axioms

MDPI

Article

Using a Constructivist Multi-Criteria Decision Aid Model (MCDA-C) to Develop a Novel Approach to Self-Manage Motivation in Organizations

Leonardo Ensslin [1], Ademar Dutra [1], Sandra Rolim Ensslin [2], Luiz Antonio Giardino Graziano [1] and André Andrade Longaray [3,*]

[1] Post-Graduate Program in Administration, University of Southern Santa Catarina, Florianopolis 88137-272, Brazil; leonardoensslin@gmail.com (L.E.); ademar.unisul@gmail.com (A.D.); luizgraziano@hotmail.com (L.A.G.G.)
[2] Department of Accounting, Federal University of Santa Catarina, Florianopolis 88040-900, Brazil; sensslin@gmail.com
[3] Institute of Economic, Administrative and Accounting Sciences, Federal University of Rio Grande, Rio Grande 96203-000, Brazil
* Correspondence: andrelongaray@gmail.com

Abstract: The Brazilian Federal Highway Patrol is an organ of public administration with the constitutional mission to carry out the extensive patrolling of federal highways. Stress and physical and emotional exhaustion are constant, causing illnesses along with frustration, demotivation, and depression. The objective of this research is the development of a self-evaluation model of performance for the Federal Highway Patrols, using their perceptions to enhance their motivation at work considering the factors under their control. The constructivist multi-criteria decision aid (MCDA-C) methodology was used to elaborate the model. The proposed model identifies, establishes, and structures a process to measure the performance of patrol officers on the relevant aspects that they can manage, to guide their decisions toward the desired consequences, thus regulating their stress levels.

Keywords: multi-criteria decision aid; MCDA-C; performance evaluation; self-manage motivation

MSC: 90B50; 91B06

Citation: Ensslin, L.; Dutra, A.; Ensslin, S.R.; Graziano, L.A.G.; Longaray, A.A. Using a Constructivist Multi-Criteria Decision Aid Model (MCDA-C) to Develop a Novel Approach to Self-Manage Motivation in Organizations. *Axioms* **2022**, *11*, 331. https://doi.org/10.3390/axioms11070331

Academic Editor: Goran Ćirović

Received: 28 May 2022
Accepted: 5 July 2022
Published: 8 July 2022

1. Introduction

In all professions, motivation contributes to the efficiency, efficacy, and effectiveness of work. However, there are some professions where the job demands and attrition are greater than others and where error can have irreversible consequences; for such professions, motivation assumes even greater importance. Among these professions, some produce extremely high levels of stress, where the life, freedom, and fundamental rights of the professionals and other people are put at risk and are directly dependent on the actions of the professionals. Police work activity falls within this category, where motivation is a prerequisite for job success. This paper discusses a process to individually assist an officer who wishes to enhance his/her motivation at work. It examines the case of Federal Highway Patrol officers, but can be used for any profession, if adapted to the peculiarities of the profession.

Studies conducted with the Federal Highway Patrol in Santa Catarina (Brazil) show that there are frequent and serious health problems in these officers, especially sleep, stress, and anxiety disorders that cause officers to leave work, or other more serious consequences.

This situation is no different than that of the Federal Highway Patrol officers in the other states. A study conducted by [1] demonstrated there was an increased incidence of deaths among active highway patrol officers, including by suicide. One of the main causes

for these extreme situations is demotivation, despite the considerable efforts made by the officers to join public service.

The motivation for civil servants is influenced by a set of factors, with an emphasis on the recognition and valorization of the civil servant and the relevance of the activity being performed [2–5]. Remuneration does not seem to be a relevant factor for civil servant motivation [3,6,7].

Work is a source of human happiness and self-realization; it provides a mixture of personal and professional fulfillment that influences people's emotional state [8–10].

Motivation has a direct relationship with the performance of civil servants and the institutions in which they work. Ref. [11] argued that organizations can only achieve a high performance if people are enthusiastic and have a sense of personal satisfaction in their work [2,12].

Civil servants can be encouraged through the knowledge, measurement, and monitoring of essential factors through performance evaluation accompanied with opportunities to improve their shortcomings and instruments that generate engagement on their part, and, consequently, lead to better personal and public service performances [10,13–15].

Performance assessment has been used in varied ways, within many different worldviews [14].

To implement this performance evaluation concept, we use the multi-criteria decision aiding constructivist (MCDA-C) methodology to build the model because of its ability to support decision-making processes in contexts similar to the present [16,17]. The MCDA-C methodology increases the decision maker's knowledge of his/her problem, in his/her specific context, so that he/she perceives the important aspects to be considered when evaluating his/her performance, considering that these decisions will have consequences for him/herself and/or others involved in the process.

In this context, the research question arises: what are the aspects considered as critical by Federal Highway Patrol officers for their motivation and are subject to their control, and how can they manage their performance in these aspects?

To answer the research question, this article develops a model of performance self-evaluation for the patrol officers, based on their perceptions, to enhance their motivation at work.

The following objectives are proposed:

(a) Identify the aspects that can be controlled by Federal Highway Patrol officers and are perceived as critical toward their motivation at work;
(b) Construct ordinal and cardinal scales to measure the structured aspects;
(c) Construct a graphic and numerical model of additive aggregation and measure the performance profile of the police officers; and
(d) Offer recommendations from the performance profile identified.

This study is justified by its importance, originality, and viability. The importance of this research is that it creates an innovative management tool, based on a constructivist perspective, which aligns the perceptions, values, and experience of patrol officers, to evaluate their own performance and serve as a guide for the monitoring and improvement of their daily activities, motivating them to perform better, and contributing to the achievement of institutional objectives.

The originality of this study is justified by the lack of studies and development of models of self-evaluation for the performance of public servants, especially for Federal Highway Patrol officers, for improving their motivation levels.

The study was made possible by the interest of the patrol officers in a personalized model of self-management to help them improve their professional and personal performance and, in turn, be less stressed.

This article is organized in five sections. Section 1 presents the Introduction; Section 2 presents the theoretical foundations of motivation in public servants and evaluation of performance in public service; Section 3 lays out the methodology used; Section 4 details

the construction of the self-evaluation model of the case study; and Section 5 presents the final considerations.

2. Theoretical Foundations

In this section, relevant concepts are presented for the theoretical references pertinent to the topic of motivation in public servants and the evaluation of performance in public service.

As for the research, the instrument used to identify, review, and analyze the literature was the ProKnow-C (Knowledge Development Process Constructivist), and the instrument used for building the model was the MCDA-C (multi-criteria methodology for constructivist decision aid).

The ProKnow-C method was used, given its theoretical foundation and academic recognition [17–20]. ProKnow-C starts with the identification of areas of knowledge that, in the opinion of the manager and researcher, fully explain the topic, according to the perception of the manager and researcher. This step therefore determines that the obtained bibliographic portfolio represents the singular theme as perceived by the manager and does not represent the theme in its generic form. For this research, the areas of knowledge that were considered were motivation in civil servants and the evaluation of performance in public service. Keywords were established for each of these areas of knowledge and searches were conducted in the SCOPUS and ISI WEB Of SCIENCE databases for the intersection.

The understanding provided for the two areas of knowledge whose intersection represents the theme of self-manage motivation in organizations according to the manager and researcher are presented below.

2.1. Motivation in Public Servants

According to [8], people are considered as the intellectual capital of organizations, and they react according to the stimuli received. These stimuli, when perceived as positive, motivate people to pursue their goals, usually something that gives them a sense of pleasure or satisfies a need. According to [9], work complements the life of an individual and gives it meaning. Ref. [21] stated that motivated employees who consider themselves to be an integral part of the company's growth exhibit positive characteristics at work, such as loyalty and productivity.

According to [3], civil servants' motivation is more related to intrinsic factors (the relevance of activities performed, for example) than to extrinsic factors (compensation, for example). That is, the nature of the work and its social and symbolic value are more relevant for the civil servant to feel stimulated and committed. According to [11], motivation is an impulse that comes from within, but external impulses from the environment also influence motivation. There are other factors that are much more relevant for motivating civil servants than remuneration [6,7].

Ref. [12] affirmed that there is a close relationship between healthy, balanced employees, who seek continuous training and satisfaction, with motivation, performance, and meeting goals at work [11].

One of the theories that explains people's motivation in relation to their needs is Maslow's theory of hierarchy. As basic needs are met, new needs arise, and the person is motivated to satisfy them [8]. Civil servants are more autonomous, more self-aware, and have opportunities to develop new projects, as their basic needs are met.

Ref. [13] recommended that employee motivation should start with the organization's own instruments and guidelines. These instruments, however, are not enough to achieve the satisfaction of overcoming the issue by one's self, by performing a job with merit. However, this latter function can be achieved by the civil servant with a self-evaluation model of performance. The motivation to be managed requires an instrument that allows identifying what is important, and organizes, measures and monitors, and triggers actions for improvement. Performance evaluation can fulfill these functions.

Studies, such as [22–24], sought to understand how subjective and behavioral aspects influence people's motivation in their organizational environments.

2.2. Evaluation of Performance in Public Service

According to [25], performance assessment is a transparent, scientifically substantiated instrument used to improve efficiency and effectiveness, and, in the public sector, to evaluate equity. According to [15], performance evaluation is generally defined as the use of objective indicators to measure results and efficiency in programs or services provided by public bodies.

For [26], performance evaluation, when conducted in accordance with the perceptions and interests of the organization, should be an instrument to identify goals that are legitimate and politically sustainable, and that can be effectively achieved in the managerial and operational capacity. According to [27], performance evaluation should recognize the environmental and sustainability criteria of strategic management.

Ref. [21] argued that performance evaluation should not only be viewed as an opportunity to improve company productivity, but also to contribute to the employees' professional and personal development. It becomes a useful tool to motivate people to achieve their personal and professional goals and objectives.

According to [28], performance evaluation can also be used in the application of public resources to lend focus, governance, and accountability. Ref. [29] stated that performance evaluation provides useful information for decision making, and at the same time improves discussions with management and stakeholders on outcomes. Ref. [15] found that public perception of honesty and trust in the British government between the years 2000 and 2013 alternated according to performance indicators and the sense of justice perceived in government actions and decisions.

For [30], there is a very close relationship between the knowledge of police performance and the level of public confidence. The perception of trust in the police increases along with an increase in the transparency and disclosure of police performance indicators.

Public agencies should evaluate their performance in all areas to better manage their resources and achieve their goals [7,31]. Ref. [4] found that civil servants see performance evaluation as a process of functional progression that is not intended for replanning actions, correcting individual performances, and opportunities for self-development.

3. Methodology

Concerning its purpose, the research is classified as an exploratory study. The main objective of exploratory studies is to develop ideas and to lead to relatively systematic procedures for obtaining empirical observations, as well as to enable the identification of the relationships between the studied phenomena.

The overall objective is the development of a self-evaluation model of performance for the Federal Highway Patrols, using their perceptions to enhance their motivation at work considering the factors under their control. The specific objectives for the execution of this research are: to describe actors, especially decision makers, on behalf of whom certain values and preferences will be determined; to identify the criteria that meet the goals of the company's trade marketing efforts; to formulate a hierarchical structure of criteria; to construct ordinal scales for each criterion; to transform ordinal scales into cardinal scales; to establish rates of compensation among the criteria; to construct the criteria aggregation model; to represent the performance profile of possible actions on the constructed model; and to identify and analyze elements that warrant action for improvement.

The nature of this research is described as a case study. The case study was conducted at the Federal Highway Patrol in Santa Catarina, Brazil.

As sources of data collection, this study used interviews, document analysis, and a bibliographic search. Unstructured interviews were conducted to obtain primary data and a survey of documents and a bibliographic search were performed as a source of secondary data.

The search logic adopted was varied qualitative and quantitative. It is inductive in the structuring stage of the model, which does not presuppose the existence of principles, but of facts and observations resulting from insertion into reality. That is not based on principles, but on facts resulting from observations and insertion into reality. It assumes a deductive approach in the evaluation stage, since it is from the constructed model that particular conclusions are established. Finally, the logic is inductive in the development of the recommendations stage, since the analyses are based on the understanding gained throughout the development of the entire model.

The methodological approach of the study is quali-quantitative. The present study is quantitative at the evaluation stage and qualitative in the structuring and development of recommendations stages.

The intervention instrument employed in the study is the constructivist MCDA (MCDA-C). This methodology for decision aiding is used because of its ability to provide conditions for the identification, implementation, and measurement of the criteria that represent the perception of the decision makers about the possibilities of a self-evaluation performance model. It also enables the incorporation of improvement suggestions for alternatives, with a performance profile incompatible with expectations.

4. Results

Following the MCDA-C methodology, the model was constructed in three phases: (i) structuring, (ii) evaluation, and (iii) recommendations.

4.1. Structuring Phase

The first phase of MCDA-C was conducted in three stages: contextualization, construction of the hierarchical structure of value (HSV), and construction of the descriptors with reference levels. The contextualization of the problem involved the description of the environment, construction of the label, and summary.

The second stage of the structuring phase (construction of HSVs) using the protocol established by the MCDA-C methodology began with the identification of the first concerns of the decision makers, called primary elements of evaluation (PEEs), in relation to their dissatisfaction. Fifty-two PEEs were surveyed at this stage. In the sequence, PEEs were transformed into concepts, with one psychological pole (what we want to achieve) and another opposite pole (what we do not want to occur). For example, one PEE was "to provide assistance" from which the concept of "have the will to assist instead of . . . being a police officer insensitive to the problem of the user" was derived.

The generation of concepts expanded the decision maker's understanding of the problem. Based on this new vision, the decision maker, with the support of the facilitator, was encouraged to identify the strategic objectives and concerns that, in his view, represent the context under study. In the MCDA-C methodology, these areas of concern are called candidates for a fundamental point of view (FPV), or dimensions considered important by the actors for assessing the context, and can be represented via a value tree or value hierarchical structure. See Figure 1 where each FPV candidate is explained by its associated concepts [32].

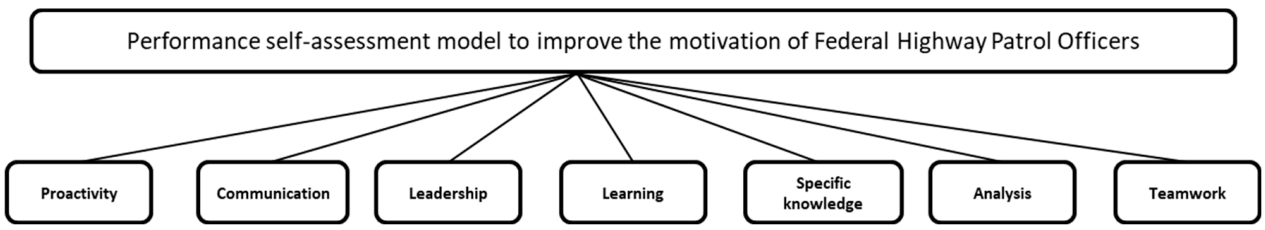


Figure 1. Value tree of FPV candidates.

According to [33], an FPV is an end in itself; that is, the decision maker considers the point of view to be important only because it reflects a fundamental value that is relevant, and thus indicates that this point of view is fundamental. To be considered as FPVs and to express the values of the decision maker, candidates of FPVs need to be tested for consent, intelligibility, conciseness, completeness, cohesion and monotonicity, and non-redundancy. The seven candidates were tested and approved, qualifying themselves to form a family of FPVs [34].

Next, for improving the understanding of each FPV and portraying the ideas, feelings, values, and attitudes of the intervening actors, the MCDA-C methodology was grounded in the cognitive maps. Ref. [34] defined a cognitive map as a graphic mental representation that the investigator (facilitator) invokes out of a discourse formulated by the subject on an object (the problem) from his reserve of mental representations.

A cognitive map makes it possible to hold a constructive dialogue with the decision maker(s), thus providing a large volume of information on the problem under analysis. In this way, constructing cognitive maps is useful for structuring complex problems, as they provide an analysis of the problem with a wealth of information that could hardly be obtained without the use of this tool [35–37].

One of the contributions of cognitive maps is to condense complex structures into clusters. A cluster is a set of concepts that are tightly interconnected, with a minimum number of external links [34]. According to [35], the set of concepts that form a cluster defines an area of interest related to the problem. The MCDA-C methodology calls this area of interest the PVE of a given FPV; it can be used to represent an HSV, as seen in Figure 2.

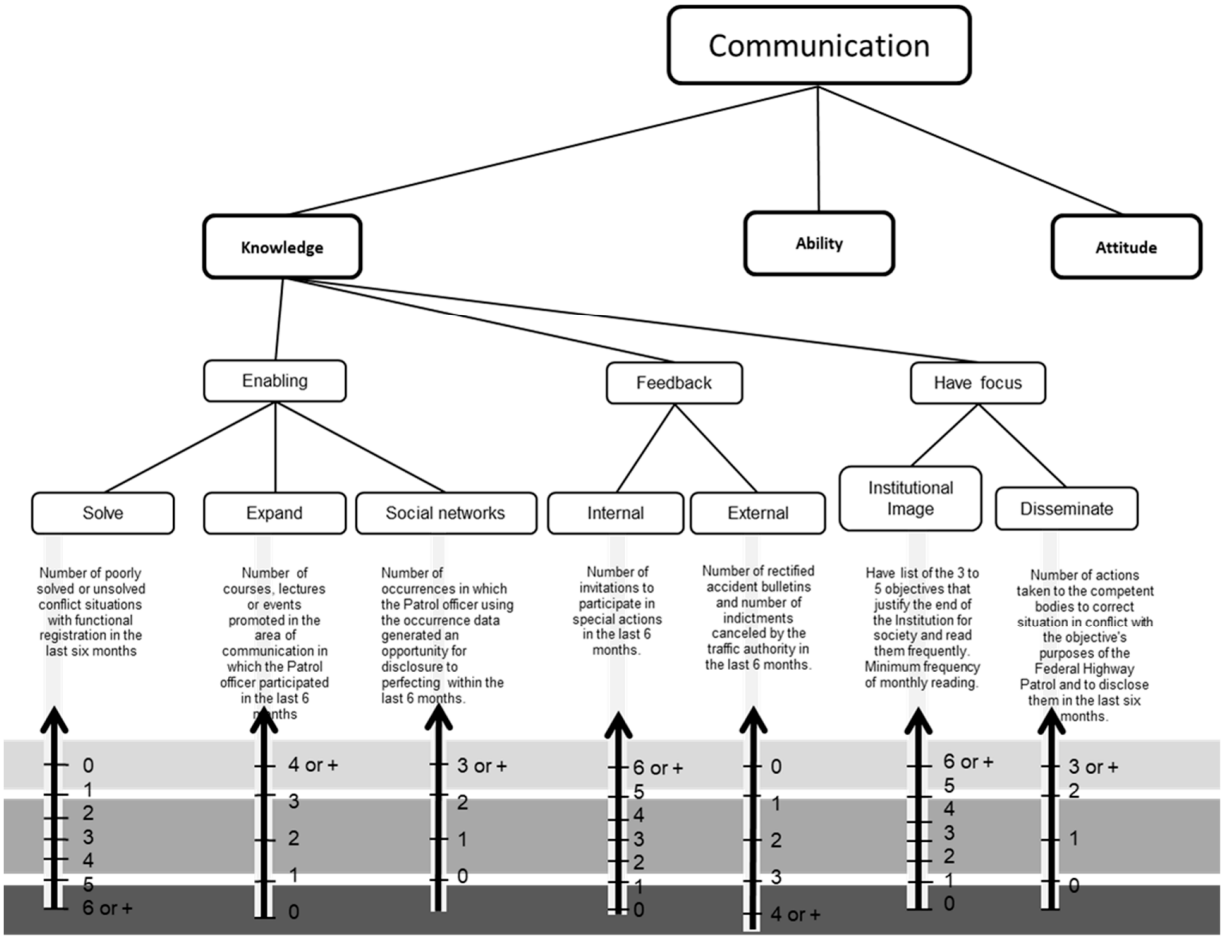


Figure 2. Descriptors with reference levels for PVE-Communication of FPV-Communication.

From the chain of end-to-end relationships generated in the cognitive map, the scales denominated in MCDA-C as descriptors can be constructed, which makes it possible to gain the performance of the property of the context associated with the value that the decision maker wishes to monitor and perfect. A descriptor, according to [38], is a set of levels of impact that describes the possible consequences of actions from a point of view considered fundamental by the actors. The descriptor is, thus, the way to ordinarily operationalize the viewpoints.

The MCDA-C methodology, to add more knowledge to the information provided by the descriptor, incorporates the possibility of conducting absolute evaluations, by defining two reference levels. These levels divide the scale space into three performance regions: compromising, market, and excellence. Figure 2 shows the descriptors of the PVE: communication of the FPV, communication, and their reference levels.

The construction of HSV with reference levels ends the structuring phase. The knowledge generated in this phase makes it possible to identify what, in the perception of the decision maker, is essential in self-management of motivation, but does not allow compensation or integration between indicators to obtain a global evaluation. The MCDA-C methodology thus implements the evaluation phase to increase this knowledge.

4.2. Evaluation Phase

In the evaluation phase, the ordinal scales are transformed into cardinal scales and the compensation rates are determined, which permits the evaluation and global integration of the model. This process is performed in four steps: (i) analysis of ordinal and cardinal independence, (ii) construction of value functions, (iii) identification of compensation rates, and (iv) global assessment and impact profile of the *status quo* (SQ). In this work, the evaluation phase of the model was applied only in FPV-Communication and PVE-Knowledge.

The overall evaluation in the MCDA-C methodology is conducted via the aggregation of single synthesis criteria, and these models require that the variables (descriptors and their value functions) representing the PVEs preferably be independent of the interval between the established reference levels. At this stage, it is necessary to test all combinations of pairs of variables for their preferential independence or isolation—it should be possible to analyze the performance of potential actions of a viewpoint regardless of the performance of potential actions from another viewpoint [34]. Isolability was tested according to the independence preference mutual ordinal and cardinal.

Given the conditions of mutual preferential cardinal independence between all the criteria, the constancy of the compensation rates between them, and consequently, the feasibility of the construction of the additive aggregation model, were ensured.

The next step corresponds to the transformation of the ordinal scales (descriptors) into cardinal scales (criteria), which is conducted by constructing the value function that represents the judgments of the decision maker for all levels of the descriptor [33,39]. For the construction of the value function of the descriptors, the decision maker is asked to report the differences in attractiveness between the levels of the descriptors (ordinal scales). There are several methods to support this transformation. Here, the MACBETH method, as proposed by [38], was employed.

Thus, for each descriptor, the decision maker establishes the intensity of attractiveness when passing from one level to another, and this is recorded on the worksheet for judgment of attractiveness on an ordinal scale composed of the levels: Extreme, Very Strong, Strong, Moderate, Weak, Very Weak. Figure 3 shows the complete process of transforming a descriptor (ordinal scale) into a value function (cardinal scale): the descriptor D1-Solve, the matrix of judgment, the scale provided by the MACBETH method, and the value function (numerical and graphical).

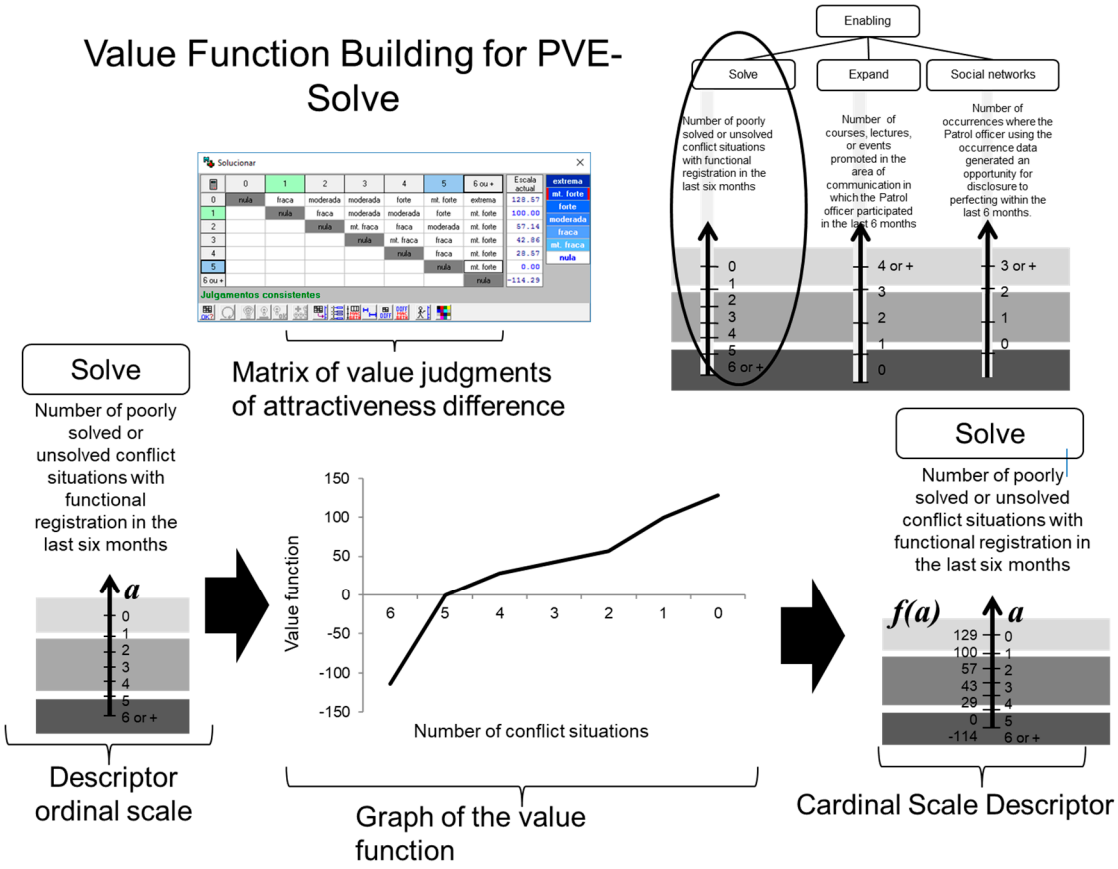


Figure 3. Transforming the descriptor, solve, into a value function, using the MACBETH method.

After the construction of the value functions, the decision maker can measure each operational aspect considered relevant in his model of self-management of motivation, but it is necessary to integrate the local assessments for the decision maker to conduct an overall evaluation of the model, which is only possible with the identification of the compensation rates for each PVE and FPV.

At this stage of the model evaluation phase, compensation or substitution rates were determined for all PVEs and FPVs, which permitted a local and global evaluation of the self-evaluation model of performance.

According to [34], compensation rates are constants used to represent the contribution in a criterion when there is an improvement in performance, rising from the lower reference level (neutral) to the highest reference level (good). In the context of the HSV of a performance evaluation model, compensation rates make it possible to convert local units into units of the immediately superior plateau in the HSV [16].

The MCDA-C methodology suggests the identification of compensation rates by ordering the alternatives indicated for the reference performances for each PVE and the subsequent determination of the attractiveness of shifting from the worst to the best. This contribution is called compensation rates [34].

The alternatives are determined by the direct comparison of two fictitious actions involving two criteria within a PVE or FPV. The decision maker assumes that, in an action or alternative, the first criterion has a good level and the others have a neutral level of performance. In the other action or alternative, the criteria have the opposite performance; that is, the criterion that was good becomes neutral and the criteria that was neutral becomes good. The decision maker analyzes the various possible alternatives and defines the order of preferences in relation to the existing alternatives.

For this, the Roberts Matrix was used to guide the decision maker's preferences. In this matrix, a pairwise comparison is made between the possible alternatives, assigning

note 1 to the preferred alternative and 0 to the other alternative. Once the comparisons are drawn, the values of the lines are summed and the alternatives ordered according to the decision maker's preference. After an ordinal scale of alternatives is established, it is necessary to transform it into a cardinal scale to conduct local and global evaluations. The ordinal scale is transformed into a cardinal scale using semantic judgment and the MACBETH method [16].

Figure 4 presents the PVE-Train, the application of the Roberts Matrix to define the order of preference of the alternatives of the three sub-PVEs, and, later, the application of the MACBETH method to determine the intensity of preference, defining the contribution percentage or compensation rate of each sub-PVE. Thus, the contribution of PVE-Train depends on performance in the three sub-PVEs, with alternative 1 "Solve" accounting for 42%, alternative 2 "Expand" for 25%, and alternative 3 "Social Networks" for 33%.

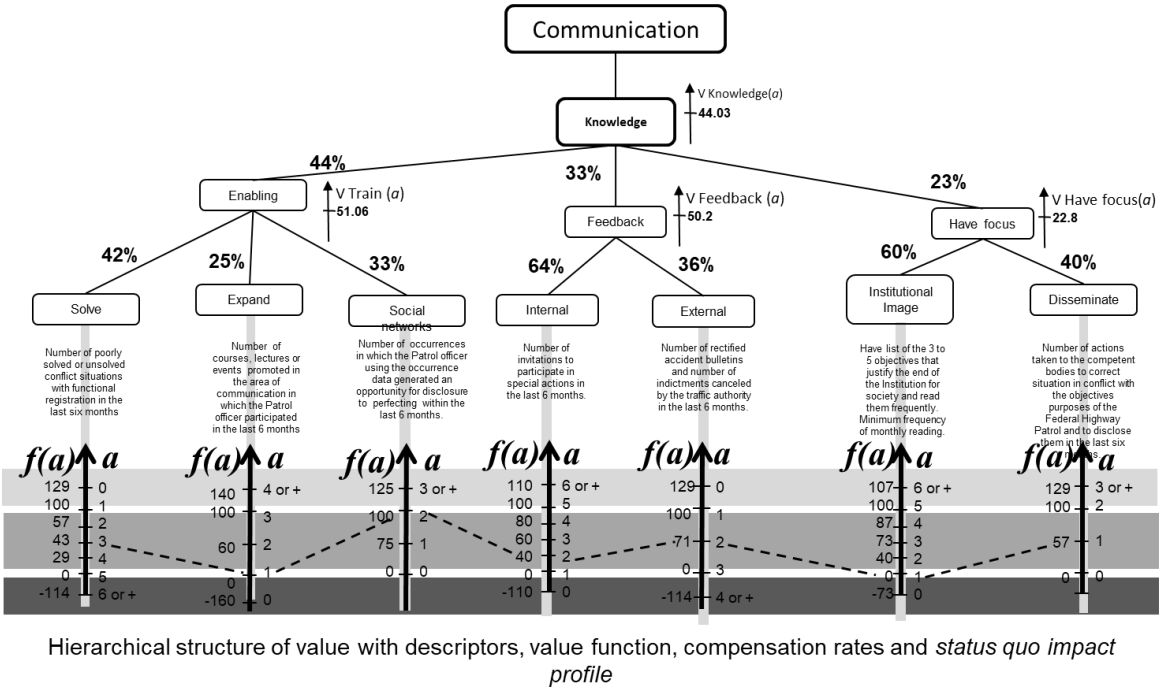


Figure 4. Application of the Roberts Matrix and MACBETH Method to determine compensation rates.

This procedure was repeated for all PVEs of the cluster knowledge of FPV communication. Figure 5 shows all the compensation rates constructed, according to the preferences of the decision maker. In the last stage of the evaluation phase, it is necessary to demonstrate the overall performance in the current situation (SQ). The following is illustrated for PVE-Knowledge. The formula for calculating the overall performance is:

$$V_{\text{Knowledge}}(SQ) = 0.44 * V_{\text{Train}}(SQ) + 0.33 * V_{\text{Feedback}}(SQ) + 0.23 * V_{\text{Have focus}}(SQ),$$

where:

$$V_{\text{Train}}(SQ) = 0.42 * V_{\text{Solve}}(SQ) + 0.25 * V_{\text{Expand}}(SQ) + 0.32 * V_{\text{Social networks}}(SQ)$$

$$V_{\text{Feedback}}(SQ) = 0.64 * V_{\text{Internaç}}(SQ) + 0.36 * V_{\text{External}}(SQ)$$

$$V_{\text{Have focus}}(SQ) = 0.60 * V_{\text{Institutional Image}}(SQ) + 0.40 * V_{\text{Disseminate}}(SQ)$$

The impact profile of SQ on the criteria scales of PVE-Knowledge is presented in Figure 5 and the overall performance value $V_{\text{Knowledge}}(a) = 44.03$.

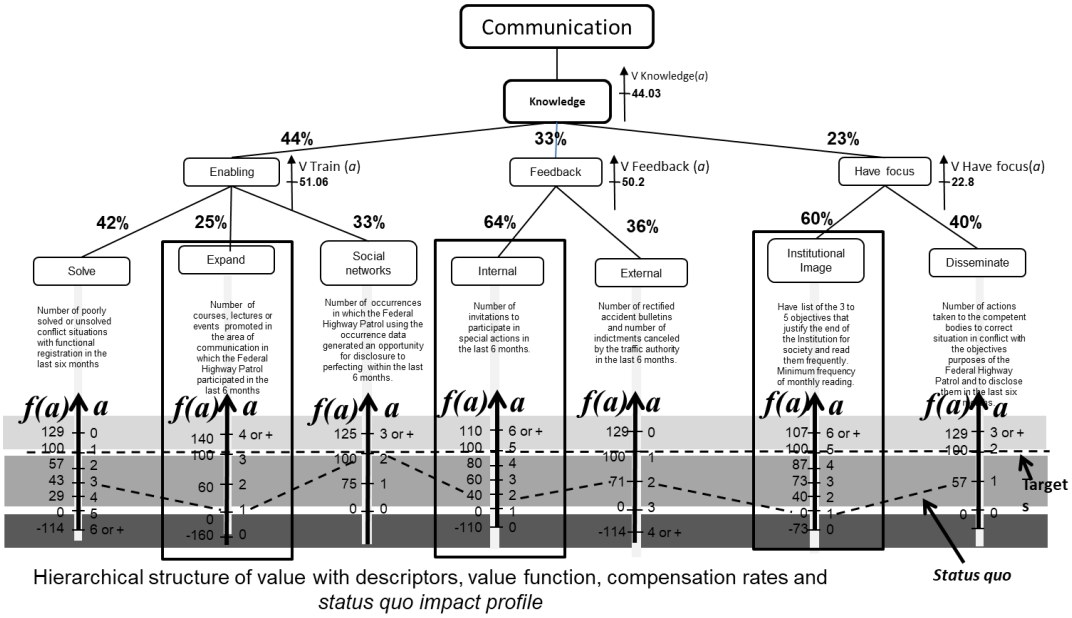


Figure 5. Compensation rates, overall value, and SQ impact on PVE-Knowledge of FPV-Communication.

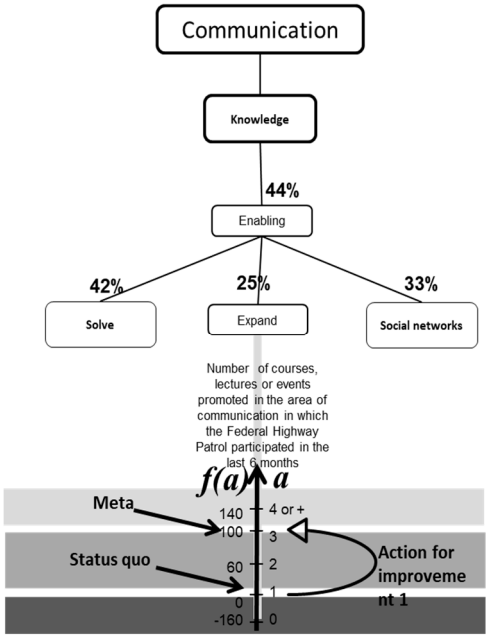
The knowledge provided by the identification of critical factors of context and their ranges, built while structuring the model, added to knowledge of the transformation of the qualitative cardinal model along with the information from the reference levels in each scale, the difference in attractiveness between levels for the construction of the value, and subsequent identification and construction of the compensation rates for all functions of value made it possible to expand the understanding of the context to its maximum level. That is, the current level of knowledge allows us to identify what is relevant and organize and measure it individually and globally, providing knowledge of the current situation and how to improve the context.

4.3. Recommendations Phase

In the third and last phases of model construction, the SQ of the performance profile of the context under study is analyzed and compared to the goals proposed by the decision maker, eventually proposing recommendations and improvement actions for each descriptor. The choice of the criteria that is preferred in the improvement actions occurs according to parameters, such as (i) those whose intervention will make the greatest contribution to the performance of the model, (ii) those with a performance profile at the commitment level, or (iii) those descriptors that encompass both situations, with the possibility of greater potential for improvement and better local and global performances.

The problem context, composed of performance at the commitment level, is now seen as an opportunity field [39], enabling the decision maker to manage the context through cycles evaluation.

Considering the performance profile of the criteria, the opportunities for improvement, and their contribution to local and global performances, in an interactive process with the facilitator and the decision maker, three criteria were identified that represent contextual properties that recommend actions for improvement. Proposals for improvement actions were presented for the three criteria that showed the worst performances in the PVE-Knowledge of FPV-Communication. Two descriptors (PVE-Expand and PVE-Social Networks) show an SQ of performance at the neutral level; that is, they are at the border between the (competitive) market and commitment levels. The descriptor of internal PVE shows competitive performance, but is very close to the neutral level. The goal set by the decision maker is that performance should be at the good level for all criteria. Figure 6 presents the set of criteria, the SQ of performance, and the performance goals to be achieved, highlighting the descriptors that will undergo improvement actions through recommendations.



Descriptor	Action
Expand PVE Descriptor: Number of courses, lectures or events in the area of communication in which the Patrol officer participated in the last 6 months	Research and participate in courses, lectures or events in the area of communication
Expected result	Be updated regarding information and knowledge about the area of communication, contributing to publicize the actions of the Institution
Necessary resources	Provide 3 hours per month
Person-in-charge	Federal Highway Patrol
Start date	October 2017
End date	Continuous action, and should be re-evaluated every year
Frequency of follow up	Monthly
How to follow-up	Number of courses, lectures or events in which the Patrol officer participated
Responsible for accompanying	Federal Highway Patrol

Figure 6. Highlight of the descriptors that will undergo improvement actions in the recommendations phase.

For each of the three criteria identified as those on which improvement actions should be undertaken, an activity plan was created describing the descriptor, its position in the HSV, its compensation rate, the action to be implemented, expected results, resources needed, person-in-charge, date of beginning and end of the action, and frequency and person responsible for follow-up. Figure 7 shows the activity plan listing the improvement actions to be developed for the PVE-Expand to achieve the stated goal. The same procedure was performed for the internal PVEs and institutional image, so that they may achieve their goals.

After implementing the improvement actions, the criteria should be monitored and their performance measured regularly, establishing a performance management process with continuous evaluation cycles, finally resulting in a more motivated patrol officer at work.

In addition to the monitoring and search for the good level for the three descriptors submitted for the improvement actions, new improvement actions should be established for the other criteria that present market (or competitive) performance, but which have not yet performed at the good level. This continuous process will establish a routine of procedures and will be incorporated into the life of the patrol officer, internalizing what is at work, stimulating him/her to seek what he/she considers relevant and necessary in his/her professional activities, and consequently, he/she will be motivated to work and perform his/her work with excellence.

It should be emphasized that the motivation to conduct the present research and all the efforts allocated therein are strictly associated with the desire of the federal highway patrol officers, through the management of their professional functions, to see themselves as people who add value to everyone they come in contact with, and especially their colleagues and the institution in which they work, to increase their motivation and personal happiness.

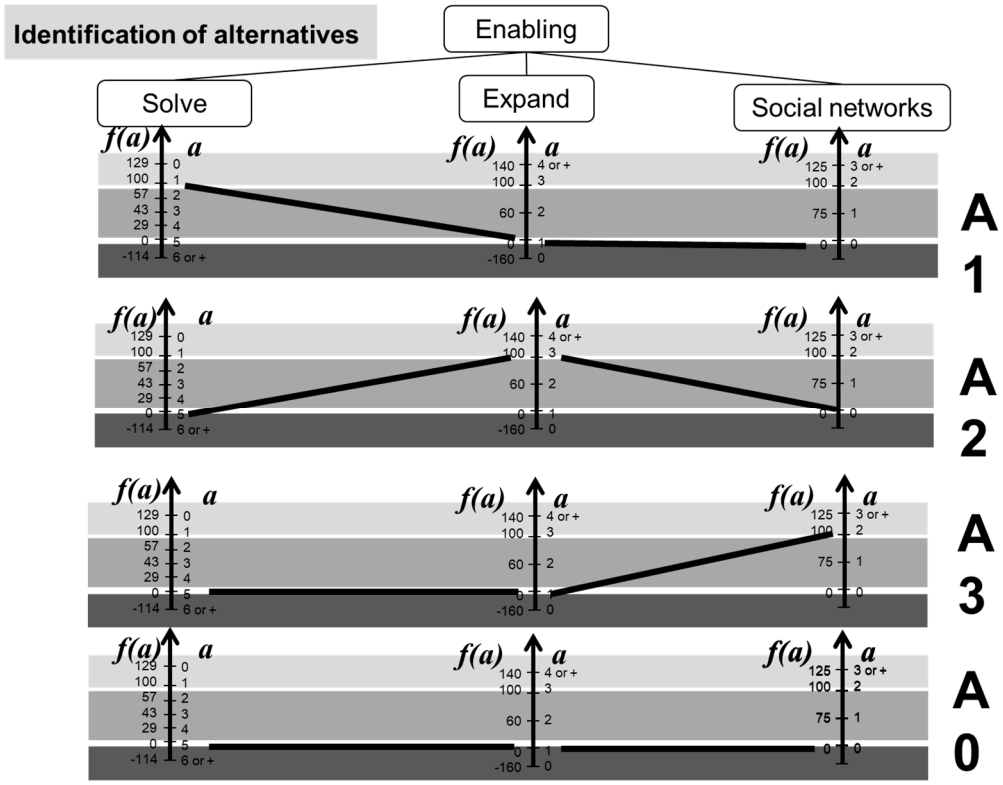


Figure 7. Activity plan with improvement actions for PVE-Expand.

5. Final Considerations, Limitations, and Future Research

In all professions and workplaces, committed people strive for excellence. This effort, however, is not one-off; in fact, it is a continual search, and sometimes encounters favorable situations, and at other times, unfavorable situations. If the unfavorable situations are regular and intense, they can compromise a professional's motivation and self-esteem by first weakening his/her ambition to perform with excellence and, over time, leading to a disinterest in performance at work.

The literature review makes it clear the importance of considering the motivation of public servants and the need to develop models that will help them to improve their performance and to feel personally and professionally fulfilled. The lack of customized tools developed for this purpose has also been demonstrated, especially models that improve the motivation of the civil servant, to make him/her less stressed and happier, and being more productive for the institution as a consequence. In the literature, no model of evaluation for civil servant performance of the Federal Highway Patrol was found, let alone a model of self-evaluation for the Federal Highway Patrol that considers the criteria the police personnel judge important in their work and under their control.

Federal Highway Patrols are going through a critical period, with a high number of sick, frustrated, and uncommitted civil servants, which creates personal conflicts, accidents, and deaths, and compromises the quality of life of the civil servants and the provision of public service.

This study [40] developed a model of self-evaluation of performance for Federal Highway Patrol officers based on their perceptions to enhance their motivation at work. In this research, the model was partially presented, only for one FPV, but the applied reasoning serves the other fundamental points too. To achieve this goal, four specific objectives were defined:

(i) To structure the aspects that can be controlled by a Federal Highway Patrol officer and perceived as critical to enhance their motivation at work during the model structuring phase.

(ii) To construct ordinal and cardinal scales to measure the structured aspects during the evaluation phase of the model.
(iii) To construct a graphic and numerical model of additive aggregation and measure the performance profile of the police officer in the last stage of the evaluation phase, the model for which is represented in Figure 5.
(iv) To offer recommendations from the identified performance profile in the last phase of the model construction, in the Results section, making recommendations for the three descriptors that presented the worst performances in PVE-Knowledge of FPV-Communication.

The model shows a process that allows the Federal Highway Patrol officers to improve their motivation to work using their own performance evaluation, where they can verify if their work has achieved the goals proposed and expected by their peers, superiors, and society that will lead to positive consequences in their personal and professional lives. The model can be adapted to other police officers, or other police and non-police institutions, while keeping in mind the objectives and needs of each.

The present research contributes to the practical world and to the literature on the topic of self-management of motivation by providing an instrument that allows stakeholders to build a model that allows them to identify the factors that contribute to their motivation, have intervals scales to measure for each factor the possible levels of performance, show where you are, establish the desired level (goal), and from there develop actions to achieve it. This knowledge is unprecedented in the literature and, therefore, a contribution of the present proposal.

This study has the following limitations. (i) Its need for iteration and interaction with the decision maker, who naturally was very busy, placed some restrictions on the study's development. Although meetings had to be limited to just 60 min, the number of sessions was increased to address this issue. (ii) A second limitation was the need to clarify how the decision maker and the organization viewed management issues from an operational point of view. To minimize this problem, the actors were encouraged to discuss these issues separately, and to base them on PRF standards.

The following studies are suggestions for future research. (i) Perform additional research to discover how effective the model is for organizations in the medium and long terms. (ii) Construct performance evaluation models, using the MCDA-C methodology, for other organizational areas in the PRF. Lastly, (iii), conduct similar studies in other organizations that need self-management motivation.

Author Contributions: Methodology, A.D.; Validation, A.D.; Writing–original draft, L.E., S.R.E. and L.A.G.G.; Writing–review & editing, A.A.L. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Mason, D.; Hillenbrand, C.; Money, K. Are informed citizens more trusting? Transparency of performance data and trust towards a British police force. *J. Bus. Ethics* **2014**, *122*, 321–341. [CrossRef]
2. Baer, M.D.; Bundy, J.; Garud, N.; Kim, J.K. The benefits and burdens of organizational reputation for employee well-being: A conservation of resources approach. *Pers. Psychol.* **2018**, *71*, 571–595. [CrossRef]
3. Klein, F.A.; Mascarenhas, A.O. Motivação, satisfação profissional e evasão no serviço público: O caso da carreira de especialistas em Políticas Públicas e Gestão Governamental. *Rev. De Adm. Pública* **2016**, *50*, 17–39. [CrossRef]
4. Schaltegger, S.; Wagner, M. Integrative management of sustainability performance, measurement and reporting. *Int. J. Account. Audit. Perform. Eval.* **2006**, *3*, 1–19. [CrossRef]

5. Vieira, C.B.; Boas, A.A.V.; Oliviera, E.R.; Vieira, C.B. Motivação na Administração Pública: Considerações teóricas sobre a aplicabilidade dos pressupostos das teorias motivacionais na esfera pública. *Rev. ADMpg Gestão Estratégica* **2011**, *4*, 1–12.
6. Poister, T.H. The future of strategic planning in the public sector: Linking strategic management and performance. *Public Adm. Rev.* **2010**, *70* (Suppl. S1), s246–s254. [CrossRef]
7. Santos, L.S.; Feuerschütte, S.G. O processo de avaliação de desempenho sob o olhar do avaliado: Estudo da percepção de servidores da Universidade Federal de Santa Catarina. *Análise–Revista de Administração da PUCRS* **2011**, *22*, 134–145.
8. Dal Prá, K.L.F.; Carvalho, D.D.F. Motivação Humana, Um dos Fatores do Comportamento Organizacional. 2003. Available online: http://tjsc25.tjsc.jus.br/academia/arquivos/Katia_Leandra_Frandalso_Dal_Pra.pdf (accessed on 10 March 2017).
9. Martinez, M.C.; Paraguay, A.I.B.B. Satisfação e saúde no trabalho: Aspectos conceituais e metodológicos. *Cad. De Psicol. Soc. Do Trab.* **2003**, *6*, 59–78. [CrossRef]
10. Whiteley, P.; Clarke, H.D.; Sanders, D.; Stewart, M. Why do voters lose trust in governments? Public perceptions of government honesty and trustworthiness in Britain 2000–2013. *Br. J. Politics Int. Relat.* **2016**, *18*, 234–254. [CrossRef]
11. Wall, T.D.; Michie, J.; Patterson, M.; Wood, S.J.; Sheehan, M.; Clegg, C.W.; West, M. On the validity of subjective measures of company performance. *Pers. Psychol.* **2004**, *57*, 95–118. [CrossRef]
12. Damasceno, T.N.F.; Alexandre, J.W.C. A qualidade de vida no trabalho no âmbito do serviço público: Conceitos e análises. *Rev. Científica FACPED* **2012**, *3*, 39–49.
13. Bourne, M.; Pavlov, A.; Franco-Santos, M.; Lucianetti, L.; Mura, M. Generating organisational performance: The contributing effects of performance measurement and human resource management practices. *Int. J. Oper. Prod. Manag.* **2013**, *33*, 1599–1622. [CrossRef]
14. Speklé, R.F.; Verbeeten, F.H.M. The use of performance measurement systems in the public sector: Effects on performance. *Manag. Account. Res.* **2014**, *25*, 131–146. [CrossRef]
15. Zhang, J.; Chen, Y. Enhancing open government information performance: A study of institutional capacity and organizational arrangement in China. *Chin. J. Commun.* **2015**, *8*, 160–176. [CrossRef]
16. Bana e Costa, C.A.; Ensslin, L.; Cornêa, É.C.; Vansnick, J.C. Decision support systems in action: Integrated application in a multicriteria decision aid process. *Eur. J. Oper. Res.* **1999**, *113*, 315–335. [CrossRef]
17. Ensslin, L.; Ensslin, S.R.; Dutra, A.; Nunes, N.A.; Reis, C. BPM governance: A literature analysis of performance evaluation. *Bus. Process Manag. J.* **2017**, *23*, 71–86. [CrossRef]
18. Della Bruna, E., Jr.; Ensslin, L.; Ensslin, S.R. An MCDA-C application to evaluate supply chain performance. *Int. J. Phys. Distrib. Logist. Manag.* **2014**, *44*, 597–616. [CrossRef]
19. Dutra, A.; Ripoll-Feliu, V.M.; Fillol, A.G.; Ensslin, S.R.; Ensslin, L. The construction of knowledge from the scientific literature about the theme seaport performance evaluation. *Int. J. Product. Perform. Manag.* **2015**, *64*, 243–269. [CrossRef]
20. Ensslin, L.; Dutra, A.; Enssslin, S.; Moreno, E.; Chaves, L.; Longaray, A. Sustainability in library management in higher education institutions: A bibliometric analysis. *Int. J. Sustain. High. Educ.* **2022**, *23*, 1–24. [CrossRef]
21. O'Donnell, M. Creating a performance culture? Performance based pay in the Australian public service. *Aust. J. Public Adm.* **1998**, *57*, 28–40. [CrossRef]
22. Hitka, M.; Balazova, Z.; Grazulis, V.; Lejskova, P. Differences in employee motivation in selected countries of CEE (Slovakia, Lithuania and the Czech Republic). *Ekon. Eng. Econ.* **2018**, *29*, 536–547. [CrossRef]
23. Odelius, C.C.; Santos, P.R.G. Avaliação de desempenho individual na administração pública federal: Aspectos intervenientes no processo e nos resultados. *Rev. Econ. E Gestão* **2007**, *7*, 10–30.
24. Janovac, T.; Virijević Jovanović, S.; Tadić, J.; Tomić, G.; Ćufalić, S. The influence of employee motivation factors on job satisfaction in mining companies. *Pol. J. Manag. Stud.* **2021**, *23*, 224–238. [CrossRef]
25. Jan Van Helden, G.; Johnsen, Å.; Vakkuri, J. Distinctive research patterns on public sector performance measurement of public administration and accounting disciplines. *Public Manag. Rev.* **2008**, *10*, 641–651. [CrossRef]
26. Radebe, P.Q. Managers' Perceptions of the Performance Appraisal System in the Local Municipality of Gauteng Province in South Africa. *Mediterr. J. Soc. Sci.* **2015**, *6* (Suppl. S1), 175. [CrossRef]
27. Speer, A.B. Quantifying with words: An investigation of the validity of narrative-derived performance scores. *Pers. Psychol.* **2018**, *71*, 299–333. [CrossRef]
28. Tohá, C.; Solari, R. A modernização do Estado e a gerência pública. *Rev. Do Serviço Público* **2014**, *48*, 84–103. [CrossRef]
29. Mureșan, G.M.; Fülöp, M.T.; Ciumaș, C. The Road from Money to Happiness. *J. Risk Financ. Manag.* **2021**, *14*, 459. [CrossRef]
30. Melkers, J. On the highway to improved performance. *Public Perform. Manag. Rev.* **2006**, *30*, 73–95. [CrossRef]
31. Johnsen, Å. What does 25 years of experience tell us about the state of performance measurement in public policy and management? *Public Money Manag.* **2005**, *25*, 9–17.
32. Ensslin, L.; Mussi, C.C.; Chaves, L.C.; Demetrio, S.N. IT outsourcing management: The state of the art recognition by a constructivist research process and bibliometrics. *J. Inf. Syst. Technol. Manag.* **2015**, *12*, 371–392.
33. Bana e Costa, C.A. Structuration, Construction et Exploitation d'un Modèle Multicritère d'aide à la Décision. Ph.D. Thesis, Universidade Técnica de Lisboa, Lisboa, Portugal, 1992.
34. Ensslin, L.; Neto, G.M.N.; Noronha, S.M. *Apoio à Decisão: Metodologias para Estruturação de Problemas e Avaliação Multicritério de Alternativas*; Insular: Florianópolis, Brazil, 2001.

35. Eden, C.; Jones, S.; Sims, D. *Messing about in Problems: An Informal Structured Approach to Their Identification and Management*; Pergamon: Oxford, UK, 1983.
36. Eden, C. On the nature of cognitive maps. *J. Manag. Stud.* **1992**, *29*, 261–265. [CrossRef]
37. Eden, C.; Ackermann, F. Analysing and comparing idiographic causal maps. In *Managerial and Organisational Cognition*; Sage: London, UK, 1998; pp. 192–209.
38. Bana e Costa, C.A.; De Corte, J.M.; Vansnick, J.C. Macbeth. *J. Inf. Technol. Decis. Mak.* **2012**, *11*, 359–387. [CrossRef]
39. Keeney, R.L. *Value-Focused Thinking: A Path to Creative Decision Making*; Harvard University Press: Cambridge, MA, USA, 2009.
40. Graziano, L.A.G. Modelo de Autoavaliação de Desempenho para Promover a Motivação de um Servidor Público: Um Estudo de Caso Para um Policial Rodoviário Federal em Santa Catarina. Master's Thesis, Universidade do Sul de Santa Catarina, Florianópolis, Brazil, 2017.