

Performance scorecard for occupational safety and health management systems

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Abstract: The pro-active and systematic search for best performances should be the two assumptions of any management system, so safety and health management in organizations must also be guided by these same precepts. However, the scientific production evidences that the performance evaluation processes in safety and health continue to be guided, in their essence, by intermittency, reactivity and negativity, which are not consistent with the assumptions referenced above. Therefore, it is essential that health and safety at work management systems (HSW MS) are structured from an active and positive viewpoint, focusing on continuous improvement. This implies considering performance evaluation processes that incorporate, on the one hand, monitoring, measuring and verification procedures, and on the other hand, structured matrixes of results that capture the key factors of success, by mobilizing both reactive and proactive indicators. One of the instruments that can fulfill these precepts of health and safety performance evaluation is the SafetyCard, a performance scorecard for HSW MS that we developed and will seek to outline and demonstrate over this paper.

Keywords: Safety performance, Performance scorecard, SafetyCard.

Matrizes estruturadas de desempenho para sistemas de gestão de segurança e saúde no trabalho

Resumo: A proatividade e sistematicidade na procura de melhores desempenhos devem ser dois pressupostos de qualquer sistema de gestão, daí que a gestão da segurança e saúde nas organizações também se deva orientar por estes mesmos preceitos. No entanto, a produção científica evidencia que os processos de avaliação de desempenho em matéria de segurança e saúde no trabalho continuam a pautar-se, na sua essência, pela intermitência, pela reatividade e pela negatividade, o que não se coaduna com os desígnios anteriormente referenciados. Por isso, considera-se fundamental que os sistemas de gestão da segurança e saúde no trabalho se estruturam de base com uma visão positiva e ativa de melhoria contínua. Esta situação implica que sejam considerados processos de avaliação de desempenho que incorporem, por um lado, procedimentos de monitorização, de medição e de verificação, e, por outro lado, matrizes estruturadas de resultados que captem os fatores chave de sucesso por via da mobilização quer de indicadores de natureza reativa, quer de indicadores de natureza pró-ativa. Um dos instrumentos de avaliação de desempenho em matéria de segurança e saúde que poderá cumprir esses preceitos é o *SafetyCard*, um *performance scorecard* para sistemas de gestão de segurança e saúde no trabalho que se desenvolveu e que se procurará enunciar e evidenciar ao longo do presente texto.

Palavras-chave: Desempenho de segurança, *Performance scorecard*, *SafetyCard*.

1. Introduction

Continuous improvement is anchored in performance evaluation processes, more specifically in the data favored by the set of indicators that form it, and should be a prerequisite for any management system. With regard to HSW MS, scientific production has shown that current models of HSW performance evaluation are mainly grounded in negative factors that do not reflect the key elements of success, the strategy and the vision of an organization to these domains (Hopkins, 1994; Benite, 2004; Neto, 2009). The main performance indicators used tend to be limited to aspects that organizations want to minimize (e.g., work accidents), while in most systems the management indicators used are related to aspects that organizations want to maximize, i.e., they address positivity (e.g., profit).

In essence, the performance indicators on HSW tend to be the accident rates (*idem*), not that accidents are not a key factor of success, because they are, however, they are factors of reactivity and negativity. And the continuous improvement of HSW must not be reduced to these elements. There are many other parameters denoting an active search for better performance and an ability to respond to fluctuations in levels of risk that should also contribute to the disclosure of the effectiveness and efficiency of an HSW MS. This circumstance implies the existence of a structured matrix of performance results that, on the one hand, derives from multidimensional processes of performance evaluation and that, on the other hand, integrates indicators that capture the reactivity and proactivity of the key factors of success in HSW.

The present paper seeks to focus on the main tools enshrined in the literature that aim to fulfill this purpose, specifying the proposal developed based on the Portuguese and European context of HSW. With this tool, we sought to enhance the structural evaluation of HSW organizational performance and to promote the necessary basis for organizations to carry out organizational comparison exercises (benchmarking in various scenarios). The performance scorecard prepared was called SafetyCard. Its structure and operation will be succinctly presented in this paper.

The text is structured around two points: the first focusing on the systemic approach addressed by HSW in contemporaneity and the growing use of structured matrixes of performance results; the second focuses on the SafetyCard potential to act as an operating mechanism of the advent of better health and safety organizational performances. In conclusion, we have summarized the key elements addressed in the text and shown the analytical pathways being taken towards SafetyCard consolidation and validation.

2. Performance evaluation of health and safety at work management systems

The HSW MS represent a natural evolution of technical and scientific knowledge and the need for organizations to internally manage the risk exposure of its employees and to comply with legislative requirements in this area (Neto, 2009). Two essential pillars for the existence of any management system are the processes of performance review and evaluation. Continuous improvement should be the ultimate goal of a management system, regardless of whether it is or not structured according to a referential standard (e.g., OHSAS 18001).

A management system is only effective when its implementation is translated into an improved set of indicators (Neto, 2009). The discussion about the type and nature of the indicators used in HSW MS performance evaluation is not yet stabilized (Hopkins, 2009; Le Coze, 2009; Kjellén, 2009; Neto, 2009), but the times in which the effectiveness and efficiency of this organizational function were evaluated by work accidents indicators alone are already in prospect over a longer time span (Neto, 2009). Even if the logic still prevails in many of the current organizational contexts, especially in terms of small companies, it is nonetheless also true that scientific knowledge and organizational practice itself have experienced significant developments in recent decades. The systemic evaluation of HSW organizational performance is increasingly widespread. The proof of this is, ultimately, the set of structural performance matrices developed and published in the literature (Top, 1986; Mearns & Havold, 2003; Gallagher, Underhill & Rimmer, 2001; Marsden et al., 2004). Enunciating them is thus one of the purposes of this text, because they help corroborate the relevance of developing a tool such as the SafetyCard.

In order to frame the development of structured matrices, we will need to make a brief review into the domains of scorecarding, particularly because of its specification as a paradigm for evaluating and recording performance results in the organizational sphere, in general, and in the field of HSW, in particular. The transposition of scorecarding philosophy to the various organizational domains was not only due to the fact that organizational leaderships had realized that performance evaluation assumed a crucial role in translating organizational strategies outcomes (Mearns & Havold, 2003), but also for having an underlying methodological approach endowed with great functionality and transdisciplinarity (strong adaptive character).

The referential that supports the emergence and consolidation of all this evaluation logic were the studies developed by David Norton and Robert Kaplan in the late 1980s and early 1990s. The authors studied the development and use of corporate scorecards, and ended up providing a model that represents an evolution in relation to existing models. The designation given, Balanced Scorecard, is instructive about what they wanted to emphasize, that is, the relevance of the organizational performance evaluation system favoring a structured balancing of results, as well as equilibrium between different perspectives: (i) short vs medium-long term; (ii) internal vs external; (iii) financial vs non-financial; and (iv) longitudinal vs segmented (Kaplan & Norton, 1992). The Balanced Scorecard was structured on four key pillars of success: financial performance (*Financial*), internal organization (*Internal Business Process*), development (*Innovation, Learning and Growth*), and customer relations (*Customer*) (idem).

The architecture and assumptions that underpin this management tool were the basis for many others, covering the most diverse social and organizational domains. The health and safety organizational management was not oblivious to the potential of this tool/perspective, seeking to appropriate this consistent way of seeing the performance opportunities (Lawson, Stratton, & Hatch, 2006) and of assessing the extent to which the organization's strategic goals are achieved. In the last two decades several HSW performance matrices have emerged, and some, as will be demonstrated, remained faithful to the structural categorization of the Balanced Scorecard. Regardless of that fact, the scorecarding logic underlies all these categorizations, i.e., the use of assessment tools and systems that promote a structured visual representation of the performance levels of an organization and/or functional area, having as reference the key factor of success that supports the fulfillment of the vision, mission and organizational strategy.

Through a literature review, we were able to identify a set of structured matrices developed for evaluating the performance of HSW management systems. The instruments identified were: (i) the International Safety Rating System (Top, 1986); (ii) the Health and Safety at Work Balanced Scorecard (Gallagher, Underhill & Rimmer, 2001); (iii) the Health and Safety Balanced Scorecard for the gas and oil offshore platforms (Mearns et al., 2003); (iv) Corporate Health and Safety Performance Index (Marsden et al., 2004). The following paragraphs briefly describe each scorecard.

2.1 International Safety Rating System (ISRS)

This evaluation system was proposed by Willen Top in the 1970s. The development process extended from the late 1960s until the late 1970s, over a long period of reflection and experimentation until it came into the market in 1978 (Top, 1986). The author argued that it was a management tool which aimed at upgrading safety performance and maintaining high levels of evaluation and feedback about programs and activities, being developed in order to highlight the causes of accidents, but considering the possibility of obtaining results in many areas other than damage control (e.g., performance management). The ISRS consists of 20 dimensions (Table 1), each one integrating different indicators.

Table 1 – Criteria grid of ISRS

1. Leadership and administration	11. Personal protective equipment
2. Management and training	12. Health control and services
3. Planned inspections	13. Program evaluation system
4. Job/task analysis and procedures	14. Purchasing and engineering controls
5. Accident/incident investigation	15. Personal communications
6. Job/task observation	16. Group meetings
7. Emergency preparedness	17. General promotion
8. Organizational rules	18. Hiring and placement
9. Accident/incident analysis	19. Records and reports
10. Employee training	20. Off-the-job safety

It is a performance matrix that integrates records ranging from decision-making mechanisms, planning and implementation of health and safety in the organization, to the procedures for assessing the efficiency and effectiveness of their own performance evaluation system. The notation instrument underlying the model was designed as a checklist, allowing the evaluator to, on the one hand, point out if the organization meets or not the parameters in question and, on the other hand, specifying, when applicable, to what extent it is consistent with the description of parameters (measured in terms of percentage). Then, the indicators are converted to a metric scale, and a weight for each one is assigned.

2.2 Health and Safety at Work Balanced Scorecard

In 2001, Clare Gallagher, Elsa Underhill e Malcolm Rimmer produced for the National Occupational Health and Safety Commission (Australia) a report about efficiency in HSW

MS. Two of the key components of the research were the evaluation and performance reporting. The authors concluded that because of the complexity underlying HSW, the traditional measures associated with work accidents, *per se*, are not representative of the this organizational domain as a whole (Gallagher, Underhill & Rimmer, 2001). They advocated the need for a structured approach of performance that could meet the specificities of this organizational domain, favoring a combination of different levels of performance, reflecting the interest of different stakeholders and respecting the HSW monitoring devices.

The efficiency of the management systems requires valid and reliable procedures of performance evaluation. The approach of Kaplan and Norton, according to the authors, provides a relevant alternative. The fact that they enhance the identification of performance measures related with four nuclear organizational areas assigns a structural nature to the process and safeguards some flexibility to the evaluation system, as it facilitates the integration and translation of the inter-organizational variability that exists in contemporary societies.

The proposal made by Gallagher, Underhill & Rimmer (2001) was very close to the model of Kaplan and Norton. The key pillars of success pointed to the area of HSW were the following:

- (i) Business Organizational & Financial Perspective, covering parameters from all organizational areas of HSW, for example, complaints, incidents and data from benchmarking exercises;
- (ii) Stakeholders Perspective, circumscribing two analytical optics, the internal (e.g., employees) and the external (e.g., State). Some of the evaluation goals considered at this level are the results of monitoring processes, the safeguard of employees needs on HSW, the compliance with legal requirements and other commitments with stakeholders;
- (iii) Internal Business Process Perspective, considering aspects related to the evaluation and control of occupational hazards, the degree of integration of HSW in the general management system, the extent and quality of employee involvement in HSW issues, the training program on HSW;
- (iv) Learning and Growth Perspective, circumscribing aspects related to the development of HSW, with the meeting of HSW management system specifications and with the search for continuous improvement. The data from the measures are derived mainly from the existing organizational assessment procedures, such as inspections or audits.

2.3 Health and Safety Balanced Scorecard for the gas and oil offshore platforms

The matrix provided below resembles the previous one, more particularly with the model of Kaplan and Norton, because the authors (Mearns, Whitaker & Flin, 2003) assumed the same analytical categories. The proposal was designed by researchers from the University of Aberdeen, in close collaboration with the Offshore Safety Division of Executive Health & Safety Executive (HSE) (UK). The research aimed to study health and safety performance in gas industry and oil offshore platforms, in order to define an indicators structure that could provide a quick overview and multidimensional understanding of this type of activities (Mearns & Havold, 2003).

The performance of benchmarking exercises would be one of the purposes, hence the use of the balanced scorecard, an analytical framework conceptualized and easily

reproducible. The organizations could mobilize indicators related to financial aspects of health and safety (Financial) (e.g., costs of accidents, investment in HSW service); with the feeling, thinking and acting of HSW service customers (Customer) (e.g., involvement of the workforce on issues related to HSW), with internal processes (Internal Business) (e.g., HSW policy, responsibilities structure, performance evaluation system, surveillance and health promotion) and with the organizational development mechanisms on safety and health (Learning and Growth) (e.g., visits to workplaces, employees consultation, safety committee meetings, corrective actions implemented).

2.4 Corporate Health and Safety Performance Index

In 2004, HSE launched the Corporate Health and Safety Performance Index (CHaSPI) that is both an institution and a modular program of HSW performance benchmarking (Marsden, S. et al., 2004). Prepared by Greenstreet Berman Ltd., more specifically by Sara Marsden, Michael Wright, Joscelyne Shaw and Catherine Beardwell, the proposed model leaves the Balanced Scorecard traditional logic, but does not lose the focus on performance scorecard.

Trial and a period of validation took place in 2004. The index validation was undertaken by Loughborough University, more specifically by Deborah Walker and Alistair Cheyne (2005). "In late 2008, the HSE commissioned Greenstreet Berman to undertake a review of CHaSPI. The aim was to provide information on the extent of CHaSPI's use, who is using it and how, as well as the ways in which it could be improved. This review was conducted in three phases during November 2008 - January 2009. The report was published in early July 2010" (CHaSPI, 2011).

The current matrix is composed by nine indicators, "5 of which are used to determine the overall CHaSPI score of the organisation. The other 4 are descriptive indicators and provide further information" (idem). These last four indicators are of qualitative nature, and meant to check the existence of several statements of organizational commitment, namely statements of the Administration about the implementation of an occupational hazards management program, the fulfillment of legal requirements on HSW, the existence of ongoing investigations from regulatory authorities and CHaSPI verification.

The remaining five indicators allow the computation of CHaSPI Overall Weighted Score. These quantitative parameters consider five key areas (Williams & Shahriyer, 2010). The analytical segments are the following:

- (i) Health and Safety Management Rating - considers key elements related to organizational objectives in terms of HSW, such as representation on the organization committees of HSW, the level of internal and external performance reporting of health and safety results, monitoring procedures and review of performance;
- (ii) Occupational Health Rating - relates to actions regarding the prevention and management of hazards capable of raising occupational diseases;
- (iii) Injury Rating - includes the rates of workers and subcontractors (if applicable), and the comparison against the sector average;
- (iv) Sickness Absence Rating - refers to the number of working days lost per worker due to illness;
- (v) Serious Incident Rating - refers to the number of large accidents occurred in the organization (per 100,000 workers).

The last three indicators are calculated automatically and the other two are obtained by the evaluation of a set of statements. Each statement is given a score, which varies between zero and ten, and is later weighted with a coefficient of importance which will provide an overall score for the indicator in question.

3. SafetyCard - Performance Scorecard for Occupational Safety and Health Management Systems

The emergence of the Balanced Scorecard impacted significantly on how organizational performance began to be analyzed and evaluated. This impact also extended to the HSW area, as shown in the actual modeling assumed by some of the scorecards presented. It is an understandable situation, since the Balanced Scorecard was one of the first proposals to consider a substantive theoretical and empirical basis, and to show a high potential of implementation. Being the scorecarding model most widely used by organizations, there has been an effort to analyze and consider through this model the performance evaluation of all functional areas that form an organization. The intention is legitimate; however, although we agree with the integration, we do not believe that the HSW organizational performance has to be structured according to the key factors of success considered in the Balanced Scorecard. Other factors exist that better reflect this specific area. Besides that, the use of another type of structure does not compromise the integration of HSW performance indicators in a global matrix of organizational performance such as the Balanced Scorecard.

The scorecard proposal that was developed for the HSW area took into account these same assumptions. The SafetyCard, in conceptual terms, considers the main technical-scientific and normative-legal requirements of HSW, as regards the scorecarding precepts (Neto, 2009). The original model considers seven analytical domains, which include different segments of analysis and indicators. In total, 110 indicators are considered, that can be all mobilized or only some parts. The matrix is relatively flexible, adjusting itself automatically to the set of variables that are capable of being used (whether for lack of certain data, either by express will of the participants). Because not all of these analytical domains, segments and indicators have the same relevance in the HSW MS, the SafetyCard considers a weighting system. The purpose of this system is to favor procedures that weigh the relative importance of each element, contributing, simultaneously, so that performance variations are limited at all levels of the analytical model, enabling an overall and partial performance evaluation.

Table 2 presents an overview of the SafetyCard structure. The domains of analysis are seven:

(i) Organizational Design - concerns the functional layout of the organization with regard to HSW. Integrate two segments of analysis. The first assumes the designation of "Technical coverage" and considers four indicators related to the organization model of the HSW services and to the work time of professionals who belong to it. The second was called "Systemic approach" and considers two indicators related to the HSW MS assessment and the articulation of that system with other management systems (e.g., quality, social accountability);

Table 2 – SafetyCard analytical structure

Analytical Domain	Analytical Segment	No. of Indicators
1. Organizational Design	Technical coverage	4
	Systemic approach	2
2. Organizational Culture	Values	3
	Norms and basic standards of evaluation	7
	Workers' basic assumptions	12
3. Occupational Health Service	Surveillance	6
	Promotion	2
4. Operational Service of Occupational Hygiene and Safety	Organization and operability	3
	Loss ratio	11
	Training	7
	Prevention	5
	Protection	3
5. Internal Emergency Plan	Planning	5
	Attributes and responsibilities	7
	Devices	10
6. Monitoring, Measurement and/or Verification Structure	Control of Environmental Conditions	10
	Monitoring, measuring and/or verification mechanisms	4
	Corrective action	2
7. Safety of Work Equipments	Maintenance	4
	Safety prescriptions	3
Total		110

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(ii) Organizational Culture - concerns the scheme of values and principles that the organization shows in terms of HSW. It considers three segments of analysis. The first was called “Values” and includes three indicators that seek to evaluate the existence of an HSW organizational policy and the degree of dissemination of that policy. The second segment, called “Norms and basic standards of evaluation”, includes seven indicators related to the HSW allocation of responsibilities and authority, the implementation and monitoring of HSW policy and the nature of performance evaluation conducted. The third assumes the designation of “Workers basic assumptions” and incorporates twelve indicators related with the perceptions of employees on aspects such as, for example, values and practices of safety management in the organization, perceived safety effectiveness or perceived risk control;

(iii) Occupational Health Service - refers to the strategy and organizational approach to occupational health. It considers two segments of analysis, one called “Surveillance” that incorporates six indicators related to the medical monitoring of work performed, with particular focus on admission exams and aptitude tests, and the other called “Promotion”

that includes two indicators related with the health promotion actions and the immunization actions carried out within the organization;

(iv) Operational Service of Occupational Hygiene and Safety - refers to the organizational capacity to operate on the occupational environment, in order to promote adequate knowledge of risks and setting an appropriate protection system. It considers five segments of analysis. The first was called "Organization and operability" and incorporates three indicators related with the implementation of administrative procedures required legally, and the penalties received from the inspection authorities. The second is called "Loss ratio" (or Work accidents) and includes eleven indicators related with accident statistics, the study of work accidents and the determination of accident costs. The third one, called "Training", includes seven indicators relating to the scope, nature and impact of HSW training and information actions performed in the organization. The fourth is called "Prevention" and includes five indicators related with the overall planning of prevention, the display of safety signs, the preparation and posting of risk maps. The fifth is called "Protection" and includes three indicators relating to protective equipment (individual and collective) procedures of selection, distribution and promoting the use;

(v) Internal Emergency Plan - refers to the organizational capacity to respond to emergency situations. It seeks to evaluate the set of attitudes, procedures and resources available to be mobilized in such contexts. It considers three segments of analysis. The first one, "Planning", includes five indicators related with the degree of organizational response planning of emergency situations, taking into account the existence of action and evacuation plans. The second one, "Attributes and responsibilities", includes seven indicators related with the allocation of responsibilities in terms of response teams to emergency situations (e.g., alerts, first aid, containment). The third, named "Devices", has ten indicators related with the existence of a set of response resources (e.g., signposting, means of first intervention, drills);

(vi) Monitoring, Measurement and/or Verification Structure - refers to the organizational capacity for assessment, monitoring and intervention on the workplace conditions. It considers three segments of analysis. The first, "Control of environmental conditions", has ten indicators related with the existence of assessment actions about the environmental conditions in terms of noise, vibration, luminosity, etc. The second, "Monitoring, measuring and/or verification mechanisms", includes four indicators related with the existence of evaluation mechanisms and its scheduling. The third, "Corrective action", includes two indicators related with the treatment of non-conformities detected in evaluations;

(vii) Safety of Work Equipments - refers to the organizational capacity to safeguard the safety design and use of existing work equipments. It considers two segments of analysis. The first, "Maintenance", includes four indicators relating to the equipments conservation actions, while the second one, called "Safety prescriptions", has three indicators on the provision of safety prescriptions on the equipments in use.

The selection of domains, segments and indicators for the SafetyCard was based on the elements specified in the literature as key factors of success in terms of HSW. The same principle was used to form the system of weights and scores. Since not all indicators had the same numerical basis, we set a standardization system to the performance indicators results in order to obtain the homogenization. To quantify the importance levels of the different elements that formed the evaluation grid, the SafetyCard considers a system of scores and weights which starts at the base of the structure (indicators) and extends to the analytical segments and analytical domains, so that the application the first

coefficients at the base allows a continuous distribution between the limits associated with each element. The maximum value possible in each of the elements is equivalent to the value assigned to the multiplier, so that each one can always vary between zero and one, even the final classification (Neto, 2009).

The SafetyCard enables a global or partial use, assuming an evolving and transformative nature, especially by considering key elements of success that can naturally evolve to a more minimalist or wider matrix. This situation means a great operational flexibility, adapting itself to different organizational realities and/or times, which is in any case relevant given that a considerable part of the Portuguese and European organizational structure concerns to micro and small companies. Furthermore, the performance parameters considered are strategic both for the area of HSW and for the success of the organization as a whole, which means that they can be collected to integrate an overall organizational performance matrix such the Balanced Scorecard.

4. Final Notes

From the moment that SST has conquered a prominent position in the organizational structure and dynamics, the scope of activity, the level of demand and the complexity of its services have been gradually increasing (Neto, 2009). However, the more complex and vital the processes, the more relevant the evaluation mechanisms on their levels of functional efficiency and effectiveness will be. It is in this context that the development of structured performance matrices should be viewed, as a product of those needs. This development has raised and will continue to raise considerable changes in how organizations view performance evaluation and strategic management of HSW. The reason for this is that organizations have realized that health and safety organizational management influences and is influenced by the organization's overall performance, and that HSW foresees a beginning not an end.

Organizations cannot "afford" to not have a structured and integrated view of HSW performance. Therefore, it is not surprising that HSW has followed, in terms of organizational performance assessment, the trend of other organizations, even tapped the knowledge generated by their experiences in other fields, as referred by Gallagher, Underhill and Rimmer (2001) in relation to quality management, since it has acquired organizational predominance at a later stage, when compared with other areas. But with predominance comes demand. The more relevance we give to the organizational sphere, the more we expect of it; and the greater the need for mechanisms that allow the monitoring and control of its operability. This is the case of HSW: as its operations and organizational importance became more complex, so did the level of demand in terms of reporting of results increased.

The structured performance matrices are a response to those requirements. The health and safety organizational management became aware of the information deficit raised by the exclusive use of work accident indicators (Hopkins, 1994 and 2009; Gallagher, Underhill & Rimmer, 2001) and the need to integrate the HSW performance parameters in the overall model of organizational performance. Being the Balanced Scorecard the model more used by organizations, it turned out to be the main reference for the HSW scorecards. But the HSW organizational performance does not have to be structured according to the key factors of success considered in the Balanced Scorecard

so that there is a link and integration. As we tried to show, there are other factors that better reflect the specificity of HSW and that can be considered in a global matrix of organizational performance.

It is precisely from this perspective that the SafetyCard must be understood. This tool is an innovation compared to traditional scorecarding, but also reflects the evolution of the HSW's role in organizational contexts. It is a proposal that represents the modern approach to the construction of organizational performance evaluation systems, i.e., it is not limited to the performance measurement (use of quantitative variables). It is a model that establishes an integrated evaluation system, with flexible modular structures that favor a global evaluation, with mechanisms for measuring, monitoring and verifying performances, and is able to generate solid learning processes within and between organizations (benchmarking).

In this paper, we were not able to present practical examples of SafetyCard application; however, we expect to do this at a later stage. This scorecard has been applied in various organizations, showing its usefulness and relevance. Studies will continue so that we are able to obtain a more extensive testing scope.

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