaction reporting, and achieving public acceptance and confidence via information dissemination, customer convenience and total quality delivery [2]. These, lend credence for the need to study the transitional trend of the Nigerian society from cash based to cashless, particularly in the construction sector.

In view of the aforementioned scenarios, it is pertinent to examine the current practice of the cashless policy in the Nigerian construction industry, via construction stakeholders' views on a cashless society and how to make the construction sector a cashless one. This is with a view to making viable recommendation that will also form a basis for developing a sound policy framework towards improving performance, transparency and accountability in the Nigerian construction sector.

The Study Area

Anambra State is one of the 36 States in Nigeria, located in the south-east geo-political zone of the country (http://www.anambrastate.gov.ng). The State lies approximately between latitudes $5^0$50' and 6^0 45' North of the Equator. It is bounded on both the western and eastern sides by

latitudes $6^0$35' and $7^0$30' east respectively [9]. The State shares boundaries with Delta to the West, Imo to the South, Enugu to the East and Kogi to the North. It has a total land mass of 4,416 km and situates on the Eastern side of River Niger. The state has 177 communities (towns) in 21 Local Government Areas. It comprises three major towns namely, Awka, its capital city, and the Seat of Government, the commercial town of Onitsha and the industrial city of Nnewi. According to [10], Anambra State has a population of 4,182,032 which makes it the 9th most populous nationwide. It also has estimated average population density of 1,500–2,000 persons per square kilometre, making it the second most densely populated state in Nigeria, after Lagos State [9].

With an annual population growth rate of 2.21 percent per annum, Anambra State has over 60% of its people living in urban areas making it one of the most urbanized places in Nigeria [9]. [11] describes Anambra State as the 2nd most urbanized state in the country, with 62% of its total population living in urban areas. Over the last two decades the rural/urban migration (contributed by population growth) has posed serious burdens for the State's resources. This pressure is prevalent in the major towns in the state, and as a result, they have become characterized by inadequate and deteriorated amenities, facilities and infrastructure. To address this situation, the administration of Peter Obi (a former governor of the State), with the assistance of the UN-HABITAT produced 20-year structural plans (2009–2028) for the three major cities in the State, Onitsha, Nnewi and Awka Capital Territory to restore urban planning and guide their growth into the future (http://www.anambrastate.gov.ng). The plans contain policies and proposals for land use, city beautification, road infrastructure, industrial development, waste disposal, water supply, health, educational facilities and housing, which will turn these cities into successful urban areas, generate employment, wealth and provide high living standards for its residents.

Extensive construction activities and concentration of construction industry stakeholders such as clients, contractors, consultants/professionals, construction materials dealers and artisans are also found in the aforementioned towns and other commercial towns such as Ekwulobia. These areas of high construction activities were considered for this study. In Anambra State, the importance of the construction Industry has been described succinctly as occupying an important position in the structure of the State economy. Its contribution has over the years represents a reasonable percentage of the Gross Domestic Product (GDP) of the state, and also provides a substantial source of employment, especially for unskilled labour.

The foregoing statistical data underscores the selection of Anambra State as the study area, albeit where the cashless practice can be included into the State's structural plans and hence impact positively on the construction sector.

Aim and Objectives of the Study

The aim of the study is to examine the opinions of construction stakeholders in the study area, on the adoption of the cashless policy, with a view to devising ways of making to the construction industry, cashless. The specific objectives for this research are:

i. To obtain construction stakeholders' stance on cashless society.
ii. To determine the reasons of construction stakeholders, for supporting or being against a cashless society in the construction sector.
iii. To identify means or strategies for adopting cashless policy in the construction industry.

Overview of the Nigerian Construction Sector and the extent of IT usage

The Construction industry is a sector of the economy that transforms various resources into constructed physical economic and social infrastructure necessary for socio-economic development [12]. Put differently, it deals with all economic activities directed at the creation, renovation, repair or extension of fixed assets in the form of buildings, land improvements of an engineering nature. In Nigeria, the construction sector is believed to contribute between 5 and 10 percent of gross domestic product (GDP), and employ up to 10 percent of the working population. It is also responsible for about half of the gross fixed capital formation [13]. To be specific, in Nigeria, [11, 14] observe that the sector contributed 2.38%, 2.73 %, 4.06% and 4.32% to the nation's GDP from 2011 to 2014 respectively. [15] also notes that the industry contributes 3% by value to the Africa's GDP and had a project count of 6% in 2014.

The construction industry is made up of an organised formal sector and an unorganised informal sector. Regardless of the sector, the industry is manned by different stakeholders. A Stakeholder is an individual or organization that is actively involved in the project or whose interests may be positively or negatively affected as a result of the project or someone who may exert influence over the project and its results [16]. Some of these stakeholders are: project sponsors/clients, project users/occupants, design team, contracting team etc. The size of the firm determines the number of construction stakeholder involved.

Accordingly, [12] suggest that the size and nature, the job creation potentials and its presence in every developmental activity has made construction an attractive area for experimentation in enhancing the effectiveness of governance towards sustainable economic development. However, [13, 14] observe that construction sectors today are bedevilled with lot of challenges ranging from corruption, time and cost overruns and has failed to meet the needs of modern businesses that makes it competitive in international markets. It rarely provides best value for its clients. This scenario worsens when narrowed down to the Nigeria construction sector, especially on corrupt practices which has eaten deep into the fabrics of the society. The reason for this, is that the construction industry lags behind other industries in using computers [17, 18]; only 43% have internet access, with less than 14% of them owning a web home page. This means that the industry's openness/traceability index is too low, which further helps to promote sharp practices [1].

However, this problem is not peculiar to the construction sector alone; Researches have shown that internet penetration in Nigeria currently stands at about 30% with over 50 million internet users [19]. In another study, [20] observe that internet has a penetration rate of only 6% in a population of 140 million, but mobile technology has close to 50% penetration with about 93 million mobile phone subscriptions. Furthermore, [21] observes

that in Nigeria, main lines in use were 418,166; Mobile cellular phones were 112.78 million; Internet users were 58.25 million as at the 1st quarter of 2014. More so, [8] put the internet usage at 45million, a meagre 26.5% of the country population. Considering these survey, it can be seen that internet presences of Nigeria is between 25% – 35%. Consequently, it means that more than 65% of Nigerians lack internet access. A recent survey by [22] on "Global Information Technology" placed Nigeria at 119th position with Network Readiness Value of 3.2. The low internet presence in Nigerian construction sector has thus made the industry almost impossible to modernize or reform. Corruption and other sharp practices have continued thrive without signs of abatement in the nearest future; simply because, the machinery to achieve traceability of funds and its accountability has not been put in place.

Payment Systems: Cash-based verses Cashless

Payment systems can be referred to as the collection or structure of instruments for settling payments and transactions or part thereof [23, 24, 25]. It plays a very crucial role in any sector, because, it provides the channel through which financial resources flow from one segment of the part to the other [1]. Payment systems have evolved over time. Traditionally, paper-based payment instruments such as cash and cheques are often in use, but nowadays varieties of electronic payment instruments and card based payments which include debit cards, credit cards and prepaid/cash cards are gaining popularity globally [23]. Generally, payment system could either be cash-based or cashless.

Cash-based System

A cash based system is a setting where retail and commercial payments (i.e. day to day payments and business activities) are primarily made in cash/note/coins [5, 24, 25]. observe that in underdeveloped nations, cash is still the most convenient means of settlement of transactions because of the ICT and literacy level of these nations. Thus, cash continues to be the predominant method used for transactions. It was in fact estimated that 99% of over 215 million customer transactions in Nigerian banks were cash-related as at 2011 [2, 4].

Consequently, it is estimated that an average Nigerian transacts about N65 in cash out of every N100 income earned [2, 5, 6]. argues that cash-based system is believed to be the costliest mean of payment with a wide range of hidden costs, because, it entails labour intensive counting and storage, reconciliation, transport, and the risk of loss and theft. In addition to this, the nature of cash payments makes collecting statistics on the value and number of transactions difficult, because Cash is an "offline" method of payment, and a cash transaction is not separately recorded [3]. Therefore, it means that the extent to which cash transactions are used for payments can only be estimated with the aid of indirect methods or on the basis of data collected by means of surveys [3].

Some of the reasons why cash-based transaction still thrive in Nigeria and other developing countries of the world are: (i) rate of the unbanked populace; [20] observe that only 38% of the country's 160 million people use a formal bank account; (ii) low internet presence; [8] put the internet usage at 45million, a eagre 26.5% of the country population; and (iii) low service fees, ease and convenience of use [6].

Cashless System

A cashless system of payment is defined as a society where transactions is performed without using coins or banknotes for money transactions but instead using credit cards or electronic transfer of funds [1, 25]. In other words, a cashless economy is a combination of the cash-based payment system and electronic payment systems, with the latter exceeding the former in terms of utilization [24, 1]. call this, paperless banking. From the forgoing, [2, 7, 20, 5] note that cashless system does not mean outright absence of cash transactions in any economic setting but one in which the amount of cash-based transactions are reduced to the barest minimum. This system of payment is aided through the use of internet [1]. Services offered using this system of payment include: Mobile banking (M-banking), video banking, fund transfers, e-payments and ATM cards etc [25] .Out of these e-banking services and bank offers, ATM is by far the most popular in Nigeria [25].

Findings from a study, carried out by [23] on e- payment channels in Nigeria, indicate that ATM (98.09%) is mostly used, followed by the web (internet) (0.72%) and mobile system (0.71%), with Point of Sales (POS) terminal accounting for 0.48% . This trend according to [6, 1, 8, 25], will be reversed soon and more of e-banking services will be developed and introduced because of technological advancements especially in ICT. Currently, [19] places the internet penetration in Nigeria at about 30% with over 50 million internet users. This figure is likely to grow in the future.

Despite the recent introduction of cashless policy in Nigeria, the pattern of payment is still largely cash-based [4, 23]. This is true considering the size of retail and commercial activities that are transacted primarily in cash.

Benefits and Challenges of a Cashless System

Benefits: Some of the benefits of cashless system according to [26] are: improved access to real-time data which helps users save time, improved decision making, reduced transaction costs and improved customer satisfaction [27]. A cashless society also increases security and accountability by reducing crime, lower staff costs, increases competition, ensures convenience in payment between individuals, ensures better transaction overview (everything can be traced), reduces the risk of diseasetransfer, and increases social interaction. [1, 7] [5] point out that cashless economy will enhance the quality of life by improving hygiene on site and eliminate bacterial spread through handling notes and coins and simplify sales and cash collection. [25] also emphasize that it will aid in the drastic reduction of money laundering, terrorist financing and other economic and financial crimes [19]. opines that by fuelling accountability, it will help to eliminate the barriers between those at the top and the bottom managers/workers (i.e. between Directors and workers) [6]. suggests that cashless payment services will increase opportunities in doing business by accepting credit cards, which will in turn increase volume of sales because credit cards allow customers to buy goods and services despite having no cash at that time.

Studies carried out by [2] observed that card-based system is considerably more efficient than a cash-based system. However, they emphasize that ATMs cost considerably more, since the transactions involve cash replenishment, maintenance and security. Cheque withdrawals were also found to be three times more expensive than cash withdrawals at ATMs using

Norwegian banks as case study. Based on this, [2, 7, 4] surmise that cards remain the preferred non-cash payment instrument globally with cheque usage on a continuous decline across the globe.

Challenges: Some of the challenges of cashless policy are insufficient POS machines, non-functioning internet connectivity, problem of power and the possibility of cloning and hacking into the system by fraudulent persons [7, 28, 8]. [12] point out that Nigeria is confronted with challenges in the form of dilapidated and chronically non-functional infrastructure and ever increasing securities problems. Although, the use of these payment mechanisms are not totally free from problems, often times, customers' experience in having access to the services provided through electronic channels is not encouraging [23]. [24] further outline the following as barriers to this policy: power outage, malfunction of the instrument, trapping of cards, occasionally the ATM may debit without dispensing and network failure [24]. adds illiteracy to the list. According to [1] [25], the issue of an unbanked populace is also a critical challenge, and they further observed that Nigeria which has a population of about 130 million bankable adults, less than 50 million of them have bank accounts.

[8] attributed the lack of understanding of the deliverables of e-payment systems to the economy by successive governments as being responsible for the stunted growth of e-payment in Nigeria. Furthermore, successive governments do not possess the roadmap to leverage on the needs and demands of the populace on e-payment. Lack of adequate awareness and trust among others are also problems. People are often averse to changes; fear of the unknown and most of the policies evolved by past administrations lack sincerity of purpose and are merely for political aggrandizement [8].

Method of the Study

This study was carried out, using a survey method with a sample of 800 stakeholders comprising building professionals, building material manufacturers, building materials merchants, building clients/sponsors, building contractors and building Artisans drawn from Anambra State, south-east Nigeria. Four towns; Onitsha, Nnewi, Awka and Ekwulobia were purposefully selected because of their population density and the volume of infrastructural development. From each of the 4 selected towns, 200 respondents were randomly selected and 200 copies of questionnaires were administered to them on issues regarding their perception of cashless society in construction sector. A total of 800 questionnaires were thus administered and only 540 were completed, returned and found useful. This corresponds to response rate of 67.50%.

Data was collected through primary and secondary sources. The secondary data sources comprised journals, published books, e-books, reports etc. Extracts from these sources helped in the literature review of this study. Structured questionnaire was used to obtain primary data, in which the respondents were asked to indicate their level of agreement on identified issues on cashless society on 5-point likert scale, where 1 = strong disagreement (SD) and 5 = strong agreement (SA).Based on this, mean score index of each variable or factor was computed and subsequently ranked.

The mean score is calculated using the following equation:

$$MS = \frac{\sum_{i=1}^{5} ai.ni}{\sum_{j=1}^{N} xj} \quad X \quad 100$$

Where: xj = sum of the jth variable; j = the variables 1,2,3,4,5……N; N= total number of variables examined ; a_i = constant expressing

the weight given to the ith response: i = 1, 2, 3, 4, 5. n_i = the variable expressing the frequency of the ith response.

Being a descriptive research, tables, charts, and histogram were used for data presentation and pictorial elucidation.

Data Presentation, Results of Analysis and Discussion

Banking Status of Surveyed Respondents

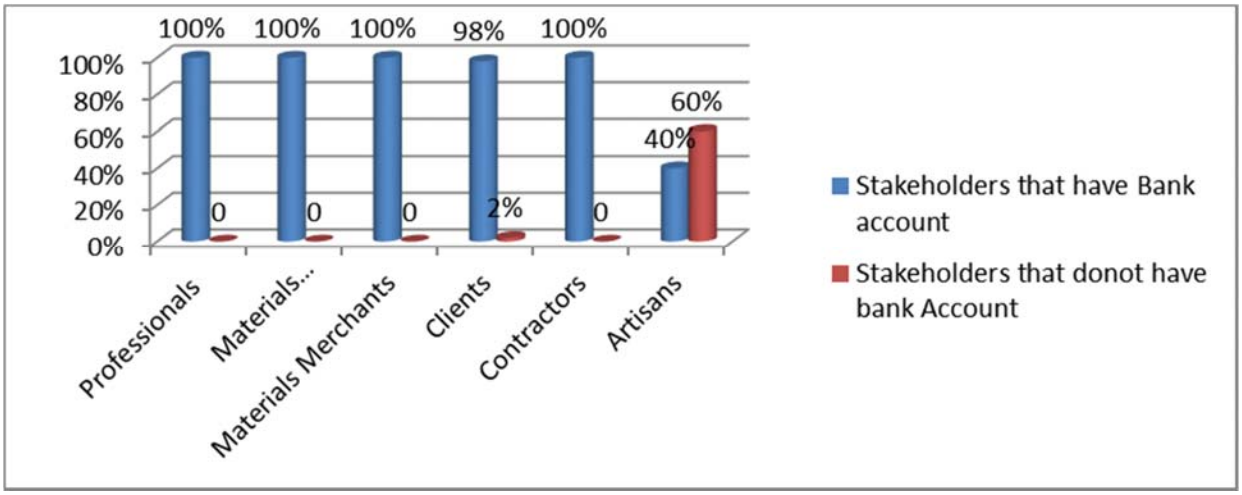

Fig 1: Banking status of respondents (Source: Authors' field survey, 2015)

Figure 1 shows that 100% of construction professionals, materials manufacturers and materials merchants in the study area have a formal bank account. 98% of the building clients have a bank account, while 2% do not. Also, figure 1 reveals that more 60% of the artisans in the study area do not have a formal bank account.

Computer Literacy of Surveyed Respondents

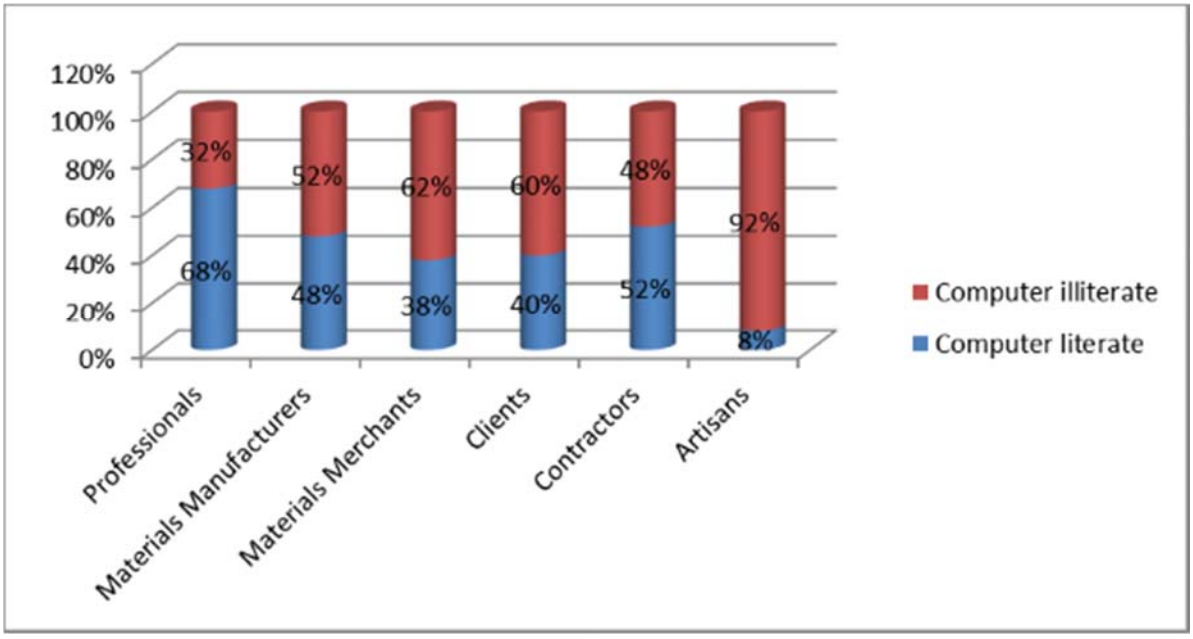

Fig 2: Computer literacy of the respondents (Source: Authors' field survey, 2015)

From figure 2, construction professionals (68%) top the list for computer literacy level, closely followed by contractors (52%), materials manufacturers (48%) and clients (40%). Artisans (92%) top the list of the computer illiterate, followed by materials merchants (62%), clients (60%) and materials manufacturers (52%).

Stakeholders' Awareness of the Cashless Policy

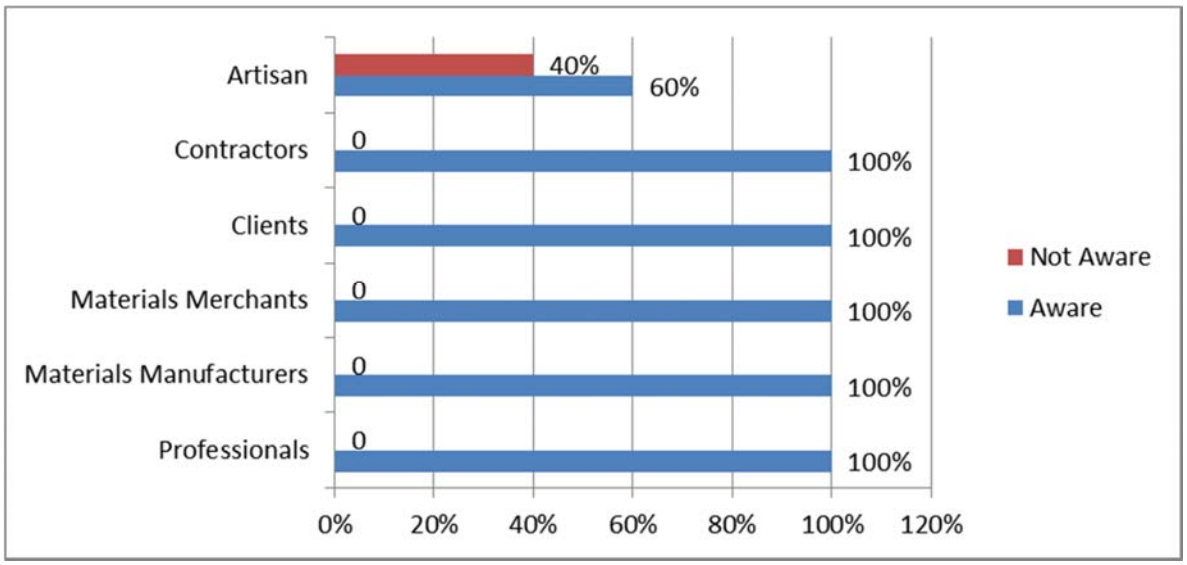

Fig 3: Responses on awareness of the cashless policy (Source: Authors' field survey, 2015)

From the responses in figure 3, 100% of the construction professionals, manufacturers, materials vendors, clients and contractors have heard of the cashless policy. Also figure 3 shows that 60% of the artisans have heard of the policy but 40% have not.

Stakeholders' Perception of the Cashless Policy

Table 1: Respondents' view on cashless policy

Stakeholders	Totally In Support	Partially In Support	Indifferent	Partially Against	Totally Against	Mean Score	Rank
	Numbers of Responses (in percent)						
Stakeholders	43.75	43.75	6.25	6.25	0	4.25	2
Materials Manufacturers	30	40	10	6	14	3.66	3
Materials Merchants	27.30	33.33	1.87	4.17	33.33	3.17	5
Clients	59	31	5	5	0	4.39	1
Contractors	30	35	5	16	14	3.51	4
Artisans	10	15	30	15	30	2.60	6

Table 1, shows that building clients (59%), with a mean score of 4.39 ranked first in terms of supporting the cashless policy among construction stakeholders. Followed by professionals (43.75% and mean score of 4.25), materials manufacturers (30% and 3.66), and contractors (30% and 3.51). Table 1 also reveals that Artisan (10% and 2.66) rank least in terms of supporting the adoption of cashless policy. It is pertinent to note that more than 60% of the construction stakeholders examined support the cashless policy excluding the artisans with a support rate of 25%.

Table 2: Respondents' reasons for supporting a cashless society

Reasons For Supporting Cashless Policy	SD…….....SA					Mean Score	Rank
	1	2	3	4	5		
	Number of Responses (in percent)						
Reduction of cash related robbery	60	40	0	0	0	4.60	1st
Reduction of cash related corruption	44	48	0	8	0	4.28	2nd
Reduction of cost of production	16	36	28	20	0	3.48	10th
Reduction of the time needed for the Realisation of a construction project	16	28	28	20	8	3.24	12th
Improvement of the work conditions of the construction workers	20	4	36	40	0	3.04	13th
Improved hygiene on site	8	24	24	36	8	2.88	14th
Prompt settlement of transactions	32	52	8	4	4	4.04	5th
Reduction in the frequency of visit to the banks	40	48	0	12	0	4.16	4th
Encouragement of timely and accurate financial information.	32	64	4	0	0	4.28	2nd
Modernization of construction practice	36	28	28	8	0	3.92	7th
Enhanced public image of the construction industry	12	52	16	20	0	3.56	9th
Improved client/customer satisfaction	16	48	16	20	0	3.60	8th
Increased social interaction among construction personnel by eliminating barrier between them	12	48	16	20	4	3.44	11th
Increased opportunities for doing business	24	60	8	8	0	4.00	6th

Table 2 identified stakeholders' reasons for supporting a cashless society. From the responses obtained, reduction of cash related robbery ranked first with a mean score of 4.60, closely followed by reduction of cash related corruption (4.28), encouragement of timely and accurate financial information (4.28), reduction in the frequency of visit to the banks (4.16), prompt settlement of transactions (4.04), increased opportunities for doing business (4.00) and modernization of construction practice (3.92). Improved hygiene on site (2.88), improvement of the work conditions of construction workers (3.08), reduction of the time needed for the realisation of a construction project (3.24) and increased social interaction among construction personnel (3.44) ranked least in the reasons for supporting a cashless construction industry.

Table 3: Reasons for not supporting Cashless society

Reasons For Not Supporting Cashless Policy	SD…….....SA					Mean Score	Rank
	1	2	3	4	5		
	Number of responses (in percent)						
Cyber-crime (fraud)/ possibility of cloning and hacking into the system by fraudulent persons/security	44.44	38.89	0	11.11	0	4.00	2
Illiteracy level	27.78	22.22	16.67	27.78	0	3.33	10
Lack of knowledge/inadequate ICT content of construction education	33.33	38.89	16.67	11.11	0	3.94	3
Inefficiency brought by poor infrastructure	22.22	38.89	11.11	27.78	0	3.56	9
Problem of power/epileptic power supply	27.78	27.78	33.33	11.11	0	3.72	6
Indiscriminate deductions from accounts by banks	16.67	61.11	11.11	5.56	5.56	3.78	4

Cost	16.67	16.67	44.44	22.22	0	3.28	11
Inadequate POS machines and other support instruments	38.89	55.56	0	5.56	0	4.28	1
Non-functional internet connectivity	27.78	44.44	5.56	16.67	5.56	3.72	6
Low public acceptance	27.78	27.78	27.78	11.11	5.56	3.61	8
Fear of the unknown	22.22	50.00	11.11	16.67	0	3.78	4

The responses in table 3 shows that Inadequate POS machines and other support instruments (4.28) top the list, followed by cyber-crime (Fraud)/security (4.00), lack of knowledge/inadequate ICT content of construction education (3.94), indiscriminate deductions from accounts and fear of the unknown (3.78), non-functional internet connectivity and frequent power outages (3.61). Cost (3.28) and illiteracy level (3.33) ranked least of the reasons why construction stakeholders are against the cashless society.

Strategies for achieving a cashless construction industry in Nigeria

Table 4: Strategies for adopting a cashless construction industry

Strategies	SD……SA				
	1	2	3	4	5
	Number of responses (in percent)				
Awareness/education of construction workers on cashless & its tools	69.23	23.07	3.85	3.85	0
Computer literacy	38.46	53.84	3.85	3.85	0
Provision of technological infrastructure	53.85	41.15	0	0	0
Government intervention in electric power supply/alternative power supply	46.15	42.31	7.69	3.85	0
Provision/subsidizing of internet facilities and supporting infrastructure	46.15	42.31	3.85	3.85	3.85
Proper and accurate identification of account holders	26.92	38.46	23.08	11.54	0
Security of the system	50	50	0	0	0

From the responses in table 4, the key ways to make construction sector totally cashless is through: security of the system (50 + 50 = 100%), provision of technological infrastructure (53.85 + 41.15 = 100%), awareness/education of construction workers on the cashless policy and its tools (69.23 + 23.07 = 92.3), and computer literacy (38.46 + 53.84 =92.3).

Conclusion and Recommendations

From the research findings, most of the construction stakeholders are in support of the cashless society. Because, they believe that the cashless policy will help to bring in traceability and accountability to construction transactions in Nigeria, thereby, reducing the rate of corruption/theft/sharp practices in the construction industry. A cashless society will also help to reform construction practice. Consequently, it will help to improve productivity of the sector by eliminating idle time/ time wasted in settlement of transaction/payment of workers on site and visits to the bank. However, inadequate POS machine, lack of knowledge of construction workers on ICT, epileptic power supply, cyber theft, indiscriminate deductions from banks, unreliability of internet services and fear of unknown are the major reasons militating against a cashless construction sector in Nigeria.

From the foregoing, the study recommends that construction stakeholders especially artisans should be encouraged to open accounts with banks; ICT content of construction education should be improved, construction stakeholders should be properly sensitized on the cashless policy, internet services should be improved and the costs subsidized, adequate POS and support infrastructures should be provided. Finally, cyber theft should be curbed by providing adequate security.

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