



The impact of project communication management on successful project delivery in the construction industry: A case study

Sunday Olufemi Akintelu ^{1*}, Abiodun Isaac Oyebola ², Sumbo Tiamiyu ¹,
Olawale Olateju ¹

¹ Department of Management Technology, Faculty of Management Sciences, Lagos State University, Ojo, Nigeria

² African Institute for Science Policy and Innovation, Obafemi Awolowo University, Ile-Ife, Nigeria

Abstract

This study examines the effect of project communication management on successful project delivery in the construction industry. The study uses a survey research design and data were administered to one hundred and thirty-three (133) respondents working at different sites along Mile Two - Badagry expressway of Lagos state. Simple linear regression was used to analyze the hypotheses of the study. The findings revealed that communication plans and communication medium have significant effect on successful project delivery. The study further revealed that the significant effect ranges from low to average. It was therefore recommended that the communication plan should be managed and well controlled. To increase the chances of successful project delivery, the communication medium should be effective and efficient.

Keywords: Project Management; Project Communication Management; Construction Industry; Project Success

Published by ISDS LLC, Japan | Copyright © 2023 by the Author(s) | This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



Cite this article as: Akintelu, S.O., Oyebola, A.I., Tiamiyu, S. and Olateju, O. (2023), "The impact of project communication management on successful project delivery in the construction industry: A case study", *International Journal of Development and Sustainability*, Vol. 12 No. 8, pp. 376-386.

* Corresponding author. E-mail address: Sunday.akintelu@lasu.edu.ng

1. Introduction

Communication is an essential process in the world of project management. Communication is one key element which has to be applied effectively throughout a project's life cycle. The single most significant factor affecting the success of a project is the communication ability of the project manager with the project team members as well as the stakeholders. Communication is very important at all stages of construction such as design, production, organization, procurement and management. At every stage of construction projects, it is obvious that team members will have to explain, ask questions and discuss issues about the project. Communication has become an essential factor in project success that has been termed as the lifeblood of a project (Mahmoud et al., 2018).

Collaborating, sharing, collating and integrating information and knowledge to project team members are needed to realize project objectives. Therefore, it is crucial to understand the process of communication. The construction industry is a multifaceted business. Considering its nature, it comprises of various kinds of stakeholders embedded with diverse objectives, skills, cultures, values and professions. This facilitates effective communication management to ensure proper interactions among different stakeholders and to ensure successful projects delivery. This has given most construction project managers a greater challenge. The construction industry is a dynamic and complex business with several shareholders that have different objectives. Collaboration is essential to the success of construction projects and to defeat challenges and achieve project success (Abdul Rahman et al., 2014; Yaser et al., 2018).

Shareholders are persons or organizations that are directly or indirectly related to the project. Shareholders essentially own the company, which comes with certain rights and responsibilities. High quantities of information must travel to several parties and require accurate analysis throughout projects in this complex sector. The construction project manager needs to know how to communicate effectively with each team member at a specific level. He also needs different communication skills, such as writing, to communicate effectively. According to William (2015) the most excellent way to evade disputes during and after a construction project is to make communication transparent between project stakeholders and team members in order to solve conflicts quickly before it aggravates to costly arbitrations or litigation.

The flow of communication between different people on a project indicates the type of medium needed to communicate effectively. However, this creates a challenging environment for communication to occur successfully. Project managers have enormous responsibility in building solid communication process that aid an instrument for clear, concise and timely information to cater for goals, expectations tasks, the reviews and feedback and the required monitoring during the project cycle and also to foster success and transparency in the project (Mahmoud et al., 2018).

Improper communication management plans lead to unsuccessful projects, which has become a common problem in the construction industry. Project failure is openly linked to poor communication as it is seen as one of the major constraints in the construction industry. Therefore, this paper aimed to investigate the effect of project communication management (measured by communication medium, and communication planning) on successful project delivery. The study fills the gap in literature by focusing and gathering data from construction industries in Lagos, Nigeria.

1.1. Objective of the study

The study aimed to examine the effect of project communication management on the performance of project in construction industry in Lagos State, Nigeria. Specifically, to determine the effect of communication plan on timely delivery of project in Julius Berger construction industry, Nigeria.

2. Literature review

2.1. Conceptual review

Project communications management is the timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information (Taleb et al., 2017). Project communications management must ensure the development and implementation of an integrated communication system to collect, generate and disseminate relevant project information to all interested parties. Project communication management is part of project management which observes project communication and identifies processes necessary for ensuring timely and appropriate communication among project participants, as well as the creation, collection, exchange and storage of the project information (PMI, 2004 cited in Helen et al., 2015).

Communication management is the essential component of project management that defines the required processes of proper planning, collection, distribution and retrieval of project information among the project participants (PMI, 2013). Communication is a leading key to maintaining project parties well-informed of the progress, as well as to keep them on track to achieve project objectives (Muszynska, 2015). Project managers spent a lot of time communicating with their associates, project team, stakeholders, sponsors, and end users. Everyone involved in the project should have an understanding of the impact of mutual communication on project success.

According to Taleb et al. (2017) project communication processes include the following;

(i). *Plan communication*: This is the process of developing an appropriate approach and plan for project communication based on stakeholders' information needs, requirements and available organizational assets. Planning communications is the process of determining the project stakeholder information needs and defining a communication approach. This process responds to the information needs of the project stakeholders which include who needs what information, when they will need it, how it will be given to them, and by whom.

The plan includes:

- Information about stakeholder communications requirements
- Description of information that is exchanged (including form, content and level of detail)
- Person responsible for providing and sharing information.
- Person or group of recipients of information
- Method of transferring information
- Communication frequency
- Communication procedures to the higher management level (escalation)

- Procedures of improving the project communication plan during the life cycle of the project
- Dictionary of terminology associated with the project.

A well-defined communication plan will enhance team development, be used throughout the project life cycle and enable easier stakeholder updates as well as reduce project documentation.

(ii). *Manage communication*: this involves creating, collecting, distributing, storing, receiving and the dissemination of project information in agreement with the project communication plan.

(iii). *Control communication*: this involves the monitoring and controlling communications throughout the entire project life cycle. This measure is taken to ensure that the information needs of the project stakeholders are met.

Taleb et al. (2017) also established six (6) steps involved in project communication channels including:

- 1) *Sender*: this refers to the person who initiates the communication. This process can be influenced by external stimuli such as books or radio, or it can come about internally by thinking about a particular subject. The source idea is the basis for communication.
- 2) *Encoder*: This device encodes the message to be sent. The message is converted into a suitable form for transmission. The medium of transmission will determine the form of communication. For example, the message will take a different form if the communication will be spoken or written.
- 3) *Medium*: this is the device or technology that transports the message between the encoder and the decoder. The channel can be a piece of paper, a communications medium such as radio, or it can be an email. The channel is the path of communication from sender to receiver. An email can use the Internet as a channel.
- 4) *Decoder*: This device decodes the message to be received. This step of the process is where the receiver compares the message to prior experiences or external stimuli.
- 5) *Receiver*: this refers to the person who receives the information finally. The receiver may interpret the information make as a comment and send it back to the sender. The party uses the channel to get the communication from the transmitter. A receiver can be a television set, a computer, or a piece of paper depending on the channel used for the communication.
- 6) *Feedback*: This is the final stage in the communications modes. This tread conveys to the transmitter that the message sent is understood by the receiver. The receiver writes an appropriate reply to the first communicator based on the channel and sends it to the transmitter of the original message.

Project success is an outcome that satisfies the clients, customers or other stakeholders, such as the project team, company executives or board members. Successful projects typically meet the expectations and requirements established by stakeholders at the beginning of the project (Sauer et al., 2017). Project success is achieved when a project is completed within the stated scope, cost, resources and within the stipulated time.

Gemunden et al. (2015) define project success along the dimension of triple constraints (time, budget, quality), the internal success dimension (technical success, competency gains, meeting target cost of new product) and external success dimension (financial success, meeting the market shares, image gain, and meeting the regulatory requirements of the new product).

2.2. Empirical review

The construction industry is crucial and central to the economic growth of most nations around the globe. Being one of the largest single industries that largely donates to the development of a country. (Helen et al., 2015). The industry is huge due to the provision of investment products and the government is usually its major client. The success of a construction project largely depends on the efficiency of its communication network. It provides regular updates to notify the status of the project as well as its performance capacity.

Devi et al. (2018), in their study of the role of communication on IT projects revealed that project communication management plays a significant role in project success. The study of Taleb et al. (2017) using communication plan as one of the objectives revealed that communication plan is a project communication process that enhances successful delivery of projects. As a result, this paper further recommends more studies of project communication management and practice among the various construction industry players should be done.

Ogunberu et al. (2018) assessed the application of project scope management practices on project success among telecommunication organizations in two states of Southwest Nigeria including Lagos and Oyo states. Their study adopted primary data source through the use of questionnaires on a total of three hundred and seventy-five (375) respondents. The regression result revealed that the key significant impact of project scope management practices on project success were Customer expectation, Customer satisfaction, Resource allocation and Project duration. It was concluded from the study that the application of project scope management practices does not only significantly impact project success leading to fulfilled customer expectation and satisfaction but extended to timely project delivery.

Manuputty and Nursin (2023), also investigated the effect of project communications management on project time performance and analyze project communications management strategies for improving time performance using a simple linear regression analysis to determine the factors that affect project communications. Based on observations and the results of questionnaires filled out by 38 respondents, their results showed the top 10 factors influencing project communications with the highest Relative Importance Index value. The simple linear regression analysis result showed that project communications management has a positive and significant effect on project time performance with a coefficient of determination value of 69.6%. Their study suggested project communications management strategy is to optimize the application of the main factors of project communications, tailored to the result of the power/interest grid for each project stakeholder.

The study of Usanase and Nkechi (2022) examined the effect of communication plan, communication implementation and communication control on project performance of selected non-governmental organization projects in Kigali Rwanda using a case of promotion for financial inclusion for smallholder farmer's project. The study used a descriptive research design with a correlation regression effect with both qualitative and quantitative approaches. The population of this study was 1238 smallholders and 10 project team members; the researcher selected a sample size of 302 respondents using both purposive and simple random sampling techniques. Both questionnaire and interview guide were used to collect information from respondents. Their results discovered that the most commonly adopted communication plan parameters were plan of content of the communication and the frequency of information needed was adequately designed. Correlational results show a significant correlation between the plan of frequency of information needed and

timely delivered to beneficiaries. The study concludes that effective communication practice greatly impacted the performance of PROFIFA project in Nyamagabe District, Rwanda. The study recommends that managers come up with the best communication model. Managers should ensure that decisions made rely on the input of all members.

2.3. Theoretical review

2.3.1. Organisational information theory (OIT)

Organizational information theory was postulated by Karl (1967) who stated that communication within the organisation regulates the environment which influences the behaviour of the people and thus productivity. It focuses on the process of communication rather than the role of communicators. This is of great benefit to understanding how members of an organization engage in collaborative efforts with both internal and external environments to understand the information that they receive.

For an organisation to sustain successful delivery of project must afford the information needed to achieve the goals. Thus, the main aim is to lessen ambiguity so as to accept only the essential information excluding the excess. The organisational communication must aim at the people's understanding of the objectives more clearly to achieve goals.

3. Data and methods

For this study, survey research design was used. The target population of the study comprised of workers working at different sites along Mile two - Badagry expressway of Lagos state. Sample size represents the population. A simple random sampling technique was used to administer the questionnaire. A total of one hundred and thirty-three respondents were administered to a questionnaire. A close ended structured questionnaire was used with 5-point likert scale ranging from strongly agree (5) to strongly disagree (1). Content validity and Cronbach's alpha of 0.948 determine the validity and reliability of the research instrument. The hypotheses were analysed using simple linear regression.

3.1. Data analysis

Table 1 represents the total features of the administered questionnaire. It shows the total number of questionnaires distributed, the total number returned, the total number that were correctly filled and that of the total percentage of the correctly filled questionnaire. In all, from the one hundred and thirty-three sets of questionnaires distributed, a hundred and five were returned. However, a total of one hundred and one were filled appropriately. This leaves the total filled to eighty-nine percent of the total. For the data analysis, one hundred and one (101) questionnaires were found valid and used for the analysis. Descriptive statistics using frequency count, bar charts were adopted, and the hypotheses were analysed using simple linear regression.

Table 1. Summary of the administered questionnaire

Item	Number Distributed	Number Returned	Number of Correct Entry	% of Correct Entry	Total
Site A (Mile 2)	45	35	34	0.30	35
Site B (Iyana-Iba)	45	34	33	0.29	34
Site C (Okoko)	45	36	34	0.30	36
Total	135	105	101	0.89	101

Source: field survey, 2022

Table 2. Demographic of respondents

Bio Data		Frequency	Percentage (%)
Gender	male	87	86.1
	female	14	13.9
Educational Status	primary	14	13.9
	secondary	31	30.7
	tertiary	51	50.5
	professional	5	4.9
Age	25-35 years	51	50.5
	36-45 years	43	42.6
	46 & above	7	6.9

Source: field survey, 2022

Table 2 reveals that majority of the respondents are male with 86.1%, with Tertiary Educational Background and between 25-35 years of age. It can be deduced from the analysis that male field workers are much needed than the female because of the tenacity of the task to be done. This also applies to educational status and age.

Table 3 revealed that the average opinion of the respondents on communication plan, communication medium and timely delivery is 4.39, 4.46, 4.40 respectively on the scale of 1-5. The implication is that respondents have a strong opinion that there is proper communication plan with an adequate communication medium and that projects are delivered on time in the study area. The standard deviation also revealed that the respondents' responses on these variables were closely related and no dispersed.

Table 4 and 5 revealed the model summary of communication plan and communication medium on timely delivery of projects. The variance R^2 (.701) revealed that 70.1% of timely delivery of projects is contributed by communication plan and communication medium which also has a significant effect.

The Adjusted R² indicates that about 69.5% of the variation observed in the dependent variable (Project Performance) can be attributed to Communication Plan and Communication Medium (i.e., the 2 independent variables).

Also, the result shows that Communication Plan (=0.498; p< 0.05) and Communication Medium (=0.720; p< 0.05) have a positive influence on the Project Performance. This indicates that the two variables contribute to the timely delivery of projects in the construction firms. This can be expressed as shown in the below equation;

$$\text{Project Performance} = -1.026 + 0.498 (\text{Communication Plan}) + 0.720 (\text{Communication Medium})$$

Table 3. Descriptive statistics of the respondents' responses

ITEMS	N	Minimum	Maximum	Mean	Std. Deviation
1 A well communication plan is done to the success of the project	101	2.00	5.00	4.3564	.68679
2 Project team members have access to project information	101	2.00	5.00	4.3960	.70823
3 All stakeholders involved in the project are well informed	101	1.00	5.00	4.3663	.74462
4 Our project targets are well communicated	101	2.00	5.00	4.3861	.73444
5 There is a proper communication plan for all projects	101	1.00	5.00	4.3564	.76921
6 We use the best communication modes	101	1.00	5.00	4.2673	.87053
7 All team members receive information on time.	101	1.00	5.00	4.2772	.86161
8 Stakeholders are aware of the communication medium used during projects	101	2.00	5.00	4.4653	.67178
9 All information are well monitored and controlled.	101	1.00	5.00	4.3762	.87007
10 The communication medium is easy, visible and accurate	101	1.00	5.00	4.4059	.82678
11 Proper communication connotes timely delivery of projects	101	1.00	5.00	4.3762	.83488
12 Projects are delivered on time.	101	1.00	5.00	4.1485	1.10803
13 All information about the projects e timely delivered to the team members and stakeholders	101	1.00	5.00	4.4059	.82678
14 Our project targets are timely met.	101	1.00	5.00	4.3762	.83488
15 All team members work effectively and efficiently to the timely completion of projects.	101	1.00	5.00	4.1485	1.10803
Valid N (listwise)	101				

Source: field survey, 2022 (SPSS output)

Table 4. Model Summary of effect of communication plan and communication medium on timely delivery of projects

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.837 ^a	.701	.695	.46921

a. Predictors: (Constant), communication medium, communication plan

Table 5. Regression result of project communication management and successful project delivery

Model	Coefficient ^a	Standard Error	t-Stat	P-value
Constant	-1.026	.367	-2.798	.006
Communication plan	.498	.134	3.728	.000
Communication medium	.720	.118	6.102	.000

a. Dependent variable: Timely delivery

4. Discussion of findings

The study has found out that majority of the respondents were male, young and strong with adequate knowledge to carry out the task given to them. The mean and standard deviation in table 3 showed that the respondents had a strong opinion on the questions asked. The stated hypotheses were measured with simple linear regression and the result revealed that communication plan and medium has a significant effect on project success. The findings were supported by Taleb et al. (2017), Mahmoud et al. (2018), Ojoko et al. (2016) and Helen et al. (2015). However, from the result in table 4 and 5, it was deduced that communication plan has a low significant effect on timely delivery of projects.

The study also conforms with the findings of Usanase and Nkechi (2022) who found a significant correlation between the plan of frequency of information needed in communicating project plan and timely delivered of project to beneficiaries. The implication of this is that a communication plan is necessary for timely delivery of projects. Appropriate dissemination of project communication plan to project stakeholders will greatly influence timely delivery of projects. In this study, the medium at which information is being passed across to all stakeholders and team members was found to have a significant effect on timely delivery of project on the average. This signifies that communication mediums are essential; however, the efficiency of information should be enhanced.

5. Conclusion and recommendations

The study examines the effects of project communication management on project success in the construction company: a study of Julius Berger. The findings revealed that communication plans and medium have positive significant effect on time of project delivery in Julius Berger. It can be concluded that with a proper communication plan as well as having an effective and efficient communication medium there will be an increase in the chances of timely project delivery.

Based on the study findings the study recommends that:

- 1) Communication plans should be considered as key reequipment in construction firms in Nigeria for an improved project performance.

- 2) A formal communication plan should be compiled to identify how stakeholder opinions and actions will be managed.
- 3) The medium for communication in the project should be short and well established.
- 4) Further studies are recommended on other communication channels for improving project communication management in the construction industry.

References

- Abdul-Rahman, S.H.A., Endut, I.R., Faisol, N. and Paydar, S. (2014), "The importance of collaboration in construction industry from contractor's perspectives", *Procedia-Social Behavioural Science*, Vol. 129, pp. 414-421.
- Devi, S.K., Marthandan, G. and Rathimala, K. (2018), "Role of communication in IT project success", *Issues and Trends in interdisciplinary behaviour and social science*, Vol. 1 No. 1, pp. 1-8.
- Gemunden, H.G., Habil, R.O. and Rer, H.C. (2015), "Success Factors of Global New Product Development Programs, the Definition of Project Success, Knowledge Sharing, and Special Issues of Project Management", *Project Management Journal*, Vol. 46 No. 1, pp. 2-11.
- Helen, B.I., Emmanuel, O.O., Lawal, A. and Elkanah, A. (2015), "Factors influencing the performance of construction projects in Akure. Nigeria", *International Journal of Civil Engineering, Construction and Estate Management*, Vol. 3 No. 4, pp. 57-67.
- Karl, K. (1967), *A Model of inventive activity and capital accumulation*, 4th Ed., Massachusetts Institute of Technology.
- Mahmoud, A.H., Ayman, A.E.O., Hisham, S.G. and Tamer, A.A. (2018), "Causes and impacts of poor communication in the construction industry", in: *Proceedings of 2nd International Conference, Sustainable and Construction and Project Management*. Egypt, pp. 1-11.
- Manuputty, N.A. and Nursin, A. (2023), "The Effect of Project Communications Management on Project Time Performance", *Applied Research on Civil Engineering and Environment (ARCEE)*, Vol. 4 No. 1, pp. 9-21.
- Muszynska, K. (2015), "Communication management in project teams-practices and patterns", *Procedia-Social and Behavioral Sciences*, Vol. 17 No. 2, pp. 635-642.
- Ogunberu, A.O., Akintelu, S.O. and Olaposi, T.O. (2018), "Application of project scope management practices on project success among telecommunication organizations in Nigeria", *International Journal of Development and Sustainability*, Vol. 7 No. 2, pp. 518-532.
- Ojoko, E.O., Tanko, B.L., Jibrin, M., Ojoko, O. and Enegbuma, W.L. (2016), "Project delay causes and effects in the construction industry", in: *IGCESH, Proceedings of the 6th International Graduate Conference on Engineering, Science and Humanities*, August 15-17, pp. 221-223.
- PMI, Project Management Institute (2004), *A Guide to the Project Management Body of Knowledge*, 3rd ed., The PMI Press, Newtown Square.
- PMI, Project Management Institute (2013), *A Guide to the Project Management Body of Knowledge, PMBOK Guide: The PMI Press*, Newtown Square.

- Sauer, C., Gemino, A. and Reich, B.H. (2017), "The impact of size and volatility on IT project performance", *Communications of the ACM*, Vol. 50 No. 11, pp. 79-84.
- Taleb, H., Ismail, S., Wahab, M.H., Rani, W.M. and Amat, R.C. (2017), "An overview of project communication management in construction industry projects", *Journal of Management, Economics, and Industrial Organization*, Vol. 1 No. 1, pp. 1-8.
- Usanase, A. and Nkechi, E.I. (2022), "Project Communication Management and Performance of selected Non-Governmental Organization Projects in Kigali Rwanda: A Case of Profifa Project", *International Journal of Scientific and Research Publications*, Vol. 12 No. 5, pp. 312 -321.
- William, T. (2015), *Construction Management*. Delmar Cengage Learning, USA.
- Yaser, G., Abdul, R. and Ismail, I. (2018), "Identification of causes and effects of poor communication in construction industry: A theoretical review", *Emerging Science Journal*, Vol. 1 No. 10, pp. 11-21.