A New Performance Measurement Corporate Social Responsibility Model for Small and Medium-Sized Industrial Enterprises

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Abstract

The present paper is concerned with a new statistical approach, involving latent and manifest variables applied in order to assess the corporate social responsibility performance for small and medium-sized industrial enterprises (SMI). To achieve this aim, our approach consists first to identify five significant components that are suitable to build a Social Responsibility Performance Index Model adapted to the SMI specifications: Governance and Management, Human Resources, Safety and Health at Work, Environment and Sustainable Development, Business Relationship and Best Practices. Then the structural equation model (SEM) is stated to describe various causal connections between latent and observed variables. The SEM's resolution is based on the Partial Least Squares (PLS) method and the implementation is running in the XLSTAT software by exploring the data collected from a survey questionnaire intended for the different stakeholders concerned with the SMI activities. The obtained outputs could be examined and analysed in order to develop plans and actions for improvement in the CSR.

Keywords
Small and Medium-Sized Industrial Enterprises, Social Responsibility Performance Index, Structural Equation Modeling, Stakeholders.

1. Introduction

Small and Medium-Sized Industrial Enterprises (SMI) play a very important and crucial role in world economy, they have a challenge to be competitive in economic, environmental and social dimensions. Integrating social responsibility throughout SMI can be undertaken through practical, simple and cost-efficient actions, and does not need to be complex or expensive. Owing to the small size, and their potential for being more flexible and innovative, SMI may in fact provide particularly good opportunities for social responsibility. They are more flexible in terms of organizational management; often have close contact with local communities and their top management usually has an immediate influence on the organization's activities (ISO 26000, 2010).

Social Responsibility (SR) provides many benefits for SMI from both external and internal views such that improving the confidence of potential investors, attracting talented people, positioning the brand, attracting new customers, building customer loyalty, improving corporate image and generally the relationship with the environment. From an internal view, a social responsibility policy motivates the employees, improves the work climate, resulting in the improvement of productivity and quality in service supply, improves internal communication, gets loyalty and staff's commitment, and creates a culture in the SMI firms, through the promotion of shared values in the company according Corporate Social Responsibility.

Although CSR has been a concept linked to large companies, it is considered as a strategic and vital tool to enhance the competitiveness and ensure sustainability of SMI and to contribute in its global performance. This fact yields to develop CSR assessment tools to generate a performance index that will help a SMI to capitalize its social responsibility activities and to improve continually its social and environmental performance regarding to the stakeholders expectations. Stakeholders is defined as any group or individual who can affect or be affected by the achievement of an organization's objectives (Freeman, 2010). In addressing its social responsibility, SMI should take in account three relations: between SMI and society -between SMI and its stakeholders-between stakeholders and society.

Studies of CSR performance in small and medium sized enterprises and industrial firms arouses more interest among researchers, we find more recent work addressing qualitative and quantitative approaches for CSR performance and its connection with the overall performance of the company. We quote particularly the work about measuring Capabilities, Proactive CSR and Financial Performance, in SMEs an Australian Manufacturing Industry Sector (Torgusa and al, 2012), This study examines empirically the association between three specified capabilities (shared vision, stakeholder management and strategic proactivity), proactive CSR and financial performance in SMEs using quantitative data collected from a sample of 171 SMEs. In the same context, (Tantalo and al, 2012) evaluates the connection between corporate social responsibility and SME's competitiveness by using an empirical approach based on direct interviews to Italian small and medium sized enterprises having developed successful CSR strategies; a similar study has been developped in (Delchet and al, 2012) for french SMEs. More recently , (Herrera and al, 2016) examined relationship between corporate social responsibility and competitive performance from a stakeholders' perspective, using an empirical approach the article shows that the strategic incorporation of socially responsible actions, more concerned and engaged with stakeholders, contributes to improve the competitiveness of these organizations.

In this context, there is a need for a framework to assess the SR practices and actions of SMI, regarding the stakeholder's expectations, in order to evaluate the extent to which a SMI has social responsibility and in which areas it lacks such responsibility, if any. To respond to this requirement, we introduce in the present paper a new **SMI Social Responsibility Performance Index (SMISRPI)** as a holistic and global evaluation, realized by the stakeholders, about the commitment and actions regarding five main Social Responsibility components: **Governance and Management, Safety and Health at work, Environment and Sustainable Development, Business Relationship and Best Practices, Human Resources**. For this, a structural equation model (SEM) is stated to describe various causal connections between the five latent variables and their associated observed ones.

2. SMI Social Responsibility Performance Index Model (SMISRPIM)

2.1 An overview about Structural Equation Modeling :

Structural Equation modelling (SEM) are complex models allowing us to study real world complexity by taking into account a whole number of causal relationships among latent concepts (Latent variable: unobservable by a direct way like Intelligence, Attitude toward the brand, Satisfaction, Ability, Trust…). Each latent variable is measured by several observed indicators usually defined as manifest variable (observable by a direct way, are used to measure latent concepts by using measurement instruments such as survey) (Vinzi and al, 1975), (Vinzi and al, 2014).

Table 1. SEM Parameters

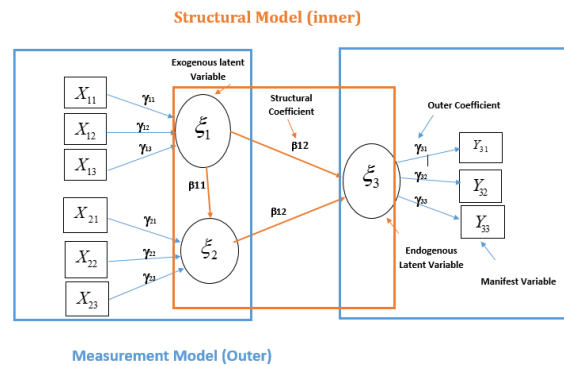|	
ξ_i	**Latent variable**
Y_{ij}	**Manifest variable related to endogenous latent variable**
X_{ij}	**Manifest variable related to exogenous latent variable**
β_{ij}	**Structural coefficient**
γ_{ij}	**Outer coefficient**

Figure. 1 Example of path diagram

The SEM multivariate technique combining aspects of multiple regression and factor analysis to estimate simultaneously a series of interrelated dependence relationships (Härdle and al,2011). Throughout the literature, it is shown that SEM provides a convenient framework to assess complex phenomenon, where it is difficult to determine causation between latent interdependent factors, as customer satisfaction and loyalty (Kanji & Chopra, 2010), health and environmental risk assessment on society (Kanji & Chopra, 2011). Survey of the contribution of business games in knowledge management (Bayart, 2013), Corporate social responsibility in a global economy (Kanji & Chopra, 2010).

Structural Equation Modeling (SEM) is a statistical method that allows a simultaneous examination of a hypothesized set of relationships between one or more independent variables, either continuous or discrete, and one or more dependent variables, either continuous or discrete. SEM has been described as a second generation of multivariate analysis, with substantial advantages over "first-generation techniques such as principal components analysis, factor analysis, discriminant analysis, or multiple regression because of the greater flexibility that a researcher has for the interplay between theory and data" (Chin, 1998). The robustness of SEM for others approaches is a merger of two powerful approaches — factor analysis and path analysis, allowing researchers to simultaneously assess the measurement model (traditionally accomplished with factor analysis) and the structural model (traditionally accomplished with path analysis).

In the figure below, we represent a path diagram illustrating a structural equation modelling is be a suitable method for assessment Corporate Social Responsibility in a global economy (Kanji & Chopra, 2010) and Modelling a Corporate Social Responsibility performance index according to the ISO 26000 Standard (Fethallah and al,2017). In this article, we will focus to develop **SMI Social Responsibility Performance Index** evaluation tool based on structural equation model and taking into consideration the stakeholders of SMI.

2.2 The Proposed Model

To define the scope of its social responsibility, identify relevant issues and set its priorities, SMI should address the following subjects: **Governance and Management, Safety and Health at work, Environment and Sustainable Development, Business Relationship and Best Practices, Human Resources.** Let us first describe each of these variables:

 -Governance and Management The quality management of a corporation, in terms of both people and processes, depends upon its strategic planning systems. The SMI should identify its main economic, social and environmental impacts, to have a vision and a strategy that defines its commitments to CSR, have designated senior person with a clear responsibility for CSR; to link corporate responsibility issues to people's performance reviews/appraisals across the SMI; to define key CSR priorities and communicate them throughout the SMI;

-Safety and Health at Work: A policy of occupational health and safety (OHS) is to reduce the risks accidents at work and occupational diseases, to ensure the health of employees, and the sustainability of the company. The SMI should to have plans to mitigate the adverse impacts of job reductions; to implement an Occupational Health and Safety Management (according for example to the OHSAS 18001 standard); to adopt risk approach; to involve employees in the risk management process; to develop continuous monitoring of all potential SMI risks;

-Environment and Sustainable Development: The acceleration of climate change, the depletion of natural resources and rising energy prices are factors that explain the need for SMI to take into account environmental impacts in its production process and daily actions of its employees. The SMI should to rationalize energy consumption; to privilege using clean and renewable energy; to adopt a waste management strategy; to integrate environmental criteria to all product life cycle: eco-design; to implement an environmental management system (according for example to the International standard ISO14001) monitoring all these environmental aspects in a continuous improvement approach;

-Business Relationship and Best Practices: SMI integrate social responsibility concept in all of these business operations through best practices with her consumers and other organizations that is why SMI should to assess significant suppliers and contractors, to have a policy and procedures for making its lobbying efforts transparent. To train its staff on ethical supply chain measures and integrate anti bribery, anti-corruption.

-Human Resources: Strategy human resources aims to create develop and preserve jobs and human capital for the long-term. In SMI, human resources are often managed by the entrepreneur himself who must be informed of changes in legislation, applied, but also recruit people, manager teams, and resolve internal potential problems. These tasks are also often treated daily. In SMI, more than in a large company, the employees are the key resource and represents a major lever of economic performance. The SMI should to establish an employee motivation policy; to adapt employees' skills to business needs; to adopt a variety of approaches in the workplace.
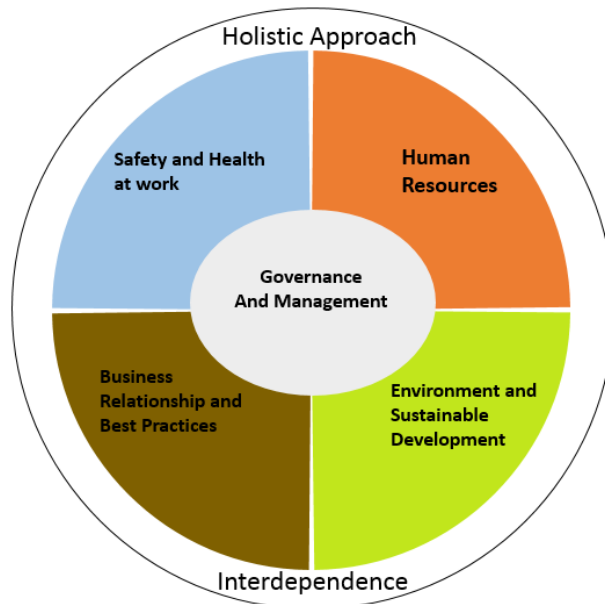

Figure. 2 The five subjects of CSR in SMI

The foundations of our model are as follows:

- Each subject is a latent variable interconnecting with the other latent variables

- Each subject has a certain degree of relevance

   - Each latent variable is explained by a set of manifest variables (measurement items) that are measured by a questionnaire intended for a representative sample of stakeholders.

   According to the above considerations, Our Small and Medium-Sized Industrial Enterprises Social Responsibility Performance index model is the following:
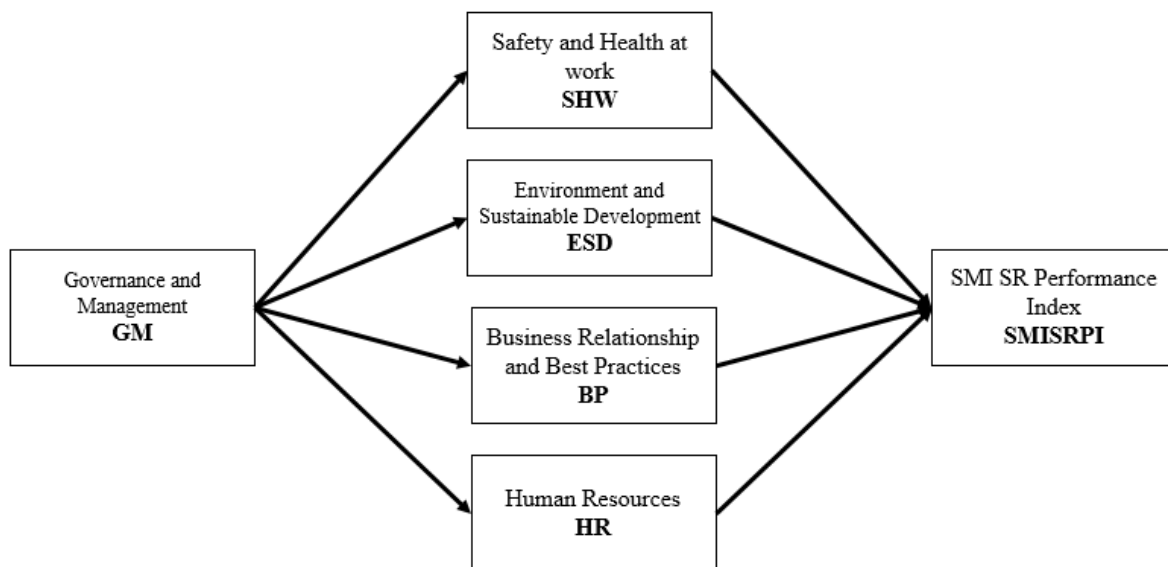

Figure.3 the **SMI SRPI** Model

   As shown in the figure above, the SMISRPI model is illustrating the following Hypothesis:

- A SMI should look at the Social Responsibility strategy holistically so as it considers all subjects and issues and their interdependence.

 - Governance and Management variable has the special characteristic of being both, a five subject on which SMI should act and a means of increasing the SMI's ability to behave in a socially responsible manner with regard to the other subjects. For this Governance and Management is considered as the exogenous variable of the model.

- The **SMISRPI** is the ultimate endogenous variable; it reflects the simultaneous effect of all the relationships estimated in the model between the subjects and their issues, is the continuous management of business processes to produce an overall positive impact on society in terms Governance and Management, Safety and health at work, Environment and sustainable development, Business Relationship, Best Practices and Human Resources. CSR is all about business is fair-trading and giving back to the workforce, their families, local community and society as well as protecting and sustaining the global environment (Kanji & Chopra, 2010)**.**

3. Implementation the SMISRPI Model

3.1 Methodology adopted

To Estimate and validate the model hypothesis we use Partial Least Squares (PLS) method is suitably adapted to the SEM performance models (Kanji & Chopra, 2000,2007,2010) oriented towards the realization of forecasts, the PLS method evaluates the latent variables as linear combinations of the manifest variables (Jöreskog, 1978),(Wold,1985). It estimates simultaneously the weights (inner and outer coefficients) associated to the constructs of the SEM model. These weights are calculated in a way that maximises the goodness of fit of the model, and thus the ability to explain the ultimate endogenous latent variable. According to (Hulland, 1999), the PLS approach is most appropriate for analysing small samples (30-100) and when have analysis exploratory. It is case of this study, hence a reason to choose the PLS approach. (See figure4).
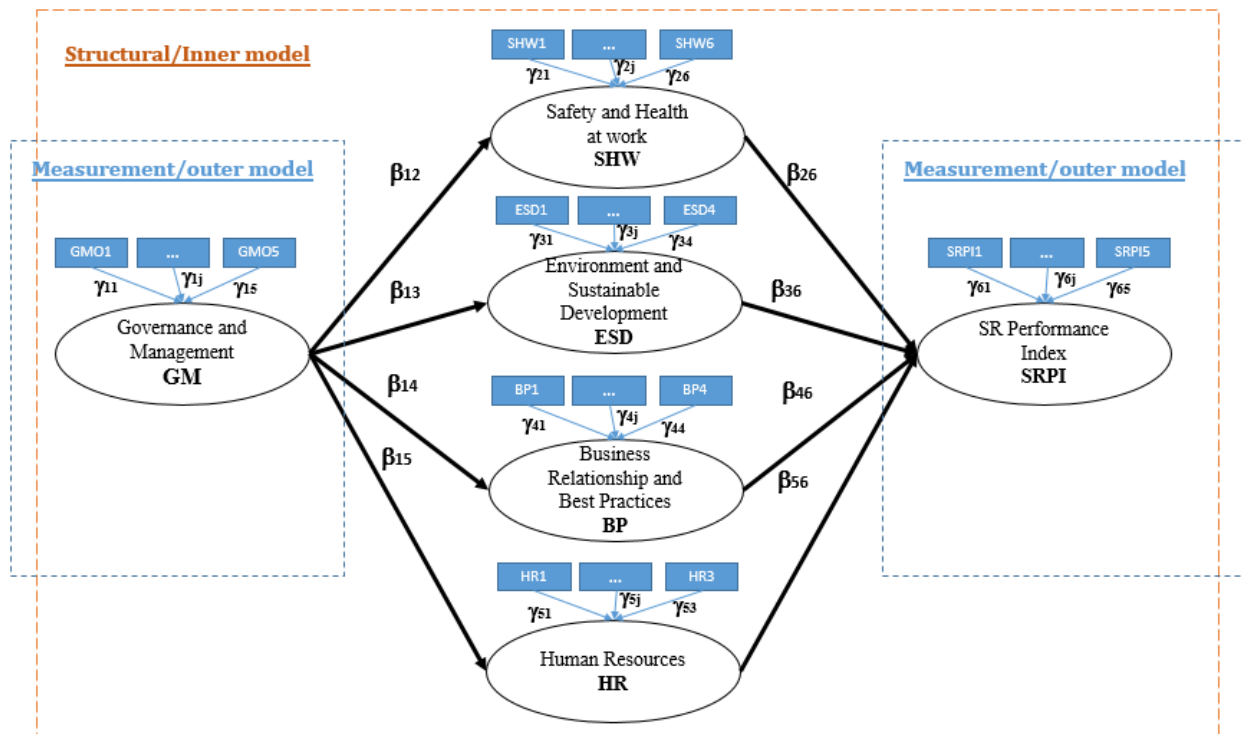

Figure. 4 Structural Equation of **SMI SRPI** Model

As shown in figure 4, the manifest variables have a fundamental role to measure social responsibility performance; they are a basic input of the SEM model and considered as indicators of the latent variables. More precisely, the manifest variables are the scores given by respondents as part of the questionnaire survey realized; moreover, we assume some traditional statistical hypotheses related to SEM:

- Independence of manifest variables;

- Random and representative sampling of respondents;

- The minimum sample size required between 30 and 100;

- Linearity all relationships; (Multilinear Regression);

- Multivariate Normality of distribution;

- No flattening and no asymmetry;

- Appropriate scale interval or measurement data report; (specify a scoring scale);

2.3 Sample size and data collection

Collection of data using a questionnaire is the basic tool to measure Social Responsibility Performance Index of SMI against the model. Since each CSR component corresponds to a concept that cannot be directly measured because of the complex nature of the Social responsibility concept, it must be translated into a set of indicators (manifest variables) that are then converted into items of the questionnaire. Ideally, the questionnaire should be administered throughout the different dimensions of CSR so that everyone's opinions can be accommodated. Specific questionnaires can be developed for getting feedback from everyone. In this article for collecting data, we choice random sample from stakeholders identified by the SMI a number around 250 usually gives the best results, but as a general rule it is possible to run the Social Responsibility Performance Index Model with a number of responses between 100 and 250 (Chin,1998). A version of **SMI Social Responsibility Performance Index** model questionnaire is given in Table 2, where each of the questions is answered on a 1 to 5 scale, ranging from 'very little' to 'very much'.

Table 2. Manifest Variables for SMISRPI

Criteria	Items	Scale
Governance and Management **(GM)**	The extent to which the SMI has policies and procedures to... **GM1:** Identify its main economic, social and environmental impacts **GM2:** Have a CSR Strategy that defines its commitments to CSR **GM3:** Have designated senior person with a clear responsibility for CSR **GM4:** Link corporate responsibility issues to people's performance reviews/appraisals across the SMI firms **GM5:** Define key CSR priorities and communicate them throughout the SMI firms	1 2 3 4 5
Safety and health at work **(SHW)**	The extent to which the SMI has policies and procedures to... **SHW**1: Have plans to mitigate the adverse impacts of job reductions **SHW**2: Implement Occupational Health and Safety Management (OHSAS 18001) **SHW**3: Adopt risk approach **SHW**4: Involve employees in the risk management process **SHW**5: Associate stakeholders to business initiatives **SHW**6.: Develop continuous monitoring of all potential SMI firms' risks	
Environment and sustainable development **(ESD)**	The extent to which the SMI has policies and procedures to... **ESD**1: Rationalize energy consumption **ESD**2: Adopt a waste management strategy **ESD3**: Integrate environmental criteria to all product life cycle: eco-design **ESD**4: Implement environmental management system (ISO14001)	
Business Relationship and Best Practices **(BP)**	The extent to which the SMI has policies and procedures to... **BP**1: Assess significant suppliers and contractors on: human rights, health and safety, anti-corruption, environmental practices **BP2**: Engage in green procurement **BP3**: Have a policy and procedure for making its lobbying efforts transparent **BP4**: Train its staff on ethical supply chain measures and Integrate anti bribery, anti-corruption.	

Human Resources **(HR)**	The extent to which the SMI has policies and procedures to... **HR1**: Establish an employee motivation policy **HR2**: Adapt employees' skills to business needs **HR3**: Adopt a variety of approaches in the workplace **HR4**: Organize CSR training program for employees
Social Responsibility Performance Index **(SMISRPI)**	The extent to which the SMI has policies and procedures to... **SMISRPI1:** The organization takes into account sustainability of its actions, territorial anchorage, stakeholders, by a proactive approach. **SMISRPI2:** The organization communicate internally and externally about its approach, objectives and action plan CSR. **SMISRPI3:** The stakeholders feel their role and involvement in approach and policies SR organization. **SMISRPI4:** The Felt of stakeholders according organization SR policy

The **SMISRPI** model uses the partial least square (PLS) method in the simultaneous estimation of the weights of the constructs associated to the system. The least squares estimation method is used to minimise the sum of squared differences between the elements of sample covariance matrix and the hypothetical population covariance matrix for manifest variables (Jakobowicz,2007).

The implementation step is very crucial to facilitate the use of the model, and make an effective decision tool, accessible to decision makers and managers without necessarily mathematical or statistical prerequisites. For this, we use the XLSTAT software, which is a statistical software for processing and analysing data. Operating in the Microsoft EXCEL environment, it allows estimating the following parameters:

- Outer and inner coefficients

- Inner R-squares R_{ij}^2, the causal link intensity between latent variable ξ_i and ξ_j

- α_{ξ_i} Reliability of the manifest variables associated to the latent variable ξ_i

Moreover, we can compute an index for each subject and the **SMISRPI**, by the following formula (Fornell, 1996):

$$SMISRPI = \frac{\sum_{i=1}^{n} w_i \overline{x_i} - \sum_{i=1}^{n} w_i}{(N-1)\sum_{i=1}^{n} w_i} \times 100 \ (1)$$

Where:

$\overline{x_i}$: Arithmetic average of manifest variables

n: Number of manifest variables

w_i : Outer coefficient (weight)
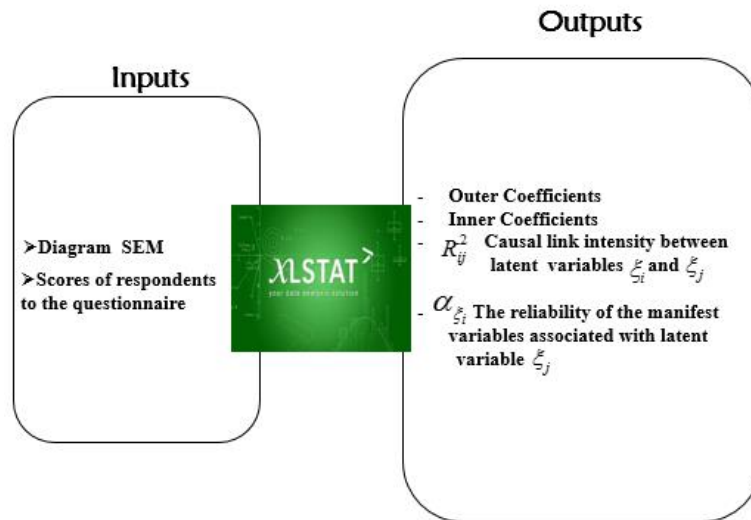
N: Number of points on the scale

Figure.5 Inputs and Outputs of the software XLSTAT

Figure.6 SMISRPI model indexes

The index value has a range of 0 to 100. Zero indicates no performance social responsibility and the values scores closer to zero indicate the lower performance social responsibility end of scale; the scores closer to 100 indicate higher performance social responsibility end of the scale (Kanji & Chopra, 2010).

4. Conclusion and perspectives

The present work developed a new structural equation model with the objective to assess the SMI Social responsibility performance. Based on the principles and considerations of CSR, we propose a Social Responsibility model enabling Moroccan SMI's to evaluate their Social Responsibility commitment and actions, with the support of its stakeholders.

Once the model is stated, our next step is to run its implementation for a SMI firm, by using the XLSTAT software. This requires the following steps:

- Making on line the survey questionnaire

- Selecting a random sample of respondents and collecting their scores (manifest variables)
- Introducing the data collected in the XLSTAT Software
- Running the corresponding program files to obtain the parameters and the scores of the **SMISRPI** model
- Analysing the score of each core subject and the global **SMISRPI**
- Designing and implementing improvement strategies and monitoring the different results

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Biography

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Sefiani Naoufal is engineering; he occupied many positions in Industrial companies, currently he is a fulltime professor in Faculty of Science and Technology of Tangier in Tangier, Morocco. He is a member of the Research team Engineering, Innovation Management and Industrial Systems· based in the Abdelmalek Essaadi University, North of Morocco.