

# THE USE OF MATHEMATICAL MODELS IN DETERMINING THE DEGREE OF PERCEPTION OF SOCIAL RESPONSIBILITY OF ORGANIZATIONS

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**Abstract.** *In a world troubled by social and economic events, social responsibility is the most important competitive advantage of the organization, but also a strategic management tool to achieve its goals. Due to the multiplication of the facts of organizations in the contemporary world, there is an increase in the efforts of researchers to quantify the degree of social responsibility of organizations. Following the concerns in this respect, the authors present, by this work, two possible methods of quantitative determination of the social responsibility of the organizations, under the conditions of the influence factors considered essential (external and internal). The result of such an approach, would be the pragmatic character that we want to give to this research, which would allow theoreticians to better understand the SRO on the perception of the organization by employees and practitioners, in order of a better understanding of the impact of a corporate strategy based on social performance regarding the attractiveness of the organization. A very important issue is determining the degree of perception of SROs in the environment in which organizations operate. There is a great deal of information about how the various organizations produce environmental and social events, but it is often difficult for a variety of reasons: large amount of diffuse information, lack of comparability, forced images to create a positive image about the organization, false advertising.*

**Keywords:** *the degree of social responsibility of the organization, economic responsibility, legal responsibility, ethical responsibility, mathematical modelling.*

## 1. INTRODUCTION

The knowledge society that mankind crosses today has a fundamental characteristic: human resources are considered as a competitive advantage because they ensure not only the achievement of objectives but also the dominance of the organization on a certain market. Therefore, it is necessary to promote a set of the most creative strategies for the organization to detach itself from another already competitive organization and to promote attractiveness for potential beneficiaries of the organization's products. From this perspective, the concept of social responsibility of the organization is of particular importance if it is to consider the two dimensions of the organization: internal (employees, shareholders, trade unions, employers) and external (suppliers, customers, local communities, NGOs).

This proves that the organization's social responsibility is a complex concept referring to an organization's obligations to shareholders, employees, customers, suppliers, society

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(stakeholders) and to the environment [20]. The idea of responsibility has put its mark on the way to govern an organization to achieve its goals (effectiveness) at the lowest cost (efficiency).

Many decades of the last century, most business people were more concerned with the economic aspects of the organization than with social issues. It has been found that a gap has been created between the awareness of organizations and the degree of satisfaction of society.

Organizations act and develop in a dynamic and unpredictable environment, requiring efficient and effective management: "Organizational management is a tribute to multiple phenomena: economic, social, technical-scientific, and environmental. The factors that influence the managers of the organizations at this beginning of the 21st century are interconnected, intertwined between these two dominant dimensions, the deepening of the human activities and the strong growth of technology and science [14].

The social responsibility of the organization (SRO) becomes even more stringent as it is found that the organization's evolution takes place in a complex, uncertain and unstable environment, posing the acute problem of knowledge and management of disorder and chaos [24]. The concept of SRO appeared against the backdrop of the dramatic rupture of the 1970s-1980s to the glorious years after the Second World War. The management had to find new solutions to get out of this deadlock, highlighting the social role it had gained, and causing profound mutations in managerial theory and practice.

Organizations become human beings who ask their own conscience (citizen organization, self-organization). Worldwide, SRO is a practice of whose utility and permanence is demonstrated by successful organizations, which are aware that beyond profit making, they have an obligation towards the environment and the community in which they live.

A truly responsible organization is distinguished by a good collaboration in achieving the goals, as this organization is able to provide employees with the tools in order to make them responsible and motivated to achieve their goals. The result of such management is the reputation of the organization that allows it to detach itself from the others. A positive relationship is created between the attractiveness of the organization and its social performance [25], the established relationships within the organization forming a complex and coherent system. Therefore, it forms the ARV paradigm (attractiveness, reputation, visibility): the attractiveness is influenced, on the one hand, by the organizational reputation and, on the other hand, by the degree of visibility offered by SRO: competitive remuneration, social advantages, flexible work schedules, continuous training programs, career opportunities.

For the scientific approach of this article, it is interesting to present the two categories of actors that define the internal and external dimensions of the involved parties: the organization itself and NGOs.

The organization is considered to be the main actor of SRO. There are some issues that need to be retained regarding the organization as the main actor of SRO: to act in a responsible manner [3]; to act in an institutional manner of regulation and norms [5]; to act in a voluntary manner [6]; to act in a discretionary manner [13, 27].

These manners require organizational managers to achieve their goals, taking into account the following restrictions: interests of internal participants (employees, trade unions); interests of external stakeholders (suppliers, communities); limiting social and environmental impacts.

These restrictions are in fact the components of what some specialists call "responsible management" [18], thus aligning with the standards and exigencies of society. Thus, organizations, through their efforts, will try to improve their image by responsible behaviour that will eventually become a mobilizing factor for employees, whose behaviour will change,

being more loyal and more attached to the organization they belong. Thus, we can say that SRO primarily seeks to consider its legitimacy in order to prevent any objection to the restraint of its rights and obligations [9].

The lack of interest from large organizations for SRO is justified by the absence of a link between social responsibility and financial performance and by the shortage of an effective tool to measure this link [26].

Other studies have identified the factors which determine the above-mentioned link: consumer attractiveness [17]; organizational climate [15]; decreasing behaviours [23]; employee motivation and organizational attractiveness [25].

The above mentioned factors create competitive advantage for the organization, which increases their organizational attractiveness regarding [22]: a good climate of confidence; an affective organizational commitment; a decrease of the absenteeism index; a more positive attitude towards work.

The expected results of measurements needed to be taken by the organisations is the multidimensionality of this measurements, meaning that a feedback is needed, related to the consequences of the measures already taken, regardless of the field of activity.

The emergence of the concept of Social Responsibility of the Organization (SRO) has taken place on the basis of very serious debates, adopted in the management policies promoted by big companies in the developed countries or in the developing capitalist countries. At the same time, the emergence of SRO is also associated with the existence of social movements and the principles and behaviours of organizations in their relations with society. The 1960s were also known through the debates on SRO, at the core of which was the relationship between government performance and business performance. Reference standards have been created that organizations have had to implement. In the past three decades, there have been countless debates about the role of corporations in society [2].

It has been noticed that there is a great gap between what the organization proposes (maximizing profit) and the general interest imposed (a better society), which has led to the idea that SRO has not respected its promises [12].

From the point of view of community, A. Etzioni is considered to be a renowned specialist: "The community movement is an ecological movement dedicated to the changing of its social, moral and political environment by changing values, state of affairs and public policies" [11]. A. Etzioni is the advocate of state intervention in community issues, but not in an intensive manner. Between SRO and profit a relationship is established, ranging from one field of activity to another according to some organizational performance indicators. It is considered that financial market indicators are more relevant to SROs than accounting indicators and knowledge of sociological factors can help explain the impact of SROs on performance.

Moreover, taking into account the quality of products and the satisfaction of consumers, marketing performance, and the SRO approach becomes even more effective. The more SRO's activities are more transparent, the more consumers are interested in acquiring goods or services from that organization. Thus, by building a business strategy that aligns economic, social and environmental performance with long-term business values, corporate responsibility becomes part of the business and results in greater added value for both the company and society. Consumers' views on SROs are complex. They have a more favourable attitude when they see that SRO's actions are an integral part of business strategy and have a negative perception of companies whose efforts are seen as the result of selfishness or institutional adaptation. According to the social identity theory, if there is a beneficial mutual relationship between a company and a non-profit organization, knowing this relationship can positively influence consumer decisions, [8].

From the point of view of the sociological approach it is envisaged that the organizations must take into account the values present in the social environment in which they operate. First, SRO is a dominant value that must be accepted by organizations to prove their legitimacy. Second, the SRO, as a sociological approach, refers to compliance with the rules, in a coercive, hermetic and non-erratic manner that managers ask for to develop. Thus, Bergeron proposes an interesting classification of the SRO theories about the way in which organizations act in their role in society.

The organization assumes social responsibilities by recognizing the needs and priorities of the actors in society. It assesses the consequences of its social actions in order to improve the living standard of the population, while protecting the interests of the shareholders. Interactions within society are determined by the values of society. In the early 1990s, A. Toffler identifies and analyses the power transfers that underlie what he calls the "new wealth creation system," which consists of the following manners of acting, a permanent struggle between "YES", and "NO". Under a new, chaotic reality characterized by rapid change, managers need to find solutions to bring added value to what organizations offer [19].

## 2. MATHEMATICAL MODELING ON THE MEASUREMENT OF THE DEGREE OF PERCEPTION OF SOCIAL RESPONSIBILITY OF ORGANIZATIONS

### 2.1. PRESENTATION OF THE GSRO MATEMATIC PERCEPTION MODEL

Current research aims to assess the impact of the various elements that make up a corporate strategy that is based on GSRO measurement. Relationships with the community, relationships with employees, respect for the environment and the quality of services and products offered, are considered. The scientific approach is realized from the perspective of the manner in which individuals are attracted by an organization, convinced of its organizational reputation. All of these are considered aspects of sustainable development. The question to be answered is: what will cause organisations managers to volunteer in a SRO policy at the intersection of social (employee) and environmental concerns (community, product / service quality, and respect for environmental) and economic efficiency? The GSRO level was determined in this mathematical model as follows:

1. Determination of the GSRO level following a similar methodology used to calculate the HDI level (Human Development Indicator) [4].

Thus, we can assume that the amplitudes (X) of the three factors of influence (factorial responsibilities) vary between a minimum limit ( $X_{\min}$ ) and a maximum limit ( $X_{\max}$ ), and each factor contributes to the GSRO size by one-third of the relative level of each. Relative levels of influence factors of GSRO are determined using the relationships below. For Economic Responsibility (E) it will be determined a relative level of it symbolized by (e):

$$e = \frac{E - E_{\min}}{E_{\max} - E_{\min}} \leq 1 \quad (1)$$

For the legal responsibility (L) we will determine a relative level of it symbolized by (l):

$$l = \frac{L - L_{\min}}{L_{\max} - L_{\min}} \leq 1 \quad (2)$$

For ethical (moral) responsibility - (M) we will determine a relative level of it symbolized by (m):

$$m = \frac{M - M_{\min}}{M_{\max} - M_{\min}} \leq 1 \quad (3)$$

When the variables e, l, m are approaching the unit value, the company will have to travel a shorter distance until the target is reached in that field.

The GSRO level can be determined as an arithmetic mean of the relative levels (e, l, m) calculated for the three factors:

$$GRSO = \frac{e+l+m}{3} = \frac{1}{3}e + \frac{1}{3}l + \frac{1}{3}m \quad (4)$$

Calculation of the GSRO level according to the proposed methodology, using partial (1/3) levels of influence factors (economic - e, legal - l and ethical - m).

In the socio-economic environment there are other factors influencing the GSRO level. By identifying another factor (considered in addition to the three above mentioned), its absolute magnitude (A) and its relative level (a) will be determined.

$$a = \frac{A - A_{\min}}{A_{\max} - A_{\min}} \leq 1 \quad (5)$$

Using O.N.U. methodology to determine the HDI level, the calculation relation for the GSRO level is calculated as a simple average where the contribution of the factors is 25% (it is assumed that the three initial factors are independent of the additional factor -A).

$$GRSO = \frac{e+l+m+a}{4} = \frac{1}{4}e + \frac{1}{4}l + \frac{1}{4}m + \frac{1}{4}a \quad (6)$$

If each of the factors e, l, and m are dependent on the random factor A, which can have a negative or positive influence on them, an influence described analytically by one function, we can write the relations.

$$e = e(a) \quad (7)$$

$$l = l(a) \quad (8)$$

$$m = m(a) \quad (9)$$

Under these conditions the GSRO level can be determined with the following relationship:

$$GRSO = \sqrt{e^2(a) + l^2(a) + m^2(a)} \quad (10)$$

*In this hypothesis the values of the sizes e, l, m will be variable relative to the relative factor (a) of the additional factor.*

To determine the GSRO, under the conditions of the additional factor - A expression, a proportional variation, highlighted by a coefficient  $\alpha$  of constant value ( $a$ ) for each  $e$ ,  $l$ ,  $m$  or different sizes ( $a_1$ ,  $a_2$ ,  $a_3$ ), can be used. With determined coefficients (constant or variable) for each reference factor (economic, legislative and ethical), new computational relations with GSRO are obtained.

In the case of a constant influence of the additional factor ( $A$ ) on the essential factors ( $e$ ,  $l$ ,  $m$ ) the GSRO level is determined as follows:

$$GRSO = a \cdot \sqrt{e^2 + l^2 + m^2} \quad (11)$$

In the case of the variable influences of the additional factor ( $A$ ) on the additional factor ( $A$ ) on the essential factors ( $e$ ,  $l$ ,  $m$ ) the GSRO level is determined as follows:

$$GRSO = \sqrt{a_1^2 \cdot e^2 + a_2^2 \cdot l^2 + a_3^2 \cdot m^2} \quad (12)$$

The coefficients  $a_i$  reflect the degrees of influence of the random factor ( $A$ ) in economic ( $a_1$ ), legislative ( $a_2$ ) and ethical ( $a_3$ ) sectors.

The calculation methodology presented is, however, perfectible and we propose a quantitative appreciation of the degree of social responsibility in contemporary organizations.

2. Determining the GSRO level following a similar methodology used to calculate the module of a vector, in three-dimensional space

In the following, we propose a calculation methodology for the GSRO using the hypothesis that the organization is characterized by the three factors previously presented and considered independent, with which a three-dimensional reference system can be formed. Each factor is associated with one axe obtaining a system of three rectangular axes.

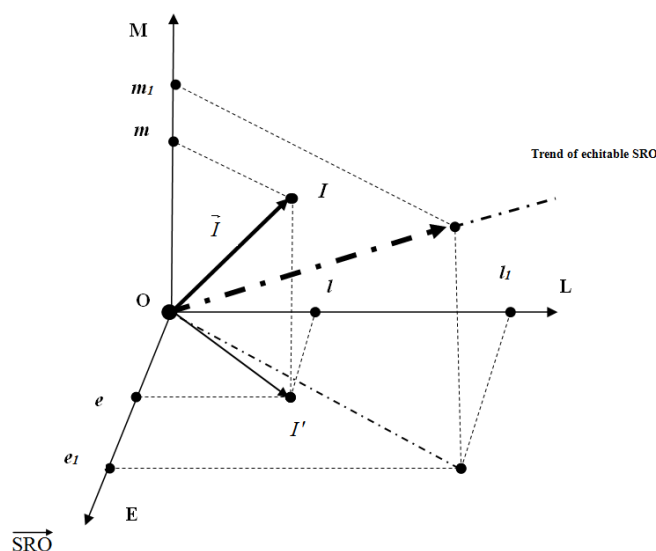


Figure 1. Vector representation of the degree of social responsibility.

It can consider that GSRO is the module of a vector located in three-dimensional space, space determined by the three factors of influence of the social responsibility of the organization. By making the statement that the vector is a dimension characterized by module, sense and direction, it results that the GSRO level is the module of a vector, resulted of the composition of three spatial and independent vectors, respectively rectangular (the vector of

economic responsibility, the vector of legal responsibility and the vector of ethical responsibility).

If a GSRO level is associated with a resultant vector, and to its influence factors associate three independent vectors that reflect their amplitudes of factorial responsibilities or cause (economic, legal, ethical) through their modules, then GSRO can be determined by a methodology which is similar to module determination, sense and direction of a vector in three-dimensional space.

In this hypothesis, the vector  $\vec{I}$  is located in three-dimensional space. The module (length) of this vector represents the GSRO level. On each axis will be a component specific to the organization's responsibility, which can take values between 0 and 1

$$e \in [0,1] \quad (13)$$

$$l \in [0,1] \quad (14)$$

$$m \in [0,1] \quad (15)$$

The social responsibility of the organization, represents, by this method, a resultant vector  $\vec{OI}$ , which is located in the space of the axes  $\vec{OM}, \vec{OL}, \vec{OE}$  and has the value (module)  $|\vec{OI}|$ . The values  $e$ ,  $l$ , și  $m$  are projections of the spatial vector  $\vec{OI}$  on the three axes  $\vec{OM}, \vec{OL}, \vec{OE}$ . Consequently, the degree of social responsibility of the organization is the vector module  $|\vec{OI}|$  and is established with the relationship below:

$$GRSO = |\vec{OI}| \quad (16)$$

The values  $e_1$ ,  $l_1$ , și  $m_1$  are unit module vectors, respectively vectors (unit-module vectors) on the rectangular axes. Vectors determine balanced social responsibility.

Given the existence of balanced social responsibility, the three factors of influence (economic, legal and ethical) have equal contributions to the level (degree) of the social responsibility of the organization. According to vectorial calculus in three-dimensional space, the modulus of this vector can be determined by following Figure 1 by decomposing on the three components.

$$OI^2 = m^2 + (OI')^2 = m^2 + e^2 + l^2 \quad (17)$$

$$OI = |\vec{i}| = \sqrt{m^2 + e^2 + l^2} = GRSO \quad (18)$$

In this case each factor participates with full value in GSRO training. A point in three-dimensional space reflects the state of the organization at one point. The position of the point I of the three-dimensional space, respectively the position of the vector, determines the following categories of social responsibility:

- *Balanced responsibility, when point I is in line with the balanced trend and results in equality  $m = l = e$  at different levels of the relative sizes of the three categories of social responsibility;*

- *Imbalanced responsibility* when point I is not on the same line as the axis of the reference system (the balanced trend line). When  $m \rightarrow 1$ ,  $e \rightarrow 1$ ,  $l \rightarrow 1$ , replacing in formula 18  $m=1$ ,  $l=1$ ,  $e=1$ , then GSRO size  $\rightarrow \sqrt{3}$  and takes the maximum value and the organization is at the top level of social responsibility. Because access to goods, banking, educational services, and sanitation is limited, it is difficult to achieve this. Among the possible deficiencies of the proposed model to be used to determine the GSRO size can be mentioned:

- The three factors E, L, M are considered independent, which does not reflect reality;
- The three factors cannot self-characterize the level of social responsibility (one can also include another factor, symbolized by A, which manifests in society only during the analysed period);
- The maximum and minimum levels of factors E, L, M are dynamic and should therefore be set according to the period under review.

In some studies, it was proposed to analyse factors influencing social responsibility, the Venn diagram method. The Venn chart can be used to represent the complex of social responsibility factors, structured on three categories that reflect the three types of social responsibility. There is no explanation on the significance of the intersection zones of the circles in the Venn diagram. For the quantitative assessment of the organization's social responsibility, the probability calculation is used, i.e. the use of the number of factors involved. The indicator determined by the probability method does not reflect the result of the conjugate action of the involved factors acting at different intensities. In conclusion, this indicator is not the result of combining the intensity of the factors involved. Unlike the Venn diagram, the methods proposed by us can be used to quantify the GSRO level. The indicators proposed for the quantitative determination of the GSRO are the result of a combination of factors involved and acting with different intensities. A particular problem in the quantitative determination of the GSRO level is the quantitative determination of the level of each influence factor on the degree of social responsibility. Here are some possible quantitative determinations of influence factors. Thus, the economic responsibility of the organization (E) can be measured by the ratio between the average wage level ( $\bar{S}$ ) and the average labour productivity level ( $\bar{W}$ ), which is an effort-to-effect ratio. Economic activity is considered healthy if the static and dynamic levels of this ratio are sub unitary.

$$E = \frac{\left(\bar{S}\right)}{\left(\bar{W}\right)}, \quad I_E = \frac{\left(I_S\right)}{\left(I_W\right)}, \quad 0 \leq E \leq 1 \text{ and } I_E \leq 1 (100\%) \text{ respectively } I_S \leq I_W \quad (19)$$

This indicator must have a subunit level for the health of the organization to be considered normal. It is very important to establish a decent level of minimum wage in the economy in order to avoid increasing the poverty of the members of society. A high level of this indicator contributes to raising the standard of living of the members of society, and a low level lowers their standard of living. The calculated level of this ratio is not, in fact, an optimal level for society, but one that reflects the ratio of forces between the organization and society, respectively, between employers and trade unions. The optimal salary-productivity ratio needs to be determined for both employees and the organization. Due to the different interests of the parties in the dialogue, it is often avoided, subjectively eliminating objective, rational solutions. It has been mentioned above that the level of salary and productivity in the vast majority of cases, is the result of the union-employers ratio. Basically, this ratio is hard to optimize, but it is important to note that the level of this ratio will be changed according to the socio-economic period under way and will provide the members of society with a truly decent



living standard. *Because the optimal level of this ratio is the level of ethics, morality among all members of society, this ratio will remain a very difficult task.*

By replacing the average salary and average productivity symbols with their calculations, the indicator of economic responsibility (E) becomes:

$$E = \frac{\bar{S}}{\bar{W}} = \frac{\frac{FS}{T}}{\frac{CA}{T}} = \frac{FS}{CA} \quad (20)$$

where: E – Level of economic responsibility; FS - salary fund; CA- turnover; T - number of employees.

For the results of calculations not to be influenced by inflation, it is recommended that average salary and average productivity is determined in real terms. The maximum and minimum levels of ratio E can be set as follows: based on the basis of the data collected from the analysed enterprises; based on data from the same enterprise but from different periods; as rules imposed by the legislator.

### 3.2. DETERMINATION OF THE DEGREE OF PERCEPTION OF SOCIAL RESPONSIBILITY OF ORGANIZATIONS

The research field of the scientific approach consists of 57 organizations from the county of Dambovită. The selection of the organizations has taken into account their concerns about the impact of their work on social and environmental variables (employees, community, product / service quality and respect for the environment). The criterion for choosing these organizations was the way in which they perceive SRO as a debt that, beyond cost, can generate long-term added value. Organizations have shown a high degree of transparency, which has allowed access to a number of relevant documents for research. Moreover, these organizations have perceived SRO as a way to become even more profitable, a new way to act.

Selecting the respondents was the task of the organizational managers and included the entire range of activities of them. To be even more objective, it has been established a restriction, such the age in the organization, more than a year.

The mathematical modelling of the proposed model aims at identifying SRO portraits reflecting the social personality for the three categories of organizations in the banking, oil products and service sectors. To achieve this, a social performance assessment grid is proposed based on the model proposed by A. B. Carroll and M. S. Schwartz in 2003.

A limitation in the scientific approach is the lack of demarcation between the three types of responsibility, in the sense that decisions are often motivated for economic reasons, without regard to legal or ethical considerations, so a new paradigm, that we call the ELE (Efficiency-Legality-Ethics), is proposed to this scientific approach. The underlying argument for this paradigm is one of the three strategic action areas proposed by the 2020 strategy, namely sustainable growth: achieving a more resource-efficient economy in terms of responsibility and competitiveness. The representation of the SRO proved to be partial, but the use of other more significant variables - allocated budgets, duration or recurrence of actions over time - was not possible given the nature of the information available in the SRO field.

**Table 1. Segmenting levels of responsibility**

Levels of responsibility	Segmenting levels	Motivations
Economic responsibility	Direct impacts	Maximizing your profit and / or business value
	Indirect impacts	Improving employee morale or organizational image
Legal responsibility	Passive submission	Complying with law through hazard
	Restrictive submission	Complying with law in an intentional manner
	Opportunistic submission	Obtaining advantages from the opportunities offered by the law
	Avoiding conflicts	Avoiding current or future litigation
	Anticipating the law	Anticipating the draft of a new law
Ethical responsibility	Conventional	Complying with the rules imposed by the profession or society, as necessary
	Teleological	Preoccupations with the consequences or consequences of its acts
	Ethical	Acting by need or obligation

Considering that it was not the objective to assess the real commitment of the organizations to the SROs, but to determine the level of perception of SROs at the three levels: economic, legal and ethical, after the actions were allocated on the three levels, it was determined the relative share of each type of responsibility in total actions (Table 2).

**Table 2. Structure of SRO actions by activity domains**

Type of responsibilities	Banking group		Petroleum products distribution group		Service group	
	No.	%	No.	%	No.	%
Economic responsibility (1)	2	13.3	3	25.0	6	20.0
Legal responsibility (2)	3	20.0	4	33.3	9	30.0
Ethical responsibility (3)	10	66.7	5	41.7	15	50.0
Total	15	100.0	12	100.0	30	100.0

A first finding is common for all three target groups: the largest share is held by philanthropic (ethical) actions. The conclusion would be the concern of some organizations to be in a trend, but we cannot analyse this type of behaviour, because of the lack of information, and even more, in a full economic crisis that the organization is going through. The simplest explanation would be the organizational reputation to increase the attractiveness of those organizations.

It is further proposed to calculate a responsibilities' evolution indicator [1]:

Defining a coefficient of evolution:

$$C = \{C_1, \dots, C_k\}, k - \text{responsibilities} \quad (21)$$

- Assume  $P$ , as an a priori probability of  $C$

$$P_i = P(C_i) \rightarrow (C, P) \quad (22)$$

Due to the fact that there is no information, the uniform probability for P is considered:

$$P(C_i) = \frac{1}{k} \quad (23)$$

- Assume Q as another probability of C, Q being a probability that the sum of the frequencies is equal to 1

$$q_i = Q(C_i) \rightarrow (C, Q) \quad (24)$$

- The transition from (C, P) to (C, Q) is defined by the importance of responsibility  $C_i$  when the probability Q is assumed instead of P.

It is defined a coefficient that measures this transition by:

$$\alpha_i = \frac{q_i}{p_i} \quad (25)$$

(The transition coefficient from  $(C_i, P_i)$  to  $(C_i, q_i)$ )

The same event is determined by the probability situation in relation to the baseline situation (A. B. Carroll's reference model):

$$C = \{C_1, C_2, C_3\} \quad (26)$$

Indices 1, 2, 3 corresponding to the three categories of responsibility: economic (1), legal (2) and ethical (3).

The proposed model is a uniform probability due to the lack of information on the initial situation:

$$P(C_1) = P(C_2) = P(C_3) = \frac{1}{3} \quad (27)$$

The analysis of the data regarding the actions undertaken by the three categories of organizations, allows the obtaining of the achieved actions' frequencies, by the type of frequency. The following are obtained:

### ***Banking sector***

$$q_{11} = Q(C_{11}) = \frac{2}{15}; q_{12} = Q(C_{12}) = \frac{3}{15}; q_{13} = Q(C_{13}) = \frac{10}{15}$$

The transition from (C, P) to (C, Q) is:

$$\alpha_{11} = \frac{q_{11}}{p_{11}} = \frac{\frac{2}{15}}{\frac{1}{3}} = 0.40$$

$$\alpha_{12} = \frac{q_{12}}{p_{12}} = \frac{3/15}{1/3} = 0.61$$

$$\alpha_{13} = \frac{q_{13}}{p_{13}} = \frac{10/15}{1/3} = 2.00$$

***Petroleum products distribution sector***

$$q_{21} = Q(C_{21}) = \frac{3}{12} = 0.25; \quad q_{22} = Q(C_{22}) = \frac{4}{12} = 0.34; \quad q_{23} = Q(C_{23}) = \frac{5}{12} = 0.42$$

The transition from (C, P) to (C, Q) is:

$$\alpha_{21} = \frac{q_{21}}{p_{21}} = \frac{3/12}{1/3} = 0.76$$

$$\alpha_{22} = \frac{q_{22}}{p_{22}} = \frac{4/12}{1/3} = 1.00$$

$$\alpha_{23} = \frac{q_{23}}{p_{22}} = \frac{5/12}{1/3} = 1.26$$

***Service sector to the population***

$$q_{31} = Q(C_{31}) = \frac{6}{30} = 0.2; \quad q_{32} = Q(C_{32}) = \frac{9}{30} = 0.3; \quad q_{33} = Q(C_{33}) = \frac{15}{30} = 0.5$$

The transition from (C, P) to (C, Q) is:

$$\alpha_{31} = \frac{q_{31}}{p_{31}} = \frac{6/30}{1/3} = 0.60$$

$$\alpha_{32} = \alpha_{32} = \frac{q_{32}}{p_{32}} = \frac{9/30}{1/3} = 0.90$$

$$\alpha_{33} = \alpha_{33} = \frac{q_{33}}{p_{33}} = \frac{15/30}{1/3} = 1.51$$

Set up a centralizer (Table 3):

**Table 3. Actions for customer satisfaction by target groups**

Type of responsibilities	Banking group		Petroleum products distribution group		Service group	
	No.	$\alpha$	No.	$\alpha$	No.	$\alpha$
Economic	2	0.40	3	0.76	6	0.60
Legal	3	0.60	4	1.00	9	0.90
Ethic	10	2.00	5	1.25	15	1.51
Total	15	3.00	12	3.00	30	3.00

The development of the SRO concept in the organization is supported by the creation within the organization of a coordination structure of the SRO. Normally, this structure depends on the size of the organization. In a large organization, a distinct structure can be organized, under the director's subordinate. In smaller organizations, SRO tasks are entrusted to various levels, starting with the organization's manager and continuing with managers on other hierarchical levels. Regardless of its name or the composition of this structure, which we can call "committee", it must have a distinct place in the organizational chart of the organization.

## 4. RESULTS AND DISCUSSION

### 4.1. RESULTS

All target groups have different behaviours regarding the favouring of one or another of the responsibilities. Thus, the coefficient of ethical responsibility is the highest among all target groups. The banking group's organizations have the highest coefficient (2) against the other groups with lower coefficients (1.25 and 1.5 respectively).

If in the case of the distribution of petroleum products, the score between the coefficients of the three types of responsibilities is balanced (0.25), it is not the case for the other target groups: the service group - 0.90, the banking group - 1.6. This is due to the fact that the management of the organizations in the two groups is more inclined towards economic performance. It can be appreciated that the predominance of economic responsibility leads us to affirm that the organizations have failed to integrate their obligations regarding ethical and legal responsibilities in their current state. Obtaining such values from the coefficients of evolution of responsibilities, is the result of a lack of a true culture of SROs, many organizations acting more like to make themselves known and not to respond to the SROs stakes, which are imposed to the organizations, by the society itself.

Another conclusion that can be drawn from the low level of the evolution of responsibilities is that the organizations do not promote the responsible investment concept, reducing the concept of SROs to green development, eliminating the human factor. The small number of SROs did not allow us to draw generalized conclusions, which is another limit of research but a future direction for research action. Research can continue, aware that the

model of A. B. Carroll and M.S. Schwartz has serious gaps in his feasibility. In this respect, we are questioning which the organization's motivation in having different behaviours are.

Thus, the segmentation proposed by the two specialists creates ambiguities, making it necessary to have a more coherent model that highlights the ELE paradigm in all its complexity.

By trying to design the Venn diagram for the case under consideration, there were a number of limitations on model design. These limits are: interference between the three types of responsibilities cannot be established with relative accuracy, which makes it difficult to identify the common elements needed in the design of diagrams. This is also due to the subjectivism of the investigator; the frequency of the phenomena analysed cannot be relevant for the characterization of a given field, all the more for the efficiency of the action; the approach of the occurrence of the three aspects of the SRO in the construction of the model, presents gaps in the results' significance and calculations; the increased difficulty of charting for more than two subsystems analysed; knowing that, starting from the balanced diagram that reflects an ideal aspect of the SRO, the design of the Venn diagram does not reflect the reality under consideration because some aspects of the SRO are difficult to quantify; the number of actions is determined in the characterization of SROs, by their effects in society.

Starting from these obstacles encountered in the construction of the Venn diagrams, it was suggested a possible method for measuring the degree of social responsibility of the organization (DRSO).

## 4.2. DISCUSSION

The topic proposed in this article did not want to be an exhaustive one, to address all issues related to SROs. It forms a part of the vast concerns in this area. The existing specialized literature is an argument in this respect. We have tried and are trying to launch new directions of action. This scientific approach is part of the trend, trying to propose to practitioners and specialists, future prospective students in this field, several directions of action, making it clear that these proposals have certain limits on their way to operationalization.

It has gone from the idea that business and research environments will find the necessary paths for sustained support and will be aware of the implications of SROs for economic benefits. The SRO is understood in this context as containing the actions that an organization carries out, which are oriented towards the promotion of social interests prior to the interests of economic environment or those resulting from the legislative.

An action line would consist in generalizing SRO studies at the industrial sector, taking into account that financial performance measures are more difficult to operationalize. Getting input from the input-output analyses is highly necessary for decision-makers in their approach of delivering guidelines for optimal levels of SRO regulation.

The limit for this direction is represented by the social costs, which occur under the conditions of receiving compensatory amounts, due to the phenomena of calamity. Social costs also refer to externalities if they have not been internalized (damage to the health of neighbouring communities, to agricultural harvest or to water, due to non-compliance with environmental regulations).

Otherwise, the social costs also concern the parties involved like the costs for the local community and others related to investors, creditors, clients, and NGOs. All these costs determine the need to propose a new type of SRO management, such as the creation of an extra financial dashboard.

The second direction that is proposed is the SRO vs ethics approach, starting from the two competing logic: sustainable development in a European context for SRO; ethical moralist trend, of American origin, for business ethics.

Another research runway starts from the fact that SRO is often linked to the concept of socially responsible investment (SRI). SRI is considered to be the financial and speculative decline in sustainable development.

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