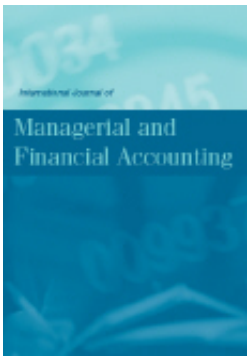

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Sustainable accounting information and its role in achieving the requirements of sustainable development and reducing costs

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Sustainable accounting information and its role in achieving the requirements of sustainable development and reducing costs

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Abstract: This research aims to clarify the theoretical framework of sustainable development and examine the role of accounting information in fulfilling its requirements, particularly in reducing costs. The study analysed the opinions of employees in accounting and auditing across several economic units, using SPSS V.21 with descriptive statistical tools such as frequencies, arithmetic mean, and standard deviation. The findings indicate that integrating accounting information systems with sustainable development helps reduce costs and environmental impacts of products by improving operational efficiency and achieving balance among economic, environmental, and social goals. Key outcomes include enhancing resource efficiency, lowering emissions, improving waste management, encouraging innovation in product design, and stimulating sustainable investments. The study also highlights the practical role of sustainable accounting information in supporting development plans by providing accurate data on resources, capacities, and costs, thereby contributing to reducing product costs. Overall, the research demonstrates how accounting information supports sustainable strategies and strengthens the economic, environmental, and social dimensions of development.

Keywords: sustainable accounting information; sustainable development.

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1 Research methodology

1.1 Introduction

Accounting systems in economic units provide information, which is to process the data set through the processes of registration, tabulation, summarisation and delivery by providing lists that help the beneficiary parties to make and make decisions. Accounting can be seen as an information system (a set of systems, methods and procedures governed by sound principles and rules in order to run data on financial operations that occur in the economic unit in order to produce financial information, where this system faces critical challenges through the diversity and diversity of users of accounting information and so The multiple objectives that should be served by the information provided, and the

accounting process at the present time is based on the measurement of objectives that have implications for the economics of economic units.

- *Search problem:* The search problem is summarised by the following questions:
  1 What role does accounting information play in the drive towards sustainable development?
  2 Is sustainable development linked to public and private costs during the product life cycle?
  3 What is the need for sustainable accounting information for the purpose of achieving the requirements of sustainable development?
- *The importance of research:* The importance of research can be shown through:
  1 The importance and sustainability of accounting information for the purpose of enhancing the role of sustainable development.
  2 The importance of sustainable information for the purpose of reducing the costs of operations or products.
- *Research hypothesis:* Providing sustainable accounting information that contributes to determining the measurement of economic unit contributions to achieving sustainable development and reducing the costs of products and processes.

2 Theoretical framework for sustainable development

2.1 Firstly – evolution of the concept of sustainable development

- The term sustainability is viewed from a dynamic perspective reflecting the ever-changing needs (Hadda, 2012).
- The World Commission on Environment and Sustainable Development (1978) introduced a concept of sustainable development (development that addresses the needs of the current generation without compromising the ability of generations to meet their needs) (http://www.precteam.gem20.net/SuB).
- The concept of sustainable development was first introduced in 1980 after the International Union for Conservation of Nature (UNEP and WWF) issued a document called the Global Strategy for the Conservation of Nature, which included the beginnings of the idea of sustainable development, which means the conservation of operations. In 1987, the Report of the World Commission on Environment and Development (the future of the participant) was issued in which the economic, social and environmental needs were merged into one common definition. The report stated that the first objective is to maximise production. N be by maintaining production capacity in the long term.
- The Rio de Janeiro Conference in 1992 recognised the fourth principle on which sustainable development is based: environmental protection. Developmental for present and future generations (Muhanna, 2000).
- In 2002, the Johannesburg Declaration was issued, where it stressed the establishment of a global solidarity humanitarian society to face all global challenges

such as (eradicating poverty, changing unsustainable patterns of production and consumption, protecting and managing natural resources, reducing the gap between rich and poor, preventing The deterioration of the global environment, etc., as well as the challenges posed by globalisation to sustainable development, including the integration of fast markets, the movement of capital and increases in investment flows around the world in order to ensure the future of future generations (United Nations, 2002).

2.2 Secondly – definition of sustainable development

Sustainable development (development that meets the needs of the present without compromising the ability of future generations to meet their needs) (Hadda, 2012). Sustainable development (means not to over-invest or destroy natural resources, that is, replenish resources and recycling in a way that ensures a clean and viable environment for present and future generations) .Sustainable development offers opportunities for economic growth and how to distribute economic benefits to society as a whole. To illustrate the multiple problems facing mankind and to assess risk, spread awareness and guide action at the local, regional and international level (Haddad, 2006). Sustainable development is defined as the process of developing land, cities, communities and businesses, provided that the needs of the present are met without prejudice to the ability of future generations to meet their needs (Ramo and Al-Kawaz, 2018). Through the above definitions it is noted that for the purpose of achieving sustainable development it is necessary to provide information packages on all economic, social and environmental aspects which are the main nerve in achieving the requirements of sustainable development.

2.3 Third – the pillars of sustainable development in economic units

Achieving sustainable development in economic units is based on a set of principles related to the dimensions of sustainable development (economic, social and environmental). Ten basic principles for sustainable development have been issued (Al-Shibli, 2014):

1 Identify priorities carefully by identifying the seriousness of environmental problems and scarcity of financial resources, and identify measures to address them effectively.

2 Utilise funds and emphasise cost-effectiveness through achieving many achievements with limited resources.

3 Seize opportunities for profit for all parties, as some gains in the environment will include costs and trade-offs between available alternatives.

4 Use market instruments for the purpose of reducing tax damage.

5 Economy in the use of administrative and organisational resources.

6 Expanding the areas of investment and working with the private sector.

7 Citizen participation (popular participation).

8 Governments should rely on the link between (government, private sector, civil society organisations) to address environmental issues.

9 Improve administrative performance (efficiency, effectiveness) through the adoption of a lower cost system.

10 Integrating the environment in the policies of the countries and the strategy of economic units and new investments to be established in the future.

2.4 Fourth: dimensions of sustainable development

The World Summit on Sustainable Development (WSSD) in Johannesburg (2002) defined the main dimensions of sustainable development (the environmental dimension, the economic dimension, the social dimension). The Indian economist (Amartiason) added that the economic and global units and the Economic and Social Council should adopt a new indicator. For development depends on human rights social, health and environmental in addition to the economic dimension and dimensions of sustainable development (Abdel-Rahim and Kamal, 2015):

1 *Environmental dimension:* This dimension is taken to conserve resources (financial, biological, ecological) and upgrade them through environmental considerations.

2 *Economic dimension:* Maximising the welfare of society through achieving economic efficiency using the best available resources.

3 *Social dimension:* This dimension shows the relationship between human nature and the achievement of well-being improved through social justice.

2.5 Five – sustainable development criteria

The criteria underpinning the dimensions of sustainable development can be illustrated (Fateh, 2016):

a Environmental factors:
   1 energy
   2 water
   3 greenhouse gas
   4 emission
   5 recycling
   6 packaging.

b Social factors:
   1 investment complex
   2 working conditions
   3 human rights and fair trade
   4 public policy
   5 diversity
   6 safety

7 anti-corruption.

c Economic factors:
   1 accountability
   2 governance
   3 stakeholders (value)
   4 economic performance
   5 financial performance.

2.6 Sixth – importance of sustainable development of economic units

Sustainable development is important for the work of economic units through changes in policies, processes and products (Naseer Ali, 2009).

1 *Achieving competitive advantage:* Sustainable development works to reduce the costs of operations and products and increase returns, through the development of products by providing solutions to the existing problems where this leads to increase market share and the production of the same level of production with less inputs with other factors will remain the same It has a positive environmental and economic impact and hence its impact on the cost structure of operations and products in the economic unit.

2 *Risk reduction:* The economic units that prepare and publish sustainability reports are the units that work to reduce the risks related to compliance with the laws and avoid threats related to environmental pollution, which adversely affect the financial performance.

3 *Maintaining the loyalty of stakeholders:* The economic unit does not respond to the environmental, social and economic impacts during the production stages expose the economic unit to real risks that may threaten the loyalty of stakeholders .The units that respond to these influences can make their own decision and choice without the pressure of other parties or criteria that may be set by others.

4 *Activate governance:* The units that work to publish and prepare sustainability reports can raise the level of disclosure and transparency of performance (financial, environmental, and social contributes to activate the role of governance.

5 *Control economic policies:* Sustainable development is one of the key elements in the control of economic policies reached by globalisation through its dealings with the environment and natural resources, which seemed to threaten the sense of security and stability.

6 *Economy is dependent on the ecosystem:* The ecosystem should be considered in a higher degree and the economy is its system. We must work to restructure the economy at all levels and for all sectors and all circles of production, distribution and consumption as well as the rejection of market mechanisms in determining prices and starting from real prices Recyclable materials and distribution should not overburden ecosystems and consumption should not remain as a process of destruction of products (Haddad, 2006).

2.7 Seventh – characteristics of sustainable development:

The main characteristics of sustainable development can be identified (Gross Kurth and Rotmans, 2005):

a phenomenon occurring over a period of time not less than two generations

b consists of at least three areas (economic, environmental and social)

c represent interrelated relations between their fields, which reflect the welfare of society

d reflect the determination of current and future humanitarian needs and how to meet them.

e their application can be interpreted according to different perspectives because the needs assessment is not objective.

3 Role of accounting information in achieving sustainable development

3.1 Firstly – the role of sustainable accounting information in achieving the requirements of sustainable development

- The role of accounting information systems in achieving sustainable development requirements can be determined by (Ramo and Seij, 2013):
  1 Compile information on expenditures (social, environmental) and link them to the financial benefits of economic units.
  2 Offer external costs (environmental, social) and areas to be reduced over time when committing to sustainability in the economic unit.
  3 Statement of social and environmental risks associated with the current financial performance to assist in risk management.
  4 Identify relationships with stakeholders that provide risks and benefits for sustainability.
  5 Encourage participation among stakeholders in economic units.
  6 Achieving the integration of sustainable business systems and determining the entrance of systems for the purpose of achieving customer satisfaction and developing natural capital.
  7 Prepare sustainable development reports to express non-financial performance related to the environment, economy and society.
  8 Sustainable development requires a strong accounting profession for the purpose of providing accounting information that meets the needs or requirements of sustainable development.
  9 In the presence of an accounting profession with written assets recognised with the availability of a qualified accountant and committed to the practice of accounting profession assets and ethics, which works to provide the economic unit with the information necessary for decision-making.

10 Accounting systems are a tool to measure and communicate information for the purpose of making and rationalising decisions and this embodies the role of accounting information in the success of sustainable development plans.

11 Accounting generally seeks to use information and communication technologies to support the optimal use of resources and defined for sustainable development.

A private social contract serves as a framework for the dissemination of information and for the consultation of stakeholders. Actors representing stakeholders will then exercise a monitoring role in order to avoid false communications and to ensure that societal strategies are not a simple clearance of managers. In these practices, stakeholders influence the strategic decisions of leaders, and they must be held accountable to them for how they have taken their expectations into account.

- The role of accounting information for the purpose of achieving sustainable development requirements can be illustrated (Ramo and Seij, 2013):
  - a Preparation of economic feasibility studies for projects through the provision of accounting information for the purpose of directing financial resources towards projects properly.
  - b Provide information to prepare the ground for the purpose of trade-off between projects and according to the needs of the community.
  - c Providing information for the purpose of determining the cost of products in accordance with modern costing methods and pricing products in accordance with modern pricing methods, thus positively reflecting on sustainable development plans.
  - d Provide information for the purpose of assessing the performance of economic units in real term.
  - e Evaluation and disclosure of financial and non-financial information related to the environment and in the field of management accounting.
  - f Estimation of external environmental indicators and their costs. G - Accounting for storage and flows associated with natural resources financial values in the field of accounting for natural resources.
  - h Study of financial and physical information related to the environment in the field of accounting for sustainable well-being.
  - j Integrate sustainable development at the planning, management and accounting levels.
  - k Achieving efficient use of economic instruments and market incentives through the use of accounting information (Abdul Razzaq and Sata, 2013).

3.2 Secondly – sustainable accounting information and its role in reducing product costs

The process of planning and setting development goals is not achieved without the preparation of a sound process with implementation and follow-up. In a manner that works to secure the plans and identify the procedures and achieve them with the development of alternatives to meet the challenges during the implementation process that the establishment of failed projects means an increase in the waste of resources

available and there are many economic decisions regarding development Future decisions cannot be rationalised without information on capital expenditure, energy utilisation level, costs, revenues, profits, cash flows and dividends. Accounting died and advanced for the purpose (Kamala, 2009). This type of agency cost consists of any behaviour resulting from the agency conflict between shareholders and managers and consequently whose managers meet their own interests at the expense of others. In accordance with the traditional view of the agency, managerial discretion can be seen as an opportunity for managers who can satisfy their own interests during the decision-making process.

1 Provide accounting information tracking the future expectations of profits contribute to assess the performance of the economic unit for the purpose of forecasting and risk assessment.

2 Provide accounting information about the amount and time of future cash flows.

3 Statement of the capacity and efficiency of the economic unit in the planning process for the purpose of making a comparison between the actual and planned for the purpose of measuring deviations and determine the causes.

4 Achieving the predictive capacity of future performance by comparing actual and planned performance.

5 The possibility of using modern tools of administrative accounting for the purpose of making decisions.

6 The possibility of measuring the cost of energy required for the purpose of carrying out activities and disclosure of the elements of fixed and variable costs.

7 Provide accounting information that adopts the future financial position and assist in determining the proposed financing structure for the purpose of providing adequate financial guarantees.

In accordance with the stakeholders' point of view, a company not only fulfils its traditional role of meeting the expectations of shareholders but also of meeting the multiple expectations of its various stakeholder groups. This respective theory postulates that the management of a company is expected to fulfil its responsibility to its stakeholders by undertaking activities deemed important by the stakeholders.

- *Thered:* The effects of sustainable accounting information on long-term strategic planning include a range of important benefits that enhance companies' sustainability and their ability to achieve sustainable success. The following are the most prominent of these effects, with reference to the source:
    1 *Promoting environmental and social sustainability:* Sustainable accounting provides accurate information about the use of resources and the impact of operations on the environment and society, which helps companies improve their environmental and social sustainability. This promotes more efficient and sustainable practices in business operations.
    2 *Better risk management:* Sustainable information contributes to identifying environmental and social risks and helps include them in strategic planning processes, which contributes to reducing threats that may affect financial performance in the long term.

3 *Improving operational efficiency:* Sustainable accounting information helps companies improve energy and resource efficiency and reduce waste, leading to long-term economic savings.
4 *Strengthening the relationship with stakeholders:* Companies that commit to transparency and disclosure of their sustainable accounting information increase trust between them and investors, customers and society, which enhances their reputation in the long term and attracts sustainable investment.
5 *Compliance with international legislation and standards:* Strategic planning based on sustainable accounting helps companies comply with laws and legislation related to sustainability, which reduces legal risks and increases the chances of ongoing compliance.
6 *Stimulating innovation:* Sustainable accounting information encourages companies to develop innovative products and processes that respond to environmental and social changes, which enhances their competitiveness in the long term.

4 Practical side

The researcher used the descriptive and analytical method to study the research variables (information, sustainable accounting, independent variable), sustainable development and reducing the cost of products (dependent variables). Preparation of a questionnaire for the purpose of identifying the role of sustainable accounting information in achieving sustainable development requirements and its impact on the reduction of products in a range of economic units.

4.1 The research sample

The research community consists of the opinions of a group of employees in the field of accounting and auditors by collecting the views of (50) workers in this area and the questionnaire consisted of:

- job profile included (job title, certificate, years of experience)
- questionnaire question

Statistical tools were used:

- Percentages, iterations and arithmetic mean.

Where (50) questionnaires were distributed, which represents the size of the research sample has been (50) questionnaire, which is 100%.

Table 1 represents the characteristics of the research intensity, according to iterations and percentages for each type of characteristics where it is noted that accountants account for the highest percentage (80%) and for the certificate represents the master's degree (30%), which is the highest percentage for years of experience has represented years of experience (11–15 years) the highest percentage (26%) and this indicates that the majority of the answers came from people with high experience, indicating the accuracy of the answer to the questionnaire questions.

- Questionnaire and search variables: For the purpose of proving the research hypothesis including the search variables, the questionnaire included (20 questions) was developed for the purpose of searching in the research variables.

Table 1 Characteristics of the research sample

Career title	*Repetition*	*The ratio*	*Certificate*	*Repetition*	*The ratio*	*Years of experience*	*Repetition*	*The ratio*
Accountant	40	80%	Ph.D.	10	20%	1–5	10	20%
Checker	6	12%	M.A.	15	30%	6–10	12	24%
Bookkeeper	2	4%	Higher diploma	5	10%	11–15	13	20%
Audit officer	2	4%	BA	13	26%	20–16	10	26%
			Diploma	5	10%	21–25	3	6%
			Other	2	4%	25-and above	2	4%
Total	*50*	*100%*	*Total*	*50*	*100%*	*Total*	*50*	100%

Table 2 Analysis of the questionnaire

No.	*Questions*	*Agreed*	*Neutral*	*I do not agree*
X1	The accounting information system works to provide appropriate accounting information for sustainable development plans.	96%	2%	2%
X2	Accounting information contributes to evaluating the feasibility of continuing the economic unit.	100%	0%	0%
X3	Accounting information enhances the role of sustainable development.	90%	10%	0%
X4	Enhancing the awareness of users of accounting information of the importance of using it in the process of sustainable development	86%	10%	4%
X5	The existence of accounting treatments for the dimensions of sustainable development.	80%	8%	12%
X6	The existence of an accounting standard for sustainable accounting information to enhance sustainable development processes in the economic unit.	70%	10%	20%
X7	The existence of a sustainable accounting information system to promote sustainable development processes in the economic unit.	80%	12%	8%
X8	The economic unit develops accounting information systems in line with developments in sustainable development plans	80%	4%	2%
X9	Sustainable development is one of the important goals that the economic unit seeks to achieve by providing accounting information.	80%	4%	0%
X10	Improving the quality of accounting information leads to achieving sustainable development in the economic unit.	90%	2%	0%

Note: The first axis: sustainable accounting information and achieving the requirements of sustainable development

Table 3 Research sample analysis of the relationship between sustainable accounting information and cost reduction

No.	*Questions*	*Agreed*	*Neutral*	*I do not agree*
Y1	Accounting information controls and enhances planning for sustainable development in setting and following up changes.	99%	1%	0%
Y2	Accounting information contributes to making and taking rational decisions and achieving social and economic well-being by reducing products.	100%	0%	0%
Y3	Accounting systems provide information that contributes to drawing up economic policies and reducing product costs.	94%	6%	0%
Y4	The possibility of using cost accounting tools to provide information that contributes to economic planning and determining the costs of sustainable activities	99%	1%	0%
Y5	The available accounting information about sustainable activities means the choices of information users when making and making decisions about these activities.	90%	6%	4%
Y6	The identification of sustainable activities contributes to improving the quality of accounting information, which is reflected in the financial reports of the economic unit.	80%	4%	16%
Y7	The environmental, social and economic impacts are determined and measured when making decisions in the economic unit.	60%	20%	20%
Y8	Accounting information contains the predictive ability to contribute to the preparation of sustainable development plans.	80%	16%	4%
Y9	The application of sustainable development in the economic unit works to preserve the natural potential of the unit.	92%	4%	4%
Y10	The commitment of the economic unit to improve the quality of accounting information leads to the generation of reports on sustainable development of high quality.	90%	2%	8%

Note: The second axis: sustainable accounting information and cost reduction

It was noted from Table 4 in determining the arithmetic mean for the first and second axis that the arithmetic mean is acceptable within the degree of 2. It also fully agreed with regard to the standard deviation of the questionnaire questions.

And through Table 5, which shows the (T) test for the questionnaire, and Table 4 for the arithmetic mean, standard deviation, questions for the two axes (x, y), it was found that the tests for the two axes were within (p-value) a ratio of (0.05) significant except for (x6) was (0.146) and (y7) was (0.543).

By analysing the correlation and the correlation value (p-value) for the first axis at a significant level (0.05), and through the analysis of the table (6), the following can be indicated.

1 The correlation between (x1, x5) is a weak direct measure of (0.289), but it is a significant correlation, as the (p-value) was (0.041), which is less than a level of significance (0.05). In the sense that the accounting information system works to provide accounting information for a plan Sustainable development There are

accounting opposites to the dimensions of sustainable development, but in a weak direct manner.

2 The correlation between (x10, x6, x4, x3) is a weak direct correlation that reached (0.383,0.620,0.373) in a row, but it is a significant correlation, as the (p.value) value, respectively, was (0.06, 0.00, 0.08), which is the lowest significant level (0.05), meaning. Accounting information works to enhance the role of sustainable development in the presence of accounting opposites for the dimensions of sustainable development, which works to improve the quality of accounting information, which in turn leads to achieving sustainable development in the economic unit.

3 The correlation between (x5, x6, x8, x4) is direct and weak, with a value, respectively, of (0.3690.351, 0.279,) but it is a significant correlation, as the value of (p-value), respectively, was (0.12, 0.50, 0.08), which is less than the level of Significance (0.05), meaning accounting information has a role in developing technological innovations by providing information that contributes to achieving the requirements of development dimensions and providing information about technological activities in the cost of production elements from the places that rely on them. Therefore, information must be available only for the continuity of available information.

Table 4 Statistical analysis to find the mean and standard deviation

N		*Mean*	*Std. deviation*
x1	50	2.9400	.31364
x2	50	3.0000	.00000[a]
x3	50	2.9000	.30305
x4	50	2.8600	.40457
x5	50	2.6800	.68333
x6	50	2.5000	.81441
x7	50	2.7200	.60744
x8	50	2.6400	.74942
x9	50	2.6400	.74942
x10	50	2.8200	.56025
y1	50	2.9800	.14142
y2	50	3.0000	.00000[a]
y3	50	2.9400	.23990
y4	50	2.9800	.14142
y5	50	2.8000	.49487
y6	50	2.6400	.74942
y7	50	2.4000	.80812
y8	50	2.8400	.46773
y9	50	2.8800	.43519
y10	50	2.8200	.56025

Note: [a]t cannot be computed because the standard deviation is 0.

Table 5 Test results for study variables

No.	*One –sample test test value = 2.33*				*Confidence interval of the difference*	
	t	*df*	*Sig.(2-tailed)*	*Mean difference*	*Lower*	*Upper*
X1	13.753	49	0.000	0.61000	0.5209	0.6991
X3	13.300	49	0.000	0.57000	0.4839	0.6561
X4	9.263	49	0.000	0.53000	0.4150	0.6450
X5	3.622	49	0.001	0.35000	0.1558	0.5442
X6	1.476	49	0.146	0.17000	–0.0615	0.4015
X7	4.540	49	0.000	0.39000	0.2174	0.5626
X8	2.925	49	0.005	0.31000	0.0970	0.5230
X9	2.925	49	0.005	0.31000	0.0970	0.5230
X10	6.184	49	0.000	0.49000	0.3308	0.6492
Y1	32.500	49	0.000	0.65000	0.6098	0.6902
Y3	17.980	49	0.000	0.61000	0.5418	0.6782
Y4	32.500	49	0.000	0.65000	0.6098	0.6902
Y5	6.710	49	0.000	0.47000	0.3294	0.6106
Y6	2.925	49	0.005	0.31000	0.0970	0.5230
Y7	.6120	49	0.543	0.07000	–0.1597	0.2997
Y8	7.710	49	0.000	0.51000	0.3771	0.6429
Y9	8.937	49	0.000	0.55000	0.4263	0.6737
Y10	6.184	49	0.000	0.49000	0.3308	0.6492

4 The correlation between (x1, x9, x5) is considered a weak direct correlation that reached, respectively, (0.249, 0.408), but it is a significant correlation, as the (p.value) value, respectively, reached (0.04, 0.03), which is the lowest significant level (0.05), meaning. The creation of accounting treatments is linked to the accounting information system, which provides appropriate accounting information for sustainable development plans, and sustainable development is one of the goals that the economic unit seeks to achieve by providing this information

5 The correlation between (x3, x10, x6) is direct and weak, with a value of (0.620, 0.291), respectively, but it is a significant correlation, as the value of (p-value) respectively (0.000, 0.041), which is less than the level of significance (0.05), meaning The creation of an accounting standard for accounting information works to enhance the processes of sustainable development through the existence of an accounting information system that works to provide appropriate accounting information for sustainable development plans that work to enhance the role of sustainable development.

Table 6 Statistical analysis to show the relationship between sustainable accounting information and sustainable development

		x1	*x2*	*x3*	*x4*	*x5*	*x6*	*x7*	*x8*	*x9*	*x10*
x1	Pearson correlation	1	.a	–.064	–.068	.289*	.200	–.090	–.094	.254	–.063
	Sig. (two-tailed)		.	.657	.641	.041	.164	.534	.517	.076	.665
	N	50	50	50	50	50	50	50	50	50	50
x2	Pearson correlation	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a
	Sig. (two-tailed)	.		.	.	.	.	.	.	.	.
	N	50	50	50	50	50	50	50	50	50	50
x3	Pearson correlation	–.064	.a	1	.383**	.138	.620**	.067	.108	.018	.373**
	Sig. (two-tailed)	.657	.		.006	.339	.000	.646	.456	.901	.008
	N	50	50	50	50	50	50	50	50	50	50
x4	Pearson correlation	–.068	.a	.383**	1	.351*	.279*	.086	.369**	.234	.067
	Sig. (two-tailed)	.641	.	.006		.012	.050	.551	.008	.102	.646
	N	50	50	50	50	50	50	50	50	50	50
x5	Pearson correlation	.289*	.a	.138	.351*	1	.257	–.073	.169	.408**	–.154
	Sig. (two-tailed)	.041	.	.339	.012		.072	.616	.241	.003	.287
	N	50	50	50	50	50	50	50	50	50	50

Notes: *Correlation is significant at the 0.05 level (two-tailed).
**Correlation is significant at the 0.01 level (two-tailed).
[a]Cannot be computed because at least one of the variables is constant.

Table 6 Statistical analysis to show the relationship between sustainable accounting information and sustainable development (continued)

		x1	*x2*	*x3*	*x4*	*x5*	*x6*	*x7*	*x8*	*x9*	*x10*
x6	Pearson correlation	.200	.a	.620**	.279*	.257	1	.041	.100	–.033	.291*
	Sig. (two-tailed)	.164	.	.000	.050	.072		.776	.488	.818	.041
	N	50	50	50	50	50	50	50	50	50	50
x7	Pearson correlation	–.090	.a	.067	.086	–.073	.041	1	–.136	–.047	.209
	Sig. (two-tailed)	.534	.	.646	.551	.616	.776		.345	.748	.146
	N	50	50	50	50	50	50	50	50	50	50
x8	Pearson correlation	–.094	.a	.108	.369**	.169	.100	–.136	1	.346*	.037
	Sig. (two-tailed)	.517	.	.456	.008	.241	.488	.345		.014	.799
	N	50	50	50	50	50	50	50	50	50	50
x9	Pearson correlation	.254	.a	.018	.234	.408**	–.033	–.047	.346*	1	.037
	Sig. (two-tailed)	.076	.	.901	.102	.003	.818	.748	.014		.799
	N	50	50	50	50	50	50	50	50	50	50
x10	Pearson correlation	–.063	.a	.373**	.067	–.154	.291*	.209	.037	.037	1
	Sig. (two-tailed)	.665	.	.008	.646	.287	.041	.146	.799	.799	
	N	50	50	50	50	50	50	50	50	50	50

Notes: *Correlation is significant at the 0.05 level (two-tailed).
**Correlation is significant at the 0.01 level (two-tailed).
[a]Cannot be computed because at least one of the variables is constant.

6 The correlation between (x4, x9, x8) is direct and weak, reaching respectively (0.389, 0.346), but it is a significant correlation, as the value of (p-value), respectively, is (0.08, 0.014), which is less than the level of significance (0.05), meaning The economic unit works to develop accounting information systems in line with sustainable development plans, which works to enhance the awareness of users of accounting information of the importance of this information in the process of sustainable development, which sustainable development is one of the important goals of the economic unit to achieve by providing accounting information.

The link between accounting information systems and sustainable development can contribute significantly to reducing costs and reducing the environmental impact of products by enhancing the efficiency of operations and achieving a balance between economic, environmental and social objectives. Here are some important implications of this connection:

1 *Improving the efficiency of resource use:* Sustainable accounting information systems provide accurate data on the use of resources and raw materials in the production process. By analysing this data, companies can improve the efficiency of resource use, leading to less waste and lower production costs.

2 *Reducing environmental emissions:* The use of sustainable accounting information systems helps monitor emissions levels and energy consumption in production processes. This connection contributes to reducing the environmental impact of products by improving industrial processes and reducing harmful emissions.

3 *Better planning for waste management:* Accounting information systems provide data on waste resulting from production processes. By leveraging this data, companies can improve waste management methods, leading to reduced and recycled amounts of waste, and thus reducing disposal costs.

4 *Promoting innovation in product design:* Accounting information systems provide data that enables companies to fully analyse the product life cycle. This analysis can lead to the design of more sustainable products using less expensive materials that are less harmful to the environment, which contributes to reducing the cost of production in the long term.

5 *Achieving economic and social efficiency:* Sustainable development seeks to achieve a balance between economic, social and environmental aspects. Linkage with accounting information systems ensures the collection and analysis of data necessary to make strategic decisions that contribute to improving this balance, leading to reducing production costs and maximising social and environmental benefits.

6 *Stimulating sustainable investments:* Companies that integrate accounting information systems with sustainable development goals demonstrate transparency in their operations, which increases their attractiveness to investors who prefer companies that focus on sustainability. These investments may improve technology and reduce production costs in the long term.

Table 7 Statement of the relationship between sustainable accounting information variables and cost reduction

		y1	*y2*	*y3*	*y4*	*y5*	*y6*	*y7*	*y8*	*y9*	*y10*
y1	Pearson correlation	1	.a	–.036	–.020	–.058	–.069	–.107	–.049	–.040	.211
	Sig. (two-tailed)		.	.803	.888	.687	.632	.459	.734	.784	.141
	N	50	50	50	50	50	50	50	50	50	50
y2	Pearson correlation	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a
	Sig. (two-tailed)	.		.	.	.	.	.	.	.	.
	N	50	50	50	50	50	50	50	50	50	50
y3	Pearson correlation	–.036	.a	1	–.036	–.103	–.123	–.084	–.087	–.070	–.082
	Sig. (two-tailed)	.803	.		.803	.476	.396	.561	.547	.627	.571
	N	50	50	50	50	50	50	50	50	50	50
y4	Pearson correlation	–.020	.a	–.036	1	.233	–.069	.250	.259	.623**	.469**
	Sig. (two-tailed)	.888	.	.803		.103	.632	.080	.069	.000	.001
	N	50	50	50	50	50	50	50	50	50	50
y5	Pearson correlation	–.058	.a	–.103	.233	1	.242	.102	.123	.265	.015
	Sig. (two-tailed)	.687	.	.476	.103		.090	.481	.393	.063	.919
	N	50	50	50	50	50	50	50	50	50	50

Notes: **Correlation is significant at the 0.01 level (two-tailed).
*Correlation is significant at the 0.05 level (two-tailed).
[a]Cannot be computed because at least one of the variables is constant

Table 7 Statement of the relationship between sustainable accounting information variables and cost reduction (continued)

		y1	*y2*	*y3*	*y4*	*y5*	*y6*	*y7*	*y8*	*y9*	*y10*
y6	Pearson correlation	–.069	.a	–.123	–.069	.242	1	.377**	–.109	–.073	–.060
	Sig. (two-tailed)	.632	.	.396	.632	.090		.007	.449	.616	.678
	N	50	50	50	50	50	50	50	50	50	50
y7	Pearson correlation	–.107	.a	–.084	.250	.102	.377**	1	.389**	.313*	.298*
	Sig. (two-tailed)	.459	.	.561	.080	.481	.007		.005	.027	.036
	N	50	50	50	50	50	50	50	50	50	50
y8	Pearson correlation	–.049	.a	–.087	.259	.123	–.109	.389**	1	.606**	.355*
	Sig. (two-tailed)	.734	.	.547	.069	.393	.449	.005		.000	.011
	N	50	50	50	50	50	50	50	50	50	50
y9	Pearson correlation	–.040	.a	–.070	.623**	.265	–.073	.313*	.606**	1	.579**
	Sig. (two-tailed)	.784	.	.627	.000	.063	.616	.027	.000		.000
	N	50	50	50	50	50	50	50	50	50	50
y10	Pearson correlation	.211	.a	–.082	.469**	.015	–.060	.298*	.355*	.579**	1
	Sig. (two-tailed)	.141	.	.571	.001	.919	.678	.036	.011	.000	
	N	50	50	50	50	50	50	50	50	50	50

Notes: **Correlation is significant at the 0.01 level (two-tailed).
*Correlation is significant at the 0.05 level (two-tailed).
[a]Cannot be computed because at least one of the variables is constant

By analysing the correlation (p-value) of the (y) axis at a significant level (0.05) through Table 7, the following can be indicated:

1 Correlation (y9, y10, y4) is direct and weak, reaching (0.623, 0.001) in a row, but it is a significant correlation, as the (p-value) respectively reached (0.000, 0.01), which is less than the level of significance (0.05), meaning It is possible to use cost accounting tools to provide information that contributes to economic planning and to determine the costs of sustainable activities by preserving the natural capabilities of the unit) and the commitment of the economic unit to improve the quality of accounting information leads to finding reports on sustainable development of high quality.

2 The correlation (y7, y6) is direct and weak, with a value of (0.377), but it is a significant correlation, as the value of (p-value) respectively reached (0.09), which is less than the level of significance (0.05), meaning Identifying sustainable activities contributes to improving the quality of accounting information, which leads to identifying and measuring the environmental, social and economic impacts when making decisions in the economic unit)

4 Correlation of (y9, y10, y8) is weak direct, reaching (0.606, 0.355), respectively, but it is a significant correlation, as the value of (p-value) respectively (0.000, 0.011), which is less than the level of significance (0.05), meaning (Accounting information contains the predictive ability to contribute to the preparation of sustainable development plans, and the application of sustainable development works to preserve the resources of the economic unit, and the commitment of the economic unit leads to improving the quality of accounting information, which leads to the generation of reports on sustainable development of high quality).

5 Correlation (y10, y9) is direct and weak, amounting to (0.579), but it is a significant correlation, as the value of (p-value) is (0.000), which is less than the level of significance (0.05), meaning(The application of sustainable development in the economic unit works to preserve the resources of the economic unit, to improve the quality of accounting information, and to generate reports on sustainable development of high quality)

5 Conclusions

1 The accounting information system works to provide appropriate accounting information that contributes to achieving sustainable development by finding accounting opposites for the dimensions of sustainable development.

2 Accounting information works to enhance the role of sustainable development and enhance the awareness of users of accounting information of the importance of using this information in the process of sustainable development by creating an accounting standard for sustainable accounting information to enhance the processes of sustainable development in the economic unit.

3 Sustainable development is one of the main important goals that the economic unit seeks to achieve by providing accounting information that contributes to enhancing the role of sustainable development and works to improve the quality of accounting information that leads to achieving sustainable development in the economic unit.

4 The economic unit develops accounting information systems in accordance with the developments of sustainable development plans and enhances the awareness of accounting information users of the importance of sustainable information and sustainable development plans.

5 Accounting information works to control and enhance planning for sustainable development in developing and following up changes and preserving the potential of the natural economic unit. The commitment of the economic unit leads to improving the quality of accounting information and generating reports on sustainable development of high quality.

6 The environmental, social and economic impacts are identified and measured when making decisions in the economic unit, especially sustainable activities.

7 The identification of sustainable activities contributes to improving the quality of accounting information through the predictive ability to contribute to the preparation of sustainable development plans.

8 The predictive ability of accounting information contributes to achieving sustainable development plans and to improving the quality of accounting information and generating reports on sustainable development of high quality.

Recommendations

1 The need to find an accounting standard for sustainable information for the purpose of standardising accounting treatments and procedures for sustainable activities.

2 Enhancing the awareness of accounting information users of the importance of this information in promoting sustainable development activities and its role in determining sustainable activities and achieving product costs.

3 The need to identify and measure the environmental, social and economic impacts when making economic decisions by adopting sustainable accounting information.

4 The need to benefit from the predictive ability of sustainable accounting information in developing a sustainable development plan.

Declarations

All authors declare that they have no conflicts of interest.

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