

THE EFFECT OF DESIGNING ACCOUNTING INFORMATION SYSTEMS ON ENHANCING THE QUALITY OF ACCOUNTING INFORMATION IN LIGHT OF THE SYSTEMS DEVELOPMENT APPROACH

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ABSTRACT

The needs for accounting information are ever-changing, where the process of decision-making is simultaneously dependent on the accounting information provided by the financial statements, which must meet certain standards of quality. This information is designed to meet stakeholders' particular needs in the businesses they represent. It is vital to consider solutions to address these shifting needs, as the need for such information might shift. Hence, in light of the fact that information is produced by these systems, the significance and necessity of developing accounting information systems become apparent.

One of the fundamental foundations of the process of developing information systems is the design of accounting information systems, which also serves as the key instrument for meeting the changing needs for accounting information and working to enhance its quality. Simultaneously, the systems development process requires performing a set of activities, methods and practices that contribute to enhancing the quality of accounting information as outputs of the development process.

The idea of the research stems from identifying three variables represented by: designing accounting information systems, enhancing the quality of accounting information and the systems development approach, and then trying to study the nature of the relationships that correlate these three variables to accomplish the objectives of the paper.

Keywords: Accounting Information Systems, Information Systems Development, Accounting Information Systems Design, Quality of Accounting Information.

INTRODUCTION

The objective of the current research is to examine and evaluate how the design process for accounting information systems affects the quality of accounting information in light of the systems development approach. This can be achieved by providing some analytical perspectives on the areas, in which the design process can have an effect on enhancing the quality of accounting information. To achieve the goal of the research, the following mechanism was followed:

1. Formulating a scientific methodology for the study.
2. Presenting the literature related to the three research variables, which are represented by designing accounting information systems, enhancing the quality of accounting information, and the systems development strategy.
3. Providing an analytical vision of the nature of relationships between the three research-relevant variables.
4. Conducting a field study in the Iraqi environment to determine the reality and nature of the relationship among the research variables and to assess the validity of the researcher's vision in this area.
5. From the reality of the field study's indicators, come to a set of conclusions and recommendations.

RESEARCH METHODOLOGY

Research Problem

The research problem can be expressed by the following set of questions:

1. Does the design of accounting information systems affect the development of systems?
2. Does the systems development approach have an effect on enhancing the quality of accounting information?
3. Does the design of accounting information systems have an effect on enhancing the quality of accounting information?

The Aim of the Research

The research aims to

1. Presenting the significance and dimensions of the accounting information systems design process and its effect upon enhancing the quality of accounting information according to the systems development approach.
2. Raising awareness of the institution administrations about the significance of the systems development approach in enhancing the quality of accounting information by relying on the process of designing accounting information systems. This process is subject to changing needs of users of accounting information and trends of change.

The Importance of Research

The research importance is made clear by highlighting the need to adapt to users' changing needs for accounting information, which is the issue of information quality and promotion for the purpose of using it in decision-making. This process is achieved by employing the systems development approach, which has one of its fundamental pillars being the designing of accounting information systems, and at the same time enhancing the quality of accounting information is one of its primary objectives.

Research Hypothesis

The research hypothesis can be formulated as follows:

The first main hypothesis

There is a significant correlative relationship among the design of accounting information systems and enhancing the quality of accounting information in light of the systems development approach. The following sub-hypotheses arise:

1. The 1st sub-hypothesis: There is a significant correlation between the design of accounting information systems and the systems development approach.
2. The 2nd sub-hypothesis: There is a significant correlation between the systems development approach and the enhancement of the quality of accounting information.
3. The 3rd sub-hypothesis: There is a significant correlation between the design of accounting information systems and enhancing the quality of accounting information.

The second main hypothesis

There is a significant effect relationship between the design of accounting information systems and enhancing the quality of accounting information in light of the systems development approach. The below sub-hypotheses arise:

1. The 1st sub-hypothesis: There is a significant effect relationship for the design of accounting information systems on the systems development approach.
2. The 2nd sub-hypothesis: There is a significant effect relationship of the systems development approach on enhancing the quality of accounting information.
3. The 3rd sub-hypothesis: There is a significant effect relationship for the design of accounting information systems on enhancing the quality of accounting information.

The Conceptual Construction of the Research Variables **The design of accounting information systems**

For reflecting the reality of financial transactions occurring in the economic entity, the accounting information system seeks to provide relevant, understandable, and reliable accounting information. This information shall be documented in financial statements that are to some extent of quality, hypothesizing that these financial statements express the reality of the economic entity faithfully.

The accounting information system depends, in attempting to provide quality information, on the needs of the users of this information and to meet these needs. Undoubtedly, the needs of users are constantly changing and in different directions depending on the changes that occur in the business environment. Hence, a problem, which must be considered to be addressed, arises, where the current accounting information system has been designed based on the specific needs of users of accounting information. When changes occur to these needs, this system will inevitably be affected in one way or another. This system may become unable to meet the renewable needs or suffer from some shortcomings or failures in meeting part of these needs. In order to find solutions to this problem, it would be necessary to think about the issue of designing accounting information systems through which to meet the emerging needs of information users, or to address the imbalance involved in the current system towards users' needs. Simultaneously, the design process of accounting information systems should seek to provide accounting information with specific quality standards.

The design of accounting information systems relates to drawing the flow of information that will be determined at this stage, which requires modeling the behavior of the accounting information system to be designed (Darmayadi et al., 2021). The design stage requires defining the required processing operations and data from the new system and determining the specialized types of equipment and software required (Qurain, 2013). Simultaneously, a set of elements affecting the design process is being studied and evaluated, such as the organization resources, equipment, performance, and system requirements (Al-Serafy, 2009). The process of designing accounting information systems includes a set of procedures that are performed in order to transform the logical specifications into a design that can be performed on the organization computer systems (Gelinas et al., 2002).

At the designing stage, alternative methods for conceptual design of the system are identified, in order to meet the needs previously diagnosed in the systems analysis stage (Turner et al., 2009). In other words, providing a detailed description of the proposed system provided that it meets the system requirements were diagnosed in the systems analysis stage and in accordance with the conceptual design (Hall, 2011). The conceptual design requires the following steps: (Romney & Steinbart, 2018)

Assessment of Design Alternatives

The following criteria should be used to evaluate design alternatives, whether they meet the organizational goals and system goals well, and if they meet the user's needs well. Is it economically viable? Do the advantages outweigh the disadvantages? The alternatives are then evaluated by the Higher Committee. The committee chooses the best alternative that meets the needs of the organization.

Preparing Design Specifications and Reports

This step includes the following elements: Outputs, data storage, inputs, processing procedures, and operations. As for the conceptual design report of the system, it summarizes the activities of the conceptual design, and guides or directs the activities of physical design. It discloses how to meet all the information needs as well as assisting the Higher Committee in assessing the feasibility.

During the physical design of the system, the general requirements for the conceptual design of accounting information systems emanating from the user are translated into detailed specifications used for coding and testing computer programs. The physical design of the system includes the following activities: (1) design of outputs (2) design of files and databases (3) design of inputs (4) design of programs (5) design of procedures (6) design of control (Romney & Steinbart, 2018).

The process of designing accounting information systems is carried out according to a logical sequence of events that begins with creating a business data model, defining the conceptual vision of the user, designing natural unified database tables, designing the user's physical view (inputs and outputs), developing processing units, describing system control, and conducting experiment with the details of the system (Hall, 2011).

For the purpose of checking the adequacy of the system design, the physical specifications of the system should be reviewed to verify the extent to which user needs are being met. Here, it is necessary to answer the following questions:

1. Do the system outputs have characteristics of information such as relevance, completeness, timeliness, accuracy, and other similar characteristics?
2. Are the outputs in the specified form more useful and desirable by the user (e.g. tables, graphs, electronic, hard copies, and etc.)?
3. Are the databases accurate, complete and accessible?
4. Did the transfer process lose, corrupt or redo data?
5. Are the input models and screens properly designed and responsive to the needs of users?
6. Are the users using the system correctly?
7. Does the treatment look correct?
8. Can all program units be accessed and performed correctly, or does the user face problems in any of them?
9. Is the user document accurate, complete, and easy to track?
10. Does the system provide the user with adequate assistance and instructions?

According to the foregoing, the researcher thinks that the issue of verifying the adequacy of the system design is a reflection and confirmation of the importance and necessity of the accounting information having quality and seeking to enhance it through the steps that the accounting information systems design process goes through.

The Quality of Accounting Information

Data that has been organized and processed into meaningful patterns to aid decision-making is known as information. One of the crucial characteristics of the same information is the quality of the accounting information (Fitrios, 2016). The quality of information can be expressed in terms of

the credibility of this information and its usefulness to users. It should be free from distortion and deception, and should be prepared in light of a set of legal, professional, supervisory and technical standards in a way that helps achieve the goal of its use (Khalil, 2005). Information quality possesses qualities that can meet or surpass information users' expectations. The qualities of information that make it helpful to them are described by the word “*quality*” (Sari et al., 2016). For the purpose of producing high quality financial reports that are more helpful to investors in making investment decisions, adherence to the qualitative features of information is a must (Rosa & Purfini, 2019). This means that the quality of information is what allows users to rely on confidently (Obaidat, 2007). High-quality information has the properties, or qualities that cause the information to be available on time, verifiable, and easy to understand (Algrari & Ahmed, 2019). The degree of compliance with the rules and procedures that have been performed consistently in a way that reflects the reality of the financial position of the economic entity in addition to the relative importance of the recorded events can be considered as an assess of the quality of accounting information (Salma, 2016).

When it comes to meeting the expectations of users who use such information for future activities, such decision-making, accounting information quality refers to how accurate, consistent, timely, and relevant the information is. High-quality information is information that is appropriate for use and of high value to users because it is free from errors or other shortcomings (Rapina, 2015). Researchers take into account the quality of information through several aspects. Some indicate that the characteristics of useful and valuable information can be observed in terms of time, content, and form. Useful information has characteristics such as relevance, timeliness, accuracy, completeness, and brevity. There are opinions of other researchers indicating that the information quality is precision, reliability, completeness, current and properly presented (Fitrios, 2016).

As long as interest is one of the indicators of the quality of accounting information, the issue of its availability in the information depends on the availability of two fundamental quality that make it useful for decision-making, namely, relevance and faithful representation. In addition, there is a need to provide enhancing characteristics of comparability, consistency, verifiability, timeliness, and understandability. Relevance refers to the need for accounting information to be able to make a difference in the decision to become appropriate for decision makers. This requires that the accounting information have predictive value, confirmatory value and materiality. As for faithful representation, it refers to the need for accounting information to faithfully reflect financial transactions and other events to be useful to decision makers. To achieve this goal, it must have the qualities of neutrality, completeness, and free from error. As for the enhancing characteristics of accounting information, they are represented by comparability, verifiability, understandability, and timeliness (Kieso et al., 2016). There are a set of standards by which the quality of accounting information can be measured (Al-Budairi, 2017). They are:

Accuracy

The quality of information is measured by its level of accuracy, that is, the degree to which it represents past, present and future events, where accuracy is directly proportional to quality. Despite, it is impossible to bank on such criterion in measuring the quality to a large extent, because the accounting information includes some aspects of the assessment, especially for the future.

Benefit

The benefit of accounting information is embodied in two areas: the validity of information and the ease of using. It also includes the ease of obtaining information and its access in a timely

manner, and its conformity with the requirements of decision-making.

Prediction

The quality of accounting information is represented by its predictive ability and the reduction of uncertainty. This is achieved through the use of past and present information in predicting future events and in the case of using them as inputs to models for choosing among available alternatives.

Effectiveness

The effectiveness of accounting information as a measure of quality is represented by its ability to achieve the goals of the economic entity or the decision maker through the use of available resources, based on the idea of effectiveness, which indicates the extent to which the economic entity achieves its goals through limited resources.

Efficiency

Efficiency as an evaluation of the quality of accounting information refers to applying the principle of information economics. It intends to maximize the quality of information at the lowest costs, in a manner that does not exceed the value and benefit of the information, in line with the idea on which the efficiency is based that it achieves the objectives of the economic entity by using the lowest possible amount of resources.

Systems Development Approach

Accounting information systems are developed in one or more of the units of the company in order to achieve a specific goal. Accounting information systems consist of small subsystems that form the basis of larger systems, including individuals, methods, information, and software, as well as the information technology infrastructure. Accounting information systems consist of a set of integrated elements that are all linked to achieving the goal for which the systems development process is launched (Serhan, 2020).

The importance of accounting information systems lies in the decision-making process that depends on the information provided by the financial statements with an advanced level of quality. At the same time, stakeholders need high-quality information related to the success of the company, information that should have a set of characteristics and criteria whose availability indicates the level of quality of this information (De Gorostiza et al., 2018). This leads to meeting the ever-changing needs of companies and improving current operations as well as adapting to different circumstances. Hence, the importance of developing accounting information systems to achieve all the goals that are led by improving the quality of accounting information and enhancing it as an element and a constant demand for change, become clear.

The rapid changes, in the environment surrounding the entity, urge its management to request reliable, accurate and timely information. This issue makes the existing accounting information systems obsolete due to their inability to respond to the changes taking place. For this reason and other ones, it becomes necessary to modify or develop the system (Susanto & Meiryani, 2019). The process of systems development is represented by several activities, methods, practices, automated delivery process and equipment employed by stakeholders in order to advance the process of developing and improving the information system and software. As for stakeholders, they are

interested in the existence of an information system or a new information system. They may be technical or non-technical employees, or they can be owners, users, analysts, designers, system vendors, as well as IT consultants (Satyawati, 2018).

Systems development may be viewed as a simplified operation of writing software to meet users' needs, but in reality, it is difficult, because it will face a few challenges. The end user may understand what he wants, but he lacks the necessary technical expertise to render his idea into reality. Also, programmers may understand the field of computers, but they may be unaware of the user environment. The communication gap between the user and the service provider should be addressed, which could be one of the challenges facing systems development. There are other challenging factors such as lack of administrative support, budget, and schedule issues. Together, these factors contribute to creating challenges for systems development, where using the systems development approach can help mitigate these challenges and support development success. There are a few key factors for the success of the development process. The most significant ones are: (Roch et al., 2022).

1. Perfect identification of system goals
2. Careful feasibility study
3. Supporting the senior management
4. User participation to ensure close adherence
5. Accurate analysis to ensure thorough and reliable user requirements
6. Detailed and sound design to ensure an effective, quality and sustainable system.
7. Managing the project to make sure that the development team can be managed and controlled.
8. Companies generally resort to developing their information systems for the following reasons:(Romney & Steinbart, 2018)
9. Changes in user or business needs
10. Technological changes
11. Business process improvement
12. Achieving competitive advantages
13. Achieving productivity gains
14. Systems integration
15. Systems are outdated and need to be replaced

There are several approaches that can be adopted in systems development, such as the System analysis and Design Life Cycle (SDLC), the systems development process, in addition to a variety of other approaches that may be adopted such as the following tools and techniques: object-oriented analysis & design, systems engineering, common application design, participatory design, basic systems design, and Systems Development Life Cycle (SDLC) automation (Wang et al., 2007). According to the researcher's view, whatever the approach used in developing the systems, all the approaches seek to achieve the same general goal, which is to respond to the changing needs of users and those dealing with the accounting information system and outputs, and the environment surrounding the system.

The design of accounting information systems, the quality of accounting information, and systems development approach: Analytical vision

This axis is concerned with providing some analytical insights related to the areas, in which the design process of accounting information systems can affect the enhancement of the quality of accounting information, within the framework of the systems development approach. The researcher begins this analytical vision with the following questions:

1. Does the goal of enhancing the quality of accounting information fall within the objectives of designing accounting

information systems?

2. Can the accounting information systems design process have an instrumental role in enhancing the quality of accounting information, as a cornerstone in the systems development process?
3. What are the pillars on which the design process of accounting information systems is based, which allows enhancing the quality of accounting information within a systematic process of developing systems?

Hence, it must be emphasized that the needs for accounting information change permanently and continuously, as the financial statements include accounting information of a certain level of quality. This information is designed by depending on the specific needs of stakeholders in the companies represented in these financial statements. The process of decision-making depends on the accounting information provided by the financial statements with characteristics and criteria related to its level of quality. However, when the needs for this information change, it would be necessary to think about ways to meet these changing needs. The importance and necessity of developing accounting information systems emerges, given that information is the output of these systems. At the same time, the design of accounting information systems is one of the cornerstones of the process of developing information systems and the main tool through which to meet the changing needs of accounting information and strive to enhance its quality. The impact of the design of accounting information systems on the quality of accounting information is clearly apparent through the requirements and objectives of the conceptual and physical design stages of the information system, which require identifying the necessary processes, data, equipment and software, evaluating design alternatives according to economic feasibility standards, preparing design specifications, and then designing outputs, files, databases, inputs, programs, procedures and control. These requirements and objectives should be performed according to a logical sequence of events that ends with testing the details of the system and checking the adequacy of the system design. All of them seek to ensure the provision of information that meets the quality standards of credibility, completeness, verifiability, understandability, benefit to users, and high value, enabling them to rely on it with confidence, at the lowest costs and appropriate for use. The goal of ensuring the provision of information that meets the aforementioned quality standards can be translated as a reflection of the process of designing accounting information systems in enhancing the quality of accounting information.

As for the process of developing accounting information systems, it proceeds intending to respond to the changing users' needs (which is represented in obtaining information that has an advanced level of quality) as well as responding to the changes occurring in the system environment. This is based on the fact that the process of designing accounting information systems is a cornerstone in the process of developing systems, and that enhancing the quality of accounting information is a common goal for both. On the other hand, the process of developing systems requires the performance of several activities, methods, practices, automatic delivery, and used equipment. These activities contribute to enhancing the quality of accounting information as outputs of the development process. Via the field study in the current axis, the researcher tries to prove these analytical visions that were applied in the Iraqi environment.

The Field Study

The study was performed in order to verify the research hypotheses by designing a questionnaire, which included three axes:

1. The first axis: the impact of the design of accounting information systems on the quality of accounting information
2. The second axis: The approach of developing accounting information systems
3. The third axis: enhancing the quality of accounting information

The questionnaire consisted of (21) items, distributed over the three axes by (7) items for each axis. The questionnaire was given to a random sample of the research community, which was embodied by a number of professional and academic accountants and investors in the Iraq Stock Exchange. (150) questionnaire forms have been approved for the purpose of statistical analysis.

The Results of Descriptive Statistics

The purpose of this part of the research is to highlight the findings from the researcher's field study and to analyze them by using descriptive statistics tools of the arithmetic mean and standard deviation to estimate the absolute dispersion of the sample members' responses with respect to the arithmetic mean and to identify the respondents' desires and general perspectives with respect to the research variables using a five-Likert scale.

Using Cronbach's Alpha

For measuring the stability of the answers, the Reliability Analysis of Cronbach's Alpha test was used, which indicates that the scale in the questionnaire will give the same results with an equal value of the reliability coefficient if the questionnaire is redistributed to the same sample. Therefore, it is possible to measure the reliability or not. Cronbach's alpha test was applied to each of the main axes of the questionnaire, as shown in Table 1 which shows the results of Cronbach's alpha test for measuring the questionnaire stability.

Axes	No. of Items	Cronbach's Alpha
1 st	7	9.600
2 nd	7	9.750
3 rd	7	9.830
Overall questionnaire	00	9.670

It can be noticed through Table 1 aforementioned that the value of Cronbach's alpha (0.831) for the third axis, which is a high percentage in the adoption of the results of questionnaire for this study. The significance of the stability coefficient for the first axis was (0.699), and the value of the stability coefficient for the second axis was (0.752). Through the findings in Table (1), it becomes obvious that Cronbach's Alpha for the questionnaire as a whole was (0.674), which means that it leads to similar results when the questionnaire is repeated. It also reflects the amount of internal consistency, which indicates the extent to which a group of items are closely related.

The first axis (the impact of the design of accounting information systems on the quality of accounting information)

The significance of the first axis becomes clearly apparent in the Table 2 below, which shows the answers of the sample members regarding the arithmetic mean, standard deviation, and coefficient of variation.

Table 2 illustrates the arithmetic means, standard deviation, and coefficient of variation regarding member's responses to the first axis (the effect of accounting information systems design on the quality of accounting information). The findings were given to the maximum answer level. It was realized by the first item stating (the process of designing accounting information systems should seek to provide accounting information with specific standards of quality), as the value of the

arithmetic mean (4.27), and the standard deviation among the answers (0.74), and a coefficient of variation (17.34%), showing the very little amount of dispersion in the answers of the sample members. It also stresses the importance of providing accounting information with specific quality standards as outputs for the accounting information systems design process, while the lowest value of the arithmetic mean was for the third item included (the conceptual design stage of the information system requires that the design alternatives be evaluated, by adopting a number of criteria, including economic feasibility. This, in turn, works to enhance and maximize the quality of accounting information at the lowest costs and not to exceed the value and benefit of the information). The mean value was (4.01), standard deviation (0.61), and the coefficient of variation was (15.16%). This shows the extent of agreement in the components of the item, as the answers of the sample members show that enhancing and maximizing the quality of accounting information at the lowest costs is required, at the design stage, evaluating the design alternatives by adopting a number of criteria, including economic feasibility. From the foregoing, it is clear from Table 2 the answers of the sample members to the first axis (the effect of designing accounting information systems on the quality of accounting information) their agreement in the content of the axis. The answers indicate that the item has statistical significance and influence, in terms of the arithmetic mean (4.16), standard deviation (0.15), and coefficient of variation (3.69%), which shows the maximum agreement in the content of the axis.

No.	Items	Arithmetic mean	Standard deviation	Variation coefficient %
1	The design process of accounting information systems should seek to provide accounting information with specific quality standards.	4.27	0.74	17.34
2	The design stage requires defining the processes and data required by the new system, as well as the necessary equipment and software, in order to provide accounting information that is credible and beneficial to users.	4.23	0.67	15.82
3	The conceptual design stage of the information system requires that the design alternatives be evaluated, by adopting a number of criteria, including economic feasibility. This, in turn, works to enhance and maximize the quality of accounting information at the lowest costs and not to exceed the value and benefit of the information.	4.01	0.61	15.16
4	The conceptual design stage of the accounting information system requires that the design specifications be prepared, in which the preparation of output specifications is the first step. This is an indication of the organization's endeavor to enhance the quality of accounting information represented, in part, by providing information suitable for use and of high value to users.	4.04	0.79	19.64
5	The physical design of the accounting information system requires that the outputs, files, databases, inputs, programs, procedures and control be designed. These activities confirm the organization's endeavor to enhance the quality of information represented, in part, by faithful representation, completeness, verifiability and understandability.	4.18	0.71	16.88

6	The process of designing accounting information systems takes place according to a logical sequence of events that begins with the creation of a business data model and ends with the experience of system details. This sequence confirms the organization's endeavor to provide accounting information of high quality and more useful to users and enables them to rely on it with confidence.	4.25	0.73	17.22
7	The process of verifying the adequacy of the accounting information system design is related to the issue of ensuring the provision of information that meets quality standards that help achieve the goal of its use	4.11	0.77	18.8
1st axis		4.16	0.15	3.69

Source: Based on the outputs of SPSS program

The Second Axis (The Approach of Developing Accounting Information Systems)

The importance of the second axis becomes clearly apparent in Table 3, which shows the responses of the sample members regarding the arithmetic mean, standard deviation, and coefficient of variation.

No	Items	Arithmetic mean	Standard deviation	Variation coefficient %
1	Accounting information systems consist of a set of integrated elements that are all linked to achieving the general goal for which the systems development process is launched, which isto respond to the changing needs of users and changes in the system environment.	4.19	0.68	16.27
2	As a result of the obsolescence of accounting informationsystems and their reluctance to respond to changes in the environment surrounding the entity, the development of information systems becomes a necessary and urgent requirement.	4.24	0.77	18.26
3	The systems development methodology should be used to overcome the challenges facing the information systems development process represented by the existence of the communication gap between the user and the service provider.	4.32	0.75	17.45
4	Obtaining accounting information with an advanced level of quality is a common requirement for all stakeholders interested in the process of developing an accountinginformation system.	4.13	0.78	18.9
5	The process of designing accounting information systems through which to meet the emerging needs of information users or to address the shortcomings in the current system. This process is a cornerstone in the process of developing accounting information systems.	4.15	0.79	19.07
6	In order to ensure the success of the systems development process, and in the context of enhancing the quality of accounting information, the objectives of the system and the preparation of a detailed and sound design should be carriedout to ensure an efficient and quality system and detailed requirements for the user.	4.1	0.72	17.59

7	All approaches used in the development of accounting information systems can be used to achieve the goals of systems development. The most important of these goals is to respond to changes in the needs of users and in the environment surrounding the information system	4.03	0.84	20.8
	2nd axis	4.17	0.15	3.58

Source: Based on the outputs of SPSS program

Table 3 illustrates the arithmetic means, standard deviation, and coefficient of variation in respect to the member's sample responses to the second axis included (the approach of developing accounting information systems). The findings were given to the maximum level of the answer realized by the 3rd item stating (the systems development methodology should be used to overcome the challenges facing the information systems development process represented by the existence of the communication gap between the user and the service provider). The arithmetic mean value was (4.32), with a standard deviation among the answers (0.75), and a coefficient of variation (17.45%). This shows little dispersion in the responses of the sample members and the need to use the systems development approach to overcome the challenges facing the information systems development process represented by the existence of a communication gap between the user and the service provider. It was the lowermost value of the arithmetic mean for the 7th item stating (all the approaches used in the development of accounting information systems can be used in achieving the goals of developing systems, the most important one is responding to changes in the needs of users and in the environment surrounding the information system). The arithmetic mean value was (4.03), standard deviation (0.84), and coefficient of variation (20.80%). This shows the degree of variation among the sample members in the validity of all the approaches used in developing accounting information systems, in achieving the goals of developing systems. The most important one is the response to changes in the user's needs and in the environment surrounding the information system. We note through the results illustrated in Table 3 the agreement of most of the sample members whose responses were positive to the entire paragraphs of the 2nd axis (the approach of developing accounting information systems). This also shows a common arithmetic mean of (4.17), a standard deviation of (0.15), and a coefficient of variation of (3.58%).

The Third Axis (Enhancing the Quality of Accounting Information)

The importance of the third axis becomes clearly apparent in Table 4, which shows the responses of the sample members regarding the arithmetic mean, standard deviation, and coefficient of variation. Table 4 illustrates the arithmetic means, standard deviation, and coefficient of variation regarding member's responses to the third axis (enhancing the quality of accounting information). The findings were given to the maximum level of the answer, which was realized by the 5th item, stating (the process of developing systems requires the performance of several activities, methods, practices, the automatic delivery process and the equipment used. These activities, in turn, contribute to enhancing the quality of accounting information as an output of the development process). The arithmetic mean value was (4.45), the standard deviation among the responses was (0.68), and the coefficient of variation was (15.31%). This shows little dispersion in the responses of the members. The lowest value of the arithmetic mean was for the third item (the quality of accounting information refers to the extent to which the information is accurate, consistent, timeliness, complete, and presented correctly. This is done in an effort to meet the expectations of users who need it in subsequent operations). The arithmetic mean value was (3.91), the standard deviation was (0.89), and the coefficient of variation was (22.85%). We note, through the findings illustrated in Table 4,

the agreement of most of the sample members whose responses were positive to entire items of the 3rd axis (enhancing the quality of accounting information). It also shows a general arithmetic mean for the axis of (4.17), a standard deviation of (0.17), and a coefficient of variation of (3.98%).

Discussing and Testing the Correlation Hypotheses

In this section, the correlation hypotheses among the study variables will be discussed and tested by performing a test of the first main hypothesis *“there is a significant correlation relationship between the design of accounting information systems and the enhancement of the quality of accounting information in light of the systems development approach.”*

The following sub-hypotheses arise:

1. The 1st sub-hypothesis: There is a significant correlation between the design of accounting information systems and the systems development approach.
2. The 2nd sub-hypothesis: There is a significant correlation between the systems development approach and enhancing the quality of accounting information.
3. The 3rd sub-hypothesis: There is a significant correlation between the design of accounting information systems and the enhancement of the quality of accounting information.

No	Items	Arithmetic mean	Standard deviation	Variation coefficient %
1	The quality of accounting information is one of the essential characteristics of the information itself, which can be expressed as meaningful and helps in improving the decision-making process.	4.28	0.78	18.18
2	The quality of accounting information is related to the degree of compliance with rules and procedures that are applied regularly and in a manner that shows the reality of the financial position of the economic entity and the relative importance of the recorded events.	4.01	1.1	27.38
3	The quality of accounting information refers to the degree to which the information is precise, consistent, timeliness, complete and presented correctly, in an effort to meet users' expectations who need it in subsequent operations.	3.91	0.89	22.85
4	The quality of accounting information can be measured through standards of accuracy, utility, predictability, effectiveness and efficiency.	4.17	0.78	18.78
5	The systems development process requires performing a set of activities, methods, practices, the automated delivery process and the equipment used. These activities, in turn, contribute to enhancing the quality of accounting information as an output of the development process.	4.45	0.68	15.31
6	The commitment to perform the basic steps of the conceptual design of the accounting information system contributes to enhancing the quality of accounting information.	4.38	0.76	17.28
7	The process of designing accounting information systems requires that the conceptual view of the user be defined and the design of the physical view of the user. This in turn enhances the quality of accounting information as an output of the design process	4.17	0.17	3.98
	3rd axis	4.17	0.17	3.98

Source: Based on the outputs of SPSS program

The Pearson correlation coefficient was used to calculate the degree of correlation between the research variables in order to evaluate the validity of the first primary hypothesis and the hypotheses arising from it. The findings from the test of this relationship are displayed in the following Table 5.

Table 5 illustrates that the value of the Pearson correlation coefficient between the variable (the effect of accounting information systems design on the quality of accounting information), and the variable (the approach of developing accounting information systems) has reached (0.795). It is a positive value and statistically significant at the level of significance (0.01). This indicates the significance of the correlation between the endeavor of organization to enhance the quality of information represented by faithful representation, completeness, verifiability and understandability resulting from the performing of physical design requirements that start from the design of outputs and end with the design of control, and the use of systems development methodology to overcome the challenges facing the process of developing information systems. According to the importance of the statistically significant correlation relationship, the first sub-hypothesis, which states “*There is a significant correlation between the design of accounting information systems and the systems development approach*”, is accepted.

Variables	The effect of accounting information systems design on the quality of accounting information	The approach of developing accounting information systems	Enhancing the quality of accounting information
The effect of accounting information systems design on the quality of accounting information	1	0.795** 0.000	0.691** 0.000
The approach of developing accounting informationsystems	0.795** 0.000	1	0.763** 0.000
Enhance the quality of accounting information	0.691*** 0.000	0.763** 0.000	1

Source: Based on the results of statistical analysis at the level of significance of (0.01)

Table 5 illustrates that the value of the Pearson correlation coefficient between the variable (the approach of developing accounting information systems) and the variable (enhancing the quality of accounting information) has reached (0.763). It is a positive, statistically significant value at the level of significance (0.01). This shows the significance of the correlation between the inevitability and the need to develop information systems as a result of the obsolescence of accounting information systems and their weak response to changes in the environment surrounding the entity. This requires that the development process be carried out by performing several activities, methods, practices and automated delivery, which contributes to enhancing the quality of accounting information as an output of the development process. According to the importance of the statistically significant correlation, the second sub-hypothesis which states “*there is a significant correlation between the systems development approach and the enhancement of the quality of accounting information*” is accepted.

Table 5 illustrates that the value of the Pearson correlation coefficient between the variable (the effect of accounting information systems design on the quality of accounting information) and

the variable (enhancing the quality of accounting information) has reached (0.691). It is a positive, statistically significant value at the level of significance (0.01). This means that the process of designing accounting information systems seeks to provide accounting information with specific quality standards. This requires a commitment to perform the basic steps of the conceptual design of the accounting information system, which leads to enhancing the quality of accounting information. Based on the significance of the statistically significant correlation relationship, the third sub-hypothesis which states *“there is a significant correlation between the design of accounting information systems and the enhancement of the quality of accounting information”* is accepted. According to the acceptance of the first, second, and third sub-hypotheses of the first main hypothesis, the first main hypothesis is accepted, which states *“There is a significant correlation between the design of accounting information systems and enhancing the quality of accounting information in light of the approach of systems development”*.

Discussing and Testing Effect Hypotheses

In this section, the effect hypotheses will be dealt with and tested among the research variables through making a test of the second main research hypothesis included *“there is a significant effect relationship between the design of accounting information systems and the enhancement of the quality of accounting information in light of the systems development approach.”*

The below sub-hypotheses arise:

1. The first sub-hypothesis: There is a significant effect relationship for the design of accounting information systems on the systems development approach.
2. The second sub-hypothesis: There is a significant effect relationship of the systems development approach on enhancing the quality of accounting information.
3. The third sub-hypothesis: There is a significant effect relationship for the design of accounting information systems on enhancing the quality of accounting information.

The first sub-hypothesis included (there is a significant effect relationship for the design of accounting information systems on the approach of systems development) will be tested by hypothesizing that there is a significant relationship between the design of accounting information systems (X) and the systems development approach (Y). It can be modeled through the linear regression equation below:

$$Y = a + bX$$

Where Y=Systems development approach, X designing accounting information systems, β =equation tendency (amount change in Y which occurs as a result of a change in X), a =Fixed statistic unit.

The above equation shows that the design of accounting information systems is a function of the real value for the systems development approach. Table 6 illustrates the findings of the analysis of variance (ANOVA) and the coefficients of the effect relationship test.

Model	Sum of Squares	Df	Mean Square	R	R ²	F	Sig.
Regression	2.212	1	2.212	0.795 ^a	0.631	253.403	9.999
Residual	1.292	148	0.009	-	-	-	-
Total	3.504	149	-	-	-	-	-

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta`		
(Constant)	0.75700	0.214	-	3.542	0.001
The design of accounting information systems	0.817	0.051	0.795	15.919	0.000

According to the results illustrated in Table 6, it becomes obvious that the design of accounting information systems has correlation and effect on the systems development approach. This effect and correlation form a linear regression model regarding the strength of the association and the explanatory and effect ability in the variable of the systems development approach. The value of the coefficient (R) for this model was (0.795), which is statistically significant at (0.05). The value of F was (253.403), which was greater than its tabular value (3.04). This shows a strong effect relationship between the variable (the design of accounting information systems) and the variable (the systems development approach). The value of the coefficient of determination (R^2) representing the explanatory ability of the linear regression model, has reached (0.631). This value means that the linear regression model and through the variable (accounting information systems design) show (63.1%) of the difference and variance in the variable (the approach of systems development), and its significance is supported by the T- test value of (3.542), which could be greater than its tabular value (1.984). This indicates that there is a strong effect of the variable (accounting information systems design) on the variable (the systems development approach). However, the linear regression is sufficient to describe the relationship between the design of accounting information systems and the systems development approach with high significance. This verifies the validity and acceptance of the first sub-hypothesis, based on the linear regression equation as follows:

$$Y = 0.757 + 0.817X$$

It becomes clear from the value of the linear regression coefficient (β) of (0.817) that increasing the variable (accounting information systems design) by one unit will lead to an increase in the variable (the approach of systems development) by (81.7%). Based on the findings in Table (6), the first sub-hypothesis was accepted, “*there is a significant effect relationship for the design of accounting information systems on the systems development approach.*”

The second sub-hypothesis included “*there is a significant effect relationship of the systems development approach on enhancing the quality of accounting information*” will be tested by hypothesizing that there is a significant relationship between the systems development approach (X) and the quality of accounting information (Y). It could be indicated through the following linear regression equation:

$$Y = a + bX$$

The above equation shows that the systems development approach is a function of the real value of the quality of accounting information. Table 7 illustrates the findings of (ANOVA) and the coefficients of the effect relationship test.

According to the findings shown in Table 7, it becomes obvious that the systems development approach has a correlation and effect on the variable of enhancing the quality of accounting information. This effect and correlation form a linear regression model regarding the strength of the correlation and the explanatory and effect ability in the variable of enhancing the quality of accounting information. The value of the coefficient (R) for such a model was (0.763), which was statistically significant at (0.05). The value of F was (205.916), which was greater than its tabular value (3.04). It points out a strong effect relationship between the variable (systems

development approach) and the variable (enhancing the quality of accounting information). The explanatory ability of the linear regression model, as measured by the coefficient of determination R^2 , has increased to (0.582). This value indicates that the linear regression model, through the variable (systems development approach) show (58.2%) of the difference and variance in the dependent variable (enhancing the quality of accounting information.)

Model	Sum of Squares	Df	Mean Square	R	R^2	F	Sig.
Regression	1.93	1	1.93	0.763 ^a	0.582	205.916	0.000 ^b
Residual	1.387	148	0.009	-	-	-	-
Total	3.317	149	-	-	-	-	-

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	β	Std. Error	Beta `		
(Constant)	1.307	0.199	-	6.552	0
The systems development approach	0.686	0.048	0.763	14.35	0

This shows that there is a statistically significant effect at the significance level (0.05). The statistical results in Table 7 show that the value of (T=6.552) is significant (Sig=0.000). This indicates that the linear regression is adequate to define the relationship between the variable (systems development approach) and the variable (enhancing the quality of accounting information) and with max significance according to the following linear regression equation:

$$Y = 1.307 + 0.686X$$

It becomes obvious from the value of the linear regression coefficient (β) of (0.686) that the increase in the variable (the systems development approach) by one unit will cause an increase in the variable (enhance the quality of accounting information) by (68.6%). According to the results in Table 7, the second sub-hypothesis “*there is a significant effect relationship of the systems development approach on enhancing the quality of accounting information*” was accepted.

The third sub-hypothesis included “*there is a significant effect relationship for the design of accounting information systems on enhancing the quality of accounting information*” will be tested by hypothesizing that there is a significant relationship between the design of accounting information systems (X) and the enhancement of the quality of accounting information (Y). It may be possibly indicated by the following linear regression equation:

$$Y = a + bX$$

The above equation shows that the design of accounting information systems is a function of the real value of enhancing the quality of accounting information. Table 8 shows the results of the analysis of variance (ANOVA) and the coefficients of the effect relationship test.

Model	Sum of Squares	df	Mean Square	R	R^2	F	Sig.
Regression	1.675	1	1.675	0.478	0.691 ^a	135.450	0.000 ^b

Residual	1.830	148	0.012	-	-	-	-
Total	3.505	149	-	-	-	-	-
Coefficients							
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.		
	β	Std. Error	Beta ^				
(Constant)	1.496	0.229	-	6.533	0.000		
The design of accounting information systems	0.639	0.055	0.691	11.638	0.000		

According to the results in Table 8, it becomes obvious that the design of accounting information systems has a correlation and effect on the variable (enhancing the quality of accounting information). With respect to the degree of correlation and the variable capacity for explanatory and influencing ability, this effect and the correlation created a linear regression model. The value of the coefficient (R) for this model was (0.478), which was statistically significant at (0.05). It shows a strong effect relationship between the variable (designing accounting information systems) and the variable (enhancing the quality of accounting information). The value of F was (135.450), which was greater than its tabular value (3.04). This shows a strong effect relationship between the variable (designing accounting information systems) and the variable (enhancing the quality of accounting information). The explanatory ability of the linear regression model, as measured by the coefficient of determination (R^2), has attained a value of (0.691). This value indicates that the model of linear regression through the variable (designing accounting information systems) show (69.1%) of the difference and variance in the dependent variable (enhancing the quality of accounting information). It becomes obvious from the statistical results in Table (8), that the value of (T=6.533) is significant (Sig=0.000). This shows that the linear regression is enough to define the relationship between the design of accounting information systems and the enhancement of the quality of accounting information with high significance. This verifies the validity of the hypothesis in line with the linear regression equation as follows:

$$Y = 1.496 + 0.639X$$

It becomes obvious from the value of the linear regression coefficient (β), which is (0.639), that the increase in (designing accounting information systems) by one unit will cause an increase in the variable (enhancing the quality of accounting information) by (63.9%). Based on the results in Table 8, the third sub-hypothesis “*there is a significant effect relationship for the design of accounting information systems on enhancing the quality of accounting information*”, was accepted. According to the second major hypothesis acceptance of the first, second, and third sub-hypotheses, stating “*There is a significant effect relationship between the design of accounting information systems and the enhancement of the quality of accounting information in light of the systems development approach*” was accepted.

CONCLUSION

1. The results and respondents' answers regarding the first axis (the impact of accounting information systems design upon the quality of accounting information) showed that there was an agreement to a high degree regarding the components of the paragraphs. The key results are: The need for the design process of accounting information systems to seek to provide accounting information with specific quality standards that are part of the essential qualities of the information. Those standards are embodied in accuracy, consistency, completeness, utility, predictive value, timeliness, and many quality standards that contribute to using accounting information in the process of decision-making and improvement.
2. The results and respondents' answers to the second axis (the systems development approach) showed that there was an agreement to a high degree on the components of the paragraphs in the axis. One of those items was the necessity of using the systems development methodology to overcome the challenges facing the process of developing

information systems represented in the existence of the communication gap between the user and the service provider. Meeting the renewed needs of information users and providing them with information of an advanced level of quality is a cornerstone of the information systems development process.

3. The results and respondents' answers to the third axis (enhancing the quality of accounting information) showed that there was an enormous agreement on the components of the paragraphs in the axis. The content is the process of developing systems requires performing a set of activities, methods, practices, automatic delivery process and the equipment used. All of these activities contribute to enhancing the quality of accounting information as an output of the development process.
4. Table 5 showed the value of the Pearson correlation coefficient among the study variables, which were positive and statistically significant. This result illustrates that the process of designing accounting information systems that takes place in light of the systems development approach will contribute to enhancing the quality of accounting information. Of course, it requires a commitment to perform the basic steps of the conceptual design and physical design of the accounting information system.
5. The variable (the design of accounting information systems) explained (81.7%) of the total deviations in the values of the variable (the systems development approach), while the variable (the systems development approach) showed (68.6%) of the total deviations in the values of variable (enhancing the quality of accounting information). Finally, the variable (the design of accounting information systems) explained (63.9%) of the entire deviations in the values of the variable (enhancing the quality of accounting information).
6. Via the field study, the research verified that there was an effect of the design of accounting information systems in enhancing the quality of accounting information in light of the systems development approach, by verifying the main and sub-hypotheses of the research entirely.

RECOMMENDATIONS

1. It is necessary to pay attention to the issue of quality of accounting information when thinking about the development of information systems, starting from the nature of users' needs of accounting information, and try to meet them as far as the quality of information is concerned. This is carried out on the grounds that this information represents the main product of the financial statements that are of interest to all users of accounting information, as it is the main source of information on which they rely in making decisions.
2. In order to enhance the quality of accounting information and respond to the renewable needs of users of information, the process of designing accounting information systems should be used to perform this task and activate the two stages of conceptual design and physical design of the information system and all its requirements to achieve this goal.
3. Business institutions should conduct continuous studies regarding of users' needs of accounting information and the changes occurring by. In order to keep pace with these changes and developments, the systems development approach should be used, which aims at responding to the changing needs of information users. Simultaneously, the design of accounting information systems is the executive tool for the process of systems development in the field of enhancing the quality of accounting information.

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