Communications management in the success of projects. Case study: Provincial university

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Abstract. The communication project is a key factor to achieve good results in the development of a project; this includes the processes of planning, collecting, creating, storing, controlling and distributing information in a timely manner. In this context, the general objective of the research was to evaluate the communications management for the success of projects in a provincial university. In the first instance, communications assessment at the institutional level is carried out, the type of requirements and the use of communication methods are determined and then a communications plan is proposed. The type of research is descriptive, where a series of variables are selected, each of them are measured independently in order to describe them. As a result of the research, those involved in carrying out the projects were identified, it was obtained that the management of communications ensures a better distribution of information at all levels of the institution, in addition, the design of the communications plan allows the information to be transmitted efficiently and assertively.

1. Introduction
The evolution in project management has focused on having a broader and more participative vision of each of the interested parties, where the traditional scheme of paternalistic and authoritarian leadership has changed for a participative and transformational leadership, where communication management has great importance to achieve what is called a "Transparent company", based on values of clear and open communication [1].

Within the definitions of communication are communication is a fact of relationships in organizations, which are established, maintained and fostered through it [2]. Communication is the mutual activation of coordinated behavior that occurs among the members of a social unit [3]. It is the process of construction and of differences in meaning, where the need of the actors is emphasized [4]. Communication connects people, constructing concepts and generating ways of acting [5]. From these definitions, it can be inferred that communication is a key process in an organization made up of communities and social groups, where it is necessary to plan, manage and evaluate both internal and external information flows in order to share ideas and understand adverse situations that may arise.

The management of communications has become one of the key success factors in projects, where tools, instruments and actions are defined to be used in the development of the project [6]. Communication plays an important role in the organization, allowing cooperation and consensus among stakeholders, which facilitates the processes of planning, implementation, monitoring and control of projects, to achieve the intended objectives [7]. For sustainability and business growth, organizations must maintain relationships of trust and integrity with customers, employees, suppliers...
and shareholders, oriented towards compliance with policies and performance standards. Therefore, there should be a communications plan that contemplates all forms and modalities of communication that will be used to interact with its stakeholders [8]. The previous authors express that communication strengthens the relationships between the stakeholders of the Project, articulating their perspectives, interests and needs, both for the achievement of the scope of the project and for the human development of each one of them. Therefore, communication management has become a fundamental aspect of project management, where good practices must be implemented in order to achieve successful projects [9].

The Project Management Institute, in the PMBOK guide, considers communications management to be one of the most important areas of knowledge for the successful completion of projects. This area includes the processes of generation, collection, distribution, storage and final delivery of project information [10]. Within the possible dimensions that can work the management of communications in a project are internal and external, formal and informal, vertical and horizontal, official and unofficial, written and oral, verbal and non-verbal. Several authors have identified that the absence of adequate communications management in organizations and projects have a negative impact on aspects such as: inadequate identification of project requirements; conflicts among team members due to lack of collaboration, respect, and trust; failure to achieve the proposed objectives, hindered effectiveness of project offices, low level of maturity of organizations in project management [11-16]. Therefore, it is important that organizations establish a communications plan that facilitates the articulation of organizational communication strategies with the needs of the project, understanding and effective interaction between internal and external actors, as a key factor in the success of the project.

The general objective of this research was to evaluate the management of communications for the success of projects in a provincial university, based on the measurement of Harold Kerzner's project management maturity model (PMMM), which analyzed the factors of maturity, methodology, tools for project management and project management office (PMO) [17,18].

2. Materials and methods

2.1. Analysis of communications in the institution

2.1.1. Identification of stakeholders. Identifying stakeholders is a periodic process of characterization, analysis and documentation of information relevant to the interests, participation, perceived problems, positions, power, influence and impact of the actor related to the project. This process also allows the project team to identify the appropriate approach to involve each stakeholder or group of stakeholders [10].

2.1.2. Prioritise stakeholders. The prioritization of those involved is necessary for the development of a project, taking into account project size, rotation or changes of community members, relationships between those involved and the project team [10].

2.1.3. Evaluation of communications management. In order to assess the management of communications, a series of questions were asked, related to four factors: maturity, methodology, tools and the PMO. The assessment ranges are thus determined: If the answer is "a" the assigned value is 2 points; if the answer is "b" the assigned value is 4 points; if the answer is "c" the assigned value is 6 points; if the answer is "d" the assigned value is 8 points and if the answer is "e" the assigned value is 10 points [17].

2.2. Communications management plan

This is an important component of the project management plan because it details how communications within the project will be planned, distributed, effected and monitored effectively; it
includes information requirements, motive, information, frequency, managers, methods or technologies, resources, glossary, flowcharts and constraints [10].

2.3. Types and requirements of communication with stakeholders

There are different mechanisms that allow the exchange of information, among which is the written form, verbal, non-verbal, through means or gestures. At the same time, starting from the fact that communication takes place throughout the project, some dimensions can be identified such as internal or external, formal or informal, official or unofficial, written or oral and the hierarchical approach (ascending, descending or horizontal) [10]. Communication requirements establish the needs of those involved; these can be identified through the information requirements of each participating actor, communication channels, hierarchical levels, number of people, location, internal or external information needs and legal requirements.

2.4. Use of communication methods and technologies

There are different methods for transmitting information, such as interactive communication where information is exchanged between two or more parties in real time, the push type where the information is distributed directly to those who require it and the pull type used for large and complex volumes of information or large audiences, here the receivers according to their criteria access the content. On the other hand, it is necessary to apply different approaches according to the requirement of the interested parties, as they are interpersonal, directed to small groups, in a massive way or through networks and social computing. In terms of technologies, the factors influencing their selection are the urgency of the need for information, availability and reliability, ease of use for participants, the project environment and confidentiality [10].

3. Results and discussion

3.1. Analysis of communications in the institution

3.1.1. Identification of stakeholders

3.1.1.1. Interns. This group includes the actors who are part of the faculty of engineering and architecture. Dean of the Faculty of Engineering, department directors, program directors, program coordinators, teachers and the Faculty council.

3.1.1.2. External. These are those institutional, public or private actors who are not part of the faculty, but who have an interest in the development of the projects. Academic vice-rector-Rectory, Research Vice-Rectory, Social Interaction Vice-Rectory, planning office and COLCIENCIAS.

3.1.2. Prioritizing stakeholders. For this analysis, a Table of power/interest, influence/impact was constructed, considering four variables, the degree of interest, power, influence and impact. See Table 1.

3.1.3. Evaluation of communications management. Taking into account the University and specifically the faculty of engineering, an instrument is applied to evaluate the management of communications is applied an instrument aimed at internal and external stakeholders, focusing on factors such as maturity, tools, methodology for project management and PMO. The results obtained are presented in Figure 1. Starting from the ranges of valuation given in point 2.1.3, it can be identified that the minimum value for each factor is 2 and the maximum is 10, in this order of ideas it is observed that:
Table 1. List of variables.

| Involved                  | Impact | Interest | Power | Influence |
|---------------------------|--------|----------|-------|-----------|
| Dean                      | High   | High     | High  | High      |
| Department directors      | High   | High     | Intermediate | Intermediate |
| Program directors         | High   | High     | Intermediate | Intermediate |
| Program coordinators      | High   | High     | Intermediate | Intermediate |
| Teachers                  | Intermediate | High   | Low   | Low       |
| Faculty council           | Intermediate | High   | High  | Intermediate |
| Academic vice-rector      | Intermediate | Low   | Intermediate | Low       |
| Research vice-rector      | Intermediate | Low   | Intermediate | Intermediate |
| Social interaction vicerector | Intermediate | Low   | Intermediate | Low       |
| Planning office           | Low    | Low      | Low   | Low       |
| COLCIENCIAS               | Intermediate | Low   | Low   | Low       |

3.1.3.1. Level of maturity. The 6-point rating indicates that the information is communicated at a general level but it is necessary to work so that it is assertive and reaches the appropriate person. In addition, the institution's directors are directly involved in the development of projects and the lessons learned should be better incorporated into projects, programs, and portfolios.

3.1.3.2. Project management tools. However, although software tools such as spreadsheets, word processors, presentation slides are used, there is no specialized project software.

3.1.3.3. Project management methodology. The 5-point rating indicates that each program has its own methodology for project management, each project manager keeps the main project documents, but there is no good management of lessons learned.

3.1.3.4. PMO. The rating of 4 points indicates that with respect to the flow of information, communications are established directly between those involved, through e-mails or the use of institutional means of communication.

3.2. Communications management plan
The plan is based on the information needs and requirements of stakeholders, in order to have effective and assertive communication at all levels of the organization, as well as externally. The need for and methods of communicating information can vary according to the stakeholder, so there is talk of effective communication, understood as one that will present information to the right people, in the right format and at the right time. In the case of the Faculty of Engineering and Architecture, internal communication is done at the three levels: horizontal, descending and ascending:
3.2.1. **Horizontal.** The information is communicated continuously according to the need for communication, usually on a daily basis, fluently by e-mail.

3.2.2. **Descending.** Weekly or monthly meetings are held depending on the type of information that needs to be transmitted. Via email is constant as required.

3.2.3. **Ascending.** The Communication is through periodic meetings and by e-mail in a formal and organized manner. The communications plan for the faculty consists of the definition of information needs and how they can be structured for better management. The requirements and factors will be recorded in the communications matrix, whose objective is to be used as a guide for the information that must be communicated, the form, to whom and when it must be communicated. Based on the PMBOK guidelines [10], this document plans horizontal, descending and ascending communications, considering strategies for informative actions. As can be seen in Table 2.

**Table 2. Communications matrix.**

| Type of communication          | Directed to                        | Frequency | Responsible                  |
|--------------------------------|------------------------------------|-----------|------------------------------|
| Administrative processes       | Teachers, Directors                | Daily     | Dean                         |
| Academic Processes             | Teachers, Directors                | Week      | Academic vice-rector and Dean|
| Self-assessment and accreditation process | Academic vice-rector              | Quarterly | Dean and department directors|
| Teacher meetings               | Teachers, Directors                | Monthly   | Dean                         |
| Internal processes of the faculty | Academic vice-rector, Teachers    | Week      | Faculty council              |
| Outreach programmes and projects | Dean, Department directors      | Quarterly | Planning office              |
| Reports                        | Department directors               | Monthly   | Dean                         |
| Internal calls for research    | Dean, Directors                    | Quarterly | Research vice-rector         |
| External calls for research    | Research vice-rector and research teaching staff | Half-yearly | COLCIENCIAS                  |
| Research results               | Teachers, Directors                | Half-yearly | Research vice-rector         |
| Calls for social interaction   | Deans, Teachers, Directors         | Quarterly | Social interaction vice-rector|
| Change requests                | Department directors               | At the end of the project | Dean |

3.3. **Types and requirements of communication with stakeholders**

In the requirements matrix the information of the different information needs of each involved in the project is captured, as can be seen in Table 3.

3.4. **Use of communication methods and technologies**

3.4.1. **Methods.** There are several methods for sharing information among those involved; in this case, they will be used in the following way:

3.4.1.1. **Interactive communication.** It is an efficient way of transmitting information to those involved about specific topics, through meetings, telephone calls, messages, etc.

3.4.1.2. **Push communication.** The information is sent to specific groups or individuals, but does not guarantee that it will be understood. Includes e-mails, memos, minutes, reports, and web communications.
3.4.1.3. **Pull communication.** This involves transmitting large volumes of information, including use of intranet and website.

3.4.2. **Communication technologies.** The use of technology to transmit information is very important and depends on the environment, the means available, compatibility, accessibility, degree of confidentiality of both the sender and the receiver. This will be done through the use of the institution's technological platform, intranet, e-mails, telephone calls, as well as the means of communication available.

**Table 3.** Matrix of information requirements of those involved.

| Involved               | Type of information | Information channel | Frequency       |
|-----------------------|---------------------|---------------------|----------------|
|                       | Gen. | Adm. | Polit. | Email | Infor. | Reun. | Web |
| Dean                  | X    | X    | X      | X     | X      | X     | X   | Daily |
| Department directors  | X    | X    | X      | X     | X      |       |     | Weekly mind |
| Program directors     | X    | X    | X      | X     | X      |       |     | Occasional mind |
| Program coordinators  | X    | X    | X      | X     | X      |       |     | Occasional mind |
| Teachers              | X    | X    | X      | X     | X      |       |     | Occasional mind |
| Faculty council       | X    | X    | X      | X     | X      | X     | X   | Occasional mind |
| Academic vice-rector   | X    | X    | X      | X     | X      | X     |     | Week |
| Research Vice-Rectory  | X    | X    | X      |       | X      |     | X   | mind |
| Social interaction vice-rectory | X | X | X | X | X | Occasional mind |
| Planning office       | X    | X    | X      | X     | X      |       |     | Occasional mind |
| COLCIENCIAS           | X    | X    | X      |       |       |       |     | Occasional mind |

4. **Conclusions**

The communication is a key process to achieve excellent results within organizations and projects, when it is effective, timely and assertive ensures good decision making, allowing an improvement in the generation of ideas, plans, projects, goals and strategies. With the application of the methodology established in the PMBOK were identified those involved in the development of the projects of the faculty, as well as evaluating communications at the institutional level, resulting in what, although you have access to information, the use of tools and technologies in project matters is limited, therefore, it is necessary to work so that this is assertive and reaches who corresponds. Subsequently, a communications plan is formulated as an organizational tool for the efficient transmission of information. Likewise, the use of a common language, motivation, the acquisition of knowledge and professionalization in project management strengthen human resources and allow for the development of successful projects. Documenting positive and negative lessons learned makes it possible to have a good development in the projects or to avoid making mistakes in the future. To the same extent, good practices allow the application of methodologies that have been successful in similar projects.

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