



Impact of Social Media Usage on Performance of Construction Businesses (CBs) in Abuja-Nigeria

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3 4 Abstract

5 **Purpose:** Many construction businesses are currently building and keeping social media pages so
6 that their enterprises could be visible to the public in order to improve their social interaction,
7 promote business interest, build trust and relationships with their targeted audience on social
8 media. The purpose of the study is to examine the impact of social media usage on performance
9 of Construction Businesses (CBs).

10 **Design/methodology/approach:** The study used a quantitative research approach by identifying
11 constructs that reveal three aspects of organisation's physiognomies that impact the process of
12 espousing, implementing and using technological innovations in conducting businesses. Well-
13 structured questionnaire was used to obtain data from 113 purposively sampled building materials'
14 merchants operating in Dei-Dei Market, Abuja-Nigeria. The study used partial least squares
15 structural equation modelling technique to establish the relationship among the constructs.

16 **Findings:** The results of the study indicated that technology has significant relationship with social
17 media adoption while social media adoption has a very strong positive impact on organization's
18 performance ($P < 0.001$) with respect to improved customer relations and services, and enhanced
19 information accessibility.

20 **Research limitations/implications:** This study has implications for CBs that wish to adopt social
21 media to promote their businesses by presenting to them the opportunity to understand the impact
22 of technology, environment and organisational potential in improving business performance. The
23 study is cross-sectional in nature and this calls for caution in interpreting the results.

24 **Originality/value** – The paper developed and tested a conceptual framework presented to
25 understand the interrelationships amongst the constructs which would be of great significance to
26 business owners in developing their social interaction and promote business interest via social
27 media. The outcome of this research is beneficial to researchers to further study how the different
28 social media tools could help in influencing business decisions.

29 **Keywords:** Business performance, Social media, Construction industry, Technology and Business
30 environments, Materials' dealers

31 32 Introduction

33 The continuous revolution in IT systems has made it difficult for organisations in the construction
34 industry, particularly construction businesses, to adjust to market dynamics. Indeed, the
35 implementation of innovative ideas through research and development is becoming more difficult
36 due to changes in customer perceptions that are changing much more rapidly (Palacios-Marque's,
37 Devece-Caran, Llopis-Albert, 2016). CBs are recognized as a major contributor to the growth and
38 development of every country and a well-known source of gross domestic product, work

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3 1 opportunities and revenue (Steffens and Omarova, 2019; Sharafizad & Brown, 2020). Despite this
4 2 key role in today's global economy, they face challenges in the adoption of new technology.
5 3 Notwithstanding the increase in the use of the internet and the communication network, CBs still
6 4 face obstacles in accepting new technology to do business (Dahnil *et al.*, 2014).

8 5 Therefore, many CBs have taken to the social media to keep up with business environment shifts
9 6 and to meet potential customers. Social media is the place to meet a huge consumer pool. Hsu
10 7 (2012) described social media as a consumer information source and serves as a way to disseminate
11 8 information in the interests of increasing market presence. The evolution and use of social media
12 9 by organisations, which has gained wider acceptance in today's business world, cannot be
13 10 overstated.

16 11 The level of choices and interaction based on personal experience on many social media platforms
17 12 have influenced the way business is done in the business world. Parveen, Jaafar and Ainin (2016)
18 13 viewed social media, social networks, blogs, and online communities as combined concepts within
19 14 the philosophy known as Web 2.0, and Sigala (2009) emphasised that these tools are enabling the
20 15 development of computer-based social networking and the relationship of internet users.
21 16 Gopakumar (2017) argued that many companies use different social media channels to support
22 17 business growth and improve their performance. There is a paradigm shift in CB's strategy to
23 18 conduct business in the hyper-competitive construction business climate around the globe due to
24 19 the rapid spread and adoption of social media by the general public and, in particular, by customers.
25 20 These platforms provide an opportunity for organisations to explore the positive potential of the
26 21 internet by shifting their attention to e-commerce and online transactions in order to achieve
27 22 optimum performance.

30 23 According to Golden (2010), social media platforms are classified into two types based on
31 24 ownership such as: firm sponsored or individual publications (e.g. blogs) and third-party forums
32 25 (e.g. Facebook, Twitter and LinkedIn). While Scott (2014) and Grahl (2015) classified social
33 26 media into six types based on the main activity of the platform which includes: Social networks:
34 27 Facebook, LinkedIn, Google+; Media sharing: YouTube, Instagram, Pinterest, Flickr;
35 28 Microblogging: Twitter, Tumblr; Blog Comments and Forums: Blogger; Social news: Reddit and
36 29 Bookmarking site: Delicious, StumbleUpon. These platforms perform different functions and they
37 30 have been employed by different individuals and organisations for different reasons to assist their
38 31 businesses grow.

41 32 **Nigeria, like many other developing countries, has a strong small and medium enterprises (SMEs),**
42 33 **accounting for 96 per cent of all businesses and contribute about 48 per cent to the national gross**
43 34 **domestic products (GDP), and provide employment for 86 per cent of the workforce. Despite these**
44 35 **contributions by SMEs enterprises to the Nigerian economy, challenges remain that impede the**
45 36 **development and growth of the sector. The challenges range from the lack of the skills required to**
46 37 **promote their goods or services effectively or to gather enough customers to develop and be**
47 38 **sustainable; to the lack of resources to gain external marketing support. In fact, Li et al. (2019)**
48 39 **argued that one of the difficulties faced by small business owners in developing countries is access**
49 40 **to information that is essential to their businesses. This study believes that using social media**
50 41 **effectively can help companies boost their market efficiency because it is an inexpensive tool that**
51 42 **has been shown to help businesses meet their consumers more quickly (Ahmad *et al.*, 2018).**

55 43 According to Perera *et al.* (2015), the use of social media has moved much further than individual
56 44 or private use in the contemporary world; its acceptance and application has been applied to

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3 1 business in order to increase exposure and sales. This is due to the fact that social media allow
4 2 two-way communication between potential clients and business organisations (Parveen *et al.*,
5 3 2016). However, there is evidence in the literature (Harris & Rea, 2009) that companies that utilize
6 4 up-to-date social media technologies are likely to outperform their competitors by taking
7 5 advantage of benefits such as lower costs and improved efficiency. Although experiencing barriers
8 6 to adoption, the use of social media marketing by CBs may give rise to an enormous opportunity
9 7 that can change the shape and nature of their companies around the globe. Therefore, the study
10 8 presented here discusses the relevant literature on the effect of social media on the performance of
11 9 the construction businesses, and describes the concepts that are capable of influencing performance
12 10 and develop a conceptual framework that could be tested empirically.
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12 **Literature Review**

13 **Previous studies on social media**

14 A number of studies have been conducted across industries to determine the impact of social media
15 on the performance of organizations. Some studies have looked at how and why the use of social
16 media has played an important role in the minds of consumers and the impact of social media in
17 the global market boom in recent times (Kaplan, 2012; Michaelidou *et al.*, 2011; Mathew Mount,
18 2014). Dahnils *et al.* (2014) examined the factors that had an impact on the adoption of social
19 media marketing by SMEs and organizations in Malaysia, which provided them with an
20 opportunity to establish a balanced image of the current state of global social media marketing
21 adoption research. In a related development, Berthon *et al.* (2012), Kusera (2012) and Jussila *et*
22 *al.* (2014) explored both the tangible and intangible benefits of social media in achieving effective
23 marketing and their impact on the consumer decision-making process. According to Parveen *et al.*
24 (2016), many of the research on the use of social media centred on individual perceptions, while
25 only few were based on the organisational perspective. Despite this, only a small number of studies
26 have investigated the actual effect of social media use on organisational efficiency. For example,
27 Parveen *et al.* (2015) examined the effect of social media use on organizational performance and
28 found that social media has a greater influence on the performance of companies in terms of
29 enhancing customer interactions and customer support operations, increasing access to
30 information and reducing marketing and consumer costs. Perera *et al.* (2015) studied the use of
31 social media in the construction industry using a case study approach. The findings of the study
32 showed that the use of social media in construction organisations was very small. The study
33 concluded that, given the market potential of social media for construction firms, social media
34 channels were not well regarded by workers and that their benefits were undervalued. This
35 statement could be inferred that, like all other sectors, the construction industry will similarly
36 benefit from the resources and tactics used by social media to improve its productivity and returns.
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37 **Social media and construction businesses**

38 There is a general belief that the continuous development of information technology has
39 inspiringly changed the approach in which businesses are conducted nowadays. That is largely
40 because companies now work in a digital environment, where firms are no longer being limited to
41 buildings or a geographical place such as market. The construction industry is quite distinct in
42 comparison with other industries due to its fragmented nature creating hyper-competition in such
43 a way that construction business organisations must outperform competitors in order to ensure
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3 1 their survival in the turbulent construction environment (Oyewobi 2014; Oyewobi, Windapo &
4 2 Rotimi 2016). Nonetheless, developments in the global way of doing business have continually
5 3 forced construction industry operators to be more creative in order to meet the demands and needs
6 4 of construction customers while at the same time improving their profitability in successful and
7 5 challenging markets (Sexton & Barrett, 2003).

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10 6 This means that corporate organisations have begun to appreciate social media as an instrument of
11 7 corporate management (Kietzmann *et al.*, 2011). Ahmad *et al.* (2018) however, reported the
12 8 existence of evidence in literature indicating the need for SMEs, at appropriate times, to embrace
13 9 technological innovations such as social media in order to remain competitive and at optimum
14 10 market performance. Previous research on the use of social media in businesses reported that social
15 11 media has a great deal of benefits for organisations (Siamagka *et al.*, 2015; White, Kenly & Poston,
16 12 2010; Ahmad *et al.*, 2018). In corroboration, Durkin *et al.* (2013) stated that while SMEs often
17 13 have insufficient resources to have traditional business management approaches, they are able to
18 14 benefit from the use of social media as alternative management tools.

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21 15 Similarly, construction firms have begun to seek more efficient ways to improve profitability and
22 16 retain prospects for development (Flanagan *et al.*, 2007; Keung & Shen, 2017). The recent use of
23 17 social media because of the numerous benefits it offers is one of the strategies used by CBs to
24 18 improve their efficiency. Altimeter (2015) and Li and Solis (2015) espoused that social media is a
25 19 social business strategy that allows companies to integrate social media into business goals and
26 20 objectives. The way companies operate has been changed by social media. Open communication
27 21 helps organisations to recognize customer needs and also motivates organisations to respond
28 22 effectively and efficiently to customer requirements in real time. Another important feature of
29 23 social media is that of monitoring of messages, input and opinions of customers that stimulate
30 24 innovation (Matuszak, 2007; Tapscott & Williams, 2006). CBs achieve this through the use of
31 25 their social media accounts to post their construction questions as well as by providing support to
32 26 crowdsourcing companies, best-in-class corporate strategies for new buildings and new offers. In
33 27 addition, construction organisations, by feedback on their current and past ventures, may use their
34 28 social platforms to present their goods, provide updates and obtain valuable insights from their
35 29 customers. This is in line with Broughton *et al.* (2010)'s suggestion that social media experts
36 30 recommend that social media be fostered for better results in the workplace.

31 **Theoretical background**

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34 32 A plethora of hypotheses have led to research on how the transfer of innovative technologies from
35 33 other industries may have an effect on the output of organisations operating within the construction
36 34 industry. Popular among these theories are Technology Adoption Model (TAM), Innovation
37 35 Diffusion Theory (IDT), Technology-Organisation-Environment (TOE) and Resources Based
38 36 View (RBV). These theories are discussed briefly in this paper and how they influence the study.

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41 37 Considering the technological dimension that is needed in the use of social media, some
42 38 researchers have explored the Technology Acceptance Model (TAM) as one of the most
43 39 commonly used models of acceptance of technology (Venkatesh & Davis, 2000; Park *et al.*, 2009).
44 40 Lee *et al.* (2003) used the theory of TAM to examine the psychological challenges often faced by
45 41 users in accepting new technologies from the point of view of information technology. The
46 42 adoption of new technology by consumers is therefore based on several factors, including
47 43 perceived utility, perceived ease of use, attitudes towards use and behavioural intentions (Dulcic,
48 44 Pavlic, & Silic, 2012). Despite the success of this model, researchers in the information system

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3 1 found it weak because it did not address external environmental concerns (Hossain & Silva, 2009;
4 2 Lee *et al.*, 2003) and was only able to clarify the general acceptance of technology (Lu, Yao & Yu,
5 3 2005).

7 4 Apart from Technology Acceptance Model, the Davis (1989) Innovation Diffusion Theory (IDT)
8 5 model was also used by marketing and business researchers such as Venkatesh *et al.* (2003) to
9 6 describe the technical aspects of social media. Diffusion of innovation theory identifies a variety
10 7 of exogenous factors that affect decision-making on the use of information technology innovation
11 8 and noted that the diffusion of innovation is a primary determinant of the performance of
12 9 companies (Rogers, 2003). Proponents of the diffusion of innovation theory argued that an
13 10 organisation will consider technology to be innovative only if it is considered to be new, relevant
14 11 and advantageous in terms of convenience, economic, social, prestige and satisfaction (Zaltman,
15 12 Duncan & Holbek 1973; Rogers, 1995). However, Rogers (1995) emphasised that the way in
16 13 which innovation is adopted or sustained by an organisation depends on certain attributes classified
17 14 under the five main characteristics: relative advantage, compatibility, complexity, testability and
18 15 observability. However, Parveen (2014) argued that the theory ignores the social context of the
19 16 adoption of information technology in organisations which makes it unsophisticated to address
20 17 issues of the social context in which information technology is adopted and disseminated. Earlier,
21 18 Du Plooy (1998) argued that the diffusion of innovation theory could not have grasped the
22 19 environmental and organisational setting needed for the successful implementation of information
23 20 technology. This implies that, for diffusion theory to be all-encompassing, environmental issues
24 21 and the organisational context of the TOE model need to be addressed.

22 22 In order to have a comprehensive perspective on how social media influences performance, some
23 23 researchers have combined three dimensions, such as the Technology-Organisation-Environment
24 24 Model (TOE) (Parveen *et al.*, 2016; Ahmad *et al.*, 2018). Considering the failure of the diffusion
25 25 of innovation theory to take into account external factors and the organizational context, which is
26 26 a possible recipe for the positive implementation of information technology. The TOE model was
27 27 developed by Tornatzky and Fleischer (1990) to complement the TAM and IDT models. The
28 28 limitation of IDT, as described by Du Plooy (1998) and Parveen (2014), is the environmental and
29 29 organisational setting for the implementation of innovation, while the TOE model derives its
30 30 strength from three main aspects of the organisation's unique technical, organizational and
31 31 environmental characteristics. Such features are considered to have an effect on the process of
32 32 adopting, introducing and applying new ideas through technology (Parveen, 2014). The TOE
33 33 model has been criticised for failing to provide an inclusive model needed to explain the factors
34 34 that have an impact on the adoption of information technology (IT) decision-making within
35 35 organisations, despite its ability to successfully classify the adoption factors in their respective
36 36 contexts (Bose & Luo, 2011). The key contribution of technology-organisation-environment
37 37 theory has been to enable researchers to extend the scope of IT adoption in organisations (Jokonya
38 38 *et al.*, 2012).

39 39 Whereas the theories discussed above concentrated on technology adoption and retention without
40 40 a clear description of how emerging technologies, such as social media, can affect the performance
41 41 of organisations, the Resources Based View (RBV) theory has been suggested by researchers
42 42 (Barney, 2001; Peteraf, 1993). While social media has been seen from a number of theoretical
43 43 viewpoints as derived from literature (Tajvidi & Karami, 2017), some of these theories are either
44 44 focused on the adoption of social media at the individual or organisational level (Schaupp &
45 45 Interessenr, 2013). They have not been able to explain the connection between innovative ideas

(social media) and organizational performance. Recently, the RBV theory has been used to help lay the foundation for a relationship between social media and their relevance to organizations. This is because the theory considered valuable, rare, inimitable and distinctive organisational resources and capabilities to be an important source of competitive advantage and superior performance (Barney, 2001; Peteraf, 1993). Li and Ling (2012) asserted that perhaps the cause of a sustainable competitive advantage rests solely on the internal capacity of an organisation to effectively exploit and restore distinctive organisational resources, rather than focusing on positioning the organisation in the right industry niche. Internal capability enables the company to make full use of its IT resources and networking skills to enhance its efficiency by reducing marketing costs, strengthening customer relationships, enhancing brand reputation and competitive advantage (Molla & Heeks, 2007; Trainor *et al.*, 2014).

Conceptual framework and hypotheses

Literature on the relationship between the identified constructs formed the basis for the development of a conceptual framework indicating the nature of the relationship among the constructs and their combined impact on the construction business performance in Abuja-Nigeria. The focus of this section is to explain the concepts adopted in order to make clear the links between the main constructs identified in the literature that explained how social media could influence organisational performance in the context of the current discussion in the construction management field. Consequently, a conceptual framework is developed to provide the needed understanding on the issues relating to the organisation business orientation, social medial usage and performance. The conceptual framework presented here shows the alignment of the researchers on how the problem being examined is conceptualised in order to give direction to the study by showing the interrelationship proposed among the constructs. The constructs included in the framework and their relationships are discussed briefly to provide a better understanding of the conceptual framework as indicated in Figure 1.



Figure 1: Conceptual Framework

Technology, Organisation, Environment and Social Media

The paper engaged a number of theories to show the connectivity and relationships amongst the constructs presented in the conceptual framework. For instance, complementarity of TOE model and IDT could be used to explain the impact of social media adoption on CBs performance. TOE model is more positioned in explaining the environmental context in which CBs operate which could not be explained by IDT. According to Rogers (1995, 2003), there are five technological features of innovation adoption that must be present within an organisation. These are relative

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3 1 advantage, compatibility, complexity, testability and observability. An organisation will only
4 2 adopt new technology if it is considered advantageous, consistent with the organisation's existing
5 3 technology, convenient to use, has a visible advantage and is very easy to test before use (Rogers,
6 4 1995). Incongruities remain in the findings of previous research, however, as to how technology
7 5 acceptance and performance affect each of the characteristics (Teo & Pok, 2003; Valenzuela *et al.*,
8 6 2009). Evidence shows that SMEs have an important need to implement technological advances
9 7 in a timely and market level (McCann & Barlow, 2015; Ahmad *et al.*, 2018) in order to stay
10 8 competitively relevant and to achieve improved profitability.

13
14 9 Organisation in this context refers to the internal environment of a company that could impact on
15 10 the adoption of new technology (Ahmad *et al.*, 2018). This study therefore, argued that
16 11 organisation depicted by top management is very important in the adoption and implementation of
17 12 new technology by creating enabling environment that is conducive for the implementation of
18 13 innovative ideas (Ahmad *et al.*, 2015; Ahmad *et al.*, 2018). Meanwhile, existing research gave
19 14 credence to the assertion that top management strongly influences the intention of organisations to
20 15 use new technology (Ahmad *et al.*, 2015; Maduku *et al.*, 2016). Therefore, top management is a
21 16 significant factor in an organisation's innovation approach and how innovation aligns with the
22 17 overall plan of the organisation in order to accomplish the entire purpose of the business. In the
23 18 meantime, environmental issues determine the climate in which companies work and force
24 19 companies to remain competitively active in the sector. Combining TOE and RBV theories,
25 20 therefore, suggest that organizational efficiency will only be affected if the organisation's structure
26 21 and the environmental variables are balanced (Oyewobi, 2014). This reinforces the claim of
27 22 previous researcher (for example Hartmann, 2006), that such theories can also recognise
28 23 opportunities to efficiently and effectively manage organisation by introducing creative ideas such
29 24 as social media which can lead to adjusting the business strategy of the company in response to
30 25 market threats. This paper therefore argues, that the technological tools used, the market
31 26 environment and the organization's internal capabilities may either contribute directly to
32 27 performance or mediate a social media usage relationship. The study postulated based on the above
33 28 explanation that:

39 29 *H1. There is a positive relationship between technology and social media adoption by CBs*

40 30 *H2. There is a positive relationship between environment and social media adoption by CBs*

41 31 *H3. There is a positive relationship between organisation and social media adoption by CBs*

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43 33 **Social media and organisational performance**

44 34 Researchers (such as Parveen *et al.*, 2015; 2016; Ahmad *et al.*, 2018) have emphasised that the
45 35 usage of social media has grown enormously among organisations. However, there is paucity of
46 36 research that actually examined the impact of social media usage on organisational performance.
47 37 In recent times, organisations across industries have started developing and maintaining public
48 38 pages on social media to enhance their social network relationship, promote interest in their
49 39 organisations, and build trust with the online public (Parveen *et al.*, 2015). Previous researches

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3 1 have shown that internet usage exhibits positive impact on organisations in many areas and capable
4 2 of providing strategic benefits to organisations in terms of reduction in cost, generation of revenue,
5 3 enhancing innovation and effectiveness of managerial capability (Teo & Cho, 2001; Anderson,
6 4 2001). Specifically, Ferrer *et al.* (2013) examined the use of social media technologies in growing
7 5 business and found that positive relationship exists between the social investment of an
8 6 organisation and organisational performance. In the same vein, Rodriguez *et al.* (2014) also
9 7 reported that social media usage within an organisation could positively influence the customer-
10 8 orientated process, therefore, impacts the performance of an organisation. It can therefore, be
11 9 argued that social media has positive influence on organisational performance. Thus, it was
12 10 hypothesised that:

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16 11 *H4: There is a positive relationship between social media and organisational performance*

17 18 12 **Research methodology**

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20 13 **In order to test the hypotheses formulated, the study adopted quantitative research approach. This**
21 14 **study is grounded in a post-positivism paradigm which relies on experience of respondents as a**
22 15 **valid source of knowledge through which the world is viewed. Hence, the study aligns with**
23 16 **ontological position of objectivity and therefore, there was no relationship between the study and**
24 17 **the researchers from the epistemological point of view. Based on these premises, the study was**
25 18 **value free (Gill & Johnson, 2010).** The study conducted extensive review of literature to identify
26 19 the variables used to measure each of the major constructs included in the conceptual framework.
27 20 The study adopted the approach used by Bowen *et al.* (2010) where a sectioned questionnaire was
28 21 employed utilising closed-ended questions. The survey questionnaire consisted of three sections.
29 22 Section A focused on demographic information of the respondents such as position within the
30 23 organisation, age and experience, and characteristics of the organisation. Section B examined the
31 24 impact of technology, environment and organisation on the adoption of social media. While
32 25 Section C explored the level of performance of organisation using social media. Questions in this
33 26 section focused on three main constructs involved in the study and this entailed the questions about
34 27 the constructs and their constituent variables which were designed to analyse the effect of social
35 28 media on business performance. The variables included in the survey instrument were adapted
36 29 from the works of Parveen *et al.* (2015; 2016) and Ahmad *et al.* (2017; 2018). The questions were
37 30 designed to obtain data on the perceptions of the respondents on the influence of social media
38 31 relative to exogenous factors. The respondents were requested to rate the answers on a scale of 1
39 32 to 5, where 1 represented “strongly disagree” to 5 “strongly agree”. **The observed latent constructs**
40 33 **as well as the indicators used in the study are shown in Table 1.**

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47 34 **[Table 1 about here]**

48 49 35 **Method of data collection**

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51 36 Data were collected from the construction materials’ merchants in Dei-Dei regional building
52 37 material market in Abuja-Nigeria. The market is one of the largest construction materials market
53 38 in the central and northern geographical regions of Nigeria. **Most of the organisations sampled**
54 39 **started having social media presence for over 5 years most especially on Facebook, Twitter,**
55 40 **WhatsApp, YouTube and LinkedIn. These were visible on their complimentary cards as well as**

1 on the sign-posted addresses of their business premises. Structured questionnaires were self-
2 administered on 113 purposively sampled respondents. This method of data collection allowed for
3 clarification and ensured high response rate. Since, the variables used in the study were adapted,
4 there was no need for pilot study to demonstrate that all questions were clearly understood. A total
5 of 79 responses were obtained. The survey response of 79 was considered good enough for the
6 method of data analysis adopted thus, considered suggestive and appropriate for exploratory
7 research.

8 Data analysis

9 The survey data were analysed using Partial Least Squares Structural Equation Modeling (PLS-
10 SEM). The study adopted Partial Least Squares (PLS) approach to Structural Equation Modelling
11 (SEM) to examine the reliability and validity of the latent variables and to test the hypotheses
12 formulated. PLS-SEM was choosing for some reasons, however, Rigdon (2014) submitted that
13 some of the reasons should not be used as justification for adopting the PLS method in research.
14 PLS handles data that are not normally distributed because of the flexibility in distributional
15 assumptions (Henseler *et al.*, 2009). This assertion was underscored by Beebe *et al.* (1998), who
16 opined that PLS-SEM is better than CB-SEM for non-normally distributed data and small sample
17 sizes. This is due to the fact that PLS normally offers a better level of statistical power and also
18 shows improved convergence behaviour (Henseler & Fassott, 2010; Reinartz *et al.*, 2009).
19 Previous studies on social media have employed PLS to test path models (Parveen *et al.*, 2016;
20 Ahmed *et al.*, 2016) and for testing theory (Chin, 1998). Thus, this study used SmartPLS v2.0 to
21 determine discriminant validity, convergent validity, and test the stated hypotheses.

22 Results

23 Out of the 113 questionnaires administered, 79 valid responses were obtained given an effective
24 response rate of 71.8 per cent. According to Idrus and Newman (2002), response rate of around
25 30% is considered acceptable for a research in the construction industry. Table 2 presents the
26 demographic characteristics of the respondents. Almost all the respondents were top managers in
27 their respective companies and approximately 27% of the respondents were females. This is a true
28 reflection of businesses in Africa particularly Nigeria where women participation in construction
29 related businesses are at the lowest level (Oyewobi *et al.*, 2019). From Table 2, 72% of the
30 respondents had post-secondary school education, while approximately 84% of the respondents
31 had above 5 years of work experience.

32 [Table 2 about here]

33 From Table 3, circa 70 per cent of the respondents were within 30 to 50 years of age and according
34 to Ahmad *et al.* (2018), this is considered typical of SMEs who are mostly young and often
35 knowledgeable about current happenings with respect to business developments in construction
36 industry. Over 60 per cent of the respondents have been using social media platform for over five
37 years, this is tune with Ahmad *et al.* (2018). With respect to the number of employees in their
38 organisations, 47% had above 11 number of employees.

39 [Table 3 about here]

1 Measurement Model

2 The analysis was conducted using SmartPLS (Version 2.0 M3) software to test the predictive
3 power of the model by employing PLS-SEM in evaluating the measurement dimensions of the
4 explanatory latent constructs. The SmartPLS software was adopted as a result of the special
5 features which allows for unobserved heterogeneity through the finite mixture routine (FIMIX)
6 technique (Sarstedt & Ringle 2010; Ringle, Wende & Will 2010). In order to assess the
7 measurement model, the reliability and validity of the latent variables were examined. The study
8 measured the internal consistency reliability using composite reliability while indicator reliability
9 was assessed through the outer loadings. According to Hair *et al.* (2017), the convergent validity
10 which explains the degree of agreement between two or more indicators of the same latent variable
11 was evaluated by examining the average variance extracted (AVE). Bagozzi and Youjae (1988)
12 suggested that AVE should be above 0.5 threshold, which was exhibited by all the latent variables
13 included in the model. Also, all the composite reliability of the latent variables surpassed the
14 recommended threshold of 0.7 (Gefen, Detmar & Boudreau, 2000). Table 4 shows the indicators
15 loading, indicator reliability, composite reliability and the AVE. In order to evaluate the
16 discriminant validity, Chin (2010) suggested that it must be able to explain at least 50% of the
17 variance by the constructs. It was further argued that, the value of AVE when square rooted should
18 be greater than the level of the inter-correlations of the constructs with other constructs in the
19 research model (Chin, 2010) as shown in Table 5. Therefore, it could be concluded that the
20 measurement model was acceptable and offered evidence that it was sufficient with respect to its
21 reliability, composite reliability, and discriminant validity.

22
23 [Tables 4 and 5 about here]

24 Structural Model

25 To assess the structural model in PLS-SEM, the study examined the path coefficients, their
26 significance and variance explained (R^2). The assessed values for path associations in the structural
27 model was estimated in terms of sign and magnitude (Parveen *et al.*, 2016). Chin (2010) suggested
28 that the predictive strength of a structural model is assessed by R^2 values of the endogenous
29 construct; thus, if R^2 values are 0.67, 0.33, or 0.19 for endogenous latent variables in the inner path
30 model, it could be described as substantial, moderate, or weak as stated by Chin (1998). Figure 2
31 shows the R^2 value for social media as 0.618, which is considered substantial, whereas the R^2
32 values of organizational performance is 0.378, which is considered moderate. The bootstrapping
33 was used to examine the significance of the paths and test the hypotheses in the model as shown
34 in Figure 3. Therefore, in order to test the significance of the hypothesized relationship,
35 bootstrapping was applied. The bootstrapping procedure provides the t-value which indicates
36 whether the corresponding path coefficient is significantly different from zero (Hair *et al.*, 2006).
37 According to Oyewobi (2014), if the t-value is above 1.65, this indicates that the path coefficient
38 is significant at $p \leq 0.10$. If the t-value is greater than 1.96, the path coefficient is significant at the
39 $p \leq 0.05$ significance level; and when the critical t-value is above 2.57, it can be said to be significant
40 at $p \leq 0.01$. Based on the aforementioned criteria, the results indicated that all the latent

1 environmental, organisational and technological variables were significant in influencing social
2 media adoption, explaining 61.8 percent of variance. In a related development, social media
3 adoption constructs were significant in influencing organisational performance, explaining 37.8
4 percent of variance ($\beta=0.614$, $t=9.940$, $p<0.01$). Table 6 shows the results of the tested
5 hypothesised paths. Based on the results of the t-values, which showed that all the paths were
6 significant, all the four hypotheses were therefore supported.

7 [Figures 2 & 3, Table 6 about here]

8 9 **Discussion**

10 This paper addressed the impact of the use of social media on the performance of construction
11 companies in Abuja-Nigeria. The study established a conceptual framework that was empirically
12 evaluated using PLS-SEM. The results of the study showed that the use of social media has a
13 significant and positive relationship with organisational performance in terms of improved
14 accessibility of information; cost reduction impact; improved customer relations and service. This
15 finding is in consonance with the previous results stated by Parveen (2016). The finding is also
16 corroborated by Schniederjans, Cao, and Schniederjans (2013) who posited that positive effect of
17 using social media on performance of organisations existed. This, according to Parveen (2016),
18 means that the use of social media has enabled companies to strengthen their customer relations
19 and the quality of customer service with a corresponding decrease in marketing and customer care
20 costs. It has also made it easier for organisations to access information about customers and
21 competitors

22 As the effect of technology on social media use has been studied, the conclusion has shown that
23 technical characteristics (observability, trialability and complexity) have a significant and positive
24 influence on social media use both individually and collectively. This result is incompatible with
25 Ahmad *et al.* (2018) that the technical characteristics (relative advantage) do not individually have
26 a major relationship with the adoption of social media. However, in a study conducted amongst
27 Malaysian SMEs, Ainin *et al.* (2015) found a significant and positive relationship between the
28 technological characteristics (relative advantage) and the intention to embrace social media.
29 Similarly, the current research, which is in consonance with the results of Tsai *et al.* (2013) and
30 Ahmad *et al.* (2018), has reported a significant and positive association between complexity and
31 the intention to embrace social media. In contrast to the findings of this study, Ahmad *et al.* (2018)
32 stated that trialability and observability had no impact on the adoption of social media. However,
33 earlier studies (such as Chong, 2004; Lin & Chen, 2012) have shown that there are significant and
34 positive associations between trialability, observability and intent to adopt.

35 Examination of the impact of top management support on the adoption of social media has revealed
36 a significant and positive relationship at 90% confidence level. This is consistent with the findings
37 of Ramdani *et al.* (2013) and Ahmad *et al.* (2015) showing that management support is crucial to
38 the organisational adoption of new technologies. The findings stated that the adoption of social
39 media technology in organisations requires a top-down approach that will allow senior managers
40 to incorporate business development technology (Ahmad *et al.*, 2018).

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3 1 The effect of the business environment on social media adoption has been studied and the findings
4 2 have shown that bandwagon pressure, competitive pressure and competitive strength separately
5 3 and collectively have a strong relationship with the goal of social media adoption. This result is
6 4 incongruent with Ahmad *et al.* (2018) that there is no significant impact between competitive
7 5 strength and the intention to embrace social media. However, the findings of Lertwongsatien and
8 6 Wongpinunwatana (2003) underscored the results of the current study, which reported a positive
9 7 relationship between competitive intensity and e-commerce organisation. Results also showed
10 8 that the main factor in business environment affecting the use of social media by SMEs was the
11 9 pressure exerted by the bandwagon that is consistent with the result of this paper. The competitive
12 10 pressure that determines the degree of competition within the industry has shown a significant
13 11 relationship with the adoption of social media. This result is reflected in the observations of Lin
14 12 (2014) and Wang and Cheung (2004), which argued that SMEs are constrained by the current level
15 13 of competitiveness in their business environments in order to make a positive contribution to the
16 14 adoption of social media.

15 **Implications**

16 There are a lot of theoretical and practical implications for academics and practitioners in this
17 study. In the first place, this study represented a theoretical study on the impact of social media
18 adoption on organisational performance in the construction industry albeit merchandising.
19 Currently, there are limited studies that examined the impact of social media adoption on
20 organisational performance in the study area. In order to better understand the theory, the paper
21 addressed the effect of social media use in CBs and gained strength from four theoretical points of
22 view: TAM, IDT, TOE and RBV. Although the adoption and application of social media have
23 received considerable consideration from researchers in mainstream management, the same
24 attention is lacking in the context of construction management research. The impact of the adoption
25 of social media by construction companies, in particular CBs, remains unknown. Most of the
26 previous studies have focused more on the individual or large organisational level of adoption,
27 with little attention paid to SMEs. Secondly, the study thus presented a conceptual framework that
28 was tested. **Construction industry practitioners most especially merchants could leverage on social
29 media from the standpoint of technology, by considering prevailing opportunities in their
30 environment to improve the performance of their businesses as postulated and tested in this study.**
31 It is believed that the study presented in this paper will provide a good basis for further work by
32 academics on how social media adoption could have an impact on the performance of construction
33 businesses.

34 **Limitations of the study**

35 It is envisaged that the respondents surveyed and sampled were of the opinion of the firm that they
36 could have better views on the impact of social media on their businesses, which may not be
37 representative of all traders in the market. This potential weakness in survey research will be
38 addressed in future research using the multi-case research approach as a means of triangulation of
39 the primary data and providing an opportunity for further exploration of relevant issues. Secondly,
40 the research used cross-sectional data to investigate the effect of social media on businesses;
41 although we recognised that the impact was complex, longitudinal data for future studies was

1 encouraged. Thirdly, all businesses considered to be from a single industry, a single market and a
2 similar line of business, it may be more interesting to consider more businesses across sectors or
3 industries. Finally, the study did not examine the links between the adoption of social media and
4 the organisational structure or business strategy. Examination of organisations with clear business
5 strategies for the adoption of new technologies, such as social media applications, may produce
6 different outcomes.

7 **Conclusion**

8 This study revealed the contribution of social media in improving organisations' performance,
9 particularly for construction companies, and also identified latent variables that could boost their
10 competitive advantage in future. This study therefore provided a tested conceptual structure. PLS-
11 SEM was used to evaluate the hypothesised paths. The findings showed support for the formulated
12 hypotheses. The study showed that social media influences the performance of companies. We
13 also found that the social media adoption is affected by organisation, technology and the
14 environment. Nevertheless, in the mainstream management study, the use and implementation of
15 social media have gained significant attention, but the study on construction management lacks
16 the same consideration. Consequently, the impact of the adoption of social media by businesses,
17 particularly materials dealers, remains unknown. Most previous studies were more centred on
18 individual or large organisational adoption with little attention paid to construction materials
19 vendors.

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Figure 1: Conceptual Framework

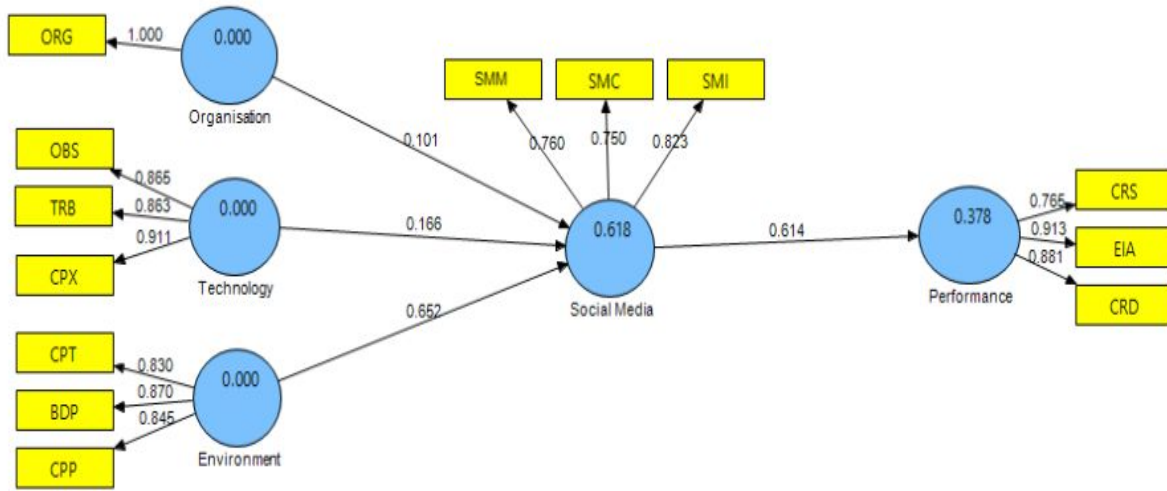


Figure 2. Resulting path coefficients with loadings and R²

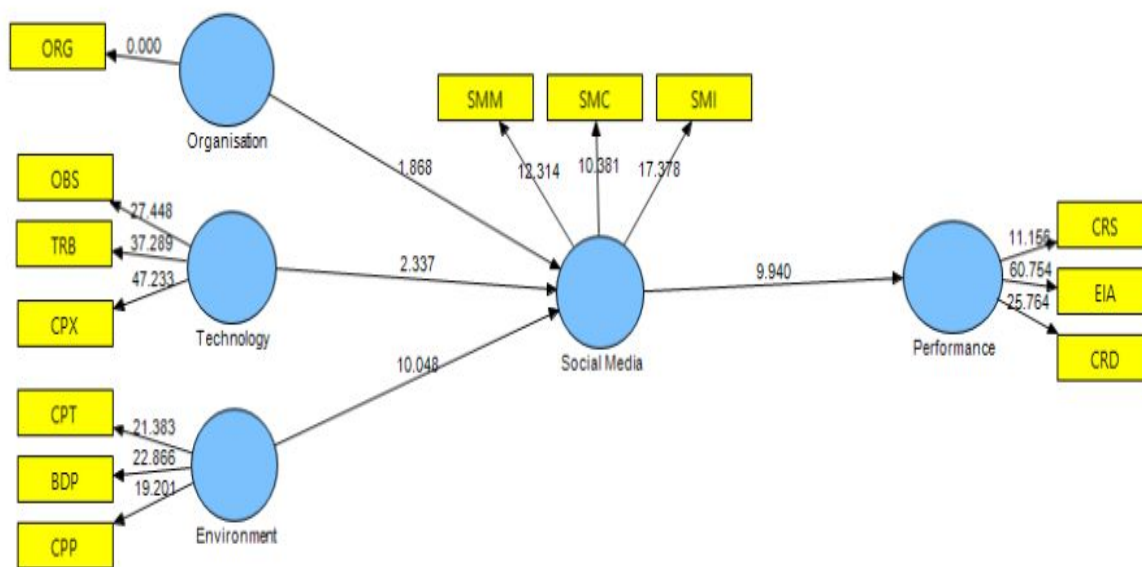


Figure 3: T-statistics

Table 1: Constructs used in the study

| Latent Variable | Indicators | Source of measurement items |
|-----------------|-------------------------------|---|
| Environment | Dialogue | Sun (2013), Gutierrez <i>et al.</i> (2015); |
| | Participative decision making | Parveen (2014); Ahmad <i>et al.</i> (2018) |

Table 4: Results Summary for Reflective Outer Models

| Latent Variable | Indicators | Loadings | Indicators Reliability | Composite Reliability | AVE | P-values |
|-----------------|---|----------|------------------------|-----------------------|--------|----------|
| Environment | Bandwagon pressure | 0.8698 | 0.757 | 0.8852 | 0.7199 | 0.000 |
| | Competitive pressure | 0.8449 | 0.714 | | | |
| | Competitive Intensity | 0.8303 | 0.689 | | | |
| Organisation | Top management support | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 |
| | Enhanced Information Accessibility | 0.913 | 0.834 | 0.8905 | 0.7316 | 0.000 |
| Performance | Impact on Cost Reduction | 0.8807 | 0.776 | | | |
| | Improved Customer Relations & Service | 0.7653 | 0.586 | | | |
| Social Media | Social Media for Customer relations and service | 0.7498 | 0.562 | 0.8217 | 0.6061 | 0.000 |
| | Social Media for Information accessibility | 0.8234 | 0.678 | | | |
| Organisation | Top management support | | | 0.8217 | 0.6061 | 0.000 |
| | Enhanced Information Accessibility | | | | | |
| Performance | Impact on Cost Reduction | | | 0.8217 | 0.6061 | 0.000 |
| | Improved Customer Relations & Service | | | | | |
| Social Media | Social Media for Customer relations and service | | | 0.8217 | 0.6061 | 0.000 |
| | Social Media for Information accessibility | | | | | |
| Technology | Social Media for Marketing | | | 0.8217 | 0.6061 | 0.000 |
| | Observability | | | | | |
| | Complexity | | | | | |
| Technology | Trialability | | | 0.8217 | 0.6061 | 0.000 |
| | Relative advantage | | | | | |
| | Compatibility | | | | | |

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|----|------------|------------------|--------|-------|--------|
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| 2 | | | | | |
| 3 | | Social Media for | | | |
| 4 | | Marketing | 0.7602 | 0.578 | 0.000 |
| 5 | Technology | Observability | 0.8654 | 0.749 | 0.000 |
| 6 | | Complexity | 0.9107 | 0.829 | 0.9113 |
| 7 | | | | | 0.7742 |
| 8 | | Trialability | 0.8626 | 0.744 | 0.000 |
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Table 5: Fornell-Larcker Criterion Analysis for Checking Discriminant Validity

| Latent Variable | Environment | Organisation | Performance | Social Media | Technology | R Square |
|-----------------|-------------|--------------|-------------|--------------|-------------|----------|
| Environment | 0.85 | | | | | |
| Organisation | 0.210 | 1.00 | | | | |
| Performance | 0.546 | 0.387 | 0.84 | | | 0.378 |
| Social Media | 0.765 | 0.278 | 0.614 | 0.78 | | 0.618 |
| Technology | 0.553 | 0.241 | 0.561 | 0.551 | 0.88 | |

Note: Diagonals represent the square root of the average variance extracted (AVE) while the other entries represent the correlations.

Table 6: Results of the hypotheses tested

| Hypotheses | Relationship | Co-efficient | T Statistics | P-values | Decision |
|------------|---|--------------|--------------|----------|-----------|
| H1 | <i>There is a positive relationship between technology and social media adoption by SMCBs</i> | 0.1716 | 2.337 | 0.05 | Supported |
| H2 | <i>There is a positive relationship between environment and social media adoption by SMCBs</i> | 0.6014 | 10.048 | 0.01 | Supported |
| H3 | <i>There is a positive relationship between organisation and social media adoption by SMCBs</i> | 0.0535 | 1.868 | 0.10 | Supported |
| H4 | <i>There is a positive relationship between social medial and organisational performance</i> | 0.6492 | 9.940 | 0.01 | Supported |

*** p<0.01 (>2.58), **p<0.05 (>1.96), p<0.10 (>1.645)

Table 2: Demographic characteristics of the respondents

| Characteristics of respondents | Participant | Frequency | Percentage |
|----------------------------------|-----------------------|-----------|---------------|
| Position within the organisation | Owner | 22 | 27.85 |
| | Executive | 13 | 16.46 |
| | Manager | 20 | 25.32 |
| | Senior manager | 14 | 17.72 |
| | Top manager/ Director | 10 | 12.66 |
| | Total | 79 | 100.00 |
| Gender | Male | 58 | 73.42 |
| | Female | 21 | 26.58 |
| | Total | 79 | 100.00 |

| | | | |
|------------------------|---------------------------|-----------|---------------|
| Academic Qualification | Secondary school or lower | 22 | 27.85 |
| | PhD | 4 | 5.06 |
| | MSc/MTech | 17 | 21.52 |
| | HND/BSc/BTech | 36 | 45.57 |
| | Total | 79 | 100.00 |
| Working Experience | Below 5 Years | 13 | 16.46 |
| | 5-10 Years | 21 | 26.58 |
| | 10-15 Years | 27 | 34.18 |
| | 15 Years Above | 18 | 22.78 |
| | Total | 79 | 100.00 |

Table 3: Demographic characteristics of the respondents

| Characteristics of respondents | Participant | Frequency | Percentage |
|--|--------------------|----------------|---------------|
| Age of Respondent | Less than 30years | 13 | 16.46 |
| | 31-40 years | 30 | 37.97 |
| | 41-50 years | 25 | 31.65 |
| | More than 50 years | 11 | 13.92 |
| | Total | 79 | 100.00 |
| Number of Years since Adoption | Less than a year | 5 | 6.33 |
| | 1-2 years | 8 | 10.13 |
| | 3-4 years | 17 | 21.52 |
| | More than 5years | 49 | 62.03 |
| | Total | 79 | 100.00 |
| Number of employees in your organization | Fewer than 10 | 42 | 53.16 |
| | 11 to 30 | 24 | 30.38 |
| | 31 and above | 13 | 16.46 |
| | Total | 79 | 100.00 |
| | Type of business | Sanitary wares | 14 |
| Tiles and granite slabs | | 12 | 15.19 |
| Wooden laminate | | 13 | 16.46 |
| Security doors | | 7 | 8.86 |
| Paints | | 10 | 12.66 |
| Roof materials | | 12 | 15.19 |
| Aluminium windows frame and car port | | 2 | 2.53 |
| Metal works (doors & Frames | | 7 | 8.86 |
| Other businesses | | 2 | 2.53 |
| Total | | 79 | 100.00 |

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Of Financial Management of Property and Construction