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THE IMPACT OF MANAGEMENT ACCOUNTANT EFFICIENCY ON BUSINESS SUSTAINABILITY: AN EXPLORATORY STUDY

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Abstract. This research aims to determine the level of impact of management accountant efficiency on the sustainability of business operations. This was achieved through a survey approach that relied on polling a sample of management accountants, cost accountants, and others working in Iraqi industrial companies during the year 2026. The descriptive analytical method was used to conduct the research, achieve its objectives, and test hypotheses. A questionnaire was designed by the researchers to measure the research variables. Management accounting efficiency, as the independent variable, included three dimensions (1. Personal, 2. Conceptual, 3. Technical). Similarly, business sustainability, as the dependent variable, included three dimensions (1. Economic sustainability, 2. Environmental sustainability, 3. Social sustainability). 135 valid questionnaires were received and accepted for analysis to represent the research sample. Descriptive and inferential analysis was performed on the data collected according to these questionnaires to extract and discuss the results using several statistical methods and the SPSS Ver. 24 statistical software. The research concluded with a number of conclusions, the most general of which is that the efficiency of the management accountant contributes to enhancing the levels of sustainability of companies' businesses, according to the perception of the sample members. The results of this research contribute to strengthening the theoretical framework in demonstrating the importance of management accounting and its capabilities in activating the response to sustainability requirements in companies and helping to achieve them. From a practical field perspective, it contributes to shedding light on the role of the accountant in Iraqi industrial companies and motivating them to pay attention to developing their capabilities and competencies, given its importance in implementing the company's strategies and achieving its goals.

Keywords: Management accountant efficiency, business sustainability, industrial companies, Iraq

Introduction

The role of the management accountant has expanded to include strategic business partnerships. A study by ten Rouwelaar et al. [1] explored whether management accountants believe they need interpersonal skills (i.e., the ability to constructively challenge assumptions, figures, and their meanings), conceptual skills (i.e., decision-making and leadership in accordance with the business environment and the organization's strategy), and technical skills (i.e., computer, accounting, and data modeling) to be effective in this expanded role. Mennati and Sasanian [2] emphasize that management accountants perform two functions in companies: consulting and controlling. Therefore, combining these two functions can lead to conflicts. Management accountants need different skills to be effective in their roles. A study by Lambert and Pezet [3] focused on analyzing the practices through which a management accountant is developed into a productive member of society. For true knowledge.

Therefore, the presence of competence among the attributes of the management accountant has become an urgent necessity to activate his role in the company. Competence in this context is not just performing routine tasks, but rather the ability to effectively influence strategic decision-making. It is measured by the extent to which the management accountant succeeds in providing information that enables managers to achieve the company's goals. Among these goals are those related to sustainability issues and meeting compliance requirements. In a business environment where awareness of environmental and social issues is increasing, sustainability is one of the basic pillars of corporate strategy. Companies have realized that adopting sustainable practices is not only necessary to meet stakeholder expectations and comply with regulatory requirements, but it can also provide important competitive advantages that enhance their position in the markets. Therefore, the role of the management accountant has become more important in providing relevant information to management that helps it integrate sustainability issues into corporate strategies, and assist in implementing these strategies and monitoring this implementation.

Based on the above, the research gap that the research attempts to address is determining the extent to which the levels of competence of the management accountant affect the enhancement of the sustainability of the business of companies within the Iraqi industrial sector. Therefore, the goal of the research is to test this effect and verify its existence and the direction of the effect, whether negative or positive. The importance of the research stems from the need to identify the reality of the contemporary role of the management accountant in the environment of Iraqi industrial companies, and the areas of development necessary for his skills to keep pace with developments in the business environment, including business sustainability. To achieve the research objectives, it was divided into five sections. The first section included the research introduction, which was discussed previously. The second section reviewed previous studies and formulated hypotheses, which included the theoretical framing of the research variables, deducing the relationship, and formulating hypotheses. The third section covered the research method and sample. The fourth section discussed the results. The fifth and final section presented the most important conclusions reached by the research.

Literature Review and Hypothesis Development

The Concept of Management accountant efficiency

Competence in the accounting profession refers to effective management in performing accounting operations and competing and growing effectively in the

business environment. It is based on preventing fraud, errors, and mismanagement of financial resources through the implementation of internal controls that help reduce the risks of financial procedures and lessen the need for costly audits. This enables companies and professionals to achieve time and cost savings. Accounting efficiency also focuses on developing and monitoring key performance indicators (KPIs) related to accounting practices and their reports. Accounting units in companies must establish these indicators and develop appropriate foundations and procedures for their regular monitoring. This efficiency depends on ensuring the accuracy and validity of information, which forms the cornerstone of reliable account preparation. The integrity of accounting information depends on the accuracy with which transactions are recorded and verified [4].

A study by Gray and Irons [5] showed that the technologically advanced global environment and rapidly changing market demands impose increasing competency challenges on management accountants, who must meet these challenges with the necessary expertise to adapt to them and respond effectively to the evolving challenges posed by this environment. In this context, and to address such challenges, the Chartered Global Management Accountant (CGMA) competency framework emphasized that there are four skill categories that a management accountant should possess: technical skills, business skills, leadership skills, and interpersonal skills. These represent the core areas of competency for the accountant, and these areas are based on three key professional attributes: ethics, integrity, and professionalism. These are essential elements for achieving long-term professional success and enhance the accountant's ability to perform their strategic role and support the decision-making process within the company.

While the study by Tamulevičienė et al. [6] expanded on the data related to this competency, elaborating on its interpretations and the characteristics through which it is achieved, it demonstrated that a set of variables, such as globalization, the expansion of international business networks, innovations in information technology, the growing role of professional institutions, the expansion of academic activity, and the increasing prevalence of management accounting within companies, have led to fundamental changes not only in the nature of management accounting but also in the competencies required of practitioners in this profession. Furthermore, the competency of management accountants also derives its importance from the large and diverse volume of financial and non-financial information they handle, upon which management relies to make appropriate and timely decisions. With this continuous evolution in the role of the management accountant within the company, it has become essential for them to maintain their current skills, continuously develop them, and acquire new skills that enhance their professionalism and maintain their credibility. In this context, competency is defined as the ability to perform a specific task effectively, and it consists of three main components. These are skills, knowledge, and values. Skills refer to the ability to accomplish a task well, while knowledge is acquired through learning, training courses, and practical experience or practice, and it contributes to the development and improvement of skills. As for values, they determine how a professional employs their knowledge and the reasons for using it in different situations, and they reflect the professional goal that they seek to achieve through the practice of their work.

In light of the above, the researchers believe that the competence of the management accountant, in its precise sense, means possessing the necessary skills (cognitive and behavioral) to deal with and adapt to the data or challenges imposed by the contemporary business environment and the requirements of constantly changing

markets, and to work on analyzing, interpreting, and transforming them into information and insights that contribute to improving the quality of decisions, raising performance efficiency, achieving organizational goals, and enhancing the competitiveness of companies.

Determinants of Management Accountant Efficiency

A number of factors influence a management accountant's efficiency, including: [2]

a. Individual Factors: Academic qualifications, experience, training, motivation, willingness to learn, and analytical and technical abilities.
b. Organizational factors: Senior management support, organizational culture, incentive systems, data availability, clear mandates, and participation in decision-making.
c. Technological factors: Quality of information systems, digital transformation, database integration, and the use of artificial intelligence and data analytics technologies.
d. Environmental and professional factors: Economic changes, competition, legislation, professional standards, and sustainability and governance requirements.

Dimensions of Management accountant efficiency

Scientific literature has differed in defining the dimensions of management accountant efficiency, not only in terms of number but also in several aspects that can be explained within the context of each of the following studies:

1. The study by ten Rouwelaar et al. [1] identified three skills for the management accountant, considering them to be among the main foundations in building the dimensions of their competence. These skills are:
    a. Personal skills: These are embodied in an individual's behavior and interactions with others and with different situations. In this context, these skills refer to communication and human relations, readiness for change, the ability to take initiatives and decisions proactively, taking responsibility, interest in everything new, achieving success, self-confidence, creativity, innovation, and readiness to acquire new experiences. This is reflected positively in leadership, teamwork, building positive working relationships and a sustainable work environment, and dealing with ambiguous situations and conflicts more effectively. As a result, such skills are considered one of the foundations of the efficiency of the management accountant, which contributes to enhancing performance efficiency and achieving organizational goals.
    b. Conceptual skills: These are the ability to make decisions that are consistent with the business environment and company strategies. Through them and by generating business-related ideas, the management accountant can provide broader information, work as a partner alongside management, and influence its decisions. They are measured by the ability to present information clearly and understandably, strategic thinking, foresight, and the ability to support decision-making, which contributes to building the efficiency of the management accountant.
    c. Technical skills: These include specialized knowledge, the ability to analyze in the specialized field, and the use of the tools and methods of that field, such as computers, accounting, and data modeling. They refer to the set of skills used in processing information, recognizing patterns, and analyzing problems. Management accounting systems that provide more detailed information are more appropriate and useful. Therefore,

the management accountant's need is not limited to understanding this information from his accounting skills only, but his need lies in understanding it and using it correctly through other complementary skills, such as computer skills and data modeling skills. When he possesses such specialized capabilities of accounting knowledge, technological knowledge, and the ability to analyze data, then he is highly efficient and a true partner to management thanks to the quality of information provided to it, which supports its operational and strategic decisions.

2. A study by Ditkaew [7] identified seven dimensions of management accountant efficiency: professional accounting experience, knowledge of the business environment, communication skills, knowledge of information systems, creativity, IT skills, and ethics and professional conduct.

As a result, the two researchers agree with the first study, which identified the dimensions as personal, conceptual, and technical, because it includes the skills that enable the management accountant to accomplish the tasks assigned to him well. It also includes knowledge in terms of his practical experience, field practices, and even that acquired from learning and training courses. It also includes the values that determine how he employs his knowledge and uses it in different situations. As for the second study and its seven dimensions, it is noted that it is implicitly included with the three previous dimensions.

The Concept of Business Sustainability

The concept of sustainability emphasizes the need to achieve company goals while simultaneously enhancing human well-being. Therefore, companies should not only focus on maximizing shareholder value but must also consider the environmental, social, and employee impacts of their activities. This shift has led to the emergence of the concept of business sustainability, which is based on adopting green strategies aimed at creating long-term value for various stakeholders [8].

Therefore, business sustainability is the process of aligning and balancing financial, environmental, and social objectives when conducting core business activities to maximize added value. It is a fundamental element of business success, as it depends on the functions, processes, and operational activities that determine the company's impact on the environment and the health of its employees and customers. Achieving this requires managing business relationships in a way that strengthens social ties with various stakeholders.

Dimensions of Corporate Business Sustainability

A study by Subačienė et al. [9] identified the dimensions of corporate business sustainability as follows:

1. **Economic Sustainability Dimension**: Economic sustainability encompasses the non-financial drivers that support a company's ability to achieve efficiency, promote growth, and maintain long-term value through strategic direction and investment. These indicators serve as leading indicators for future financial results and are particularly important in industrial environments. Key indicators within this dimension include operational efficiency, strategic efficiency, growth opportunities, research efforts, and long-term investment.
2. **Environmental Sustainability Dimension**: This includes indicators of resource consumption, emissions, waste management, energy efficiency, and compliance with environmental legislation. This dimension reflects both the regulatory requirements and the company's operational environmental performance. Among the most prominent indicators it includes are materials,

energy, water, biodiversity and natural resources, products and services, environmental status and response, environmental compliance, transportation, environmental assessment of suppliers, environmental grievance mechanisms, greenhouse gas emissions, waste and refuse.

3. **The social sustainability dimension**: This includes indicators related to a company's responsibilities towards its employees, consumers, and society. It encompasses labor practices and decent work, human rights, social impact, and product responsibility. These indicators reflect the concept of internal corporate social sustainability.

The researchers argue that corporate sustainability can be defined according to the three dimensions of sustainable development: economic, environmental, and social.

The Relationship Between Management accountant efficiency & Business Sustainability

Business sustainability is primarily based on the management decisions made within any business, which in turn depend fundamentally on the information provided by the management accountant. Consequently, the competence of the management accountant can create the appropriate environment for achieving that sustainability.

A study by Ascani et al. [10] indicated that management accountants' participation in sustainability reporting is lower than that of non-accountants. The study also found a consensus in both academic and professional circles on the need for greater management accountant involvement to strengthen and standardize sustainability accounting and reporting within companies, promote wider dissemination and use among managers, and ultimately integrate sustainability into corporate strategies and practices. This study concluded that the effectiveness of management accountants' contribution to these reports depends on their level of competence; higher levels of competence enable them to play a more significant role in preparing the reports and promoting sustainability accounting.

Furthermore, a study by Al-Naqeeb [11] concluded that using the Global Principles of Management Accounting (GPAA) approach is highly important for achieving business sustainability in industrial companies. It emphasized that developing the performance skills of management accountants can enhance their role in achieving sustainability for these companies.

A study by Mustafa et al. [12] indicated the importance of the role played by the management accountant in promoting risk management for companies, and that this role also contributes to achieving the requirements of their sustainability. Therefore, his ability and efficiency in adopting innovative management accounting practices will enhance his role in risk management and achieving the requirements of sustainability.

While the study by Dobroszek et al. [13] showed that the transformations imposed by the contemporary business environment, along with the increasing interest in sustainability, have required the management accountant to expand the scope of his role to include supporting the creation of economic, environmental and social value in a balanced way, which enhances business sustainability and keeps pace with the requirements of this environment. As a result, many justifications have emerged that confirm the necessity of his active participation in achieving sustainability, the most prominent of which are regulatory and legislative requirements, the increasing expectations of management to direct management practices towards sustainability, in addition to the calls issued by bodies and professionals in the field of accounting. Perhaps this trend will lead to the emergence of a new role for him, which is that of the social partner, in addition to his role as a business partner. Thus, management accounting practices have increasingly moved towards value management and

strategic management. This shift and the nature of the tasks necessitate the emergence of new roles, qualities, and competencies that the management accountant must possess. Perhaps the most prominent of these are coordination skills, strategic thinking, knowledge of systems and information technologies, business knowledge, and interpretive and analytical skills. Therefore, these requirements combined paint a picture of the future of the accountant in the modern era, as a strategic partner who combines technical competence, analytical ability, social responsibility, and support for sustainability. When adopting this strategic approach, the accountant engages in activities that support the company's strategic management. This means adopting a long-term vision whose main focus is achieving profitability and maximizing value. The concept of value here is not limited to economic value only, but also includes value that takes into account the needs of various stakeholders, such as owners, employees, suppliers, customers, the environment, and society. Therefore, this characteristic is closely linked to the principles of sustainable development.

The study by Hassan and Seetharaman [14] tested the impact of management accounting systems on the sustainability performance of companies, through a comprehensive quantitative analysis of the responses of (335) specialists in the field of these systems from multiple sectors. This study concluded that the quality of management accounting systems, specifically the accurate preparation of budgets, performance measurement systems, and the integration of sustainability reports, contributes to achieving the environmental, social, and financial results of companies, and that integrating sustainability metrics into these systems significantly improves sustainability performance.

The researchers believe that the efficiency of the management accountant is positively correlated with the sustainability of business operations, given their role in utilizing tools and techniques that enhance the processes for achieving this sustainability, as well as their role in providing relevant information to management, which helps them make informed decisions in this area. Therefore, two hypotheses were formulated as follows:

(H1) First hypothesis: There is a significant correlation between the efficiency of the management accountant and the sustainability of business operations, according to the perceptions of the sample group within the research field.

(H2) Second hypothesis: The efficiency of the management accountant has a significant impact on the sustainability of business operations, according to the perceptions of the sample group within the research field.

Methods

In the context of the survey research, the researchers adopted the descriptive-analytical method to achieve the practical objectives of the research. In accordance with the adopted methodology, a survey of the research field was conducted using a questionnaire prepared by the researchers to collect primary data, which forms the basis for the results. After performing descriptive and inferential analysis on this data using the SPSS Ver. 24 statistical software, and employing a number of mathematical and statistical methods, such as frequencies, percentages, arithmetic mean, standard deviation, Pearson correlation coefficient, and least squares regression analysis, the research hypotheses will be evaluated and verified based on the discussion of the extracted results.

Research Sample

The research field is the Iraqi industrial sector, specifically Iraqi industrial companies, whether listed or unlisted, regardless of their size. This sector was chosen due to its

suitability to the research topic, which discusses the impact of non-financial performance indicators on enhancing the sustainability of company operations under the management accountant's competence. The scope of industrial companies within the research field was broadened to include a larger number of individuals. The target population consisted of management accountants and cost accountants, along with financial accountants, auditors, and heads of accounting departments, as they are familiar with the work of management and cost accountants in companies. Given that the population was open-ended, the researchers used the Green [15] formula to determine the minimum sample size. Based on the formula's results, the minimum sample size was (66) questionnaires. To achieve this minimum, (150) questionnaires were distributed manually and electronically, of which (139) were returned, and the number of valid questionnaires for analysis was not specified. (135), after excluding (4) forms due to a lack of data, which means that the recovery rate of forms valid for analysis is (90%), and their number is greater than the minimum required to represent the research sample of (66) forms. Therefore, it can be said that the available sample size has met the requirements of the calculated sample size.

Measuring the Variables

The research included two variables: the independent variable (management accountant efficiency) and the dependent variable (business sustainability). These variables were measured using a questionnaire, which comprised four sections, structured as follows:

Section (1): Dedicated to describing the defining characteristics of the sample members through six demographic pieces of information: gender, age, educational qualification, academic specialization, job title, and years of experience.

Section (2): Dedicated to measuring the independent variable of management accountant efficiency through (12) statements divided into three dimensions: personal, conceptual, and technical, with (4) statements for each dimension.

Section (3): Dedicated to measuring the dependent variable of business sustainability through (12) statements divided into three dimensions: economic sustainability, environmental sustainability, and social sustainability, with (4) statements for each dimension. Table (1) shows the details of the questionnaire structure.

Table 1. Questionnaire Structure

Sections	Dimensions	Symbol	Number	Sequence
Section1: Demographic Information	1. Gender	D1	2	
	2. Age	D2	4	
	3. Educational Qualification	D3	5	
	4. Academic Specialization	D4	5	
	5. Job Title	D5	6	
	6. Years of Experience	D6	4	
Section2: Independent	1. Personality	MM1	4	M1-M4
	2. Conceptuality	MM2	4	M5-M8
	3. Technical Skills	MM3	4	M9-M12
	Management Accountant Competency	M	12	M1-M12
Section3: Dependent	1. Economic Sustainability	YY1	4	Y1-Y4
	2. Environmental Sustainability	YY2	4	Y5-Y8
	3. Social Sustainability	YY3	4	Y9-Y12
	Business Sustainability	Y	12	Y1-Y12

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The responses of the sample were quantified using a five-point Likert scale (strongly disagree, disagree, neutral, agree, strongly agree), with values assigned proportionally towards agreement. The degree of agreement was also determined based on the mean values of the statements, dimensions, and variables.

Results and Discussion

Result

Description of the sample members

The questionnaire included six demographic pieces of information: gender, age, educational qualification, academic specialization, job title, and years of experience. These pieces reveal the personal and identifying characteristics of the sample. This profile was compiled using frequencies and percentages. Table (2) shows the sample according to the demographic information.

Table 2. Description of the sample members according to demographic information

Information	Categories	Frequencies	%	Ranking	Information	Categories	Frequencies	%	Ranking
Gender	Male	96	%71.1	1	Job Title	MA	38	%28.1	2
	Female	39	%28.9	2		FA	45	%33.3	1
Age	Under 30	9	%6.7	4		IA	19	%14.1	3
	30-39	51	%37.8	1		Head of F	14	%10.4	4
	40-49	42	%31.1	2		Head of D	9	%6.7	6
	50 & over	33	%24.4	3		Other	10	%7.4	5
Educational Qualification	Diploma	42	%31.1	2	Experience	Less 5	6	%4.4	4
	Bachelor's	74	%54.8	1		5-10	47	%34.8	1
	Master's	9	%6.7	3		11-15	44	%32.6	2
	PhD	3	%2.2	5		Over 15	38	%28.1	3
	Other	7	%5.2	4					
Academic Specialization	Accounting	69	%51.1	1					
	Business	27	%20.0	2					
	Economics	22	%16.3	3					
	Finance	14	%10.4	4					

Information	Categories	Frequencies	%	Ranking	Information	Categories	Frequencies	%	Ranking
	Other	3	%2.2	5					

Table (2) shows the following:

1. **According to gender**, the majority of the sample were male, numbering (96) out of a total sample size of (n=135), representing (71.1%), while the percentage of females was (28.9%). Despite the variation in percentages, the diversity in gender representation was present in their responses to the questionnaire.
2. **According to age**, the majority of the sample were in the (30-39) age group, representing (37.8%), followed by the (40-49) age group, representing (31.1%), then the (50 years and over) age group, representing (24.4%), and finally the (less than 30) age group, representing (6.7%). These results indicate their intellectual maturity, which enhances the objectivity of their responses to the questionnaire items.
3. **According to academic qualification**, the majority of the sample (54.8%) holds a Bachelor's degree, followed by a Diploma (31.1%), then a Master's degree (6.7%), followed by other categories (5.2%), and finally a PhD (2.2%). These results indicate a high level of academic and intellectual awareness, which enhances the suitability of their responses to the questionnaire.
4. **According to academic specialization**, the majority of the sample (51.1%) holds an Accounting degree, followed by a Business Administration degree (20%), then Economics (16.3%), followed by Finance and Banking (10.4%), and finally other categories (2.2%). These results indicate the presence of an academic specialization that supports the understanding of the research topic, which enhances the reliability of the sample's responses to the questionnaire.
5. **According to job title**, the majority of the sample are in the category of (Financial Accountant), at 33.3%, followed by (Management/Cost Accountant) at 28.1%, then (Internal Auditor) at 14.1%, followed by (Financial Manager) at 10.4%, then (Other) at 7.4%, and finally (Department Head) at 6.7%. These results indicate a diversity of job titles, with a slight concentration within the categories of Management/Cost Accountant and Financial Accountant, reflecting the focus of the research target groups. This reinforces the reliability of the sample's responses to the questionnaire items.
6. **According to Experience**, the majority of the sample are in the (5-10 years) category, at 34.8%, followed by the (11-15 years) category at 32.6%, then the (more than 15 years) category at 28.1%, and finally the (less than 5 years) category at 4.4%. These results indicate an accumulation of experience that supports cognitive understanding. Professional and skill-based, which enhances the objectivity of the sample members' answers to the questionnaire statements.

Questionnaire Testing

The researchers relied on Cronbach's alpha coefficient, the calculated value of which should not exceed the hypothetical value of (0.70), to test the reliability of the questionnaire and to verify that if the questionnaire were redistributed to the same

individuals under similar conditions, it would be possible to obtain similar results. The results showed a high value of Cronbach's alpha coefficient for all variables and dimensions, exceeding the hypothetical value of the coefficient of (0.70), which was between (0.743) and (0.933), indicating the reliability of the questionnaire, and that the data collected through it is reliable for subsequent statistical analysis procedures.

Descriptive Analysis

Table (3) presents the descriptive analysis of the research variables (management accountant efficiency, company business sustainability) across all their dimensions. This analysis was conducted using several statistical methods, including the arithmetic mean, standard deviation, and minimum and maximum values.

Table 3. Description of Research Variables and Dimensions

Variables	Mean	St. De.	Lowest V.	Highest V.	Relative	Rank
MM1	3.674	0.701	1.75	5.00	73.5%	3
MM2	3.863	0.682	1.50	5.00	77.3%	1
MM3	3.752	0.716	2.00	5.00	75.0%	2
M	3.763	0.586	2.25	5.00	75.3%	-
YY1	3.887	0.654	2.00	5.00	77.7%	2
YY2	3.961	0.663	2.00	5.00	79.2%	1
YY3	3.724	0.639	1.75	5.00	74.5%	3
Y	3.857	0.594	2.08	5.00	77.1%	-

Table (3) shows a high level of agreement regarding the availability of the managerial accountant's competency variable across its three dimensions (1. Personal, 2. Conceptual, 3. Technical), according to the perceptions of the sample of managerial accountants, cost accountants, financial accountants, and others in the industrial companies under study. This is evidenced by the high value of the arithmetic mean for this variable across its three dimensions, which exceeded the hypothetical value of (3) for all statements. Furthermore, the relative importance value was high, with the arithmetic mean for the managerial accountant's competency variable being (3.763), and a relative importance of (75.3%). At the dimension level, the (Conceptual) dimension recorded the highest level of agreement with an arithmetic mean of (3.863), followed by the (Technical) dimension with an arithmetic mean of (3.752), and finally the (Personal) dimension with an arithmetic mean of (3.674). The low value of the standard deviation indicates consistency and lack of dispersion in the responses of the sample, which reinforces the reliability of the arithmetic mean results in representing the overall performance. The sample.

The table also shows a high level of agreement regarding the availability of the corporate sustainability variable across its three dimensions (1. economic sustainability, 2. environmental sustainability, 3. social sustainability), according to the perceptions of the sample of management accountants, cost accountants, financial accountants, and others in the industrial companies under study. This is evidenced by the high value of the arithmetic mean for this variable across its three dimensions, which exceeded the hypothetical value of (3) for all statements, as well as the high value of relative importance. The arithmetic mean for the corporate sustainability variable was (3.857), with a relative importance of (77.1%). At the dimension level, the (environmental sustainability) dimension recorded the highest level of agreement with an arithmetic mean of (3.961), followed by (economic sustainability) with an arithmetic mean of (3.887), and finally (social sustainability) with an arithmetic mean of (3.724). The low

value of the standard deviation indicates consistency and lack of dispersion in the responses of the sample, which enhances the reliability of the arithmetic mean results. Representing the entire sample.

Availability Differences Test

To test the availability of the research variables (management accountant efficiency, company business sustainability) in the studied field, the researchers used a One Sample T-test to verify the significant differences between the mean values of the research variables and dimensions and the hypothetical mean. A significance level of 5% or less indicates the presence of these differences and, consequently, the availability of the variables. Conversely, a significant difference of less than 5% indicates the absence of these differences. Table (4) shows the test results.

Table 4. Availability of Research Variables and Dimensions Test

Variables	Test Value = 3		
	t	df	Sig. (2-tailed)
MM1	11.167	134	0.000
MM2	14.700	134	0.000
MM3	12.202	134	0.000
M	15.128	134	0.000
YY1	15.756	134	0.000
YY2	16.832	134	0.000
YY3	13.158	134	0.000
Y	16.772	134	0.000

It is noted from Table (4) that the value of (t) was statistically significant less than 5% for all the research variables and dimensions. This indicates that there are statistically significant differences in the averages of the research variables from the hypothetical arithmetic mean. Therefore, it can be said that the research variables are available within the field of research according to the perception of the sample members.

Relationship Testing

The section included one hypothesis as follows:

(H1): There is a significant correlation between the efficiency of the management accountant and the sustainability of company operations, according to the perceptions of the sample members within the research field.

To test this hypothesis, the researchers used Pearson's correlation coefficient to determine the significance, strength, and direction of the relationship between the variables. A significant correlation coefficient of 5% or less indicates the presence of a relationship, while a value exceeding 5% indicates the absence of a relationship. The value of the correlation coefficient indicates the strength of the relationship, ranging from zero to one (regardless of the sign). The closer it is to zero, the weaker the relationship, and the closer it is to one, the stronger the relationship. The sign of the correlation coefficient indicates the direction of the relationship, whether direct or inverse. A positive sign indicates a positive (direct) relationship between the variables, while a negative sign indicates a negative (inverse) relationship. Table (5) shows the test results.

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Table 5. The relationship between variables

Variables	Statement	YY1	YY2	YY3	Y
MM1	Pearson	0.484**	0.481**	0.532**	0.548**
	Sig.	0.000	0.000	0.000	0.000
MM2	Pearson	0.671**	0.622**	0.562**	0.679**
	Sig.	0.000	0.000	0.000	0.000
MM3	Pearson	0.717**	0.602**	0.600**	0.703**
	Sig.	0.000	0.000	0.000	0.000
M	Pearson	0.745**	0.678**	0.675**	0.768**
	Sig.	0.000	0.000	0.000	0.000

(**) Statistically significant at a significance level of 1%, (*) Statistically significant at a significance level of 5%.

Table (5) shows a significant positive (direct) correlation at a significance level of less than 5% between the variable of managerial accountant efficiency in its three dimensions (1. Personal, 2. Conceptual, 3. Technical) and the variable of business sustainability in its three dimensions (1. Economic sustainability, 2. Environmental sustainability, 3. Social sustainability). This indicates that an increase in the level of managerial accountant efficiency in its three dimensions in the companies under study will be accompanied by an increase in the level of business sustainability in its three dimensions. Therefore, the first hypothesis of the research can be accepted.

Impact Testing

The section included one hypothesis as follows:

(H2): There is a significant impact of the managerial accountant's competence on the sustainability of business operations, according to the perceptions of the sample members within the research field.

This main hypothesis branches into three sub-hypotheses as follows:

(H2.1): There is a significant impact of the personality dimension on the sustainability of business operations, according to the perceptions of the sample members within the research field.

To test this hypothesis, a simple linear regression equation (1) was developed to estimate business sustainability through the personality dimension within the variable of managerial accountant competence. This was done to determine the extent of this dimension's impact on business sustainability. Table (6) shows the test results.

Table 6. Models of the regression equation for the impact of managerial accountant competence on business sustainability

Equation	Independent	Dependent	β0	β	T (Sig.)	F (Sig.)	R^2
1	MM1	Y	2.153	0.464	7.552 (0.000)	57.032 (0.000)	0.300
2	MM2	Y	1.572	0.592	10.678 (0.000)	114.018 (0.000)	0.462
3	MM3	Y	1.671	0.583	11.386 (0.000)	129.640 (0.000)	0.494
4	M	Y	0.927	0.779	13.842 (0.000)	191.605 (0.000)	0.590

Table (6) shows the stability of the validity of the regression equation model (1) with a value of (F) of (57.032) at a significance level of less than 5%, which means that it is possible to estimate the value of the sustainability of business operations through the personality dimension within the variable of the efficiency of the managerial accountant. The value of (T) of (7.552) at a significance level of less than 5% indicates that the effect is significant, while the value of the positive regression coefficient beta (β) of (0.464) indicates that the effect is positive, meaning that the high level of availability of the personality dimension will positively affect the achievement of business sustainability according to the perception of the sample members in the industrial companies in the field of research. The value of the coefficient of determination (R2) of (0.300) indicates that the personality dimension explains the percentage of (30%) of the changes occurring in the sustainability of business operations, and that the remaining percentage of (70%) is due to other factors not apparent in the current model. Therefore, it can be said that the first sub-hypothesis is accepted.

(H2.2): There is a statistically significant effect of the conceptual dimension on the sustainability of business operations, according to the perceptions of the sample group in the research field.

To test this hypothesis, a simple linear regression equation (2) was developed to estimate the sustainability of business operations through the conceptual dimension within the variable of managerial accounting efficiency. This was done to determine the extent of this dimension's impact on business sustainability. Table (6) shows the consistency of the regression equation model (2) as indicated by the F-value of (114.018) at a significance level of less than 5%. This means that it is possible to estimate the value of business sustainability through the conceptual dimension within the managerial accounting efficiency variable. The T-value of (10.678) at a significance level of less than 5% indicates that the effect is significant. The positive regression coefficient (β) of (0.592) indicates a positive effect, meaning that a higher level of availability of the conceptual dimension will positively affect the achievement of business sustainability, according to the perception of the sample members in the industrial companies under study. The coefficient of determination (R2) of (0.462) indicates that the conceptual dimension explains (46.2%) of the changes occurring in The sustainability of business operations, and that the remaining percentage of (53.8%) is due to other factors not apparent in the current model, therefore it can be said that the second sub-hypothesis is accepted.

(H2.3): There is a statistically significant effect of the technical dimension on the sustainability of companies' operations, according to the perceptions of the sample group in the research field.

To test this hypothesis, a simple linear regression equation (3) was developed to estimate the sustainability of business operations through the technical dimension within the variable of managerial accountant efficiency. This was done to determine the extent of this dimension's impact on business sustainability. Table (6) shows the consistency of the regression equation model (3) as indicated by the F-value of (129.640) at a significance level of less than 5%. This means that it is possible to estimate the value of business sustainability through the technical dimension within the managerial accountant efficiency variable. The T-value of (11.386) at a significance level of less than 5% indicates a significant effect. The positive regression coefficient (β) of (0.583) indicates a positive effect, meaning that a higher level of availability of the technical dimension will positively affect the achievement of business sustainability, according to the perception of the sample members in the industrial companies under

study. The coefficient of determination (R2) of (0.494) indicates that the technical dimension explains (49.4%) of the changes in business sustainability. The companies, and the remaining percentage of (50.6%) is due to other factors not apparent in the current model. Therefore, it can be said that the third sub-hypothesis is accepted, and based on the results of the sub-hypotheses, it can be said that the second main hypothesis is accepted.

To confirm the acceptance of this second research hypothesis, the significance of the overall impact of the managerial accountant's efficiency variable on business sustainability was tested by developing a simple linear regression equation (4). This equation was used to estimate the value of business sustainability based on the overall managerial accountant efficiency variable, thus determining the extent of the latter's influence on business sustainability. Table (6) shows the consistency of regression equation (4) with a value of (F) of (191.605) at a significance level of less than 5%. This indicates the possibility of estimating the value of business sustainability based on the overall managerial accountant efficiency. Furthermore, the value of (T) of (13.842) at a significance level of less than 5% indicates a significant impact. The positive regression coefficient (β) of (0.779) also indicates a positive impact, meaning that a higher level of overall managerial accountant efficiency will positively affect business sustainability, according to the perceptions of the sample group in the industrial companies under study. The value of the coefficient of determination also indicates… (R2) The value of (0.590) indicates that the overall efficiency of the management accountant explains (59%) of the changes occurring in the sustainability of companies' business, and that the remaining percentage of (41%) is due to other factors not apparent in the current model. These results confirm the acceptance of the second hypothesis of the research as well.

Discussion

The results of the descriptive analysis confirmed the high level of agreement regarding the availability of the research variables according to the perception of the sample members in the industrial companies in the field of research. The results confirmed the existence of noticeable trends regarding interest in sustainability issues, with confirmation of the role of the management accountant and his competence within these companies. These results are consistent with the study by Ditkaew [7], which indicated in a survey study in Thailand the importance of the competence of the management accountant and its availability in companies and its role in promoting sales growth. The study by Karami et al. [16] also concluded that the contemporary business environment has become more interested in achieving the sustainability of companies' business, and these results are consistent with the results of the descriptive analysis of the current research despite the difference in the environments covered by each study.

The current research results also showed a significant positive correlation and impact of the management accountant's efficiency on corporate sustainability. These results are consistent with the study by Dobroszek et al. [13], which concluded that the role of the management accountant has expanded and that he is an important element in achieving corporate sustainability. The expansion of the manager's skills and performance enhances the company's sustainability potential. The study by Ascani et al. [10] emphasized the management accountant's participation in preparing sustainability reports, and that this participation is constantly evolving as his role expands and his performance improves.

Conclusion

After reviewing the relevant scientific literature and conducting analytical field research to verify the relationships between its variables, the researchers arrived at a set of theoretical and practical conclusions. These conclusions represent a summary of the inferences drawn from the findings. A high degree of agreement was observed regarding the availability of the management accountant's competence variable across its three dimensions, as perceived by the sample. The results showed that the conceptual dimension recorded the highest level of agreement, followed by the technical dimension, and finally the personal dimension. These results indicate the broad scope of the management accountant's role and the increasing interest in developing their competence, despite variations in the characteristics of this competence. Similarly, a high degree of agreement was found regarding the availability of the corporate sustainability variable across its three dimensions, as perceived by the sample. The environmental sustainability dimension recorded the highest level of agreement, followed by the economic sustainability dimension, and finally the social sustainability dimension. These results may be attributed to pressures driving companies to achieve greater environmental compliance compared to other sustainability dimensions. Furthermore, a significant positive correlation and influence of management accountant efficiency on corporate sustainability was observed, with the technical dimension being the most influential, followed by the conceptual dimension, and finally the personal dimension. This indicates... A competent management accountant has a broader role in participating in assessing sustainability performance and providing information that enables management to make sound decisions to achieve it.

The current research is criticized for being limited to one sector, namely the industrial sector, and for the small sample size of 135 individuals, and for the lack of governing or interactive variables that accurately reflect the relationship between the research variables. Therefore, future research can address the research gaps that were not covered in this research by taking a larger sample and covering a number of sectors, with the possibility of using corporate governance and its characteristics as interactive variables that modify the relationship between the variables, as well as the possibility of testing these relationships using a quantitative method other than the survey method used in the current research.

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