

**THE IMPORTANCE OF COMMUNICATION IN THE TRANSFER OF KNOWLEDGE AND IN THE
CREATION OF A SHARED VISION: A CASE STUDY**

***A IMPORTÂNCIA DA COMUNICAÇÃO NA TRANSFERÊNCIA DO CONHECIMENTO E NA
CRIAÇÃO DE UMA VISÃO COMPARTILHADA: UM ESTUDO DE CASO***

***LA IMPORTANCIA DE LA COMUNICACIÓN EN LA TRENFERENCIA DEL CONOCIMIENTO Y EN
LA CREACIÓN DE UNA VISIÓN COMPARTIDA: UN ESTUDIO DE CASO***

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ABSTRACT

This article aims to present a Communication Plan to support the transfer of knowledge and the creation of a shared vision among the members of the Research and Development Project. The theoretical framework is based on the areas of Project Management, Knowledge Management and Organizational Communication. Methodologically it is characterized as an interorganizational, interproject research of experimental development. The results are not yet effective; however, based on the actions implemented up to present time, it can be inferred that the communication is an important element in the transfer of knowledge and the creation of a shared vision.

Keywords: Knowledge Management; Project Management; Organizational Communication.

RESUMO

Este artigo tem por objetivo apresentar o Plano de Comunicação, que visa a apoiar a transferência de conhecimento e a criação de uma visão compartilhada entre os integrantes de um Projeto de Pesquisa e Desenvolvimento. O referencial teórico baseia-se nas áreas da Gestão de Projetos, Gestão do Conhecimento e Comunicação Organizacional. Metodologicamente caracteriza-se como uma pesquisa experimental, intraprojeto e interorganizational. Os resultados ainda não são efetivos em razão do pouco tempo de implantação do projeto; contudo, com base nas ações já implantadas, pode-se inferir que a Comunicação é um elemento importante na transferência do conhecimento e na criação de uma visão compartilhada.

Palavras-chave: Gestão do Conhecimento; Gestão de Projetos; Comunicação Organizacional.

RESUMEN

Este artículo tiene como objetivo presentar el Plan de Comunicación que tiene por objeto apoyar la transferencia de conocimiento y la creación de una visión compartida entre los integrantes de un Proyecto de Investigación y Desarrollo. El referencial teórico se basa en las áreas de Gestión de Proyectos, Gestión del Conocimiento y Comunicación Organizacional. Metodológicamente se caracteriza como una investigación experimental, intra-proyecto e inter-organizational. Los resultados todavía no son efectivos en razón del poco tiempo de implantación del proyecto. Sin embargo, con base en las acciones implantadas se puede inferir que la Comunicación es un elemento importante en la transferencia de conocimiento y en la creación de una visión compartida.

Palabras clave: Gestión del Conocimiento; Gestión de Proyectos; Comunicación Organizacional.

1 INTRODUCTION

Communication is an area that is increasingly being considered relevant to the success of businesses and is changing the relationship dynamics among involved participants, internal or external to the organizations.

With the transformation from an industrial society to an information and knowledge society, organizations managed in Taylorian molds - where communication was not a priority - deals today with a new reality. To account for the volume of data, information and knowledge generated both in internal and external environment; a well-established communication system must be implemented.

The importance of communication in the management of organizations in general and in project management cannot be denied and should aim to build a systemic and shared view, generating the same perception of its members.

For a better understanding of the importance of organizational communication, it is necessary to analyze it in the context in which it is inserted. Organizations inserted in the industrial society had different communication needs from those inserted in the information and knowledge society.

Based on the above, the relevance of this study is justified when considering the importance of proceeding on those studies that interrelate areas of Communication, Knowledge Management and Project Management. This movement is defined as the research question: Can communication contribute to the transfer of knowledge and the creation of a shared vision among the members of a Research and Development Project?

This article is divided into five (5) sections, the first is this introduction. The second presents the theoretical framework of the study. The third covers the methodological procedures. The fourth describes the Communication Plan. We present the final considerations in the fifth section.

2 INTER-RELATIONSHIP BETWEEN THE AREAS OF COMMUNICATION AND KNOWLEDGE MANAGEMENT IN RESEARCH AND DEVELOPMENT PROJECTS

The management of projects has systematized their practices, becoming a subject in the 1980s, and having as the leader in the consolidation of the area, the Project Management Institute (PMI), which in 1996 produced a Project Management Knowledge Guide- GUIDE PMBOK® (PINHEIRO *et al.*, 2006).

The PMBOK® Guide (PMI, 2013), the fifth and final version, presents a methodology built on 47 management processes, structured into five groups of basic processes: initiating, planning, executing, monitoring and controlling, and closing.

The definition of project, in that guide, has the following characteristics: it is a temporary endeavor, which does not mean of short length; it has a defined beginning and end; and usually undertaken to create a lasting result that can be tangible or intangible.

A project can be executed either within and for the same organization – intra-organizational, or from one organization to another or others – inter-organizational. It may also focus on a single project – intra-project, or it may be thought to build a portfolio of projects within an organization oriented for projects – inter-project (SHINODA, 2013), also denominated intramural and extramural projects in the Frascati Manual (OECD, 2015).

Frascati Manual (OECD, 2015), a reference document about R&D (Research and Development), organizes the projects of research and experimental development in basic research, applied research and experimental development. Its definitions are accepted worldwide and its principles are used as base in the Oslo Manual (OECD/Eurostat, 2005) and in the law 11.196/05, also known as *the Law of Good*, which adopts the aforementioned three kinds of research.

Following the same approach, for ANEEL, every R&D project must be included in its development proposed phase, within the innovation chain. It also may be classified as basic guided research, applied research or experimental development. It adds to the types of research present in Frascati Manual, Oslo Manual (OECD/Eurostat, 2005) and the Law of Good, other types of research, such as top seeded, pioneer batch or insertion in the market. They can be simultaneously, nationalization of products, as long as that shows some improvement or new functionality, characterizing the object of the research and necessary development, respecting the legislation about intellectual property (ANEEL, 2012).

ANEEL (2012, p. 53-54 highlights from the original) conceptualizes the types of research:

Basic Guided Research – theoretical or experimental phase that aims the search of knowledge about new phenomena for the development of products and innovation processes [...]. Applied Research – phase to apply the acquired knowledge, for development or improvement of products and processes. It guides to the discovery of knowledge application acquired at the basic guided research or new methods, and ways to achieve a specific objective [...]. Experimental Development: systematic phase, outlined from pre-existing knowledge, aiming the validation or demonstration of technical viability or functionality of new products, processes, systems and services, or yet, the improvement of what has already been produced or established [...]. Top seeded – phase which considers aspects related to the improvement of the prototype obtained in a former R&D [...]. Pioneer Batch – phase that considers aspects related to the production in “pilot scale” of Top Seeded developed in a former project [...]. Insertion in the Market – phase that ends the innovation chain and aims diffusing the results in the electric sector [...].

Whatever the type of project, there is consensus that they generate data and information (PMI, 2013) or information and knowledge (JAMIL 2005; SHINODA, 2012), and that they need to pass through the organization (s) and among members from one or more projects, which are intraorganization, interorganization, intraproject and interprojects (SHINODA, 2012), and intramural and extramural (OECD, 2015).

According to the PMBOK (PMI, 2013, p. 58),

[...] throughout the project’s life cycle, a significant amount of data and information is collected, analyzed, processed and distributed in various formats to the members of the project team and other stakeholders. [...] The collected data is analyzed in context and aggregated and transformed becoming project information [...]. The information can then be verbally communicated or stored and distributed as reports in various formats.

Data concepts, information and knowledge are closely related to their utility in decision-making, and connected to the communication concept.

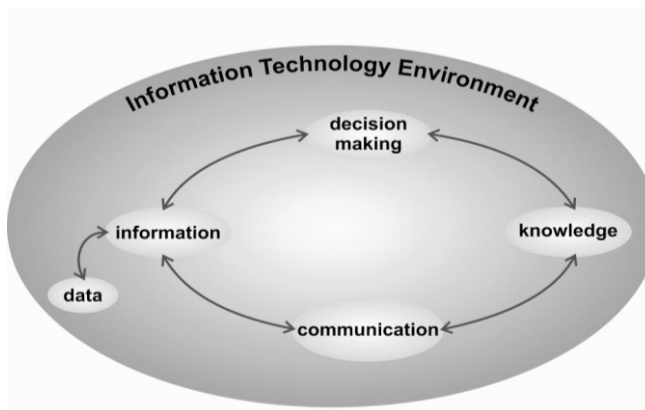
The communication process is a sequence of events in which data, information and knowledge are transmitted from a sender to a receiver.

Decision-making in organizations will increasingly demand teamwork and greater involvement of people, as in project teams. Teamwork put into evidence the dialog

procedures based on the idea that in an organization, the communication should be encouraged for the establishment of a common thought (ANGELONI, 1992). The establishment of a common thought consists in consider the point of view of each team member, so that the decisions taken in the organizations have a higher quality level. The decision-making process passes from the individual level to the staff one.

Based on the above, we can infer there is a strong interrelationship among the variables, data, information and knowledge with communication and decision processes, supported by an information technology environment, as shown in the Figure 1.

Figure 1 - Elements involved in decision-making process.



Source: Angeloni (2010, p. 19).

Information and knowledge must flow in the organization through an efficient communication system involving the installation of a suitable technological infrastructure. Only that way the organization will have high quality data, information and knowledge, in a timely manner to support the decision-making process.

The information technology options as a facilitator object for communication is especially due to the advent of telematics. Network connections, laser communication, optical fiber and large computer switching systems have grown significantly and spread across the business context an idea of connectivity.

Despite the major changes in the business environment and the prioritization of some variables, communication followed the path of management thought, increasing in importance and affirming its key role in the efficiency and effectiveness of business

objectives. Imagining organizational success in the contemporary perspective without working communication processes can be considered imprudent.

Krogh, Ichijo and Nonaka (2001), when dealing with knowledge organization, point out the importance of creating a sharing space, called enabling context or *ba*, a word of Japanese origin, which is the roughly translated as a place in where a fact happens.

Thereunto, *ba* can be interpreted as the space or context where relationships take place (NONAKA; KONNO, 1998). This context can be physical, such as an office or a meeting; virtual, such as e-mail, teleconferencing; mental, such as shared experiences, ideas or ideals; or any combination of these three elements (OUTI; STRAUS, 2009).

Enabling conditions or *organizational space for knowledge* consists in the set of favorable conditions be afforded by the organization to facilitate or enable the emergence of ideas, innovations, sharing, collaborative problem solving and tolerance to honest mistakes, among others. Under this view, understanding the word management, upon their association with the word knowledge should not be understood as synonymous with control. Management, in that context, means to promote activities that create and transfer knowledge, and it is embedded in the interpretative approach of knowledge management proposed by George, Iacono and Kling (1995); Schultze and Boland (2000); Stenmark (2001); Krogh, Ichijo and Nonaka (2001); and Choo (1998), aiming at tacit knowledge, being strictly related to the communication atmosphere. The other approach on knowledge management is functional (DHALIWAL; BENBASAT, 1996; GREGOR; BENBASAT, 1999; ZHAO; KUMAR; STOHR, 2001) and benefits the explicit knowledge, treating it as a manageable object, which is information and its consequent storage. It is important to emphasize the transference of knowledge happens by either means of communication – tacit knowledge, or by its storage – explicit knowledge.

The present text is part of the interpretative approach, that according to Dazzi and Angeloni (2001), Dazzi and Pereira (2002), and Grotto and Angeloni (2004), who are experts in organizational communication, is responsible for the dissemination of information and knowledge through messages run through the organization and the common meanings produced, that is a shared vision. Knowledge management expands an important facet of

communication: the need to transfer knowledge generates the necessity to intensify communication processes in organizations. The communication is not only evidenced by the formal written channels, functional approach present in the other part of the plan known as information and knowledge management (ANGELONI *et al.*, 2015), but mainly by tacit knowledge exchange, which depends largely on face-to-face communication, present in the current communication plan.

Observing the nature, the flow, direction of information, the written and oral media, we can define influence degree of this cultural element in the knowledge sharing.

3 METHODOLOGY

The objective of this article is to present a Communication Plan, which aims to support the transfer of knowledge and the creation of a shared vision among the members of the Research and Development Project (R&D) for the sponsor / client company - Celesc Distribution, electric utilities company in Santa Catarina, and executed by the Institute for Studies and Energy Management - INERGE.

The Research and Development Project, reason for the plan's definition, aims to develop an integrated system for autonomous inspection of overhead power lines, and it is part of ANEEL's R&D program, regulated by law 12.212 - January 20, 2010. It regulates the annual application of a percentage of net operating revenue in research projects and technological development of the electricity sector (ANEEL, 2012).

R&D projects regulated by ANEEL are those aimed to the qualification and technological development of electrical companies, in order to generate new processes or products, or the improvement of their characteristics [...]. Every R&D project should be framed in its development proposed phase within the chain of innovation and classified as basic-driven research, applied research, experimental development, top seeded, pioneer batch or market insertion. It can be simultaneously additionally classified as nationalization of product, as long as that adds some improvement or new functionality, in order to characterize the research and development necessary content, respecting the intellectual property laws (ANEEL, 2012, p. 14).

Supported by Frascati Manual (OECD, 2015), which is an aid to the classification of the R&D activities regulated by ANEEL (2012), this project is considered an experimental development, according to ANEEL's innovation chain.

Figure 2 - ANEEL's innovation chain.



Source: Adapted from Pereira and Caciglieri Junior (2015).

“The Experimental Development is an outline survey from pre-existing knowledge in order to prove or demonstrate the technical and functional feasibility of new products, processes, systems and services, or even the improvement of what was already produced [...]”. (ANEEL, 2012, p 53-54).

The study is also characterized as intraproject and interorganizational (SHINODA, 2012) or extramural (FRASCATI MANUAL, 2015), because the plan was developed solely to this project and involved two companies, the sponsor / client company and the executing company.

The definition of the plan, considering proposals for research matter and the object of the project, is supported mainly by the interpretative approach of the knowledge management that prioritizes the tacit knowledge, but does not avoid actions from the functional approach when necessary.

To prepare the Communication Plan, 6 (six) people were consulted: project manager and coordinator, coordinators and sub coordinators from areas at Celesc and INERGE, who, knowing the communication actions of the Project Management Plan, gave their opinions about communication actions, responsibility, definition of target audience, frequency/means used, documents, and definition of dates of occurrence.

To support the plan's implementation, Redmine was used as project management software.

4 PROPOSED PLAN COMMUNICATION

For the structuring of the communication management plan, the theoretical aspects, plans and preparation of technical guidelines contained in the Project Management Plan were taken into account, which define, regarding communication:

- a) the manual for carrying out R&D for Celesc projects governs the relationship between Celesc and INERGE in the development of this project;
- b) Celesc project manager is the company's formal element of contact for any technical and administrative matters;
- c) the Project Coordinator by INERGE is the formal element of contact with Celesc;
- d) without damage to the necessary integration among team members, any technical or administrative communication should be formalized through the nominated responsible person under b and c;
- e) the manager and the project manager will have at least one monthly meeting to monitor and analyze the evolution of the project and related documents. This meeting may be open to other participants, at the request of either of them;
- f) the project coordinator will hold at least a biweekly meeting with the technical areas leaders (Engineering, Avionics, Information Technology, Communication and Image, and Knowledge Management). These meetings may be individual or not, according to the project's needs. Conference call resources should be prioritized;
- g) internal follow-up meetings and as well as meetings with Celesc staff should produce a Meeting Minutes, which must be reviewed and signed by all participants and subsequently filed in the project folder;
- h) the project coordinator delegated the function of communication coordinator to the coordinator of the Knowledge Management area, who will be responsible for:
 - maintaining repository in electronic form of the documents produced by the project, as the folder structure defined;
 - maintaining repository of e-mails exchanged between the parties concerned with the project;

- keeping a folder or file with the paper documents produced by the project and providing this information, according to their sensitivity and allocation to interested parties;
- creating environment for interaction among the members of the project, both the sponsor / client and the performing company.

The communication guidelines established above are summarized in the Communication Plan presented in Frame 1.

Frame 1 - Communication Plan

Communication types	Person in charge	Target Audience/ Recipients	Goals	Frequency of Occurrence	Related Documents	Date (dd/mm/aaaa)
Contract Signature	Board of Directors Celesc- INERGE	Celesc and INERGE Staff	Formalize contract	Unique Event at the start of project	Signed Contract	14/10/2013
Starting Meeting	Manager (PM) and Coordinator (PC) and representative of DVEE	Celesc and INERGE	Start of the project: goals, planning. Interaction of teams	Unique event at the start of project	Minutes of Meeting	17/11/2013
First Meeting of Project Team	PM and PC	Celesc and INERGE Teams	Presentation of the project requirements and communication plan	Unique event at the start of project	Minutes of Meeting	03/12/2013
Project Plan Approval	PM and PC	Celesc and INERGE	Approval of the Project Plan	Unique event at the start of project	Minutes of Meeting and Project Plan Approved	-
Presentation of the Monitoring Matrix	PM and PC	Technical Teams	Present the Monitoring Matrix of the project, explaining activities, goals, and responsible	Unique event at the start of project	Monitoring Matrix of the project	-

			members			
Monthly Meeting	PM and PC	PM, PC and guests	Analysis of the evolution of the project, its risks and discuss problems that could affect schedule or goals/results	Monthly (mensal) (Presential or by video conference	Minutes of meeting, technical or management reports	Every Monday and Thursday of the month [sic].
Quarterly Workshop	PM and PC	CP, EP and guests	Presentation and Tracking of Results of the Period	Quarterly (Presential or by video conference	Minutes of meeting, technical or management reports	Jun, Sept and Dec 2015 - Mar, Jun, Sep and Dec 2016 - Mar, Jun and Sep 2017
Lessons Learned	PM and PC	PM and PC and R&D Celesc	Presentation and Discussion of Results of the Period	Quarterly	Specific Form	Monthly on Mondays and Wednesdays
Monthly Tracking Report	PC	PM and R&D Celesc	Presentation Tracking and Control of Results of the Period	Monthly	Monthly Report	Dead Line: the 18th day of the month
Eventual Technical Meetings	Called by PM and PC	PM, PC and guests	Analysis of technical problems	Eventual	Schedules and Reports	According to Necessities
Quarterly Tracking report	PC	PM and R&D Celesc	Tracking and Control of the Results in the Period	Quarterly	Reports	Delivered until the 18th day of Feb, Jun and Oct 2015 - Feb, Jun and Oct 2016 and Feb, Jun and Oct 2017

Technical Articles and participation in Meetings and events in Brazil or Abroad	PM and PC	External Technical Community	Presentation of Significant Results of the Project	Eventual	Article Presented or Published	4 submitted articles until Dec 2015, 4 submitted articles until Sept 2016 and 4 submitted articles until Jun 2017
Training Courses for Celesc Staff	CP, EP e Celesc staff	Celesc Staff	Train Employees for the Transfer of Knowledge Acquired in the Project	3 courses	Didactic Material including Presentations	Still to define
<i>Workshops with Celesc</i>	PM, PC and Celesc R&D	PM, PC, Celesc and INERGE Staffs and Guests	Presentation of the Evolution of the Project, with eventual focus in Specific Areas or Subjects	Every 6 Months	Minutes of Workshop and Presentations	Apr and Oct 2015 - Apr and Oct 2016 - Apr 2017
Project Final Workshop	PM, PC and Celesc R&D	PM, PC, Celesc and INERGE Staffs and Guests	Presentation of Final Results and Closing of the Project	Unique event at the final of project	Minutes, Presentations of General Results, Summaries, Folders, Banners and Other Types of Material in Electronic or Printed Form	17/10/2017
Institutional broadcast	CP, EP, Celesc and Aneel	Celesc Board of Directors, all employees, ANEEL and General Public	Publish Relevant Information about Results of the Project	Unique event at the final of project	Information at Celesc web site, Newspapers and ANEEL	17/10/2017

					Seminars	
Final Report of the Project	PM and PC	Celesc Board of Directors and First Level of Staff and ANEEL	Presentation of Final Results and Closing of the Project	Unique event at the final of project	Final Report	17/10/2017

Source: Authors from the Project Management Plan.

When presenting the communication plan, it is important to point out despite the continuous development of new media, traditional media are still being used, transforming the communication system increasingly rich into alternatives to convey the messages. It proves the importance to consider, when developing a communication plan, the mainstream media, whether it is traditional or supported in the information and communication technology - ICT.

5 FINAL CONSIDERATIONS

Finalizing the preparation of the communication plan can note there is a wide range of media from the most traditional to the most current ones, supported in information and communication technologies. The most important feature when creating a communication plan is knowing how to choose the best way to meet the necessities of each specific situation.

Evidencing this evolution of the media, which takes place parallel to the evolution of information technology, Boff and Vargas (1996) believe that the evolution of technology is an important ally of the communication process, creating faster, more accurate and integrated media. However, the approach should not be focused exclusively on the technological aspects, but also on the people and the creation of an environment, that allows the interaction of all the different components of the project.

It is noteworthy, however, that due to the the project is on its one-third of its running time, it is still not possible to provide effective results and answers to the research question: Can communication contribute to the transfer of knowledge and the creation of a shared vision among the members of a Research and Development Project?

It can be considered, by the communication actions taken up to now, in the course of the project development, communication is essential in the knowledge transfer and creation of a shared vision, mainly because it is an R&D project consisting of five teams with expertise in different areas coming from more than one company.

It is important to emphasize that the communication plan presented here can be an inspiration to other projects developed in different companies of different sectors and sizes.

As a recommendation for future work, we suggest the definition of communication plans for project portfolios – interprojects and intraorganization, having as focus the organizational learning.

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