



# Investigating the relationship between management accounting techniques and sustainability development in Iraqi tourism firms

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## Abstract

The objective of this research was to examine how sustainability management accounting techniques (MATs) are used by Iraqi companies. The study also investigated the purposes of using MATs in relation to sustainable development. The analysis is in accordance with how these factors such as frequency use of techniques affect the sustainability's three dimensions: integrative, social and environmental. Inferential and descriptive statistics were used to analyze the results of the web-survey that was collected through questionnaires from the targeted population. The extent of sustainability MATs implementation was low showing that issues of sustainability are not adequately combined into the management accounting systems of Iraqi companies. However, most companies employ at least one technique of each part: integrative, social and environmental. For other reasons, the MATs are found to be used mostly as an example, outside reporting, monitoring internal compliance and to some extent, for a purpose of internal decision-making.

**Keywords:** Management accounting, sustainability, Iraq, accounting system.



## Introduction

The relationship between MATs and sustainability has been ongoing for about three decades now, and past studies had the objective of expanding the understanding of how companies can be assisted through the techniques of accounting as they aimed at greater development in sustainability (Bebbington, Gray, Thomson & Walters, 1994). However, there are few studies on practices that are running within a company to know if the practices are enhancing the development in sustainability or not, as a latter stream of sustainability researches have done on external communication, accountability and sustainability accounting (Günther, Endrikat & Günther, 2016; Adams, 2004). From the viewpoint of sustainability, the selection of management accounting investigated in the literature are either limited to one or two techniques, or not explained at all (Crutzen, Zvezdov & Schaltegger, 2017).

According to Schaltegger and Burritt (2010), within the activities of companies, areas that need to be further explored are the business practices related to management accounting for sustainability and how they are implemented by the industries. In Iraq, Ibrahim (2014) and Hamdan (2014) have claimed that there is little work in developing sustainability using MATs.

In the world of business, social and environmental issues awareness have increased due to continuous increases in the pressure of stakeholders on companies in order to reduce the negativity and increase the impact positively of their activities; thus, leading to development in sustainability (Epstein & Buhovac, 2010). Furthermore, Frostenson (2013) stated that, the relationship between matters of sustainability and organizational performance is turning into a survival issue as the company's legitimacy and reputation is widely in accordance with how areas of social and environmental sustainability are performed. At present, of the 250 largest organizations, sustainable performance is reported by only 92% (Global Reporting. org, 2017). The argument added that the assumption of "going-concerns" in which external reporting is working, for instance, has extended to incorporate the resources used and affected by the organization. In the aftermath, the argument is that natural and social capital should be included in the central resources of the company and not just areas related to human and financial capital only. Therefore, by considering the natural and social resources, this can enhance the economic performance in the long-run (Frostenson, 2013). On this basis, Christ and Burritt (2013) suggested that companies need to possess techniques of management accounting, in order to sufficiently combine the dimensions of sustainability into corporate practices and have an evaluation



of the social and environmental effects of their activities. However, past studies in sustainability MATs have not been conducted on Iraqi companies. Thus, this research focuses on examining these techniques in an Iraqi environment.

Accordingly, the main aim of this study was to gain a better understanding of the role of management accounting techniques for sustainability development in the Iraqi environment, and to derive conclusions on the types, frequency and purposes of current organizational practice.

## **Literature review**

### **Sustainability Development**

Sustainable development is described as the integration of works in the aspects of development, social and economic studies with environmental science in order to promote the understanding on the complicated dynamic interaction between economic, social and environmental issues (Ness, Urbel-Piirsalu, Anderberg & Olsson, 2007). According to Lamberton (2005), sustainability is not measured directly, being a multidimensional concept, and needs a set of indicators to empower performance towards many of its goals to be assessed. Azar, Holmberg, and Lindgren (1996) reported that studies on sustainability indicator identification are still continuing in the macro-level. Similarly, Lamberton (2005) added that organizational level sustainability has been focussing more on the most recent research. Moreover, Bonacchi and Rinaldi (2007) and Gond, Grubnic, Herzig, and Moon (2012) stated that, firms that incorporate the dimensions of sustainability into their business action need to have sophisticated control systems in order to provide information on performance of firms in these areas.

In accordance with that, Schaltegger and Burritt (2010) it was stated that sustainability in management accounting is the term applied to explain new accounting methods and information management that attempt to provide or create high quality, in-time and relevant information to support corporations relative to development in sustainability. Schaltegger and Burritt (2010) added that the term sustainable accounting describes an aspect of accounting that encapsulates the systems, methods and activities to report, analyze and record: (1) socially and environmentally induced financial effect; (2) social and ecological effect of a well-defined economic system; (3) the connections and interactions between economic, social and environmental issues comprising the three sustainable dimensions.



Yet, only a little research has been done in sustainability reports, specifically with regard to indicators used to convey quantitative information (Romolini, Fissi & Elena, 2015; Mashhadani & Talab, 2013). Even from Central and Eastern Europe, Hatos and Ştefanescu (2017) reported that there is a paucity of studies on social responsibility practices of companies.

## **Management Accounting Techniques (MATs)**

Bonacchi and Rinaldi (2007), after reviewing the literature, posited that control and planning techniques are important in order to integrate sustainability into organizational activity. The authors mentioned that installation of control systems and proper planning are needed in order to quantify sustainability and to be able understand the challenges that affect the performance of sustainability. Subsequently, important roles are played on the implementation of sustainability through the management control system design and organizational objectives. This opinion is held by Henri and Journealt (2010) that explained the importance of sustainability through control systems which are an important component to enhance efforts of overall sustainability in an organization. However, Maunders and Burritt (1991) argued that traditional accounting is not an appropriate system to report on the company's contributions to sustainable development. Specifically, management and cost accounting are subjected to some kind of criticism (Burrit, 2012). According to Schaltegger and Burritt (2010), the skepticism comprises the wrong use of allocation of costs, a short-term focus decision rather than strategic decision, a shallow focus on cost of manufacturing, and the financial accounting rules dominate.

Recently, more attention has been given to the importance of strategic management accounting information (Langfield-Smith, 1997). To achieve the objectives set, companies need to adopt strategic management accounting which aims to match organizational resources to market needs (Kober, Ng & Paul, 2007). Regarding that, a call for dramatic improvement on the environmental and social reporting quality was made by Gray and Milne (2002). As a result, the consideration of new and potential model of reporting has been done by the accountants for businesses with the inclusion of strategic and non-financial information (Illingworth, 2004). In an attempt to respond to the call for broad approaches in accounting, there has been a development of various techniques and tools such as life cycle costing tools and the balanced scorecard. The tools of life cycle costing can integrate economic and environmental dimensions (Ness at al., 2007) and may contribute to change in time horizon of the decision-makers



to the long-term product life-cycle (Gluch & Baumann, 2004). Therefore, the use of life-cycle costing tools is important for the development of sustainability. In addition, in the global reporting initiative's guidelines, there is a recommendation of the application of the wide array of indicators to measure sustainable performance such as balanced scorecard (Lamberton, 2005). The balanced scorecard, being a relatively new strategic system, can integrate the three dimensions of sustainability into a single tool (Figge, Hahn, Schaltegger & Wagner, 2002; Flayyih, Mohammed & Talab, 2019) and allows companies to implement a sustainability strategy (Kaplan & Norton, 1996). Also, it can be used to connect performance measurement with strategies using a combination of both non-financial as well as financial performance indicators (Epstein & Wisner, 2001; Oji, Iwu & Tengeh, 2017).

There are many previous studies on the use of sustainable accounting. For instance, a survey on accountants was conducted by Christ and Burritt, (2013), and the study found that there is low adoption of environmental management accounting (EMA) in firms of Australia. Nevertheless, in the next three years, the accountant perceived growth in the area of engagement; this proves that, in the future, EMA is likely to be used. These findings are in accordance with the results of Ferreira, Moulang and Hendro (2010) that discovered that applying EMA is relatively low in companies of Australia while Passeti, Cinquini, Marelli and Tenucci (2014) found that there is a low result in the adoption rate of tools of sustainability accounting among the firms in Italy. Another result was posited where EMA implementation among companies in Malaysia were reported to be in medium use and in order to minimize the cost, improvement on environmental efficiency is focused on by most activities (Mokhtar, Jusoh & Zulkifli, 2016). For the purposes of internal decision-making, Henri and Journeault (2008), in a survey of companies in Canada, found that the adoption rate of environmental performance indicators (EPIs) was moderate. Furthermore, among large European companies, Crutzen et al. (2017) linked between sustainability and management control systems and found that all sampled companies employ sustainability control systems. The authors recommended more studies to understand the relationships between different control systems and sustainability development.

### **The relationship between sustainability and MATs**

The link between sustainability and accounting innovation and how the concept and techniques of accounting can sustain the organizations' issues and development is discussed often in the literature. Consequently, Bebbington et al.



(1994) states that, the topic is categorized into two lines of thoughts: it can be observed from the first line of thought that past studies mentioned that the association between accounting (e.g. management accounting) and sustainability dimensions has grown into a way that is in accordance with business interests. Milne, Tredidga and Walton (2009) posited that companies which create “win-win” conditions are not likely to produce reliable sustainable development. In terms of enhancing and protecting natural capital and social results, business intends to achieve economic sustainability but not to achieve actual sustainable development (Lehman, 1999). Regarding critical perspectives, issues in sustainable accounting are considered as methods applied to achieve increase in economic efficiency by aiming at technology developments and natural resources control (Schaltegger & Burritt, 2010). These perspectives considered this “win-win” situation as only halfway sustainability and they are considered as the way for firms to justify their behavior with demonstration concerns on sustainability only if there is return of economic growth. Conventionally, the argument supports the fact that sustainability in the view of having “win-win” conditions slows down the sustainability scope and is not connected with the main issues of its development (Bebbington at al., 1994; Gray, 2006).

However, the second perspective is that of management that states that relating the objectives of business with sustainability is inevitable (Burritt, 2012). Bebbington at al. (1994) opine that the market is not created to build results of sustainable development such as social fairness and environmental stability; neither do these perspectives propose a restructure on the way market functions. Yet, Hopwood, Unerman and Fries (2010) stated that, the concept that the companies should incorporate sustainability into the process of decision-making and operations activities is upheld from the perspectives. It is therefore necessary to integrate the objectives of accounting, business and sustainability together and the motive is to upgrade issues of sustainability into internal processes such as: planning and capital budgets (Burritt, 2012). Epstein and Buhovac (2010) stated that having formal control systems in place such as management accounting is the central ingredient for sustainable implementation in any organization.

Concerning the relationship between sustainability accounting and decision-making, Owen (2008) argued that the implementation of MATs (e.g. environmental accounting) does not change corporate strategies or administrative priorities in decision-making. In addition, Epstein, Buhovas and Yuthas (2013) mentioned that there is always the creation and existence of incentives for short-term earnings within the traditional accounting system that make it a challenge for managers to combine environmental and social



dimensions into their decisions. Therefore, there is possibility of an issue between the long-term and short-term goals, and this can lead to a lack of linkage between sustainability factors and decision-making. In order to improve sustainable performance through data collection, decision-making must be consistent with the use of performance indicators (Adams & Frost, 2008). Talab, Mohammed and Flayyih (2018) found that EPIs were used by several companies in making decisions and not just in their final reports. Furthermore, from the point of managerial view, an idea like eco-efficiency is a relevant concept to support managerial decision-making for sustainable development because it decreases environmental impacts and, at the same time, increases productivity (Virtanen, Tuomaala & Pentii, 2013). Until recently, according to Günther et al. (2016), only a few empirical research studies have examined organizational management accounting practices from a sustainability perspective. Therefore, this study is expected to fill the aforementioned research gap by examining the frequency and purposes of use of sustainability MATs in Iraqi firms.

## Methodology

This study adopted a quantitative approach to examine the purpose of sustainable MATs in Iraqi firms through two items: the purpose and also the frequency of use. To achieve the objectives of this research, a web-survey of Iraqi firms was used. Specifically, a web survey of companies in Iraq was conducted in order to analyze the purpose of use and frequency of use of sustainable MATs. This method was selected because it is a good alternative when the respondents are geographically scattered, and also because it helps to reduce costs and save time (Mokhtar et al., 2016). By using annual turnover in a descending order, the companies were selected from the Business Retriever's database from March to April, 2017. Using the annual turnover, contact information of 450 largest companies was collected to approach the population by browsing through the companies address and locate their email addresses. For the survey approach, the website was checked for contact information to the organization's suitable employees. Then, email addresses of employees with titles such as sustainability manager or other positions (e.g. CFO, accountant, controller and CEO) were selected.

The rate of the response is 16 % which is the final sample consisting of 72 companies. This study's response rate is in line with what was expected during the conducting of the web survey. Passetti et al. (2014) gathered 18.8 %, which is slightly above the response rate of the current study. However, Mokhtar et al.



(2016) only gathered 9.7 %. Therefore, the response rate of the current study (16 %) is considered acceptable, as it is above the response rate of past studies in the same field (Christ and Burritt, 2013). The respondents were asked to mention the title of their positions in order to ensure the comprehension of the questions and ensure the quality of responses. In addition, the highest level of education, the years of professional work experience in line with their current job were all asked. The findings revealed that the majority of respondents have more than three years of working experience with their firms, and that almost 79 % of the respondents have worked in their firms for more than 3 years. No respondent has less than upper secondary diploma and those with degree in university are around 80 %. Only few have a doctoral degree too.

## Analysis and results

### Description and Analysis of the Frequency of Use

Nine items were mainly adapted from the research work of Staniškis and Arbačiauskas (2009) for measuring the frequency of use of sustainability MATs. Respondents were requested to evaluate the existing use of sustainability accounting tools on a seven–point scale ranging from 1= “never” to 7 = “very often”. The mean frequency of use for each technique is presented in Table 1. It also shows the overall frequency of all the combined tools and the three categories of tools. The Table also shows the standard deviations and the responding companies’ percentage for each company which never used the technique.

**Table 1.** Frequency of Use

Variables	Mean	Std.Dev	Companies that Never Use the Tool (%)
<i>Environmental tools</i>	<b>2,64</b>	<b>1.34</b>	<b>30.1</b>
Environmental costing system	2,90	1.40	64.1
Environmental life cycle system	1.80	1.89	43.0
Budgeting system	2,10	1.43	53.8
Environmental performance Indicators	3,75	2.30	29.9
<i>Social tools</i>	<b>3,19</b>	<b>1.90</b>	<b>27.0</b>
Budgeting system	2,70	2.08	51.5
Social performance indicators	3,67	2.09	25.4
<i>Integrative tools</i>	<b>2,93</b>	<b>1.52</b>	<b>18.2</b>
Sustainability report	4,10	2.30	21.0
Eco-efficiency analysis	2,39	1.86	55.0
Sustainability balanced scorecard	2,29	1.92	59.2
The tools’ average use	2,86	1.36	9.5



For all compact tools, the total adoption rate of the techniques can be seen to be quite low at 2.86. While five tools have mean values below the frequency of use, four of them have mean above the overall mean score of 2.86. Sustainability report is the most frequently used tool (mean = 4.10) this is followed by environmental and social performance indicators with an average frequency of 3.75 and 3.67, respectively. Notably, only 21 % of respondents reported that the sustainability report is never used in their organizations which implies that 79 % of the sample used the report tool. On the other hand, the environmental costs accounting is the fourth tool found above average with 2.90. The environmental life cycle is the least frequently used tool with an average of 1.80. In 64 % of companies, the tool was not used at all. With a value of mean of 2.39, the analysis of eco-efficiency was found to be below average. The budgeting tools have average usage values of 2.10 for environmental tool and 2.70 for social tool. Finally, the balanced scorecard of sustainability has a mean value of 2.29. The social tools, among the three categories of tools, are the most frequently used tools (combined mean value = 3.19) this is followed by integrative tools with an average value of 2.93 and finally the environmental tools with an average value of 2.64.

The results in the past studies of Mokhtar at al. (2016), Ferreira at al. (2010) and Christ and Burritt (2013), support the total rate of low adoption. Table 1 presents standard deviations, which is quite high, indicating a significant variation in the use of each tool among firms. The findings reveal that many companies do not use the techniques at all when looking at techniques separately. Yet, by looking at the three categories of tools, it is clearly shown that 69.9 percent of the companies have used at least one of the environmental tools by their enterprises and 73 percent of the companies have used at least one of the social tools. Also, 81.8 percent of the companies have used at least one of the integrative tools. The results affirm that most of the companies that responded to the survey in the three categories employed the same formal technique.

The findings revealed that for sustainability management accounting, most companies are using some techniques. But, there is a great variation in the tools and techniques used by each company and also in the frequency of use. Quite surprisingly, when it comes to testing different tool categories, the findings of this study revealed that integrative and social tools are used more than environmental tools, although the aspect of environmental sustainability has had the predominant focus in literature (Bebbington at al., 1994). Notably, two of the less used techniques are found among the environmental side, which led to the decrease in the average value of environmental tools.



## Description and Analysis of the Purposes of Use

Twelve items were adopted and modified based on the published items of Passeti at al., (2014) to measure the purpose of using sustainability tools. The purposes of using of sustainability MATs were evaluated by respondents on a scale of seven–point ranging from 1= “not at all” to 7 = “to a great extent”. The mean values of the purpose of use and standard deviations are presented in Table 2.

The results of the purpose of using the techniques reveal that, they are mainly used to internal compliance control and external reporting with average values of 4.64 and 4.07, respectively. However, for purposes of continuous improvement and managerial decision-making, the techniques are less used at 3.46 and 3.41 respectively. Meanwhile, “Compliance with international and national legislations” was the two single items with the greatest value of 4.64. This is followed by average value of 4.19 for “accountability of environmental and social information”. The only item that got a value less than 3 is the “Pricing policy” at 2.98. Generally, the findings reflect that there are very small distinctions between the variables. For all measures, the values of the standard deviations are very high. This implies that there is a lot of variation in the reasons for using the techniques by Iraqi companies.

**Table 2.** Purposes of Use

Variables	Mean	Std.Dev
<b>Motivating Continuous Improvement</b>	<b>3.46</b>	<b>1.92</b>
Environmental efficiency and impact of the product	3.24	2.17
Control of social and environmental targets	3.83	2.14
Social risk assessment	3.35	2.07
Environmental risk assessment	3.43	2.02
<b>Managerial Decision-making</b>	<b>3.41</b>	<b>1.96</b>
Opportunities in new market	3.39	2.13
Policy of price	2.98	2.01
Capital budgeting	3.11	2.10
Competitive strategies	3.96	2.24
Product positioning	3.62	2.23
<b>External Reporting</b>	<b>4.07</b>	<b>2.11</b>
Customer loyalty	3.95	2.18
Social and environmental information accountability	4.19	2.24
<b>Internal Compliance Control</b>	<b>4.64</b>	<b>2.17</b>
Compliance with international and national legislation	4.64	

The results presented in Table (2) support the notion that the sustainability MATs are used more for the purpose of ensuring legislation compliance and external



reporting, and less for the purpose of continuous improvement and internal decision-making. The results are consistent with those findings informed by Milne at al. (2009) and Bebbington at al. (1994). For instance, Milne at al. (2009) reported that the use of MATs does not support sustainable development with regard to active decision-making.

The Owen argument (2008) is also consistent with current results, that the implementation of environmental accounting tools does not change decision-making priorities, and therefore, the techniques are used mainly for external reasons. From the several comments made, there was evidence of techniques being used for the purpose of “cost saving” which refers to the fact that these techniques are usable because there are cases of business for sustainability management and further to make “win-win” situations (Milne at al., 2009) that are not always possible lead to reliable sustainable development. From the managerial perspective, however, Adam and Frost (2008) and Morioka and Carvalho (2016) stated that the use of indicators of environmental performance positively affects the decision-making process and thus improves sustainability performance.

### **Analysis the Relationship between the Variables**

The correlation between frequency of use of each tool category and sustainability development strategy was checked using a Pearson’s test. The results presented in Table 3 revealed that there is a weak to moderate, but positive correlation between the three variables and sustainability development at the 0.01 significance level. The social tools have a slightly weaker correlation to sustainability development compared to environmental and integrative tools. Morioka and Carvalho (2016) affirmed that integrating sustainability into the management control systems is the main purpose of integrative tools. Meanwhile, Christ and Burritt (2013) mentioned that the use of sustainability MATs could be increased through the implementation of an environmental tools. In other words, these results are consistent with previous sustainability researchers such as Henri and Journeault (2008), Staniškis and Arbačiauskas (2009) and Christ and Burritt (2013).

On the other hand, the results are not consistent with Mokhtar at al. (2016) who found no significant difference ( $p > 0.05$ ) between firms that have not adopted environmental systems and those that have adopted it in relation to the extent of EMA implementation.



**Table 3.** Test of Pearson Correlation

<b>Correlation</b>	<b>Environmental tool</b>	<b>Social tool</b>	<b>Integrative tool</b>
Sustainability Development Strategy	0.403	0.396	0.490
Sig. (2-tailed)	0.000*	0.001*	0.000*

**Notes:** \* implies significant at the level of 0.01

## Conclusions

Among the firms in Iraq, the surveyed frequency of use of the technique was found to be relatively low. Furthermore, for two external reasons, the techniques are found to be predominantly used: external compliance control and external reporting, and thus less for managerial decision-making and continuous improvement motivations. The overall low use of the techniques as well as the predominant external purpose of use means that the techniques used do not have a significant effect on the decision-making procedures in Iraqi firms. There must be integration of indicators of environmental performance to decision-making in order to have positive effect on sustainable performance for any data collection (Adam & Frost, 2008). As such, the findings are in line with the fact that implementation of sustainability accounting techniques do not alter decision-making priorities (Owen, 2008). The results also show that the techniques are used often in order to create situations of “win-win” where the techniques could be connected to financial performance. Thus, support is provided by the survey for critical perspectives which state that the companies do not use the techniques of sustainable accounting to pursue or achieve sustainability development, but rather for economic reasons. Therefore, Iraqi firms could be argued to have relatively narrow scope on sustainable development. Also, sustainable performance is not significantly affected by the use of the MATs. These findings are consistent with those findings reported by Milne et al., (2009), Bebbington et al (1994), Adams and Frost (2008) and Gray (2006).

The results of the low usage rates and the purpose of use reveal that, there is a low understanding of the issues regarding sustainability importance from the selected companies in Iraq. According to the managerial perspectives of the selected companies in Iraq, there is no good connection between management accounting systems and sustainability, at least not at this point in time. Hopwood et al. (2010) further mentioned that the managerial perspective posits that the integration of sustainability by companies into decision-making and business activities is critical for ethical and economic reasons. Epstein and Buhovac (2010) state that, it is a necessity for an organization to have in place a formal control



system in order to accomplish such integration. Meanwhile, the results showed that sustainability MATs are used at low to moderate frequency among Iraqi organizations. In many companies, nevertheless, the frequency of use is found to vary greatly. In other economies, the results of Mokhtar at al. (2016), Passetti at al. (2014) and Christ and Burritt (2013) are all in line with the current results of low adoption rates. Although, the rate of adoption was low for each technique individually, many of the firms are found to apply at least one technique from the factor of: integrative, social or environmental. The most widely used tool was the sustainability reporting while the environmental life cycle assessment is the least applied. Regarding the categories, after integrative and environmental tools, the social tools were found to be the most widely used. The external reporting and monitoring internal compliances are said to be the main purpose of using the techniques. This implies that the techniques are used less for the purpose of internal decision making. This suggests that the majority of Iraqi organizations do not have a well-developed system (such as management accounting and control) to incorporate natural and social capital issues into their operations.

The results of this study contribute something that has not been previously studied or investigated before, by clearly showing for what purpose and how frequently a number of techniques can be used in Iraqi companies for sustainable development. In this study, low rates of use of MATs contributes to literature by revealing that there is no adequate integration between the management accounting system of Iraqi companies and sustainable development, and it is not likely to improve through the use of selected MATs. In addition, the sustainability tools are explored for both social and environmental issues, which is a sign of strength as most past studies have focused only on environmental tools. However, the study is limited due to the following. First, the survey approach primarily has a possible survey error as well as a non-response bias. Second, the research is limited to a small sample size only.

Finally, sustainability management accounting has been measured based on only a few of the techniques available. Thus, future researchers are expected to examine how significant the various techniques are to different specific sectors in relation to sustainability development. Further study can lay emphasis on the understanding of usefulness of various techniques. Many case studies can also be employed to deeply evaluate how different technique are applied and what the challenges are that are faced by the adoption thereof. Further investigation can also be carried out on the techniques awareness. Finally, to know whether the legislation in force can encourage the use of sustainable accounting techniques,



it is important to engage in the new directive development of sustainability reporting.

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