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RESEARCH ARTICLE

COMPANY'S SOCIAL PERFORMANCE ASSESSMENT USING ANALYTIC HIERARCHY PROCESS (AHP) METHOD

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ABSTRACT

Even though sustainable development concept originally included a clear social mandate, since a long time this social dimension has been neglected amidst abbreviated references to sustainability that have focused on economic and environmental issues. Lately, literature which concerns company's social performance evaluation is more and more important. However, it usually focuses on one aspect of organization, production system. Now, social performance is a hot topic for researchers and it is one of major concerns of company leaders. In this context, many models and methodologies have been established in literature to assess company's social performance, since it has become an important issue for society. However, few of them analyze social impacts. Assessing company's social performance is an issue always new for any management team. So, by this work we try to answer the following questions:
How to assess social performance of a large or Small and Medium-sized Enterprises? Are there tools or methods to make this assessment? Is everything can be assessed? What parameters are included in this assessment?
In this paper, we present a conceptual model to perform company's social performance assessment, based on issues which significantly affect the society.

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INTRODUCTION

Social performance is defined as the social impacts on stakeholders (Wood, Jones, 1995; Spirig, 2006). In recent years, business community has become increasingly engaged in efforts to achieve a decision making more socially responsible. With some regularity, companies integrate social objectives into their economic models by making tangible changes in all aspects of their operations. Incorporation of sustainability is the key to value creation for shareholders (Eccles, Ioannou, Serafeim, 2012). Some work conducted under social sustainability rubric (Kalmijn and Arends, 2010) is clearly focused on meeting basic needs and addressing 'underdevelopment'. Applying sustainable development principles in industrial management is still a difficult task. In this sense, companies have very little knowledge and tools and consulting firms are often helpless against the demands of companies that want to engage in CSR (Corporate Social Responsibility). Since CSR concept was firstly proposed, it has remained a challenge for organizations that struggle to determine how it can be operationalized and measured (Richard *et al.,* 2014), because the old mechanisms of performance measurement, such as costs, do not give firms a clear view on consequences of their management practices (Haddach *et al.,* 2017a). In this work, subject of social performance prompted us to examine works conducted on social dimension of sustainable development and summarize these varied attempts to build a conceptual model which will allow company's social performance assessment.

CSR presentation

The concept which emphasizes the integration of social responsibility into business is Corporate Social Responsibility or Sustainable Corporate Performance (Fauzi, Svensson, Rahman, 2010). Recognizing the potential advantages of improved public relations, many companies are committed to CSR and some even provide shareholders with a formal report of their CSR practices. Recently, CSR has become an attractive research line with considerable practical value. Nowadays, CSR importance encourages managers and planners to highlight CSR elements in corporate missions, visions, values and strategies (Cruz and Wakolbinger, 2008). CSR is translated as the impact of corporate activities on different social groups (or stakeholders), including environment protection, human right, work place safety, proper

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conditions for employees, etc. (Carter and Jennings, 2002a). Since CSR tries to integrate social and economic aspects to create more value for the whole society (Carroll and Buchholtz, 2002; Bowen, 1953), it plays significant role in sustainable development of countries. Additionally, according firm's managers, CSR can enhance brand and social image of corporate besides reducing risks. On the other hand, ignoring CSR may bring high pressures on corporate from media, activists, non-governmental organizations, professional unions and other society groups (Haddach *et al.,* 2017b). These pressures affect profitably and sustainability of corporate activities. For example, popular corporations such as McDonalds, Shell and Wal-Mart have experienced damages to their reputation and sales resulted from media reports and campaigns by advocacy and social groups (Amaeshi *et al*. 2008). To make a socially responsible corporate, it is not sufficient to control only social responsibility level within the boundary of corporation's ownership, rather social responsibility level should be also assured at other partners within supply chain network (Cruz, 2009). Despite importance of supply chain social responsibility, relevant literature is not wide. As primary works in this area, Carter and Jennings (2002b) make significant step forward in incorporating CSR concept into Supply Chain Management (SCM) context. There is a little interest in social performance of company. Indeed, while overall sustainable development works has considered economic (Maria *et al.,* 2009) and environmental dimensions, very little works have considered social dimension and social quality (Pamela et Claire, 2011).

MATERIALS AND METHODS

Description of considered company

We consider the case of a company which is composed from several potential suppliers, subcontractors, production sites and customers. Also, we consider several regions where production sites are located.

Hypotheses of our conceptual model are as follows:

1. Company is managed centrally by a single entity which coordinates all operations.
2. Planning horizon is multi-periods.
3. Part of production can be outsourced on one or more periods.
4. Suppliers and subcontractors are assumed to be usual logistics partners of company.
5. Company does not have its own transport fleet and use external providers.
6. Production processes are convergent: more incoming products are mixed or assembled together to get outgoing product (automotive industry for example).

Company's social performance indicators

We have selected our indicators according to requirements recommended by Roy (1985):

- **Completeness**: there must be no too few criteria.; otherwise, it means that some assessment elements were not taken into account.

- **Non-redundant**: there must be no duplicated criteria., thus more than necessary.

- **Consistency**: global preferences (all indicators) are consistent with local preferences (for single indicator).

To assess company's social performance, we have adopted twenty one indicators included in five major issues (table 1).

Social indicators values

We consider that company studied in this model contains N entity (production sites), such as $N \in [1, +\infty]$

- Value of social indicators expressed in number is calculated by the sum of its value in all entities over studied period t (year in general). For example, to calcul value of "discrimination cases", we have to use the following equation (01):

$$N_{d,t} = \sum_{i=1}^{i=N} n_{di,t} \quad (01)$$

Such as: $n_{di,}$is the number of discrimination incidents at entity i of company over period t.

- Value of social indicators expressed in percentage is calculated by the sum of products of percentage in entity i by its weight (in terms of staff number) compared by all company over period of time t. For example to calculate value of "Percentage of participation in professional elections", we have to use the following equation (02):

$$P_{Pe,t} = \sum_{i=1}^{i=N} p_{i,t} \times P_{pei,t} \quad (2)$$

Such as: $p_{i,}$is the staff rate of entity i compared by all company staff and $P_{pei,t}$is the percentage of participation in professional elections in entity i over period t.

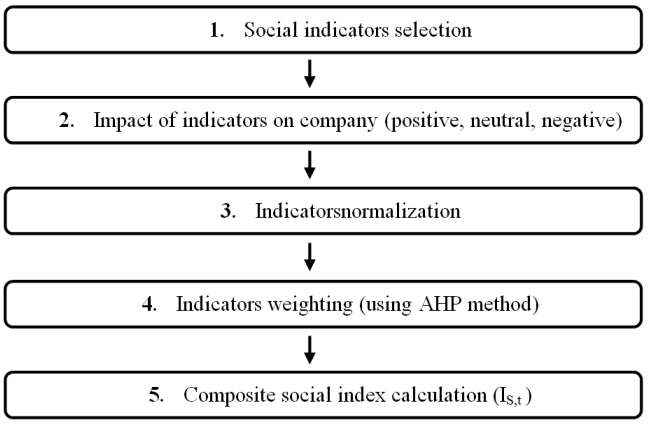

Fig. 1. Calculation procedure of company's social performance index

Company's social performance assessment

Company's social performance value is very essential for decision-making, but it is very difficult to evaluate because of too many indicators. Our model reduces these indicators by aggregating them into a composite social index ($I_{S,t}$) which reflects company's social performance over a determined period (year in general) (Figure 1).

Table 1. Adopted social indicators

N°	Issue	Indicator	Symbol	Unity	Impact	I_{Inf}	I_{Sup}
1	Labor rights	Cases of no respect of free competition	FC	Number	Negative	0	Staff number
2		Cases of injustice caused by hierarchical power	HP	Number	Negative	0	Staff number
3		Discrimination cases	Di	Number	Negative	0	Staff number
4		Staff victims of corruption	VC	Number	Negative	0	Staff number
5		Staff representatives	Re	Number	Positive	0	Staff number×0.02
6		Staff who practicing a forced labor	FL	Number	Negative	0	Staff number
7		Staff who are children	Ch	Number	Negative	0	Staff number
8		Staff number participated in professional elections	PE	Number	Positive	0	Staff number
9		Cases of violations of privacy	VP	Number	Negative	0	Staff number
10	Working conditions	Ratio of lowest wage / cost of local life	LW/LL	%	Positive	0	1
11		Salary retention level in illness case	SI	%	Positive	0	1
12		Services offered to staff	SS	Number	Positive	0	20*
13	Health and security	Staff victims of occupational accidents	OA	Number	Negative	0	Staff number
14		Staff victims of diseases caused by work	DW	Number	Negative	0	Staff number
15	Societal commitment	Jobs created	Jo	Number	Positive	0	Staff number at end of period t
16		Staff with CID** at end of period t	CID	Number	Positive	0	Staff number at end of period t
17		Staff with CDD*** at end of period t	CDD	Number	Negative	0	Staff number at end of period t
18		CDD* transformed to CID	CDD-CID	Number	Positive	0	CDD number at beginning of period t
19		Layoffs	La	Number	Negative	0	Staff number at beginning of period t
20		Budget destined to promote social activities	SA	M€	Positive	0	Total Supply Chain Budget ×0.1
21	Consumers	Products / Services subject of complaint by consumers	CC	Number	Negative	0	All sold products / services

*: estimated number; **CDD: Contract for a Determinate Duration; ***CID: Contract for an Indeterminate Duration

Social indicators are divided into two groups (Table 1):

1. Nine indicators whose increasing value have a positive impact on company's social performance.
2. Twelve indicators whose increasing value have a negative impact on company's social performance.

For example, increased value of "discrimination cases" clearly has a negative impact on company's social performance, while increased value of "budget destined to promote social activities" has a positive impact on company's social performance. The main problem of indicators aggregation into $I_{S,t}$ is the fact that indicators are expressed in different units. One way to solve this problem could be normalizing each indicator i using equations (03) and (04).

$$I^{+}_{N,it} = \frac{I^{+}_{A,it} - I^{+}_{Inf,t}}{I^{+}_{Sup,t} - I^{+}_{Inf,t}} \quad (03)$$

$$I^{-}_{N,it} = 1 - \frac{I^{-}_{A,it} - I^{-}_{Inf,t}}{I^{-}_{Sup,t} - I^{-}_{Inf,t}} \quad (04)$$

Where $I^{+}_{N,it}$ is the normalized indicator i (with positive impact on company's social performance) over period t and $I^{-}_{N,it}$ is the normalized indicator i (with negative impact on company's social performance) over the same period t.

Thus, the possibility to incorporate different kinds of values, with different measurement units is offered. Among advantages of proposed normalization of indicators is the clear compatibility of different indicators, since they are normalized. Next procedural part of $I_{S,t}$ calculation involves weights determination, which should be combined with each indicator. Social indicators weights can be obtained from social expert's surveys or from public surveys about social themes. Therefore, to derive practically the weights, Analytic Hierarchy Process (AHP) method was used for this model. We build a matrix A = (n x n) (in our case n=21), where indicators are compared 2 by 2 by decision maker.

The comparisons are made by posing the question which of two indicators i and j is more important from social point of view. Preference intensity is expressed on a factor scale from 1 to 9 (Table2). Value of 1 indicates equality between the two indicators while a preference of 9 indicates that one indicator is nine times more important than the one which it is being compared. This scale was chosen, because in this way comparisons are being made within a limited range where perception is sensitive enough to make a distinction. In the matrix A, if indicator i is "p-times" important than indicator j , then necessarily, indicator j is " 1/p times " important than indicatori, where diagonal $a_{ii} = 1$ and reciprocal property $a_{ji} = (\frac{1}{a_{ij}})$ such as i, j = 1,…, n.

Weight of indicator i (Wi) is given by equation (05) below:

$$W_i = \frac{\sum_{k'=1}^{k'=n} \frac{a_{ik'}}{\sum_{k=1}^{k=n} a_{kk'}}}{n} \quad (05)$$

One disadvantage of AHP method outlined in literature (Dyer, 1990) is the problem of intransitivity preferences. Indeed, pair wise comparison may lead to non-transitivity that cannot be removed as part of AHP method. However, perfect consistency rarely occurs in practice. In AHP method pair wise comparisons in a judgment matrix are considered to be adequately consistent if corresponding Consistency Ratio (CR) is less than 10% (Saaty, 1980). CR coefficient is calculated as follows: first a Consistency Index (CI) needs to be estimated. This is done by adding the columns in the judgment matrix and multiply resulting vector by priorities vector (i.e., approximated eigenvector) obtained earlier. This yields an approximation of maximum eigen value, denoted by λ_{max}. Then, CI value is calculated by using the formula:

$$CI = \frac{\lambda_{max} - 1}{n - 1} \quad (06)$$

Next, CR is obtained by dividing CI by Random consistency Index (RI) as given in table 3 below.

Otherwise matrix A should be evaluated:

$$CR = \frac{CI}{RI} \quad (07)$$

Finally, composite social index (IS,t) in period t can be derived as shown in equation (08) below:

$$I_{Soc,t} = \sum_{i=1}^{i=9} W_i \times I_{N,it}^{+} + \sum_{i=1}^{i=12} W_i \times I_{N,it}^{-} \text{ where } \sum_{i=1}^{i=21} W_i = 1 \text{ and } W_i \geq 0 \quad (08)$$

Table 2. Comparison scale of AHP method (Hafeez, 2002)

Preference factor, p	Importance definition
1	Equal importance
3	Moderate importance of one over another
5	Strong or essential importance of one over another
7	Very strong or demonstrated importance of one over another
9	Extreme importance of one over another
2,4,6,8	Intermediate values
Reciprocal,1/p	Reciprocal for inversecomparison

Table 3. RI values for different values of n

n	1	2	3	4	5	6	7	8	9	10	11
RI	0	0	0.58	0.90	1.12	1.24	1.32	1.41	1.45	9.41	1.51

n	12	13	14	15	16	17	18	19	20	21
RI	1.54	1.56	1.57	1.59	1.60	1.61	1.62	1.63	1.63	1.64

RESULTS

Importance of social performance for all company's stakeholders requires the determination of its value. So, by this model, we can get a simplified and quantified expression of company's social performance. This model, can be used to inform decision- makers about social performance achieved throughout their company, and then the determination of actions which should be applied. However, it may also be used to provide information to critical decision processes. Our model presented by $I_{S,t}$ index helps us to improve social performance and where best practices might be found. Company decision-makers could easily interpret this index, then finding the correct sense which they should react. If enclosed in periodic social report, $I_{S,t}$could also be used to present company's progress for various parties interested in company's social performance. As $_{IS,t}$ would be applied in different companies, it is possible to compare and rank them in social performance term.

By this model, we provide for company's decision makers a tool which allows them:

1. To analyze current and potential value of implemented activities and to consider actions for strengthen this value such as implementation of social best practices in company. This analysis allows them to define activities scope and to consider several options for this end, as part of differentiation strategy by CSR.
2. To study social performance profile related to company decisions during planning phase, choose company configuration and the way to exploit it in advanced and optimized manner to ensure target level of social performance. This level defines strategy which decision maker wishes to implement in his company.
3. To know precisely additional investment in monetary terms, which he must engage to achieve desired social performance level.
4. To have quantitative performance indicators which used for company control and for communication purposes.

Conclusion

Recently, some companies have made an important progress in social protection. With popular and regulatory pressures, they have had no choice to develop a social management increasingly rigorous. However, in most organizations, social side remains on margins of activity producing value. This is one reason why social protection is seen even today as an additional production cost. In origin of this work, was the problem of considering social impacts of company practices. In this context, our goal has been to provide an assessment model of these impacts. It was also for us, to assist in definition of judicious and targeted axis of progress allowing to evolve evaluation systems of social performance in company. We proposed a model for social decision in company. We mobilized, among others, value chain and AHP method. Primary objective of this study is to lay the foundations for a new generation of social indicators that will allow us to know our level in social performance terms. To assure reliability of this model, we considered core social indicators during its construction. Model presented in this paper promises advance in company's social performance assessment and makes social information more useful for decision-makers. Any company and based on this model, can know their achievements towards society. Even though further development is called for, it is evident that this model has the potential to become very useful as one of available tools.

REFERENCES

Amaeshi, K., Osuji, O.K., Nnodim, P. 2008. Corporate social responsibility in supply chains of global brands: a boundary less responsibility? Clarifications, exceptions and implications. *Journal of Business Ethics,* 81, 223–234.

Bowen, H.R. 1953. Social Responsibilities of the Businessman. New York, Harper & Row.

Carroll, A.B. and Buchholtz, A.K. 2002. Business and Society: Ethics and Stakeholder Management. Cincinnati, OH, 5thed., South-Western College Publishing, Thomson Learning.

Carter, C.R. and Jennings, M.M. 2002a. Social responsibility and supply chain relationships. Transportation Research Part E: Logistics and Transportation Review. 38, 37–52.

Carter, C.R., Jennings, M.M. 2002b. Logistics social responsibility: an integrative framework. *Journal of Business Logistics,* 23,145–180.

Cruz, J.M. 2009. The impact of corporate social responsibility in supply chain management: multicriteria decision-making approach. *Decision Support Systems,* 48, 224–236.

Cruz, J.M., Wakolbinger, T., 2008. Multi period effects of corporate social responsibility on supply chain networks, transaction costs, emissions, and risk. *International Journal of Production Economics,* 116, 61–74.

Dyer, J. S. 1990. Remarks on the analytic hierarchy process. *Management Science,* 36(3), 249-258. doi: 10.1287/ mnsc. 36.3.249

Eccles, R., Ioannou, I. and Serafeim, G., 2012: Is sustainability now the key to corporate success? The Guardian. [online]. c 2012 [cit. 2012-10-15]. Available: <http://www.guardian.

co.uk/sustainable-business/sustainability-keycorporate-success>.

Fauzi, H., Svensson, G. and Rahman, A. A., 2010: Triple Bottom Line" as "Sustainable Corporate Performance": A Proposition for the Future. Sustainability, 2, 1345–1360. ISSN 2071-1050.

Haddach, A., Ammari, M., Ben allal, L., Chraïbi , L., Laglaoui, A., 2017b. An integrated methodology to assess social performance of supply chain. *International Journal of Advanced Research,* 5(4), 123-136. DOI: 10.21474/ IJAR01/3788

Haddach, A., Ben allal, L., Laglaoui, Ammari, M. A., 2017a. Assessment of Firm's Global Performance: Available Tools and Proposal of a New Module. *International Journal of Business and Management Invention,* Volume 6 Issue 7, 06-17.

Hafeez, K., Zhang, Y., Malak, N. 2002. Determining key capabilities of a firm using analytic hierarchy process. *International Journal of Production Economics,* 76(1), 39–51. doi: 10.1016/s0925- 5273(01)00141-4

Kalmijn, W. M., Arends L. R. 2010. Measures of Inequality: Application to Happiness in Nations. *Social Indicators Research,* 99:147–162. doi: 10.1007/s11205-010-9573-z

Maria, F., Cracolici, M. C., Peter, N. 2009. The Measurement of Economic, Social and Environmental Performance of Countries: A Novel Approach. *Social Indicators Research,* 95:339–356. doi: 10.1007/s11205-009-9464-3

Pamela, A., Claire, W. 2011. Social Quality: A Way to Measure the Quality of Society. *Social Indicators Research,* 108:153–167. doi:10.1007/s11205-011-9871-0

Richard, A. B. 2014. Recognition for Sustained Corporate Social Responsibility: Female Directors Make a Difference. *Corporate Social Responsibility and Environmental Management,* 23, 27-36. doi: 10.1002/csr.1358

Roy B. 1985. Méthodologie multicritère d'aide à la décision. Paris, Economica.

Saaty, T. L. 1980. Analytical Hierarchy Process: Planning, Priority Setting, Resource Allocation. NewYork, McGraw-Hill.

SPIRIG, K. 2006. Social Performance and Competitiveness, A Socio-Competitive Framework. In: Schaltegger, S. and Wagner, M. Eds.) Managing the Business Case for Sustainability. Sheffield: Greenleaf Publishing, 82–106. ISBN 1-874719-95-0.

WOOD, D. J. and JONES, R. E., 1995: Stakeholder Mismatching: A Theoretical Probelm In Empirical Research On Corporate Social Performance. *International Journal of Organizational Analysis,* 3,3: 229–267. ISSN 1934-8835.

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