THE IMPACT OF SOCIAL MEDIA IN ACHIEVING EFFECTIVE COMMUNICATION IN CONSTRUCTION PROJECT DELIVERY

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Abstract: The role of social media in recent times has been interesting and captivating to the extent that they are seen as some sort of disruptive technologies that are altering the basic foundations of most firms. It is against this backdrop that thisstudy sought to investigate the impact of social media in achieving effective communication in construction project delivery in Owerri, Nigeria. Using a simple random sampling technique, responses from 221 site based professionals representing 74% of the respondents were analyzed using inferential statistics via the means of Partial Least Squares (PLS) modeling technique. Results indicate that the use of Face book, Blogs and RSS feeds, Instant messaging, Tweeter and YouTube positively affects effective communication in construction project delivery in Owerri. The study recommends amongst others that the professionals within the built environment industry should make more effort in deploying of ICTs and specifically social media tools in communicating all their project management information and deliverables on line real time.

Key words: Communication, Construction project delivery, Owerri, Partial least squares, Project, Project management, Social media

1. INTRODUCTION

Digital technologies have radically transformed the ways projects are delivered of recent (White, Stasis &Lindkvist, 2016). The evolution of project management as opined by White et al. (2016) is closely associated with the developments in systems engineering, modern management theory, and the evolution of computers. Nowadays, cloud computing, mobile hardware devices and other integrated software are increasingly being used for storage, retrieval, automated search, as well as for prototyping and simulating functions. This technologies according to White et al.(2016) are being adopted in project-based industries and their subsequent deployment is breaking the mould of established approaches to project management by enabling a more rapid and agile forms of organizing in project management. Effective communication plays an importance role in the success of a project. According to Remidez and Jones (2012), studies abound on projects where it was found that projects that spanned organizational boundaries, as well as a good communication between project managers and sponsors are a necessary condition for effective communication across project team boundaries. They further stated that "successful project managers communicated in ways that promoted good relationships and conveyed project status information while adapting the communication style to the project's characteristics and organizational context" (p.34). According to Turan and Sahin (2012), wikis, blogs, tagging, podcasts and other social business networking websites such as Facebook, Twitter, Flickr, YouTube and the rest have radically altered most user interactions on the web from a static, one-directional, consumption process to a more dynamic, multi-directional and participatory process.

According to APM (2014), social media is usually adjudged as a major external platform consisting of such tools as Facebook, Twitter and LinkedIn. However, a handful of internal social platforms exist within organizations which are specifically tailored to suit some projects. They further stated that, social media

should not just be looked at as a large-scale networking and broadcasting tool per se, but should also be seen as a technology that enables dynamic interaction amongst a group of persons; with emphasis on the 'social' bit. Social media is just a way of communicating with one another–the only difference being that interactions occurs online real time. Guarino (2012) defined social media as a medium for interactive social interaction using communication technologies that is run on an internet, and involves participatory and community based interactions and user generated content.

The ability to publish the contents as well as participate in interactive dialogues online usually affords the project manager a new and innovative channel for providing the much needed project information to stakeholders mainly in the form of public safety first responders, the public and government representatives at various levels (Krauss, 2012). According to Krauss (2012), these practical, user-friendly social media tools are cost effective and provide the much needed broad-based communication to both internal and external audiences to a greater extent.

According to the Trilog Group (2012), project teams today are faced with a myriad of issues notable amongst them is the increasing pressure to perform as well as the difficulty to achieve some stated objectives. The obstacles as opined by Trilog Group (2012) are well known and include amongst others the adhoc nature of team members, consistent altering of project requirements, pressure in delivering objectives, increase in virtualization of teams activities across time and space, as well as the problem of disseminating knowledge amongst team members. Filev (2016) argued that, a project manager is traditionally the major link in all project-related communications. His/her actions directly influence the efficiency of the team, as well as the manager's own productivity. According to the PMBOK (2013), project communication is integral to the success of a project, as lack of adequate communication often leads to delays in the dissemination of information, relaying information to the wrong person as well as misrepresentation of the information disseminated. Most organizations to date still deploy Microsoft excel spreadsheets and/or other traditional project management applications, like Microsoft Project for purposes of tracking their projects. The use of e-mailing in texting documents and spreadsheets is still very popular, despite its many shortcomings. For instance, the e-mail is a closed communication medium and most organizations attest that it does a poor job of capturing and sharing knowledge. For example, when an e-mail is sent to two persons, the three copies of the document would be difficult to manage, merge and differentiate. This will be difficult to work on simultaneously. This is not the only envisaged problem, knowledge as we all know are buried in e-mails, and as such this is available only to the initiator and the recipient, excluding other team members from benefiting from the information. As Lindkvist, (2011) reiterated, project managers the world over allude the main reason projects fail to misinformation and miscommunication. Nangoli, Namagembe, Ahimbisibwe and Bashir (2013) are of the view that ineffective project communication is still a dominant cause of unsuccessful project delivery. The use of social networks provides a succinct mechanism for conveying pieces of information from one point to another thus enabling effective project communication.

The benefits associated with the use of social media are the reason why it's continuously being deployed in organizations. Social media is used both within and outside of most organizations by increasing the value of collaboration and minimizing the search for and coordination costs of parties who have related knowledge and interests (Remidez& Jones, 2012). They further suggest that by developing and managing relevant formal social networks, organizations can facilitate communications that would improve decision making and operations (Remidez& Jones, 2012).

In as much as social media tools are deployed in a myriad of contexts, this work dwells more on the emerging trend of its application in enabling project management activities. In this study, we paid more attention to the social media and its application to project delivery as there are few studies that have not been able to thoroughly analyze the application of social media within the Nigerian context and

their management. This study presents the outcomes of a study to investigate the extent of application of social media. The aim is to investigate the impacts of social media platforms in facilitating effective communication in the realization/delivery of construction projects. It is on the basis of the above discussions that the following hypotheses were postulated.

H_1: The use of Face book positively affects effective communication in construction project delivery.

H_2: The use of Wikis positively affects effective communication in construction project delivery.

H_3: The use of YouTube positively affects effective communication in construction project delivery.

H_4: The use of Project Management 2.0 positively affects effective communication in construction project delivery.

H_5: The use of LinkedIn positively affects effective communication in construction project delivery.

H_6: The use of Twitter positively affects effective communication in construction project delivery.

H_7: The use of Blogs and RSS positively affects effective communication in construction project delivery.

H_8: The use of Instant Messaging positively affects effective communication in construction project delivery.

H_9: The use of Google plus positively affects effective communication in construction project delivery.

The paper is organized as follows; this section gives an insight on the background and context of social media and their importance as information enablers. The next section presents the research design as well as a presentation and discussion of the study findings.

2. LITERATURE REVIEW

The term "social media" according to Schein, Wilson and Keelan (2010), is used somewhat to loosely describe an array of new Web 2.0 platforms. In as much as they are not clearly distinguished in the literature, the interactivity associated with social media should be differentiated from a more generalized form of online user participation. For instance, most websites invite users to upload their information, customize their layout and look of a page, prioritize certain kinds of content, or keep track of their own online activities over time. Social media, by contrast, are characterized by interactivity along a diverse horizon of connections, which metamorphosed into a mutable and collectively generated user experience.

There is a general believe that the recent new media environment is characterized by interactivity, user-generated content, and multi-directional communication flows. In a nutshell, the transition to Web 2.0 marks a shift in paradigm from a "one-way communication" to a "multi-way communication," where users participate as both creators and consumers of web content. The type and nature of the content produced by users varies considerably across various platforms, from a passively collected data that can be fed back into the system and reflected back to users in word clouds or other popularity metrics, to content actively created, propagated, and iteratively revised by users in wikis, blogs, and video-sharing or social networking sites, on really simple syndication (RSS) feeds, or through the creation and circulation of "widgets," "gadgets," and "badges" that can be embedded into sites across the web (Schein et al., 2010).

2.1 Social media tools

Social media according to Mutua (2013), has emerged as a tool for bringing people together. It has been able to attract people of various groups which are one of the realities of the 21st century any right thinking individual would want to wish away easily. A myriad of social media platforms exist in serving various purposes. Notable amongst the application and use of these tools and their relevance to project management suffice. Figure 1 below shows a typical project management interaction network.
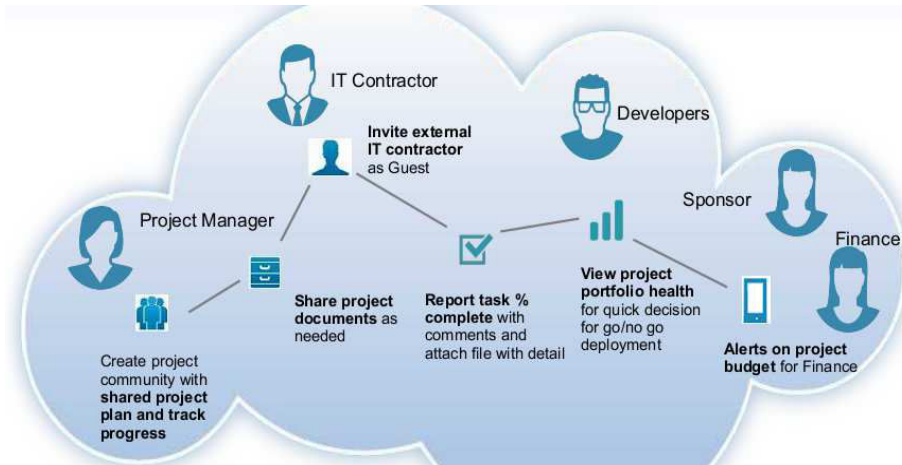
Figure 1: Social project interactions (Trilog Group, 2013)

2.1.1 Facebook

Facebook is a social networking service website with over 845 million monthly active users. The site allows the users to send in information in the form of messages, photographs, and other files for other users to access (See figure 2). Facebook supports user-defined controls over the visibility of its users. Facebook also has this concept of "friends", where two users who are friends have access to one another's information as well as a direct mechanism of exchanging information. The tool also supports groups, a feature that enables numerous users to converge in a private platform to discuss issues or events that are common. From a project management perspective, a project manager can use face book to develop a project-specific page for purposes of marketing, highlighting important activities, offering a "Tip of the Week," and providing status updates that could be posted to help keep interested parties and other project team members informed. Other Facebook users can "like" the Facebook page and any updated information posted on the page will appear on the users' Facebook news feeds.

Due to the sensitive nature of most project information, it is sometimes advisable to have tools for regulating access and as such Facebook provides tools with the aid of some privacy settings that allows access to friends of the administrator or some specifically invited friends (Krauss, 2012).

2.1.2 Wikis

They are a type of Web site that enables users to contribute and edit text content and graphics with little or no knowledge of Web page development or programming skills.One of the most widely-known wiki is the Wikipedia. It is one of the largest collaboratively edited reference projects in the world.It relies mostly on volunteers, makes no money, and accepts no advertising. Wikis are useful tools used in storing and sharing corporate knowledge and insights. Enterprise software vendor such as SAP AG has a wiki that acts as a base of information for people outside its company, such as customers and software developers who build programs that interact with SAP software (Laudon & Laudon, 2014).

2.1.3 YouTube

YouTube is a video-sharing social media which a user can up-load, view, and share videos thus making it possible for someone with access to internet upload a video that a wide variety of audience could catch a glimpse within few minutes. According to Krauss (2012), YouTube's site receives over 3 billion viewers daily. A project manager can tap on the gains of YouTube to upload brief information in the form of videos to relate important project milestones, highlight critical features, promote project objectives, seek user's responses as well as provide training.

For instance, the Georgia Interoperability Network (GIN) developed a video and uploaded it on YouTube create awareness on the operations and benefits of their public safety radio network. YouTube as a communication platform often has potentials for attracting stakeholder's more than other traditional formats like the e-mail or uploading a status report of a project on the website. Most video components of YouTube can aid in delivering presentations or information where visual output is necessary, but budgetary or logistical concerns precludes stakeholders from traveling. It is imperative to note that YouTube has some mechanisms for control. Users can make their videos public, or viewable to anyone on the internet with a link via an access code, or viewable only to users explicitly authorized by the video's owner (Krauss, 2012).

2.1.4 Project management 2.0

Given the challenges associated with project management, teams members have resorted to the use of technology in streamlining collaboration. One of the most visible and recent developments in technology-driven project collaboration is the Project Management 2.0. Project Management 2.0 is the uses of web 2.0 technologies to enable project teams to better share information, facilitate collaboration and to enable teams achieve their targets.

Most times it is cumbersome to state what makes a particular technology a Project Management 2.0 technology. According to the Trilog Group (2012), the most common example of project management 2.0 is the Project Wiki, where all team members can update the necessary tasks required of a project, the status of such tasks, as well as the project documentations and the likes. It is interesting to note that blogs have also been proposed as Project Management 2.0 technology, but other technologies as diverse as voice over internet protocol (VoIP), internet search engines and wifis have also been adjudged as Project Management 2.0 technology. Even though the aforementioned technologies are general purpose technologies as such, it is sometimes difficult to define and to apply them to project management related

activities than a more general collaboration, or simple user enablement. Project Management 2.0 in a nutshell enables a project team to collaborate with a view to completing a task (Trilog Group, 2012). Project Management 2.0 tools enable one to start from a structure with an item and metamorphose it into a model thus suiting the project. Such a tendency enables a bottom-up planning possible leading to the unleashing of the power of collective intelligence in project management (Filev, 2016).

2.1.5 LinkedIn

LinkedIn is a business-related social networking site over 120 million registered users spread in over 200 countries. Users on LinkedIn invite other intending users to connect, largely as a result of some common interest or professional relationship/affiliation. If a user accepts an invitation, the two users are linked in such a way that it allows them to receive messages on each other, send each other messages as well as recommend each other to another user.

LinkedIn also has this support for groups that can be formed around issues, projects, or other associations among users. A user, who is a member of a group, can send and receive information to and from the group thus allowing a focused, efficient exchange of information between users with a common purpose.

In a situation where the stakeholders are all members of or are intending to join LinkedIn, a project manager can use this opportunity to form a group for the project for purposes of disseminating status updates, discussions about features, and other discussions amongst stakeholders with regards to the project. LinkedIn also has the mechanism to control who joins the group by way of inviting other/intending users and approving outside requests to join (Krauss, 2012). According to Guarino (2012), certain benefits of LinkedIn to project management profession includes it helps build community, create a medium of getting to know fellow team members and research partners both within and outside a given profession.

2.1.6 Twitter

Twitter is an online social networking and micro blogging service referred to as tweets which enables users to send and read text-based messages of about 140 characters. Twitter has over 300 million users as at 2012, thus generating well over 300 million tweets and handling more than 1.6 billion search queries daily (Krauss, 2012). A Twitter user can follow the tweets of any other user, and this scenario makes Twitter a non-private thing. It is also imperative to state that Twitter posts are not private by default, and as such, this makes a user's tweets available online for anyone one to see.

This online networking tool also supports the concept of "hash tags" which denotes simple key words or terms preceded by a hash sign (#). Whenever a hash tag appears on a Twitter post, the Twitter application will hyperlink the hash tag to other posts that use similar tag. This scenario is a very effective means of linking disparate tweets into a single compendium.

From a project management perspective, a project manager can use a Twitter handle to share short bursts of messages, or breaking news, or meetings highlights or information on project milestones. Consistently used hash tags by stakeholders, can lend a helping hand to support a simple form of threaded discussions as well as make finding from a post on a particular topic easier. Tweets are also capable of being included into embedded links on a project website or Facebook page. Akin to other social media tools, users are eligible to make their pages private so that only those following an account can be visible to the tweets. The risks associated with privacy in twitter. According to Krauss (2012), most federal information-disseminating initiatives and agencies deploy Twitter in communicating about issues bordering on project objectives, relevant news items and events amongst others (Krauss, 2012).

2.1.7 Blogs and RSS

A "blog" (short for "web log") is a topic-specific website in which the provider of content posts articles for subscribed users to access. Intending subscribers to blogs receive notification of articles through the RSS feeds, either through software installed on a computer or device, or through an aggregator enabled website like Google Reader. Most news sites and public affairs organizations deploy blogging technology and RSS to stream news items and press releases to stakeholders and the general public. Blogs according to Hausmann and William (2016), are used in capturing information and sharing options on some specific topics of discourse. Blogging capabilities are usually free and available through internet services like BlogSpot or most times they are occasionally available on internal public organization's websites.

Project managers as a matter of fact can maintain blogs for their projects, using articles to communicate more as well as be involved in in-depth topics of discussion that are inappropriate for Facebook, LinkedIn, or Twitter. For instance, a project steering committee may approve a set of new features for subsequent versions of a critical shared system; a blog post from the project manager can help in describing the new features in some more appropriate detail. According to Guarino (2012), blogs have the potential and easy mechanism for progress report presentation, while Laudon and Laudon (2014) reiterated the use of blogs and wikis to publish and rapidly access knowledge and discussions of experiences and opinions.

In addition to RSS, most bloggers deploy cross-posting to Twitter, Facebook, and LinkedIn to publicize new articles. As blogs grow in popularity, tools like RSS are less likely to reach the full intended audience, so a combination of one or two social media mediums becomes imperative as the most is generally the most effective approach (Krauss, 2012). On the other hand, Filev (2016) opined that wikis and blogs are generic tools that could aid in the dissemination of knowledge far better than emails. For organizations to have a visible and clear cut control of their operations, there is need for them to equip their managers and other employees with skills for effective collaborative planning solutions.

2.1.8 Instant messaging

Instant Messaging most times referred to as IM or Chat is a near real time communication tool. Various types of IM tools exist. They include windows live messenger, microsoftlync and microsoftlync server which is also available in Office 365/Live@edu, others are openfire and spark. It has a robust feature that is beyond just sending text, links, attaching/sending files, voice over internet protocol (VoIP), video as well as conferencing. IM has clients that exist on all desktop operating systems (OS's) and devices. IM can be of immense benefit to project management in the area of disseminating fast and easy communication that is ubiquitous and generally well understood by all and sundry (Guarino, 2012).

2.1.9 Google plus (+)

Google + is one of the entrants to social networking space with approximately 50 million + users since 2011 and it integrates social services of Google Profiles, and adds Circles, Hangouts and Sparks. G+ also has a tight integration with all of Google's services. Google + enables social networking in project related activities, chatting (IM), hangouts, Video chat of up to 9 persons at a time (Guarino, 2012).

2.2 A critique of previous studies

In a study on the role of social media in project implementation, a case study of vision 2020 flagship project in Kenya. Mutua (2013) deployed the use of questionnaire to elicit information from the respondents via a case study approach. The study found that the project officials are embracing social media in the day to day job functions. One of the draw backs of this work is that the author did not examine a good number of other social media tools like LinkedIn, project management 2.0, wikis, blogs, but rather the author focused more on twitter, facebook and YouTube as the only social media tools. Nangol et al.(2013) in a study on the antecedent role of social networks in project communication in Uganda, using a quantitative and cross sectional study design from responses of 92 citizenship projects. The findings from the study show that network transitivity and network degree are significant predictors of project communication. However, some of the issues identified in the study is that, the study did not critically looked at the various social media networking tools such as those identified in this work. Rather the issues bordering on network transitivity and degree of networks were accorded due attention. Remidez and Jones (2012), did a study on developing a model for social media in project management communications. The study did specifically show the methodology that was adopted in conducting the study. The study lacks the key ingredients for arriving at its findings. In Nigeria, Babatunde, Ajayi and Timothy (2016) carried out a study on the use of social media in real estate transactions in Lagos. Using questionnaires to elicit information from 220 estate surveying firms, the study found out that the most deployed social media tool by the respondents were emails, phone calls and facebook. One of the draw backs noticed in the work was that an email specifically is not a social media tool because of its inability to be used as a multi-directional and dynamic participatory nature. This study intends to look at social media applications to a greater extent in terms of identifying the various social media platforms, their extent of deployment in the realization of effective communication of project management related activities.

3. RESEARCH METHOD

Survey method was identified as the most appropriate method for this study and as such it was considered largely due to its ability to obtain more quantitative data and apply the findings to only a country- specific type of population (Kothari, 2004). Structured questionnaire was deployed as the main instrument for eliciting information on the extent /level of deployment of social media tools and techniques for effective communication of construction project delivery from the target respondents.The instrument for data collection is made up of the following sections. The first section sought to know the profile (demographic characteristics) of the respondents and that of their organization. The second section shows the various types of social media tools

deployed in effective communication of construction project delivery activities as well as the extent of deployment of the social media tools in the communication of construction related activities and processes. The respondents were required to identify the frequency of use of the various types of social media tools as identified from the literature using the Likert five point scale ranging from 1-5, (where 1= not used at all, 2= rarely used, 3=sometimes used, 4=frequently used, 5=very frequently used).The respondents/professionals were also required to indicate from experience, the extent each of the social media tools contribute to effective and efficient communication of construction project related activities by responding to the 5 point Likert scale earlier stated.

The questionnaire was piloted using a selected number of persons from the various construction firms with a view to ensuring clarity of its content. The questionnaire was also sent out to some selected number of professionals and groups that are engaged in both public and private construction organizations and projects in Owerri, Imo State. The practitioners were chosen via a non-probability simple random selection method from a public construction organization database; thereafter a convenience sampling technique was deployed (Saunders, Lewis, & Thornhill, 2007).The practitioners were engaged in a number of large to medium sized construction projects located in the capital city of Owerri.

The questionnaires were distributed by hand to project managers, construction managers, builders, site managers, chief estimators, site engineers, architects and other key personnel who were practically involved in construction related works using the random sampling technique.Initially, the population was stratified based on the type of organization (contracting firms and clients), this was followed by the use of the simple random sampling technique.

Out of the 300 questionnaires sent out based on the ab initio selection criteria, 252 were retrieved, while 221 were found to be complete and valid thus indicating a very high response rate, hence the data were used in the analysis of responses thereafter.The table showing a summary of respondents and their projects are shown in table 1. At the end of data collection, the data were further analyzed using appropriate statistical analyses.The partial least square technique (PLS) was used as a statistical analysis tool. The tool was deployed due to the exploratory nature of this study.

As stated by Mikalef et al. (2013), Partial Least Squares (PLS) modeling has the tendency to allow for the development of a second-order latent construct in order to test the hypotheses earlier formulated.The PLS model further has the tendency to analyze the model for purposes of measurement and also to evaluate the relationships amongst the structures of an underlying construct (Yusof&Iranmanesh, 2017).

3.1 Results and findings

The reliability and validity of the sample data indicates a good fit of the assumed conceptual model. Partial Least Square (PLS) with the aid of IBM SPSS Statistics 20.0 was deployed in testing the data.

In a bid to check for the reliability of data, Cronbach's Alpha test was deployed in achieving that. The Cronbach's Alpha measures the level of internal consistency. Thus it represents how closely a set of items are related as a group. As stated by (Guar & Guar, 2004, Pallant, 2005) a value of greater than 0.80 shows that the data is reliable and can be adjudged fit for further analysis. The above output indicates that instant messaging has the highest internal consistency, while Google plus has the lowest, the other factors fell in between these two. Moreover, factor load of Project management 2.0 and Wikis were the next with the higher factor loading indicating that their internal consistency is high; hence the reliability of the data for the constructs is also high. This study tends to fill in the gap of effective communication for construction project delivery in the Nigerian construction industry largely due to the dearth of studies that have been carried out in Nigeria and Owerri to be specific.

Table1: Results of reliability and validity

Variables	Survey Items	Factor Loading	Cronbach's Alpha Coefficient
Face book	F1	0.847	
	F2	0.799	0.785
	F3	0.761	
Wikis	W1	0.698	0.887
YouTube	Y1	0.691	
	Y2	0.687	
	Y3	0.675	0.867
	Y4	0.672	
	Y5	0.645	
Project Management 2.0	P1	0.640	
	P2	0.633	
	P3	0.604	0.891
	P4	0.592	
LinkedIn	L1	0.549	
	L2	0.545	
	L3	0.486	0.843
	L4	0.781	
Twitter	T1	0.671	
	T2	0.583	0.822
	T3	0.513	
Blogs and RSS	B1	0.754	
	B2	0.647	
	B3	0.816	0.816
	B4	0.871	
	B5	0.867	
Instant Messaging	I1	0.654	0.896
Google plus	G1	0.756	0.725

Table 2: Path Analysis and hypotheses testing

Hypothesis	Path relationships	Path coefficient	P	Decision
H_1	F ➤ ECCPD	0.932	***	Supported
H_2	W ➤ ECCPD	0.003		Not supported
H_3	Y ➤ ECCPD	0.803	***	Supported
H_4	P ➤ ECCPD	0.005		Not supported
H_5	L ➤ ECCPD	0.007		Not supported
H_6	T ➤ ECCPD	0.854	***	Supported
H_7	B ➤ ECCPD	0.876	***	Supported
H_8	I ➤ ECCPD	0.861	***	Supported
H_9	G ➤ ECCPD	0.008		Not supported

*** Significant at $p < 0.05$

In testing the hypotheses earlier formulated, the Partial Least Squares (PLS) modeling was deployed since it usually allows for the development of a second-order latent construct. In this case, a dataset of 221 responses was utilized with the aid of the Smart PLS documentation. The results in table 2 shows that all the instrument items show values above 0.6 which implies that a reasonable level of validity has been achieved.This scenario is further supported by the path analysis results which show that there is strong relationship among some of the constructs considered in the study.Facebook; Blogs and RSS feeds; Instant messaging; Tweeter and YouTube seems to be important drivers and are on the higher side for effective communication in construction project delivery, with a path coefficient of 0.932, 0.876, 0.861, 0.854 and 0.803 respectively. While the relationship between Google plus; LinkedIn; Project Management 2.0 and Wikis were not supported given their path coefficient values of 0.008, 0.007, 0.005 and 0.003 respectively.

4. DISCUSSIONS AND IMPLICATIONS

The use of modern day information and communication facilities has contributed in no small measure to the successful of construction projects. Social media tools have revolutionalized the way things are done nowadays. The outcomes of this study clearly shows that Facebook; Blogs and RSS feeds; Instant messaging; Tweeter and YouTube have significant effect on effective communication that leads to the successful delivery of construction projects to fruition. These results are consistent with the findings of (Babatunde et al., 2016, Krauss, 2012 and Mutua, 2013). However, the other constructs show an insignificant relationship between Google plus; LinkedIn; Project Management 2.0 and Wikis. The justification for this is that the use of Google plus, LinkedIn, Project Management 2.0 and Wikis were not significant to effective communication thus leading to successful construction project delivery. It is also important to state that the use of Google plus contributes to effective social networking in project related activities as stated by (Guarino, 2012). This would have been a better means of relating construction

project related activities via the use chatting, hangouts, as well as video chats. But this was not the case going by the outcome of this study. This scenario may be linked to the absence of poor networking facilities associated with the Nigerian environment. The use of video chats and other virtual devices requires a great deal in the areas of telecommunications infrastructure (Laudon & Laudon, 2014). Hence, the inability to deploy Google plus, LinkedIn, Project Management 2.0 and Wikis would lead to effective communication that would lead to the realization of successful construction project delivery.

Project managers and other professionals in the built environment operating within the Nigerian construction space should pay more attention with a view to conceptually and practically understand the dynamism of social media and their effect in achieving effective communication for successful construction project delivery. They should come up with actionable strategies and tactics that would enable them meet or exceed the pre-informed expectations via the rendering the much needed satisfaction to their actual and potential customers. Majority of the influencing constructs are positively related to effective communication leading to successful construction project delivery.

5. CONCLUSIONS

This study investigated the impact of social media in achieving effective communication in construction project delivery in Owerri, Imo State, Nigeria. Nine (9) social media tools were identified via a literature review. The results indicate that the use of Face book, Blogs and RSS feeds, Instant messaging, Tweeter and YouTube positively affects effective communication in construction project delivery in Owerri, Nigeria. The study suggests that the aforementioned social media tools have an impact on the effective communication of construction project delivery operations. One of the valuable implications arising from this study is that project managers and other key professionals operating within the built environment industry in Nigeria and Owerri in particular need to start deploying cutting-edge strategies

that are the embodiments of recent social media tools and facilities to meet or exceed their construction project's delivery to success. This is certain as the use of social media tools brings with it a lot of benefits to the project manager in terms of cost effectiveness, two-way communication and scope coverage.

This study recommends that the social networking tools fall within the ambits of the information and communications technology (ICT). Hence, the professionals within the built environment industry whose duty is to initiate and coordinate all the policies and programmes of all professionals in the industry, should as a matter of necessity make efforts towards the deployment of ICTs and most specifically social media tools in communicating effectively all project information and deliverables to the client on line real time.

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