

Commitments of Psychological Contracts and Diagnostic Use of Management Control Systems

Abstract:

Ao investigar os compromissos assumidos pelos Agentes de Fiscalização da Agência Nacional de Telecomunicações (Anatel) em seus contratos psicológicos e o uso diagnóstico do sistema de controle gerencial dessa entidade, este trabalho testou a hipótese de que os indivíduos tendem a se compromissarem mais com os assuntos aos quais são cobrados dentro das organizações. Trata-se de um trabalho teórico-empírico que assumiu que os compromissos compõem a parte da crença que os indivíduos desenvolvem sobre as relações recíprocas de trocas entre si e seus contratantes, conforme o modelo de Rousseau (1989; 1995). Também assumiu que a medida com que assuntos são cobrados dos membros de uma organização corresponde à sua percepção ao uso diagnóstico dos sistemas de controle formais e informais. Metodologicamente, a pesquisa se desenvolveu em duas fases, sendo a primeira qualitativa, com análise documental e análise de conteúdo dos documentos da organização; e a segunda, quantitativa, com a aplicação de questionários respondidos pelos indivíduos que ocupam a posição individual referenciada na organização, os quais avaliaram parâmetros comportamentais que agem sobre si e que foram identificados na primeira fase. Os dados obtidos apontaram que os 42 respondentes tendem a manter altos níveis de compromisso para com as regras e normas que são propostas para seu cargo. Os resultados estatísticos também sugerem que existe uma correlação positiva significativa entre os compromissos assumidos e a percepção do uso diagnóstico dos sistemas de controle para os agentes de fiscalização que responderam ao questionário.

Key words: Control System, Behavioral Parameters, Commitments, Psychological Contract, Standards.

Ivan Canan

Ph.D. in Controllershship and Accounting from University of São Paulo and Researcher and professor at Universidade do Estado de Mato Grosso. **Contact:** Av. dos Ingas, 3001. Bairro Jardim Imperial. Sinop – MT; CEP: 78555-000
E-mail: ivancanan@unemat-net.br

Gilberto de Andrade Martins

Associate Professor – Administration from FEA/USP and Full Professor at University of São Paulo. **Contact:** Av. Prof. Luciano Gualberto, 908. Prédio FEA/3 Sala 233. Bairro: Butatã. São Paulo – SP, CEP: 05508-010
E-mail: martins@usp.br

Patrícia Oda

M.Sc. in Controllershship and Accounting from FEA/USP and Auxiliary Professor at Insper. **Contact:** Rua Quatã, 300. Bairro: Vila Olímpia. São Paulo – SP, CEP: 04546-042
E-mail: patriciao1@insper.edu.br

Introduction

One of the main functions of management control systems is to put the organizational members' objectives in tune with the strategies (Merchant & Van der Stede, 2007). In building control systems, expectations are often attributed to members of the organizations expectations to decide, within their functions, on the best way to achieve the organizational objectives (Otley, 1987). But this function meets with limits that tend to be synthesized around the development and implementation of strategies and behavior in organizations (Antony & Govindarajan, 2008).

The relationship between the design of control systems and the behavior of organizational members has been a current study subject in the academy, gradually developing to incorporate variables that are perceived to act on the issue, including research on motivation and effects of accounting practices and control systems in decision making. Nowadays, research on control systems includes anthropological and cultural approaches, which modifies the meaning of the term control not as a formal mechanism or a psychological mechanism, but rather as a cultural mechanism (Carenys, 2010; Hoque, 2006).

One way to approach the creation of congruence is through the relationship between management control systems and psychological contracts. Burney and Widener (2013) used data from 242 employees of a corporation to investigate the relationship between the alignment of performance measuring systems with strategy and behavioral outcomes at work, in which the perception of psychological contract is one of the indirect variables. For the authors, the better the company communicates its strategies, the more clearly employees perceive the relationship of exchange between themselves and the organization.

Psychological contracts have been increasingly investigated, especially using the construct proposed by Rousseau (1995) as the theoretical base (George, 2009; Carenys, 2010). Guest (2004) points out that the psychological contract has become a relevant conceptual framework to understand labor relations in contemporary organizations (with increasing flexibility), as it permits observing the trade-offs between individuals and organizations. Therefore, it is a relevant mechanism to analyze the creation of congruence of goals in organizations, especially since these should be responsible for managing the relationships that shape the psychological contracts (George, 2009; Conway & Briner, 2009). According to Rousseau (1995), the psychological contracts are molded based on the messages sent by organizations and are influenced by social signs that originate in the same source.

The structure of organizations, in line with Mintzberg (2006), starts with individual positions, in which the design parameters determine the amount of functions to be developed, feasible coordination mechanisms and, consequently, each individual's autonomy in his/her function. This is the idealization of behavior established for individuals, for which stimulation and charge processes are developed, which take form through administrative procedures that seek to continually generate information for superiors and subordinates on appropriate ways towards organizational goals and whose essence can be observed in control system models, such as Flamholtz, Das and Tsui (1985), Otley (1987), Antony and Govindarajan (2008), Simons (1995), Malmi and Brown (2008), Ferreira and Otley (2009), Merchant and Van der Stede (2007), among others.

Among administrative practices developed as part of control systems, this work focused on the standards formally established by the organization in the design of individual positions (which will henceforth be called behavioral parameters) and in the diagnostic use of control systems. The objective was to relate them to the commitments individuals make as part of their psychological contracts. Thus, the study contributes to the understanding of the relationship between management control systems and psychological contracts, checking the hypothesis that performance measuring mechanisms and the diagnostic use of control systems (Simons, 1995) continue in public organizations. Using the National Telecommunications Agency (Anatel) as the research universe, this study intends to answer the following question: **What is the relationship between commitments and the diagnostic use of management control systems?**

The research was carried out with people (individuals) from the National Telecommunications Agency (Anatel), focused on the individuals in the function of surveillance agent. This is a theoretical and empirical research. The commitments were investigated based on the respondents' assessment of a set of internal norms that act on their functions. The diagnostic use of management control systems was investigated, in turn, through the same respondents' assessment of the extent to which the same set of internal norms address issues on which they feel charged by heads and/or colleagues. This procedure required the identification and analysis of the internal rules and formalized performance measuring processes at Anatel, in order to support the construction of a research questionnaire. Objectively, the surveillance agents were asked to assess how committed they feel and the extent to which they feel charged for the norms affecting their functions. The collected data granted conditions to analyze this relation.

Theoretical Background

Rousseau (1989, p. 123) states "The term psychological contract refers to the beliefs of an individual in relation to the terms and conditions of a reciprocal exchange agreement between the person and the other party." The construct focuses on the idiosyncratic mental model that a promise was made and a consideration offered in exchange - including, in this case, the commitment that the individual tends to recognize the organization. According to Rousseau (1995), organizations express commitments in various forms, permanent and relatively continuously, including statements of their agents, treatment of people in similar or analogous situations, social constructions related to the history and reputation and "[...] expressions of organizational policy, including manuals, guides, compensation systems and other structures related to human resources" (Rousseau, 1995, p. 35). The author argues that the members of the organization understand the terms as messages and signs. For the author, the psychological contract can be understood as a mental model, in which the messages perceived by the individual involve mental processes of encoding, in which, by the action of individual predispositions like cognition and motivation, they are interpreted. Interpretations of the messages are judged in the decoding process, where social signs act - perceptions of the individual related to the events surrounding the organization and work. It is based on this judgment that the individual develops the concept of exchange of reciprocal relationship, believing in the promises he considers to have received and commitments he assimilated as his counterpart for the organization. Thus, the terms of the contractual relationship are constituted that influence the encoding and decoding of new messages and signs in a continuous process in which the terms may change, but the belief in the reciprocal relationship remains.

The conceptual model of management control proposed by Flamholtz, Das & Tsui (1985) for multidisciplinary approaches suggests that the management control systems are designed as a sequence of planning, measuring of results, evaluation and reward, in which feedback processes serve to align the behaviors and results that were defined in the planning or readjustment to the actual work conditions.

But the model by Flamholtz, Das & Tsui (1985) has been criticized for the emphasis put on cybernetic controls. For Malmi & Brown (2008), management control consists of a package in which cyber controls act in combination with cultural controls (such as beliefs, values and symbols), administrative controls (such as governance structure, organizational and political structure and procedures), and planning, evaluation and reward. Simons (1995) argues, through their control levers, that organizations encourage behaviors by belief systems and delimit them by the restrictions systems, dedicated to traditional procedures for the control of strategic variables for diagnostic or interactive uses. Ferreira and Otley (2009) argue that, even if there are parameterization processes of idealized behaviors, of performance indicators and evaluation and reward processes, factors such as the flow of information, use of management systems, process changes in management and power systems and consistency with the way the system is used affect the management control process.

These authors are cited to highlight that the control systems have been gradually understood as processes that go beyond the technical vision of the initial perspectives on the concept, evolving to a conception in which control processes are culturally constructed (Carenys, 2010) and play an important role in the maintenance of contractual relations (Mintzberg, 2004; 2006). It turns out that, despite the variables that act in control procedures, building organizations begins with the design of the individual positions and the selection of coordination mechanisms (Mintzberg, 2006). It is an engineering process that involves the development of the role to be played by individuals who occupy positions in the organization and are the basis on which control systems act.

And in the process of defining roles based on organizational strategies, even if the strategic propositions blend into emerging strategies (which arise informally based on the reality the organizational members experience), the definitions set out in the planning determine the basis on which organizations are directed (Mintzberg, 2004). Thus, the design parameters of the individual positions are presented as propositions that structure the relationship each individual should maintain with the organization. Simons (1995) argues that, although the organizations deal with the decision-making processes of their members and society itself develops mechanisms (culture, religion, etc.) that help influence them to develop congruence with organizational objectives, the implementation of the business strategy requires that there be formal messages about beliefs (reinforcing the values that should influence decision processes) as well as formal decisions limiting systems (in order to avoid risks) around the critical strategic variables, often represented by standards or rules to be followed by members of the organizations. In his favor, Tayler and Bloomfield (2011) show that the norms tend to be positive and contain motivational elements.

Standards can therefore be accepted as behavioral parameters that structure the issues addressed in organizations, guiding their members¹. And if the rules and regulations are messaging sources in the organizations for the preparation of psychological contracts, there is also the issue as to who is the issuer of other messages, starting with those who hire and including managers, business documents and co-workers (Rousseau, 1995; Conway & Briner, 2009). For Coyle-Shapiro and Parzefall (2008), the biggest questions about who tends to be seen as an employer representative focus on the hierarchical levels and roles of the organization's members. The occupants of senior posts often have power to make decisions that strongly affect labor relations, but managers or staff members closer to the employees often intervene in important aspects of the psychological contract, such as flexibility and autonomy, and are responsible for the implementation of administrative policy parameters established by the top management.

These questions lead to a finding: how the beliefs in the mutual relations of exchange that characterize the psychological contracts in the model by Rousseau (1995) include the commitments made by individuals as counterparts to the promises; and how the organizational agents can issue promises and behavioral guidelines differently, coded and decoded idiosyncratically by each individual. Thus, the extent to which the behavioral parameters (standards) are accepted as commitments may vary from individual to individual. Similarly, the same person may feel committed to a greater extent to one behavioral parameter than another, differently than the other members of the same organization.

But there is another key issue to be observed: control systems are not restricted only to the proposition of behavioral patterns, but include coordination processes. Cybernetic control mechanisms used to monitor the achievement of (financial, non-financial and hybrid) goals as well as evaluation and reward procedures, integrate management control systems as ways to reinforce behaviors the management considers appropriate (Malmi & Brown, 2008). When used diagnostically, traditional result measuring systems (accounting included) serve to implement business strategies which, in the definition of authors

¹ Also concerning the relation between formal controls and informal procedures, the study by Georgiou (2004) presents interesting information: concerning the lobby processes in the elaboration of the international accounting standards, a strong correlation exists with the topics and practices developed during informal meetings and the same topics formally discussed in the organization. Despite being a different study object, this correlation strengthens the possibility of its occurrence inside organisations, and that their agents (such as managers and supervisors in charge of the coordination processes through direct supervision or mutual adjustment), in their daily activities, tend to discuss themes that derive from or are related to what is established in the formal standards or rules.

like Anthony and Govindarajan (2008) and Flamholtz, Das and Tsui (1985), involve the upgrading of behaviors. Individuals tend to be charged to reshape the strategically designed conducts. Obviously, these constitute sources of messages and signs from the organization for the establishment of psychological contracts (both promises and commitments). Hence, the question is to understand how the demand for results affects the development of psychological contracts.

According to Simons (1995), one cannot control all the parameters that are considered ideal. Instead, companies tend to develop diagnostic tools only for the critical strategic variables to be controlled. The choices of coordination mechanisms considered appropriate to responsibility centers fall within other choices, such as the design of individual positions, of the superstructure and the levels of decentralization, whose combination results in different organizational configurations (Mintzberg, 1989, 2006). In addition, the control of a strategic variable does not represent that the idealized behavior can be controlled, first, not because it is not possible to attribute responsibility to the individual for decisions that could not be predicted in advance. At most, based on the results, the consistency of decisions taken in view of the rules and guidelines of the company, or of the emergence of events that require decisions (Mintzberg & Westley, 2001) can be assessed. Second, because the reviews of results tend to be contextualized, which ends up happening through direct supervision and/or mutual adjustment mechanisms. If, on the one hand, these mechanisms are more efficient in identifying the nuances of the results, on the other hand, they are affected by interpersonal relationships (Mintzberg, 1989, 2006). But it is important to highlight the power of the control tools over the organizational members' behavior. In this sense, Flamholtz, Das and Tsui (1985) point out that this even tends to be a problem of the control systems by provoking behaviors dissociated from the ideal, because individuals are often concerned with attending to what the performance indicators measure, instead of the behavior that is to be encouraged.

Thus, you can also see that, given the multiple administrative tools and agents in the coordination processes (representing the practice of formal and informal diagnostic use of the management control systems) and the limitations of outcome measuring tools in the control of the desired behavior, then the individuals can be charged for the formally established behavioral parameters (norms and rules) with different emphases. And, considering these likely dissonance between what is to be controlled and the way the individuals idiosyncratically encode and decode messages and social signs in coordination processes, it is clear that an individual can feel charged to respond more to one behavioral parameter than to another, and can feel charged differently than others in the same role to perform the behaviors idealized in the formal norms and rules.

The two key issues underlying the research problem, which, when investigating the commitments made to the behavioral parameters and the perception that individuals have of the extent to which they are charged to perform the same behavioral parameters, permits verifying the relationship between commitments and the diagnostic use of the management control systems. If individuals can develop idiosyncratic perceptions of what they are instructed and charged to do in organizations, then the possible relationship between commitments and diagnostic use of management control systems can be established if individuals feel committed to a greater extent with what they perceive to be charged most.

Methodological Choices

This is an exploratory research. In principle, the research question can be investigated in any organization – as the relations of commitments and diagnostic use of the management control systems tend to take place in any management process. However, in order to facilitate the investigation of the theoretical proposal, an organization had to be found that attended to some criteria: (i) formal internal norms and/or rules to serve as behavioral parameters for members of the organization, especially if these standards presented some continuity; (ii) formal performance measuring and/or assessment systems, capable of causing situations where individuals felt formally and informally charged, by the control tools and heads and/or colleagues, to perform behaviors idealized in the formal behavioral parameters; (iii) position in the organizational structure that delegated horizontal and vertical autonomy to individuals who occupy this individual position, as a way to expand the possibilities of individuals feeling free to commit to different individual parameters or not; (iv) minimally appropriate volume of individuals occupying the individual position, enabling the statistical treatment; and (v) agree with the application of the research.

The National Telecommunications Agency (Anatel) was the organization chosen as it met the required criteria. Moreover, as it does not have organizational objectives measured by profit or financial targets, the organization presented an interesting opportunity to research controllership beyond the control paradigm by the economic result - this possibility is an important research alternative, especially for the public management area, in which the institution stands out as being the first and largest regulatory agency.

The individual position selected for the study was the surveillance agent. This position was considered the most appropriate for the research as it complied with the search criteria and because, at the time the questionnaires were applied, 485 individuals could account for the individual position.

The choice of one individual position in the data collection process was due to concerns with the internal validity of the research. Each individual who answered the questionnaire should do so in the same conditions as the others and hierarchically rank under the same behavioral parameters as the other individuals in the same rank.

Methodologically, the research was divided in two phases: documentary research and empirical research. The documentary research was undertaken between August 2012 and March 2013, through the selection and analysis of documents acting in the control process of the surveillance agents. Using the principles of content analysis (Bardin, 2009), the set of institutional laws and norms was pre-read, as well as internal documents provided by office managers and personnel management superintendences. For the sake of validity, any norms that did not direct or indirectly affect the surveillance agents' individual position, as well as the norms to regulate activities only some of the individuals in the research universe performed were dismissed. The internal documents contributed to this process, referring to a set of norms imposed by Law 10.871/2004, Law 8.112/1990 and Resolution 270/2001, established by Anatel's Board of Directors.

It was assumed that the imperative phrases indicating behavioral standards, attitudes and postures, whether to guide activities, actions, restrictions or other manifestations that could clearly be understood as rules, norms or standards the surveillance agents had to follow would be accepted as behavioral parameters. In the selected legislation, 86 phrases with these characteristics were identified, 51 (59.3%) of which were orientations on behaviors to adopt (belief system) and 35 (40.7%) were prohibitions (restriction system).

The content of the behavioral parameters was analyzed in relation to the content of Anatel's institutional and individual performance assessment systems, resulting in seven distinct categories, according to the levels of Anatel's concern with performance control (the categorization process is described in the correspondent section). The categorization was useful to select a sample of behavioral parameters in the research questionnaire. The volume of behavioral parameters identified was considered too large in the pretests held with volunteers. The selection of one behavioral parameter to represent each category was considered feasible and was done by means of a random draft, in the attempt to guarantee the possibilities of each parameter to represent the same probability to be understood as a commitment or to be perceived as an aspect (s)he feels charged for by any of the interviewees.

The seven behavioral parameters drawn were used to elaborate the research questionnaire applied in the empirical phase. Two questions were proposed to measure the extent to which each respondent considered each of the seven behavioral parameters as a commitment (s)he assumed towards the organization, and as an aspect (s)he felt charged by heads and/or colleagues. The questionnaire was elaborated using the mechanism developed by Rousseau (2000), which permits measuring terms that represent the psychological contract by means of a Likert scale. The adaptation followed the recommendations by Freese and Schalk (2010) to maintain the reliability and validity of the findings and involved the replacement of the phrases in the original form by the terms of the behavioral parameters.

The questionnaire was applied through a virtual platform, which guaranteed anonymity. It was forwarded to Anatel's 485 surveillance agents. Fifty-eight valid answers were obtained between June 24th and July 25th 2013. The data permitted analyzing, by means of descriptive statistics, the extent to which the surveillance agents commit to the behavioral parameters and perceive that heads and/or colleagues charge them for these same aspects.

In addition, the data permitted analyzing the correlation between the variables "commitment to behavioral parameters" and "perceived diagnostic use of the same parameters". Thus, the hypothesis could be tested that, the more the individuals feel that the behavioral parameters are being charged (diagnostic use of control systems), the more they feel committed to these same parameters (commitments assumed as part of the psychological contracts).

Behavioral Parameters and Performance Assessment Systems at Anatel

Anatel was created by the General Law on Telecommunication (LGT, 1997) – Law 9.472 from July 16th 1997 – as a special autarchy that is part of the indirect public administration, affiliated with the Ministry of Communications (MC), but administratively independent and financially autonomous. Its mission is to promote the development of telecommunication in Brazil in order to provide it with a modern and efficient infrastructure that is capable of offering appropriate and diversified services to society at fair prices across the Brazilian territory. It was the first regulatory agency set up in Brazil on November 5th 1997. Its role in society is summarized as the regulating, bestowing and supervising of the Telecommunication sector.

As an autarchy, Anatel and its members submit to the laws ruling the federal public service, including a specific law for this kind of organizations. Being administratively independent, however, it is structured by rules, internal bylaws and rules. In the organizational structure in force during the performance assessment cycle when the research was developed (Figure 1), the surveillance agents (research subjects) were allocated under the Superintendence of Radiofrequency and Surveillance, submitted to the hierarchical structure centralized in the Board of Directors. Each surveillance agent can be allocated to a specific function, different from the functions of other individuals on the same job. Nevertheless, the documents analyzed contained phrases imposing behavioral standards on any person in the individual position, independently of more specific functions. These phrases were accepted as behavioral parameters because they equally act on all interviewees.

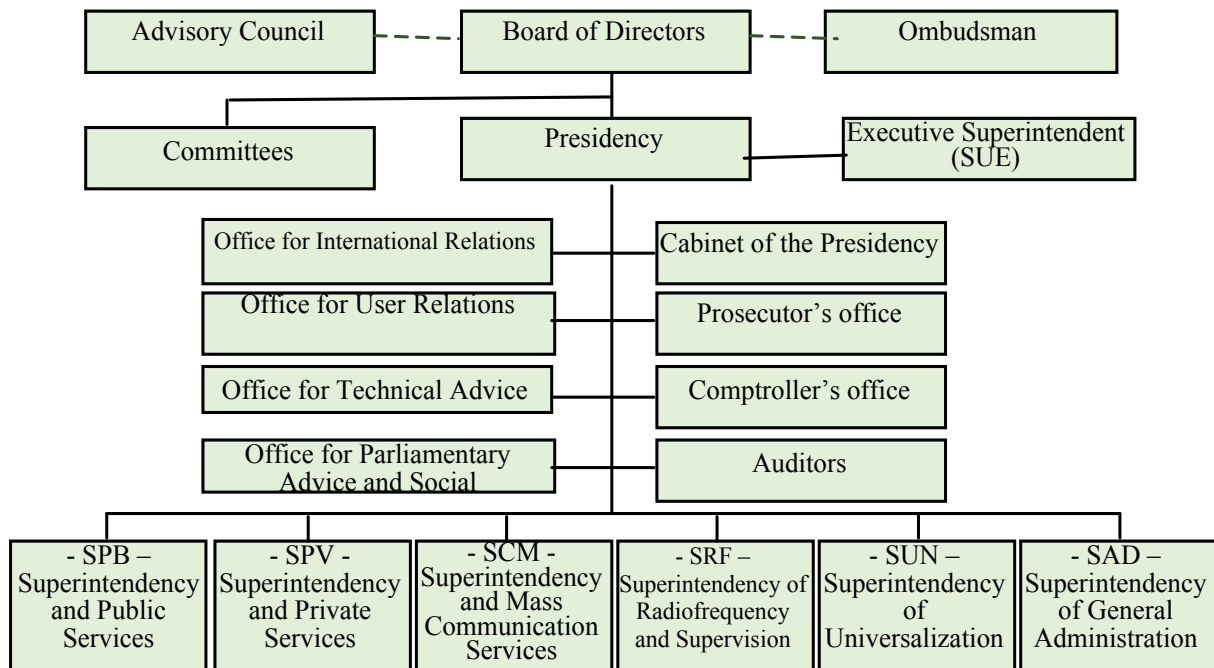


Figure 1. Organizational Chart of Anatel until April 2013

Source: Anatel (2012, p.10)

Concerning the performance measuring systems, Anatel adopts two distinct procedures: institutional and individual. The institutional performance assessment system starts with the strategic planning which, through a multiannual plan, establishes objectives, initials and strategic actions and triggers the product concept. The products represent the efficacy of the organizational strategy and serve as performance indicators. The members of the organization are summoned to elaborate, together with their heads and/or colleagues, the functional program, in which they establish the activities to be developed within the assessment cycle (one year). In this process, they appoint objective performance indicators (product targets) which, on the whole, trigger the payment of productivity awards. The individual assessment system, then, uses forms the immediate heads, colleagues and subjects need to answer about their performance on a series of items. Therefore, this assessment is subjective. Nevertheless, it is also used for promotions, tenure and granting of productivity awards. For both procedures, formal entities exist to review the assessments. The results are also formally discussed during meetings with heads and colleagues at the end of each assessment cycle (procedure corresponding to the interactive use of the management control systems). These procedures, in combination with direct supervision and mutual adjustment of the hierarchical ranking, and including the entry control, which is the public entry exam for the function, summarize the set of controls the entity uses.

The collected data are insufficient to express Anatel's management control system, but do not permit identifying the formal commands used to design the individual position of surveillance agent and the performance indicators that measure behaviors considered as critical variables. To systemize the collected data, the contents of the behavioral parameters were confronted with the contents of the performance indicators used in Anatel's both result measuring systems, leading to seven classifications. It was evidenced in this process that the agency objectively control only the behavioral parameters that summarize what is considered the expected product of the function surveillance agent – the remaining behavioral parameters are charged by means of subjective performance indicators, most of which do not satisfactorily cover the range of the behaviors outlined for the function. On the other hand, the internal entities created for this purpose charge the prohibitive performance parameters, without performance indicators in the assessment systems. One noteworthy fact included in the research was that there was one performance indicator that measures a type of behavior not idealized in the legislation.

The classifications of the behavioral parameters served as a universe to draw the phrases representing the behavioral parameters used in the research questionnaire. The classifications and phrases randomly drawn are displayed in Table 1.

Table 1
Sampling of behavioral parameters

Relations between behavioral parameters and performance indicators.	N.	Behavioral parameters used in questionnaires.
Behavioral parameters measured using objective performance indicators with corresponding terms.	1	Supervision of compliance with rules by regulated market agents.
Behavioral parameters partially measured by objective performance indicators.	2	Supervision, upon the request of other entities in the Agency, of collection for funds administered by Anatel.
Behavioral parameters measures by subjective performance indicators with corresponding terms.	3	Regular and punctual work performance.
Behavioral parameters partially measured by subjective performance indicators.	4	Comply with higher orders, except when clearly illegal.
Behavioral parameters with relations hardly identifiable with subjective performance indicators.	5	Comply with legal standards and regulations.
Prohibitive and restrictive behavioral parameters.	6	Servants are prohibited to engage in idle behavior.
Performance indicators not related to behavioral parameters.	7	Teamwork.

Source: Elaborated by the authors based on selected contents of Anatel Board of Directors Law 10.871/2004, Law 8.112/1990 and Resolution 270/2001.

Commitment Measures and Diagnostic Use of Control Systems

The measures of the surveillance agents' commitment were obtained by asking about the extent to which each agent agreed that the behavioral parameters described in Table 1 were commitments (s)he assumed towards the organization. The alternative answers were given on a Likert scale ranging from 1 to 5, including one option if the respondent considered that any of the parameters did not apply.

The collected data were grouped in three levels, considering that the respondents who attributed scores 4 and 5 agreed with the questions, while those who attributed scores 1 and 2 disagreed. The resulting graph (Figure 2) demonstrates that most of the surveillance agents interviewed agreed that the behavioral parameters are self-commitments. This result converges with the premises of Rousseau's model (1995) for psycho

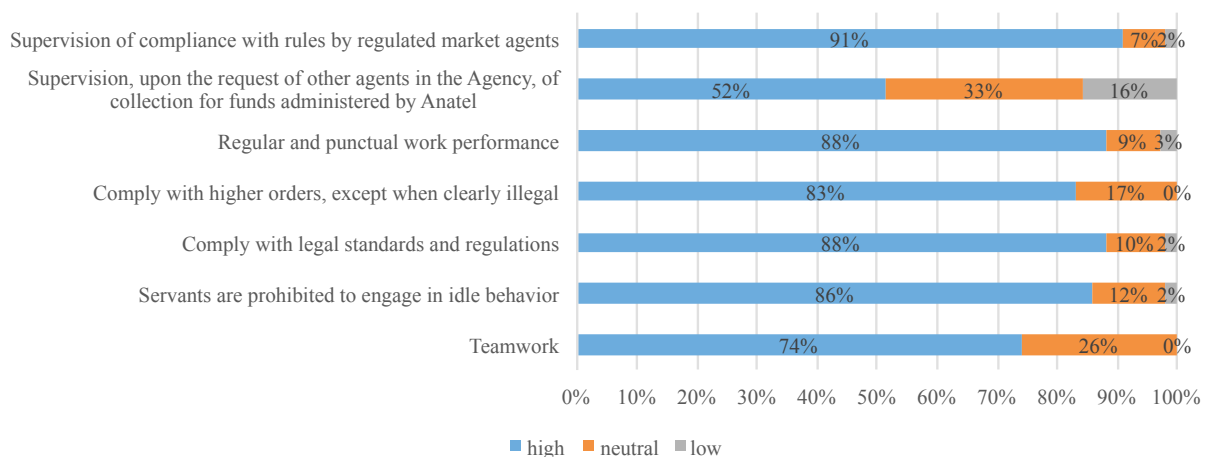


Figure 2. Commitments of surveillance agents to behavioral parameters

Source: Elaborated by the authors

One important reflection the data about commitment arouse regards the relation between the administrative practices and the measures. Anatel's institutional performance assessment system controls compliance with the standards (first two lines in Figure 2), verifying the surveillance activities and, if the targets are reached, the result triggers the organizational members' variable remuneration. The objectivity of this performance assessment system should attract the respondents' attention if considering the assertion by Flamholtz et al. (1995) about performance indicators. In fact, the term that is most objectively measured also showed the largest number of committed participants. There were no very relevant differences from other behavioral parameters, however, whose performance is measured subjectively or whose content is hardly related with performance indicators. This finding is also relevant when considering the objectives and the role of the assessment and reward systems, according to Malmi and Brown (2008), who defend that the orchestration of remuneration and reward systems affects the organizational members' behavior. In this case, the data suggest, with regard to the formal procedures of the control systems, that there does not seem to exist relevant influence from the performance assessment systems.

In that sense, measuring the individuals' perception of the diagnostic use of management control gains relevance. Although the formal tools serve as one of the sources of messages and signs to establish the psychological contract, authors like Robinson *et al.* (1994), Rousseau (1995) and Conway and Briner (2009) emphatically highlight the agents' role in the process. Heads and/or colleagues can underline the elements they idiosyncratically consider most important, informally producing an uncountable volume of messages and signs to the surveillance agents, which can theoretically overrule the influence of the formal controls. It should be noted, however, that the existence of formal diagnostic control tools can make even heads and colleagues focus on the controlled content, even if occasionally. The fact is that, formal or informally, the individuals can develop different perceptions of how intensely they are charged for the aspects addressed in the behavioral parameters.

When asked about the extent to which they perceive that the behavioral parameters are aspects heads and/or colleagues charge them for, using a Likert scale ranging from 1 to 5, the majority agrees. Grouped in three levels, the data reported in Figure 3 appoint that less interviewees tend to interpret the same behavioral parameters they considered as self-committing as parameters they are being charged for. Nevertheless, the first reflection the data arouse is that few interviewees disagree that the behavioral parameters are aspects they feel charged for.

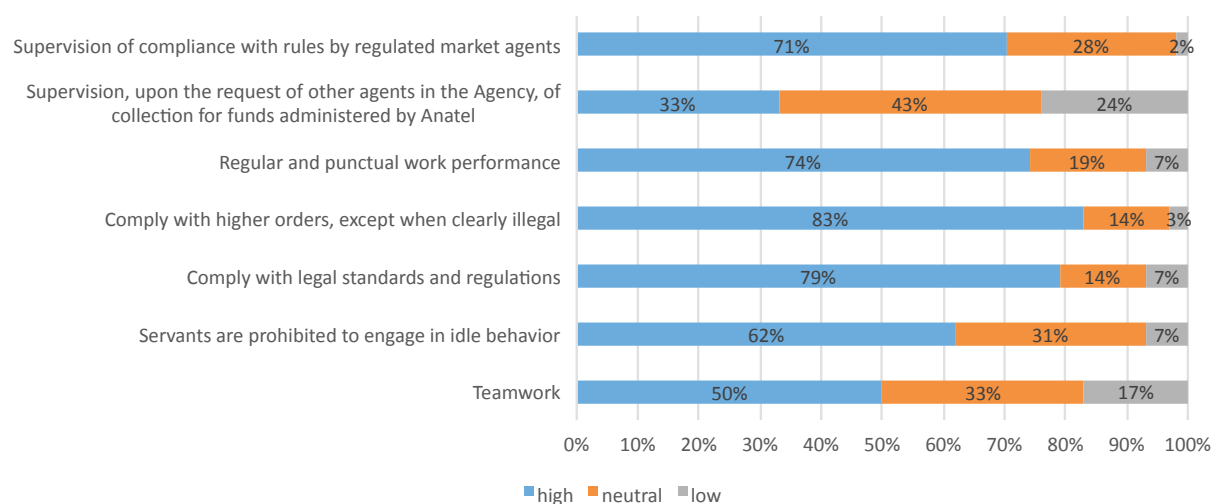


Figure 3. Diagnostic Use of Management Control Systems from the perspective of surveillance agents

Source: elaborated by the authors

It is important to highlight that the perceived diagnostic use of the control systems is dissociated from the logic indicated in the institution's performance assessment systems as, despite being the formally most controlled behavioral parameter, item 1 was not even the parameter about which most respondents agreed feeling they were being charged. That was the case for behavioral parameters whose contents are diagnosed by means of indicators partial or hardly related to their content. Nevertheless, these indicators mainly receive feedback from the heads and colleagues' subjective assessment, which may have a special meaning.

Based on reflections the data analysis permits, it can be acknowledged that the surveillance agents who answered the questionnaires tend to strongly consider the behavioral parameters tested as their commitments to Anatel and aspects they feel they are being charged for. That offers conditions, even if in an exploratory manner, to analyze the relations between the variables.

Relations between variables and hypothesis test

The commitment of Anatel's surveillance agents to the norms of their individual position can be represented by the measure resulting from the sum of the scores each interviewee attributed to the commitment to the seven behavioral parameters. Similarly, the diagnostic use of the control system can also be represented by the measure resulting from the sum of the same agents' score that these are aspects heads and/or colleagues use to demand the same behavioral parameters. Thus, both sums produce ranked pairs, whose correlation was investigated by means of Spearman's correlation coefficient.

Differently from Pearson's correlation coefficient, which is a parametric association measure, Spearman's coefficient only requires that an ordinal score exists for the variables, so that their ranks can be determined and, in case of large samples, Student's t-test can be used with $(n - 2)$ degrees of freedom to calculate the statistical significance of this measure (Bauer, 2007).

Spearman's rank correlation coefficient (r_s) is calculated as follows:

$$r_s = 1 - \frac{6\sum_{i=1}^n d_i^2}{n^3 - n}$$

in which n is the sample size and d_i represents the difference between the ranks of the two variables for each individual in the sample.

The ordinal correlations can be considered indicators of monotonicity, that is, in case of a positive correlation, value increases in the first variable correspond to value increases in the second variable. If negative, the correlation indicates that value increases in the first variable correspond to value drops in the second variables. Usually, in case of tied ranks, the individual values of the ranks they would receive without the tie are replaced by the arithmetic mean (Bunchaft & Kellner, 1999 *apud* Lira & Chaves Neto, 2006; Bauer, 2007).

In the situation cited above, the equation to calculate the coefficient should be adjusted to incorporate the loss of information resulting from the replacement of the scores (ranks) by the respective average, and is defined as follows:

$$r_s = \frac{n(n^2 - 1) - 6\sum_{i=1}^n d_i^2 - 6(p' + q')}{\sqrt{n(n^2 - 1) - 12p' * \sqrt{n(n^2 - 1) - 12q'}}$$

Where:

$$p' = \frac{\sum_{i=1}^n P_i^3 - \sum_{i=1}^n P_i}{12} \text{ e } q' = \frac{\sum_{i=1}^n Q_i^3 - \sum_{i=1}^n Q_i}{12}$$

in which p' and q' correspond to the number of ties in the i -eth set of observations related to the study variables; n is the number of ranked pairs used to calculate the statistics (sample size); and $d_i d_i$ is the difference between the ranks of the two variables for each individual in the sample.

To conduct the significance test (Spearman's coefficient), the test statistics should be calculated (t_{Calc}), given by:

$$t_{Calc} = \frac{r_s}{\sqrt{\frac{1 - (r_s)^2}{n - 2}}}$$

in which n is the sample size (number of ranked pairs used to calculate the statistics) and r_s is Spearman's rank correlation coefficient.

In view of the data obtained from the sample and testing the hypothesis that commitments and the diagnostic use of management control systems are positively related, the results are:

H0: No association between the variables

H1: Direct association between the variables (right one-tailed test)

Spearman's rho = 0,63

(# sample) $n = 42$

Student-t (calculated) = 5,074

Student-t (theor. dist.) = 2,423

$p = 1\%$ (H0 is rejected)

Thus, the data support the hypothesis that the surveillance agents who answered the questionnaire tend to commit more strongly to the behavioral parameters as they recognize that these aspects charged by the heads and/or colleagues.

Conclusions and Final Considerations

The relations between control systems and established psychological contracts theoretically defend that the organizations, when they outline individual positions and select the coordination mechanisms, establish the bases for the construction of the control systems and, at the same time, establish the behavioral parameters the individuals who are part of the organizations should assume to perform the ideal role expected from them. These behavioral parameters, in the theoretical relationship between the constructs, tend to be understood as messages in the elaboration of the psychological contracts. In addition, the administrative procedures that materialize the praxis of the control processes are sources of social signals that influence the coding and decoding of the messages. The collected data and the research results support the theoretical proposal in the different research phases.

First, the data appointed that Anatel outlines the surveillance agents' individual position as a shared model, despite the possibility that each individual performs more specific functions. Nevertheless, the performance assessment systems the entity uses strengthen the behavioral characteristics all surveillance agents hold in common. The volume of behavioral parameters identified strengthens that, in this organization, different elements exist over which the lawmakers formally wanted to exert control. Although the bureaucratization of the State's actions could explain this phenomenon, the level of bureaucratization should be highlighted, in view of the fact that, as a regulatory agency, Anatel intends to work as an autarchy that offers greater flexibility to the State's actions.

The measures of the interviewees' commitment to the behavioral standards strengthen the conception that the behavioral parameters are relevant sources in the establishment of the psychological contracts. This conclusion is possible based on how strongly most of the interviewees considered that the parameters characterized commitments to themselves. The existence of non-homogeneous answers, however, also appoints that the process is not automatic, or simply that the norms proposed may not be easily accepted as terms the individuals will assume in their psychological contracts.

The data on the perceived diagnostic use of the control systems also strengthen the theoretical conception of the relations between control systems and psychological contracts, as a considerable part of the respondents consider that they are expected to perform the behaviors idealized in the behavioral parameters.

The theoretical conception is significantly strengthened though by the empirical evidence on the relation between the variables. The obtained results suggest that the control systems present idealized standards of behavior the individuals in the organizations tend to assume, and that the diagnostic use of the control systems triggers signal signs (whether through the direct charge of heads and/or colleagues or the perception of related experiences of charges and behavior witnessed in the organizations) that tend to strengthen the commitment measures.

These conclusions arouse the following reflections: in the first place, that there is empirical evidence to investigate control processes (especially for individual positions with horizontal and vertical range) based on contract relations in which, more than performance, what is feasible is compromise and commitment; second, that other aspects of the relationship need to be investigated, such as the commitment relations with interactive use of the control systems and with the perceptions of psychological contracts, as well as the relations between individual predispositions and control processes, among others.

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