

CASE STUDY OF COMMUNICATIONS MANAGEMENT IN A REAL ESTATE CONSTRUCTION COMPANY IN SOUTHEAST MEXICO

Rómel Solís-Carcaño

Héctor Cifuentes-López

José Antonio González-Fajardo

Selene Audeves-Pérez

Nicolás Zaragoza-Griffé

All content in this magazine is licensed under a Creative Commons Attribution License. Attribution-Non-Commercial-Non-Derivatives 4.0 International (CC BY-NC-ND 4.0).



Abstract: Construction is an industry that is developed based on projects, which favors the interaction of people who, in general, do not know each other and who work as a team for a short period of time; This temporal dimension hinders the phenomenon of communication, which is already complex due to the use of technical language, cultural differences and noise. All of the above results in job stress, information overlaps, poor employment relationships, and decreased productivity. The objective of this study was to evaluate the communication within a leading real estate construction company in the southeast of Mexico, to identify opportunities for improvement. Communication was observed in the context of eight processes that include design, construction, and cost control activities; The general perception of the employees in relation to the internal communication of the organization was also evaluated. It was concluded that the barriers to communication is the dimension in which the company must start working to improve its operations and that it must also review its organization and prepare the operations and procedures manual to standardize them and improve their efficiency.

Keywords: Communication, business, project management, construction.

INTRODUCTION

Communication is essential for the integration of managerial functions, since it is necessary to spread the goals of the company, develop action plans, organize human resources, direct operations and create a climate in which people want to contribute (Koontz et al., 2012). Regarding the latter, Kreps et al. (1995) have emphasized that communication is the main tool used to persuade employees to cooperate, in order to achieve prosperity and/or survival, which are the fundamental goals of organizations.

On the other hand, it is necessary to manage communication in companies at an operational level, to provide necessary information for decision-making, and thus reinforce the leadership of managers (Rahman & Gamil, 2019). Currently it is recognized that in every organization different communication flows are generated, the most important being: the vertical communication that occurs between bosses and subordinates, which can be descending or ascending; the horizontal communication that is generated between employees of the same level in the organization; and diagonal communication that occurs between employees of different levels and areas.

From its conception to its completion, construction projects generate and transfer thousands of data between the participating people; hence the success in its development depends, to a large extent, on effective communication between individuals, teams and organizations that collaborate to materialize it.

Effective communication is a social skill that implies a correct interaction between people (Hargie, 1986); It consists of managing to transmit a message in an understandable and clear way for the receiver, without causing doubts, confusion or possible wrong interpretations. In order to overcome the barriers to communication, it is necessary for the senders of the messages to be clear about what they want to communicate; that the encoding of the message is done with familiar symbols; to know the points of view and needs of the receivers; use language and tone congruent with the message; listen and get feedback; and consider the emotions and motivations of the recipients.

The fragmented and dynamic nature of the construction industry makes the study of information exchange processes of great importance and interest for all

involved (Hoezen et al., 2006); since poor communication can cause, among other effects, high work stress, cost overruns in the work, information overlaps, delays in the duration of the project, disputes and poor employment relationship between those involved and, therefore, a decrease in productivity.

Studies by the Australian Association of Engineers concluded that poor communication and inadequate data interoperability contribute to underperforming construction industry performance; In addition, the above causes adversarial behavior among the people involved in the projects, instead of having a climate of collaboration (Engineers Australia, 2005).

According to Hoezen et al. (2006) there are four reasons why communication in construction organizations must be studied and improved:

- Good communication in the early phases of the projects will positively influence the quality of the information perceived by the investors involved.
- Good quality communication of instructions will lead to better decision making.
- Good communication favors the solution of doubts or inconsistencies detected when reviewing the plans and specifications during construction.
- More open communication at all levels, to lead to better technical solutions and innovations.

The objective of this study was to evaluate the communication within a leading real estate construction company in the southeast of Mexico, to identify opportunities for improvement.

METHODOLOGY

The research consisted of a case study,

with the purpose of obtaining concrete and contextualized knowledge about the phenomenon of communication in a real estate construction company (Chaves, 2012). The company that was selected performs all the necessary functions for the development of construction projects such as: land acquisition, zoning, design, engineering development, financing, construction, and the sale or lease of the property.

The methodology consisted of two parts: in the first, communication was studied in a contextualized way in the processes that were judged to be more related to the execution phase of the projects; and in the second, the general perception of the employees in relation to the internal communication of the organization was evaluated, a concept is defined as the process of bidirectional flow of information shared and understood in the different areas of an organization (Brandolini et al., 2009).

In the first part, three functional areas of the company were studied: Projects, Construction and Audit; and within these, eight processes, which can be found in Table 1. An open questionnaire was applied to forty-five of the employees involved in the selected processes in order to obtain information about the means of communication they use, the communication difficulties they face and the negative effects of communication inefficiencies.

In the second part of the methodology, to evaluate the organization's internal communication, a standardized closed questionnaire was applied to a sample of fifteen employees from the same three functional areas – six civil engineers, six architects, two electromechanical engineers and one accountant. The instrument used was based on a model that considers internal communication made up of five dimensions and 34 items: Vertical-descending

communication (10 items), Vertical-ascending communication (6 items), Horizontal-diagonal communication (4 items), Barriers communication (10 items) and Feedback (4 items); its internal consistency being validated by its authors through Cronbach's Alpha coefficient, from which they obtained a satisfactory value of 0.84 (Di Nardo, 2005; Zamora & Cedillo, 2020). In its application, the items of the instrument were measured on a Likert-type scale, with values from 1 to 4 (from totally disagree to totally agree).

RESULTS

DESCRIPTION OF THE CASE STUDY

The company that was selected to carry out the study is one of the most recognized real estate construction companies in the southeast of Mexico. It was created more than 20 years ago and has developed projects in a large part of the country, and in some others, such as Spain and Belize. At the time the study began, it was executing 31 projects.

The company is headed by an Executive Director (CEO), with a General Director at a second hierarchical level, and ten Area Directors and an Audit Manager at a third level; the areas are as follows: Projects, Architecture, Construction, Marketing, Investments, Administration and Finance, Legal Affairs, Human Resources, Information Technology Systems and Security. In this study, it was chosen to investigate communication in the Projects and Construction departments, and in the Audit Department. Figures 1, 2 and 3 present the members of these functional areas, with their hierarchical relationships.

COMMUNICATION IN PROCESSES

The eight processes that were studied are briefly described below:

Control of the cost of the project.- It consists of monitoring the cost of the project through the use of an ERP software (PMWeb®)

with which economic resources are defined and assigned to the budget items, according to a base budget.

Hiring.- Consists of assigning contracts for services, materials or equipment to the subcontracting companies that best meet the parameters of time, cost and quality, to ensure compliance with the project objectives.

Change orders to the budget.- It consists of increasing the amount of the budget items, when the authorized economic resources are exceeded; Changes can be between batches or by increasing the project budget.

Authorization of the estimates.- It consists of the review of the collection documents presented by the subcontractors and the respective authorizations of the payments for the works or services rendered in the project.

Distribution and control of project information.- It consists of providing all those involved with the necessary information for the execution of the project, as well as monitoring the use made of it. Includes information contained in preliminary study reports, design documents, calculation reports, project plans, renders, information requests, submittals, bulletins, etc.

Requests for information (RFI).- Consists of satisfying the needs of the construction area, regarding incomplete information, doubts or ambiguities contained in the components of the executive project.

Submittals.- It consists of ruling on and responding to subcontractors on technical matters, such as an improvement proposal, verification of data, a request for approval, etc.

Issuance of bulletins.- Consists of the distribution of new information of general interest that arises as a result of specific events, such as work meetings, work reviews, changes to the project, RFI(s), etc.

As a result of the application of the questionnaire for the study of communication in the processes of the three selected functional

Process	Sample
Project cost control.	Two Project Managers Two project managers
Hiring.	A Cost and Budget Manager Two Project Managers Two project managers
Change orders to the budget.	Two Project Managers Two project managers
Authorization of estimates.	Two construction auditors Three Construction Supervisors
Distribution and control of project information.	Two Managers of documentary control Four Project Coordinators
information requests.	Four Project Coordinators Three Construction Supervisors
Submittals.	Four Project Coordinators Three Construction Supervisors
Issuance of bulletins.	Four Project Coordinators Three Construction Supervisors

Table 1.- Personnel interviewed about communication in the processes studied.

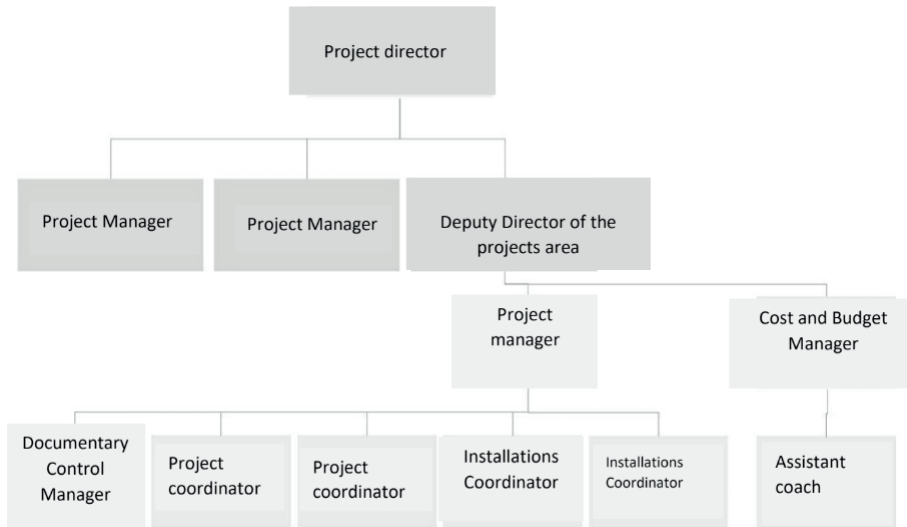


Figure 1.- Organizational chart of the Project Management.

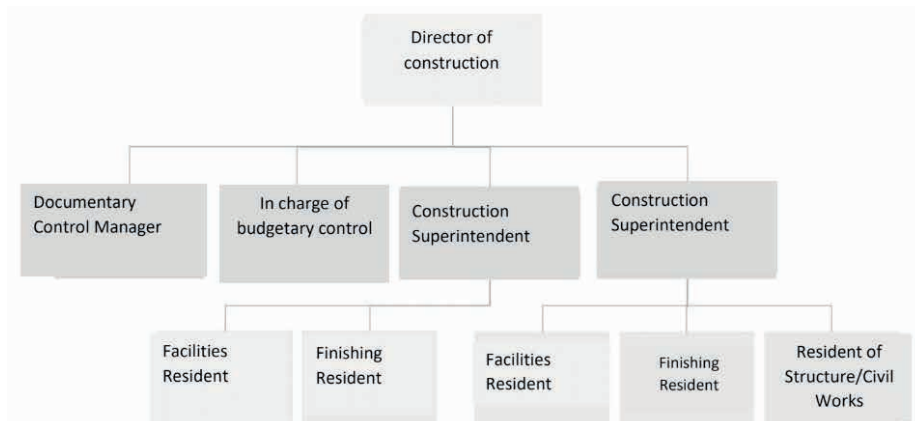


Figure 2.- Organizational chart of the Construction Department.

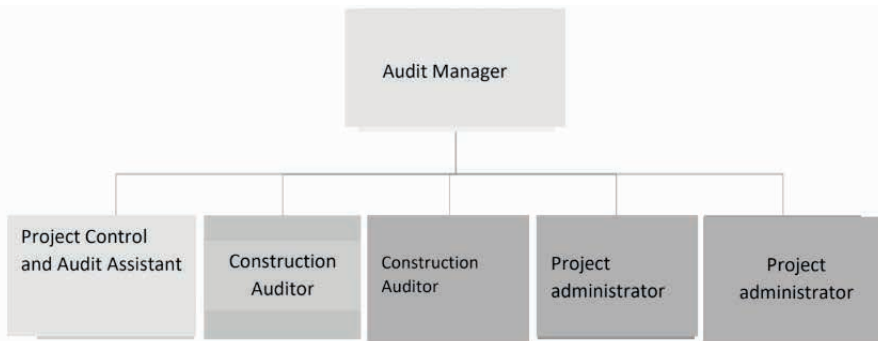


Figure 3.- Organizational chart of the Audit Management.

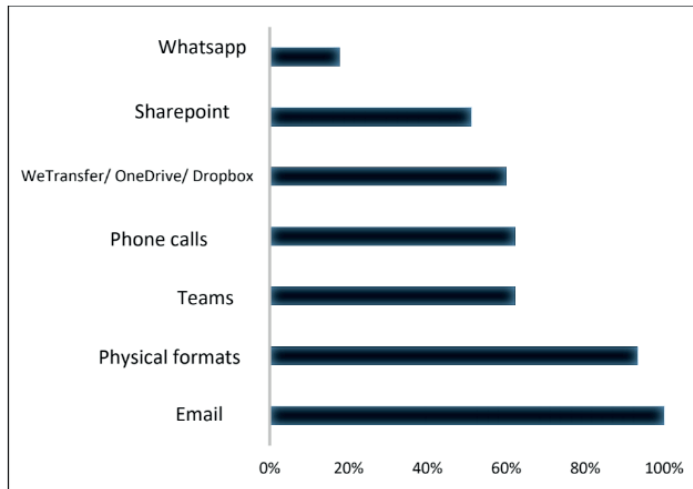


Figure 4.- Media used in the processes studied.

Categories	Number of responses (%)
Inefficiency in the organization of the company.	69 (23)
Insufficient staff for the workload.	51 (18)
Problems interpreting the messages.	45 (15)
Lack of procedure manuals.	41 (14)
Bad attitude of those involved.	35 (12)
Ineffective Media.	30 (10)
Inefficiency in the flow of information.	21 (7)

Table 2.- Difficulties for communication in the processes studied.

Dimensions	Item Scores										Addition	Qualification
	1	2	3	4	5	6	7	8	9	10		
Vertical-Down Communication	51	48	35	46	44	41	47	38	49	50	449	75
Vertical-Ascending Communication	45	49	46	31	43	48					262	73
Horizontal-diagonal communication	49	46	43	29							167	70
Barriers to communication	50	42	30	24	46	28	37	41	34	43	375	63
Feedback	45	49	51	37							182	76

Table 3.- Perception of internal communication in the company.

areas, it was obtained that the participants use seven means of communication on a daily basis; which are presented in Figure 4 and described below.

For company email, the Outlook® email service, contained in the Office 365® corporate package.

Regarding the physical formats, it was observed that the company continues to use them in all the processes studied: Hiring request (invitation letter, contract request, comparative tables, contract and visit minutes), Budget change orders (standard format), Authorization of estimates (collection estimate), Distribution and control of project information (distribution record, reception controls, response to requests, and control of current and canceled plans), Information requests (standard format), Submittals (standard format) and Issuance of bulletins (standard format).

For distance communication and collaborative work, the company uses the unified Microsoft® Teams platform, which is part of the Office 365® package; both for internal communication and to hold meetings with people from other organizations. Two other platforms are also used less frequently: Zoom® and Google Meet®.

To share all kinds of digital files, the company uses three multi-platform file hosting services in the cloud: Dropbox®, WeTransfer®, OneDrive®.

For document management, the company also uses the Microsoft® SharePoint business collaboration platform, contained in the Office 365® package.

For informal and instant communication, employees use smartphones and WhatsApp Messenger, the world's leading instant messaging application.

On the other hand, regarding the difficulties for communication that the interviewees said they face in the development of the processes,

292 responses were obtained, which were categorized as presented in Table 2.

Some of the main answers that were classified in the different categories of Table 2 were the following:

Inefficiency in the organization of the company: it was answered that many changes in the scope of the project are authorized, that there is too much bureaucracy in the organization, and that many people are required to have to validate the decisions.

Insufficient staff for the workload: it was noted that the number of company employees is too few to simultaneously manage the 31 projects that were under development.

Problems in the interpretation of the messages: it was answered that there were difficulties in the use of technical language, lack of clarity in the instructions and gradual distortion of the message.

Lack of procedure manuals: it was answered that the tasks are not standardized and those responsible are not clearly defined.

Poor attitude of those involved: it was noted that some of the employees negatively influence communication by acting defensively, expressing themselves arrogantly or being insecure when communicating the message.

Ineffective means of communication: they mainly referred to the saturation of the email box, which arises when the storage space limit assigned to the employee is reached; as well as the use of inappropriate physical formats.

Inefficiency in the information flow: they referred to a lack of downward vertical information flow, information overloads and information islands.

On the other hand, regarding the negative effects that employees perceive as a consequence of inefficiency in communication within the processes, 292 responses were obtained, which were classified into 13 categories, which are presented in Figure 2.

Some of the main responses of the effects of inefficiency in communication, which were classified in the categories with the most mentions, were the following:

Delays in the processes: they referred to the fact that by not correctly understanding the instructions, tasks are carried out that do not add value to the process, but consume time.

Cost overruns in the process: it was mentioned that due to inefficient communication, purchases are delayed, resulting in increased costs.

Rework in the process: it was mentioned that due to inefficiency in communication, sometimes tasks that must not be carried out are executed, which must be corrected by doing the job again.

Stress: refers to emotional reactions that occur when the objectives of the tasks are not clear, which generates feelings of uncertainty and frustration.

PERCEPTION OF INTERNAL COMMUNICATION IN THE COMPANY

As a result of the application of the internal communication instrument, Table 3 presents the scores obtained for each item and dimension of the model used; In this table it can be seen that the barriers to communication was the dimension that had the lowest score. For a better understanding of this table, the following precisions are made: the maximum score for each item is 60, calculated as the product of the 15 participants times 4 points; the maximum score of each dimension is the product of its number of items by 60; and the qualification of each dimension was calculated as the quotient between the sum of points obtained and the maximum value of points of the dimension.

Table 4 shows the ten items that had the lowest score; it can be seen that half of them corresponded to the Communication Barriers

(BC) dimension.

DISCUSSION

COMMUNICATION IN PROCESSES

The predominant means of communication in the organization is email. On the one hand, it is convenient for all employees to use this means of communication, however, it must be taken into account that the higher the position, the greater the number of emails received; Therefore, some employees consider that by having the same inbox for all emails, the information accumulates and, on many occasions, it is not read. Koontz et al. (2012) reported that the use of email in a disorganized manner is a problem for organizations and proposed the use of management systems to collect, process and disseminate external and internal information in a timely and efficient manner.

The second most widely used means of communication is physical formats. It was observed that information flows from digital formats to printed on paper and vice versa; This type of flow entails carrying out tasks that might not add value to the processes, in addition to generating confusion, since when several copies of a document are created, there is no certainty of which version is current. Additionally, problems with documentary control are generated, since the information is filed in both formats according to the criteria of each employee, due to the lack of a standardized process that guides it. Currently, there are still advantages to physical formats, because it is difficult to alter them, because they can be consulted without electronic devices and because they can be signed by handwriting (Chaffinch Documents, 2021).

It was observed that some employees exchange work information with the WhatsApp messaging application, using their private mobile phones; This causes the

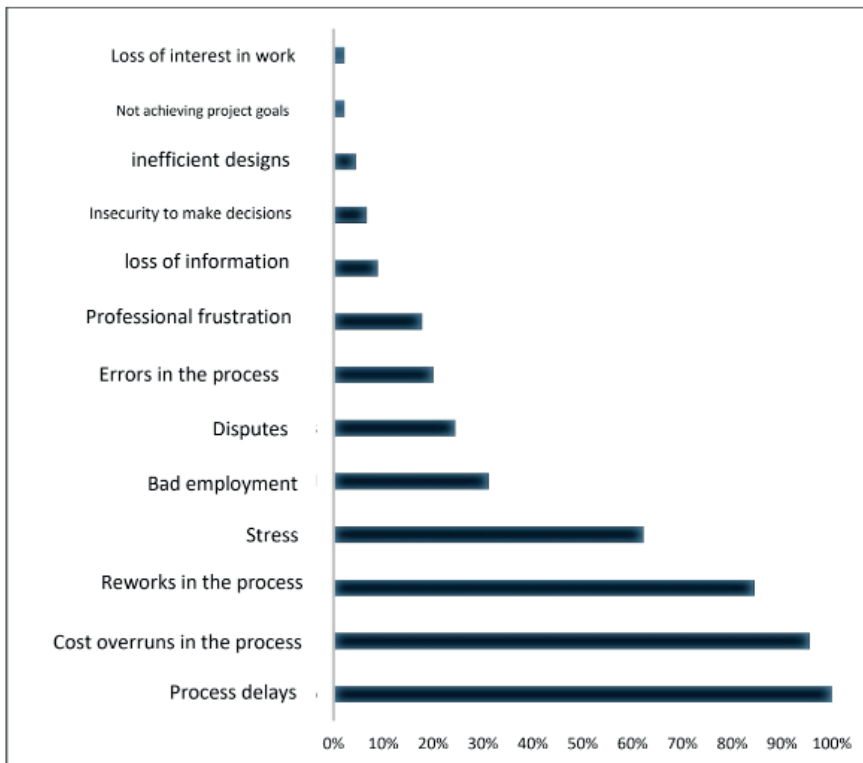


Figure 2.- Effects of inefficiency in communication in the processes studied.

Dim.	Item	Question	Points
BC	19	When I receive too much information from my immediate superior and I don't know how to use it, I delegate it to others.	24
BC	25	The distance and physical distribution between me and my immediate superior hinders communication.	28
HD	24	I skip the formal channels of the Organization when I require information inside or outside my work area.	29
BC	15	When I receive too much information from my immediate superior and I don't know how to use it, I select a part of it and discard the rest.	30
VA	18	I have problems discussing the problems of my job with my immediate superior.	31
BC	31	In the Organization, instructions from colleagues in the same area or unit seem to be interpreted in different ways.	34
VD	7	The information related to the Financial Results of the Organization reaches me through my immediate superior.	35
RA	21	I obtain information about my professional projection in the organization, through my immediate superior.	37
BC	26	In the Organization, when some information is threatening or critical, people act defensively.	37
VD	30	The explanation of what is the best methodology to carry out a task comes to me through my colleagues in the area or unit.	38

Dimensions BC: Barriers to Communication, HD: Horizontal-Diagonal communication, VA: Vertical-Ascending communication, VD: Vertical-Descending communication, RA: Feedback.

Table 4.- Items that had the lowest score in the application of the internal communication questionnaire.

information of the company and the person to be mixed on the same device, which is risky for the protection of confidential data of both. This, in turn, generates a conflict of interest between the right to privacy of the worker and the right to supervision by the company (Díaz, 2022), for which reason the use of this means of communication must be regulated and, if used, the company must provide the devices to employees, so they can be used exclusively for work.

According to the results of the study, the company underutilizes the PMWeb® management software, to the extent that it was not among the media most mentioned by employees; Currently it is only used in the administrative area, being one of the most widely used enterprise resource planning systems in the world, containing modules that combine planning, estimation and control of costs, document control, programming, asset management and workflow. (Queiroz et al., 2016).

In relation to the main difficulties of communication in the processes studied (see Table 2), to improve efficiency in the company, it is proposed to rethink its organization, establishing clear objectives and identifying the operations that really add value; Based on this, establish processes, tasks and workflows, in which the resources, their transformation rules and the expected products are identified, to later develop the company's operations and procedures manual (Zhuge, 2003). It is important that this manual integrates the strategies and means that allow effective communication, to more efficiently meet the objectives of each organizational level.

Regarding the lack of sufficient personnel to carry out the tasks, the necessary functions and the definition of the profiles for each position must be reviewed; Combining the above with a performance analysis of each worker, the requirements for the number

of workers needed for each profile could be obtained according to the workload (Namely, 2022).

Regarding the effects of inefficient communication, it was found that these are similar in all the processes studied, with delays, cost overruns and rework predominating in the first place; and secondly, stress, a bad working relationship and disputes. It is common for companies to normalize this type of effects as part of daily operations, however, the benefits of working on improving internal communication would bring improvements in times and costs, as well as in the work environment (White, 2016).

PERCEPTION OF INTERNAL COMMUNICATION IN THE COMPANY

Regarding the results of the perception of employees about internal communication, an average score of 71.40 (out of a maximum of 100) was obtained, with Barriers to communication being the dimension with the lowest score, followed by communication. horizontal-diagonal; These results coincide, in general, with what was indicated by the employees as the main communication difficulties in the processes studied. According to Klimova & Semradova (2012) the main sources of communication barriers are: cultural differences, different visions, professional differences and differences in the use of technical language.

The scores of the applied internal communication questionnaire must be considered as a starting point to propose specific strategies that benefit communication, starting from the questions that presented the lowest scores (see Table 4); in such a way that the phenomenon is monitored over time, through the application of the same questionnaire at the end of each production cycle.

CONCLUSIONS

Despite the fact that the company studied is large in size and has a high level of maturity, it was observed that it does not have an operations and procedures manual, or it is not known by the employees. This means that there is no standardization in the way in which the work is carried out and therefore there is great variability in the use of communication media, which does not promote certainty among employees.

The excessive use of physical formats generates a lot of bureaucracy in the organization, which is perceived by employees as a cause of inefficiency; Likewise, due to the fact that the company carries out a large

number of projects simultaneously, there are signs of stress in the personnel, as well as disputes and inappropriate relationships, which cause delays and rework in the processes.

In general terms, internal communication in the company is perceived by employees as of medium quality, with many barriers to communication prevailing; This information can be useful for taking actions to eliminate barriers and improve the organization's productivity.

REFERENCES

Koontz, H., Weihrich, H., & Cannice, M. (2012). *Administración: Una perspectiva global y empresarial*. 14a. Edición, Mc Graw Hill.

Kreps, G. (1995). *La comunicación en las organizaciones*. Addison-Wesley.

Rahman I. & Gamil Y. (2019). Assessment of cause-and-effect factors of poor communication in construction industry. IOP Conference Series: Materials Science and Engineering. Vol. 601, Conference 1.

Hoezen M., Reymen I. & Dewulf G. (2006). The problem of communication in construction. In CIB W96 Adaptable Conference, University of Twente.

Engineers Australia (2005). Getting it right the first time: A plan to reverse declining standards in project design documentation within the building and construction industry. Brisbane, Australia.

Chaves V. (2012). El estudio de caso y su implementación en la investigación. *Revista internacional de investigación en ciencias sociales*, 8(1), 141-150.

Brandolini A. González M. & Hopkins N. (2009). *Comunicación interna*. Editorial La Crujía.

Di Nardo Y. (2005). Satisfacción laboral, comunicación interna, sexo, edad, nivel educativo, antigüedad y nivel de cargo: un análisis de ruta. Recuperado el 19 de septiembre de 2022 en: <http://biblioteca2.ucab.edu.ve/anexos/biblioteca/marc/texto/AAQ5056.pdf>.

Zamora M. & Cedillo M. (2020). Caracterización de la comunicación organizacional en el área administrativa de una universidad pública ecuatoriana. *Ingeniería Industrial, Actualidad y Nuevas Tendencias*. 6(22), 21-38.

Koontz, H., Weihrich, H. & Cannice, M. (2012). *Administración: Una perspectiva global y empresarial*. 14a. Edición, Mc Graw Hill.

Chaffinch Documents (2021). Paper Documents vs Digital Documents: Pros and Cons. Recuperado el 14 de septiembre en: <https://www.chaffinchdocument.co.uk/paper-documents-vs-digital-documents-pros-and-cons/>.

Díaz A. (2022). Conflictos legales en el uso de dispositivos móviles en el trabajo. MCT Abogados. Recuperado el 14 de septiembre de 2022 en: <https://www.mctabogados.com/conflictos-legales-en-el-uso-de-dispositivos-moviles-en-el-trabajo/>.

Queiroz M., Silva J., De Araújo C. & De Almeida, J. (2016). Technology adoption in diffusion of innovations perspective: introduction of an ERP system in a non-profit organization. *RAI Revista de Administração e Inovação*, 13(1), 48-57.

Zhuge, H. (2003). Component-based workflow systems development. *Decision Support Systems*, 35(4), 517-536.

Namely (2022). Introduction to HR Metrics. Recuperado el 14 de septiembre de 2022 en: <https://library.namely.com/introduction-to-hr-metrics?hsCtaTracking=71d166a1-352b-43f3-8df7-fc65eb9dd35a%7Ca9e242e2-d927-4adc-8937-9896b2df5905>.

White P. (2016). Three simple steps you can take to detoxify your workplace. Association for Talent Development.

Klimova B. & Semradova I. (2012). Barriers to communication. *Procedia-Social and Behavioral Sciences*, 31, 207-211. Namely (2022). Introduction to HR Metrics. Recuperado el 14 de septiembre de 2022 en: <https://library.namely.com/introduction-to-hr-metrics?hsCtaTracking=71d166a1-352b-43f3-8df7-fc65eb9dd35a%7Ca9e242e2-d927-4adc-8937-9896b2df5905>.

Klimova B. & Semradova I. (2012). Barriers to communication. *Procedia-Social and Behavioral Sciences*, 31, 207-211.