

Adoption of Green Accounting Information Its Impact on Sustainability Disclosure: An Analytical Study

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Abstract: The purpose of the current research is to measure the impact of green accounting information systems in the disclosure of sustainability by (social disclosures, environmental disclosures, and economic disclosures) among a sample of employees in Rafidain Bank, and the research summarized this goal for the purpose of answering an important question represented in (Is it possible to adopt green accounting information systems in the disclosure of sustainability at Rafidain Bank, Diwaniyah branch?), As a result, the research relied on the questionnaire tool to analyze its results and measure the level of availability of these variables in the sample, and accordingly (150) questionnaire was distributed to a sample of employees in Rafidain Bank, Diwaniyah branch, and retrieved from them (136) questionnaire, and (13) questionnaire damaged, which means that (123) questionnaire valid for analysis, and the research imposed a correlation and impact between green accounting information systems and sustainability disclosure, The research came out as a result of several results, foremost of which was that the bank's employees have a great interest in building green accounting information systems and disclosure of sustainability, which gives this a strong correlation and influence between these variables, and the research recommended the need to focus the sample on developing the capabilities and capabilities of its employees in order to build a positive awareness they have towards interest in a sustainable work environment. And give a functional and service character towards customers that loves them and attracts them to deal with the bank without resorting to other banks.

Keywords: Green Accounting Information Systems, Sustainability Disclosure, Social Disclosures, Environmental Disclosures, Economic Disclosures

Introduction

Disclosure of sustainability is a basic requirement for institutions and companies, and to achieve a promising future for future generations due to the economic, social and environmental aspects it reflects, and this represents an added market value for companies and then affects the share price in the stock market and is affected by green accounting information systems, and in a related context, the disclosure of sustainability reports may affect the quality of financial reports and this is what investors, lenders and stakeholders are interested in in addition to financial analysts and regulators associated with the company, Companies have been interested in introducing sustainability into their goals and strategy, which affects their activities and thus their performance and reputation (Mohammadi, 2024:223).

The disclosure of sustainability reflects the extent of the company's interest in society, the environment and governance, and the extent to which the company seeks to preserve the resources available for future generations and reduce future risks, and accordingly, green accounting information systems can be used as a mechanism to achieve sustainability disclosure, so that risks are addressed and work on the company's management and reputation, as these risks affect the company's reputation, competitive position, profits and market value in the future (Al-Hijan, 2024:226).

On the other hand, the sustainable development strategy depends on three main pillars, represented in the economic dimension, the social dimension and finally the environmental dimension, and the economic dimension depends on the efficiency of the financial markets and their ability to inject the necessary funds to invest in various areas that achieve the goals of sustainable development through the

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so-called sustainable financing, due to the fact that the interest in obtaining financing for economic growth only and neglecting both social justice and environmental protection will lead to the cost of social and environmental compensation in the term. long, higher than short-term returns (Al-Sharqawi,2024:4). Hence, the current research came to shed light on the research topic, which is the adoption of green accounting information systems in disclosing sustainability and directing actors to pay attention to improving the capabilities of Rafidain Bank's employees to achieve the requirements and principles of sustainable development.

Research Methodology

Problem of Research

In recent years, increasing environmental degradation and global warming have led to serious consequences for the sustainability and viability of enterprises. Manufacturing enterprises, a crucial component of economic development, are the main source of environmental issues such as excessive waste disposal, toxic emissions, resource depletion, environmental degradation and global warming, yet these environmental issues remain catastrophic for humanity's future growth and survival prospects over the past few years.

There are many studies that dealt with the impact of environmental, social and economic factors in the decision-making process of companies, where it was found that the traditional approach, which is the disclosure of sustainability to companies, is prevalent in most previous studies, while the approach to decision-making, which includes environmental and social factors and called corporate social responsibility, has been widely spread recently, and therefore this entrance confirms that environmental and social factors must be taken into account when making long financial decisions term (Abdulhadi,2023:530).

Information about companies is essential for investors and other stakeholders to make appropriate decisions about capital allocation and avoid potential risks that limit sustainability disclosure. Due to repeated financial failures, and in response to pressure from government authorities, NGOs and stakeholder groups, companies have increased compliance with environmental and social regulations to provide a clear picture of their sustainability practices and efforts. This has led to an increased interest and sophistication in corporate ESG disclosure (Alareeni and and an increasing number of ESG companies engaged in sustainability disclosure activities (Hashad,2023:130). Hence, an important question can be raised about the research problem, which is (Is it possible to adopt green accounting information systems to disclose sustainability at Rafidain Bank?).

The Importance of Research

The research gains its importance through the following:

1. Measuring the reliability of green accounting information systems in disclosing sustainability helps in providing indicators and indications of the effectiveness and credibility of the bank's alleged endeavors to implement the principles of sustainable development.
2. Study and analyze the relationship between green accounting information systems and sustainability disclosure, which helps in improving disclosure and transparency and increasing customer confidence in the reports provided by the bank.
3. The subject of sustainable development is of interest to the international community and environmental protection organizations, as it is a new model of sustainable development.
4. The increasing burden on companies to participate in the interest in environmental sustainability, especially in light of the country's adoption of the 2030 Agenda for Sustainable Development.

The Objectives of Research

The main objective of the research is to analyze the impact of the reliability of green accounting information systems in the disclosure of sustainability among a sample of employees in Rafidain Bank, Diwaniyah branch, and from this goal emerges several sub-objectives:

1. Study the level of green accounting information systems and sustainability disclosure.

2. Identify the green accounting information systems policy pursued by Rafidain Bank.
3. Determine the dimensions of sustainability disclosure and its importance to Rafidain Bank.

The Hypothetical Model and Development of Hypotheses

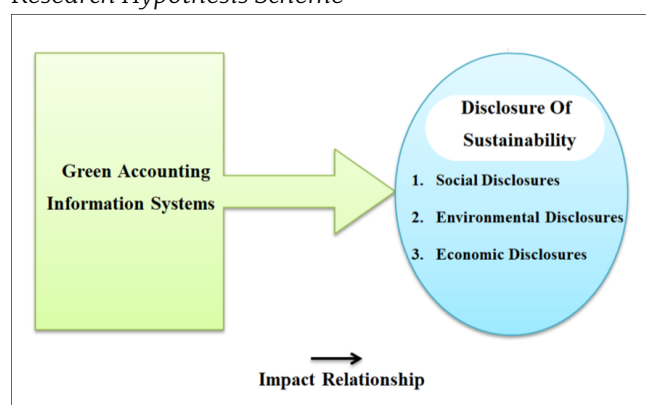
The presentation of the research problem and the construction of its objectives, and to identify the importance provided by the research, the matter by its nature needs to address this problem by building a hypothetical model to determine and display the relationship between the variables involved in the research, as follows:

Independent Variable: represented in green accounting information systems, which is a one-dimensional variable.

Dependent Variable: It included, sustainability disclosure, and was measured through three dimensions (social disclosures, environmental disclosures, and economic disclosures).

Figure 1

Research Hypothesis Scheme



Source: Prepared by researchers.

Based on what is presented in Figure (1), two hypotheses can be developed:

H1: the existence of a significant impact of green accounting information systems in the disclosure of sustainability, and it branches:

1. The existence of a significant impact of green accounting information systems in social disclosures.
2. The existence of a significant impact of green accounting information systems in environmental disclosures.
3. The existence of a significant impact of green accounting information systems in economic disclosures.

Sample of Research

Representing the research community at Rafidain Bank in Diwaniyah Governorate for the year 2024, while the research sample included employees in the bank, as (150) questionnaire was distributed to a sample of workers in Rafidain Bank, Diwaniyah branch, and retrieved from them (136) questionnaire, and (13) questionnaire damaged, which means that (123) questionnaire valid for analysis.

Theoretical Framework of the Research

Green Accounting Information Systems

The Concept of Green Accounting Information Systems

The basic role of accounting information in influencing economic decisions and financial markets, which requires ensuring the preservation of the quality of accounting information and its appropriateness and impact on making various decisions, which are expected to change and vary their inputs with the development of the perception of the expected sustainable role of the enterprise, in addition to enjoying a high degree of transparency and credibility to reflect the different aspects of the entity's performance in a comprehensive and integrated manner (economic, environmental, social), Thus, accounting as a social

science is naturally affected by all developments in the surrounding society, and it must interact with those developments and developments in a way that gives it flexibility and effectiveness, otherwise it may become stagnation and inability to absorb developments and thus the benefit of its outputs decreases and it becomes unable to carry out its functions and achieve its goals (Shehab,2023:344).

Green accounting information systems play an important role in achieving sustainable development through the use of accounting techniques that help management increase the potential life of vital human ecosystem support systems such as the Earth's climate system (Modgil et al.,2020:967), agriculture, industry, forestry and fish farming systems on the one hand, and the increasing pressure and consumption patterns of human societies (Kumar et al., 2016:146).

Information systems define green accounting as. (2008:7,Watson), as it is defined as Process for, which is (Spring, 2014: 20), long-term economic and environmental stability is the main goal of sustainable development that can only be achieved through integration (2015:2, EMAS).

Green accounting information systems represent the process of collecting and analyzing information related to sustainability reporting for decision-making, quality, cost and timely use (Al-Dulaimi & Al-Dulaimi, 2023:445).

The researcher believes that green accounting information systems represent a combination of accounting systems that support and improve green and sustainable practices and activities in the organization with the aim of collecting, analyzing and preparing sustainable reports that support the organization's decisions.

The Importance of Green Accounting Information Systems

The importance of green accounting information systems can be summarized as follows:

- a) Design and implement accounting information systems that contribute to sustainable business operations.
- b) b. Align with goals, metrics, people and technology.
- c) Build a field of business intelligence that participates in oversight.
- d) Recognize economic, social and environmental aspects at all stages of decision-making.
- e) Improving performance across the company (Emas,2015:2).
- f) The need for an information system not only provides information on physical compliance analysis but goes beyond it to include the interpretation of changing environmental regulations (Khalif, 2014:30; Abbas et al.,2024).

Sustainability Disclosure

The Concept of Sustainability Disclosure

The term "sustainable development" first appeared in 1987 in a report published by the United Nations World Commission on Development and the Environment, also known as the Brundtland Commission (former Prime Minister of Norway and President of the World Health Organization at the time). In 1992 at the Earth Summit, more than 178 countries adopted a comprehensive plan of action to build a global partnership for sustainable development to improve human lives and protect the environment. In 2015, the United Nations introduced the United Nations Sustainable Development Goals (UNSDG) related to poverty, inequality, climate, environmental degradation, prosperity, peace and justice; with the aim of producing a better sustainable future for all stakeholders in society by 2030, and UNSDG provided a framework that helps investors and companies manage their investments, strategies and investment decisions (Qureshi et al., 2020:1200).

The concept of sustainability disclosure has emerged in accounting thought and application as a result of the inability of the current traditional financial reporting disclosure model to disclose sustainability practices and meet stakeholder requirements, which has led to more interest from international organizations, as the International Auditing and Assurance Standards Board (IAASB) amends the International Standard for Assurance Services (ISAE3000) in order to provide assurance services on sustainability reports. The International Federation of Accountants (IFAC) also stressed that the inclusion

of sustainability information in corporate financial reports helps Improving their financial performance, and the disclosure of sustainability practices is an important two-way indicator: the first is that it shows companies' awareness of the need for sustainability that affects their survival, and the second is a measure for users of financial reports to identify the company's efforts to achieve environmental and social sustainability (Al-Sheikh,2021:141).

The concept of sustainability disclosure refers to the provision of financial and non-financial information on the economic, social and environmental impacts of an entity's activities, as sustainability reports represent the reports through which companies disclose non-financial performance, specifically environmental, social and corporate governance (ESG) performance, within the framework of companies' efforts to increase transparency and improve the information environment (Mohammadi,2024:226). Ferraro et al., 2024:10 believes that sustainability disclosure represents a company's disclosure of information related to its social, environmental and economic performance to stakeholders through sustainability reports.

Alonso (Alonso- Almeida et al., 2014:320) noted that sustainability disclosure is an optional process to assess the current state of a company's economic, environmental and social dimensions in the reporting period on financial and non-financial information to communicate the company's efforts and sustainability operations to a variety of internal and external stakeholders. The IASB also defined sustainability disclosure as "a company's declaration of all financial and non-financial information that enables users of this information to assess the nature of the business activities in which it engages and their financial, environmental, economic and social impacts in which it operates" (Hellman et al., 2018:262).

Sustainability disclosure gives the company an advantage in aligning the different needs of its stakeholders with the effective performance of operations. The Global Reporting Initiative (GRI) noted that the disclosure of sustainability activities is a vital step towards achieving sustainable growth by providing accountability to companies for the effects of their activities, in addition to allowing governments to assess the contribution of companies to sustainable development.

The researcher believes that sustainability disclosure represents the process of disclosing information related to the performance and value of the organization, environmental, social and economic.

The Importance of Sustainability Disclosure

The disclosure of sustainability has now become an important requirement for many companies as a result of the huge problems suffered by some large companies recently, and thus the demand for non-financial information has increased next to financial information, as the related parties realized that profits are not a sufficient indicator to ensure the growth and continuity of the company, but there are social, environmental and governance dimensions that must be taken into account next to the economic dimension, in order to enhance communication with the relevant parties and provide information In a way that reduces information asymmetry between these parties, sustainability disclosure contributes to the identification of non-financial reports that address the company to clarify environmental, social and economic risks (Wagenhofer, 2024:2). The importance of sustainability disclosure can be summarized in the following points:

- a) Corporate sustainability is a dynamic long-term business strategy that pursues shareholder objectives and meets the expectations of various stakeholders, and this entails delivering competitive results based on the adoption of environmental, social and governance performance standards, to positively impact the value of the company and ensure a good reputation for it (Góes et al., 2023:1562).
- b) B. Developing the concept of environmental, social and economic responsibility in companies.
- c) Improving mechanisms for adopting sustainability disclosure by enhancing commitment to and disclosure of environmental issues (Khalifa & Ibrahim,2023:346).
- d) Provide financial and non-financial information on the economic, social and environmental impacts of the activities of the Organization.
- e) Maintain the legitimacy of the organization and improve its reputation.

- f) Motivate companies to maintain their sustainability and the continuity of their conservation (Abdul Razzaq & Abu Talib, 2021:410).

Dimensions of Sustainability Disclosure

Sustainability disclosure includes several dimensions that can be adopted in its measurement:

- a. Social Disclosures: The disclosure of activities after social responsibility as a dimension of sustainability disclosure dimensions may reduce the asymmetry of information between the relevant parties, as the disclosure of social responsibility activities is considered as a bridge that connects the company to the community (Tózsér et al., 2024:59).
- b. Environmental disclosures: This dimension includes those activities that result in mitigating or reducing the amount of environmental degradation and the scope of this expands to include the geographical area of the company as well as other areas, these activities are related to compliance with the conditions and legal considerations necessary to avoid the causes of pollution of the land, air, water and noise, in addition to designing integrated programs for the disposal of solid waste and adopting efficient technical methods to reduce the volume of those wastes, and also includes activities related to the preservation and advancement of the base of physical and biological resources (Abdulhadi, 2023:539).
- c. Economic disclosures: The economic dimension consists of assets made by the individual that can enhance the individual's ability to perform economically useful work, as the economic dimension comes first and foremost in economic institutions, as investors expect an appropriate return on risk capital. Creditors expect the organization to repay its debts. Consumers also expect safe products and services at affordable prices and quality (Rothaermel, 2017:20).

The Practical Aspect of the Research
Coding Variables

This paragraph aims to introduce the reader to the symbols that have been expressed in the practical side of the research variables in order to build a clear perception towards the symbols and the importance of the results provided and reached by the research during the presentation of these results in the tables, as in Table (1).

Table 1
Variable Coding and Characterization

Variables	Dimensions	NO.	code	Source
green accounting information systems	One-dimensional	9	GAIS	Amin & Mohiuddin, 2022
disclosure of sustainability (DOS)	Social Disclosures	15	DSSO	Shehab, 2023
	Environmental Disclosures	15	DSEN	
	Economic Disclosures	5	DSEC	

Testing the Normal Distribution of Data

The results of Table (2) show that the data withdrawn from the answers of the research sample workers follow the normal distribution, and this means accepting the null hypothesis that the withdrawn data follow the normal distribution, and rejecting the alternative hypothesis that refers to the data does not follow the normal distribution, and this paves the way for testing the stability of the measuring instrument.

Table 2
Results of Normal Distribution

Variables	Dimensions	Kol-Smi	
green accounting information systems	One-dimensional	0.134	0.095
	Social Disclosures	0.111	
disclosure of sustainability	Environmental Disclosures	0.095	0.200
	Economic Disclosures	0.144	
Asymp. Sig.			

Testing the Stability of the Measurement Tool

It is noted from the results of Table (3) that the withdrawn data are characterized by stability and internal consistency, because they obtained a stability rate higher than (0.70) and this shows that the measurement tool corresponds to the answers of the workers studied, and therefore this shows that the data are commensurate with good consistency and appropriate to proceed with the study of research topics, and this paves the way for the statistical description of the paragraphs of the research variables.

Table 3

Search Tool Stability Results

Variables	Cronbach's Alpha if Item Deleted
GAIS	0.866
DSSO	0.851
DSEN	0.820
DSEC	0.909
DOS	0.792

Descriptive Analysis of Data

The results of Table (4) resulted that the general average of the variable of green accounting information systems contributed to achieving an arithmetic mean of (4.17) and a standard deviation equal to (0.49) with a relative importance of its value (83%), which means that the employees of the research bank pay great attention to improving their capabilities in building green accounting information systems by focusing on making both business processes and the products they produce environmentally sustainable, and green environmental accounting information systems can be applied to monitor and report gas emissions. Control Perhaps the paragraph that contributed to this is the second paragraph (GAIS2) with an arithmetic mean of (4.41) and a standard deviation of (0.59) and a relative importance equal to (88%), while the eighth paragraph GAIS8 came in last place with an arithmetic mean of (4.02) and a standard deviation of (0.83) and a relative importance of (80%).

On the other hand, the sustainability disclosure variable obtained an arithmetic mean of (3.99) and a standard deviation of (0.45) and a relative importance equal to (80%), and this shows the interest of workers in assessing the current situation of the economic, environmental and social dimensions of the company in the reporting period on financial and non-financial information to communicate the company's efforts and sustainability operations to a variety of internal and external stakeholders. Perhaps the disclosures that contributed to this is the environmental disclosures with an arithmetic mean of (4.03) and a standard deviation equal to (0.43) and a relative importance of (81%), while social disclosures came in last place with an arithmetic mean of (3.91) and a standard deviation of (0.58) and relative importance equal to (78%)

Table 4

Descriptive Statistics Results of Research Variables

NO.	Mean	S.D	%	NO.	Mean	S.D	%	NO.	Mean	S.D	%
GAIS1	4.40	0.61	88%	DSSO8	3.67	0.96	73%	DSEN9	4.16	0.78	83%
GAIS2	4.41	0.59	88%	DSSO9	3.80	1.04	76%	DSEN10	4.07	0.81	81%
GAIS3	4.11	0.79	82%	DSSO10	3.97	0.92	79%	DSEN11	4.02	0.84	80%
GAIS4	4.14	0.78	83%	DSSO11	3.38	1.19	68%	DSEN12	4.20	0.73	84%
GAIS5	4.08	0.85	82%	DSSO12	4.17	0.77	83%	DSEN13	3.89	0.84	78%
GAIS6	4.02	0.89	80%	DSSO13	4.17	0.77	83%	DSEN14	3.81	1.01	76%
GAIS7	4.04	0.78	81%	DSSO14	3.87	0.93	77%	DSEN15	3.98	0.91	80%
GAIS8	4.02	0.83	80%	DSSO15	4.07	0.72	81%	DSEN	4.03	0.43	81%
GAIS9	4.29	0.73	86%	DSSO	3.91	0.58	78%	DSEC1	4.18	0.77	84%
GAIS	4.17	0.49	83%	DSEN1	3.77	0.77	75%	DSEC2	3.87	0.97	77%
DSSO1	4.20	0.74	84%	DSEN2	3.90	0.77	78%	DSEC3	3.78	0.77	76%
DSSO2	3.76	0.84	75%	DSEN3	4.28	0.70	86%	DSEC4	4.19	0.67	84%
DSSO3	4.23	0.71	85%	DSEN4	4.20	0.66	84%	DSEC5	4.07	0.89	81%
DSSO4	3.88	0.85	78%	DSEN5	4.09	0.89	82%	DSEC	4.02	0.62	80%
DSSO5	3.93	0.92	79%	DSEN6	3.52	1.23	70%	DOS	3.99	0.45	80%
DSSO6	3.80	0.81	76%	DSEN7	4.41	0.61	88%				
DSSO7	3.80	1.00	76%	DSEN8	4.11	0.79	82%				

Testing the Research Hypotheses

Before addressing the measurement of the impact hypothesis, it is necessary to measure the nature and type of the relationship between the variables, as the results of Table (5) show the existence of a somewhat strong correlation between accounting information systems (GAIS) and sustainability disclosure (DOS) at (0.624), which means that the bank employees have a great interest in building green accounting information systems and sustainability disclosure, in addition to strengthening and supporting the relationship between these variables, and this supports the first main hypothesis. There is also a correlation between green accounting information systems and sustainability disclosure dimensions ranging from (0.640) between green accounting information systems and environmental disclosures, to (0.841) between green accounting information systems and social disclosures, and this supports the validity of the first, second, and third sub-hypotheses.

Table 5
Correlation Matrix

	GAIS	DSSO	DSEN	DSEC	DOS
GAIS	1				
DSSO	.760**	1			
DSEN	.640**	.662**	1		
DSEC	.841**	.276**	.632**	1	
DOS	.624**	.779**	.906**	.790**	1

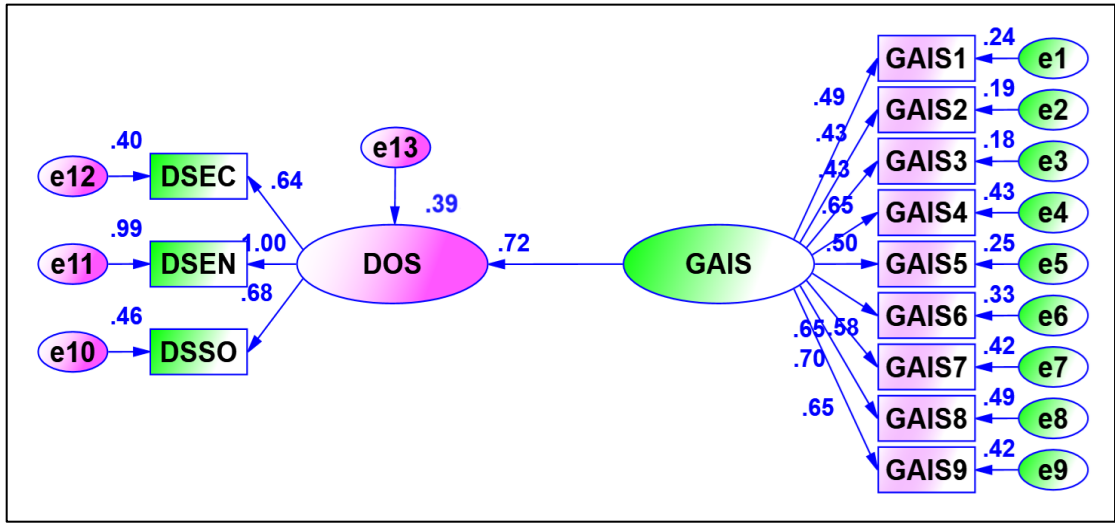
** . Correlation is significant at the 0.01 level (2-tailed).
Sig.=0.000

n=123

H1: The existence of a significant impact of green accounting information systems in the disclosure of sustainability.

It is clear from the information in Table (6) that the increased interest of employees in the bank in green accounting information systems improves their capabilities and capabilities in disclosing sustainability, and this came with an improvement rate of (0.725) and a standard error coefficient of (0.065), and a critical value of (11.154), and it is also clear that the comparative value of the calculated value (F) is high and by (77.206), and this means accepting the second main hypothesis, and the validity of its sub-hypotheses.

Figure 2
Standard Model for the Impact of Green Accounting Information Systems on Sustainability Disclosure



It is noted from the results of the table below that green accounting information systems explained (0.39) of the variation in sustainability disclosure, and this is due to the interest of the employees of the research bank in adopting green accounting information systems to interpret and improve sustainability disclosure, and this means that corporate sustainability is a strategy that constitutes a dynamic long-term work that seeks to achieve the goals of shareholders and meet the expectations of various stakeholders, and this

requires providing competitive results based on the adoption of standards related to environmental, social and governance performance, to positively impact on the value of the company and ensure its good reputation.

Table 6

Results of the Impact of Green Accounting Information Systems on Sustainability Disclosure

path			Estimate	S.E	Z-value	R ²	F	Sig.
GAIS	--->	DOS	0.725	0.065	11.154	0.390	77.206	0.001

Conclusions & Recommendations

Conclusions

1. The results showed that the bank's employees have a great interest in building green accounting information systems and sustainability disclosure, which gives this a strong correlation and influence relationship between these variables.
2. Employees' interest in assessing the current status of the economic, environmental and social dimensions of the company in the reporting period on financial and non-financial information to communicate the company's efforts and sustainability operations to a variety of internal and external stakeholders.
3. The results showed that the employees of the research bank pay great attention to improving their capabilities in building green accounting information systems by focusing on making both business processes and the products they produce environmentally sustainable.
4. The results showed that the application of green environmental accounting information systems, to monitor gas emissions and report the use of waste and toxic substances, helps in managing labor-consuming facilities, as well as designing greener and more environmentally friendly products and re-signing business processes to be environmentally sustainable.
5. The results showed that corporate sustainability constitutes a dynamic long-term business strategy that contributes to achieving shareholder goals and meeting the expectations of various stakeholders, and this requires providing competitive results based on adopting standards related to environmental, social and governance performance, to positively impact the value of the company and ensure a good reputation for it.

Recommendations

1. The need to focus the sample on developing the capabilities and capabilities of its employees in order to build a positive awareness of their interest in a sustainable work environment, and to give a functional and service character towards customers who love them and attract them to deal with the bank without resorting to other banks.
2. Bank staff should focus on assessing the current state of sustainability disclosure dimensions in order to ensure that sustainability efforts and operations are communicated to actors, as well as enhance trust and accountability towards stakeholders.
3. The need to focus on improving their capabilities in building green accounting information systems, this can be achieved by increasing the focus on business processes and products produced by the bank that are environmentally sustainable.
4. The bank should apply green environmental accounting information systems significantly in order to ensure that employees learn about the sustainable mechanisms and principles that the bank can achieve in its daily system, and this helps to design more environmentally friendly services, and restructure business processes to be environmentally sustainable.
5. The Bank should adopt environmental, social and governance (ESG) performance standards in all its banking transactions, which contributes to competitive propositions that improve the value of its brand and reputation in the market.

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