


**THE ROLE OF ATTRIBUTES BASED COSTING TECHNOLOGY IN ACHIEVING SUSTAINABLE DEVELOPMENT GOALS**

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ARTICLE INFO	<u>ABSTRACT</u>
<p><b>Article history:</b></p> <p><b>Received</b> 21 November 2022</p> <p><b>Accepted</b> 16 February 2023</p>	<p><b>Purposes:</b> The aim of this study is to examine the effect of cost-based ABC II specifications to achieve sustainable development goals, in order to support decision-making to meet the competitive advantage features for a sample of manufacturing firms in the Kurdistan region of Iraq. Moreover, it aims to achieve a competitive advantage, whether by producing products according to customer requests or improving it or changing production techniques.</p>
<p><b>Keywords:</b></p> <p>Attributes Based Costing Technology; ABC II; Sustainable Development; Competitive Advantage; Manufacturing Firms.</p>	<p><b>Theoretical framework:</b> Industrial companies currently make considerable effort to maintain and grow in the existing competitive market. The implementation of advanced technologies and contemporary production techniques are key features in helping them to do so. Additionally, sustainability achievement is another key objective for industrial firms to stay competitive in the current era of business. Theoretically, it is believed that new managerial accounting techniques positively contribute to sustainable development goals achievement.</p> <p><b>Design/ Methodology/ Approach:</b> This study uses an explanatory research design for the analysis of data collected through a constructed questionnaire distributed to managers, accountants, auditors and engineers of the selected sample companies. The final sample size is 97 collected questionnaires out of 108 distributed forms among the purposively selected sample of cement and iron manufacturing firms in the Sulaimani city. Quantitative data is collected and analyzed using various statistical techniques including structural equation modeling.</p>
	<p><b>Findings:</b> The results show that cost technology based on ABC II specifications has a significant effect on its contribution to achieving sustainable development goals. Moreover, the relationship between cost technology based on ABC II specifications and its contribution to achieving sustainable development goals is a strong positive significant relationship. Cost technology based on ABC II specifications can only explain 28% of the variation in the achievement of sustainable development goals.</p> <p><b>Research, Practical &amp; Social implications:</b> ABC II technology represents an important point in raising social and organizational awareness by raising the level of environmental protection according to product specifications, reducing pollution resulting from production processes, and increasing competitiveness in the market. Furthermore, managers should pay high attention to the sustainable development goals by following a cost technique based on the ABC II specifications, taking into account the framework of the proposal in the sustainable development goals in each of the cement and iron companies.</p> <p><b>Originality/ Value:</b> This paper provides a significant new insight from a developing region of Kurdistan to the literature around sustainability development and the attribute-based costing technology.</p> <p>Doi: <a href="https://doi.org/10.26668/businessreview/2023.v8i2.1105">https://doi.org/10.26668/businessreview/2023.v8i2.1105</a></p>

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## O PAPEL DA TECNOLOGIA DE CUSTOS BASEADA EM ATRIBUTOS NA REALIZAÇÃO DE METAS DE DESENVOLVIMENTO SUSTENTÁVEL

### RESUMO

**Propósitos:** O objetivo deste estudo é examinar o efeito das especificações ABC II baseadas em custos para alcançar as metas de desenvolvimento sustentável, a fim de apoiar a tomada de decisões para atender às características de vantagem competitiva de uma amostra de empresas de manufatura na região do Curdistão no Iraque. Além disso, o objetivo é alcançar uma vantagem competitiva, seja produzindo produtos de acordo com os pedidos dos clientes ou aperfeiçoando-os ou modificando as técnicas de produção.

**Estrutura teórica:** As empresas industriais fazem atualmente um esforço considerável para manter e crescer no mercado competitivo existente. A implementação de tecnologias avançadas e técnicas de produção contemporâneas são características chave para ajudá-las a fazê-lo. Além disso, a conquista da sustentabilidade é outro objetivo-chave para que as empresas industriais se mantenham competitivas na atual era de negócios. Teoricamente, acredita-se que novas técnicas de contabilidade gerencial contribuem positivamente para o alcance das metas de desenvolvimento sustentável.

**Design/ Metodologia/ Abordagem:** Este estudo utiliza um projeto de pesquisa explicativa para a análise dos dados coletados através de um questionário construído distribuído a gerentes, contadores, auditores e engenheiros das empresas amostras selecionadas. O tamanho final da amostra é de 97 questionários coletados de 108 formulários distribuídos entre a amostra propositalmente selecionada de empresas fabricantes de cimento e ferro na cidade de Sulaimani. Os dados quantitativos são coletados e analisados utilizando várias técnicas estatísticas, incluindo a modelagem de equações estruturais.

**Descobertas:** Os resultados mostram que a tecnologia de custo baseada nas especificações ABC II tem um efeito significativo em sua contribuição para alcançar as metas de desenvolvimento sustentável. Além disso, a relação entre a tecnologia de custo baseada nas especificações do ABC II e sua contribuição para alcançar as metas de desenvolvimento sustentável é uma forte relação positiva significativa. A tecnologia de custo baseada nas especificações do ABC II só pode explicar 28% da variação na realização das metas de desenvolvimento sustentável.

**Pesquisa, implicações práticas e sociais:** A tecnologia ABC II representa um ponto importante na conscientização social e organizacional, aumentando o nível de proteção ambiental de acordo com as especificações do produto, reduzindo a poluição resultante dos processos de produção e aumentando a competitividade no mercado. Além disso, os gerentes devem prestar muita atenção às metas de desenvolvimento sustentável, seguindo uma técnica de custos baseada nas especificações do ABC II, levando em conta a estrutura da proposta nas metas de desenvolvimento sustentável em cada uma das empresas de cimento e ferro.

**Originalidade/ Valor:** Este documento fornece uma nova e significativa visão de uma região em desenvolvimento do Curdistão para a literatura sobre desenvolvimento sustentável e a tecnologia de custos baseada em atributos.

**Palavras-chave:** Tecnologia de Custeio Baseado em Atributos, ABC II, Desenvolvimento Sustentável, Vantagem Competitiva, Empresas Fabricantes.

## EL PAPEL DE LA TECNOLOGÍA DE CÁLCULO DE COSTES POR ATRIBUTOS EN LA CONSECUCCIÓN DE LOS OBJETIVOS DE DESARROLLO SOSTENIBLE

### RESUMEN

**Objetivos:** El objetivo de este estudio es examinar el efecto de las especificaciones ABC II basadas en los costes para alcanzar los objetivos de desarrollo sostenible, con el fin de apoyar la toma de decisiones para cumplir con las características de ventaja competitiva para una muestra de empresas manufactureras en la región del Kurdistán de Irak. Además, pretende lograr una ventaja competitiva, ya sea fabricando productos de acuerdo con las peticiones de los clientes o mejorándolos o cambiando las técnicas de producción.

**Marco teórico:** En la actualidad, las empresas industriales realizan esfuerzos considerables para mantenerse y crecer en el mercado competitivo existente. La aplicación de tecnologías avanzadas y técnicas de producción contemporáneas son elementos clave que les ayudan a conseguirlo. Además, el logro de la sostenibilidad es otro objetivo clave para que las empresas industriales sigan siendo competitivas en la era actual de los negocios. Teóricamente, se cree que las nuevas técnicas de contabilidad de gestión contribuyen positivamente a la consecución de los objetivos de desarrollo sostenible.

**Diseño/ Metodología/ Enfoque:** Este estudio utiliza un diseño de investigación explicativo para el análisis de los datos recogidos a través de un cuestionario elaborado y distribuido a directivos, contables, auditores e ingenieros de las empresas de la muestra seleccionada. El tamaño final de la muestra es de 97 cuestionarios de los 108 distribuidos entre las empresas de fabricación de cemento y hierro de la ciudad de Sulaimani. Los datos

cuantitativos se recogen y analizan mediante diversas técnicas estadísticas, incluido el modelo de ecuaciones estructurales.

**Resultados:** Los resultados muestran que la tecnología de costes basada en las especificaciones ABC II tiene un efecto significativo en su contribución al logro de los objetivos de desarrollo sostenible. Además, la relación entre la tecnología de costes basada en las especificaciones ABC II y su contribución a la consecución de los objetivos de desarrollo sostenible es una relación significativa fuertemente positiva. La tecnología de costes basada en las especificaciones ABC II sólo puede explicar el 28% de la variación en la consecución de los objetivos de desarrollo sostenible.

**Investigación, implicaciones prácticas y sociales:** La tecnología ABC II representa un importante punto de sensibilización social y organizativa al elevar el nivel de protección medioambiental de acuerdo con las especificaciones del producto, reducir la contaminación resultante de los procesos de producción y aumentar la competitividad en el mercado. Además, los gestores deberían prestar gran atención a los objetivos de desarrollo sostenible siguiendo una técnica de costes basada en las especificaciones ABC II, teniendo en cuenta el marco de la propuesta en los objetivos de desarrollo sostenible en cada una de las empresas de cemento y hierro.

**Originalidad/valor:** Este artículo aporta una nueva visión significativa desde una región en desarrollo del Kurdistán a la literatura en torno al desarrollo sostenible y la tecnología de costes basada en atributos.

**Palabras clave:** Tecnología de Cálculo de Costes Basada en Atributos, ABC II, Desarrollo Sostenible, Ventaja Competitiva, Empresas Manufactureras.

## INTRODUCTION

Due to the rapid technological developments, industrial companies have sought new methods and implemented technological changes aiming to maintain in the market and grow. Concern for the environment is one of the most important ingredients for the success of companies to improve their performance as well as maintain their image in the environment they are located, so these companies are interested in treating pollution by assuming their responsibility towards the environment, as it works to reduce environmental pollution that works to protect the environment that one of the dimensions of sustainable development is known. The concept of sustainable development at the level of industrial companies has developed rapidly and successively, so expressions in methods and techniques have led to modern cost management, and the need to develop administrative and cost accounting to keep pace with the changes that occur in the environmental, economic, social and political fields by offering to confront these rapid developments witnessed by the field application of this concept.

Industrial companies today work in a world to make a distinguished effort to ensure their continuity and supremacy in a competitive market. Thus, the implementation of advanced technologies and new production methods are believed as one of the most important and best solutions to meet or respond to these challenges. Industrial companies today must replace their traditional methods with advanced methods or techniques that work on adopting new technologies to ensure sustainability (Sarjiman et al., 2023). One of the most prominent of these techniques is a cost-based technology based on specifications as an effective way to bring about radical changes in the philosophy and working methods to achieve specifications, and its use

by the company as a bridge to cross it to reach keeping pace with all the economic impacts on the one hand and environmental and social restrictions on the other hand, and making it green fame Achieving a competitive advantage that allows expanding its market share and achieving sustainable development goals.

The environmental issues majorly caused by the actions of industrial sector are critical and the considered to be controlled globally. The rise of industrial firms and quantity of their activities resulted in the existence of new rules and regulations of creating protective belt. Developing countries and regions are not excluded in this equation. The Kurdistan region, specifically Sulaimani city, is classified as one of the most important provinces in Iraq in the cement industries (Sdiq and Abdullah, 2022). The industries are one of the most important reasons that lead to the occurrence of an environmental problems, with its negative effects on the various natural elements. The environment is considered a set of basic and vital elements surrounding the human being, which includes water, air, land, as well as plant and animal elements, all of which have a negative impact on the environment through industrial activities, which leads to changes in the environment.

It is clear that the industrial companies in the Kurdistan Region/ Sulaimani Governorate have become living on this reality with all the pressures. Therefore, they started building techniques that enable the use of ABC II Attributes based costing technology in order to keep pace with all the pressures to achieve sustainable development. The research problem can be found in the following question; do the cement and iron companies in Sulaimani maintain environmental protection, and adhere to the appropriate environmental dimension to achieve sustainable development? Does the work environment in the companies suit the research sample by ABC II Attributes based costing technology? This study hypothesises that there is no statistically significant relationship and effect between costing technology based on ABC II specifications and its contribution to achieving the goals of sustainable development. Furthermore, it hypothesises that there is no relationship and effect between costing technique based on ABC II specifications and leading environmental costs.

The environment is considered a set of basic and vital elements surrounding the human being, which includes water, air, land, as well as plant and animal elements, all of which have a negative impact on the environment through industrial activities, which leads to changes in the environment. In light of the research problem, the research aims to achieve the following. The importance of the environmental dimension of sustainable development in developing and improving the environmental challenges facing industrial companies. Moreover, it aims at employing the potential of ABC II technology in achieving sustainable development goals such

as environmental dimension. It identifies the plans and methods that enable industrial companies in Sulaimani city to achieve environmental sustainability in order to achieve sustainable development goals, and the importance of ensuring the role of industrial companies as an active and essential party in protecting and preserving the environment. It identifies the extent to which the ABC II integrated framework can achieve sustainable development goals to enhance the quality of industrial companies' products. Finally, it classifies the plans and methods that enable industrial companies in Sulaimani to achieve environmental sustainability in order to achieve sustainable development goals, and the importance of ensuring the role of industrial companies as an active and essential party in protecting and preserving the environment.

The current study has a number of key importance. First, the ABC II technique focuses on product specifications by focusing on producing environmentally friendly products. Second, ABC II promises to accept the alternative if it brings benefit to the customer and a return on investment at the lowest cost. Third, the ABC II technique focuses on defining the product specifications that the customer wants and that he expects to bring benefit to him.

## **LITERATURE REVIEW**

### **Attributes-Based Costing (ABC II)**

Since the advent of cost-based specification in the 1990s, it has become an important aspect to find an accurate entry point and segment of product benefits and costs. These specifications are classified to distinguish the product and competing products in terms of entering into an industrial stage. These specifications are as follows: basic specification, which is presented in all the products and it is seen by all the customers; distinctive specification, in which the company is featured by the particular specification that differentiates products by their availability; and stimulating specification, which is regarded as the strong specification that the customer seeks in a product.

Analyzing the impact of ABC II, it can be stated that it smoothens the decision-making process by finding a solution to a particular problem of a product. It is associated with developing various alternatives to solve the problem. Ali and Jabir (2022) stated that it helps to determine the sales of each product and its costs by identifying its primary and secondary activities which are engaged in adding worth to the developments at the time of exclusion of ventures that cannot add value to the product. In conjunction with the same, it can determine the net income of the products before making any decision. It can create a differentiation between net income and two cases to make a conclusion. Thus, attribute-based costing is

associated with contributing accuracy in measuring the costs of each specification as per the expectations of customers and market development. It also engaged in maximizing profitability to obtain an effective place in the market. The accessibility of exact cost details about the product helps the management to realize the maximum and minimum costs and every level of procurement. Besides, it can improve the system performance which helps in achieving the organizational goal by using an efficient cost technology.

The attribute-based accounting system is addressed as an upgraded version of activity-based costing which is engaged in providing the appropriate information for making managerial decisions in improving performance. ABC II is depending on analyzing all cost aspects on the basis of attributes of products in fulfilling the increased demand for using accurate and appropriate information in the contemporary business environment (Khdaif and Jabbar, 2022). It is not like a traditional cost system as traditional costing has become a failure to cope with the changes in the business. The attributes can be divided into tangibles and intangible qualities that can define products, satisfy customer expectations and increase demand for the goods of the business entity. As denoted by Atta Zbaeen (2020), the utilization of attribute-based accounting techniques results in a balance between the activities of the company and the selection of the preferred attributes for consumers in choosing the effective cost level.

Using the data produced by attribute-based accounting have been directed towards activities that can maximize the value of products that can satisfy the needs of consumers and it tries to omit the non-value-added activities to customers. The methods of traditional costing have been criticized but a number of strategic cost management techniques like ABC II have arisen in addressing these issues by enhancing the accuracy of cost assessment and maximizing the capacity. It has become a challenge to supply the detailed and comprehensive information needed for attribute-based accounting under manual information systems. It has been noticed that attribute-based costing has brought a new dimension to companies' costs of goods sold prediction, where individual material costs and procedural costs have been grouped in providing accurate cost estimation per attribute. Cement and iron companies have shifted their focus on competition that has affected supply-demand dynamics. In the Cement and iron industry, generic goods are likely to be less expensive and are engaged in improving efficiency to grow their market share. This has been made feasible by ABC II as it can assist in planning and effectively promote the financial management process. Moreover, ABC II has become a more appropriate method for efficient materials management.

## Sustainable Development

There are 17 environmental sustainability programs that have been included in the sustainable development goals which were first introduced by the United Nations in 2015 and are expected to be ended by 2030 (Rush, 2019). In this respect, the private sector must also include SDG in their corporate objective to be fulfilled. However, in reality, the role of the accountant directly supports 8 of the 17 SDGs that need to be achieved. There is an ongoing requirement in implementing sustainability in the industry has shifted in recent times as this industry is engaged to produce a major amount of wastage and greenhouse gases and also over utilization of water. Higher usage of energy, a wider supply chain network, and environmental contamination have been addressed as a few environmental issues to be overcome (Abdullah and Fatah, 2022). This sector can increase its value by ensuring environmental sustainability by minimally using the supply chain and production process (Firmansyah, 2019). By concentrating on providing underdeveloped nations with inadequate and underfunded healthcare systems access to affordable medicines and treatments, this sector can encourage social sustainability.

In the aspect of financial accounting and cost accounting, they play a vital role in economic activities, analysis of costs and benefits that can positively impact the environment, and the improvement of innovative practices and policies on environmental pollution (Shaswar et al., 2016). It is addressed as the target of environmental management accounting. As per the words of Bennett *et al* (2022), environmental management accounting can be defined as the method of recognizing, collecting, calculating, analyzing, internal reporting, and using information about raw materials, environmental costs, and other data related to the decision-making process. It has become an important function of the accountant to maintain an ecosystem for businesses to create emancipation business practices.

The requirements of sustainable development can be summarized as follows Rasheed et al (2020)

- A political system that ensures the effective participation of citizens in decision-making.
- An economic system capable of creating surpluses and technical knowledge based on the foundations of self-reliance and sustainability.
- A social system that provides solutions to tensions resulting from inconsistent development for the advancement of society.

- A productive system that respects the duty to preserve the environmental base of development.
- A technology system that is constantly looking for new solutions.
- An international system that fosters sustainable patterns of trade and finance and believes in partnership in internal and external relations.
- A flexible administrative system that has the ability to self-correct.
- A system that counts natural resources and raises awareness about them.
- A system that seeks to preserve the environment and raise awareness about it.

Saeed (2020) believes that the implementation of the seventeen sustainable development goals of the development plan until 2030 officially began in 2016. This plan was adopted by world leaders in 2015 at a historic international summit. The objectives are several: (1) achieving a better quality of life for the population through the process of planning and implementing development policies by focusing on the quality aspects of growth; (2) respecting the natural environment, focusing on the relationship between the activities of the population and the environment, and dealing with natural systems and their content on the basis that they are human life (Saed et al., 2022); (3) enhancing the population's awareness of upcoming environmental problems and developing their sense of responsibility towards them; (4) achieving the optimal exploitation and use of resources by dealing with them as limited in order to prevent their depletion or destruction, and to work on their rational use and employment; (5) linking technology to the goals of society by employing it to serve the goals of society; (6) bringing about a continuous change in the needs and priorities of society in a way that suits the possibility and allows achieving a balance that enables activating economic development, controlling all environmental problems and developing appropriate solutions to them.

### **Effect of Attributes Based Costing (ABC II) on sustainable development**

The main components of environment-related costs are water, energy, and wastage which are likely to be included in overheads. These costs are indicated as hidden costs that a manager can face. It can reduce the motivation for reallocating the costs by creating a bias against pollution prevention projects (Tseng *et al.*, 2019). In this respect, ABC II is regarded as a strategy that is specifically pertinent to the environment. By connecting costs to the particular products and attributes according to the underlying drivers that provide the result in those costs being created in the first place in terms of producing more meaningful cost information (Jing and Songqing, 2021). Hence, there is an effective decrease in the number of costs lost to

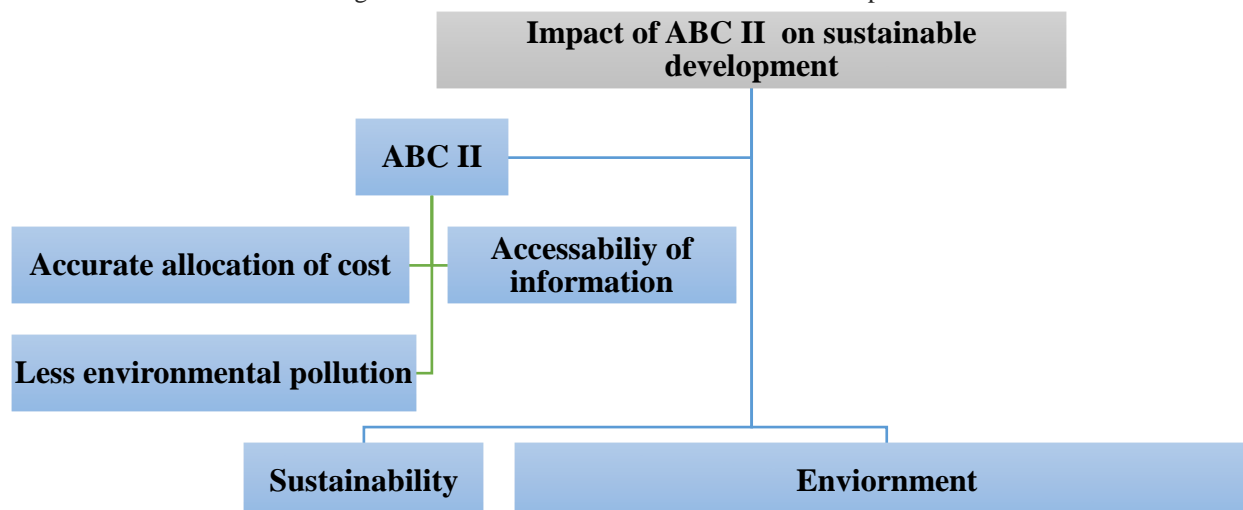


overhead. As a result, it has become possible to set the price of the products more precisely and recognize the major factors that need to be decreased. While the environment is one of the biggest cost attributes, ABC II inevitably draws attention to it.

The accessibility of environmental expenditure has become a crucial aspect of the management of environmental costs, which can be reduced if they are treated as overhead expenditures to be distributed, it can result in skewed costs for decision making (Kadhim and Al-Ghezi, 2021). As a consequence, companies are required to include environmental impacts and costs into the pricing and product costing by integrating MFCA and ABC II. In the past, awareness of environmental issues has not been seriously overcome and there is the minimum information needed for environmental costs inside and outside the companies. In this regard, the environmental costs of the pharmaceutical Industry need to be included in the other items that are understandable. However, the ongoing economic and social improvement has deprived the environmental conditions accounts such accounting practices cannot meet the expectations of environmental management (Bux and Amicarelli, 2022). Using a traditional method of costing can lead to distortion in the costing information which may also create biased decision-making processes. With the help of attribute-based costing, the reallocation of expenditure can be detail-oriented which improves the distribution of environmental costs and also it prevents pollution (Berg and Madsen, 2020).

However, this costing system requires a higher degree of maturity of environmental cost information. In general work with particular attention, it is important to create a perfect data system that can provide information on environmental costs with a focus on the accuracy of the original cost data collection. It is associated with entailing the costing attributes or features provided by the goods and reviewing these costs on a regular basis. Nevertheless, information about the cost factor and demand are engaged with those attributes which are related to current and potential competitors (Rasul, 2018). In order to survive in the business market, a company must offer the cheapest commodities for consumers in obtaining the expected bundles of attributes. As per the statement of Wegmann (2018), this might need organizational restructuring in enabling accounting and finance functions to generate new information. It is addressed as a sustainable strategy that helps to maintain a cost advantage over the present and future competitors.

Figure 1: Theoretical framework of the relationship



Source: prepared by the authors (2022)

### Empirical Review

Alotaibi (2021) attempts to clarify the concept of accounting disclosure and sustainable development and the relationship between them, as well as to explain the types, components and methods of accounting disclosure and the elements that affect it. Clarify the quality, importance, and objectives of financial reports. And clarify the relationship between achieving disclosure of sustainable development and the value of the company, and between disclosure and the quality of investment decisions. The study population consisted of the financial reports of Almarai Company, which were published on the company Official Website. The sample of the study is Almarai Company in the Kingdom of Saudi Arabia. One of the most important conclusions is that there is an impact of the accounting disclosure on sustainable development on the value of the company if any other investment effects that helped in the growth or stability of the company's value in some other years were ignored. The most important recommendations are the necessity for the Kingdom's government to direct corporate administrations to commit themselves to performing the accounting disclosure for sustainable development because of its positive impact on the quality of financial reports and maximizing the values of economic units.

Le et Al. (2019) investigate the factors affecting the application of EMA Environmental Management Accounting and the relationship between the application of EMA and performance efficiency, including the financial and environmental sectors. Field of study Medium and large-sized building materials manufacturing enterprises in Vietnam for the period from 2018 to 2019 applying to a group of management accountants in 600 building materials production companies in Vietnam. The results of the research indicate that there are six factors

that positively affect the implementation of EMA practices, including government commitment, stakeholder interests, positive environmental strategies, community expectations, professional education network, and financial status. EMA accreditation. On the other hand, the implementation of EMA appears to have a positive impact on financial and environmental efficiency. It was also shown that there is a strong positive relationship between environmental efficiency and financial efficiency, and that innovative solutions to reduce environmental pollution can maximize corporate profits. More research is necessary to find the answer to many questions such as; Are the factors affecting the application of EMA in the building materials industry similar to those of other industries in Vietnam? How can Vietnamese organizations integrate EMA into other environmental management tools, such as cleaner production, environmental management systems, risk management, environmental auditing and EMA certification in green supply chain management in the building materials industry for sustainable development?

Bebbington and Unerman (2018) examine the role of academic accounting in pursuit of the United Nations sustainable development goals. This is an important starting point for understanding and achieving environmental and human development ambitions the year 2030. Field of Study Accounting academics (as a society and in coordination with others) can contribute substantively to this challenge. The study sample has the perspectives of a multidisciplinary sample on sustainable development and its integration with sustainable accounting. Existing research in accounting relevant to individual sustainable development goals serves as the primary link between it and the accounting discipline. At the same time, the focus of the SDGs highlights new sites for empirical work (including interdisciplinary investigations) as well as inviting innovation in theoretical frameworks for accounting. Furthermore, the goals provide a context for (to) revitalize the contribution of accounting to sustainable development discussions. This study recommends "to suggest potential accounting research contributions to support the development of new research methods".

Osemene et.al. (2016) study the importance of environmental accounting practices in sustainable development and the performance of listed manufacturing companies in Nigeria. The study sample by collecting data from annual reports and accounts for thirty-six randomly selected companies in Nigeria. The results of the analysis revealed that sustainable development is important in explaining the difference in the amount of ROE Return on Equity and ROA Return on Assets in manufacturing companies in Nigeria. Environmental accounting has a significant impact on the return on equity, but it does not have a significant impact on the return on assets. The study also reveals that environmental accounting does not significantly affect the

return on assets but it does significantly affect the return on equity. The study recommends encouraging the management of the research sample companies to incorporate environmental reports that should explain in detail all material effects, i.e., the material data that occurs in the company during the fiscal year. The Nigerian government must also issue a set of policies to ensure the company's participation in sustainable development activities in order to enhance and generate its revenues.

The accounting of Environmental management was firstly introduced in 1997 in enhancing the stage of interest in management accounting in the context of the environment and sustainable development. "The World Commission on Environment and Development" was engaged in creating the policies of sustainable development for economic and environmental development without compromising future competition. Achieving effective environmental performance has become one of the foremost priorities of most organizations in the world in terms of maintaining competitiveness (Abunaila and kadhim, 2022). The introduction of various environmental analytical tools to measure and communicate the cost has led to benefits of the entire economic effect. It is addressed as a procedure that collects volumes of materials and information on costs in identifying incurred expenditure by corporate organizations in emissions of pollution. At present days MFCA and ABC II have gained a popularity on an international level and the public disclosure of sectoral environmental information has been encouraged with the practical guideline to be developed. Environmental cost and maintaining sustainability have remained a topic of detailed discussion in the aspects of environmental accounting.

## **MATERIAL AND METHODOLOGY**

### **Sample and data**

Sulaimani city is classified as one of the most important governorates of Iraq in the cement and iron industry. The industry is one of the industries that lead to an environmental problem, with its negative effects on the various natural elements. The environment is a group of basic and vital elements surrounding man, which includes water, air, soil, as well as plant and animal elements, and all of these elements are subject to pollution when there are industrial activities. The questionnaire was distributed to a number of workers in the researched industrial companies, as (108) forms were distributed as in Table (4). The response rate is about 90 per cent. The symbols and phrases contained in the questionnaire can be seen in Appendix (1).

Table (1) shows the number of distributed questionnaires, the number of recipients and excluded ones, and the number of valid questionnaires in the companies surveyed:

Table (1) study sample descriptions

Name of the company	received forms	excluded forms	correct forms	response rate
Sulaimani Steel Factory	35	1	34	%97.14
Mass Steel Company	30	9	21	%70
Mass Cement Company	30	1	29	%96.66
Tasluja Cement Company	13	0	13	%100
<b>TOTAL</b>	<b>108</b>	<b>11</b>	<b>97</b>	<b>%89.81</b>

Source: prepared by the authors (2022)

### Conceptual framework

A research model can be defined as a theoretical image of the study. It is associated with explaining the interrelationship of subjects and ideas. There are various types of research models that a researcher can use in his research papers like a physical model, theoretical model, mathematical model, mechanical model, and interactionism symbolic research model (Chen and Cui, 2020). In the context of this present research study, the researcher has used a theoretical model and practical to conduct the research paper.

Figure 2: Conceptual framework



Source: prepared by the authors (2022)

### Model and method

This study uses an explanatory research design for the analysis of data collected through the distribution of a constructed questionnaire. The explanatory research design is suitable for investigating the relations involving several variables (Abdullah and Tursoy, 2022). Quantitative data is collected through a constructed close-ended questionnaire. The practical part of the research is based on building and designing a questionnaire form, and it is the main tool for the practical part of the research. The questionnaire section was built according to the five-fold Likert scale, from which five options are available for the research sample within the framework of (strongly agree, agree, neutral, disagree, strongly disagree).

Design (components) of the practical part tools: The questionnaire was divided into two parts:

Personal information: It deals with the respondent's personal information and consists of eight items (company name, company field, gender, age, scientific qualification, Specialization, years of experience, Job Title).

Questionnaire sections: It is a research field that aims at the reality of (The role of Attributes based costing technology (ABC II) in achieving sustainable development goals). It is the field aspect from the point of view of academics and specialists on a sample of the study. This part contains a set of items, numbering (20) items distributed over two main variables:

The first variable: under the title: ABC II Attributes based costing technology, and in the analysis of a situation that has the symbol (X) and consists of (10) items, which are symbolized by the following (X1, X2, ..., X10). While the last variable is sustainable development, in the analysis, the symbol (Y) was placed for it and it consists of (10) items, which are symbolized by the following (Y1, Y2, ..., Y10).

Likert scale In the context of statistical processing of the questionnaire data, the five-point Likert scale was used, and since the study's questionnaire was based on the five-point Likert scale (strongly agree - strongly disagree), there are five classes to which arithmetic mean belong to, The class is determined by finding the length of the range ( $5-1 = 4$ ) and then dividing the length of the range by the number of classes (5), i.e. ( $4/5 = 0.80$ ), and then adding (0.80) to the lower limit of the scale (1) or subtracting from the upper limit of the scale (5), and the classes are as follows: (Dewberry, 2004):

Too Low	Low	Moderate	High	Very High
1.00-1.80	1.00-1.80	2.61 – 3.40	3.41 – 4.20	4.21- 5.00

## RESULTS AND DISCUSSION

### Descriptive statistics

The objective of displaying personal information on the study sample enables the researcher to carry out the process of analyzing and interpreting the questionnaire's interlocutors and testing hypotheses according to a comprehensive methodology and facilitating the process of discussion and analysis. There are seven items that characterize the study sample. Table 2 presents the distribution of the study sample according to the responders characterize variables.

Table (2): Sample respondent characteristics

	Level of Variable	Count	%
Company field	Cement	42	43.3
	Iron	55	56.7
Gender	Male	93	95.9
	Female	4	4.1
Age	Less than 30	24	24.7
	31-35 year	36	37.1
	36-40 year	18	18.6
	41-45 year	11	11.3
	More than 46	8	8.3
Scientific qualification	Bachelor	68	70.1
	Higher Diploma	14	14.4
	Master	2	2.1
	PhD	1	1.0
	Other	12	12.4
Specialization	Accounting	50	51.7
	Management	24	24.7
	Economic	4	4.1
	engineering	8	8.2
	Other	11	11.3
Years of experience	Less than 5	20	20.6
	5-10 year	44	45.4
	11-15 year	13	13.4
	More than 16	20	20.6
Job Title	Accountant	31	32.0
	Checker	21	21.6
	Manager	11	11.3
	Engineer	6	6.2
	Other	28	28.9
Total		97	100.0

Source: prepared by the authors (2022)

The frequencies and percentages, and the relative importance of the responses of the study sample were calculated in order to determine the strength of each item in the section and its importance in relation to the section. As well as calculating the weighted mean to determine the direction of the items, the standard deviation was found in order to display the dispersion in the responses of the study sample in each item.

The responses are interpreted according to the relative importance and the weighted mean, so that the item is positive, meaning (that the sample members agree on its content) if the relative importance is greater than (60%), and the weighted mean is greater than the hypothetical mean of 3, the items are negative, meaning (that the sample members do not agree with their content) if the relative importance is less than (60%), and the weighted mean is less than the hypothetical mean, this applies to all items of the questionnaire, and from so, this part deals with a presentation or analysis of the information related to the research sections of the questioners, they are:

### Descriptive statistics of ABC II Specification

Table (3) above demonstrates the values of means, standard deviation, and RI for ABC II Specification. Statement no. 8 recorded the highest mean (4.40) among the statements being rated by the study sample, expressing a very high level of agreement. While statement no. 2 recorded the lowest mean (4.05) by the study sample, expressing a high level of agreement. The overall assessment degree of ABC II Specification was rated by a mean of 4.18. This value expresses a very high level of agreement among the study sample.

Table (3) Means, SD and RI for ABC II Specification

Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Weighted Mean	S.D	Coefficient of Variation	Relative importance
	No.	No.	No.	No.	No.				
	%	%	%	%	%				
X1	3	1	9	38	46	4.27	0.9	21.15	85.36
	3.1	1	9.3	39.2	47.4				
X2	3	1	12	52	29	4.05	0.86	21.16	81.24
	3.1	1	12.4	53.6	29.9				
X3	3	0	11	52	31	4.11	0.84	20.32	82.27
	3.1	0	11.3	53.6	32				
X4	3	2	15	33	44	4.16	0.97	23.3	83.3
	3.1	2.1	15.5	34	45.4				
X5	3	2	8	50	34	4.13	0.88	21.31	82.68
	3.1	2.1	8.2	51.5	35.1				
X6	3	0	6	47	41	4.28	0.83	19.48	85.36
	3.1	0	6.2	48.5	42.3				
X7	3	2	13	47	32	4.06	0.91	22.31	81.24
	3.1	2.1	13.4	48.5	33				
X8	3	1	3	37	53	4.40	0.86	19.48	88.04
	3.1	1	3.1	38.1	54.6				
X9	3	1	11	49	33	4.11	0.87	21.2	82.27
	3.1	1	11.3	50.5	34				
X10	3	2	9	45	38	4.16	0.9	21.72	83.3
	3.1	2.1	9.3	46.4	39.2				
Total	30	12	97	450	381	4.18	0.52	12.45	83.51
	3.1	1.2	10	46.4	39.3				

Means description: (1 – 1.8 very low, 1.81 – 2.6 low, 2.61 – 3.40 moderate, 3.41 – 4.20 high, and 4.21 – 5 very high), RI = Relative importance

Source: prepared by the authors (2022)

### Descriptive statistics of sustainable development

Table (4) above demonstrates the values of means, standard deviation, and RI for sustainable development. Statement no. Y1 recorded the highest mean (4.26) among the statements being rated by the study sample, expressing a very high level of agreement. While statement no. Y4 recorded the lowest mean (3.92) by the study sample, expressing a high level of agreement. The overall assessment degree of sustainable development was rated by a mean of 4.05. This value expresses a very high level of agreement among the study sample.



Table (4) Means, SD and MI for sustainable development

Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Weighted Mean	S.D.	Coefficient of Variation	Relative importance
	No.	No.	No.	No.	No.				
	%	%	%	%	%				
1	3	2	5	44	43	4.26	0.89	20.87	85.15
	3.1	2.1	5.2	45.4	44.3				
2	3	4	13	47	30	4.00	0.94	23.54	80
	3.1	4.1	13.4	48.5	30.9				
3	3	1	17	45	31	4.03	0.9	22.38	80.62
	3.1	1	17.5	46.4	32				
4	4	2	18	47	26	3.92	0.95	24.22	78.35
	4.1	2.1	18.6	48.5	26.8				
5	4	2	15	45	31	4.00	0.96	24.08	80
	4.1	2.1	15.5	46.4	32				
6	5	6	8	33	45	4.10	1.12	27.22	82.06
	5.2	6.2	8.2	34	46.4				
7	5	4	16	34	38	3.99	1.09	27.29	79.79
	5.2	4.1	16.5	35.1	39.2				
8	3	4	11	43	36	4.08	0.96	23.51	81.65
	3.1	4.1	11.3	44.3	37.1				
9	3	6	12	34	42	4.09	1.04	25.32	81.86
	3.1	6.2	12.4	35.1	43.3				
10	3	5	14	38	37	4.04	1	24.85	80.82
	3.1	5.2	14.4	39.2	38.1				
Total	36	36	129	410	359	4.05	0.37	9.13	81.03
	3.7	3.7	13.3	42.3	37				

*Means description: (1 – 1.8 very low, 1.81 – 2.6 low, 2.61 – 3.40 moderate, 3.41 – 4.20 high, and 4.21 – 5 very high), RI = Relative importance*

Source: prepared by the authors (2022)

### Confirmatory Factor Analysis

To verify the factor structure of the set of the observed variables (the factor loadings) confirmatory factor analysis (CFA) is applied. Composite reliability (CR) is assessed. The results are presented in table (5) below. discriminant validity is assessed through HTMT Analysis, the results are presented in table 3.4 below.

Table (5): Scales, sources and confirmatory factor analysis results

Scale Items	Factor loading
<b>ABC II Specification</b>	
(AVE = .51, CR = .91, $\alpha$ = .910, Skew. = -0.575, Kurt.= 0.596)	
X1	0.743
X2	0.755
X3	0.682
X4	0.718
X5	0.657
X6	0.741
X7	0.695
X8	0.701
X9	0.740
X10	0.693
<b>sustainable development</b>	
(AVE = .51, CR = .92, $\alpha$ = .911, Skew. = .012, Kurt.= -.559)	
Y1	0.737
Y2	0.710
Y3	0.674
Y4	0.659
Y5	0.723
Y6	0.709
Y7	0.727
Y8	0.728
Y9	0.715
Y10	0.719

Source: prepared by the authors (2022)

The measurement model was subjected to confirmatory factor analysis for convergent and discriminant validity as well as composite reliability (e.g., Bagozzi and Yi,1988; Fornell and Larcker,1981; Hair et al.,2010). Before doing this, the data should be checked for assumption of normality based on “skewness” and “kurtosis” indices. Skewness refers to the symmetry, whereas kurtosis refers to the pointiness of the distribution (Field A.,2013). According to Panuwatwanich (Panuwatwanich K., Stewart R.A., 2008), skewness and kurtosis indices that fall within the range of -2 to +2 indicate a normal distribution, in this study the values of skewness ranged from (-0.575, and 0.012) and the values of kurtosis ranged from (-0.559, and 0.596), this result suggests that the distribution of the data which are used in this study can be considered normal as reported in table (5).

In CFA application, larger standardized loading estimates confirm that the indicators are strongly related to their associated constructs and are one indication of construct validity (Hair et al., 2010), all loadings were greater than 0.50 and were significant (Bollen, 2014). The average variance extracted (AVE) was also greater than 0.50. These findings collectively revealed that convergent validity was achieved (e.g., Fornell and Larcker, 1981). Discriminant validity was checked through Fornell and Larcker's (1981) method, the AVE values between the ABC II Specification (first variable) and sustainable development (second variable) were

greater than the squared correlation between the relevant latent constructs, as written Karatepe and Choubtarash (2014) and Nunkoo et al. (2013). CFA provides a way of assessing discriminant validity according to Hair et al (2010) is to compare the average variance-extracted (AVE) values. Passing this test provides good evidence of discriminant validity (Hair et al., 2010). Convergent validity of CFA result has to be supported by item ( $\alpha$ ) reliability, construct reliability, variance extracted and average variance extracted (Hair et al., 2010). All the factor loadings are found to be significant ( $\rho < 0.001$ ). In addition, construct reliability estimates ranging from 0.91, and 0.92 which are exceeding the critical value of 0.7 recommended by Hair et al. (2010) and (Sekaran and Bougie, 2013) indicating it was satisfactory. In summary, it appeared that discriminant validity was achieved.

Table (6): Summary statistics and correlations of observed variables.

		X	Y
X		1	
Y		.657**	1

Source: prepared by the authors (2022)

All measures were reliable because each composite reliability ( $>0.60$ ) as well as coefficient alpha ( $>0.70$ ) according to (Bagozzi and Yi,1988; Hair et al., 2010). The results for the reliability scores of measures are reported in Table 5, summary statistics and correlations of observed variables are given in Table 6.

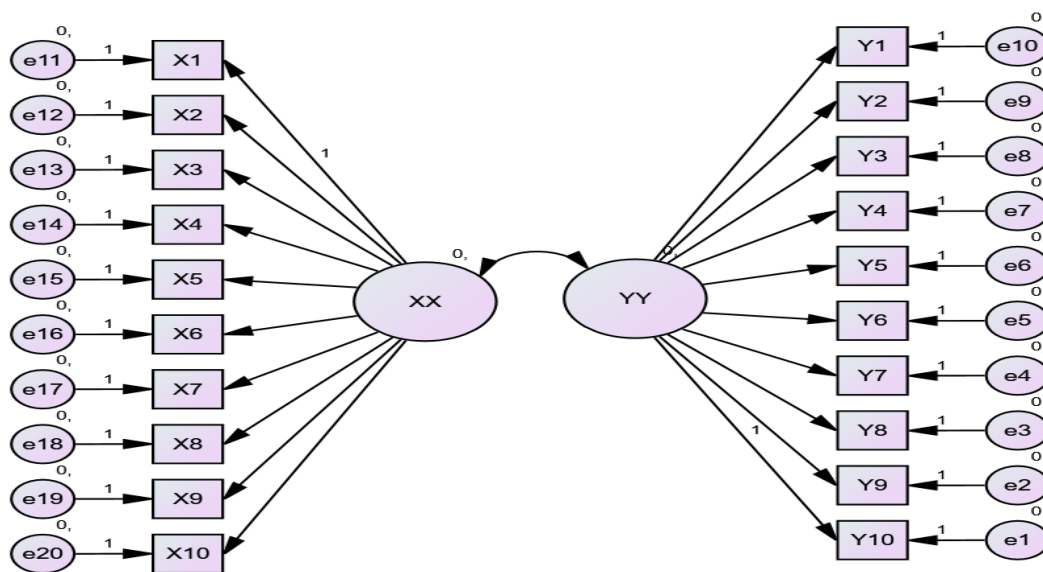
Table (7): HTMT Analysis

		X	Y
X			
Y		0.523	

Source: prepared by the authors (2022)

Table (7) shows that the HTMT values are less than 0.85. According to Kline (2011), HTMT values below 0.85 establish discriminant validity between the reflective constructs. Accordingly, no collinearity problems among the latent construct (multicollinearity) and no overlapping items from the respondents' perceptions in the affected constructs. Based on the results of tables (6) and (7) above, the final best-fitting model is presented in Figure (3) below.

Figure (3): Final best fitting CFA model



Source: prepared by the authors (2022)

**Goodness of Fit**

To evaluate the goodness of fit for the model, a range of indicators are referred to, including standardized root mean squared residual (SRMR), Tucker and Lewis’s index of fit (TLI), and root mean square error of approximation (RMSEA). The results are presented in table (8) below.

Table (8): Goodness-of-fit statistics for the three-factor CFA model.

Model tested	$\chi^2$	P-Value	$\chi^2/df$	CFI	TLI	IFI	RMSEA
Model performance	195.25	0.081	1.155	0.953	0.947	0.955	0.052
Criterion for goodness of fit		Non-sig.	$\leq 2$	$\geq 0.90$	$\geq 0.90$	$\geq 0.90$	$\leq 0.08$

Note: CFI = Comparative fit index; IFI = Incremental-fit index, TLI = Tucker-Lewis index, RMSEA = Root mean square error of approximation

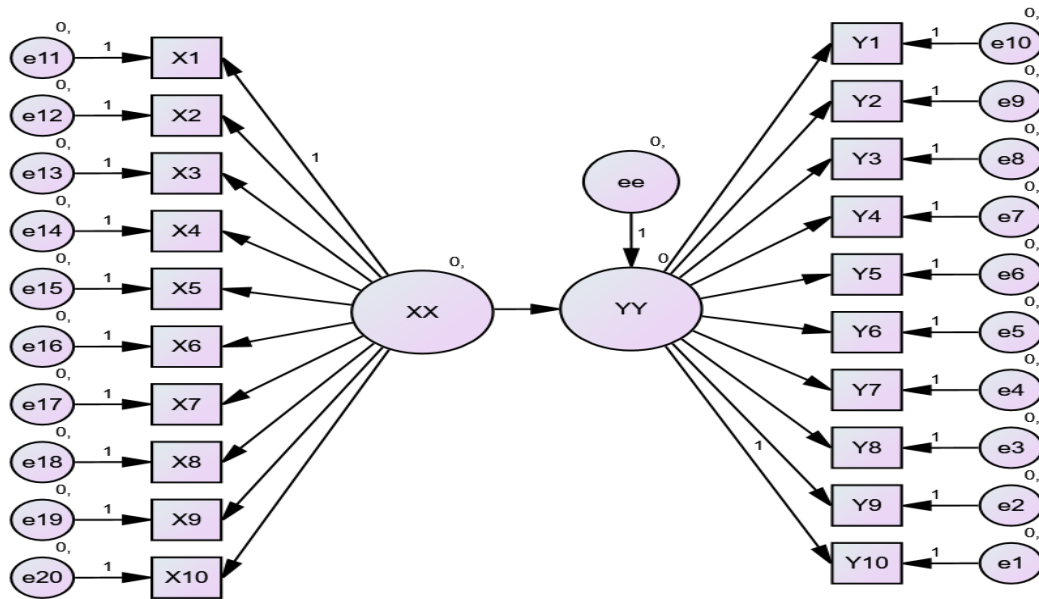
Source: prepared by the authors (2022)

Table (8) shows that the value of Chi-square statistic which tests the null hypothesis that the over-identified model fits the data, the non-significant Chi-square here indicated the model is fit, and ( $\chi^2/df$ ) confirmed the result of chi-square. The RMSEA is less than 0.08, indicating an excellent model fit (Hu & Bentler, 1999). The CFI value is greater than 0.90 indicating a good fit for the model (Hancock and Mueller, 2006). The TLI value is greater than 0.90, indicating a good fit as well (Sharma et al. 2005), (Bollen, 2014). As indexes suggest a sufficient fit of the model to the current data, the hypothesized model is fitted.

**Hypothesis testing**

To test the hypothesis of this research, structure equation modelling (SEM) is applied as shown in Figure 4 The results are presented in below. The study hypothesis is state that the “There is no statistically significant relationship and effect between cost technology based on ABC II specifications and its contribution to achieving sustainable development goals”.

Figure (4): The SEM Model for the hypotheses



Source: prepared by the authors (2022)

The study hypothesis was tested which is state that the “There is no statistically significant relationship and effect between cost technology based on ABC II specifications and its contribution to achieving sustainable development goals”, the results were shown in the table (9):

Table (9) Structural Equation Modelling Regression weights

			Estimate	S.E.	C.R.	P	R <sup>2</sup>
Y	←	X	0.572	0.168	3.402	***	0.28

Note: S.E. = Standard errors of the regression weights, C.R. = Critical Ratio, P = p-value

Source: prepared by the authors (2022)

Table (9) shows that cost technology based on ABC II specifications has a significant effect on its contribution to achieving sustainable development goals, since the critical ratio value is greater than 2 and the p-value (\*\*\*) is less than 0.05, the path is significant (Byrne, 2013). The relationship between cost technology based on ABC II specifications and its contribution to achieving sustainable development goals is a strong positive significant relationship as the value of person correlation equals to 0.523, as it is shown in table 9. Accordingly, the study hypothesis is rejected and we conclude that the cost technology based on ABC II specifications has a significant effect on its contribution to achieving sustainable development goals. The overall model fit supported the measurement model according to these criteria which are reported in the above table. The effect size is 0.572. Cost technology based on ABC II specifications can explain 28% of the variation in its contribution to achieving sustainable development goals as the R<sup>2</sup> value is 0.28.

## CONCLUSION

ABC II technology represents an important point in raising awareness by raising the level of environmental protection according to product specifications, reducing pollution resulting from production processes, and increasing competitiveness in the market. The management of the researched industrial companies seeks the necessary support to apply the ABC II technique, which leads to a reduction in time and cost. Through a field study, results showed that the company's management is aware of the application of advanced technologies that leads to benefiting from them in a way that returns and achieves sustainable development.

Some of the researched companies are interested in protecting the environment and reducing pollution, residues and waste according to the specifications that produce products that affect the environment directly and indirectly. The application of modern cost management techniques contributes to improving the performance of companies through the utilization of resources in a sustainable manner achieved through the possession of advanced technology and additional investments for the purpose of continuous improvement. The most important results reached by the research were the existence of a direct statistically significant relationship between ABC II in achieving sustainable development goals. The most important

recommendations proposed for the study were necessary to pay attention to the sustainable development goals by following a cost technique based on the ABC II specifications, taking into account the framework of the proposal in the sustainable development goals in each of the cement and iron company.

These results could provide significant insights to managers to pay high attention to the sustainable development goals by following a cost technique based on the ABC II specifications, taking into account the framework of the proposal in the sustainable development goals in each of the cement and iron companies. The results are limited to the sample size of industrial firms from Sulaimani city. Future studies could provide more insights around this subject from a broad sample size of manufacturing firms.

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## Appendix (1)

Ministry of Higher Education and Scientific Research  
University of Sulaimani  
College of Administration and Economics  
Department of Accounting  
Questionnaire form



Dear Mr. .... Mrs....

The questionnaire in your generous hands is part of the requirements for the completion of a doctoral dissertation in accounting tagged “**The role of Attributes based costing technology in achieving sustainable development goals /A case study in a sample of industrial companies in Sulaimani Governorate**”. This study aims to clarify the extent to which cost technology contributes on the basis of specifications in the production of products that are not harmful to the environment through the optimal utilization of resources in order to preserve for future generations their rights to those resources.

And due to the importance of your opinion on the subject of the study, I kindly ask you to kindly answer the questions contained in this questionnaire, by putting a tick (✓) in front of the answer that suits your opinion, noting that the data that you will provide will be treated in strict confidentiality and for the purposes of completing this study only.

Thank you for your cooperation in advance. . .

### Researchers

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#### Supervisor

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**Questionnaire questions**

First: general information

1. Name of the company or factory.....
2. The field of the company: iron  cement .
3. Gender: Male  Female .
4. Age :Less than 30 years old , 31-35 years old , 36-40 years old , 41-45 years old , 46 years old and over .
5. Academic qualification: Bachelor's degree , higher diploma , master's , PhD , other  .
6. Specialization :Accounting  Management  Marketing  Engineering  Other
7. Years of Service :(less than 5) years , (5-10) years,  (11-15) years,  (16 and over) .
8. Job title :Accountant , Auditor , Manager , Engineer , Other .

**Second:** - Questions related to the variables of the study, please put a sign (✓) in the place that you see fit from your point of view.

No.	Statements	Totally agree	Agree	Neutral	Disagree	Totally disagree
<b>Part One: modern cost management techniques Attributes based costing technology</b>						
1.	The application of modern cost management techniques contributes to supporting the goals of sustainable development by reducing the negative impact of industrial companies on environmental pollution.					
2.	The application of modern cost management techniques contributes to manufacturing through improving performance and improving production methods, and this is reflected in achieving the goals of sustainable development.					
3.	The application of modern cost management techniques contributes to improving the performance of companies through the utilization of resources in a sustainable manner achieved through the possession of advanced technology and additional investments for the purpose of continuous improvement.					
4.	The application of modern cost management techniques contributes to the development of cleaner production to reduce air pollution and to reduce the incidence of disease.					
5.	The application of modern cost management techniques contributes to providing appropriate information about production processes and identifying unnecessary activities, so they are disposed of as soon as they are discovered, which helps to reduce costs and increase profits.					
6.	The application of the ABC II technique contributes to measuring the cost of achieving each specification after					

	dividing the product into a set of specifications in order to provide detailed information that is appropriate for making decisions related to the product.					
7.	The application of the ABC II technique contributes to satisfying the customer's needs by searching for the maximum levels of improvement for the benefit of the customer by comparing the improvement alternatives in the specification with the cost of those alternatives					
8.	The application of ABC II technology contributes to providing a new and appropriate type of information to support administrative decisions, as well as improving the efficiency of resource use and improving performance effectiveness.					
9.	The application of ABC II technology contributes to maximizing the value of the company, which is one of the supporting requirements for improving the competitive position of companies.					
10.	The application of the ABC II technique contributes to the provision of relevant information on the costs related to corporate policy decisions, which are spent to enhance product specifications such as promotional activities.					
<b>Part Two: sustainable development and the environmental dimension</b>						
11.	Sustainable development is concerned with a set of mechanisms to reduce the increasing deterioration in human and natural resources and to address the losses of this deterioration in economic, social and environmental development, which leads to improving the performance of companies.					
12.	Sustainable development contributes to the reduction of waste, emissions and pollution, and the optimal utilization of resources that helps reduce product costs and improve performance.					
13.	Sustainable development with cost-based specifications contributes to addressing high costs and providing the necessary information to reduce environmental pollution rates, which helps achieve the sustainability of the company's products and improve its performance.					
14.	Sustainable development contributes to the optimal use of resources to ensure future generations their right to these resources.					
15.	The dimensions of sustainable development interact with each other, meeting the needs of all internal and external beneficiaries such as (customers, employees, shareholders, society, and the company).					
16.	The first dimension: the environment Studying and analyzing environmental costs helps the company's management respond to the current environmental protection laws.					
17.	The company cares about the external environment and produces environmentally friendly products.					
18.	The company seeks to make good use of its primary resources without extravagance or waste.					
19.	The company cares about the external environment and works to reduce its negative effects on the environment.					
20.	The company develops programs and systems concerned with sustainable development.					

### Authors responses

We appreciate your comments and we think that they contribute in enhancing the level of the writing.

Please cite at least 2 papers published in our journal: International Journal of Professional Business Review - <https://openaccessojournals.com/JBReview> (journals belonging to Open Access

**Authors response:** The following references were added and properly cited in the manuscript:

Sarjiman, Y., Lazim, H. M., & Lamsali, H. (2023). A Lean Management Approach of Rice Subsidy Distribution: Some Findings from a Study in Selangor. *International Journal of Professional Business Review*, 8(1), e01257. <https://doi.org/10.26668/businessreview/2023.v8i1.1257>

Abunaila, A. S. & kadhim, S. M. (2022). Improve the Competitive Advantage Through Human Resources Management Practices in the Iraqi Banking Sector. *International Journal of Professional Business Review*, 7(6), e0891. <https://doi.org/10.26668/businessreview/2022.v7i6.e891>

Khdair, W. A. ., & D. Jabbar, A. A. . (2022). Studying the Effect of Employees' Environment Awareness as an Intermediate Variable for the Relationship between Institutional Pressures and Intentions of Human Resources for Adoption of Green Information Techniques: An Exploratory Study of Micro-Companie. *International Journal of Professional Business Review*, 7(2), e447. <https://doi.org/10.26668/businessreview/2022.v7i2.447>