

# ORGANIZATIONAL IMPROVEMENT METHODOLOGY FOR CHILEAN CONSTRUCTION INDUSTRY

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## ABSTRACT

The organizational climate (OC) gives an overview of the perception of the working environment of the organization members. This paper presents a methodology for improving human resource policies, designed to be used in construction companies. It includes an organizational climate diagnosis tool (organizational climate), especially designed for the Chilean construction industry. This methodology was developed with companies that were implementing Lean Construction in order to monitor the impacts of the implementation.

Initially, through a bibliographic study the organizational climate dimensions were documented according to the existing literature. In second place, through questionnaires and interviews applied to a group of professionals, the most representative parameters of the Chilean construction industry were selected. Finally, the tool was validated both statistically and qualitatively.

Based on the results of data analysis, five parameters were selected as the most representative indicators of construction industry organizational climate: quality of information; role definition for each one of the team members; occupational risks, availability of the superior to listen and help, and fulfilling commitments.

This methodology is composed by few simple steps, which can be easily implemented. It is expected that this methodology will make possible the development of organizations, and it has been tested only for the Chilean construction industry, and that is the reason why it is only valid under these circumstances.

## KEY WORDS

organizational diagnosis, organizational climate, organizational development, lean construction, human resources

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## INTRODUCTION

Several Chilean construction companies under the guidance of a University research team have carried out collaborative research to implement “Lean Construction Practices” (LCP). Unfortunately, they have focused mainly on the improvement of project performance through the application of new tools and methodologies, leaving aside organizational and human issues (Pavez, 2006). In an effort to address these important issues, the companies have oriented their collaboration to an organization development program (French and Bell, 1996).

Every aspect of human life is related to an organization, since our childbirth to our current job, every human need has an organizational answer (Rodríguez, 2002). The companies are organizations, and their goals are defined by the productivity, effectiveness, and the performance of their products and services. Those objectives are achieved by the members of the organization. The well being and development of their members are the keys for the achievement of their goals (Chiavenato, 2000). Unfortunately, those aspects are not frequently found in the construction industry. This industry highly depends on people; because it is one of the most sensible factors for the organization success. However, the well being and development of their members are not commonly considered in their processes. In fact, this industry is characterized by the lack of strategic involvement (Drucker et al., 1996).

According to Chiavenato (2000), people’s well being and productivity are highly correlated; therefore it is very important to let the workers know that they have many possibilities to develop themselves in the organization. Furthermore, Covey (2005) postulates that, in this case, the worker will be willing to give the best of himself for improving the organization. An organizational diagnosis is necessary to know the strengths and the improvement opportunities for the organization. Then, actions can be planned in those directions (Rodríguez, 2004), motivating planned change that leads organizational development (Rodríguez, 2002).

## ORGANIZATIONAL DIAGNOSIS

A diagnosis method is an analytical process that allows changing from a state of uncertainty to a state of knowledge, for improved management and evaluation (Valdéz and Amaro, 1998). Luchessa (1973) says that diagnosis of a company must be systematic, integral and periodic. The systematic analysis means the adoption of a system; integral, because it must involve the whole company; and periodic, because it should allow periodic comparisons of the company state. The company must assume the organizational diagnosis and accept it as part of its own self reflection. By doing so, it is possible to expect practical effects of the posterior organizational change (Rodríguez, 2004).

## ORGANIZATIONAL CLIMATE (OC)

OC is a concept that refers to a group of perceptions of the organization

members and that implies a good or bad feeling about their organization. In particular, the OC diagnosis is useful because it shows a global view of the whole organization.

Several authors have defined the OC in different ways. The following definitions are useful to have a better understanding of this concept:

Forehand and Gilmer (1964, quoted by Dessler, 1979): “(The OC is) the group of permanent characteristics that describes the organization, different from another and it influences the behaviour of the organization members.”

Valenzuela (1979): “The OC is the result of the global perception of the group members and the quality of their interaction. That quality could be measured by their opinion and the opinion of an external observer”.

Rodríguez (2004): “The concept of OC refers to the shared perceptions by

the organization members of their job, physical environment, interpersonal relations and several regulations that affect their job”.

#### DIMENSIONS

One of the approaches for organizational climate diagnosis is the “multiple measures” approach, in other words, the organizational climate is the result of the interaction of factors like the physical and social environment, structure, personal characteristics of the organizational behaviour, among others (Valenzuela, 1989) that are denominated *dimensions*. Furthermore, these dimensions could be explained by *parameters*. For example, one dimension could be “Trust”, and one of its parameters could be fulfilment of commitments (Rodríguez and Majluf, 2003). Table 1 presents a summary of the main dimensions classified by type of diagnosis.

Table 1: Dimensions studies summary

Likert (1961, 1967) (quoted by Torrecilla, 2005)	Forehand and Gilmer (1964) (quoted by Dessler, 1979)	Litwin and Stringer (1968)	Quality values <sup>1</sup>	Great Place to Work® Institute <sup>2</sup>
Authority style	Size	Structure	Teamwork	Credibility
Motivational outline	Organizational structure	Responsibility	Involvement	Respect
Communication		Reward	Commitment	Impartiality
Influence processes	System complexity	Risk	Competency	Pride
Decision processes	Leadership guidelines	Warmth	Reward and Recognition	Camaraderie
Planning processes		Support		
Control processes	Goals orientations	Norms	Environment	
Performance objectives		Conflict	Management Effectiveness	
		Identity		

<sup>1</sup> [www.qualityvalues.com](http://www.qualityvalues.com)

<sup>2</sup> [www.greatplacetowork.cl](http://www.greatplacetowork.cl)

## METHODOLOGY

The methodology had several stages. The first one was the literature review, which had the objective to elaborate a theoretical framework. The second stage involved the design of a preliminary tool for Organizational Diagnosis. This stage was subdivided in the following parts: (a) 2.1: Identification of relevant variables; (b) 2.2: Elaboration of the preliminary tool; (c) 2.3: Validation of the tool.

The identification of relevant variables in the Chilean construction industry involved the selection of dimensions and parameters, which were relevant to the Chilean construction industry, because the idea was to build an instrument adapted to the industry. A questionnaire of dimensions and parameters of the OC, was designed based in the literature review, to identify the importance of each parameter for different dimensions of the OC in the Chilean construction industry. A second activity was a group interview with professionals of the Chilean construction industry to identify the relevant parameters of each dimension in their daily work. The participants of this activity were professionals from five companies involved in collaborative research with the Production Management Centre (Gepuc<sup>1</sup>). The participants had to identify and rate the importance of different parameters related to their work environment. The final activity was a qualitative diagnosis of OC in a construction company, considering positive and negative aspects in certain variables and how these factors affected their daily work. In

<sup>1</sup> [www.gepuc.cl](http://www.gepuc.cl)

conclusion, a global vision that the company members had about the organization climate variables was obtained.

The elaboration of the preliminary tool was a first approximation to the final instrument. From the initial parameters (literature review), a first filter was applied to eliminate the ones that were not named (in other words: those parameters that had less importance in the perception of their daily work) in any of the previous activities (questionnaire, group interview, quality diagnosis). Then, a rank order was developed with the rest, based in the importance ratings given by the participants in the previous activities. The following criteria were considered to elaborate the ranking:

- Every dimension should be represented.
- The parameter should be named with high importance in the group interview.
- The parameter should have at least 50% of the answers with high importance in the questionnaire.
- It should be named in the qualitative diagnosis.

The result of this activity was a preliminary tool of OC which included eleven phrases (Table 3). Every phrase was correlated with a parameter, and therefore, every parameter was correlated to a dimension of the OC. A Likert scale<sup>2</sup> from 1 to 7 was used for evaluation (Table 2).

<sup>2</sup>

[www.socialresearchmethods.net/kb/scallik.php](http://www.socialresearchmethods.net/kb/scallik.php)

Table 2: Likert Scale.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Disagree Somewhat	Indifferent	Agree Somewhat	Agree	Strongly agree

Table 3: Questions

Phrases	1	2	3	4	5	6	7
The circulating information in the organization is clear and coherent.	1	2	3	4	5	6	7
I do not feel listened and helped by my direct superior.	1	2	3	4	5	6	7
The roles (functions and responsibilities) inside my teamwork are well defined.	1	2	3	4	5	6	7
The company provides the necessary tools and media to guarantee a safe place to work (Risks prevention).	1	2	3	4	5	6	7
The organization members do not fulfil their commitments.	1	2	3	4	5	6	7
The company gives compensations and benefits according to performance.	1	2	3	4	5	6	7
The company assigns me an adequate work load.	1	2	3	4	5	6	7
Company management is not concern about the people in the organization.	1	2	3	4	5	6	7
The conflicts are well managed inside the organization.	1	2	3	4	5	6	7
I like to work with my workmates.	1	2	3	4	5	6	7
Everybody in the organization make efforts to do an excellent work.	1	2	3	4	5	6	7

The validation of the instrument considered a qualitative analysis and a statistical study of the OC diagnosis tool. First of all, each question of the instrument was tested, measuring the coincidence between each phrase and its correlative dimension and parameter. The phrases were edited and improved, and the construct of the instrument was tested. Then, the instrument was applied to a large construction company, specialized in building and industrial construction, selected for a full test of the instrument. 77 full time employees from 6 projects and the central office of the company were surveyed. The data obtained from the instrument application was subjected to statistical analysis. The reliability was measured

by the Cronbach's Alpha index (Santos, 1999) of the complete data. This index refers to the degree in which several applications give the same results. The coefficient varies between 0 and 1, and it is considered acceptable (reliable) in a range between 0,7 to 1. The internal validity of the instrument was verified by factorial analysis, it was necessary to measure the Kaiser Meyer Olkin index and the Bartlett's sphericity test (Friel, 2007). The results of this analysis showed the principal factors in which are possible to classify the variables measured by the instrument. The data was analyzed by the ANOVA test (Kirkman, 1996), which allowed to verify if there were significant differences between the different data

groups, for example, between the projects and the central office.

The OC diagnosis tool was developed to be applied together with a series of Human Resources Management tools that have been developed and adapted for construction companies' use. Then, the final stage shows tools, which are available in the literature and are also part of previous investigations that have adapted or developed tools for the construction industry (Pavez, 2007; Bascuñán, 2005). The human resource management tools were:

#### **Job description:**

Chiavenato (2000) says that the job description subdivides the work and specialized the job in functions. It is that way this human resources tool shows a relationship between the tasks, functions and responsibilities of each job, meanwhile the job specifications are in charge of the requirements definitions of all of them. Then, it is important to see if a job candidate matches the job description and specifications.

#### **Responsibilities matrix:**

The responsibilities matrix is a graphic representation of the responsibilities and tasks of a project. In the rows of the matrix are the job functions and in the columns are the organizational units or the jobs. In the centre of the matrix are symbols that represents the involvement grade of each responsible in every work element, in other words, the type of responsibility that the different jobs have in every function.

#### **Performance Evaluation**

The performance evaluation is defined as a "systemic appreciation on how each person performs in a job, and its future potential development"

(Chiavenato, 2000). In fact, it is a powerful tool in the organizations, because it allows to detect problems with the personal supervision and with the integration of the person to the organization, among others.

#### **Training programs development model.**

"Training is the systematic, organized and short term educational process, from which the individuals earn knowledge, develop skills and competencies with objectives" (Chiavenato, 2000). The proposal of model has two modules. The first one is the conceptual design of the program, and it is an entrance module composed by basic elements of training programs. The second module is the practical application of the specified contents in the conceptual design (Pavez, 2007).

#### **MEASURE OF THE IMPLEMENTATION EFFECTIVENESS**

A way to measure the implementation of organizational changes effectiveness is through general behaviour aspects. The study presented by Alarcón and Diethelm (2001) reported necessary elements that assure the success of the implementation process of Lean Construction practices:

- Commitment signals to the implementation process from upper management to obtain motivation and commitment at lower levels of the organization.
- Commitment of those who will apply the new implemented tools.
- Early constitution of a committee in charge of the implementation process.
- Clear leadership.

Generally, an organized, planned, periodical, controlled methodology is fundamental to achieve success in the implementation process.

## RESULTS

A rank of importance for parameters in the organizational climate in the Chilean construction industry was obtained from the initial research activities. Examples of high importance parameters were the fulfilment of commitments and quality of the information.

The qualitative diagnosis of organization climate reflected, among other elements, a problem in the procurement process of the company. This process was very bureaucratic and inefficient. Workers perceived strong commitment with the individual tasks, more than with the company as an organization.

The most important parameters of the industry were:

- Quality of the information for the communication dimension.
- Definition of roles of each team member, for the teamwork dimension.
- Labour hazards (accidents), for the physical work environment dimension.
- Superior disposition to listen and help, for the superior-subordinate relation dimension.
- Fulfillment of commitments, of the Trust dimension.

The instrument should represent all the dimensions of the organizational climate; therefore, it also considered parameters that were in the best place of the ranking of each missing dimension:

- Interest in people perception, for the Company Direction dimension.
- Extrinsic motivation (tangible benefits that are received by the job done).
- Environment comfort or ungrateful, for the Camaraderie dimension.
- Individual achievements, for the Commitment dimension.
- Workload distribution, for the Organization structure dimension.
- Existence of regulating conflict channels, for the Regulating conflicts dimension.

The instrument is composed by 11 parameters, and each parameter is associated to a different organization climate dimension. Each parameter is explained by a particular phrase, and each phrase is measured by a Likert scale.

These parameters are strongly related with LCP, for example Quality of the information is a key factor for a good communication that influences the network of commitments, presented by Flores (1982) (Howell et al., 2004). Fulfillment of commitments is fundamental for a successful implementation of Last Planner (Macomber and Howell, 2003). Collaboration among different actors (Lichtig, 2006) impacts the comfort environment; and a levelled workload distribution improves the involvement of middle managers (Alarcón et al., 2005), among others.

## CONCLUSIONS AND RECOMMENDATIONS

The most relevant parameters for the construction companies involved in this research were the quality of the information for the communication dimension; the definition of roles of each team member, for the teamwork dimension; the labour Hazards (accidents), for the physical work environment dimension; the superior disposition to listen and help, for the Superior-subordinate relation dimension; and finally the fulfilling commitments, for the Trust dimension.

The proposed diagnosis tool seems to be a good tool to observe improvements inside an organization from one period to another. The instrument was considered valid after several tests because it has construct validity (question testing and judges analysis); it is reliable, this is, there is constancy and stability in the measure (when the instrument is applied); it is internally valid, because the principal axes factor analysis shows a factor that explains a large part of the variance, and this factor is the organizational climate; and it is externally valid, in other words, the instrument is applicable in a particular domain. This

domain is the Chilean construction industry, in particular, the Chilean construction companies.

The measurement instrument plays a role of a thermometer, it is a first approach to the organizational diagnosis providing general values per dimension and flashing early alert lights. The application of other, more specific tools, is recommended in the case that a more profound study is needed.

The methodology used to find the representative parameters of the Chilean construction industry required strong interaction with industry professionals and managers. The different discussion groups and interviews performed to people that work in the construction environment provided a solid base for the development of the proposed diagnosis tool.

Future research involves the application of the tool in multiple companies and developing new organizational development tools to respond to the needs of LCP. The authors also believe that this methodology could be replicated in other industries or other countries.

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