

Healthy organizations: toward a diagnostic method

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Abstract

Purpose – The purpose of this paper is to propose, from the way in which an allopathic physician makes a diagnosis of a person's health, an organizational diagnosis metaphor that can contribute in the search for an increasingly more integral way of qualifying an organization as healthy.

Design/methodology/approach – The methodological approach is essentially functional and is based on the cybernetics of W.R. Ashby with respect to the concept of a model and especially on “iso-” and “homomorphisms.” In this way, similarities are found between the behavior of the components observed by the physician in a person, according to his diagnostic guidelines, and the functioning of an organization.

Findings – The paper finds that various authors recognize the value and power of the use of metaphors, following the spirit of L.V. Bertalanffy, in the search for a better understanding of the organizational phenomenon, particularly that of human health, including the definition of the World Health Organization, from which a way is proposed here to understand a healthy organization and a general model of organizational diagnosis. It is estimated that one of the most significant findings made so far is the need to formalize structurally dependencies meant to apply “organizational awareness” as a way of permanently reflecting on the organization, helping its members to distinguish what belongs to the person and what belongs to the emergent phenomenon called organization, a task that until now is done partially, considering only some actors and at some points in time. Strategic planning, coaching higher executives, and empowerment of employees have gone in that direction, but still show insufficient efforts.

Research limitations/implications – The work done so far has consisted in the theoretical development of homomorphism and some applications about which it is not yet possible to make a report because of their scarcity. However, this method of work has made it possible to refine the initial model and make some adjustments according to the divergencies seen between the theoretical and the practical. Consequently, this is a proposal that requires discussion – the purpose of this communication – and further experimentation that may lead to its eventual validation.

Practical implications – The proposal of a general model for making organizational diagnoses.

Originality/value – Some degree of originality is considered with respect to known work, because the idea is to articulate a model having an integral character that allows an organization to be qualified as healthy, trying to go beyond partial views that attributed that condition to organizations that were seen from a particular perspective, such as the health of its workers or its economic-financial performance.

Keywords Organizational structures, Cybernetics, Organizational culture

Paper type Conceptual paper

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1. Introduction

The methods of organizational diagnosis come from organizational models that are built on various kinds of metaphors, among which the following can be mentioned: the knowledge factory, ecosystems, learning, social relations, computer and software organizations – agents and multiagents – the human nervous system, cultural, mechanical, organic, cerebral, communications, autopoiesis, conversational networks, energy (chakras), etc. In particular, Morgan (1991) has been concerned with metaphors, describing the advantages and disadvantages of each and their key factors, also exposing their main precursors, concluding that there is no better way of viewing the organization, and that the most convenient metaphor available for the problem situation faced must be used, thereby opening the possibility of exploring new forms of looking at and understanding organizations. That is why this work originated, arising from the question of what is understood by a healthy organization.

In the first place, it is necessary to specify that when we say organizations we refer to systems consisting of people and physical, economic and informational resources, whose purpose is to produce a good or service for themselves or for the whole community. In that sense, it is considered that the category of organizations includes public and private enterprises producing tangible and intangible objects, state institutions, international organizations, non-profit corporations, social groups, cooperatives, non-governmental organizations, sports clubs, etc. and the qualifier healthy applies to the organization as a whole and not only to some of its components.

The expression “healthy organizations” has been used for some time, but in different ways. In particular, in matters of occupational health it is used to refer mainly to the health condition of workers. This means that the concept of healthy organization is placed in direct relation to the health of the people working for the institution, and one of the main ways of measuring it is the observation of physical and mental health, and recently, according to the International Labor Organization, psychosocial occupational risk factors have acquired great importance.

There are organizations that implement programs for improving the worker's adaptation to the work environment, reducing the misadjustment between what is expected of them and what they are capable of doing. However, there is still little evidence showing concern by the organizations for their stressing structural factors, which is stated to be more effective in terms of cost/benefit than having to deal with organizational stress (Cooper and Cartwright, 1994).

Other organizations show concern for their workers feeling valued and being capable of resolving their conflicts, caring for the physical aspect of work (materials, ergonomics, etc.) as well as for highlighting various factors that affect the labor climate directly (Lowe, 2003), emphasizing leadership and the generation of trust between the workers (Robertson, 2000). Similarly, some consider the incidence of human resources in the achievement of the desired organizational results, choosing the dimensions that must be kept in mind through their statistical significance (Brown and Starkey, 2000).

The expression healthy is also used in relation to those organizations that have good human relations, not only among peers, but also basically among executives and workers, the latter behaving more like leaders than like bosses. That is how, recommendations are made aimed at valuing the employee by the organization, trying to avoid getting into talent struggles or favoring individual results over those of the groups, or trying to attract the best personnel from outside the organization with detriment to the internal

development of the people (Pfeffer, 2001). That is compatible with the concept of healthy organizations based on reciprocal support among the workers, in which the need for that support is indicated, while they create an organizational culture in which the people have greater control and influence over the decisions that affect their lives. The relation between the leaders and organizational culture affects organizational health in the short- and long-term (Goldman Schuyler, 2004). Also, the need is highlighted for a corporate behavior in which, by means of a shared mission and an effective leadership, different ethical characteristics are seen that belong to a healthy organization (Verschoor, 2003), among them, to achieve a balance in the relations between the employees, the clients and the stakeholders, observing their commitment with social responsibility both in their values and in the results (Corbett, 2004).

In particular, there is concern for violence in the workplace and its incidence on the health of the organization (Chávez, 2003). That violence can be not only physical, but can also take the form of theft, sabotage, rumors, impoliteness among the workers, or deliberate delay in the work that is being done. Although, the first models of violence were centered on working and political conditions, models have now been proposed in which both organizational and human factors are involved related to the interpretation made by the workers of their successes and failures, aided to a greater or smaller extent by the organization. That behavior would result in better or worse organizational result (Martinko *et al.*, 2006).

Another way of considering an organization healthy is to qualify it as effective, i.e. that it fulfills the objectives and does so in a good way, including the capacity for adaptation that allows it to face adverse situations. In particular, organizations are said to be healthy when they show a good financial performance (Wilson *et al.*, 2004). Lacher *et al.* (1995) had dealt with the financial health of organizations, understanding them as how affected the financial condition is as to endanger the organization's viability, according to a study made by Beaver (1966), where it is stated that the financial ratios of the viable organizations have different characteristics from those of organizations close to disaster.

It is possible, therefore, to find a large range of approaches to the subject, some more encompassing than others, without finding integrated definitions that attempt to exhaust the multidimensional character of the organizations, with predominance of the viewpoint of the setting from which the formulation is made.

McHugh *et al.* (2003), go beyond the typical dimensions on which interest in the organizational health is usually centered, recognizing it as that in which its structure, culture and administrative processes contribute to a better performance of the organization itself and of the health of the individuals that constitute it. Thus, the indicators of organizational health would not only consider the stress, welfare, satisfaction and commitment of the individuals, but also the quality of decision making, the adequacy of the organizational structure, and financial indicators. The paper is centered on how the relation between client and supplier is reflected in the organizational health of each of the participants as they are excessively pressed by their clients.

For Dive (2004), the main focus must be in designing the structure, as if it were a skeleton for the company. From there one can study the processes, the rewards systems, the human resource practices, and the strategic dimensions of growth and technology. In that way, the healthy organization can fulfill at the same time its mission and implement the development, learning and growth of the individuals.

In the same sense, Wilson *et al.* (2004) add the need to pay attention to the design of the work, influencing the individual perception of the workers about it; the organizational climate, emphasizing the social and interpersonal aspects of work; and the occupational future, centered on its security, fairness, and career development, which are probably the result of the established policies and the actions taken by the leaders of the organization, which in turn are derived from the organizational beliefs and values.

Although, organizational health has been related mainly to the workers' health, the same as has happened with traditional administrative theories there has been an evolution in the use of the metaphor, moving from the health of people to new conceptions that incorporate structural and financial aspects and of relations with their stakeholders. However, the metaphor that is brought up from the definition of health of the World Health Organization (WHO) stands out because of its richness by including the triple physical, mental and social dimension.

Although these dimensions can be considered independently, it does not seem adequate to do so if one wants to have an overall vision of human health and, metaphorically, of organizational health. Therefore, when the physician treats a patient, during the anamnesis he is interested not only in assessing the physical condition but also the mental and social setting, from which he can make a diagnostic presumption.

Within this multidimensional conception, the work of Bruhn (2001) stands out. However, it seems necessary to expand and stimulate the development of the metaphor of human health applied to organizations, taking up the work of Jackson and Keys (1984), Jackson (1988, 1999) and Flood (1995a,b). In this respect and within this multidimensionality, it becomes necessary to develop methods that make use of the potential of the metaphor, avoiding the unnecessary complication for its possible future users.

In agreement with the above, if the organization is considered to be the result of the integration of a structural, a strategic and a social dimension, it is possible to establish a homomorphism with the WHO (2006) definition of people's health, which considers it as a "state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity." Thus, the health situation of an organization can be compared with the health situation of a person, a metaphor which to Bruhn and Chesney (1994) has advantages because it forces to define states of welfare of the organization, paying attention to its processes instead of only to the results, and to be concerned about those good practices that allow it to increase its probability of being and remaining healthy.

To Fernández (2005), organizations can be understood as persons, and the high mortality of organizations seen in Spain (90,000 per year) would be due to various pathologies that have a physical origin, such a "colds, myopia, old age, fatigue, and laziness," which are associated with "commercial isolation problems, little reaction to competitors, unreal view of the situation and the market, and little capacity to generate new projects". On the other hand, among the group of psychic pathologies he points out "schizophrenia, manic-depressive psychosis, and aggressive or persecutory paranoia," which he relates in the organization to:

[...] loss of the objective and little adequacy of the means used, uncontrolled hyperactivity, not admitting guilt for the poor operation of the company and blaming the market, the sector, the supplier or the client (never the organization), little learning capacity, and resistance to change.

It is precisely in this context and under this inspiration that a proposal is made here of a homomorphism between the health situation of people and that of organizations, oriented at finding a method that will make it possible to qualify an organization as healthy, under an integrating perspective that brings together multiple views and contributes to provide tools that will help fight organizational morbi-mortality, as well as to generate healthy behaviors that contribute to its viability as “living beings.”

This proposal, which is subject to discussion, is supported basically by two working hypotheses:

- H1.* Organizations can be seen as living beings, and as such they can present states of health, disease and death.
- H2.* If the definition of health that is used for people is applied metaphorically to organizations, then that definition can be made operational through a method of measurement, and can be applied to organizations to determine their state of health.

Health, declared as a fundamental right of human beings, is not related exclusively to the absence of disease at a given time, but it is also seen as the dynamics that allows people to develop and adapt to the environment. Consequently, a healthy organization will be one that, the same as human beings, is prepared to develop and adapt to its environment.

In relation to the homomorphism that it is desired to establish between “healthy person” and “healthy organization,” it should be pointed out that although in the former case health is recognized as a fundamental right of people, in the latter it does not seem to be so. Perhaps, it will be necessary to open up a discussion on the possibility that all organizations, or some particular kinds of them, have health as a fundamental right, a question that will remain pending for the time being, since it goes beyond the scope of this paper.

In agreement with what has been stated, a modeling of metaphoric relations between the health of people and the health of organizations is attempted below, after presenting a conceptual approach to what can be understood as “healthy organization.”

2. Definition of healthy organization

According to dictionary definitions of “organization” and “healthy,” it can be stated that a healthy organization is “an association of people governed by a set of regulations as a function of specific purposes, with good health and healthy appearance.”

The WHO, on the other hand, defines health as:

[...] a person’s state of complete physical, mental and social well-being, and not merely the absence of disease, that gives it the capacity to develop its own potential and allows it to respond positively to environmental challenges.

Consequently, and simply by integrating both definitions, a healthy organization can be defined as:

[...] an association of people governed by a set of regulations as a function of specific purposes, in a state of complete physical, mental and social well-being, and not merely the absence of disease, but with the capacity to develop its own potential to respond positively to environmental challenges.

From this definition it can be concluded that an organization, even though this may seem redundant, is a system, a human activity system. It is a synergic whole, something more or less than the simple sum of its parts. It is a property that emerges, that rises without having yet a stabilized explanation for its appearance. Therefore, physical, mental and social well-being belongs to the organization, to the system, to the whole, and not to its components. And because it is synergic, not additive, not linear, it cannot be understood as the simple sum of the physical, mental and social well-being of each and every one of its components, the people. This brings up two great challenges: one is to understand the organization as a whole, and the other is to distinguish what are the physical, mental and social components of an organization. It is the latter concern that it is attempted to approach here.

3. From the health of people to the health of organizations

When we talk about the health of people it is said that it is a “state,” which in turn we can define as a set of characteristics and behaviors shown repeatedly by any system, allowing it to be recognized and referred to by an observer. This indicates that health is not a permanent state, but rather that it can be achieved at some time. In general, the state in which a system is at a given time is produced by the action of the transformation[1] that governs the behavior of the system, and by the temporary assignment of other transformations that act occasionally and we understand as perturbations. Which is the set of transformations that act on people and determine their health state? They are certainly countless. However, we can arrange them in two large groups: endogenous, or originating within the body, and exogenous, or originating outside.

Cybernetically, the final result is the achievement of the desired state, which is primarily to remain alive, and then to be healthy. The external perturbations that remove human beings from their healthy condition must be faced with balancing resources that allow them to be neutralized and return the system to its state of equilibrium. Similarly, the unbalancing assignments coming from within the individual himself, like autoimmune processes for example, must be neutralized to maintain the individual in a healthy condition.

Among the internal determinants of the transformation processes of the health states of a person, it is possible to recognize physical, chemical and biological factors. Then, in the search for homomorphism with organizations, which here is assimilated with a living being and more strictly to a person, it is necessary to recognize the physical, chemical and biological dimensions of the organization.

A first approximation allows the association of the physical part of an organization with its components and their relative arrangement; this is no other than the structural expression of the organization. The changes in the behavior of the components must also be considered, where manifestations like temperature and pressure can be homologated, for example, with levels of organizational activity and bottlenecks, respectively.

Similarly, it is also possible to point out as the chemical part of an organization those processes involving changes in the state of matter, such as, for example, the transformation of fuels into heat, and through it, the change of state and integration or disintegration of different materials. The biological part, in turn, can be interpreted organizationally as what is emerging and is referred to as organization, which is manifested in the overall result that is sought, whether it is a product or a service offered to the community. Biologically, organizations are “auto-” and “allo-,” “poietic,”

i.e. they produce themselves, but they also offer something different from themselves to the community, thereby establishing their identity (Maturana and Varela, 2003).

Of course, the health condition of a person can be qualified by itself – self-perception – and/or by a third party recognized as a specialist by a given community. The latter form is so decisive that any person cannot declare itself sick and miss work, for example. The individual can rather feel healthy or sick, but the statement belongs to those who are recognized by society as official sanctioners.

Therefore, if the state of health of a person is qualified by a recognized specialist, then the state of health of an organization should be sanctioned in the same way. This certainly happens in the relation that is established between a consultant and an organization.

In particular, here we pay attention to the homomorphism that it is possible to establish between the way in which an allopathic physician studies and declares a patient healthy or sick, and what a “physician of organizations” would do with his “organization patient.” The long tradition of western allopathic medicine[2], offers a highly structured framework of guidelines and recommendations that make it possible to advance in the search of such homomorphism (Servicio Nacional de Salud Chile, 2008; Catalán *et al.*, 2000; Padilla, 1961; Farreras, 1967; Gentile, 2000; Gazitúa, 2000).

Methodologically, use is made of Ashby’s (1972) concept of homomorphism, according to which two cybernetic machines are similar if it is possible to find a multiunivocal transformation – several to one – which allows linking the states of that with the larger size with the states of that with the smaller size. The highest level of similarity occurs in isomorphism, i.e. when the relation between the two machines is of the biunivocal type – one-to-one. However, the starting point chosen for the search for similarities between the medical diagnosis model and the possible organizational diagnosis model was to consider them a priori as homomorphic. It must be kept in mind that the development of homomorphism occurs in this case having only one of the machines in sight, that of medical or original diagnosis, while the destination or organizational diagnosis machine is unknown.

One of the possible homomorphisms will be deployed below in the most self-explanatory possible way, avoiding, for reasons of space, the presentation of all the arguments that led to each of the established relations, which according to what was mentioned in the previous paragraph would mean to explicit the transformation that gave rise to the homomorphism. However, it must be pointed out that the procedure for the construction of the similarities between variables is essentially functional, cybernetic, i.e. it is aimed at the variable or component – structure – but the route toward the search for the similarity with the organization is done based on the function of that component in the human body, according to which its functional equivalent in the organization will be identified.

4. Homomorphism

Tables AI-AV of the Appendix, present the homomorphism between the diagnosis of a person and of an organization.

In the first place, the physician makes the anamnesis, which consists in questioning the patient and his escort, if there is one, on general aspects such as identification and health background of the patient and his family. The “organizational physician” must therefore proceed in a similar way, questioning key informants on the identity and

historic problems of the organization and the closest-related organizations. Table AI (Appendix) shows this first component of the homomorphism in question. The last column is used to code the variable, a notation that will then be used in the diagnostic model; in this case, “B1” corresponds to general background variable one, and so on.

Then, the medical guideline indicates that a detailed physical study of the patient must be made, based on the function and semiotics of the multiple aspects shown in the first column of Table AII (Appendix), through questions, observation, palpation and auscultation. The middle column establishes the parallelism with what the “organizational physician” must observe. The last column codes the variable that will then be used in the diagnosis model; in that way “Ph1” means physical variable one, and so on.

The physical examination made by the physician also refers to breaking down the human body system into sub-systems that allow a more systemic scrutiny, in contrast with the previous view with a rather reductionist character. At this stage, one can also make use of diagnostic support tests using different kinds of technologies. Therefore, it is possible also to emulate this way of looking at the patient applied by the physician, looking at the organization in terms of subsystems, as shown in Table AIII (Appendix), always from a physical viewpoint. The last column is used for the connecting codes with the diagnostic method, where “PhS1” indicates the physical variable system one, and so on.

Satisfying the global control of a person’s health is also related to the mental component. The physician evaluates this dimension taking into account aspects like those mentioned in the first column of Table AIV (Appendix). The proposed organizational equivalents are given in the middle column, and in the last one “M1” represents mental variable one, and so on.

Finally, the physician that studies the state of health of a person considers those aspects that will allow him to evaluate the social component of the health situation, observing the patient and asking him questions like those shown in the first column of Table AV (Appendix). These social examination variables of people have been obtained from guidelines proposed for the attention of adolescents (Catalán *et al.*, 2000), because no others of a general character were found applicable to people of any age. As has been brought up for the physical and mental components, the organizational analyst must observe the set of aspects shown in the second column of the table, and the same as in the previous cases, the last column gives the codes that will be used later to relate with the organizational diagnosis model; “S1” indicates social variable one, and so on.

So far, we have presented and proposed a homomorphism between the medical observation guideline and what an analyst should therefore observe to be able to evaluate the health situation of any organization.

5. Toward a model of organizational diagnosis

From the homomorphism presented in the previous point, a general model of organizational diagnosis is proposed, aimed at determining if a given organization is healthy or not.

Let us put forth some preliminary considerations. In the first place, the multiple kinds of organizations that are found in practice require from the analyst an interpretation of the variable that is being observed, so that it will fit into the particular class of organization that is being studied. In any case, the homomorphism mandate establishes that all the variables determined here must be considered until further

notice, once the community of readers has revised and approved the proposed homomorphism. In the second place, and also in relation to the organization that is being studied, the analyst must construct the reference parameters for the different variables so that they will allow him to classify as normal or abnormal each of them. Cases are recognized in which it is possible to have objective indicators, like some financial ones, but it is also pointed out with respect to variables for which it will be difficult to obtain a reference, and one must resort to the judgement of experts, for example. The possibility of getting the opinion of those involved through surveys and interviews is also considered. It is recommended to keep in mind the use of tools of the checklist type for those cases that can be evaluated, for example, through the criterion of “exists” or “does not exist,” as well as the use of Likert type scales, all of them specific tools already available in the market. Finally, it must be decided how the final judgement of the organization’s state de health will be made. It is recommended to keep in mind that the health condition of a person, leaving death aside, covers a continuum that goes from feeling definitely ill to completely healthy. However, along this path it is possible to find degrees; some people declare themselves ill if they feel any disorder, while others having the same discomfort find themselves healthy and do not give much importance to what is affecting them. It must also be kept in mind as mentioned above that the final responsibility for declaring a person healthy or sick corresponds to the specialist that society recognizes as authorized to issue that verdict. However, the analyst must decide when a given organization is declared healthy or sick, with the corresponding intermediate degrees. The strictest criterion to be taken into account is when it is considered, through a systemic effect, that it is enough for one variable to be outside its normal range to qualify the whole organization as not healthy.

Tables AVI-AX (Appendix) present the variables that must be observed, relating them through the homomorphism code. They also include the kind of information that it is proposed to use in each case, as well as the sources from which they may be obtained. The repetition of information in several variables is due to the different degrees acquired in each case, which must certainly continue to be clarified.

As already mentioned, all the information to be obtained, with the sole exception of general background, must have references that allow the state of the variable to be classified as normal or abnormal. Heterogeneity makes it advisable for each of the values or degrees of normality to be defined keeping in mind the kind of organization that is being studied. Also, the qualification of healthy or not will depend on the final criterion used, and it is recommended to take into account the health-disease continuum in which people move.

6. Final comments

From the organic-based systemic paradigm it is possible to consider organizations as entities homomorphic with human beings. Under that same logic and by recursiveness, a second level of similarity can be established between the way in which a human being is qualified as healthy/sick by an allopathic physician and the way in which an organization is qualified as healthy or not by an “organizational physician.”

The proposed organizational diagnosis model consists of 53 variables that are structured under the WHO definition de people’s health, i.e. in relation to their physical, mental and social well-being. Consequently, the operationalization is done with respect to the way in which a general allopathic physician studies the patient from those three

viewpoints. Similarly, then, the “organizational physician” will study the health of an organization with respect to those three aspects, giving rise to the concept of organizational health as the state of complete physical, mental and social well-being of an organization.

For each of the variables to be observed an information set is proposed from which the desired diagnosis is made. Similarly, a set of sources of information is proposed, among which interviews with key informants, past reports, and direct information surveys stand out.

The components of the organizational model resultant from homomorphism refer in the physical aspect to all the logistics of the organization (input, middle and output); marketing, public relations, sales, budgets, purchases; quality control, maintenance, waste recycling and elimination; decision making and information systems; management control systems, manuals, rules, regulations, statutes; organizational structure, corporate image, functions, infrastructure; and organizational reproductive potential. With respect to the mental aspect, communications, publicity, public relations; research, development and innovation activities; strategic planning, mission, vision; organizational autonomy; organizational memory; organizational culture; organizational climate; social awareness and responsibility. Finally, the social aspect considers informational relation with other organizations; integration of associations in the same field and others; autonomy; respect for agreements existing in its environment; making strategic alliances and requesting professional help from third parties; exercising positive leadership in the sector and toward the whole community; implementing new enterprises; client-orientation through continuous improvement; analysis of the surroundings detecting opportunities and threats; concern for the environment and its own organizational health and that of others.

Organizational heterogeneity makes it necessary to reconsider the set of variables proposed at the time of making an application. A company that produces goods is certainly not the same as one that renders services. Neither is a large company with many employees and high-billing levels the same as a middle-sized, small or micro company. Also, the line of business of the organization sets differences when evaluating the state of health; a metal-working factory is not the same as a hospital or a university. This is meant to point out that homomorphism has been developed for a given hierarchic level that allows the similarity to be established, but that has not prevented acknowledging the specificity of the different types of existing organizations. Consequently, the normality of each of the variables must be considered in relation to the kind of organization that is being studied. Similarly, the final decision on the health level of an organization will depend on the criterion by which the “organizational physician” is judging the background that he is reviewing.

On the other hand, it is believed that this work can provide a route that has among its objectives to contribute to the discussion and generation of new discourses and instruments for understanding the organizational phenomenon. The view that has been brought up is aimed at articulating a model with an integral character that allows an organization to be qualified as healthy, overcoming the partial views that assigned that condition to organizations that were seen from a particular perspective, such as, for example, the health of its workers or its economic-financial performance, among the most widely used.

Finally, some tasks that must be faced are derived from this proposal, among them the search for homomorphisms between diseases of people and “organizational diseases”; the treatments for each of those diseases; the determination of the incidence

and prevalence of each of the detected pathologies in the organizational population; the construction of general references for each of the variables that make up the diagnostic model. Instrumentally, something like an “organizational epidemiology” should be developed that can aid in finding replies to these questions. Furthermore, work can also be done toward the construction of an “organizational public health” and an “organizational bioethics” that take charge of the common problems of organizational ailments by providing the resources and services to care for the disorders from which they are suffering, as well as the duties and rights toward life that must be faced by both individuals and communities of organizations.

Notes

1. In the sense treated by W.R. Ashby in his *Introduction to Cybernetics*.
2. At present the authors are working with specialists in medicines other than allopathic, with the purpose of developing models of organizational health diagnosis under other medical homomorphisms.

References

- Ashby, W.R. (1972), *Introducción a la Cibernética*, Ediciones Nueva Visión SAIC, Buenos Aires, p. 392.
- Beaver, W.H. (1966), “Financial ratios as predictors of failure”, *Journal of Accounting Research*, January, pp. 71-111.
- Brown, A.D. and Starkey, K. (2000), “Organizational identity and learning: a psychodynamic perspective”, *Academy of Management Review*, Vol. 25 No. 1, pp. 102-20.
- Bruhn, J. (2001), *Trust and the Health of Organizations*, Kluwer Academic/Plenum Publishers, New York, NY.
- Bruhn, J. and Chesney, A. (1994), “Diagnosing the health of organizations”, *The Health Care Supervisor*, Vol. 13 No. 2, pp. 21-33.
- Catalán, S., Moore, R., Téllez, A., Cifuentes, L. and Valdés, V. (2000), *La Supervisión de Salud del Niño y del Adolescente*, Editorial Mediterráneo-UNICEF, Santiago, p. 195.
- Chávez, L. (2003), “10 things healthy organizations do to prevent workplace violence”, *Occupational Hazards*, Vol. 65 No. 8, p. 22, < ABI/INFORM Global > (consulta enero 5, 2007).
- Cooper, C.L. and Cartwright, S. (1994), “Healthy mind; healthy organization – a proactive approach to occupational stress”, *Human Relations*, Vol. 47 No. 4, pp. 455-71.
- Corbett, D. (2004), “Excellence in Canada: healthy organizations – achieve results by acting responsibly”, *Journal of Business Ethics*, Vol. 55, pp. 125-33.
- Dive, B. (2004), *The Healthy Organization*, 2nd ed., Kogan Page, London, p. 294.
- Farreras, V. (1967), *Medicina Interna*, 7th ed., Editorial Marín, Barcelona, p. 1848.
- Fernández, J. (2005), “Por qué se mueren, cada año, 90.000 empresas en España?”, available at: www.espanol.groups.yahoo.com/group (consulta septiembre 30, 2005).
- Flood, R. (1995a), “Total systems intervention (TSI): a reconstitution”, *The Journal of the Operational Research Society*, Vol. 46 No. 2, pp. 174-91.
- Flood, R. (1995b), *Solving Problem Solving, a Potent Force for Effective Management*, Wiley, Chichester, p. 409.
- Gazitúa, R. (2000), “Manual de Semiología”, available at: <http://escuela.med.puc.cl/> (accessed November 4, 2006).

- Gentile, I. (2000), *Semiología Pediátrica*, 2nd ed., McGraw-Hill, Santiago, p. 380.
- Goldman Schuyler, K. (2004), "The possibility of healthy organizations: toward a new framework for organizational theory and practice", *Journal of Applied Sociology/Sociological Practice*, Vol. 21 No. 2, pp. 57-79.
- Jackson, M.C. (1988), "Some methodologies for community operational research", *The Journal of the Operational Research Society*, Vol. 39 No. 8, pp. 715-24.
- Jackson, M.C. (1999), "Towards coherent pluralism in management science", *The Journal of the Operational Research Society*, Vol. 50 No. 1, pp. 12-22.
- Jackson, M.C. and Keys, P. (1984), "Towards a system of systems methodologies", *The Journal of the Operational Research Society*, Vol. 35 No. 6, pp. 473-86.
- Lacher, R.C., Coats, P.K., Sharma, S. and Franklin Fant, L. (1995), "A neural network for classifying the financial health of a firm", *European Journal of Operational Research*, Vol. 85, pp. 53-65.
- Lowe, G. (2003), "Building healthy organizations takes more than simply putting in a wellness program", *Canadian HR Reporter*. Septiembre 8, available at: www.hrreporter.com/ (consulta enero 05, 2007).
- McHugh, M., Humphreys, P. and McIvor, R. (2003), "Buyer-supplier relationships and organizational health", *The Journal of Supply Chain Management*, Spring, pp. 15-25.
- Martinko, M.J., Douglas, S.C. and Harvey, P. (2006), "Understanding and managing workplace aggression", *Organizational Dynamics*, Vol. 35 No. 2, pp. 117-30.
- Maturana, H. and Varela, F. (2003), *El Árbol del Conocimiento*, Editorial Universitaria, Santiago de Chile.
- Morgan, G. (1991), *Imágenes de la organización*, Alfaomega, México, p. 408.
- Padilla, T. (1961), *Semiología General*, 8th ed., Editorial El Ateneo, Buenos Aires, p. 342.
- Pfeffer, J. (2001), "Fighting the war for talent is hazardous to your organization's health", *Organizational Dynamics*, Vol. 29 No. 4, pp. 248-59.
- Robertson, D. (2000), "Trust, loyalty, risk and revenge: leadership challenges in healthy organization", *Training Journal*, July, available at: ABI/INFORM Global (consulta enero 5, 2007).
- Servicio Nacional de Salud Chile (2008), *Normas de Atención Intrahospitalaria*, Hospital Roberto del Río, Universidad de Chile, Santiago.
- Verschoor, C.C. (2003), "Eight ethical traits of healthy organization", *Strategic Finance*, Vol. 85 No. 3, p. 20.
- WHO (2006), *Documentos básicos. Constitución de la Organización Mundial de la Salud*, World Health Organization, Geneva, available at: [constitution_sp.pdf](http://www.who.int/governance/eb/who_constitution_sp.pdf)>www.who.int/governance/eb/who_constitution_sp.pdf, (consulta de octubre de 15, 2006).
- Wilson, M.G., DeJoy, D.M., Vandenberg, R.J., Richardson, H.A. and McGrath, A.L. (2004), "Work characteristics and employee health and well-being: test of a model of healthy work organization", *Journal of Occupational & Organizational Psychology*, Vol. 77, pp. 565-88.

Further reading

- Morgan, G. (1980), "Paradigms, metaphors, and puzzle solving in organization theory", *Administrative Science Quarterly*, Vol. 25 No. 4, pp. 605-22.
- Morgan, G. (1999), *Imagin-I-zación*, Ediciones Granica S.A., Barcelona, p. 456.

Appendix
See Tables AI-AX.

Person (anamnesis)	Organization (general background)	
Identification of person	Identification of organization	B1
Identification of informant	Identification of key informants	B2
Personal medical background (diseases)	Background of organizational problems and the way in which they were approached; symptoms, diagnoses, interventions, landmarks in the company's evolution	B3
Family medical background (diseases)	Background of problems in organizations related through ownership, financing, management (holdings, investment companies, others)	B4

Table AI.

Person (physical examination)	Organization (physical examination)	
Anthropometry	The weight-height relation of people reflects their nutritional state, expressing the energy balance between what is acquired and what is consumed and stored. In a similar way, one can see the "nutritional state of an organization" through its financial statement, which shows whether the energy expenditure is greater, smaller or adequate for the infrastructure; it accounts for the efficiency of the processes of transformation of supplies into products	Ph1
Temperature	Temperature serves as an indicator of the operation of the human body, because if it goes outside its normal range it is a sign of homeostatic alteration. Similarly, the "organizational temperature" can be associated with the degree of activity of the organization. For example, a feverish organization will be one that shows an activity level above its normal performance	Ph2
Pressure	In people, it indicates the pressure exerted by the blood against the walls of the arteries, according to the systole and diastole processes by which the heart impels and gets blood. Similarly, the "organizational pressure" can be understood as the efficiency in the operation of logistic distribution	Ph3
Urine and stools	Both in people and in organizations they correspond to the "wastes of the production system"; they consider those related to the logistics of support activities (urine) as well as those of the logistics of production (stools)	Ph4
Skin, hair, fingernails	In human beings, the skin is the most extensive organ, covering the whole body, it has components and protects against external aggression, and it also allows environmental components to be taken in and thrown out. It is the organ of touch. The state that it presents helps detect, depending on the observed signs, disorders in other systems or components of the body. In the organization, it can correspond to the "corporate image," depending mainly on the quality of the supplies used and of the emotional state of its workers. The image offers natural protection against intrusion by possible competitors, as well as by capturing information from the environment. It also allows the activation of the organization's legal system, reacting to disturbances of the surroundings	Ph5

Table AII.

(continued)

Person (physical examination)	Organization (physical examination)	
Ganglia	In human beings, the ganglia – particularly lymphatic – have the function of serving as places for the confrontation between pathogens and antibodies. That is where infections that can affect a person are faced. An adenopathy – inflammation of the ganglia – indicates an infectious state associated with some nearby part of the body. In an organization, it would correspond to the space where it is possible to tackle the intrusions from the surroundings. They can be considered as a “conflict resolving space,” protecting the organization and in particular its logistic system	Ph6
Cranium	The main function of the cranium in human beings is to protect the brain. And in relation to the signs shown, a large cranium, for example, can mean an atrophied brain. In an organization, it can be thought that an “higher organizational structure,” as well as the “kind of partnership” that gives life to it, are the main ways of protecting its upper decision center	Ph7
Face	The face of human beings is a principal component of communication with others and of the construction of the individual’s image. It harbors sensors like the eyes, nose, mouth and ears. Similarly, the “face of an organization” would correspond to the set of persons that the client contacts first, as well as to its physical facilities, sales, public relations, corporate image, and its systems for capturing information from its surroundings	Ph8
Eyes	In the same way as people use the eyes to get light information from the environment, the organizations have mechanisms – including the people that make them up – that also allow them to capture information from the environment, paying special attention to the behavior of competitors, clients, suppliers, and the market in general, that will allow them to act in anticipation; these are the “organization’s eyes.”	Ph9
Ears	The same as the eyes, the ears allow people to get sound information from the surroundings. In the same way, the “organization’s ears” would correspond to all those mechanisms – including the people that make them up – that allow them to capture information from the environment and therefore act in anticipation	Ph10
Mouth	The mouth of people fulfills various functions, among them it participates in the modulation of words, in the ingestion and mastication of food, in the detection of flavors, in the beginning of digestion, and it also allows breathing. Similarly, the “organization’s mouth” would be in charge of communications with the outside, of public relations, as well as of purchasing, and requesting and receiving supplies and raw materials; it has to do with input logistics	Ph11
Teeth	While in human beings the teeth participate in the process of digestion through swallowing, in organizations they can be understood as part of the input logistics; once the supplies and raw materials have been received, the “organization’s teeth” help with the initial classification, arrangement and distribution of the material toward the production process	Ph12
Nose	In people, the nose allows the adequate passage of air when breathing, perceives smells, and serves as a resonance organ of sounds generated by the larynx. Homologously, the “nose of the organization” would be part of the input and sales logistics, allowing the entry of the energy (economic resources) needed by the organization, and it would also correspond to those devices capable of getting information from the surroundings	Ph13

(continued)

Table AII.

Person (physical examination)	Organization (physical examination)	
Neck	The main function of the neck in human beings is to allow the mobility of the head. It is where the thyroid gland is located, and its examination allows an image to be formed of the functioning of the endocrine system. Similarly, the “neck of the organization” would correspond to instances of coordination between upper executives and management, with the thyroid gland corresponding to the instances of internal control	Ph14
Spinal column	The spinal column is the structural pillar of human beings and protects the spinal cord and its roots. Similarly, the “organization’s spinal column” would correspond to the central axis of the organization’s structure. It contributes to give an identity to the organization, at the same time protecting the information systems that carry commands from the central executive to the operational level. It also gives flexibility to the organization	Ph15
Chest	The chest in human beings has the function of protecting the lungs and the heart, key centers of the respiratory and circulatory systems. Its structural characteristics determine the processes of inspiration and expiration. Similarly, it can be considered that the “chest of the organization” corresponds to those systems that fulfill the function of logistic protection, preserving the quality of that function. It determines and represents the infrastructure for the provision of supplies and products. It also deals with the capacity to transfer information to the surroundings	Ph16
Abdomen	The abdomen of human beings contains a large part of the digestive and excretory system, and the reproductive system in women. Functionally, in an organization it can be homologated with the supplies and raw materials processing center of the internal logistics. Production would correspond to the “abdomen of the organization”	Ph17
Anus and genitalia	Whereas, in the human body the anus and genitalia correspond to final structures of the excretory system, in organizations they would correspond to the final devices whose function is the elimination of wastes and residues. The genitalia also participate in the reproductive function, which in organizations can be assimilated to the participation of people through their individual undertakings and in alliances with others to give rise to new organizations. “Organizational excretory and reproductive system”	Ph18
Limbs	The upper limbs of the human body have the function of relating to the surroundings by feeling, holding and operating objects, while the lower limbs serve to move around. In a similar way, the “organization’s limbs” would correspond to units that on the one hand materialize the relations with suppliers and clients, and on the other hand allow changing positions in the market. Their behaviors reveal the state of communications with the central executive level	Ph19
Body conformation	The body’s conformation defines the outer appearance of a person, reveals its genetic characteristics, and its nutritional condition. In an organization it would refer to its “organizational structure” as a set of logical components and hierarchical relations, as well as to its “infrastructure.”	Ph20

Table AII.

Person (physical examination by system)	Organization (physical examination by system)	PhS1
Digestive	While in human beings this system is in charge of fuel, in the organization it is interpreted as that which transforms raw materials and supplies into products and/or services offered to the market, for which it receives the nutrient or economic resource that allows it to maintain itself as such. It is also in charge of the disposal of the residues generated by production. Mainly allopotesis takes place here, but it also contributes to organizational autopoiesis. Its similarity with "input, internal and output logistics" is proposed	PhS2
Respiratory	In human beings the respiratory system is in charge of the combusive agent, providing the oxygen required for the combustion processes. Similarly, in the organization it would be the system that captures the nutrient or economic resource, budgeting and assigning it to the different components, which are then transformed into the resources required for the development of the organization's operations through purchases. It is proposed to homologize it with "marketing, sales, budgeting and purchases."	PhS3
Cardiovascular	The cardiovascular system in human beings is the one that distributes the nutrients at the cellular level. Similarly, in the organization it is necessary to distribute the resources for the operations at all levels that come from the organization's respiratory and digestive systems. According to this, the heart of the company is the structural component that "pumps" the combusive agent to the different corners of the organization that can be associated with "operations." It is proposed, therefore, that the cardiovascular system of an organization would correspond to its "internal logistics."	PhS4
Urinary	While in human beings the urinary system is in charge of cleaning the blood, filtering wastes so that the nutrients reach the cells in good condition, in the organization that function would be carried out by those systems that allow good quality resources to the operations of the whole organization, disposing of, minimizing and recycling wastes. It is proposed to make it equivalent to functions of "quality control, maintenance, recycling and elimination of wastes."	PhS5
Nervous	In human beings, it corresponds to the neuronal network that joins sensors with effectors and decision making centers. Perhaps this is where allopotesis of human beings occurs, if it is considered as an information processing system. In the organization, it would correspond to the network of information systems that joins internal and external data capturing devices with decision making and processing centers, and then transmitting them to the different points to transform them into action. It is similar, then, to "information and decision-making systems."	PhS6
Endocrine	The endocrine system of human beings is the one which, through hormone production, regulates the functioning of cells, tissues and organs. Similarly, in the organization, if the workers are compared with cells, their regulation and that of the work systems that they make up takes place through policies, provisions, rules, and regulations, and the management control systems become one of the most important forms of organizational regulation. It is proposed, therefore, to make the endocrine system homomorphic with the "management control systems and regulation and control mechanisms in general, considering, among others, manuals, rules, regulations, statutes, direct supervision."	<i>(continued)</i>

Table AIII.

Table AIII.

Person (physical examination by system)	Organization (physical examination by system)	PhS7
Musculo-skeletal	The musculo-skeletal system determines the size of the individual, his aspect, protects his organs and allows his displacement, all this within the barrier imposed by the skin. Similarly, in the organization both its infrastructure and its logical structure project size and image on its clients, suppliers and competition. The muscles of the organization can be thought of as groups of employees who in their daily activity displace the organization from one position to another through processes of internal exchange, sales, purchases and alliances with third parties. Therefore, the muscle-skeletal system is similar to the "organization's structure, corporate image, public relations, positioning strategies, and infrastructure."	PhS8
Reproductive system	In human beings, it is the system that allows reproduction, in this case sexual, requiring the concurrence of a male and a female. The initial protection of the new being occurs within the mother, and its later raising is actually the responsibility of both parents and of the community in general. In the case of the organization, it is possible to recognize sexual reproduction when two or more entities get together to give life to a new organization. But it can also occur asexually when an organization is divided to give rise to another entity, or when a member of the organization has available all the information required to develop a new organizational enterprise, which may occur with or without the agreement of the "mother" organization. Therefore, it is possible to consider organizations as hermaphroditic entities, capable of reproducing sexually, but also asexually when it takes place by partition, replication or cloning. In this case, it is proposed to make the homomorphism with "the persons" that make up the organization, potentially each and every one of them	

Person (mental examination)	Organization (mental examination)	
Language	It refers to the ability of people to communicate with others. In organizations, it can be compared with the functions that fulfill tasks such as “communications, publicity, public relations.”	M1
Perception	It is related to capturing reality and its interpretation by people. In organizations, it would correspond to systems for capturing information from the surroundings and the interpretation and use made of it. It is similar to units or activities of “market research or studies.”	M2
Orientation	In people, it is related to the ability to locate themselves in time and space. Similarly, in an organization it would refer to its ability to recognize the time and place in which it is located, making an adequate interpretation of that information in the service of its objectives and viability. It is similar to the “ability to generate strategies” in an organization	M3
Will	If it is considered that the will of people is related to the ability to decide and act freely, then in an organization it can be related to “autonomy” for deciding, with the ability to close, within itself, the decision processes that have been opened, which is systemically called “organizational closure.”	M4
Memory	In human beings, it refers to the ability of bringing the past into the present; it is what allows remembering. Similarly, in organizations it can be associated with those “information storage devices and systems” which when accessed today allow the past to be remembered. Of course, “people” can also be considered one of the most important forms of organizational memory	M5
Personality	If in the individual, it refers to the set of original qualities that define his conduct and thought, distinguishing him from others, in organizations it is proposed to homologate it with “organizational culture.”	M6

(continued)

Table AIV.

Table AIV.

Person (mental examination)	Organization (mental examination)	
Identity	The identity of a person refers to the set of traits that characterize it to others and to the awareness that it has of itself as different from the rest. In an organization, the identity can be interpreted as what allows it to be distinguished from the rest by its way of doing things and its particular characteristics expressed in its "mission."	M7
Emotions	In people, emotions are seen as mood alterations that occur intensely and temporarily, pleasantly or painfully, and together with some somatic commotion. In organizations, it is proposed to emulate them with "organizational climate."	M8
Ideation	Ideation in people refers to the ability to show knowledge of something. It is a manifestation of reason and ingenuity to achieve a result, to invent and pursue something. It is the intention of doing something. Homologously, in the organization it would refer to the ability to generate knowledge of the surroundings, reasoning, and projecting into the future through "research, development, innovation, and vision."	M9
Conduct	Conduct corresponds to the set of actions by which people respond to a situation. It is the way in which they conduct themselves in their life. In organizations, behavior can be compared to the way in which they respond before third parties and before their own components in terms of ecology, commercial integrity, and company ethics, in other words with "social responsibility."	M10
Conscience	In people, it refers to the psychic act by which an individual perceives himself in the world. Therefore, organizational conscience would be related to the ability of self-recognition, which would allow owners and employees in general to distinguish between what is personal and what is corporate, as well as to reflect on the organization actions. Here, it is associated with "strategic planning" exercises that allow the detection of strengths and weaknesses, as well as with "quality circles" and "coaching," which allow not only self-observation at work but also in personal terms	M11

Person (social examination)	Organization (social examination)
<i>Social competence</i> Shares time with the family	S1 For human beings, especially youngsters, it is fundamental to share with the family, it allows them to receive affection, know the limits for their behavior, and develop confidence in themselves and in others. Similarly, an organization related to its family circle will develop confidence that will allow it to go into joint adventures not only with its relatives but with other companies, know what is expected from it, and certainly feel supported in case of need. One of the main facts to be observed in this case is whether the organization "shares information with family companies," with the head office, with others in the holding to which it belongs, or with its subsidiaries, as the case may be. But it also does so with "suppliers and clients" as sees itself integrated into a supply chain
Knows family limits and the consequences of inadequate conducts. Advances in the process of independence from his family	S2 Just as human beings exercise and build autonomy with respect to their family environment, organizations also do so, making use of the formulation of adequate strategic designs that allow them to function autonomously with respect to the organizations related to them. They must know the action framework imposed by the holding to which they belong and the consequences of some organizational conducts. The similarity is then established as "organizational autonomy."
Obeys family rules. Shows concern for and respects the rights and needs of others	S3 To live in society, people must know their duties and rights. Organizations must also respect agreements and establish harmonious relations with the other members of their family. And not only that, but also with their clients, suppliers and collaborators in general. "Caring for their stakeholders" means knowing, respecting and attending to their needs and rights, facilitating understanding and joint work
Discusses with his family and with health professionals strategies to handle negative peer pressure. If he feels anguished and wants to desert, he asks for help from an adult that he trusts	S4 Human beings must be capable of recognizing when they need help. Similarly, organizations must know how to ask for professional support when they need it. For that they can make strategic alliances, attend consultancies and advisory services that will help them solve their problems. Organizations must have available the "ability to ask for help."
<i>Social activities</i> Knows and participates in community organizations and groups, familiar as well as cultural, sporting and artistic, among others	S5 For their viability, humans, as social beings, need to become part of social groups. Similarly, organizations need to relate with associations in their field, sector or industry as well as with institutions from other fields, participating in cultural, sports and artistic activities, among others, as a way of belonging and being recognized by the community. Organizations must show "relations with institutions in their field and of a social character."

(continued)

Table AV.

Table AV.

<p>Person (social examination)</p> <p>Implements and participates in campaigns of his community aimed at the promotion of health and the prevention of risky conducts</p>	<p>Organization (social examination)</p> <p>People take care of their health individually, but they also participate in the health care of others as well as of their environment. Homologously, organizations must take care not only of their health but also of the health of others, avoiding risk situations, preventing them, and promoting healthy conducts for them and their environment. Expressed in another way, the organization must show that it “acts with social responsibility.”</p>	<p>S6</p>
<p><i>Responsibility</i></p> <p>Acts as a positive model</p>	<p>It is expected that people will act responsibly toward the community, performing positively. The same applies to organizations, and they must “exert positive leadership” through a good behavior in the sector to which they belong</p>	<p>S7</p>
<p>Looks for new responsibilities at home, with his friends, and with the community</p> <p>Is responsible of his work</p>	<p>As they grow and mature, people become committed with new responsibilities in their social environment. Organizations must also “participate in new enterprises” that benefit their clients, suppliers, related organizations, and society as a whole</p>	<p>S8</p>
<p><i>Personal development</i></p> <p>Plans his future, orienting it according to his interests and skills</p>	<p>People must show responsibility for the activities that they carry out, according to their age and condition. Similarly, organizations must act responsibly in their work “with continuous quality and improvement” with the purpose of fulfilling in the best possible way their commitments with their employees, clients, suppliers, and other organizations in general</p>	<p>S9</p>
<p><i>Personal development</i></p> <p>Plans his future, orienting it according to his interests and skills</p>	<p>People must project themselves into the future. Organizations also, for which they “carry out strategic planning” to detect opportunities and threats, and recognize their strengths and weaknesses with the purpose of exploiting the former and overcoming the latter</p>	<p>S10</p>

Variables	General background of the organization Information	Sources
B1	<p>Identification of the organization</p> <p>Trade name Company name Years of service Line of business Duties Directors Geographic location Origin of capital Size according to number of workers and annual invoicing Markets served Position Years of work Years working for the company Years of experience in the field Profession or activity Previous diagnoses Previous interventions Background of legal complaints, union conflicts, among other significant facts Landmarks of change Present ill-being Relations with other organizations Origin of financing Exclusiveness of directors Background of legal complaints, union conflicts, among other significant facts</p>	<p>Interview with key informants Minutes of legal establishment Annual report</p>
B2	<p>Identification of key informants</p>	<p>Interview with key informants</p>
B3	<p>Background of organizational pathologies</p>	<p>Interview with key informants Reports Specific studies reports Minutes of meetings</p>
B4	<p>Background of problems at related organizations</p>	<p>Interview with key informants Specific studies reports Annual reports</p>

Table AVI.

Table AVII.

Variables	Information	Physical examination of the organization	Sources
Ph1	Nutritional state of the organization	Economic-financial situation	Annual reports and balance sheets
Ph2	Organizational temperature	Productive efficiency, growth and quality	Production reports
		Productive efficiency	Worker surveys
		Excess in labor demand	
		Working stress among workers	
Ph3	Organizational pressure	Bottlenecks	Interview with key informants
		Lack of or delays in the receipt of supplies and raw materials	Production reports
		Delay in product delivery	Analysis of suppliers
		Occupational safety	Client complaints
			Accident index
Ph4	Wastes of the production system	Wastes emission	Residue handling reports
		Performance of supplies and raw materials	Production reports
Ph5	Corporate image	Economic-financial situation	Cost accounting reports
		Presence in the media	Annual report
		Infrastructure condition	Interview with key informants
		Characteristics of its legal system	Annual internal reports
		Characteristics of its logistics system	Worker surveys
		Labor climate	
Ph6	Conflict resolution	Intraorganization negotiation processes	Minutes of negotiation processes
Ph7	Upper organizational structure	Structure and functions of the board of directors and management	Documents of agreements with unions
			Interview with key informants
			Statutes
			Minutes of meetings
			Manuals, regulations, rules
Ph8	Organizational face	Financial image to investors	Financial reports
		Quality of service	Strategic planning reports
			Service quality studies
Ph9	Organizational eyes	Availability of market information: clients, suppliers, competition, regulators, among others	Strategic planning reports

(continued)

Variables	Information	Physical examination of the organization	Sources
Ph10 Organizational ears	Availability of market information: clients, suppliers, competition, regulators, among others Reception of complaints and suggestions		Specific reports Interview with key informants Strategic planning reports Specific reports Service quality reports Interview with key informants Reports of relations with suppliers Reports of marketing and publicity activities
Ph11 Organizational mouth	Timeliness, amount and quality in the reception of raw materials (input logistics) Timeliness, amount and quality of communications, publicity, made to the media		Interviews with key informants Input logistics reports Interviews with key informants Reports on availability of economic resources
Ph12 Organizational teeth	Timeliness and quality of the raw materials at the beginning of the production process (input logistics)		Market studies reports Interviews with key informants Interviews with key informants Annual internal reports
Ph13 Organizational nose	Timeliness, amount and quality of income input Availability of information on clients, suppliers and competition		Operationalization of policies Interviews with key informants Internal annual reports Client reports
Ph14 Organizational neck	Analysis of the characteristics of communication between upper executives and intermediate chiefs		Internal annual reports Consultant studies Annual report Analysts' report Publications and articles (specialized press) Interviews with key informants Interviews with key informants
Ph15 Organizational column	Service quality Organizational flexibility Structural autonomy Quality of the transmission of information Relation with suppliers Relation with clients		
Ph16 Organizational chest	Rivalry between competitors Threat of new competitors Threat of substitute products		
Ph17 Organizational abdomen	Quality of operations management		

(continued)

Table AVII.

Table AVII.

Variables	Information	Physical examination of the organization	Sources
Ph18 Organizational final excretory devices	Waste disposal policies		Annual report
Ph19 Organizational limbs	Safety implementation and rules		Interviews with key informants
	Relation with clients		Manuals
	Relation with suppliers		Internal annual reports
	Analysis of currency		Client reports
	Analysis of technologies		Consultant studies
			Annual report
			Organizational history
Ph20 Organizational structure	Study of dependencies and hierarchies		Interview with informant(s)
			Interviews with key informants
			Flow chart

Variables	Physical examination by system of the organization Information	Sources
PhS1	Input, internal and output logistics	Internal annual reports Strategic plan Project plans Consultant studies Interviews with key informants
PhS2	Marketing, public relations, sales, budget, purchasing and distribution	Internal annual reports Strategic plan Project plans Consultant studies Publications and articles (specialized press) Annual report
PhS3	Internal logistics	Interviews with key informants Strategic plan Operations reports Production plans Specific studies
PhS4	Quality control, maintenance, recycling and waste elimination	Interviews with key informants Operations reports Quality control reports Environmental impact reports Specific studies Analysts' reports
PhS5	Decision making and information systems	Interviews with key informants Information systems Decision-making support. manuals Regular internal reports

(continued)

Table AVIII.

Table AVIII.

Variables	Physical examination by system of the organization Information	Sources
PhS6 Management control systems	information for making decisions at the organization's different hierarchical levels Evaluation of the management control systems in their strategic, structural and functional aspects	Interviews with key informants Strategic plan Management control reports Interviews with key informants Flow chart
PhS7 Organizational structure, corporate image, functions and infrastructure	Flow chart and functions study Study of image to clients, suppliers and competitors Study of infrastructure Client indicators Worker growth and development indicators	Functions and positions manuals Organization's plans, plant layout Reports Interviews and/or surveys of clients, suppliers and competition Interviews with key informants Interviews with key informants
PhS8 People as the organizational reproductive system	Degree of knowledge of the organization by the people that make it up	

Variables	Mental examination of the organization Information	Sources
M1	Communications, publicity, PR	Internal reports Annual report Interviews with key informants
M2	Market research or studies	Strategic plan Market studies report Interviews with key informants
M3	Capacity for generating strategies	Strategic plan Interviews with key informants
M4	Organizational closure	Internal reports Interviews with key informants
M5	Organizational annual report	Internal reports Information survey Interviews with key informants
M6	Organizational culture	Internal reports Application of instruments Interviews with key informants
M7	Mission	Strategic plan Interviews with key informants
M8	Organizational climate	Personnel surveys Interviews with key informants
M9	Research, development and innovation	Strategic planning Internal annual reports Budgetary executions Interviews with key informants

(continued)

Table AIX.

Table AIX.

Variables	Information	Sources
M10 Organizational conduct	<p>Mental examination of the organization</p> <p>Conduct of the organization according to clients and suppliers</p> <p>Conduct of the organization according to legal, labor, environmental, economic and regulating entities</p> <p>Conduct of the organization according to the community</p> <p>Conduct of the organization according to its unions</p> <p>Organizational reflection processes expressed in strategic planning, managerial coaching, personnel training for empowering, team work, and others, oriented at organizational self-knowledge and improvement</p> <p>Decision-making processes justified within the organizational framework</p>	<p>Regulating entity reports</p> <p>Community reports</p> <p>Reports of negotiation processes with unions</p> <p>Commercial reports</p> <p>Interviews with key informants</p>
M11 Organizational conscience		<p>Personnel surveys to measure organizational knowledge</p> <p>Reflection exercise reports</p> <p>Regulating entity reports</p> <p>Community reports</p> <p>Reports of negotiation processes with unions</p> <p>Commercial reports</p> <p>Interviews with key informants</p>

Variables	Social examination of the organization	
	Information	Sources
S1 Shares information with family companies, suppliers and clients	Shared information systems Integrated planning Shared advisories and consultantships	Information and database systems Planning reports Minutes of meetings Agreements and contracts between companies Interviews with key informants
S2 Organizational autonomy	Knowledge of the political, cultural, legal, economic, financial, strategic and operational regulatory framework imposed by the holding to which it belongs Decisional closure Economic solvency Knowledge management	Legal framework Management control reports Financial analyses Measurement of intellectual capital Interviews with key informants
S3 Concern for its stakeholders	Quality of the relations with companies of the holding, clients, suppliers, regulators, stakeholders in general	Management control reports Opinion surveys of clients and suppliers Service quality measurement Evaluation of the organization in the holding Interviews with key informants
S4 Ability to ask for help	Clarity and commitment with existing strategies Type and number of advisories and consultantships requested and received Organizational changes made due to the conversations held Type and number of strategic alliances with third parties	Management control reports Documents of commitments with third parties Terms of reference for consultantships Reports of consultantships received Interviews with key informants
S5 Relation with institutions in its field and social institutions	Membership in associations; type and quality of the relations Market share Existence of strategies toward competitors Budget meant for activities other than the line of business Community perception Employees' benefits	Management, balance and annual reports Market studies Opinion surveys Interviews with key informants
S6 Acts with social responsibility	Policies and programs for prevention of disease and promotion of organizational health Policies and programs for environmental care Policies and programs for social responsibility in general	Strategic documents Reports of activities carried out Interviews with key informants

(continued)

Table AX.

Variables	Social examination of the organization	
	Information	Sources
S7 Exerts positive leadership	Existence of positive leadership strategies Influence in the market on strategy and conduct changes Existence of social responsibility plans Ethical behavior	Strategic planning reports Public surveys Company stakeholders' surveys Interviews with key informants
S8 Participates in new enterprises	Developments and innovations New business units	Annual reports Interview with the research and development area Interviews with key informants
S9 Acts with continuous quality and improvement	Up-to-date payments of commitments made Timely delivery of products and service Responds for mistakes made	Liabilities study After sales service study Interviews with key informants
S10 Carries out strategic planning	Strategic exercises Value chain of the organization Prospective studies and analysis Company declarations and policies	Documents of strategic and related exercises Survey and interviews with key informants

Table AX.

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