The role of communication in project management: validation of a communication management model for project management

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Abstract
Planning, managing, and monitoring communications are the recommended steps for communication in Projects. For this reason, Malluk [1], Odine [2] and Muszinska [3], among others, highlight the necessity of understanding project management and organizational communication from a holistic perspective with the purpose of allowing projects to have an organic management and be successful. Due to this fact, since 2020 researches have been working at Universidad Ean in a research project to demonstrate the importance of the role of communications in project management, that guarantees a holistic and organic integration. As a result of this investigation, this paper presents a communication model for communication management in projects, where communication will be seen as part constitutive of projects instead of a simple instrument.

Keywords: communication; project management; communication management.

El rol de la comunicación en la gestión de proyectos: validación de un modelo de gestión de las comunicaciones para la gestión de proyectos

Resumen
Planificar las comunicaciones, manejarlas y monitorearlas son los pasos recomendados para la gestión de las comunicaciones en la gestión de proyectos. Por ello Malluk [1], Odine [2] y Muszinska [3], entre otros, resaltan la necesidad de entender la gestión de proyectos y la comunicación organizacional desde una perspectiva holística para que los proyectos tengan un manejo orgánico y sean exitosos. A partir de esto, desde el 2020 se está trabajando en la Universidad Ean en una investigación que busca demostrar la importancia del rol de la comunicación en la gestión de proyectos, que garantice una integración holística y orgánica. Como resultado de esta investigación, en este artículo se presentará un modelo de comunicaciones para la gestión de proyectos en donde se ve la comunicación como constitutiva de los proyectos en lugar de ser un simple instrumento.

Palabras clave: comunicación; gestión de proyectos; gestión de las comunicaciones.

1 Introduction

Organizational communication is the key element to have an adequate project management in an organization. In this sense the PMBOK [4] establishes that if organizational communication occupies a central place in project management, each member of the project team will always be connected with its objectives, strategies and actions that lead to the success of such a project. That is also why, we find the explicit statement that the organizational communication is a critical factor for the successful project management in Remidez [5].

2 Research problem

The research problem of this paper indicates that organizational communication is not considered in corporate project management, in its true dimension, being relegated to

performing an instrumental role or to simply being considered as a tool. To a certain extent, Ezzat and Hussien [6] affirm that this problem is basically due to causes such as physical, linguistic, and cultural barriers among members of the organization that lead to the conscious or unconscious distortion of messages using ambiguous communication channels, when they are considered in project management, from the perspective of communication. This fact leads to the deficiency in feedback, lack of coordination in communications, and at the end, wrong communications management at the service of projects. Perhaps, one of the possible solutions to change the role of communications in project management, can be the application of a communication model having a holistic approach of project management and a strategic view of communications management.

3 State of art

To carry out successfully the corporate projects, the concurrence of several factors is required. The first factor to be considered is to properly manage the communications in the project.

First, it is necessary to understand the role of communication in organizations, and in corporate projects. According to the studies of Kheirandish, Avilagh and Nazemi [7], communication and organization are complementary aspects, and they interpenetrate each other. In addition, Bucata and Rizescu [8], state that communication is an essential tool in corporate management. Nebo, Nwankwo and Okonkwo [9], establish that communication is the key mechanism that makes possible the coordination and integration of the specialized teams and the different levels in the enterprise. Likewise, Kibe [10], affirms that organizational communication and its strategies perform a central role in the development of organizations.

In addition, different research projects show that there have been divergences between organizational communication and project development. Such is the case of the previously cited work of Kheirandish, Avilagh and Nazemi [7], where the authors draw attention about three categories of problems that arose in an Iranian oil company: structural problems related to excessive centralization, formality and rigid handling of communications and behavioral problems. The latter included barriers among people, created by attitudes and habits that affected communication and project development. Finally, they identified problems regarding the context manifested in cultural barriers, technical nature and those derived from the physical infrastructure of the workplace, affecting project communication management.

Malluk [1], points out that communication was not keeping in mind in its entire dimension in the projects of social intervention in the Colombian Atlantic coast. Odine [2], declares that many communicative problems are due to confusing and unclear messages that are not understood by employees affecting the corporate project development.

On the other hand, Rahman and Gamil [11] confirm that the lack of adequate communication in project management is due to the complex nature of the building sector industries.

Another issue was the inappropriate use of the technological information means. Moreover, they verified that a scenario with diversity of cultures within these companies made it difficult to manage communications, even more if the lack of availability of information on time for all staff is considered. Finally, they realized the poor planning of the communicative management with absence of clear and specific objectives with a communication plan. The most impressive conclusion was that in these companies a fear of communicating was confirmed, with the negative effect of the work stress having an impact on ineffective project management.

Subramanian and others, [12], joining the research in the same way that Rahman and Gamil showed that communications presented several problems in projects: poor communication management, absence of a coordinated communications plan; lack of an efficient platform for communications, absence of institutional support and different levels of education within the work teams that required an appropriate communicative treatment.

Now, Ahmad and others, [13], in their interest in analyzing the role of communication in project management conducted interviews with five project managers in order to evaluate the communication within them. The detected problems consisted of misunderstandings when spreading and analyzing information; absence of a communications plan that would guarantee the integration of the different phases of projects; communicative barriers due to the coexistence of diverse organizational cultures within the teams and the reluctance of high commands and managers to listen to the opinions and suggestions of employees of lower range.

According to the problems detected in the previously mentioned researches, it is perceived that in general, organizational communication is not adequately managed in the organization when managing projects. Therefore, difficulties arise that prevent projects from having an optimal development or that even though they can be finished within the agreed times, with the established resources, there is a notorious fatigue in the project members that could have been overcome with an adequate management of communications.

Consequently, and keeping in mind the previous background, it can be firmly concluded that the organizational communication has a central and fundamental role in the management of corporate projects and in the whole organization.

Likewise, the previous investigations demonstrate the need to propose a communications model in this research paper where the way by which organizational communication is articulated and related to project management can be clearly seen. This relationship must show that communication contribute to projects to be efficiently and effectively executed with a strategic view that favors the project members regardless of their role.

At this point, of this research paper, different issues of organizational communication in organizations and in project management have been examined. Now, a step forward is taken to clearly identify the relationship between organizational communication and project management, as follows.

4   Theoretical framework

Organizational communication in the life of organizations and specially in project management has been interpreted in different ways throughout the years.

To start with, communication has been considered either as a skill or as a factor, both as ingredients to obtain a good project management, Brill and others [14], Söderlund [15]. Not too far from this standpoint, we find Dow and Taylor [16], for whom communication is the process of compiling, storing, and distributing information on time. Regarding strategic communication, we have a clear indication that allows us to glimpse the link between organizational communication and project management in Salas [17]. This researcher states that nowadays, corporate communication and more specifically strategic communication is closer than ever to management. This is a noticeable fact because precisely project management is a part of management.

On the other hand, we have another modern perspective of organizational communication in Perez [18], proposing a bidirectional and symmetric organizational communication, where all levels of the organization can express themselves. Thus, an evolution in the perspectives of organizational communication can be appreciated coming to address conceptions such as in Zulch [19]. This researcher concludes in her investigation that organizational communication is indeed one of the capital foundations of project management.

In consequence, if we pretend to have a better comprehension of the role that organizational communication plays in project management, we must analyze it in depth, beyond the instrumental point of view. When doing so, it will be possible to glimpse the communication model that will allow an organization to manage projects.

The first step in this direction consists of understanding organizational communication as an inherent part of an organization. In fact, such conception can be appreciated not only in the works of Salas, Perez and Zulch, but also in the research of Ziek and Anderson [20]. They speak about the constitutive view or approach of communication inside an organization.

The fundamental premise of these authors consists of the fact that organizational communication has a constitutive nature within any organization and therefore in project management. This means that corporate communication is a constitutive and integral part of the manifested dialogue in organizations. Such a dialogue is understood as all the exchanges and interactions that occur among the members of the organization, even at the smallest levels. The constitutive approach interprets communication as constitutive within the organization and its key principle is that the organization is a discursive phenomenon that is built and expressed by means of communication.

The constitutive approach of Ziek and Anderson keeps in mind the works of Taylor and Cooren, [21], since the investigations of these last researchers are clear and convincing, when they affirm that an organization is itself an actor, where a discourse of social nature is permanently developed within the community. In other words, the organization as an actor expresses itself with an own, unique, and recognizable identity in such a discourse that always pursues a purpose because it has a definite intention.

Besides, Roman [22], establishes that the organizational dialogue is essential to have a genuine corporate communication. Furthermore, every corporate project is the natural setting for knowledge management and the way of managing such knowledge in the development of projects is by means of dialogue.

In addition to the constitutive approach as a general first aspect, a second theoretical foundation of the current research emerges as the aspect associated to the first one. This point of view arises from the work of Aakhus [23] and is based on the design of communication in organizations. For this reason, it is named "The design perspective", according to which communication is understood as a process with a clear beginning and end that is designed to fulfill the goals of the organization, in particular the management of projects. This communication design is based on the nature of interactions that appear among the members of the organization. Thus, the design perspective explains how the different parts of the organization and its members mutually built and prepare the communicative context through concrete actions that each one of them performs and how such a communicative context shapes and determines in turn the possible actions to undertake. Consequently, according to the design perspective, organizational communication outlines and shapes the dialogue with internal and external stakeholders and therefore, determines the actions, limits, and activities of each corporate project.

The third theoretical foundation of the current research is based on two of the seven traditions of communication of Craig´s work [24]. These traditions are rhetorical, semiotic, phenomenological, cybernetic, socio-psychological, socio-cultural and critic. Socio cultural and socio- psychological traditions have been chosen due to their closeness to the constitutive approach and the design perspective.

The socio-psychological tradition in Craig's perspective keeps in mind the expression, the interaction and the mutual influence that is present in communication. Hence, this third theoretical pillar of Craig is assembled in a special way with the constitutive approach of Ziek and Anderson. It has already been said that organizational communication occurs exactly in the dialogue of the different parts of the organization, but this dialogue is made up of large amounts of interactions, in which the behaviors of individuals shape the communication, both of those who emit messages as well as those who receive them. Communication is in few words, a process through which individuals influence each other.

In contrast, the socio-cultural tradition in Craig's work understands communication as a process in which reality is constantly created. This reality is not a fixed product in time, but the reality that is present within the organization due to the interactions of individuals is constantly shaped. In other words, organizational context determines communication and this in turn, accounts for a given context. In this way, the organizational culture is created, which generates values, meanings, and own symbols. The three theoretical pillars of the current work point to the fact that messages that are present in the organization, thanks to corporate communication, especially in project management, are

interpreted by virtue of subjective processes. Such interpretation is given in the continuous organizational dialogue in the development of a project. Besides, each individual, each team, and the organization with all its stakeholders create a world of mutually constructed meanings together according to the constitutive approach of Ziek and Anderson.

It is very important to consider now, the way by which communication management is understood and practiced by employees from the different levels in an organization. The reason for this attempt lies in the fact that there are several levels making up a hierarchical structure within an organization. Each level responds to a particular culture according to Craig's work [24], regarding the socio-cultural tradition. Besides, personnel in each hierarchical level is characterized by a proper psychological attribute, according to the socio psychological tradition in Craig´s work [24]. Furthermore, when considering different levels inside an organization, the need of designing the communication is a peremptory requirement, according to the Design Perspective in Aakhus [23]. All the above, framed within the Constitutive Approach in Ziek and Anderson [20], which understands communication as constitutive of every organization and project.

Several authors have considered and analyzed the fact of having different levels interacting inside the same organization, when managing projects. For example, Luthra and Singh [25], carry out a study in which the manner of managing communication between managers and senior managers is observed. The conclusion of the authors is that for senior managers, communication is very important and for managers, communication is important, but not as important as the previous. This fact leads to different approaches to communicating when managing projects, for example. For this reason, the proposed model for managing communications in project management, that will be proposed in this work highlights the importance of understanding communication with the same weight and importance for all levels inside an organization.

According to the topic studied in the current research, a communications management model in project management, will be introduced pretending to be enough strategic, and versatile to be adapted to any organization focused on project management.

5 Research methodology

This research project starts with the hybridization of qualitative and quantitative elements, based on a case study. For this reason, the different stages of project management were considered and analyzed, according to the guidelines of PMI, (beginning, planning, execution, and closing. The Delphie Method was applied, which consists of consulting to experts. In this case, the experts were project managers and participants in different projects. They were working for two companies from different economic sectors, one associated to education and the other to technology.

Semi structured interviews were applied, with the following parameters: from a list of candidates, the variables of condition and category of expert, were studied, keeping in mind the professional competence, the disposition to participate in this project, the analytic skill regarding the matter of study and the intention for cooperating in the research.

The target population, object of this research, had thirty candidates who met the characteristics related to the category of expert, whose years of experience were considered, related to this end, subject of this research, fluctuating between five and ten years, as well as the knowledge in projects and the corresponding update regarding the current project methodologies. Finally, ten persons were selected, who met the requirements, having the necessary knowledge about project management, with professional studies ranged between specialization, master, and PhD in project management.

Regarding this group of ten candidates, the following variables were analyzed: organizational climate, communicational aspects, conflict management and resolution, and traceability of the project. These variables were analyzed in the two instruments applied in the research: a semi-structured interview and a survey.

For the analysis of the information, multivariate techniques were applied, like the analysis of principal components, PCA, statistic technic of synthesis of information and relationship of variables, where the new principal components or factors will be the lineal combination of the original variables, and independent of each other, facilitating its analysis and interpretation. Similarly, the segmentation analysis was applied, composed by a set of technics to classify individuals or objects in homogeneous groups called clusters. Objects or individuals in the same cluster tend to be similar to each other, (high internal homogeneity inside the cluster), and different from objects or individuals of another cluster or group, (high external heterogeneity among clusters).

To validate the feasibility of performing the PCA, a Bartletts Sphericity test is carried out. Those results that present a high-test value, and whose reliability is less than 0.05, can be considered valid. For this case, the result of Chi-Square test is 4981.5 and P- value= 0. This indicates that the variables are correlated, and the analysis can continue.

Similarly, the KMO test was carried out. The KMO test (Kaiser, Meyer, Olkin), relates the correlation coefficients r_{jh} observed between the variables X_j and X_h, and the partial correlation coefficients a_{jh} between the variables X_j and X_h. The closer to 1, the value obtained from the KMO test, implies that the relationship between the variables is high. If $KMO \geq 0.9$ the test is very good; remarkable for $KMO \geq 0.8$; median for $KMO \geq 0.7$; low for $KMO \geq 0.6$; and very low for $KMO < 0.5$. For this case:

Kaiser-Meyer-Olkin factor adequacy MSA for each item:

X1	X2	X3	X4	X5	X6
	X7	X8	X9	X10	X11
	X12				
0,94	0.91	0.90	0.93	0.94	0.88
	0.86	0.86	0.95	0.91	0.94
	0.92				

This test confirms that it was adequate to carry out the aforementioned analysis.

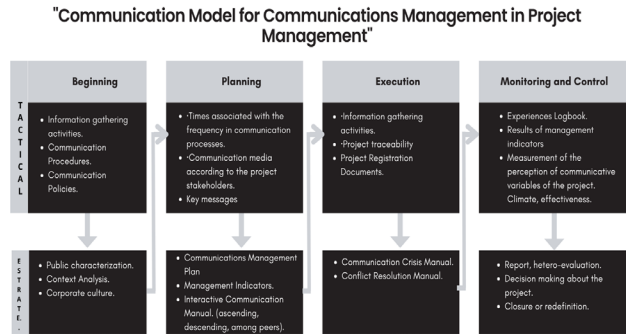"Communication Model for Communications Management in Project Management"

Figure 1.
Source: the authors.

6   Results

For the development of the investigation, the validation of the communication management model in project management is proposed. The model is presented in Fig. 1. This model is composed of two great variables, one tactic and the other one strategic which are integrated in a harmonious way to the stages of project management.

6.1. Roadmap

In addition, the following roadmap is presented as part of the validation of the proposed model, in order to make the model operative.

6.2. Conception stage

The conception stage of a project is an essential part of it. In this stage, the general purpose and the specific objectives of the project are identified, and according to that, the transversal message must begin to be constructed, according to the strategic plan of the organization. To this end, it is important to have meetings and trainings and write in minutes what is discussed. The´ll result a communicative strategy aligned with the philosophical principles of the organization.

6.3. Beginning stage

Once the previous requirements are present in the conception stage, the beginning phase starts. The communicative strategy consists of characterizing all stakeholders, both external and internal, and in parallel, defining contexts and cultural environments that are going to participate along the project. In this sense, it is crucial to define the profiles of the participants in the project, as well as all public that will be receptor of the messages. According to the above, different types of communication are determined, which will be put into practice in the project, and then, the standardization of the means of communication begins.

For that reason, interviews are applied, and communication policies and procedures are made official. In this stage, the design of the key messages of the project starts. The characterization of stakeholders is carried out by means of formal activities such as talks, and informal activities such as recreational activities or work lunches in order to identify

contexts, cultures, and profiles. In this phase, the organization chart of the project is communicated in the first instance to the stakeholders. Everything identified and discussed is recorded in minutes. The first feedbacks and evaluations are done in order to ensure the first learnings of the project team.

6.4. Planning stage

The planning stage keeps relationship with the design of the communications manual, the crises manual, the conflict resolution manual, and in general the project communication plan with its management indicators, which will be reflected in the design of the project communication schedule, articulated with the general project schedule. This implies the definition of times and frequencies of messages and other communicative acts.

In this stage, the means of communication that will be employed in the project are defined, according to the external and internal stakeholders. In relation to this, the effectiveness indicators of the chosen means of communication are defined. The design of key messages that will be specific to the project continues. In this phase, feedbacks and evaluations are also made, everything being recorded in minutes and reports.

6.5. Execution stage

The implementation of the communication strategy is designed, which is reflected in instruments such as interviews, meetings, communications, and e-mails. The formal traceability of the project begins, through project registration documents. Messages and follow up corresponding to change management are also designed. Evaluations and feedbacks are accompanied by management indicators. Minutes and reports continue being implemented.

6.6. Monitoring and control stage

Inside the communications plan, the monitoring plan of communications is designed. Reports, hetero-evaluations, and decision-making protocols with their diffusion in the project are designed. The foregoing is materialized with the implementation of the experience logbook, which permits to do a follow up, thanks to the recording of the experiences of the project and in particular of the communications management. The results of management indicators are also available. This phase contemplates evaluations of the project teams and feedbacks, as in the previous ones. The knowledge acquired is recorded in reports and minutes.

6.7. Closing stage

Management indicators are analyzed to measure the degree of efficiency of the communications strategy throughout the project. Therefore, a general evaluation of such strategy is made throughout the project. The result of the communicative management is conveyed by formal means such as email-s. Finally, closing meetings are held with the respective feedbacks, leaving everything constituted in reports and minutes.
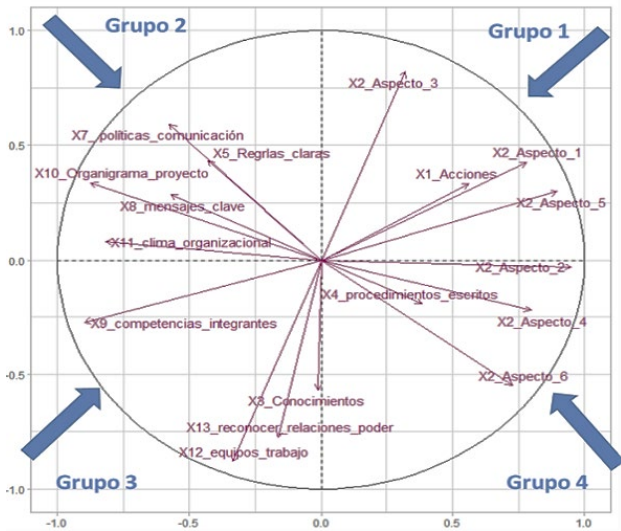
Figure 2: map of variables.
Source: the authors.

6.8. Post-closing stage

At this point, a general balance is made to share with all participants in the project, experiences, learnings, and testimonies. Concerns, proposals, and claims are manifested in order to serve as input in future projects and designs of communication plans. Everything is registered in the experience's logbook. The last minutes and reports are socialized.

6.9. Validation with experts

The stage of beginning was validated with experts, obtaining the following results. In this initial study, and using the principal components technique, and according to its projection on the first two principal components (which capture close to 75% of the total variation), it is possible to establish four groups of variables, as observed in Fig. 2.

It is necessary to consider that the location of the groups in the plane indicates the relationship between the variables analyzed, in this way:

- Groups 1, 2 and 4 are independent, that is, their behavior is not affected by each other.
- Groups 3, 2 and 4 are independent, that is, their behavior is not affected by each other.
- Groups 1 and 3 are inverse, that is, their behavior is opposite.
- Groups 2 and 4 are inverse, that is, their behavior is opposite.

In this way, the groups are formed by the following variables:

Group 1: which of the following actions do you carry out to define the personnel that will integrate the project? Answer associated with aspects 1, 3 and 5, which are interviews, professional profile review, random assignment of personnel.

Group 2: are there clear and documented rules on how the media are used within the organization? Are there communication policies that require the use of key messages in each of the projects that are carried out in your area? What are the key messages that the organization has and that are

always taken to project managements, from your area? How is the project organization chart established and communicated? How would you rate the organizational climate regarding project management?

Group 3. what technical knowledge different from those related to Project management, do you consider may impact its success or failure? Currently in your area, what are the written procedures to develop the management of your projects? What are the competencies of the members of the project regarding communication and conflict management? Do you consider individual cultural aspects and their relationship with the culture of the organization for the formation of work teams? Indicate if the project communications allow to recognize the formal and informal power relations, between the members of the project teams.

Group 4: rate the importance of the following competencies of the team that integrate the project for project development from 1 to 10: Currently in your area, what are the written procedures with which you develop the management of your projects? What are the communication practices most used by the company for project management?

Once the groups and their relationships are stablished, it can be seen that three clusters' trends are created as showed in Fig. 3:

It can be seen that the answers associated with the aspects in **cluster 1**: characteristics of the personnel that make up the projects; staff competencies; and specific knowledge to participate in projects from the perspective of project management, their answers recognize the clarity that it is necessary to have and recognize experience from the professional perspective, without giving importance to skills associated with communication and social skills which remain in the background, without clear recognition within the answers obtained.

In cluster 2, the following aspects are grouped: communication procedures for its management, rules for the use of media internally, most recurring communication practices and communication policies. As great findings in the two organizations, communication practices associated with meetings, WhatsApp chats, are used, but without procedures or a clear communication policy, much less a policy that has a strategic perspective. These practices are carried out instrumentally, without association to the characteristics of the project's stakeholders and without measuring their effectiveness. As a common point between
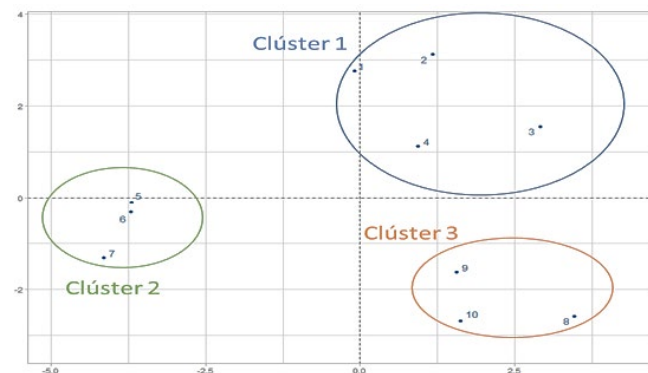

Figure 3: cluster by trend of variables.
Source: the authors.

experts of both organizations, the communication plan is proposed without measurement indicators and, away from the communications needs that the project requires from its enlistment, initiation, planning, execution, monitoring and control.

In cluster 3, we found the following topics related with: key messages for communication, competences of members of the project for conflict management; communication of the project organization chart. In both organizations experts agree that since there are no manuals, procedures and policies on communication management, its means, and its relationship with the strategic planning of the organization, the messages that are considered key are temporary and one hundred percent only related to the project. Key messages that could migrate from project to project are not considered, those ones that could reaffirm the organizational aspects and enhance greater adherence from members of the organization to the projects belonging to it.

On the other hand, in cluster 3 it is observed that for facing conflict management, in the technology company it is considered normal in the development of the project, to have conflicts which are solved during the course and end of the project. In the educational organization, for its part, an alternative to cope to conflict management is to consult the human resources area, but there are no established protocols that activate actions aimed at mitigating possible conflicts that may affect the organizational schedule in project management at an early stage, so when they arise, this generates significant delays in the execution and closure of the project.

Finally, it is observed that the variables associated with the questions: are individual cultural aspects and their relationship with the organizational culture considered for the formation of the work teams? Do project communications make it possible to recognize power relationships among project team members? And are climate and communication variables measured at the end of the project? were left without representative response, revealing that these are aspects that are not considered in both organizations, and their contribution to the success of project management is unknown. By not establishing indicators of effectiveness and efficiency of the communication processes implemented during project management and, in turn, by not measuring the organizational culture of the project, the strategic nature that communication can bring to management is left aside of projects understanding that with strategic communication, projects will be executed on time and with the necessary resources, avoiding reprocessing.

7 Conclusions

It is evident that communication, despite the place it has gained within the organizations of the different economic sectors still has a long and forceful path to follow within project management. It is not enough to make a communications plan, because this remains in the tactical level and its execution becomes poor and uninteresting, unless communications are managed from a strategic point of view to contribute to project management and organizational success.

As observed in the document, it is perceived that in general, organizational communication is not adequately managed in organizations when managing projects and therefore, inconveniences arise that prevent projects from having an optimal development, or that despite coming to an end, within the agreed times, and established resources, a notorious fatigue of the members of the project is present that could be overcome with adequate communication management.

Finally, the findings evidenced when consulting experts seem to repeat what Ahmad et al [13] detected: problems related to misunderstandings when disseminating and analyzing information; absence of a communications plan that would guarantee a good performance of the different phases of the project; communication barriers due to the coexistence of different organizational cultures within the teams, and the resistance of senior managers to listen to the opinions and suggestions of lower ranking employees.

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