

Procedures for Enhancing Effective Implementation of Project Communication Management Practices in Public Building Construction Projects in Tanzania

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Abstract: Tanzania is experiencing major growth in construction sector but encounters challenges like cost and schedule overruns, among other issues that impact on project delivery. These challenges are caused by different factors and some fall under communication management. This study aimed minimizing these negative effects by recommending procedures to enhance effective implementation of communication management practices for better performance. The study used the qualitative approach with the selection of four multiple case studies. The multiple case studies approach was selected for the purpose of attaining rich information and for triangulation of data through the research instruments tools; semi structured interviews and observations. In recommendations, the study proposed procedures to be used to enhance effective implementation of the project. This included first, having a clear communication requirement and communication management plan, managing communication by embracing the use of improved management tools as well as consistency in monitoring with more time set just to mention a few. This study contributed significantly to the existing body of knowledge by advising on proper procedures for effective communication in public building construction projects as well as putting emphasis to the construction teams to prioritize communication management in execution of their projects to ensure project success.

Keywords: Communication, Communication Management, Procedures, Project Success, Tanzania.

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I. INTRODUCTION

Construction projects involve a lot of stakeholders with a lot of multiple activities (Adeyemi, 2013) and they need to communicate effectively and cooperate so as to run their operations smoothly (Kerzner, 2010). PMI (2017, p.359) defines project communication management as “includes the processes necessary to ensure that the information needs of the project and its stakeholders are met through development of artifacts and implementation of activities designed to achieve effective information exchange”. Communication is so important to project success and it has been identified as the backbone for projects (Awati, 2010). Globally, communication management has been identified as an important element for any project success (Mavuso and Agumba, 2016; Malik et al., 2021). The development of effective communication systems throughout the construction

process will ensure the flow of quality and reliable information (Ibrahim et al., 2011).

It is also noted that failure to manage communication contributes to problem such as delay, cost overruns, misinterpretation, conflicts, that affect the cost, quality and time of a project (Tariq and Gardezi, 2022; Parham and Li, 2018; Jaffar et al, 2011). Nevertheless, the communication management practices vary with the locality of the construction project. PMI (2013a), reported that ineffective communication is the number one reason why projects fail. In fact, PMI states that ineffective communication management is a contributing factor in 56% of the projects that failed in the US. Shar (2016) in his exploration on causes for delays and cost overrun in construction projects in Australia, Malaysia and Ghana mentioned many causes and one being improper communication management.

Tanzania has witnessed the vast increase of construction activities over the recent years and it has been observed that as of 2020, this particular sector contributed to the national's GDP by 14.4% (ITA, 2021). Despite its growth the sector is still plagued with delays and cost overruns (Ndunguru, 2020; Luvara et al 2018; Kikwasi 2012) and one cause being little attention to communication management practices. Luvara et al (2018) mentioned delays in decision making, late giving instruction, delay of materials approval and lack of coordination and communication between parties as factors causing such effect and went along and recommended on effective communication as a solution. Kikwasi (2012) in her study on causes and effects of delays and disruptions for construction projects found information delay as one of the main causes and recommended on timely issuing of information as the solution.

Further, different studies have indicated that despite players in the industry in Tanzania having knowledge on communication management but its applicability is low (Ngwira, 2014). This has led to ineffective communication management which has resulted into poor project delivery. Despite the efforts of different authors to curb these challenges for a successful project delivery, the industry is still facing delays and overruns. Given its importance, there is then a need to enhance communication management in our construction projects by setting up procedures/framework to guide parties involved on the best practice for communication management in their projects.

The study will contribute to communication management practice in Tanzania amongst the construction industry practitioners to prioritize communication as a critical success factor. The recommended procedures on communication management practices for construction projects will solve the problem of insufficient application of communication management practices and improve overall communication management practice for project success and act as a practical contribution to the industry.

II. LITERATURE REVIEW

➤ *Project Communication Management*

Project Communications Management is one of the Knowledge areas identified in project management and it is defined by PMI (2017) as a process that ensure the information for all the project participants and the information needs of the project are met through various set artifacts with the aim of ensuring timely implementation of activities for effective information transfer. PMI, (2017) have identified the three main processes for effective project communication management namely; Plan communications management, manage communications and monitor communications which have different tools, techniques, methods, structures and systems involved.

➤ *Communication Management Factors for Project Success in Construction Industry*

Over the years researchers have identified variables related to communication management for project success as summarized in table 1 below.

Table 1 Summary of Communication Management Factors for Project Success

Communication Management factors for project success	Source
Communication Plan	Khanyile et al (2019); Taleb et al (2017); Musynznka (2015); Abudi (2013); Bandulahewa (2013); Culo and Skendrovic (2010)
Communication Skills	Mavuso and Agumba (2016); Zulch (2014); Aiyewalehmni (2013)
Effective Technology system	Khanyile et al (2019); Mavuso and Agumba (2016); Abudi (2013)
Teamwork	Mavuso and Agumba (2016); Musynznka (2015); Aiyewalehimni (2013)
Clear Channels within the organization structure	Khanyile (2019); Parham and Li (2018); Mavuso and Agumba (2016); Tilipi et al (2014)
Stakeholder's frame of reference	Mavuso and Agumba (2016)

➤ *Strategies and Techniques for Improving Communication Management*

Kerzner, (2013) and PMI, (2017) identified strategies and techniques for improving communication in any project; Timely feedback in more than one form, having multiple communication channels, using face to face communication when possible, knowing your sender's sensitivity to your communication, understand non-verbal communication (symbolic expressions), communicating at the proper time, get specific with instructions, reinforcing words with actions and using simple language.

Shaw (2022) suggested strategies to include having a clear vision of the project outcomes with the inclusion of all stakeholders, preparing a detailed communication plan, emphasize on internal communication among participants on changes, status updates and meetings. He continued to state

that the teams should embrace technology to ensure information is distributed properly with no delay, ensure the client is kept in the communication loop and with the use of technology like the use of management tools like Smart Task one can share the dashboard with the clients to ensure they get all the information.

Joubert (2020) mentioned that the project manager should make use of appropriate technology available and well understood by the team, tackle all cultural and language barriers and establish a clear plan on communication flow for the team.

Parham and Li (2018) in their study of effects of communication management on infrastructure projects in Jamaica stated that there should be clear channels/ structures of communication well established and should be set by the

stakeholders in the project. In addition to that the team should improve their communication skills of listening, solving problems, critical thinking, conflict management, presenting and writing so as to work together towards successful project delivery.

III. METHODOLOGY

➤ Research Methodology

This study adopted a qualitative approach with the use of case study technique. A Case Study is qualitative research (Baskarada, 2014) which aims at looking at a certain phenomenon in details so as to have a great deal of information of the study. The multiple case studies approach was selected with a number of four cases coded; A, B, C and D.

➤ Unit of Analysis

The four cases under scrutiny involved a purposive selection of public building construction projects which were executed by class I building contractors as summarized in table 2 below. Criteria for selection included the projects with delays at least 6 months with some major/minor reasons being communication management; Public building projects in Tanzania because the government of Tanzania is the main employer and it is also evidently that delays have been identified in major public construction projects (Kikwasi, 2012; Ntiyakunze, 2011).

Another criterion was for public building construction projects executed under building class I contractors with the value of 10 billion and above since large projects face a lot of communication management paradigms and those buildings where the researcher is a participant observer so as to make it easier to access the project information and get testimony from the first-hand observer.

Table 2 Cases Selected for the Study on Public Building Construction Projects

Case	Project	Value	Status	Effects on Project Performance	Criterion for Selection
A	Bus and Truck Terminal Building	27.1B	Completed	Schedule overrun-1-year (60%)	Public project class I contractor, Delays (communication)
B	Data Centre	193B	Completed	Schedule overrun-9 months (22.2%)	Public project class I contractor, Delays (communication)
C	Market Building	20.7B	Ongoing	Projected Schedule Overrun-8 months (33.3%)	Public project class I contractor, Delays (communication)
D	Administrative Building	10.3B	Ongoing	Projected schedule Overrun-6 months (42.9%)	Public project class I contractor, Delays (communication)

➤ Research Design Process

The research design process was divided into two parts. part one involved problem identification, literature review and preliminary interview survey. In part two; the researcher employed the multiple cases study in which all the cases were discussed individually and later on a cross case analysis was conducted to triangulate the information from all cases followed by conclusion and recommendation.

➤ Data Collection

Data was collected from these sources of data namely Interviews and participant observation/participatory method.

• Interview

Semi structured interviews were conducted between August and September 2022 with reference to the prepared interview questions set. The interviews took 30 -60 minutes. A total of 23 interviews were scheduled but only 17 respondents (73.4%) were interviewed and this was due to the reason that some of the interviewees accepted an initial call for interview but later on proved difficult to give out information as they gave excuses for each time set for interview. The interviews were carried out through face-to face (physical meeting) (4 respondents), telephone that is through calls (10 respondents) and the use of an application known as WhatsApp for audio calls (3 respondents). The response rate is presented in Table 3 below

Table 3 Response Rate in all Cases Selected

	Targeted respondents	Percentages (%)	Actual Respondents	Percentages (%)	Response rate
CASE A	5	21.7	4	23.5	80.0%
CASE B	7	30.4	5	29.4	71.4%
CASE C	5	21.7	3	17.6	60.0%
CASE D	6	26.1	5	29.4	83.33%
Total	23	100	17	100	73.9%

- *Demographic Characteristics of Study Participants.*

The respondents' designations, years of experience, education level and profession background are presented on table 4 with the largest group of respondents falling within

the "11-15" years (10 respondents 58.82%). The respondents' profiles included key players in the industry as shown in table 5. This was important because it showed that the data was collected from experienced members in the industry.

Table 4 Experience of the Respondents

S/N	Years	Frequency	Percentage (%)	Cumulative Percent
01.	Less than 5 years	0	0	0
02.	5-10 years	2	11.76	11.76
03.	11-15 years	10	58.82	70.58
04.	16-20 years	4	23.53	94.11
05.	21 years and above	1	5.89	100
	Total	17	100	

Table 5 Interviewee Profiles

Interviewee (CODE)	Case	Professional Background	Experience
A	A	Architect	11-15
B	A	Structural Engineer	16-20
C	A	Quantity Surveyor	11-15
D	A	contractor	16-20
E	B	Quantity Surveyor	11-15
F	B	Architect	16-20
G	B	Structural Engineer	11-15
H	B	Quantity Surveyor	5-10
I	B	Contractor	11-15
J	C	Architect	>21 years
K	C	Quantity Surveyor	11-15
L	C	Contractor	11-15
M	D	Architect	11-15
N	D	Structural Engineer	16-20
O	D	Quantity surveyor	11-15
P	D	Contractor	11-15
Q	D	Contractor	5-10

- *Observation/Participatory Method*

For case study D, the researcher was a participant observer. The researcher participated in four site meetings and activities as shared in table 7 below.

Table 6 Observation Protocol/Schedule

Item	Time	Documents and activities
Site meeting 1	May 2021	Progress report, site meeting, minutes, site inspection
Site meeting 2	June 2021	Ditto
Site meeting 3	August 2021	Ditto
Site meeting 4	October 2021	Ditto
Office works	2021, 2022	Letters drafting, drawings, issuing detailed drawings, technical meetings, site visits and inspections, additional works negotiation meetings

➤ *Validity*

To ensure accuracy of the information, data obtained from interview and observation were triangulated to determine convergence of data (Yin, 2018 p.354). Moreover, validation of the procedures suggested in findings were sent to the experts (consultants and contractors) in the construction industry using snowball technique so as to have a third eye review.

➤ *Reliability*

Yin, (2018) explains that to achieve reliability in case study research, a researcher should prepare a case study protocol, develop a case study database and maintain a chain

of evidence. In this case a case study protocol was developed to guide the process of collecting data. The protocol was detailed enough with the questions for the research based on the research questions, identified project respondent participants and the kind of documents used in this research.

➤ *Protocols for Formulating Procedures in Qualitative Research*

To form these procedures the researcher used a systematic approach whereby first was to understand the study at hand thoroughly and identifying the objective of the study. Thereafter, the literature review for the project was conducted which led to development of conceptual

framework as observed in figure 1. The research design was selected using the case study approach. A selection of multiple cases was preferred with data collection tools being semi structured interviews and observation/participatory method so as to allow triangulation of data. The data collected

from all sources were cross-analyzed to show relationship between cases. After cross case analysis there came conclusion to the issue posed and the proper procedures were formulated followed by validation of these procedures.

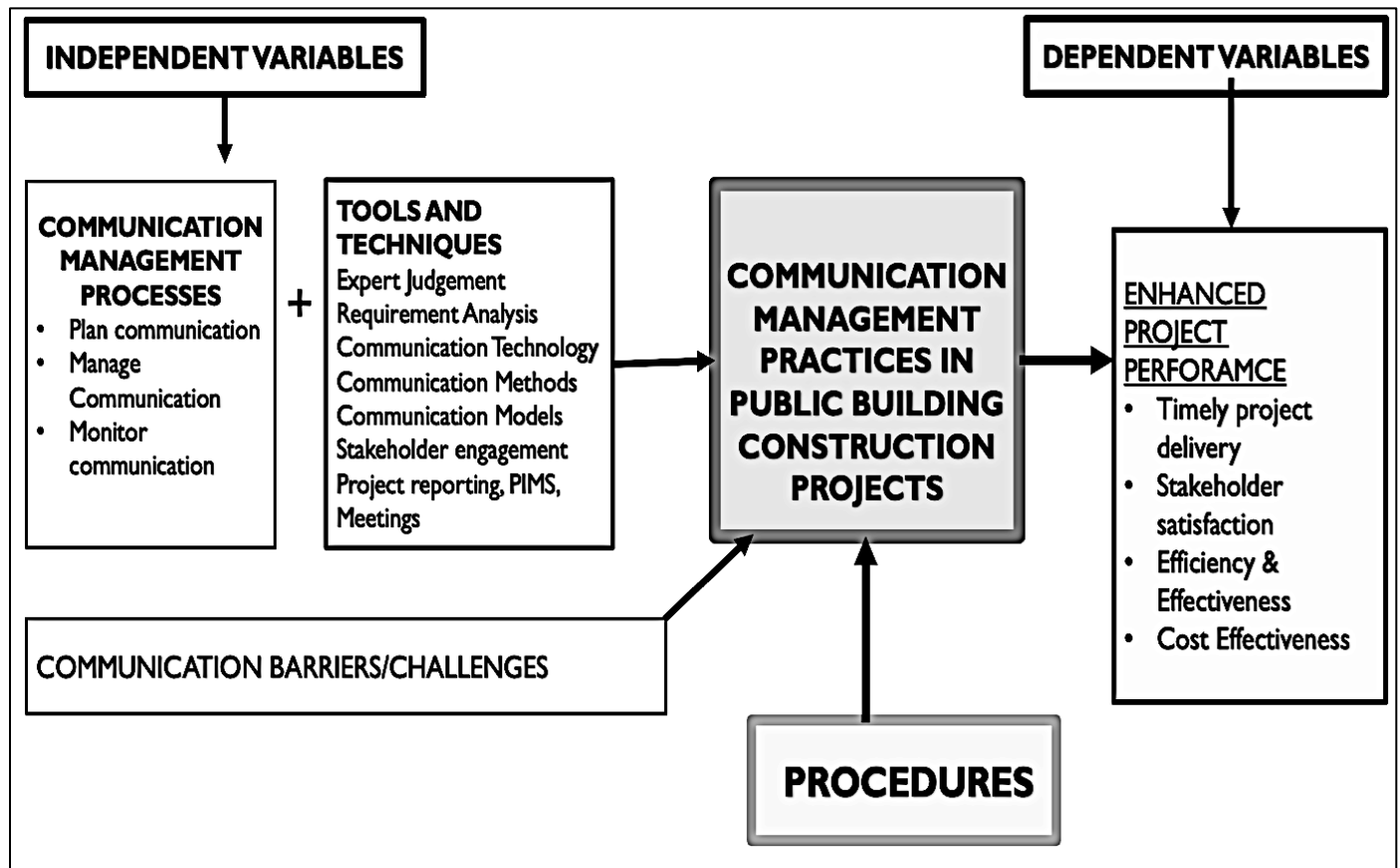


Fig 1 Framework for Conceptualizing Communication Management in Construction Projects and Project Success

IV. FINDINGS AND DISCUSSION

A. Case Study A

Interviewees were asked on measures to enhance effective implementation of communication management practices in projects; all interviewees A, B, C and D recommended on the adherence to project communication procedures set as per contract documents so as to avoid any challenges regarding communication. More so to that, interviewee D explained that;

“Communication management in projects is as set in the contract documents since the contracts set channels on how to communicate through contractual relationships and all parties have to adhere to the contract. The interference by one party or external party can cause a lot of chaos to the project and that has been observed through political interruptions made by external parties on issuing verbal instructions contrary to what is explained in the contract.”

Interviewee A and D explained on the importance of having the client representative in the loop during execution and emphasized on having a representative with full authority who can make quick decisions regarding any project clarification/change needed.

More so, the interviewees recommended on improving technology tools to be used. This means embracing technology to ensure information is distributed properly with no delays. Interviewee C mentioned that;

“Participants cannot go through emails all the time or get letters on time... a team should choose some other means to communication like WhatsApp (which is common amongst members) to make quick updates for the project and not waiting to site meetings as some information does not require letters writing and this will enhance quick responses.”

More so to that, interviewee B emphasized on meeting more often amongst team members and gave a suggestion of having even weekly reports as this was lacking in their project. He mentioned that there happened to be a lot of issues to be addressed quickly into which some burning issues could be solved if the team met more often and get weekly updates. He mentioned that the meeting could be via virtual means and not necessarily physical meetups.

B. Case Study B

Regarding measures to enhance effective implementation of communication management practices in projects, Interviewee H recommended on improving

technology tools to be used prioritizing communication in the projects as well as having a budget for communication management. The interviewee mentioned that;

“Communication should be the backbone of any project execution. Every part should play their roles effectively. This is why there should be a budget set specifically for communication purposes in all contracts and this item should be mandatory so as to avoid any effects regarding communication in the project.”

Interviewee F mentioned that; *“Having a central communication system proved to be helpful in general execution of this project. All team Members involved were included in all the communication systems despite the complexity of location and diversity of team members.”*

Interviewee G and interviewee I emphasized on the importance of prioritizing communication and monitoring of the project more frequently and explained how their weekly follow-up proved beneficial to the project success despite the challenges encountered.

Interviewee E recommended on having realistic schedules for the projects as he mentioned that the project was huge and was to be executed in thirteen different sites hence mentioned that a period for execution was not sufficient which caused a lot of pressure to the team members and hence explained that for team members to execute a project properly the authorities should be able to plan the realistic schedule well from the beginning.

The researcher observed that; the team dedicated a lot of efforts into communicating and the communication process was intensive with a lot of correspondences from all players. This proved that it needed team members to have some incentives to communicate more and hence a set aside clear budget is beneficial to fulfill a better communication strategy. The frequency of communication for this project was sufficient and the project benefited a lot from having weekly meetings and reports and this unique feature can be adopted in other projects as well.

It is important to have realistic schedules for the projects as emphasized in the body of knowledge and hence the team despite the efforts in communicating, there proved difficult in execution of all the activities in time as there were thirteen different sites and required a lot of communication time which can also be exhausting to the team members as well. The project benefited from the use of communication management tools to minimize communication problems in the project. Quick feedbacks by the project manager and other members in some crucial issues proved beneficial to this project execution.

C. Case Study C

On the matter of measures to enhance effective implementation of communication management practices in projects, all interviewees J, K and L recommended on the importance of the client honoring his contractual obligations with time consciousness. Interviewee J cementing this

statement mentioned that; *“If the client wants the project to finish on time, then he will give quick feedback. The client is the driving force towards a successful implementation if at all other consultants and contractors play their roles effectively.”*

In addition to that, Interviewees recommended on adherence to communication hierarchy set via contract documents. To clarify this interviewee K stated that; *“Instructions are to be written and that is why sites have instruction books. If at all verbal instructions are given the contractor can send a letter asking the consultant to confirm but still people visit sites and give verbal instructions.”*

Another recommendation made by the interviewees was on the importance of using alternative means of communication to smoothen management of the project. This project was conducted during the COVID 19 crisis but there could be the use of technology to conduct the site meetings virtually of which was not adopted but later on meetings were but proved difficult in the early times of the pandemic.

Literature advises on having a clear budget set for communication purposes which was missing in this case but rather each team member firm had to get this budget from its individual overheads. This project could benefit a lot from frequent monitoring and quick feedbacks by the team members. It is important for each party to play its role effectively and not deliberately delay any needed project information from their end. Literature emphasis on embracing varieties of technological means to avoid negative effects of communication and hence the use of virtual meetings especially during COVID could prove beneficial as well as having a central communication system for the project where information could be shared.

D. Case Study D

The interviewees were asked to suggest best possible measures to enhance effective communication management in the building construction industry. Interviewee O stated the importance of having a specific budget set for communication purposes and not just leave the individual teams to set it aside in their profit margins but rather having a specific budget included in the project.

More to that, interviewees P, N and O expressed the importance of resolving personal internal conflicts amongst project members which will enable smooth flow of information from one party to another. They emphasized on having tolerance amongst team members and resolving conflicts early through honest conversations so as to prevent jeopardization of the whole project because of the few people.

Another measure proposed was the use of improved information system that is up to date technology to communicate more often and regularly. Interviewee M stated that;

“If we could embrace the virtual meetings, video conferencing then maybe we would have been able to half the schedule overrun we have now. Going forward we will see

how best to do so as the project is in different places and we cannot all be in one place at the same time every time."

Adding to this, interviewee Q explained the importance of manage and monitor the project more often which will enable parties to get new project information if there be and to solve any communication jargon as soon as they occur which in turn will enable the smooth operation of the project as far as communication management practice is concerned.

Being a participant in this project, the researcher recommend that the project should have embraced more technology in the daily operations of this project that is to say an improved information system that is the use of technological means like virtual meetings as the project is conducted in various regions. This will enable more centralized information flow between the team members of the project and through technology, it would have been easier to communicate frequently and not waiting for monthly meetings.

More so, being a part of this project, the researcher discuss that the project could use more quick feedbacks regarding projects raised issues and for the team members to be conscious of time management when communicating. The researcher observed that this project involved a lot of letters writing even for issues that could be solved verbally in meetings. Adding to that, the researcher observed that there was unrealistic scheduling regarding the project. This project was conducted in twelve different regions in Tanzania using one contractor and the whole project was scheduled to finish in fourteen months.

In summary, the body of knowledge emphasis on having a specific budget set aside for communication purposes and hence this could be beneficial in this project. Moreover, this project needed a client representative with vested authority to make on time decisions to smoothen the project operations.

E. Cross Case Analysis

The four cases were discussed thoroughly to grasp the recommended measures by the practitioners. The players in all cases mentioned issues which cut across different phenomena but they all fall under three parts; planning, monitoring and management of communication. These measures to enhance effective communication in building projects in Tanzania should set as new procedures to be followed by practitioners in the industry so as to have successful projects. These proposed procedures are summarized in figure 2 and are explained as follows;

➤ Plan Communication

- All the work communication requirements must be planned and communicated to all parties involved from initial to completion stage which includes the language of communication, channels to use, tools to embrace, frequency of communication, roles for each member involved.
- The parties involved should establish a clear Communication Management Plan (CMP) based on the requirements set and have its document included in the project and should be updated from time to time depending on the needs of the team
- The contracts for each party should include a proper budget set aside for communication purposes and should not be left as part of individual company overhead cost.

➤ Manage Communications

- Managing communication requires the team to embrace the use of improved management tools for communication management like videoconferencing, virtual meetings and the use of other software applications for effectiveness.
- The building team embrace the use of technology (improved information system) to ensure information is distributed properly with no delays and this is to say the building team has to have a central communication system agreed and understood by all members mutually.
- Each party involved should adhere to the contractual obligation rules set and always give quick feedbacks whenever information or any action is needed from their end so as to keep the communication loop smooth and moving.
- Frequency of communication the teams should communicate frequently using different means to ensure quick feedbacks and no part should be a source of delay.

➤ Monitor Communications

- The building team should set more time in monitoring the projects as projects have limited time with plenty of tasks to accomplish and hence a weekly brief meeting amongst key members will be able to smoothen the project activities and minimize the effects caused by communication.
- Projects should embrace the use of improved monitoring tools for communication like the virtual meetings, frequent site visits so as to monitor more effectively.
- There should be consistency in monitoring the projects throughout the lifecycle of a project.

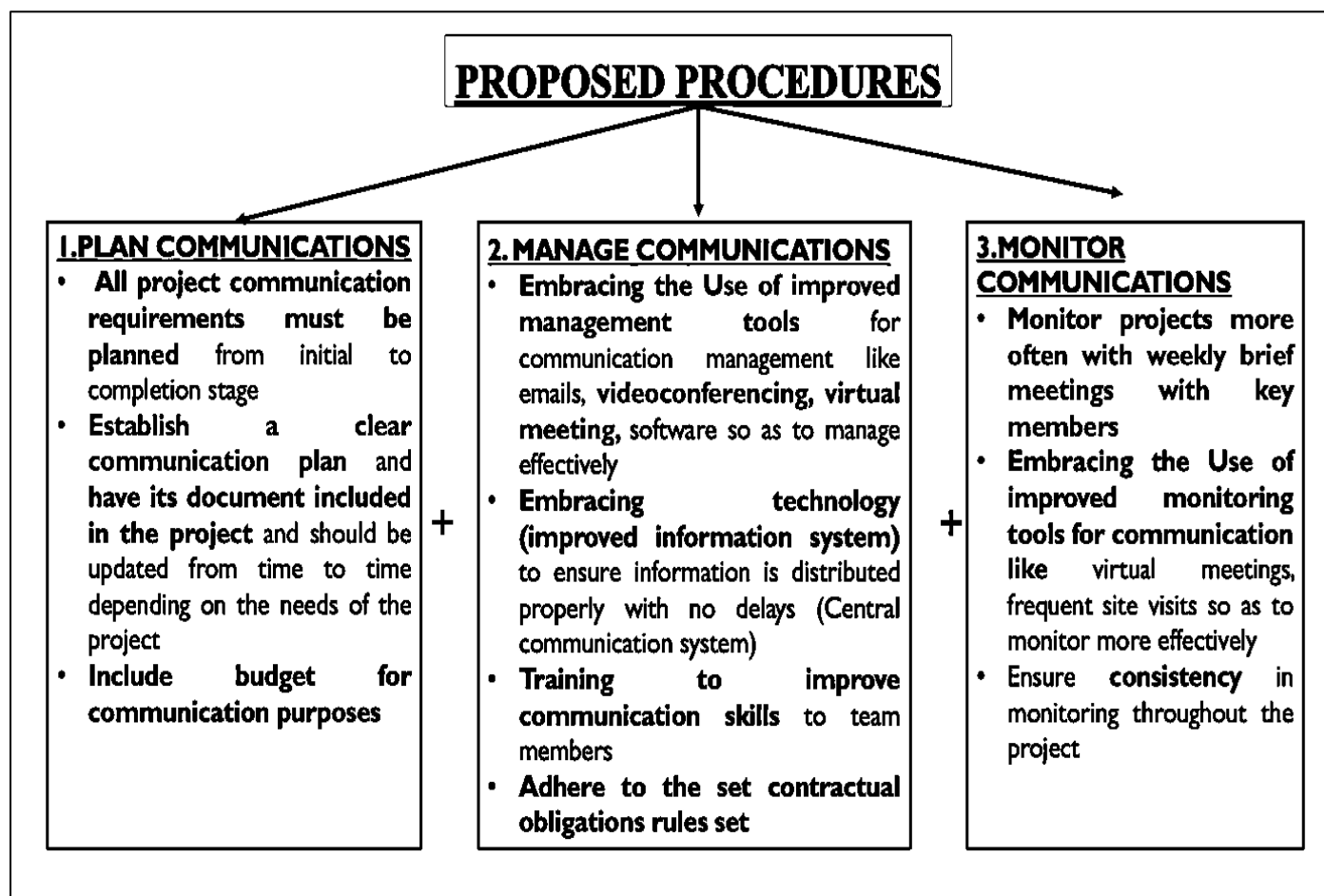


Fig 2 Proposed Procedures for Communication Management in Building Construction Projects

F. Procedures Validation

➤ Response Rate

A number of 12 respondents were selected to help the researcher and the procedures proposed document were sent to them. A total number of 11 respondents (91.6%) as illustrated in table 8 gave out their feedback. A number of 10 respondents (83.3%) gave out feedback noting that the procedures formulated could help enhancing communication management practices hence agreeing to the procedures proposed. One respondent could not give out his opinion on time and another respondent mentioned that he does not see how the proposed procedures could be achieved given the setting of the construction industry in Tanzania and the limited resources available allocated for projects noting that communication to be effective all parties must feel obligated to do so and not set of procedures or rules will make them

communicate rather than the mutual decision to see a need to communicate.

Looking this comment by the respondent, it is the researcher's opinion that there should be deliberate efforts to improve communication management in our projects since the effects still cause the overruns. There is a Swahili saying "usipoziba ufa, utajenga ukuta" which essentially means if you do not deal with a crack, you will end up rebuilding a wall and hence it is crucial to deal with efforts to minimize the effects early rather than later which will cause the government to lose more project funds. The government of Tanzania looks at ways to effectively utilize their projects funds and hence improvement on communication management is of utmost importance. The procedures set works collectively and with better efforts it can use the limited resources effectively.

Table 7 Response Rate

	Targeted respondents	Percentages (%)	Actual Respondents	Percentages (%)	Response rate
	12	100	11	100	91.6%
Total	12	100	11	100	91.6%

➤ Demographic Characteristics of the Respondents

The respondents' designations, years of experience, education level and profession background are presented on table 9 with the largest group of respondents falling within

the "11-15" years (9 respondents 81.8 %). The respondents included experts in construction industry as illustrated in table 10. This was important because it showed that the data was collected from experienced members in the industry.

Table 8 Experience of the Respondents

S/N	Years	Frequency	Percentage (%)	Cumulative Percent
01.	Less than 5 years	0	0	0
02.	5-10 years	0	0	0
03.	11-15 years	9	81.80	81.80
04.	16-20 years	1	9.09	90.89
05.	21 years and above	1	9.09	100
	Total	11	100	

Table 9 Respondents Profiles

Respondent (CODE)	Professional Background	Experience
1	Architect	11-15
2	Architect	11-15
3	Quantity Surveyor	11-15
4	contractor	11-15
5	Quantity Surveyor	11-15
6	Structural Engineer	16-20
7	Structural Engineer	11-15
8	Quantity Surveyor	11-15
9	Contractor	11-15
10	contractor	>21 years
11	Architect	11-15

V. CONCLUSIONS AND RECOMMENDATION

➤ Conclusion

In the light of the above results in table 8 it is safe to conclude that the proposed procedures were validated by 83.3% responders who gave out feedback noting that the procedures formulated could help enhancing communication management practices in the construction industry.

➤ Recommendation

The procedures proposed have an implication in the existing body of knowledge as it contributes to the additional information regarding the importance of communication management practice in building construction projects as the conclusion was made from the practical information gathered from the actual projects conducted.

Moreover, the procedures proposed have an implication to the government as it will help in improving policies in government projects to emphasis the importance of communication in project management and prioritize it and set specific budget for it unlike now where it is embedded in team members individual contracts overhead for their consideration. More so to this, since the government is the main employer then having these procedures will enable it to emphasis on client representative with vested authority in the construction projects.

In addition to that, the procedures proposed will help the team members to understand the importance of communication in their project, prioritize it and treat it uniquely as an important element for project success.

It is a researcher's opinion that improved communication management practices in public building construction projects in Tanzania will lead to better execution and avoidance of the overruns.

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