

Multi-Vendors Communication Framework for Outsourced Project

Nur Hidayah Zahari, Haslina Md Sarkan, Nurulhuda Firdaus Mohd Azmi and Othman Mohd Yusop
Advanced Informatics School, Universiti Teknologi Malaysia, Kuala Lumpur, Malaysia.
haslinams@utm.my

Abstract—One of the key aspects to obtain a successful outsourced project which involves multiple vendors is effective communication. This study is inspired by a four-month delay occurred in an outsourced software project where a serious communication problem existed among the stakeholders and the different software vendors involved during the implementation phase. The project manager being the only one in charged to communicate with everyone in the project, had difficulties handling the situation. A solution in the form of a communication framework is needed to understand and to smoothen the exchange of information among the multiple vendors. An investigation was conducted to study the existing communication skills practices among the vendors from different organizations. Next, it was necessary to design an instrument capable of determining the participants' communication knowledge and awareness levels. The quantitative approach was chosen to gather the existing communication skills practices data. The respondents' feedback was analyzed and used to better understand the work environment and how to better manage the project. A communication framework for the personnel involved in the project was developed and proposed to improve the communication among multiple vendors and stakeholders.

Index Terms—Multi-Vendors; Project Communication; Project Management; Project Outsourcing.

I. INTRODUCTION

Outsourcing is defined by [1] as the process of keeping resources external to the procuring organization in order to carry out software development and other related activities. It is rewarding as well as challenging, being able to provide software service to another organization. At the same time, outsourcing is seen as a cost-effective solution for an establishment and it is able to meet short deadline [2-3]. Organizations outsource mainly because they want to focus on their core activities instead of venturing into additional work that cannot guarantee success in the future. However, there is always a setback when outsourcing. One of the distinctive causes of software project failure is the lack of an effective way to communicate with each other in an outsourced project [4].

This study is focusing on an actual outsourced industrial scenario where a project was delayed for more than three months. Preliminary internal investigation indicated that the project started off well and everything seemed to be following the schedule. However, during the coding phase, many miscommunications among the vendors and stakeholders started to emerge. Requirements suddenly became unclear. It was realized at that particular point that a proper communication channel was needed to ensure that the project can be executed according to the schedule in the software

development plan.

Previous works have also agreed that when there are many organizations involved, a comprehensible communication means is necessary for the different parties to interact effectively. [5] stated that an effective communication between the different stakeholders during a project is necessary to prevent project failure. Good communication helps to monitor the project risks, hence lowering the possibility of delivering wrong functionalities. [6] also pointed out that it is important that all the people involved in the project sit together and discuss seriously about the upcoming and increasing risks due to misunderstandings among them. An effective way to communicate is important so that the messages circulated can be well understood by all parties. They should be talking about the same things and understand the same circumstances.

The main goals of this paper are to investigate on the existing practices of vendors' communication skills and to come up with a solution to improve the way vendors and stakeholders communicate with each other. A suitable instrument is needed to measure the communication knowledge and awareness levels among the participants. It is hoped that a communication framework can be proposed using a case study from an actual outsourced software project in an organization in Malaysia and that this framework will be useful to ameliorate communication among multi-vendors in other outsourced projects.

In order to get the basic data about the existing work process at the organization, two sets of questionnaires were prepared to gather the necessary information. This is to acquire the exact information on the communication skills currently practiced in a particular project within the organization. The respondents' point of views will be studied in order to propose an improved communication channel. The results that we hope to obtain from this case study would be useful to understand how the work process is among the multi-vendors and from there we hope to figure out how to better manage the project in order to catch up with the timeline and to complete the project successfully.

This paper is organized such that section I describes about the outsourced project and its rational. It also states that a distinguishing factor often encountered when outsourcing is the communication problem. In Section II, the issue of communication in software project is being detailed out. Section III will explain on the method used to perform the study. Results and analysis from the study will be detailed out in Section IV. Section V will deliberate on the solution to the problem presented in this paper and finally Section VI will conclude the paper.

II. THE IMPORTANCE OF COMMUNICATION IN A SOFTWARE PROJECT

Communication is one of the key factors in achieving a successful software development. Efficient and effective communication must be practiced during the software development life-cycle (SDLC). It is important to minimize the communication gap between the multi-vendors and the stakeholders especially when it concerns the software requirements [7].

The survey conducted by [8] showed that poor communication is responsible to hinder software project success. Among the issues encountered in our outsourced project was that only the project manager of the main project has been appointed to interact with the other vendors whereas no specific responsible people from the vendors' side were appointed when there should be discussions. Hence the project manager wasted a lot of time trying to interact with everyone in the outsourced project.

Secondly, no software or common tool is put in place for project communication. Everyone involved in the project uses available messaging applications in their mobile phone like WhatsApp and iMessage. On top of that, the details of the meetings were not properly recorded. Many team members missed out the details of decisions made during the numerous meetings.

Lastly, there was no proper knowledge transfer process in the form of a workshop for example, given by the stakeholders to the vendors before the start of the software development phase. The actual system the vendors were working on was initially developed by the stakeholders themselves. The whole user interface was outsourced later on to them. Therefore, it is essential that these vendors should be briefed comprehensively about the original system. Our literature led us to sum up that some of the reasons which caused projects to end unsuccessfully are:

A. *Different Expectations*

There will be issues if the project manager hardly ever updates the stakeholders when changes occurred during the project [9]. Hence different people will expect different things and they will attempt to use the current available information at that specific point of time to make decisions which are likely to be inaccurate. To avoid that, any opinion or expectation should be made known and collectively shared among the multi-vendors in order for them to work well together [10].

B. *Using Language which is not clear*

During a meeting, discussions can turn into conversations using technical jargons if not careful. This can baffle the audience. The confused participants who are not experts will eventually lose focus and stop paying attention to the details [11]. Besides that, the use of unclear or coarse words could also result in the participants misunderstanding the situation or suffer from lack of understanding instead [12].

C. *Irrelevant Information*

If the essential message is not conveyed correctly, the intended information will not be passed on. Extra effort is needed to further probing for the actual information as nobody is sure of what is currently happening. Nobody is able to obtain the correct information as they are not able to make the best decisions in this situation.

There is a need to introduce some measures to counter the above failure features. We believe that the right approach is to work towards having a good channel of communication in a project. The organization should approach these issues by embracing a different way to communicate besides phone and email. Each member in the team must work together and cooperate in any instruction given by the organization. This way of working should be embraced as an information sharing method into the everyday activity in the organization [13]. In [14] the researchers insisted some features from certain internet platforms can help to make internal communication better within the organization. Examples are such as built-in chat functions, organization notifications and updates, and the posting capabilities.

In order to obtain the basic information quickly and correctly, it is advised to use suitable project management software applications [15]. The frequency and the means of communication with the client must be determined by the project manager. He should ascertain scheduled decision-points. The project requirements should be integrated into a clear timeline that is detailed out and approved by the client [16]. [17] pointed out that people often ignore emails when they become encumbering. Therefore, there is a chance that the message you want certain people to receive will not get across to them. We suggest keeping the number of the internal inbox clutter to its minimum.

The person who holds the key to successful project communication is the project manager. A project manager influences his team members by communicating and motivating them every day. When the project vision and the basic skills to be implemented in the project are clearly communicated and shared, the team members' satisfaction can be increased. The project manager has to provide accurate information that is relevant to his subordinates. Everyone getting instructions from him should understand how he divides task into subtasks. Clear communication in describing the subtasks is important so that everyone is clear of what they are supposed to do [18]. Small incentives such as leave day can also be introduced to boost team members' motivation as it is a good mean to show the management's appreciation [19].

III. SURVEY APPROACH

As questionnaire is important in the process of collecting data, it is also imperative that the questionnaire has been well designed. This is to reduce the possible inaccuracy and at the same time it will help to improve the data quality. The data is obtained from the processes found within the project. We divided the methodology into three stages: Preliminary Survey, Complete Survey and Analysis of the data.

To conduct the survey, we had to first of all identify the population of interest from the domain that is having the problem. Then the suitable samples were chosen. There are three vendors involved in the outsourced project. We have considered a population made up of all the group representatives. However, in order to save resources, money and time, we chose a sub-set of that population. These people have the access to all the representatives. The number that is seemed appropriate to gather enough feedback among the multiple-vendors is 10. And these are the 10 people that are always involved in project discussions.

The main concern of the survey is to study the existing practices of communication among the multi-vendors. We

need to find out where the communication breaks down. Then only we can propose how to improve the way stakeholders communicate with the multi-vendors. In order to do that, the survey samples chosen must be from the project in question and also representatives of the multi-vendors and the stakeholders.

Information from these targeted respondents should be collected. Therefore, we have to design a preliminary questionnaire to investigate on the existing communication skills they practice and to study the awareness of the project environment among the multiple-vendors and stakeholders of the project. Feedback from this questionnaire is hoped to help in designing a more comprehensive questionnaire for the actual complete survey. We need to identify the areas of concern on this issue.

Results from the preliminary questionnaires will be used to refine the subject matters and to reselect a new population and samples if necessary for the second set of questionnaires.

As for the contents of the questionnaire, they are divided into three (3) sections. The first section is about the demographic information. In this section, we ask the respondents to state their job title or position. We classify these positions as chairman, chief executive officer, general manager, executive, entry level, intern and others for the other titles. The second section is on the existing communication skills that are practiced within the project. The third section consists of questions that is hoped to help with the improvement of the communication practices within the project. Questions regarding the mode of communication and tools that are suitable for outsourced project activities are part of the questionnaire to find out exactly how the multi-vendors interact with the stakeholders.

IV. ANALYSIS AND DISCUSSION

We have chosen the quantitative approach to gather data and to obtain feedback from the multi-vendors involved in the project by using two sets of customized questionnaires. Both sets of questionnaires were distributed among 10 respondents belonging to three different vendors. The respondents of the preliminary questionnaire are not necessarily the same person as the complete questionnaire. Based on the collected data, we analysed the given responses.

Both sets of questionnaires were answered completely by the different respondents. This is the result of being selective in choosing the representatives of the vendors who are truly affected and concerned about this communication problem. We focused more on the quality of the responses rather than the quantity.

One of the questions posed was about finding the most commonly used communication practice in the project. 80% of the respondents answered email. The results of the other means of communication they use in the project is visualized in Figure 1.

From the figure, we can see that memo is the least popular communication medium among the multi-vendors. The general managers and managers involved preferred to communicate by using emails. This is especially when communicating with top management of the other vendors. However, those in the executive positions preferred to interact face to face. They favour direct interaction rather than to meet in a formal session. Meanwhile, the entry level position chose to communicate using mobile phones instead.

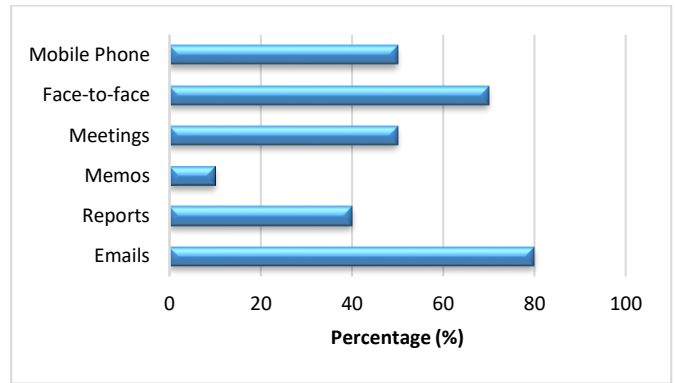


Figure 1: Software Project Communication Channels among Multi-vendors

We have summarized from this particular question that vendors in the high-level positions preferred to communicate formally. The need for a blueprint or a solid output is one factor that can influence them to make decisions. Whereas the other positions do not need to prepare any sort of document to communicate and they can easily interact with each other in an informal way.

However, we are concerned with the fact that by using email as a communication medium, many respondents tend to receive a limited amount of information. There is a possibility that the respondents might not receive accurate information and that there is also a chance that the information received is not sufficient. Figure 2 illustrates the feedback from the respondents about their personal impression of the existing communication practices.

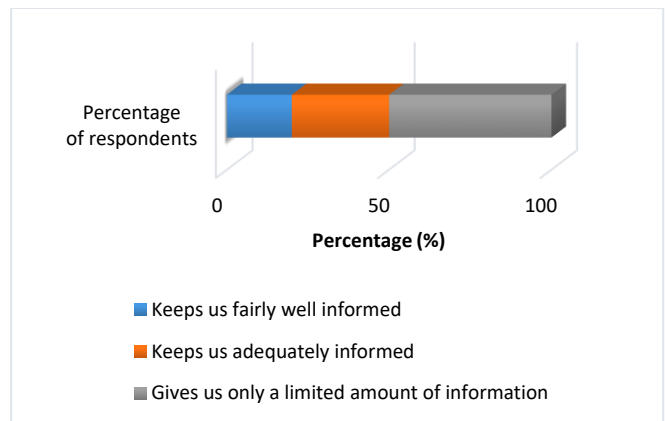


Figure 2: Existing Communication Practice for the software project's Impression

Figure 3 on the one hand focused on the question of the use of communication tool or mode that suits project outsourcing activities. We see this as very important in order to have a smooth interaction among the multiple-vendors. The results obtained were plotted in Figure 3 where we can see that majority of the respondents preferred to have a formal meeting for routine project meetings, scope changes and top management review. The most popular choice of communication mode is by organizing a meeting. Besides that, the possibility of storing related reports to web repository is also favoured. This enables everyone to access the information they need faster and very easy.

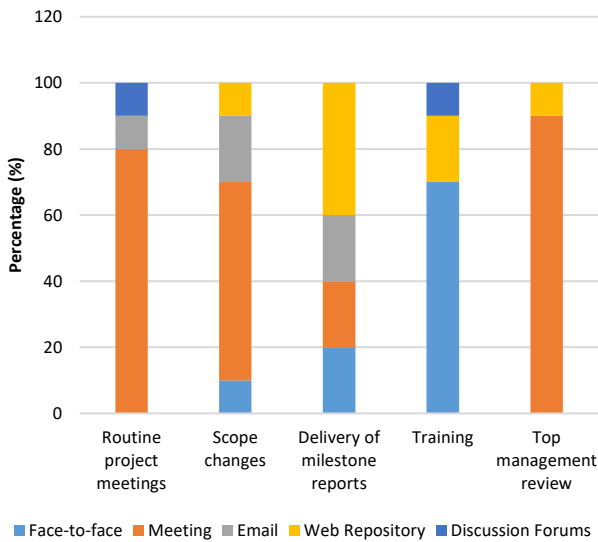


Figure 3: Effective Communication Mode for Outsourcing Project Activity

Figure 4 visualizes the results concerning the views of the respondents about the issues being discussed. 40% of them strongly disagreed that the communication mode does not contribute to a project’s success. Most of the respondents believed that in order to reduce information risks, communication is a very important factor and furthermore trusting a person with good technical communication skill is deemed necessary for the project to be successful.

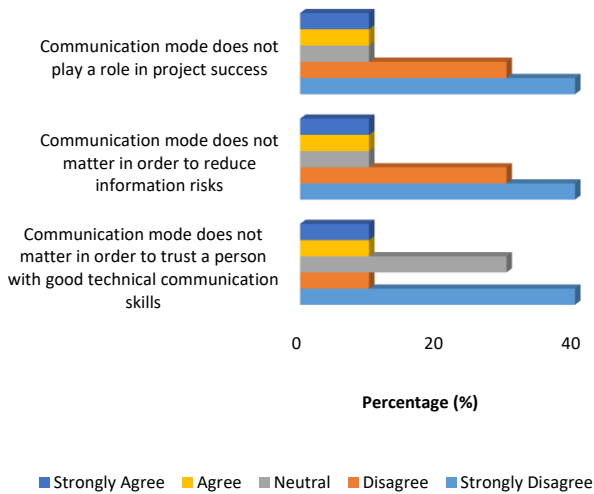


Figure 4: Views of the Respondents regarding Communication Mode towards the Highlighted Issues

About 40% strongly agreed that to increase trust among the different parties, face to face communication is seen as the most sensible thing to do. Direct communication is seen as very important if we want the project to be successful. Also, approximately 40% of the respondents believed that they need to meet a person from their vendor team in order to be able to trust them. With the trust, they can communicate with them more effectively. On top of that, they also pointed out that discussing issues via forums and web repositories seemed to work much better than by flooding the project discussions by emails. All these results are summarized in Figure 5.

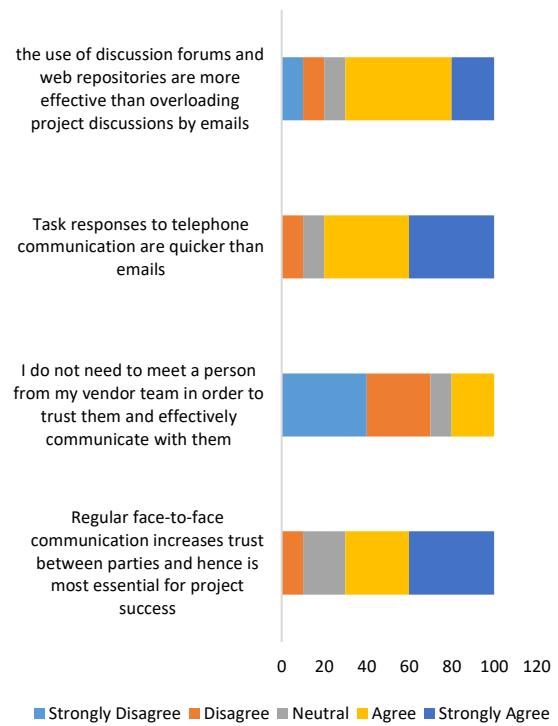


Figure 5: Communication Mode for Enhancing Trust for Outsourcing Project Activity

V. FRAMEWORK FOR PROJECT COMMUNICATION AMONG MULTI-VENDORS

The results from the questionnaire were analysed. We could clearly see that in order for an outsourced project to be successful, a very important element that needs to be incorporated during the development is effective communication. From the answers given by the respondents, we can deduce that majority of them are aware of how important it is to implement a good communication channel among the multi-vendors. However, they do not feel the motivation to show any effort to correct and improve the situation.

It was also found that the respondents have communication issues with their own top management especially the managers they are reporting directly to. This situation is not healthy as it could lead to many misunderstandings between the different parties and the wrong information could have been conveyed.

Another finding was the project team did not have the same understanding of the goal and objectives of the project. This might be due to the different levels of technical savoir faire and the lack of project experience. Another explanation might be because of personnel rotation during the project that introduced misinterpretations and some situations were difficult to understand.

Hence, what is need here is a framework that can manage the communication among the multi-vendors. The study showed us that we need to propose a suitable framework and that it should be the guideline for future communication among multi-vendors in an outsourced software project. What should be in the framework is how the communication among multi-vendors should be planned. Then, we need to provide in the framework, how information should be provided to the right people in the right format with the right emphases at the right time.

Figure 6 illustrates the overview of this framework. It shows how to choose the best communication methods for outsourced software project dealing with multi-vendors. The outcome of this framework is a good communication plan to be used by the stakeholders and the multi-vendors.

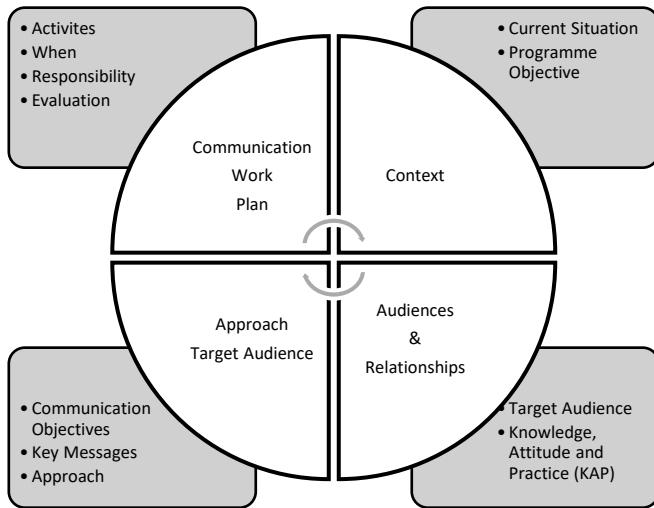


Figure 6: The Communication Framework among Multi-Vendors proposed

The above figure shows four main elements identified to improve multi-vendors communication. They are the context, approach target audience, audience & relationships and communication work plan. From the analysed results, it is found that in order to have an effective communication involving multi-vendors and stakeholders, all parties need to create knowledge and share it among them. This will help to better understand the actual situation of a certain issue, hence improve communication in the project.

Project managers can use this framework to identify the source of communication breakdown. Hence with the root cause of the problem found, the project manager can figure out what would be the best way to confront the situation and to come up with the necessary steps to handle the issue correctly.

The first thing to do is to consider the context as the big picture of the communication process. This is the first element identified. The project manager should spot the current state of the project, including what has been going on and propose changes when necessary. The impact of the changes, if they should take place, must be taken into consideration and resolve in advance if risk is associated. Once this has been done, the project manager needs to clarify the objectives of the proposed changes. They have to be aligned with the project goals. Once the clarifications have been finalized, then only the project manager can go ahead to communicate with the multi-vendors and the project team regarding the changes and their related issues.

The next thing to do for the project manager is to determine the target audience that will be affected by the changes and their related issues. Different vendors are affected by different issues. There is a need to identify which vendor is involved in certain specific tasks. The project manager will be the one determining which information to be channelled to which vendor. In order to do this, the project manager should call upon each vendor and explain to them their roles and responsibilities.

At the same time, the project manager needs to find out on the vendors' knowledge on the project related issues, their sentiment about the project and their practice and capability to perform the assigned job. It is also important to note their attitude to the changes in the project and how they react in order to obtain more information to understand the situation.

As soon as the project manager has identified the targeted audience, the communication objectives of the issue discussed can be determined. Communicating with the target audience will allow the project manager to explain about the changes in the project and what he plans in order for the project to be successful. The main messages containing the information needed to be conveyed to the right target audience. This will be briefed by the project manager. The targeted audience should be attentive and note down the information, suggestions and the requests specified by the project manager.

The project manager and the multi-vendors must together recognize any suitable approach to perform the information transfer using the right correct format. This is to ensure accurate information delivery. Referring to the survey results, the preference of most of the respondents was to attend a formal meeting session. They think that it is the best approach to communicate among multi-vendors. On behalf of the project manager, he has to take into account the number of potential communication means as an indicator to the complexity of a project's communication channels.

A formal activity that gathers all target audiences is needed to convey directly the important messages and to have a direct communication with them. This can be done as soon as the project manager has prepared all the key communication items and information to get across. The project manager also has to determine the proper communication channels to be used. Details of the activity have to be specified for example when the gathering is held, who will attendees and what roles will each of them play. There should be some people coordinating the activity and they will be of assistant throughout the gathering. Evaluation needs to be done as soon as the activity has ended. This is to find out how effective the communication was carried out.

The Vendor Project Communication Plan (VPCP) is the guideline consisting of the details of the information to be communicated, who is responsible for the communication, when the communication should take place and who will be the parties involved in the communication process. The project manager has to make sure that communication is carried out well during the project and if there should be any issue, he should take the necessary actions. Any new requirement that needs to be communicated must be documented in the VPCP. He is responsible for the VPCP.

During the SDLC, it is inevitable to encounter changes and to update some functionality related to for example personnel movement, changes in the scope and budget and the project is maturing and evolving. Once there are proposed changes that are approved, the project manager will be responsible to manage all the necessary work related to the changes according to the VPCP. The communication plan has to be updated. All related documents will have to undergo changes. The new plan must be distributed to the multi-vendors as soon as the change is approved to make sure that all the stakeholders and vendors are made aware and are informed correctly of the changes.

VI. CONCLUSION

In the world of project management today, it has become increasingly more important to increase the efforts towards effective communication especially when it involves many external parties or vendors. The process of communication and information flow is iterative and continues throughout the life cycle of the project itself. Without this, stakeholders, vendors, and the project team can be left out of decisions that have been made, as communication covers the effective exchange and understanding of information received among the multi-vendors.

An investigation was conducted to study the existing communication skills practices among the vendors from different organizations. It was necessary to design an instrument capable of determining the participants' communication knowledge and awareness levels. The quantitative approach was chosen to gather the existing communication skills practices data. The respondents' feedback was analyzed and used to better understand the work environment and how to better manage the multi-vendors outsourced project. A communication framework for the personnel involved in the project was developed and explained in detail.

Based on the organization's behavior, there many projects that are currently running involving many vendors in one project and unfortunately there is no proper communication process and procedure proposed let alone implemented. This situation really makes the project communication process unstructured and it was difficult to communicate with the different vendors and stakeholders effectively. It was also complicated for organization to develop a proper documentation plan due to the limitation of resources and ideas. This work will be the pioneer project proposing the appropriate framework and vendor project communication plan and hopefully the framework will be referred and used in another project dealing with multi-vendors in the future as the framework for multi-vendors project management communication recommended here is focused on the planning of project communication.

ACKNOWLEDGMENT

The paper is financially supported by Universiti Teknologi Malaysia under Research University Grant, Vote No: 09H70.

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