The Impact of Sustainability Management Control on Firms' Environmental Performance: An Empirical Study

تأثير مراقبة تسيير الاستدامة على الأداء البيئي للشركات: دراسة ميدانية

Kamel Mouloudj [1], Ilham Ikhlef [2]

[1] University of Medea, Algeria, kmouloudj@yahoo.fr

[2] École Supérieure de Commerce (ESC), Algeria, etd_iikhlef@esc-alger.dz

Received: 22.6.2022 Accepted: 2.7.2022 Published: 1.9.2022

Abstract:

The purpose of this study is to examine the relationships between sustainability management control, information quality, and environmental performance of firms. A self-administered questionnaire was developed to collect data from 67 respondents who are working in various functions in their companies (senior managers, middle managers, and supervisors). A multiple regression analysis was used to test the hypotheses of the model. The results reveal that the successful implementation of sustainability management control has a positive impact on both information quality and environmental performance of firms. Moreover, results indicate that environmental performance is significantly and positively affected by information quality.

Keywords: Management accounting; Control Systems; Information quality.

Jel Classification Codes: M41, M49.

ملخص:

الغرض من هذه الدراسة هو فحص العلاقات بين مراقبة تسيير الاستدامة وجودة المعلومات والأداء البيئي للشركات. تم تطوير استبيان ذاتي الإدارة لجمع البيانات من 67 مستجوبا يشغلون وظائف مختلفة في الشركات التي يعملون بها (كبار المدراء، مدراء الإدارة الوسطى، والمشرفين). تم استخدام تحليل الانحدار المتعدد لاختبار فرضيات النموذج المقترح. كشفت النتائج أن التنفيذ الناجح لمراقبة تسيير الاستدامة يمارس تأثيرا إيجابيا على كل من جودة المعلومات والأداء البيئي للشركات. علاوة على ذلك، تشير النتائج إلى أن الأداء البيئي يتأثر بشكل دال معنويا وإيجابي بجودة المعلومات.

كلمات مفتاحية: محاسبة التسيير.، أنظمة الرقابة.، جودة المعلومات.

تصنيف JEL : M41،M49 .

Corresponding author: Kamel Mouloudj, e-mail: kmouloudj@yahoo.fr

1. Introduction

Climate change is one of the greatest challenges to achieving sustainable development. Therefore, environmental sustainability has become a major concern for the public and private sectors (Auza & Mouloudj, 2021). As a result, companies around the world have progressively integrated environmental issues into their policies, management systems, and strategic visions (Ait Iaza & Daanoune, 2018), and used management control tools (such as cost estimation tools, environmental costs, life cycle costing, evaluation of external costs, non-financial performance indicators, and life cycle analyses) (Antheaume, 2013, p. 32), to ensure that actual results conform to planned results. In addition, to achieve the transition to environmental sustainability (Pondeville et al., 2013).

Practically, sustainability management control tools are a hot topic and have attracted the attention of some researchers (e.g. Corsi & Arru, 2021; Pondeville, Swaen, & De Rongé, 2013; Roos & Guenther, 2020). However, little research has been done on sustainability management control tools. According to Ditillo & Lisi (2016), "we know very little about management control for sustainability" (p. 125). Thinking about sustainable development management control lies in its importance as an opportunity to improve performance disclosure and sustainable development management (Corsi & Arru, 2021, p. 29), and enable companies to manage their environmental performance (Touria., 2020, p. 101).

Environmental performance is positively influenced by environmental management accounting and decision quality (Fuadah, Kalsum, & Arisman, 2021). Hörisch et al. (2015) revealed that “the implementation of sustainability management tools does reduce environmental impacts per unit of revenue”; Sustainability performance measurements can be defined as "a system of indicators, that provides a corporation with the information needed to help in the short and long term management, controlling, planning, and performance of the economic, environmental, and social activities undertaken by the corporation" (Searcy, 2012, p. 240).

The topic of sustainability management control tools has not been thoroughly studied, most studies focused on sustainability management control in developed countries, but hardly any research has been focused on the impacts of

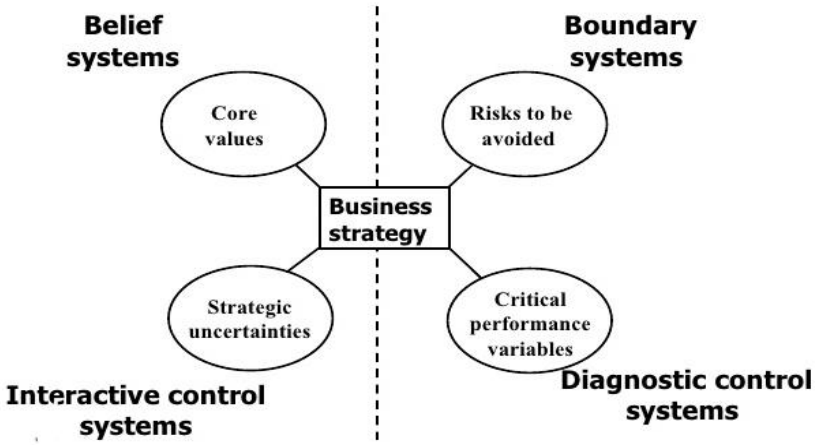
sustainability management control in the context of Algeria as a developing country. To bridge the gap in the literature, this paper aims to investigate the impact of sustainability management control on both information quality and environmental performance. More specifically, our paper seeks to explore the following research questions: RQ1: Does sustainability management control have an impact on information quality? RQ2: Does sustainability management control have an impact on the firm's environmental performance? RQ3: Does information quality have an impact on the firm's environmental performance? Therefore, to fulfill the purpose of the study we employed a questionnaire as a pertinent tool to collect primary data from a convenience sample among 67 respondents holding different positions in their companies. The remainder of this paper is organized as follows. Section 2 presents the theoretical background for the study and develops the hypotheses. Section 3 explains the research method and procedures utilized in this paper. Section 4 presents the results and discussion. Section 5 concludes the study and suggests the directions of future studies.

2. Theoretical Background and Hypotheses Development

2.1. Sustainability management control

Research on management control has been investigated for more than 30 years. In particular, an extensive body of research has examined the role of management control systems (e.g., Chenhall & Euske, 2007; Ditillo, 2004; Piercy et al., 2006; Simons, 1990). According to Anthony (1965, p.42), management control refer to "the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives". Simons (1995, p. 5) defined management control systems as "formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities". Anthony (1965) has categorized the management control system into three essential tasks in any company as follows: (1) strategic planning; (2) management control; and (3) task control. According to Simon (1995), the management control system has four levers of control: (1) belief systems; (2) boundary systems; (3) diagnostic control systems; and (4) interactive control systems (see: Figure 1).

Figure (1): Simons' levers of control framework



Source: Simons, (1995, p. 7).

In sustainability literature, "sustainability control systems" and "sustainability management control" are usually used as a term for sustainability management control systems (Wijethilake & Ekanayake, 2018, p. 166). In the field of sustainability management, environmental management control systems are defined as "a package of formal, information-based routines and procedures that managers use to maintain or alter patterns in organizational activities, specifically concerning the environmental aspects of organizational performance" (Perego 2005, p. 8). Windolph, Schaltegger, & Herzig (2014) define sustainability management tools as "administrative technologies to manage sustainability issues by structuring, organizing, measuring and/or communicating sustainability information and/or developing and defining processes and structures" (p. 380). Vitale et al. (2019, p. 4) define sustainability management control as "the set of tools and practices useful to operationalize sustainable strategies and to ensure a balanced achievement of the economic, social, and environmental corporate performance".

Pondeville & De Rongé (2005) investigated the factors affecting the implementation of management control systems. They found that the use of formal environmental control systems was positively influenced by perceived environmental uncertainty and perceived stakeholders' pressures. Johnstone (2019) viewed that "individual values, borne from the extra-organizational context, are considered important alongside organizational ones for the

development of sustainability control systems" (p. 25). Therefore, we formulate our first hypothesis as:

Hypothesis 1: *Sustainability management control has a positive impact on information quality.*

2.2. Environmental performance

The preservation of natural capital has become a concern of managers, so companies must account for their environmental performance (Albertini et al., 2018, p. 10), which is defined by ISO 14000 as "the measurable results of the environmental management system, in relation to the control by the organization of its environmental aspects, on the basis of its environmental policy, its environmental objectives and targets" (Janicot, 2017, p. 51); as well as companies that are able to adapt to environmental changes and seize the opportunities offered by the green economy will benefit from a competitive advantage, improve their market positioning, It covers a number of techniques such as environmental action plans, green budgets, green dashboards, calculation of environmental costs (Renaud, 2015, p. 19); this latter technique positively influences the company's environmental performance (Fuadah, Kalsum, & Arisman, 2021). As well as previous studies have shown that ecological control has a positive and significant influence on environmental performance (Henri & Journeault, 2010; Journeault, 2016).

Prior studies have found that eco-control influences environmental performance positively and significantly (Henri & Journeault, 2010; Journeault, 2016). Wijethilake (2017) found that implementation of sustainability control systems positively correlated with firms' sustainability performance. Recently, Asiaei et al. (2022) found that a link between corporate social responsibility and organizational performance is mediated by sustainability management control systems. However, no significant direct relationship was found between the diagnostic eco-control and environmental performance (Heggen & Sridharan, 2021). With regard to this issue related to the management control of sustainable development, and its impact on environmental performance, our second research hypothesis will be formulated as follows:

Hypothesis 2: *Sustainability management control has a positive impact on a firm's environmental performance.*

2.3. Information quality:

The quality of information is an essential component of the success of information systems, and previous studies have shown that the quality of information depends on its accuracy, ease of understanding, relevance, security, and timeliness (Laumer et al.,2017, p. 336); information resulting from the assessment of environmental performance must first and foremost facilitate the decision-making process by providing clear, simple and representative information on the performance of the organization (Ait Iaza & Daanoune, 2018, p.14).

The information produced on the environment is used to form an environmental information system; this system ensures the processing that supports operations, management, and decision-making as well as the relationships between the organization and its environment (Armelle, n.d., p. 6); also encourages environmental monitoring by providing research tools, processing, and dissemination of information between intra- and inter-company persons, Such as: reporting systems that are a powerful and effective tool that enables managers to monitor the achievement of the set environmental performance targets, as well as environmental management accounting serves primarily as "a tool to inform decision-making on environmental issues. In particular, cost data can translate environmental performance into a language that managers and management can understand and that is shared by all stakeholders in the organization" (Belbeida, 2019, p. 460). In general, all environmental information results from the activities of the company allowing it to influence negative or positive environmental impacts, direct or indirect (Spaey & Sofias, 2006, p. 123); on the basis of which precedes our third hypothesis will be as follows:

Hypothesis 3: *Information quality has a positive impact on a firm's environmental performance.*

3. Methods

3.1. Data Collection Process

Data collection is a necessary and fundamental step for the success of any empirical study. It is carried out by several methods. In order to achieve our objectives, we have chosen to conduct a questionnaire survey; we managed to distribute 140 questionnaires. However, we received a total of 67 usable

questionnaires, for a response rate of 47.86%. The main reasons for non-response include time pressure and reluctance to respond to surveys about sensitive environmental sustainability topics (Pondeville & De Rongé, 2005). Table 1 provides a detailed overview of further descriptive statistics.

Table (1): Demographic Characteristic of Participants (*n* = 67)

Characteristic	Variables	Frequency	(%)
Experience (years)	1-5	16	23.88
	6-10	22	32.84
	>12	29	43.28
Age group (years)	18-35	18	26.87
	36-50	24	35.82
	>50	25	37.31
Education	High school	16	23.88
	University	31	46.27
	Other	20	29.85
Employment Status	Supervisors	26	38.81
	Middle Managers	17	25.37
	Senior Managers	10	14.93
	Other	14	20.89
Type of industry	Building and Construction	27	40.30
	Textile and Apparels	11	16.42
	Electronics and Energy	08	11.94
	Other (Food, Pharmaceutical, Plastic…)	21	31.34

Source: Survey results.

As Table 1 shows, 29 (43.2%) of the participants reported that they had above 12 years of work experience, followed by 6-10 years (32.8%), and 1-5 years (23.8%). About 25 (37.3%) of the participants were aged >50 years, while 24 (35.8%), and 18 (26.8%) were aged 36-50 years and 18-35 years, respectively. Moreover, about 31 (46.2%) were holding a university degree, and 16 (23.8%) were holding a high school degree. Furthermore, almost 26 (38.8%) were supervisors, while 17 (25.3%), and 10 (14.9%), were middle managers and senior managers, respectively. Finally, 27 (40.3%) of the participants were employed in the building and construction industry, and 21 (31.3%) works in other industries such as food, pharmaceutical, metals, plastic…etc.

3.2. Measurement Instrument

To empirically test our three hypotheses, we used a survey instrument (questionnaire). In addition to background information (experience, age, level of education, and type of industry), the questionnaire included 12 items that asked participants about their perceptions of sustainability management control, information quality, and environmental performance. To measure sustainability management control, we used a four-item scale. This scale was adopted because it used in many previous empirical studies (e.g., Wijethilake, 2017; Asiaei et al., 2022). Information quality was assessed with a scale amended by Laumer, Maier, & Weitzel (2017). Environmental performance was measured according to the scales modified by Zhu, Sarkis, & Lai (2012). We measured all variables on a five-point Likert scale developed by Rensis Likert (1932), ranging from 1 (strongly disagree) to 5 (strongly agree). Prior to the distribution phase of the questionnaire, three researchers in sustainability management were kindly requested to scrutinize the questionnaire and assure content validity. Then, to evaluate wording, clarity, suitability, impartiality, and simplicity, we conducted a pilot test of the questionnaire with ten respondents, and only minor modifications were made to improve the quality of the questionnaire. The questionnaire was initially developed in the English language and then translated into Arabic and French. The three versions of the questionnaire were distributed depending on participants' preferences.

Table (2): Measurement of Constructs

Constructs	Measurement Item	Reference
Sustainability Management Control	SMC1 Firm managers pay more attention to sustainability control practices. SMC2 Firm managers interpret information on sustainability practices. SMC3 Many firms pay more attention to using management tools (e.g. Hoshin Kanri, Just in Time, and Kaizen). SMC4 Firm managers focus on the benchmarking sustainability practices.	Wijethilake (2017) and Asiaei et al. (2022)
Information Quality	IQ1 Information provided by a sustainability management control system has a clear meaning and is easy to comprehend. IQ2 Format of the information's provided by a sustainability management control system is simple, sufficient, and adequate IQ3 Information is always presented in the same format and is compatible with previous information. SN4 The information on a sustainability management control system	Laumer, Maier, & Weitzel (2017)

Environmental Performance	is informative, valuable, and useful for the user. EP1 Reduction of air emission, wastewater, and solid wastes. EP2 Decrease of consumption of hazardous/harmful/toxic materials. EP3 Decrease of cost for energy consumption. EP4 Decrease fees for waste treatment, waste discharge, and fines for environmental accidents.	Zhu, Sarkis, & Lai (2012)

4. Results and Discussion

Mean and standard deviation are presented in the Appendix. Table 3 shows the variables used in the scale, their number of items, and inter reliability of the scale. A value greater than 0.6 indicates satisfactory internal consistency reliability (Malhotra, 2010).

Table 3. Results of reliability analysis

Construct	No. of Items	Alpha
Sustainability management control	4	0.901
Information quality	4	0.918
Firm's environmental performance	4	0.956

Source: Survey results.

Table 3 shows the reliability of the sustainability management control construct was satisfactory with a value of 0.90. The alpha Cronbach coefficient for the information quality construct was 0.91, in addition to that, the Cronbach alpha coefficient for the firm's environmental performance construct was 0.95, which obviously indicates the reliability of the measurement tool and its compatibility for conducting the analysis.

Based on the output of SPSS, the following table presents the results of regression analysis results for information quality.

Table 4. Regression analysis results in information quality

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.
	B	Std. Error	Beta		
(constant)	,174	,339		,513	,610
SMC	,900	,093	,768	9,678	,000

Dependent Variable: Information quality (IQ); Independent variables: Sustainability management control (SMC).

Notes: Model summary: F =93.66; R = 76,8%; R Square = 59%; Adjusted R Square = 58,4%.

From the model test, it is revealed sustainability management control had a significance value smaller than 0.05, with (β = 0,900), indicating that information

quality had a positive impact on a firm's environmental performance. From this result, H1 was accepted. The result of this study was supported by previous studies. For example, Hatane et al. (2020), found that a management control system enhances organizational learning. Appropriate management control systems design can assist firms to learn and survive during periods of change (Kloot, 1997, p. 47).

Based on the output of SPSS, the following table presents the results of regression analysis results for a firm's environmental performance.

Table 5. Regression analysis results for the firm's environmental performance

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.
	B	Std.	Beta		
(constant)	,326	,240		1,360	,178
SMC	,607	,103	,569	5,913	,000
IQ	,321	,088	,353	3,668	,000

Dependent Variable: Environmental performance (EP); Independent variables: Sustainability management control (SMC), Information quality (IQ).

Notes: Model summary: F =99,760; R = 87%; R Square = 75,7%; Adjusted R Square = 75%.

Based on the model test, sustainability management control had a significance value of smaller than 0.05, with (β =, 607, t= 5,913), indicating that sustainability management control effectiveness has a positive impact on the environmental performance because it is more likely that applying sustainability management control effectively leads to gain many benefits; such as reduce costs and improve quality of decision making. Hörisch et al. (2015) noted that "to successfully reduce corporate environmental impacts, management not only needs to develop environmental strategies, it also has to use effective sustainability management tools for their implementation" (p. 241).

Finally, our results show that information quality has a positive and significant impact on firm's environmental performance (P = 0,000 < 0,05; β = 0,321; t= 3,668), indicating that hypothesis (H3) is also supported. This indicates that sustainability management control effectiveness can significantly affect information quality and if a firm does not ensure high quality of information, this is expected to result in reducing the firm's environmental performance.

5. Conclusion

Climate change presents a significant challenge for sustainability management. However, we know little about the impact of sustainability management control on environmental performance. So, this study investigated the connection between sustainability management control, information quality, and a firm's environmental performance. Our study used primary data collected through a questionnaire from 67 respondents (senior managers, middle managers, supervisors) from diverse industries. The results indicated that sustainability management control and information quality positively affected the firm's environmental performance. The results also show that sustainability management control had a positive impact on information quality.

5.1. Managerial Implications

It is expected that the findings of this paper can be used by firms' managers. First, the findings can encourage managers in Algeria and other developing countries to adopt sustainability management control systems more effectively. Second, any actions taken to implement a sustainability management control system can subsequently improve environmental performance. Third, firms' managers should improve management control system quality to improve information quality and decision quality.

5.2. Limitations and future research

This paper has several limitations, thus providing numerous opportunities for further research. Firstly, the sample size in this paper is relatively small. Thus, future studies should increase the sample size. Secondly, the relationship between sustainability management control and environmental corporate performance remains disputable, though our empirical findings pointed to a positive relationship. Therefore, future research could examine the relationship between sustainability management control tools and a firm's reputation, profitability, or financial performance. Thirdly, we propose to put more light on the roles of management controls in the environmental field.

References

Ait Iaza, S., Daanoune, R. (2018) . Les outils de mesure de performance environnementale: Cas d'une entreprise aéronautique au Maroc. Revue du Contrôle de la Comptabilité et de l'Audit, 4, 449-474.

Albertini, E., Gautier,F., Lallemand- Stempak , N., Mourey, D., & Soulerot, M. (2018). Comprendre tout le contrôle de gestion: L'essentiel pour les non-spécialistes (1re édition). Vuibert, France

Antheaume, N. (2013). Le contrôle de gestion environnemental. État des lieux, état de l'art. Comptabilité Contrôle Audit, 19, 9-34. https://doi.org/10.3917/cca.193.0009

Anthony, R. (1965). Planning and control: A framework for analysis. Boston: Division of Research, Harvard University Graduate Business School of Business Administration.

Armelle , G. (n.d.).The French environmental information system .Série Méthodes (03)-M01.

Asiaei, K., Bontis, N., Barani, O., Moghaddam, M., & Sidhu, J. (2022). The role of sustainability control systems in translating CSR into performance in Iran. Management Decision, 60(5), 1438-1468. https://doi.org/10.1108/MD-11-2020-1510

Auza, K. A., & Mouloudj, K. (2021). Using the theory of planned behavior to explore green food purchase intentions. In C. Cobanoglu, & V. Della Corte (Eds.), Advances in global services and retail management (pp. 1–14). USF M3 Publishing.

Belbeida, M. (2020). L'impact de la performance de l'information environnementale sur la performance financiere des entreprises internationales: Une revue de litterature. Revue Internationale Des Sciences De Gestion, 2(2), 456- 471.

Chenhall, R. H., & Euske, K. J. (2007). The role of management control systems in planned organizational change: An analysis of two organizations. Accounting, Organizations and Society, 32(7-8), 601-637. https://doi.org/10.1016/j.aos.2006.09.007

Corsi, K., & Arru, B. (2021). Role and implementation of sustainability management control tools: critical aspects in the Italian context. Accounting, Auditing & Accountability Journal, 34(9), 29-56. https://doi.org/10.1108/AAAJ-02-2019-3887

Ditillo, A. (2004). Dealing with uncertainty in knowledge-intensive firms: The role of management control systems as knowledge integration mechanisms. Accounting, Organizations and Society, 29(3-4), 401-421. https://doi.org/10.1016/j.aos.2003.12.001

Ditillo, A., & Lisi, I. E. (2016). Exploring sustainability control systems' integration: The relevance of sustainability orientation. Journal of Management Accounting Research, 28(2), 125–148.

Fuadah, L. L., Kalsum, U., & Arisman, A. (2021). Determinants factor influence environmental management accounting and corporate environmental performance: evidence in Indonesia. Journal of Southwest Jiaotong University, 56(3), pp. 582-601. https://doi.org/10.35741/issn.0258-2724.56.3.49

Hatane, S. E., Lesmanaputri, E., Firman, J. J. P., & Wijaya, V. L. (2020). The design and the use of a management control system in developing organizational learning. in International Conference on Logistic and Business Innovation, KnE Life Sciences, pp. 188--206. https://doi.org/10.18502/kls.v5i3.6572

Heggen, C., & Sridharan, V. G. (2021). The effects of an enabling approach to eco-control on firms' environmental performance: A research note. Management Accounting Research, 50, 100724. https://doi.org/10.1016/j.mar.2020.100724

Henri, J. F., & Journeault, M. (2010). Eco-control: The influence of management control systems on environmental and economic performance. Accounting, Organizations and Society, 35(1), 63-80. https://doi.org/10.1016/j.aos.2009.02.001

Hörisch, J., Ortas, E., Schaltegger, S., & Álvarez, I. (2015). Environmental effects of sustainability management tools: An empirical analysis of large companies. Ecological Economics, 120, 241-249. https://doi.org/10.1016/j.ecolecon.2015.11.002

Johnstone, L. (2019). Theorizing and conceptualizing the sustainability control system for effective sustainability management. Journal of Management Control, 30(1), 25-64. https://doi.org/10.1007/s00187-019-00277-w

Journeault, M. (2016). The influence of the eco-control package on environmental and economic performance: A natural resource-based approach. Journal of Management Accounting Research, 28(2), 149-178. https://doi.org/10.2308/jmar-51476

Laumer, S., Maier, C., & Weitzel, T. (2017). Information quality, user satisfaction, and the manifestation of workarounds: A qualitative and quantitative study of enterprise content management system users.

European Journal of Information Systems, 26(4), 333-360. https://doi.org/10.1057/s41303-016-0029-7

Likert, R. (1932). A technique for the measurement of attitudes. Arch Psychology, 22(140), 5-55.

Janicot, L. (2007). Les systèmes d'indicateurs de performance environnementale (IPE), entre communication et contrôle. Comptabilité Contrôle Audit, 13, 47-67. https://doi.org/10.3917/cca.131.0047

Kloot, L. (1997). Organizational learning and management control systems: responding to environmental change. Management Accounting Research, 8(1), 47-73. https://doi.org/10.1006/mare.1996.0033

Malhotra, N.K. (2010), Marketing Research: An Applied Orientation (6th Ed.), Pearson, New Jersey.

Perego, P. (2005). Environmental management control: An empirical study on the use of environmental performance measures in management control systems. PhD Dissertation, Universiteit Nijmegen.

Piercy, N. F., Cravens, D. W., Lane, N., & Vorhies, D. W. (2006). Driving organizational citizenship behaviors and salesperson in-role behavior performance: The role of management control and perceived organizational support. Journal of the Academy of Marketing Science, 34(2), 244-262. https://doi.org/10.1177/0092070305280532

Pondeville, S., & De Rongé, Y. (2005). The impact of environmental strategy, stakeholder pressures, and external environment on the implementation of management control systems. In 3rd Conference on Performance Measurement and Management Control, EIASM (Ed.). Nice, France.

Pondeville, S., Swaen, V., & De Rongé, Y. (2013). Environmental management control systems: the role of contextual and strategic factors. Management Accounting Research, 24(4), 317-332. https://doi.org/10.1016/j.mar.2013.06.007

Renaud, A. (2015). Management et contrôle de gestion environnemental. Editions Management & Société.

Roos, N., & Guenther, E. (2020). Sustainability management control systems in higher education institutions from measurement to management. International Journal of Sustainability in Higher Education, 21(1), 144-160. https://doi.org/10.1108/IJSHE-01-2019-0030

Searcy, C. (2012). Corporate sustainability performance measurement systems: A review and research agenda. Journal of Business Ethics, 107(3), 239–253.

Simons, R. (1990). The role of management control systems in creating competitive advantage: New perspectives. Accounting, Organizations and society, 15(1-2), 127-143. https://doi.org/10.1016/0361-3682(90)90018-P

Spaey, D. & Sofias, A. (2006). Gestion de l'information environnementale en entreprise : choix et évaluation d'un système. Documentaliste-Sciences de l'Information, 43, 122-129. https://doi.org/10.3917/docsi.432.0122

Touria, N. (2020). Le controle de gestion environnemental: Une perspective contingente face aux defis environnementaux. African Scientific Journal, 3(3), 99-121.

Van der Kolk, B., Van Veen-Dirks, P. M., & Ter Bogt, H. J. (2019). The impact of management control on employee motivation and performance in the public sector. European Accounting Review, 28(5), 901-928. https://doi.org/10.1080/09638180.2018.1553728

Vitale, G., Cupertino, S., Rinaldi, L., & Riccaboni, A. (2019). Integrated management approach towards sustainability: An Egyptian business case study. Sustainability, 11(5), 1-26. https://doi.org/10.3390/su11051244

Wijethilake, C. (2017). Proactive sustainability strategy and corporate sustainability performance: The mediating effect of sustainability control systems. Journal of Environmental Management, 196, 569-582. https://doi.org/10.1016/j.jenvman.2017.03.057

Wijethilake, C., & Ekanayake, A. (2018). Proactive strategic responses to corporate sustainability pressures: A sustainability control system framework. In Advances in Management Accounting, Vol. 30 (pp. 129-173). Emerald Publishing Limited. https://doi.org/10.1108/S1474-787120180000030006

Windolph, S. E., Schaltegger, S. and Herzig, C. (2014). Implementing corporate sustainability: What drives the application of sustainability management tools in Germany? Sustainability Accounting, Management and Policy Journal, 5(4), 378-404. https://doi.org/10.1108/SAMPJ-01-2014-0002

Zhu, Q., Sarkis, J., & Lai, K. H. (2012). Examining the effects of green supply chain management practices and their mediations on performance improvements. International journal of production research, 50(5), 1377-1394.