Do the Outputs of the Automated AIS Satisfy the Requirements of Decision Makers of the Omani Commercial Banking Industry?

هل تفي مخرجات أنظمة المعلومات المحاسبية المؤتمنة بمتطلبات متخذي القرار في قطاع البنوك التجارية العمانية؟

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Abstract

Commercial banking industry plays a key role in investment growth, and in the development of different industries around the world. Because accounting information systems (AIS) play a key role in determining the degree of success, and affect the competition position of commercial banks in a world that characterized with globalization, these systems need more investigation. The study investigates whether the outputs of the automated accounting information systems of the Omani commercial banks are understandable, relevant, reliable, comparable, and consistent, in order to satisfy the requirements of decision makers in this group of banks. A questionnaire was developed and self-administered for a selected convenient sample of decision makers from the Omani commercial banks in order to collect the required data. T-test and a selected group of descriptive statistics were used to analyze the collected data and to test the hypothesis of the study. The study finds that the outputs of the automated AIS of the Omani commercial banks are understandable, relevant, reliable, comparable, and consistent, so these outputs are useful for the purposes of the decision making process.

Keywords: Accounting Information Systems; Information Technology; Commercial Banks; Decision Making Process; Relevance; Reliability; Comparability; Understandability.

1. Introduction

Information technology is the most important facility that should be available in different types of today's business

organizations. The role that information technology plays in business organizations enhanced during the recent few years, especially in commercial banks, because of the increased number of tasks that these banks should perform *(Makamreh and Dahan, 1990)*. Information technology enables managers of commercial banks to record, save, process, analyze, and retrieve information effectively. Because information is one of the most important type of inputs to the decision making process, the availability of an appropriate information system becomes necessary in any organization, especially in commercial banks. These systems should be able to satisfy the needs and the requirements of decision makers in commercial banks *(Frezatti et al., 2005)*.

Commercial banks have encountered an increasing degree of competition over the few years ago. To be effective and competitive, these banks should adopt a developed information technology. The availability of a developed information technology maintains the competitive position of commercial banks, and enables these banks to develop its current competitive situation *(Joudah, 2000)*. As decision makers, managers of commercial banks need accounting information to take good, accurate, and timely decisions. The outputs provided by the adoption of information technology can be used in different categories of decisions. It can be used in different types of banks in making planning, organizing, directing, controlling and other decisions. These decisions are normally taken to improve the level of work efficiency and performance. Improving the level of performance is not a simple issue without the adoption of an efficient type of information technology.

Commercial banks are business organizations that have been established to achieve many purposes such as profitability, productivity, etc. Appropriate AIS can provide useful information for the decision makers of commercial banks. The ability of a commercial bank to introduce and provide new services, or adjust the current services, can not be maintained without the availability of enough information regarding the needs and desires of its customers, and without information about its competitors and the activities of those competitors *(Al-Arabi, 2007)*. Commercial banks can provide services to customers during a short period of time, at a higher level of accuracy and quality, when banks adopt a very developed information systems. Customers of today collect enough information before they choose the bank with which to deal. Most of today's customers have a banking education, so most of them will deal with a bank that they feel it is able to provide them with the required services in a better form, and will better satisfy their needs. Because of the type of information system used and the outputs given, the decision makers of a bank are able to make good and quick decision.

Commercial banks offer customers with different important types of services. The main activity of these banks is to accept deposits and lend these deposits to other customers. In addition, commercial banks play a key role in making payments, through checking accounts, credit cards, and electronic funds transfer services. These banks are also important because of their ability to create money from excess reserves made available from the public's deposits. Moreover, governments depend on commercial banks in the implementation of its monetary policy to change the available

amounts of cash the market. In addition, this type of banks is the most important source of consumer credit and one of the major sources of loans to small businesses *(Rose, 2000)*. Other activities provided by commercial banks are as follows: *(Al-lawzi & Zuweilef, 1997)*:

1. Investing in financial securities.
2. Maintaining the tangible properties of customers.
3. Purchasing and selling financial securities on behalf of their customers.
4. Collecting checks, invoices, and coupons.
5. Converting money among countries.
6. Exchanging money and issuing tourist checks.
7. Managing the properties on behalf of customers.
8. Advising and consulting activities.

This study investigates whether the outputs of the adopted automated accounting information systems by the Omani commercial banking industry can, or cannot satisfy, the requirements of decision makers in these banks, and examines the role that information technology plays in the decision making process of these banks. To be appropriate for the decision making process, several characteristics should be available in the outputs of the automated AIS. The Financial Accounting Standards Board (FASB) has identified the qualitative characteristics of accounting information that distinguish useful from inferior information for the purposes of decision making to include the characteristics of relevance, reliability, comparability, and consistency *(Kieso and Weygandt, 2006)*. Because accounting is an information system that concerned with measuring, processing, and communicating financial

information about an identifiable economic entity, people who use accounting information to make decisions fall into two categories: (1) internal users, such as managers, and (2) external users, such as investors and creditors. *(Hendriksen , and Van Berda, 1992).*

Nobody can deny the benefits of information technologies and information systems. Using information systems will increase the knowledge of employees and users and will decrease the degree of uncertainty among them. It also supports the decision making process and the needs of decision makers. The responsibility of providing and improving the applied information systems in commercial banks lies on the managements of these banks. One of the most important duties of banks' management is to provide, support, and improve the adopted information systems, because this will enable these banks to avoid any threats that commercial banks may face *(Hayale, and Abu-Khadrah, 2005).*

The main problem this study investigates is the contribution of AIS of the Omani commercial banks in providing appropriate outputs to the requirements of decision makers of these banks. This problem can be better introduced through the following question: ***Do the adopted automated AIS by the Omani commercial banks provide understandable, relevant, reliable, comparable, and consistent outputs to the requirements of decision makers of these banks?*** The answer of this question will satisfy the objectives of this study because when accounting information is characterized with, understandability, relevance, reliability, comparability, and consistency, it will be able to satisfy the requirements of decision makers. Therefore, a questionnaire had been developed and self-administered for a sample of decision makers in the Omani

commercial banks, and the included items in the study's questionnaire had bee designed to measure whether each of the above characteristics is available in the outputs of the automated AIS of the Omani commercial banks, or not. The hypotheses of the study had also developed based on the question of the study, so each hypothesis had been designed to measure the availability of one of these characteristics.

The current study stems its importance from the importance of the outputs of the automated AIS for the decision making process *(Seyam. and Rahahleh, 2006)*. One important type of inputs to the decision making process is information. In commercial banks, accounting information is the most important type of information because of the nature of work of these banks.

This study differs from prior researches in its method, location, and data. A unique method to collect, analyze, and test the data is used in this study. More focus is done on the qualities of useful accounting information and to the ability of the applied AIS in the Omani commercial banks to provide this type of information. The data had bee gathered from decision makers in different levels of organizational structures of these banks. Moreover, the outputs of the Omani commercial banks had not been studied previously, so the location of this study is different from prior studies.

The remaining of the current study is structured to be as follows: section 2 presents both of literature review and the related prior researches, while the hypotheses were developed and presented in section 3. Section 4 presents the methodology used in the accomplishment of the study, and section 5 introduces the results

and the hypotheses testing. Section 6 summarizes the findings and presents the recommendations of the study.

2. Literature Review & Prior Studies

AIS produce financial accounting data to external stockholders, investors, lenders, governmental agencies, and internal users. This data must be certifiably free of specific type of errors since a firm is subject to data quality control assessment conducted by auditors at anytime during operations *(Kaplan and Krishnan, 1998)*. To be useful, AIS should be accurate and fast while processing financial information, and in providing management with the essential accounting information within a reasonable time. In addition, AIS must be efficient to provide management with the required information for the purposes of planning, organizing, leading, and controlling. AIS should also be accurate, flexible, and efficient in retrieving the available information when there is a need for this information. Moreover, AIS should be characterized with its acceptance from the firm's employees and easy to be used. In addition, an appropriate link must be available between the AIS and other applied information systems in the organization.

An AIS is defined as "a system of collecting and processing transaction data and disseminating financial information to interested parties" *(Kieso and Weygandt, 2006)*. Several characteristics should be available in adopted AIS. It must be simple, reliable, flexible, and economically adequate *(Greenstein and Vasarhely, 2002)*. The related regulations of Oman require the commercial banking industry to use an information technology, because today using technological information systems in the banking industry is

necessary for the commercial banks themselves, and for the customers of these banks.

Information technology (IT) can be defined as "an electronic means used for collecting, processing, saving, and publishing the information" *(Duncombe and Heeks 1999)*. Today, IT is an issue reflects the importance of using the technological processed information in providing different needed services by people. For example, there is a wide role for the internet as a communication means in promoting and performing several commercial processes *(Avolio et. al., 2001)*. Internet technology is described as cheap means of communication, so this technology reduces the total cost of commercial transactions *(Jones C., 2001)*. No body can deny that there is a clear difference between organization that adopt an appropriate information technology, and those do not, so customers of today can simply distinguish between those two groups of organizations.

Electronic commerce has emerged, allowing business firms to interact more effectively with their customers and with other firms. One industry that is using this new communication channel to reach its customers is the commercial banking. The electronic banking systems address several emerging trends: customers' demand for any time anywhere service, product time-to-market imperatives and increasingly complex back-office integration challenges *(Yang J., 2006)*. Electronic banking is offering its customers with a wide range of services: customers are able to interact with their banking accounts as well as make financial transactions from virtually anywhere without time restrictions.

The FASB mentioned that accounting information should be characterized with relevance, reliability, comparability, and

consistency in order to be useful for the decision making process. Understandability is a connection between users of accounting information and the decisions they take *(Al-Qadi H., 2001)*. When accounting information is capable of making a difference in the user's decision, it is considered relevant. To be relevant, accounting information must involve predictive and feedback value and must be timely *(Al-Shearazi A., 1990)*. This means that when accounting information enables users to predict the future and to assess their prior predictions, and when users can receive that information whenever they need, accounting information is considered relevant. Accounting information is reliable to the extent that it is verifiable, a faithful representation, and reasonably free of error and bias *(Kieso & Weygandt, 2006)*. When independent measurers using the same methods of measurement obtain similar results, the accounting information is considered verifiable. Representational faithfulness means that the numbers and descriptions represent what really occurred during the accounting period. Accounting information is described as neutral when it is free of bias. "Neutral" means that information can not be selected to favor one set of interested parties over another. Regarding comparability, accounting information is comparable when it has been measured and reported in a similar manner to different firms. Accounting information is comparable when the firm's current period information can be compared with the same firm's prior periods of information, and when the firm's accounting information of the current period can be simply compared with information of other firms for the same period. Consistency requires that an accounting procedure, once adopted by a firm, remains in use from one period to the next unless informed of

a change. Thus, without a note to the contrary, users of financial statements can assume that there has been no arbitrary change in the treatment of a particular transaction, account, or item that would affect the interpretation of the statements. This does not mean that the firm cannot switch from one method to another, but the switch is restricted to situations in which it can be demonstrated that the newly adopted method is preferable to the old one.

AIS had been enough studied in different industries in most of Arab countries, especially in Jordan, but the applied systems in the commercial banking industry of Oman had not been given the required attention by researchers. Before investing high amounts of money in adopting AIS, in depth investigations are required to its efficiency, flexibility, timely, and appropriateness, so when the findings are positive, more applications can be followed, whereas when the findings are negative, new systems can be tested for application. Moreover, the findings of the studies that took place in some Arab countries were not the same, and some of them reached different conclusions. Studying the Omani commercial banking industry, and the nature of the outputs of the automated AIS in this industry is rare. Because of that, we find that the outputs of the Omani commercial banking industry need more investigations, and the extent of its appropriateness to the requirements of decision makers is highly recommended.

An important study carried out by Makamreh and Dahhan (1990), in Jordan. The purpose of this study is to examine the effect of using information systems in performing the jobs of Jordanian banks. The study shows that the use of computers leads to more accurate and correct decisions, and improves system of controlling

and supervision in Jordanian banks. Moreover, the study finds that the use of computers in the Jordanian banking industry produce more accurate information. Accurate decision is that decision which is able to represent the actual situation, so it is free of many mistakes. The study recommends the need for more safety accounting systems in Jordanian banks because of the different tasks performed by these banks to customers. This recommendation is considered important because when Jordanian banks adopt it, the usefulness of these banks will be enhanced. The recommendation lies under the security of information systems, so these systems will be less useful and sometimes harmful when it less safe.

Radaydeh, (1998), carried out another related study for the Jordanian Department of Customs. The purpose of the study is to investigate the effect of automated processing on the accounting information. It concludes that the accounting systems are affected, to a large degree, with the automated processing of data that the Jordanian Department of Customs follows. The most important conclusion of this study is that the automation method of data processing provides the requirements of international accounting standards and that the outputs of these automated systems satisfy the requirements of decision makers in the department. This conclusion means that the outputs of the automated AIS are appropriate to the decision making process in the Jordanian Department of customs.

Joudah (2000), carried out a study regarding the electronic commerce in banks. The purpose of this study is to identify the reasons standing behind the need for the adoption of automated AIS in banks. The study shows that there is an emergent need to develop AIS in Banks. He also mentioned several reasons that are standing

behind the necessity to develop the AIS of banks, and behind increasing those banks to the size of their investments in automated information technologies in order to be able to practice the e-commerce through the internet. Among those reasons, as the author mentioned, are: (1) the desire to reduce the total cost of commercial transactions, (2) to encounter the local, regional, and international environment of competition, and (3) to satisfy and improve the needs of customers. Based on the main conclusions to this study, developing AIS is important because many benefits will be achieved by banks if those banks review their AIS and determine what aspects of their information technologies need to be developed and how they can be developed, then those banks took an actual actions to develop their accounting systems.

Dehings et. al. (2004) studied the value relevance of electronic commerce initiatives. The purpose of the study is to examine the value relevance of e-commerce initiatives. The authors find the evidence that the traditional event study methodology may not provide an accurate measure of abnormal returns during periods of high market volatility, and propose an alternative methodology. By using their alternative methodology, they find an evidence of positive abnormal returns for e-commerce announcements made in the fourth quarter of year 1998, but no abnormal returns to e-commerce announcements made in the fourth quarter of 2000. They also find significant differences in value, depending on the type of e-commerce initiative.

Seyam & Rahahleh (2006), carried out a study to investigate the appropriateness of the AIS outputs to the requirements and purposes of decision makers in the commercial banks of Jordan. One

important conclusion of this study is that the outputs of the Jordanian commercial banks are appropriate to the purposes of decision making in these banks. The study reveals that the outputs of the automated AIS satisfy carefully the requirements of decisions makers in these banks. This finding means that decision makers of the commercial banks industry of Jordan can depend on those outputs when they need to make decisions. This study and its findings are important to the managements of the Jordanian commercial banks industry, especially when we recognize that commercial banks in Jordan early adopted the automated AIS.

Hayale & Abu Khadra (2006), evaluated the effectiveness of the Jordanian banking industry. The study takes into consideration several variables that may affect the effectiveness of control systems. This study reveals that the Jordanian domestic banks adopt an effective fraud and error reduction controls. The study also reveals that these banks are lacking the application of other control system dimensions (physical access, logical access, data security, documentation standard, disaster recovery, internet, communication and e-control and output security controls). The main recommendation of this study for the Jordanian domestic banks is to increase the strengths of control systems of their automated AIS for all dimensions, in order to avoid the possible threats that could threaten their automated AIS. This means that many threats and difficulties face or may face the Jordanian commercial banking industry, so it determines those threats and the procedures that may be used by decision makers in that industry to reduce the negative effects of those possible threats.

Abu-Musa, (2006), conducted a study to investigate the perceived security threats of the automated accounting information systems in the Egyptian banking industry. The study focuses on the security aspects of using automated accounting information systems. The author studied the weaknesses and the shortcomings that may occur because of inappropriate use of information system by employees in the Egyptian banks. He also takes into consideration the other weaknesses that may occur because of reasons other than human resources. The study finds that accidental entry of bad data by employees, accidental destruction of data by employees, employees' sharing of passwords, and misdirecting prints and distributing information to unauthorized people, are the most significant perceived security threats to the automated AIS in the Egyptian Banking industry. Under-control mistakes can be avoided and the use of information system can be improved through more training programs to the employees in those banks, and by the use of more developed information systems.

Fabio Frezatti et al., (2007), studied the effect of management information systems on the user's satisfaction. The purpose of their study is to investigate the relationship between management accounting attributes and user satisfaction. The study reveals that the satisfaction of users of management accounting information system increases if the attributes of the system allow users to obtain useful information. This study recommends additional investigations to the attributes of management accounting information systems in order to determine which attributes make a greater contribution to the satisfaction of the users of accounting information. Based on the conclusions of this study, any information system, whatever its type

or category, will be more beneficial as the users of that system can receive more classified and processed information, and as the users can access that information during a short period of time. Based on the conclusions, the study recommends additional investigation for the information systems in its different types and industries.

The evaluation of the effectiveness of accounting information systems was among the attentions of other authors. Sajady, Dastgir, and Hashim Nejad, (2008) investigated this effectiveness for financial managers working in listed Iranian companies in Tehran Stock Exchange. Thse authors found that the implementation of accounting information systems improved the decision making process and the quality of decisions in these decisions. In addition, the study found that accounting information facilitates the process of preparing and completing the transactions of these firms.

Along with their attempts to investigate of assessing the level of perceptions the outputs of computerized AIS, Fawzi and Masrin, (2011) investigated the perceptions of four factors, including; performance expectancy, effort expectancy, social influence, and social conditions in using computerized AIS in financial institutions of Bangladesh. The authors depended on a sample consisted of 400 respondents of employees in Banks, insurance companies and other financial institutions, and used multiple regression in in testing the hypotheses of their study. The study found that all of the above mentioned factors have a significant influence in using the computerized AIS.

Based on the survey of the literature review and the conclusions of prior researches, it is apparent that the adopted automated AIS should be characterized with several characteristics

in order to be beneficial for the decision making process. The useful automated AIS for the purposes of decisions making should be understandable, relevant, reliable, comparable, and consistent. Some prior researches focused on these characteristics and shows that some of the above mentioned characteristics are available, while others unavailable. Therefore, the hypotheses of the study are developed in the next section.

3. The Research Hypotheses

Based on the presented literature framework and on prior researches, the hypotheses of the study, in their null form, are as follows:

Ho_1: The outputs of the automated AIS of the Omani commercial banking industry are not understandable.

Ho_2: The outputs of the automated AIS of the Omani commercial banks are irrelevant.

Ho_3: The outputs of the automated AIS of the Omani commercial banks are unreliable.

Ho_4: The outputs of the automated AIS of the Omani commercial banks are incomparable.

Ho_5: The outputs of the automated AIS of the Omani commercial banks are inconsistent.

4. Methodology

The population of the study includes the entire group of the Omani commercial banks. Up to the end of 2008, this group consists of 15 commercial banks, among these, 6 are local, while the remaining are foreign banks.

A sample consisting of 130 decision makers in the Omani commercial banks was selected based on the convenience sampling

method. All of these respondents are occupying administrative positions in this type of banks in Oman including, chief executives, heads of departments, heads of divisions, and other decision makers in other positions of the Omani commercial banks.

A questionnaire consists of five sections was developed after a preliminary observation on the practice, and self-administered to the respondents. To investigate the validity of the research instrument, four professionals in the banking industry and three academics in the field of accountancy were consulted. They were asked to check whether the items of the questionnaire measure the required characteristics of accounting information, or not. They were also asked to confirm that each item of the questionnaire is categorized under the correct or representative section. Moreover, they were asked to suggest a weight for each item within its section, where the total scores for each section does not exceed 100%. The questionnaire was written in Arabic, because some respondents do not understand English. The translation of the questionnaire was tested by independent back-translator from Arabic to English and back again to Arabic, showing close correspondence of the terminology and meaning of items. Reliability tests using Cronbach's Alpha revealed a value of 77 percent, so it can be considered reliable to measure the availability of useful accounting information in the outputs of automated AIS.

One way to assess the potential for non-response bias is to compare data from late respondents with data from on-time responses, as in Wallace and Mellor (1988). In this study, 14 responses had received following a reminder. Late responses were

not significantly different from other responses in any of the analysis in the section of results.

The questionnaire consists of five sections. The first had been prepared to collect the related demographic data of respondents. This section includes data regarding the scientific field, educational level, departmental position, number of year-experience, and the degree of the respondent's participation in the decision making process. This section is necessary to ensure that all respondents own the knowledge and the ability to provide the required information. The purpose of the second section was to measure whether the outputs of AIS of the Omani commercial banks are understandable, or not. This section consists of 6 items (items 6-11). The third section is prepared to measure the relevance of the outputs of the automated AIS. It encompasses the items from 12, to 18. The fourth section of the questionnaire had developed to measure the reliability of the outputs of the automated AIS. A group of 7 items are included in this section. This section encompasses the items from 19, to 25. The fifth section is developed to measure whether the outputs of the automated AIS of the Omani commercial banks are comparable or incomparable. A group of nine items had used to measure the extent of comparability. This group includes the items from 26, to 34. The sixth section is prepared to measure the consistency of the outputs of the automated AIS. Because the characteristic of consistency is already included in the characteristic of comparability, just four items were used to measure this characteristic. These items are the last four (35-38) in the questionnaire.

Except the first one, all other sections were developed following the five-point Likert's scale to simplify the process of

measurement. The five optional answers that introduced to respondents were: strongly agree, agree, neutral, disagree, and strongly disagree. More information regarding the questionnaire and the items included in it is available in table (1).

Table No. (1)
Items used to measure the variables of the study

Questionnaire Items	***Variable***	***Items measure the variable***
Section No. 1	**Scientific Field** **University Degree** **Departmental Position** **Number of Experience Years** **Extent of contribution in decision making process**	**(1)** **(2)** **(3)** **(4)** **(5)**
Section No. 2	**Understandability**	**(6 – 11)**
Section No. 3	**Relevance**	**(12 – 18)**
Section No. 4	**Reliability**	**(19 – 25)**
Section No. 5	**Comparability**	**(26 – 34)**
Section No. 6	**Consistency**	**(35 – 38)**

Descriptive statistics are used to analyze the data of this study. Under this analysis, a selected measure of tendency (mean), and a selected measure of variation (standard deviation) were used. Descriptive statistics had mainly used just to describe the sample and to support the decision's acceptance or rejection of the null hypothesis. T-test is also used to test the hypothesis, so it is the key used method to decide whether to accept or reject the null hypotheses. (William W. Hines and Douglas C. Montgomery, 1972).

5. Results and Analysis

5.1 Descriptive Statistics

As appears in table (2), most respondents have a business major. Among respondents, 85 have a business major, while 19 have a major of other than business. Based on these numbers, 82 percent of respondents hold a business major, while 18 percent of them have

a nonbusiness major. These proportions indicate that respondents have the ability to understand the items introduced to them, and are able to provide the reasonable answers for these items.

Table number (2) also shows that 56.7 percent of respondents have the first university or a higher degree, whereas, 34.3 percent have lower than this degree, such as Diploma, General Secondary School, or less. These proportions can also be considered a good evidence for respondents' ability to understand the items of the questionnaire, and to provide the appropriate answers.

The table also shows that most respondents occupy an administrative position in their commercial banks. The analysis reveal that 81.7 percent of them are either general managers, heads of departments, or branches managers. This high proportion means that most respondents are required to take decisions, and their answers for the items of the questionnaire are based on their experience and on their practice of the decision making process. This high proportion of decision makers among respondents adds more reliability to the questionnaire.

The table reveals that about 92 percent of respondents have five-year experience, and just about 8 percent have less than this period. This means that, most respondents have enough experience, so they have the ability to answer the items of the questionnaire, because when an employee practices his job for a longer period, he/she becomes more knowledgeable with the methods used in the job performance and he/she will be more familiar with the terminology of his job. This result supports the reliability of the study.

Table No. (2)The Demographic characteristics of the Respondents

Item Number	*Item*	*Answer Options*	*Total*	*Percentage Ratio*	*Cumulative Percent*
1	Scientific Field	Accounting	26	25%	25%
		Finance & Banking.	17	16.3%	41.3%
		Business Administration	27	26%	67.3%
		Marketing	15	14.4%	81.7%
		Other	19	18.3%	100%
2	Scientific Degree	Doctorate Degree	5	4.8%	4.8%
		Master Degree	16	15.4%	20.2%
		First University Degree	38	36.5%	56.7%
		Diploma	35	33.7%	90.4%
		Secondary School or less	10	9.6%	100%
3	Organizational Position	General Manager	5	4.8%	4.8%
		Branch Manager	54	51.9%	56.7%
		Head of a Department	26	25%	81.7%
		Head of a division	14	13.5%	95.2%
		Other	5	4.8%	100%
4	Years of Experience	20 years or more	3	2.9%	2.9%
		15 to 19 years	10	9.6%	12.5%
		10 to 14 years	29	27.9%	40.4%
		5 to 9 years	54	51.9%	92.3%
		Less than Five Years	8	7.7%	100%
5	The Extent of Participation in the Decision Making Process	All Times	25	24%	24%
		Most Times	48	46.2%	70.2%
		Some times	24	23.1%	93.4%
		Rarely	5	4.8	98.2%
		Do not Participate	2	1.8%	100%

In general, it can be said that most respondents are decision makers, so they participate in the decision making process. Table (2) reveals that about 24 percent among them participate all the time in

the decision making process, and about 46 percent, participate most times, so the proportion of participating respondents at all times and most times is about 70 percent. These ratios support the confidence of the study findings.

Table (3) reveals more information regarding the relationship between each demographic item and the appropriateness of the outputs of the automated AIS in the Omani commercial banks. The table shows the coefficient of correlation, coefficient of determination, t-value, and the level of significance. The table also shows that a positive relationship exists between each demographic item and the appropriateness of the outputs of the automated AIS. The analysis reveals that the strongest relationship exists between the year-experience and the appropriateness of the outputs of the automated AIS. The coefficient of correlation between year-experience and the appropriateness of the outputs of the automated AIS is 0.713. Considering t-value in the table, it is apparent that the highest one belongs to the year-experience and equals 10.276, followed by the participation in the decision making process, which equals 8.7. This analysis demonstrates that year-experience enables decision makers to assess the outputs of automated AIS usefulness more than other demographical items.

Table (3)
Additional Statistical Information about the Demographic items

Item No.	***Demographic Item***	***Co. of Correlation***	***Co. of Determination***	***T-Value***	***Level of Significance***
1.	Scientific Field	0.341	0.116	3.66	0.00
2.	Scientific Degree	0.629	0.396	8.187	0.000
3.	Organizational Position	0.303	0.092	3.207	0.000
4.	Years of Experience	0.713	0.509	10.276	0.000
5.	Participation in Decision Making	0.653	0.426	8.700	0.000

5.2 Testing the First Hypothesis

Ho_1: The outputs of the automated AIS of the Omani commercial banking industry are not understandable.

Table (4) shows the analysis of the group of items used to measure the understandability of the outputs of the automated AIS of the Omani commercial banks. This table reveals that the computed t-value of most included items in this group is somewhat high. The table also shows that the highest mean belongs to item number 8, which states that the outputs of the automated AIS provide the required information to the decision making process, and enable them to make good decisions. In contrast, the lowest mean belongs to item number 11, which states that the outputs of the automated AIS simplify the decision making process. The mean of item number 8, which is the highest, is 3.9712 at, 1.0188 standard deviations, while the mean of item number 11, which is the lowest is 3.5, at, 1.322 standard deviations.

Considering table (4), the mean of the entire group of items is 3.7766, at, a standard deviation of 0.4746. These two values are enough indicators for the understandability of the outputs of the applied automated AIS in the Omani Commercial Banks.

Understanding information improves its value to users, whereas this value declines when information is less understandable. When information is highly understandable, decision makers can depend on this information to take good decisions. A good information system leads to understandable outputs, then to more beneficial information to decision makers. The outputs of an information system are better to be clear, easy to use, and understandable by most users in order to be more valuable.

Based on information available in table (4), the outputs of the automated AIS of the Omani commercial banks are understandable by decision makers, because the mean of the group of the used items in the measurement of understandability is higher than the proposed mean, which equals (3).

Table No. (4)
Results of measuring the understandability of the outputs of the automated AIS of the Omani commercial banks

Item No.	*Item*	*Average*	*Standard Deviation*	*T-Value*
6	**The outputs of the computerized AIS produce clear and understandable information to decision makers in the commercial banks of Oman.**	**3.8654**	**1.088**	**0.336**
7	**The outputs of the computerized AIS produce simple and smooth information to the decision makers in the commercial banks of Oman.**	**3.8365**	**1.1415**	**2.66**
8	**The computerized AIS contribute in providing the required information to decision makers in the commercial banks of Oman, and enable them to make decisions.**	**3.9712**	**1.0188**	**2.427**
9	**Understanding the outputs of computerized AIS requires a reasonable knowledge of jobs that AIS deals with, by decision makers in the commercial banks of Oman.**	**3.6635**	**1.1026**	**1.097**
10	**A knowledgeable decision makers with the economical activities that the AIS deals with, helps decision makers in understanding the outputs of those AIS.**	**3.7596**	**1.1700**	**3.245**
11	**The computerized AIS produce an outputs that simplify the decision making process to the decision makers in the commercial banks of Oman.**	**3.5000**	**1.322**	**2.108**
Understandability		**3.77660**	**0.4746**	**5.244**

Table (5) reveals that the computed t-value is 5.244, and the computed coefficient of significance equals zero. When the computed t-value is compared with the tabulated one, which equals 1.96, it is apparent that the computed one is greater. Moreover, when the computed level of significance is compared with the predetermined one, which equals 0.05, it is apparent the computed one is lower. Because the computed t-value is greater than the

tabulated, and because the computed coefficient of significance is lower than the predetermined, the null hypothesis is rejected and the alternative one is accepted. In other words, this hypothesis shows that the outputs of the automated AIS of the Omani commercial banks are understandable and appropriate to the requirements of decision makers.

Table No (5)The results of testing the First Hypothesis according to T-Test

Variable	Tabulated t	Computed T	Significance Level	Degrees of Freedom
Understandability	**1.96**	**5.244**	**0.000**	**102**

5.3 Testing the Second Hypothesis

Ho_2: The outputs of the automated AIS of the Omani commercial banks are irrelevant.

Table (6) shows the items used in measuring whether the outputs of the automated AIS of the Omani commercial banking industry are relevant, or irrelevant, and the related result of the analysis to this group of items. Based on information available on this table, the computed t-value is somewhat high for most of these items. The table shows that item number 18, which states that the outputs of the automated AIS help decision makers in the Omani commercial banks to reduce the degree of uncertainty when they need to take decisions. In contrast, item number 16, which states that the outputs of the automated AIS enable decision makers in these banks to be more certain of there previous predictions. The greatest, which belongs to item number 18, is 3.6827, at a standard deviation of **1.0907**, while the lowest one, which belongs to item 16, is 3.4231, at standard deviation of **1.1465**.

Considering table (6), it is clear that the mean of the entire group of items used in the measurement of relevance of outputs

equals 3.6016, at a standard deviation of 0.4772. The values of both the mean and the standard deviation indicate that the automated AIS of the Omani commercial banks produce relevant accounting information.

To be useful for the needs of decision making, information must be available when needed. In other words, information must be characterized with timeliness. Timeliness of information enables decision makers to evaluate the different possible alternatives, and thereafter increases the value of this information. The decision maker will be more certain of the decision appropriateness if he/she depends on his assessment of available alternatives, and this will not occur unless relevant information is available.

Table No. (6) The results of relevancy extent of the outputs of computerized AIS

Item No.	*Item*	*Average*	*Standard Deviation*	*T-Value*
12	**The outputs of the computerized AIS affects directly the decisions that decision makers take in the Commercial Banks of Oman.**	**3.5192**	**1.2296**	**1.582**
13	**The outputs of the computerized AIS are able to help decision makers in the commercial banks of Oman to assess and review the previous events of the of the bank.**	**3.6442**	**1.2221**	**1.485**
14	**The outputs of the computerized AIS enable decision makers in the commercial banks of Oman to receive timely information.**	**3.6635**	**1.1201**	**4.581**
15	**The outputs of the computerized AIS enable decision makers in the commercial banks of Oman to increase the degree of certainty about the decision alternatives.**	**3.6635**	**1.1542**	**3.153**
16	**The outputs of the computerized AIS enable decision makers in the commercial banks of Oman to be certain of there previous predictions.**	**3.4231**	**1.1465**	**2,061**
17	**The outputs of the computerized**			

	AIS enable decision makers in the commercial banks of Oman to predict the future events.	**3.5481**	**1.1565**	**3.099**
18	**The outputs of automated AIS help decision makers in the commercial banks of Oman to decrease the degree of uncertainty when they take decisions.**	**3.6827**	**1.0907**	**2.816**
Relevance		**3.6016**	**0.4772**	**8.526**

Because some decisions influence the future of the firm, predicting the future in an accurate form will be difficult task without the availability of information. In other words, when information is available, predicting the future in an accurate manner will be possible.

Decision makers will also be more eligible to assess their prior predictions, through the comparison between the predicted and actual performance, and then, they can reach to more apparent conclusion regarding the accuracy degree of their prior predictions. In addition, decision makers can depend on the same methods of predictions if that degree of accuracy is reasonable. Predicting the future is a continuous process, therefore, the availability of relevant information is essential to the decision making process.

Based on information appears in table (6), the outputs of the automated AIS of the Omani commercial banks are relevant, because the mean of the entire group of items used in measuring the relevance of these outputs is greater than 3, and this is a good indicator for the relevance of the outputs of the automated AIS.

Considering table (7), the computed t-value of the entire group of items used in the measurement of relevance equals 8.526, and the coefficient of significance equals zero. When the computed t-value is compared with the tabulated one, which equals 1.96, it is apparent that the computed one is greater. Moreover, when the

computed coefficient of significance is compared with the predetermined one, which equals 0.05, it is apparent that the computed one is lower. Because the computed t-value is greater than the tabulated, and because the computed coefficient of significance is lower than the predetermined one, the null hypothesis is rejected, and the alternative one is accepted. This means that the outputs of the automated AIS of the Omani commercial banks are relevant.

Table No (7)
T-test results for the second hypothesis

The variable	*Tabulated T*	*Computed T*	*Significance Level*	*Degrees of Freedom*
Relevance	**1.96**	**8.526**	**0.000**	**102**

5.4 Testing the Third Hypothesis

Ho_3: The outputs of the automated AIS of the Omani commercial banks are unreliable.

Table (8) shows the items used in measuring whether the outputs of the automated AIS of the Omani commercial banks are reliable, or unreliable, and the related results to the analysis. As the table declares, t-value of most of these items is somewhat high. Item number 23, which measures the neutrality of the automated AIS outputs, has the greatest mean, while item number 20, which measures the correct representation of AIS outputs to the events that occurred during the year, has the lowest mean. The highest mean, which belongs to item number 23, is 4.1346, at a standard deviation of 0.8012, while the lowest one, which belongs to item 20, is 3.5, at a standard deviation of 1.2148.

Table No. (8)
The results of the group of items that used to measure the reliability of the outputs of computerized AIS.

Item No.	*Item*	*Arithmetic Mean*	*Standard Deviation*	*T-Value*
19	**The outputs of the computerized accounting information systems help decision makers reconcile between information and the events that information reflects.**	**3.5577**	**1.1560**	**2.625**
20	**The outputs of the computerized AIS in the commercial banks of Oman demonstrate well and true the events of the bank.**	**3.500**	**1.2148**	**2.849**
21	**The outputs of the computerized AIS of the commercial banks of Oman are considered objective.**	**3.9038**	**1.0383**	**0.67**
22	**There is a possibility to verify the correctness of the outputs of the computerized AIS in the commercial banks of Oman.**	**3.6154**	**1.1261**	**1.917**
23	**The outputs of computerized AIS of the commercial banks of Oman are considered as neutral and free of bias.**	**4.1346**	**0.8012**	**0.120**
24	**We can consider the outputs the computerized AIS of the commercial banks of Oman as correct outputs.**	**3.6731**	**1.1860**	**3.084**
25	**We can describe the outputs of the computerized AIS of the commercial banks of Oman by accuracy.**	**3.5673**	**1.1639**	**0.961**
Reliability		**3.7074**	**0.4466**	**4.904**

Table (8) also reveals that the mean of the entire group of items used to measure the reliability of the outputs of the automated AIS of the Omani commercial banks is 3.7074, at a standard deviation of 0.4466. These values are good indicators for the reliability of the outputs.

When the outputs of an information system are objective and free of bias, these outputs will be more beneficial for the decision making process, because objective information helps decision

makers to be more certain about the accurateness of the decision. Moreover, objective and free of bias information, makes the decision more applicable and increases the probability that the decision will achieve its objectives.

The decision maker can benefit more from information when it is complete, correct, accurate, and free of errors. When these characteristics are available in information, the decision making process will be more rational. In addition, when the characteristics of honesty, objectivity, and verifiability are available in the outputs of AIS, the decision maker can depend on these systems. When these features are unavailable in the outputs of AIS outputs, the importance of these systems will decline, because the information is invaluable.

It is clear from the results appear in table number (8), that the outputs of automated AIS of the Omani commercial banks, can be characterized with reliability, because the mean of the entire group of items used in measuring reliability is high, and it is greater than the proposed one for the study, which equals 3.

As of other hypotheses, t-test is used in testing this hypothesis. Table (9), includes information regarding the two values of the computed and tabulated t. Based on information appears in this table, it is notable that the computed t-value equals 4.904, and it is greater than the tabulated one, which equals 1.96, at a 95% level of significance. Moreover, the computed coefficient of significance equals zero, or a closed value to zero, so, it is lower than the predetermined one, which equals, 0.05. Based on this result, the null hypothesis is rejected, while the alternative one is accepted. In other

words, this study finds that the outputs of the automated AIS of the Omani commercial banks are reliable.

Table No (9)
T-test results for the third hypothesis

The variable	Tabulated T	Computed T	Significance Level	Degrees of Freedom
Reliability	**1.96**	**4.904**	**0.000**	**102**

5.5 Testing the Fourth Hypothesis

Ho_4: The outputs of the automated AIS of the Omani commercial banks are incomparable.

Table (10) shows the statistical analysis of the items used in the measurement of outputs comparability of the outputs of the automated AIS of the Omani commercial banks. Based on information available in this table, it is clear that the computed t-value is high enough for most items included in the group. Item number 27, which measures the possibility of making a comparison among the accounting information of different commercial banks in the same accounting period, has the highest arithmetic mean. In contrast, item number 28, which measures the possibility of making a comparison among the outputs of the automated AIS of the Omani commercial banks under the stability of accounting policies, has the lowest mean. The highest arithmetic mean in this group equals 3.7596, whereas the lowest one equals 3.4808.

As table (10) reveals, it is notable that the mean of the group of items used to measure the comparability of the outputs of automated AIS of the Omani commercial banks is 3.6175, at a standard deviation of 0.3741. The values of means and standard deviations are indicators for the possibility of comparability characteristic among the outputs of the automated AIS.

Table No. (10)
The results of the group of items used to measure the comparability extent of the outputs of computerized AIS

Item No.	*Item*	*Arithmetic Mean*	*Standard Deviation*	*T. Value*
26	**Comparing of accounting information of the same bank among different accounting periods is possible by using the outputs of the computerized AIS.**	**3.5769**	**1.0856**	**2.338**
27	**The possibility to compare the accounting information of the same year among the different commercial banks is available by using the outputs of the computerized AIS.**	**3.7596**	**1.0748**	**1.492**
28	**The outputs of the computerized AIS in the commercial banks of Oman are comparable under the stability of accounting policies.**	**3.4808**	**1.1904**	**1.557**
29	**The outputs of the computerized AIS in commercial banks of Oman are helpful in making decisions when that information is comparable.**	**3.6538**	**1.1301**	**2.601**
30	**The outputs of the computerized AIS in the commercial banks of Oman are characterized by their brief.**	**3.6058**	**1.1271**	**2.037**
31	**There are no differences in the structure of financial reports in the commercial banks of Oman among the different years when that reports are issued by a AIS.**	**3.5000**	**1.1491**	**3.652**
32	**Analyzing financial information that issued by a computerized AIS in commercial banks of Oman is possible and simple.**	**3.5673**	**1.1555**	**2.298**
33	**Analyzing and comparing among the accounting information can be done quickly by using the outputs of the computerized AIS.**	**3.7404**	**1.1658**	**2.614**
34	**Analyzing and comparing financial information that issued by a computerized AIS in the commercial banks of Oman can be accomplished in an accurate manner.**	**3.6731**	**1.0561**	**1.444**
Comparability		**3.6175**	**0.3741**	**8.558**

Comparing the results of the current accounting period with the results of prior periods provides decision makers with more knowledge about the direction and the development of activities in the commercial banks of Oman. Studying the time series of activities enables decision makers to determine the most and the least successful activities, so managements of these banks can support the most successful activities.

When the reports issued by the automated AIS are similar in form, structure, and content, from period to period, the accounting information will be more comparable and more beneficial to the decision making process.

The AIS that provide more comparable outputs will be more beneficial to the decision making process, because the process of making a comparison among the outputs of commercial banks and among the outputs of the same bank over different accounting periods will be easier and less time consuming.

Based on information appears in table (10), we find that the outputs of the automated AIS in the commercial banks of Oman can be considered comparable. The mean of each item included in the group used to measure the comparability of the outputs of AIS is more than the proposed one, which equals 3.

Based on table (11), the computed t-value equals 8.558, and it is greater than the tabulated one which equals (1.96) at a confidence level of 95% ($\alpha = 0.05$). It is also notable that the computed coefficient of significance equals zero, so it is less than the predetermined one, which equals 0.05. Therefore, we reject the null hypothesis and accept the alternative one. In other words, the outputs

of the automated AIS of the Omani commercial banks are comparable.

Table No. (11)
The testing results of the fourth hypothesis using T-test

The variable	Tabulated T	Computed T	Significance Level	Degrees of Freedom
Comparability	**1.96**	**8.558**	**0.000**	**102**

5.6 Testing the Fifth Hypothesis

Ho_5: The outputs of the automated AIS of the Omani commercial banks are inconsistent.

Table (12) reveals the statistical analysis for the group of items used in measuring the consistency of the outputs of AIS of the Omani commercial banks. As the table declares, the computed t-value is high for just one item and somewhat low for others. Item number 36, which represents the homogeneous order among the financial reports provided by the automated AIS of the commercial banks of Oman, has the greatest mean. In contrast, item number 38, which measures the extent of simplicity to make a comparison among the accounting information of the same bank over different accounting periods, has the lowest one. The greatest mean, which belongs to item number 36, equals 3.8846, while the lowest one, which belongs to item number 38, equals 3.5481.

Table No. (12)
Analysis results of the group of items that measure the consistency of the outputs of the computerized AIS.

Item No.	*Item*	*Arithmetic Mean*	*Standard Deviation*	*T. Value*
35	**The outputs of the computerized AIS of the commercial banks of Oman are consistent from period to period.**	**3.7308**	**1.1168**	**1.918**
36	**The financial reports that provided by a computerized AIS in the commercial banks of Oman have the same order from period to period.**	**3.8846**	**1.0174**	**0.928**
37	**The financial reports that provided by the computerized AIS in the commercial banks of Oman have the same form from period to period.**	**3.6250**	**1.1164**	**-.0.517**
38	**The comparison among the financial reports of different periods that the computerized AIS in the commercial banks provide can be considered as simple.**	**3.5481**	**1.1481**	**3.609**
Consistency		**3.6971**	**0.5581**	**2.975**

Based on information appears in table (12), we find that the mean of the entire group of items used to measure the consistency of the outputs of the automated AIS equals 3.6971, and the standard deviation of this group equals 0.5581. These values are good indicators for the availability of consistency among the outputs of the automated AIS of the Omani commercial banks.

Consistent accounting information simplifies the process of comparison among the periodic accounting information of the same firm and among the accounting information of different firms in the same period. Therefore it will be beneficial for the decision making process. To be consistent, and simply comparable, the accounting information of the firm must follow the same accounting procedures from period to period. The firm can change the accounting

procedure, but that change is only permitted when the recent adopted procedure is preferable over the old one.

As table (12) shows, the outputs of the automated AIS can be described by its consistency, because the mean of the entire group of items used in measuring consistency is more than the proposed one which equals 3.

Table (13) reveals that the computed t-value for the entire group of items used in measuring consistency equals 2.975, and the computed coefficient of significance is a very closed value to zero. Because the computed t-value is greater than the tabulated one, which equals 1.96, and because the computed coefficient of significance is lower than the predetermined one, which equals 0.05, the null hypothesis is rejected, whereas, the alternative one is accepted. In other words, we conclude that the outputs of the automated AIS of the Omani commercial banks are consistent.

Table No. (13)

The testing results of the fifth hypothesis using T-test

The variable	*Tabulated T*	*Computed T*	*Significance Level*	*Degrees of Freedom*
Consistency	**1.96**	**2.975**	**0.004**	**102**

6. Findings and Recommendations

Based on the available analysis in the prior section, the findings of the study are as follows:

1. The outputs of the automated AIS of the Omani commercial banks are understandable by decision makers in these banks. This conclusion means that the automated AIS presents simple, smooth, and clear outputs, so decision makers do not find difficulties to understand. Makamreh & Dahdan, (1990) found the same conclusion.

2. The study finds that the outputs of the automated AIS of the Omani commercial banks are relevant. This conclusion means that the automated AIS of these banks provide decision makers with correct and timely information, and this information helps decision makers in predicting the future, so they can take better decisions. In addition, this finding means that the outputs of the automated AIS of the Omani commercial banks lead to a reduction in the degree of uncertainty. Moreover, this conclusion means that these outputs contribute in providing decision makers with the necessary help for predicting the future. Radaydeh, (1988) also found a similar conclusion.
3. The third finding of the study is that the outputs of the automated AIS in the Omani commercial banks are reliable. This conclusions means that these outputs can be used by decision makers in the process of decision making, so decision makers can depend on these outputs to take their decisions. When accounting information is reliable, this information is characterized with verifiability, representational faithfulness, and neutrality. This conclusion indicates that these outputs reflect the economic events of the firm, and these outputs are verifiable, objective, complete, accurate, and include an accepted level of representational faithfulness. Moreover, this conclusion indicates that these outputs are free of errors, so there is no conflict between these outputs and the events that these outputs represent. Makamreh and Dahaan (1990) reached to a similar conclusion.

4. The fourth finding of the study is that the outputs of the automated AIS of the Omani commercial banks are comparable. This conclusion means that these outputs includes only relevant details and involve the same content and order of items from period to period, so the process of comparison over periods and among banks is possible. The revision of the items used to measure comparability reveals that these outputs can be used for the purposes of comparison among the financial information of the same bank, from period to period, and among the financial information of different banks in the same period. Seyam and Rahahleh (2006), and Fabio Frezatti et. al. (2004) reached to a similar conclusion.
5. The last finding of the study is that the outputs of the automated AIS of the Omani commercial banks are consistent. Considering the items used to measure the consistency of the outputs of the automated AIS in the commercial banks of Oman, it is apparent that these outputs are consistent from one accounting period to the next. The availability of consistency characteristic in outputs means that the financial reports that issued through these banks follow the same form, order, and contents from period to period. Seyam and Radaydeh (2006) found that the outputs of the automated accounting information are consistent. A similar conclusion was also reached by Dehings et. al. (2004), and Radaydeh (1998).

Based on the above mentioned findings, the study recommends the following:

1. The automated AIS of the Omani commercial banks are currently satisfying the requirements of information for the decision making process, but these banks are required to adopt a more developed AIS, in order to maintain its current competitive advantage, and to attract more customers.
2. The automated AIS of the Omani commercial banks should be given more priority by the managements of these banks. In other words, more support is needed by the managements of this group of banks for the adoption of more developed AIS.
3. Decision makers in the Omani commercial banks are recommended to acquire more ability to better understand these outputs and to take more benefits of these outputs. This recommendation can be well satisfied through the conducting of training programs.

خلاصة

يلعب قطاع البنوك التجارية في مختلف دول العالم دورا مهما في نمو الاستثمار وفي تنمية مختلف القطاعات الأخرى. وتحتاج أنظمة المعلومات المحاسبية لمزيد من البحث والدراسة لأنها تلعب دورا مهما في تحديد درجة نجاح البنوك التجارية وتؤثر في موقفها التنافسي في ظل نظام عالمي يتصف بالعولمة. تختبر هذه الدراسة مدى توافر خصائص القابلية للفهم والملاءمة والمصداقية والقابلية للمقارنة والتجانس في مخرجات أنظمة المعلومات المحاسبية المؤتمتة للتأكد من مدى تلبية هذه المعلومات لمتطلبات متخذي القرارات في هذه المجموعة من البنوك. ولقد تم تجميع البيانات اللازمة لانجاز هذه الدراسة من خلال إستبانة أعدت ووزعت مباشرة على عينة من متخذي القرارات في قطاع البنوك التجارية العمانية, اختيرت بناء على أسلوب الملاءمة في المعاينة. ولقد تم استخدام أسلوبي الإحصاء الوصفي واختبارات لتحليل بيانات الدراسة واختبار فرضياتها, وتوصلت الدراسة إلى نتيجة مفادها أن مخرجات أنظمة المعلومات المحاسبية المؤتمتة تتصف بإمكانية

الفهم والملاءمة والمصداقية والقابلية للمقارنة والتجانس, وبالتالي تعتبر تلك المخرجات مفيدة لعملية اتخاذ القرار في قطاع البنوك التجارية العمانية.

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