

The E-Commerce Impact on Accounting
Information Systems in Saudi Ariba Commercial
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المؤلف الرئيسي: Taubar, Mai Hassan

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**The E-Commerce Impact on Accounting Information Systems
in Saudi Arabia Commercial Institutions**

Dr. Mai Hassan Taubar

**Assistant Professor - Applied College - Taibahu University - Saudi
Arabia.**

**Lecturer at the Accounting Department - Faculty of Commerce
- Al-Azhar University (Girls Branch), Cairo.**

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Dr. Mai Hassan Taubar

Abstract

The purpose of this study was to investigate at how E-commerce has affected accounting information systems (AIS) in the Saudi market. The researcher used a descriptive analytical approach to investigate the theoretical side, examine prior studies and references, analyze the findings of the field study, and test hypotheses using the statistical software in order to accomplish this purpose and address the study's questions and assumptions (SPSS). Additionally, a survey was employed as a research instrument.

According to the study's findings, accounting information systems in businesses that utilize e-commerce benefit from e-commerce. Since both include the use of technology to support corporate operations, e-commerce and accounting information systems (AIS) are closely related. E-commerce has a significant impact on the efficiency and digitalization of accounting information systems. This enhances decision-making processes for businesses by allowing them to handle their financial information online. Additionally, it helps businesses to readily communicate financial data to other parties involved in the business, including clients, suppliers, and investors.

The results suggest that companies should consider implementing E-commerce and developing accounting information systems to improve their overall performance and competitiveness in the market. and that the use of modern E-commerce technologies leads to increased efficiency and effectiveness of accounting information systems.

Key words: E-commerce, Companies, Accounting information system (AIS), Efficiency, Effectiveness.

المخلص

كان الغرض من هذه الدراسة هو التحقيق في كيفية تأثير التجارة الإلكترونية على أنظمة المعلومات المحاسبية في السوق السعودي. ولتحقيق هذا الهدف والإجابة على أسئلة الدراسة وفرضياتها، استخدمت الباحثة المنهج الوصفي التحليلي لتقصي الجانب النظري وفحص الدراسات والمراجع السابقة. وكذلك، تحليل نتائج الدراسة الميدانية واختبار الفروض باستخدام البرنامج الإحصائي (SPSS). كما تم استخدام الاستبيان كأداة للبحث.

وجنت نتائج الدراسة أن التجارة الإلكترونية لها تأثير إيجابي على أنظمة المعلومات المحاسبية في الشركات التي تستخدم التجارة الإلكترونية. نظرًا لأن كلاهما يستخدم التكنولوجيا لدعم عمليات الشركات، فإن التجارة الإلكترونية وأنظمة المعلومات المحاسبية (AIS) ترتبط ارتباطًا وثيقًا. التجارة الإلكترونية لها تأثير كبير على كفاءة ورقمنة نظم المعلومات المحاسبية. وأن هذا يتيح للشركات إدارة معلوماتها المالية إلكترونيًا وتحسين عمليات اتخاذ القرار. كما أنه يساعد الشركات على مشاركة البيانات المالية بسهولة مع أصحاب المصلحة الآخرين مثل العملاء والموردين والمستثمرين.

تشير النتائج إلى أنه يجب على الشركات النظر في تنفيذ التجارة الإلكترونية وتطوير أنظمة المعلومات المحاسبية لتحسين أدائها العام وقدرتها التنافسية في السوق. وأن استخدام تقنيات التجارة الإلكترونية الحديثة يؤدي إلى زيادة كفاءة وفعالية نظم المعلومات المحاسبية.

الكلمات المفتاحية: التجارة الإلكترونية، نظم المعلومات المحاسبية، الشركات، الفعالية، الكفاءة.

1.The general framework of the study and previous studies:

1. Introduction

The rapid advancement of technology and communication has led to the rise of electronic commerce, which encompasses various fields beyond buying and selling goods and services and money transfers on the internet. E-commerce has had a significant impact on international trade, the business world, and organizations of all sizes (Terzia, 2011). It has grown rapidly and is now widely used, with applications such as the marketing of goods and services and the exchange of data and information (OECD, 1999), (Mamoon, 2011).

E-commerce has made it easier for companies to reach customers worldwide, expanding cross-border trade and providing small businesses with access to foreign markets (ECLAC, 2002), (Montenegro, 2021). It has also changed traditional business models and created new ways for companies to connect with customers and offer their goods and services (OECD, 2000). This has led to the emergence of new business models such as the freelance economy, where individuals can advertise their goods and services on platforms like TaskRabbit, Uber, and Airbnb (Wagner, 2021).

The growth of E-commerce has influenced companies of all sizes. By leveraging E-commerce platforms to reach new clients, small companies have been able to see considerable growth (Andonov et. al., 2021). At the same time, large corporations have employed e-commerce to broaden their clientele and boost sales (Fruhling and Digman, 2000). E-commerce has aided in the expansion of the world economy. According to UNCTAD, global E-commerce sales surpassed \$27.7 trillion in 2019 and are anticipated to rise further (UNCTAD, 2021). Online sales increased as a result of the COVID-19 epidemic, increasing by 43%, or roughly \$250 billion, in 2020. (Brewster, 2022).

The use of AIS is intimately related to the expansion of E-commerce. As organizations collect, store, and analyze data for decision-making, these systems are essential (Romeny, 2003). The fast expansion of e-commerce has had an influence on AIS, which have grown with the aid of IT advancements (Halim and Al Amin, 2021). By automating accounting, financial operations, inventory management, client order tracking, and giving real-time financial data, they can help E-commerce businesses, allowing them to devote more resources to other aspects of their operations (Srinath and Swathi, 2022).

E-commerce has impacted AIS by increasing the volume and diversity of data that has to be handled (AL-Refae, 2012). Because of this, more advanced AIS have been created that can handle the increased data flow and deliver reports and analyses in real time (Trigo, et. al., 2014).

E-commerce is impacting AIS by promoting more integration with other company systems, such as CRM and inventory management, to deliver a smooth consumer experience. This has prompted the creation of more thorough AIS that can satisfy the needs of e-commerce enterprises (Ahmad, et. al., 2019).

The Saudi Arabian E-commerce market has seen significant growth in recent years due to factors like increased internet and mobile usage, adoption of electronic payment options, and ease of online purchasing (Martínez, et. al., 2021). The Saudi Arabian General Investment Authority (SAGIA) predicts that the e-commerce industry in the country will grow from \$21 billion in 2020 to \$43.2 billion in 2021, a growth rate of over 32% (Asharq Al-Awsat, 2022).

The Saudi Arabian e-commerce sector has expanded dramatically in recent years due to reasons such rising internet and mobile usage, acceptance of electronic payment methods, and the simplicity of online shopping. Souq.com, Noon.com, and Wadi.com are significant market participants that provide a wide range of products and services. The market also comprises smaller E-commerce platforms and independent online retailers that profit from the growing acceptance of electronic payment methods and the popularity of online shopping (citc.sa, 2017), (GOV.SA), (Jeddah Chamber, 2019).

E-commerce has had a tremendous impact on (AIS) in Saudi commercial organizations, which has sparked the creation of more sophisticated and integrated systems that can serve modern company needs.

In summary, The Saudi Arabian E-commerce sector is expected to grow over the next years as more companies enter the market and consumers become acclimated to making purchases online. This presents a wide range of alternatives for companies of all sizes and is likely going to continue having a significant influence on the country's AIS.

Consequently, it was important to investigate the impact of E-commerce on the development of AIS and to determine if both the human and physical elements of these systems were affected.

1.2 Study Problem and Its Questions

Numerous studies have demonstrated the connection between E-commerce and information and communication technology (ICT) and also the usage of accounting information systems in decision-making and their significance for corporate management and business performance.

In several countries, these connections have been investigated, and the effects of E-commerce have been researched. These studies have shown how crucial accounting information systems are to the business world, and the necessity for

institutions to quicken the development of these systems in order to guarantee their excellence and continuity.

However, there aren't many studies, particularly in the Kingdom of Saudi Arabia, on the impact of E-commerce on accounting information systems (AIS).

The question still remains, then: What effect does E-commerce have on accounting information systems, and how prepared are companies to update their accounting information systems to meet e-commerce application requirements?

In light of this, the researcher clarified the problem with the study by asking the following questions:

1. What is the concept of E-commerce, and how does it differ from traditional commerce?
2. What is the concept of accounting information systems and how is it's important to organizations?
3. What impact does E-commerce have on accounting information systems (AIS)?
4. Does E-commerce have an impact on the elements of accounting information systems?
5. Does E-commerce have an impact on the fundamentals of accounting information systems?
6. What is the impact of the development of accounting information systems on e-commerce?
7. Are Saudi companies' accounting information systems procedures in compliance with the requirements of e-commerce?
8. Are Saudi companies' accounting information systems capable of handling E-commerce operations?

1.3 The Significance and Objectives of the Study:

This study is of great importance due to the dynamic and modern nature of the E-commerce market and its impact on investment, industry, and economic development. The study's relevance comes from:

The Theoretical Importance:

1. The research topic of the impact of E-commerce on businesses and companies is highly relevant and timely at the global, regional, and local levels, given the numerous and significant effects of E-commerce.
2. The examination of the impact of E-commerce on (AIS) is of crucial importance for both researchers and academics. Examining the literature on the advantages and benefits of E-commerce and its effects on

accounting information systems can help to better understand the relationship between them.

3. To understand the significance of E-commerce and (AIS) and their role in the business environment.

The Practical Importance:

1. The study assists company managers, business executives, department heads, auditors, and accountants in understanding how to utilize the information provided by (AIS).
2. The study provides appropriate recommendations on how to improve the responsiveness of (AIS) to changes in the business environment and E-commerce.

The study aims to achieve the following objectives:

1. Analyze the influence of E-commerce benefits on accounting information systems (AIS) in Saudi commercial companies.
2. Evaluate the effect of E-commerce on the effectiveness of accounting information systems (AIS) in companies that utilize e-commerce in the Saudi market.
3. Assess the impact of E-commerce on the efficiency of accounting information systems (AIS) in Saudi commercial companies.

1.4 Study Hypotheses

The following hypotheses were formulated based on the research questions:

H1: E-commerce and contemporary communication techniques contribute positively to enabling Saudi commercial organizations to provide new commercial transactions and services.

H2: E-commerce and modern communication methods contribute positively to improving the effectiveness of accounting information systems in Saudi commercial organizations.'

H3: E-commerce and modern communication techniques contribute positively to improving the efficiency of accounting information systems in Saudi commercial organizations.'

1.5 Study Methodology

The study adopted an analytical descriptive approach to address the main research topic and the associated sub-questions. This approach aims to gather information on the subject matter, understand the theoretical foundations, analyze and categorize, as well as describe and diagnose the research phenomenon. The statistical program SPSS was also utilized.

1.6 Previous Studies

Moqbel (2014) the study uses three primary axes to analyze the impact of accounting information systems for listed firms in the services sector on E-commerce.

According to the study, firms are compelled to create their e-commerce management plans by accurate accounting information systems. Also, the effects of e-commerce on accounting information systems will change how physical and human resources are used by firms.

The study found that the components of accounting information systems will be impacted by e-influence commerce's on accounting information systems.

Al-Daraji (2015) the study, which focused on the years 2008 to 2013, sought to determine how the performance of Algerian banks was affected by electronic banking services.

The results of the study, which employed a descriptive experimental methodology, indicated that the effectiveness of electronic banking services, which save time and effort and are reflected in lower expenses and costs, had an impact on banks' financial performance.

Xia (2016) the study's aim is to examine how the growth of E-commerce has affected financial accounting.

According to the findings, in order to take advantage of e-commerce opportunities, businesses must alter their traditional financial accounting models, train a sizable number of complex accounting employees, and strengthen their culture of computer and network technology in order to quickly adapt to new working conditions and foster enterprise growth.

Abkar (2017) the purpose of the study was to determine how computer use affects programs and applications related to accounting information, how this use affects electronic commerce, and the extent to which accounting information systems can produce applications that are appropriate for addressing the needs of electronic commerce.

The researcher used a questionnaire and the descriptive approach of analysis to acquire data. The study came to a number of findings, the most important of which is that using programs, applications, and accounting information system designs, and also taking adequate professional care when entering data into those systems, can all help to advance electronic commerce.

Ahmed (2018) the main objective of the study was to identify the barriers to SME adoption of E-commerce. Both a qualitative and a quantitative methodology were used in the investigation. The findings indicated that adopting technological, environmental, and organizational elements will support the long-

term success of Iraqi SME's in the international market. The most significant organizational characteristics that influence adoption are also IT skills.

Othman (2018) This study's objectives included identifying the environment of E-commerce, contrasting it with the environment of traditional commerce, determining the degree to which it was adequate to deal with that environment, limiting the problems in light of that environment, and offering some recommendations that contributed to its resolution. To accomplish these goals, the researcher used a descriptive and analytical approach in a number of industrial sectors in the Sudanese capital, Khartoum.

The most significant finding from the study was that E-commerce differs from traditional commerce in its capacity to expedite and streamline the process of providing services. Electronic plays a significant role in corporate organizations' performance.

El-dalabeeh (2019) The goal of the study was to determine how the AIS system's development affected electronic commerce in terms of transaction efficacy, and identification of problems and impediments to cope with electronic commerce. The development of AIS had a substantial statistical influence on E-commerce in Jordanian public enterprises, according to the 130 questionnaires that were sent to shareholders of 36 industrial public shareholding companies in Jordan.

Ardiansah, et. al., (2021). The goal of the study was to investigate how adopting e-commerce would affect accounting information systems and the organizational performance of small and medium-sized businesses. Data for 102 small and medium-sized businesses in Central Java, Indonesia that have incorporated e-commerce into their business operations were gathered. The findings demonstrated that administrative characteristics and organizational readiness as e-commerce characteristics primarily determine accounting information systems, and that accounting information systems, administrative performance, and financial performance have a direct impact on the organizational performance of small and medium enterprises, and electronic commerce accounting information system mediated towards financial and administrative performance.

Alrawashedh and Abushareah (2022) By analyzing the performance of three significant E-commerce companies (Ebay.com, Amazon, Mumzworld) the study seeks to determine the effects of AIS and procedures on the success of businesses engaged in E-commerce in Jordan. The three organizations' financial performance, Brand penetration rates, and customer happiness were the main subjects of the study. The researchers used a descriptive approach, a survey design, and the collection of quantitative data to look into the factors influencing the success of E-commerce firm. Findings showed that Jordan's e-commerce sector has low accounting and financial performance compared to other countries because the government doesn't provide any funding, few people use the internet,

and there are many obstacles in the way of E-commerce companies making a profit in Jordanian market.

1.7 Plan of study:

The study was divided into an introduction and three main sections in order to achieve its objectives, as follows:

- 1- The general framework of the study and previous studies.
- 2 - The theoretical framework of the study
- 3 - Study methodology

2. The Theoretical Framework of the Study

2.1. E- Commerce:

2.1.1. The Concept and Characteristics of E-commerce:

2.1.1.1. The Concept of E-Commerce:

In general, the concept of "Electronic commerce" or "E-commerce" refers to the process of buying and selling products and services using a telecommunications network.

The term "E-commerce" is used in a broad sense to describe to not only the buying and selling of items, but also the exchanging of information, the provision of customer service before and after a transaction, collaboration with business partners, and efforts to increase productivity within organizations (Napier, et. al., 2006). E-commerce can be viewed as the use of technology to automate business flow and commercial transactions (Hall, 2011).

E-commerce, in another definition, is the implementation of business dealings and activities that connect individuals and organisations, based on processing, exchanging, transporting, and delivering goods electronically (Bouras and Barika, 2014).

Linda (2001) defined it as "the business of buying and selling products and services over the Internet". Also, according to (Hoffman and Novak, 2000), it is an Internet technology that allows people to purchase and sell things, including market formation, ordering, supply chain management, and transfers via online and electronic means.

Reynolds (2004) also defined E-commerce as the platform on which novel techniques of selling and distributing innovative items and services electronically are explored. E-commerce is described by (Turban, et. al., 2010) as the process of buying, selling, or exchanging items, services, or information via a computer.

According to (Bhasker, 2009) the term "E-commerce" has been used to describe a wide range of market transactions enabled by information technology and

conducted through electronic networks. It is defined as the process of purchasing, selling, transferring, or exchanging goods, services, and information across internet networks, according to (Qatawneh, 2012). Finally, The World Trade Organization defines E-commerce as an integrated system of product manufacturing, distribution, marketing, and sales based on networks that use the Internet (Maswadeh, 2016).

In summary, Although the concept of e-commerce is relatively new and its definition is not precise, it is commonly agreed that it is the process of conducting financial transactions through private communication networks and the internet, including the exchange of goods, services, and money (Fadel, 2011), (Terbeck, 2014). A broader definition includes the utilization of technology, electronic media, and processes for purchasing and selling products, services, and information (Babenko et. al., 2019), (Bar, 2019).

2.1.1.2.E-Commerce Characteristics:

E-commerce is distinguished by its use of technology and electronic means in all types of commercial exchanges, resulting in efficient and effective business practices and global interconnectedness (Taha, 2007). Its prominent features include (Al-Alaq, 2017), (Alchowerf, 2013).

- 1- Global reach: E-commerce allows businesses to have a global reach by connecting with customers and markets worldwide through electronic media and online presence. It eliminates the need for physical location constraints.
- 2- Businesses' incorporation of technology: E-commerce has led to an increased incorporation of technology in businesses, which has a significant impact on how businesses operate and plan. This includes the use of technology for customer engagement and satisfaction.
- 3- Transactions without paper documents: E-commerce allows for transactions to be conducted without the need for physical paper documents, such as correspondence, procedures, negotiations, contracts, and payments for products and services. Electronic correspondence is accepted as a valid form of proof for business agreements, signatures, rights, obligations, and intellectual property (Ibrahim, 2008).
- 4- Fast change of concepts and activities: E-commerce concepts, systems, activities, and rules are subject to rapid change due to advancements in communication and information technology and the expanding scope of e-commerce.
- 5- New Mediation Methods: E-commerce has led to new mediation methods through easy access to information and direct communication between producers and consumers. The global information network enables

organizations to operate from any location and businesses of all sizes, locations, and capital to interact directly with customers and showcase their products (El-Esawy, 2003), (Yuan, Yufei and Turel, 2004), (Hussain, et al., 2020).

In summary, E-commerce is a modern and innovative method of conducting business transactions and exchanging information that allows businesses to reach a global audience. It often results in significant returns and cost savings when compared to traditional commerce methods.

2.1.2 -Types and Importance of E-Commerce:

E-commerce has become a vital and growing aspect of the global economy and businesses, offering various techniques and applications for conducting business, reaching new markets, and closing deals across a wide range of industries.

2.1.2.1- Types of E-Commerce:

E-commerce is classified into different categories based on the type of activities, transactions, and areas of operation, using criteria such as the relationship between parties, the technology used for transactions, and the type of products involved (Fruhling & Digman, 2000), (Chaffey, 2009), (Turban et. al., 2010), (Nemat, 2012), (Obeidi, 2016):

1. **Business-to-Business (B2B):** includes transactions and information exchange through the internet and communication networks, such as marketing, sales, manufacturing, and support (Cunningham, 2002). This type of E-commerce encompasses all transactions of goods and services between businesses in various fields and sectors, including supply-chain partners and other businesses (Turban and King, 2003).
2. **Business-to-Consumer (B2C):** A model of E-commerce in which businesses sell products and services directly to consumers online using platforms such as Amazon and Flipkart (Lucase, 2002).
3. **Consumer-to-Consumer (C2C):** A model of E-commerce in which consumers sell directly to other consumers, with online marketplaces serving as intermediaries (Pandey and Agrawal, 2014). The internet has increased the trade possibilities and streamlined the product search process for this model (Burt and Sparks, 2003).
4. **Consumer-to-Consumer (C2C):** in this E-commerce model, customers sell to other consumers directly. Various online markets serve as middlemen by enabling users to make purchases from other users (Pandey and Agrawal, 2014). The Internet has given this model a new dimension, increasing the trade possibilities and streamlining the product search process so that anyone may visit amazon.com and make purchases (Burt, and Sparks, 2003).

5. **Business-to-Business-to-Consumer (B2B2C):** A business model in which a B2B corporation markets a good or service to a group of indirect B2C customers. For example, a company like Intel that manufactures computer CPUs and sells them to HP, which produces PCs for end customers to purchase (Al-bayati, 2011).
6. **Consumer-to-Business (C2B):** A model of e-commerce in which consumers use the internet to sell products or services to businesses or individuals looking for sellers to bid on their required products or services (Adiguzel, 2019).
7. **Intra-business EC:** A model of e-commerce in which an organization uses the internet to conduct all internal operations related to the exchange of information, products, and services between its various organizational units and employees, such as selling to or buying from employees and e-training (AL-Refae, 2012).
8. **E-government:** A model of e-commerce in which a government organization buys or sells goods, services, or information to businesses or individuals, such as electronic voting (Jaworski and Ray, 2001).

2.1.2.2- The Importance of E- Commerce:

E-commerce is important for businesses as it allows them to improve their performance through efficient and effective electronic techniques (Qin, 2009). Additionally, e-commerce can create market value for businesses by providing design and manufacturing information, reducing costs, and offering other benefits (Salnoske, 1997), (Torsten, 2003), (Abu Al-Ezz, 2008). The significance of e-commerce for businesses is also highlighted during crises, particularly health crises. Some of the reasons that contribute to this importance include (Changa, et. al., 2003), (Al-Haddad, 2004), (Babenko, et. al., 2019):

1. **Cost-effective:** E-commerce enables businesses to reduce costs associated with marketing, advertising and product delivery. Additionally, online marketing is relatively inexpensive and improves efficiency and distribution logistics (Reynolds, 2000).
2. **Cost savings:** E-commerce alters the traditional business structure and is cost-efficient. It eliminates the need for renting large retail spaces, purchasing insurance or investing in physical infrastructure, unlike traditional brick and mortar businesses which require large buildings and a large number of employees (Joins and Lory, 2015).
3. **Increased profit margins:** E-commerce facilitates time and cost savings. It provides an efficient way to transfer information and documents quickly and accurately, which contributes to the completion of business operations

and the sale and exchange of products and services with minimal processing costs, resulting in higher profit margins (Khan, 2016).

4. **Removing barriers:** E-commerce provides great opportunities for easy and quick access to markets and simplifies transactions. Businesses no longer have to go through lengthy processes, comply with numerous regulations, acquire permits or seek permission from third parties to sell goods and services internationally (Radwan, 1999).
5. **Global expansion:** E-commerce gives businesses equal access to global markets and the ability to conduct business anywhere and anytime. It also makes data and information easily accessible to investors, entrepreneurs, and consumers without incurring significant cost or risk (Mustafa, 2009).

2.1.3 - Benefits and Requirements of E-Commerce:

E-commerce and its applications provide a more economical alternative. All business types and sizes can considerably benefit from its benefits in order to generate business value, boost profits, and expand business activity (Oliveria & Marins, 2010), (Salnoske, 1997).

2.1.3.1-E-commerce Benefits:

E-commerce offers both businesses and consumers a number of benefits, such as (Laudon & Traver, 2017), (Linda, 2020), (Beckers, et. al.,2021):

1. **Adapting to the Digital Age:** Identifying methods for effectively handling various business operations that are suitable for the digital age.
2. **Expanded audience:** Venturing into international markets and generating greater revenue compared to conventional methods.
3. **Ease of access:** Rapidly and easily satisfying customer requirements at any location and time.
4. **Analytical capability:** Developing business and service performance, financial and marketing plans for organizations. (Vyas, 2009).
5. **Assistance in product selection and comparison:** Helps customers compare different companies and online shops to find the best options that meet their needs (Al-bayati, 2011).
6. **Optimized customer support:** E-commerce and related processes enhance and quicken customer service by facilitating the exchange of information and utilizing other businesses' products and services while promoting effective communication with partners and clients (Bakhti, 2008).
7. **Individualization:** E-commerce gives companies the capability to gather data on consumer habits and preferences, which can be utilized to adapt the buying journey and offer individualized suggestions.

8. **Streamlining and efficiency:** Identifying methods for effectively handling various business operations in a way that is suitable for the digital age, and processing transactions rapidly and efficiently.

2.1.3.2-E-commerce Requirements:

For E-commerce to develop and prosper, a suitable setting and a set of vital factors must be present. These essentials include (Radwan, 1999):

1. **Digital Infrastructure:** The growth of E-commerce is closely tied to advancements in digital infrastructure, including technologies such as wireless networks, fax, telephone, internet, computers, software, technical support services, and electronic data exchange methods (Mohamed, 2008).
2. **Building tech-skilled workforce:** The availability of personnel with knowledge in information technology, communication networks, the internet, and application programs related to E-commerce operations is crucial for the success of E-commerce. This includes increasing e-readiness, enhancing community participation in e-commerce through education, raising awareness of electronic systems and promoting a culture of knowledge and technology through educational institutions (OECD, 2000).
3. **Legal framework and regulations:** E-commerce requires a legal framework and regulations to govern remote commercial exchange. This includes laws and contracts for electronic signature validation, protection of parties' rights in transactions, protection of consumer personal information, and mechanisms for resolving commercial disputes related to electronic transactions, both domestically and internationally (Tgroort, 2005), Nahrawi, 2009).
4. **Digital payment systems:** It is vital to shift societies from traditional cash-based payment systems to more advanced electronic payment systems, while also decreasing risk for both businesses and individuals and ensuring that they are sufficiently protected from criminal activity, privacy violations, proper tracking of payments (Khalfi, 2005).

2.2. Accounting Information Systems in light of E-Commerce:

2.2.1. The Concept and Characteristics of AIS:

2.2.1.1. The Concept of AIS:

The concept refers to a system that gathers and maintains data on a company's operations and activities, processes the data, and converts the results into information that can be utilized to make management decisions and monitor operations (Al-Dalahma, 2008).

Georgantopoulos et. Al., (2006) considered that the concept of accounting information systems (AIS) refers to the structure that organizations employ to gather, store, manage, process, and retrieve financial information, and accounting information systems are an essential part of the organization.

(AIS) are systems that assist administration in planning and coordinating operations to ensure that accounting information that is characterized by quickness, objectivity, detail, appropriateness, reliability, and accuracy access to all administrative levels, in an appropriate manner, and at the appropriate time to be used in decision-making (Harash, 2015).

According to (Urquia et al., 2011), AIS are a type of accounting technology system that is used to manage and regulate data and information related to a company's economic and financial sector.

It can also be defined as the system that automate the information generated by accounting, replacing manual accounting systems with digital accounting information systems that made financial accounting, reporting, cost accounting methods, administrative systems, and other accounting systems more efficient to rationalize decisions (Cepeda and Monteiro, 2021).

(AIS) are defined by (Romeny and Steinber, 2008) as the structure or unit used to carry out accounting work, organize, and complete the full accounting cycle, and they include an interconnected set of documents, books, records, reports, accounting lists, works, and procedures through which data related to transactions is collected, analyzed, recorded, tabulated, summarized, and interpreted for economic, financial.

Accounting Information Systems (AIS) are systems that can convert business transaction data into financial data for users, which can then be utilized to make decisions (Jogiyanto, 2015).

Also, according to (Hall, 2012), Accounting information system is a collection of data and processing procedures that generates the user's required information. The types of these systems vary as a result of many factors, such as the volume of business, the nature of commercial activity, and the amount of data (Akrim, 2019).

in summary, (AIS) is a collection of people, procedures, and information technologies that work to turn the data collected into information that can be used in decision-making and that helps management to define, plan and implementing for future strategic goals.

2.2.1.2. Characteristics of AIS:

1. AIS, specialized systems for efficient financial data collection, processing, and reporting. AIS has the following key features (El-Hefnawi, 2001), (Al-Rifai et al., 2009), (Al-Rawi & Al-Afandi, 2012):

2. **Compliance:** The capability to perform accounting operations in accordance with generally accepted accounting principles and the ability to adapt to ensure compliance with any changes or updates to accounting standards are all characteristics of AIS, which are specifically designed for use in the accounting industry.
3. **Data management and processing:** AIS is used to rapidly and accurately process financial data and convert it into accounting information, including reports, financial statements, and analysis.
4. **Speed:** The capacity to provide accounting data to management in time for decision-making.
5. **Audit trail:** The capacity of AIS to offer management with fundamental data to monitor, audit, and evaluate the performance, transactions, and activities of the economic unit. This can be employed to keep track of changes, spot mistakes, and promote regulatory compliance.
6. **Massive data production:** Producing an enormous quantity of accounting, administrative, and other data to help the administration with its major functions, which include control, decision-making, and long- and short-term planning for future operations.
7. **Data accessibility and accuracy:** AIS is characterized by speed and accuracy in retrieving qualitative and quantitative data from databases. also, to grant varying levels of access according on the user's job and duties within the organization, to permit authorized users to access financial information as required, and to allow access to financial information as needed.
8. **User-friendliness and Flexibility:** AIS are unique in their usability and flexibility, allowing users to enter, access, analyze, and update financial data in response to changing economic conditions (Ahmed et al., 2014), (Jumaa et al., 2007).

2.2.2. Functions, and Objectives of AIS:

Business success depends heavily on accounting information systems that deliver timely, accurate, and high-quality financial and quantitative data (Islam, Abdullah & Salleh, 2001). The AIS possess various features and aim to accomplish a range of functions and goals.

2.2.2.1- The Main Functions of AIS:

Includes a set of functions are (Khalid and Kot, 2021):

1. Collecting and maintaining information about all events, processes, and activities that take place within the organization.

2. Recording data about events, operations, and activities into appropriate records.
3. Organizing and categorizing the data, inputting it into the Journal Book, then transferring it to the General Ledger accounts and storing it in the appropriate accounts in a format that reflects the data's chronological order and facilitates retrieval (Allahverdi, 2011).
4. Supplying management with the information required to make various decisions through various reports and financial statements.
5. Improving the internal control and audit system, ensuring the security of assets, and evaluating performance by comparing results to prior plans and budgets (Christauskas and Misevicene, 2012).

2.2.2.2. Objectives of AIS:

The main goals of AIS are to produce information and make it accessible to a variety of users, including internal management within the business and external parties like customers, to support their decision-making and execution of tasks and responsibilities (Alikhani, et. al., 2013). The following objectives are the most important:

1. Operational support: This includes preparing necessary reports, whether financial or statistical, or daily and weekly operating reports, to enhance performance and achieve the company's goals (Al-Dahrawi, 2007).
2. Support decision-making: by processing information timely, planning, control, and preparing reports commensurate with the company's operations (Ajami, 2011).
3. Management-related tasks: AIS carries out management-related tasks such as ensuring accuracy in data collection and report preparation that accurately reflect the company's financial position, achieving internal control requirements, balancing the cost of implementing AIS with the cost of producing data, producing necessary reports to support business objectives and meet management's needs, and providing accurate, timely data and reports (Ram et. Al., 2103).

2.2.3. The Relation between E-Commerce and AIS:

Due to their shared reliance on technology to support their respective business activities, E-commerce and AIS are closely related. By supplying the information needed for transactions and assisting with financial operations, AIS is essential to the success of online commerce. Because it aids in financial transactions, data analysis and processing, decision-making, and corporate expansion, AIS is essential to the operation of E-commerce. For E-commerce to function, AIS is a necessary prerequisite (Ardiansah, et. Al., 2020).

The advancement of AIS technology that can monitor operations, prevent data theft, and guarantee data security has allowed businesses involved in E-commerce to operate effectively, as a result of the shift towards electronic methods in commercial operations (Mehta, 2000).

AIS can improve the information's qualitative characteristics by improving factors such as understandability, relevance, credibility, and verifiability (FASB, 1980), (IASB), (Al-Gharbi, 2015). It also provides easy access to accurate and reliable financial data, which is essential for e-commerce companies to make rational decisions (Kieso et. Al., 2016), (Qayed, 2010).

Additionally, AIS assists companies in protecting their data, financial information, and records by detecting and preventing fraud and hacking and ensuring that they are in compliance with all applicable laws and regulations (Oseni et. Al., 2015). This is essential because it allows companies to uphold their integrity, preserve customer information, and keep an eye out for and uncover any illegal or questionable conduct (Guynes, 2011).

E-commerce requires accurate and timely financial information to make strategic decisions, which is provided by AIS that adhere to the current business environment and company demands (FASB, 1980), (IASB). Reliability, verifiability, and protection of financial data is crucial for E-commerce and AIS must ensure dependability, accuracy, trustworthiness, confidentiality, and integrity of financial data (FASB, 1980), (IASB), (El-Sayed, 2009), (Yousif, 2015). Hence, it may be said that E-commerce and (AIS) depend on one another in order to function efficiently, and their relationship is one of complementarity (Amen, 2012).

2.2.4- Accounting Information System Components in light of E-commerce:

Technological advancements in E-commerce require companies to use AIS for precise and effective electronic accounting. This necessitates the development of overlapping components to satisfy E-commerce requirements, including (Romeny and Steinbert, 2012), (Fitrios, 2016), (Al-Reface, 2012):

- 1- The system's users, accountants, financial analysts, analysts, designers of AIS, and programmers who are involved in the process of assessing, creating, implementing, and developing information systems.
2. The procedures, guidelines, and techniques utilized for data collection, preparation, processing, and storage, whether they are manual or automated (Issa and Shehata, 2015).
3. The central database, which contains all financial data relevant to the company's activities and operations.
4. Data processing programs of various types.

5. Electronic devices and equipment for data entry, storage, playback, output Information, networks, and wireless communication devices.
6. Security and internal control measures related to controls and procedures for safeguarding and monitoring the security of AIS and financial data (El-Hefnawi, 2000).

2.2.4.1- The Impact of E-commerce on AIS:

The development of E-commerce, specifically the use of modern electronic means in accounting work, the design of efficient systems for the processing and production of financial data, and the development of processes for the electronic operation of data and digital information have all had a significant impact on AIS. The components and fundamentals of AIS are significantly impacted by this (Moqbel, 2014).

2.2.4.1.1 -The Impact of E-commerce on the Components of AIS:

For data processing, traditional commerce often employs manual techniques and simple instruments (Radwan, 1999). To satisfy the unique requirements of this business, advanced technology in AIS has become vital in the world of E-commerce (Al-Jazrawi, 2009).

An AIS must be operated by a group of professionals skilled in handling accounting software and modern technologies, in addition to computers that can process data rapidly and accurately. In addition, technologies for electronic communication and information transfer are required, as well as software, databases, processes, and infrastructure (Taher and Saleh, 2021). To satisfy the requirements of E-commerce, all of these elements operate together. (Halim and Al Amin, 2021).

2.2.4.1.2-Dimensions of the Impact on AIS's fundamentals:

Regardless matter whether data is handled manually or electronically, the fundamental accounting principles never change. However, as seen by changes in the technology and components employed in AIS, the usage of electronic systems for E-commerce has altered how AIS operates (Zwailaq, 1996), (Kogan, 2009), (Yahya, and Al Hayali, 2012):

- **Impact on Documents and Papers:** The shift towards electronic data processing in E-commerce has necessitated adjustments to the form and nature of accounting documents, or the creation of new types of documents that are compatible with the electronic accounting systems and coding systems used by companies for data storage and retrieval (Badawi, 2006), (Khalifa, and Louz, 2017).
- **Using electronic contracts and agreements,** digital payment methods, and electronic signatures while conducting business can improve efficiency and convenience (Attaallah, 2008). Additionally, this lessens the expense and

requirement for physical paperwork and facilitates the tracking and management of financial data with the use of E-commerce.

- **Impact on the Book Group:** E-commerce streamlines accounting and financial management by shifting from manual to automated processes, doing away with the need for physical accounting books and records (Ramli, 2011). Financial statements, payments, and bills may be processed more quickly and with less chances of error since data is electronically stored on computer memory, cassettes, magnetic disks, and other digital media (Lamin, 2016), (Qadi, and Abu Zalta, 2010).
- **Impact on the Chart of Accounts:** The development of a system for preparing the chart of accounts, which guaranteed the security of recorded accounts and the precision of categorization, was greatly aided by data electronic operation (Loutfy, 2005).
- **Impact on Reports and Financial Statements:** The capacity to Produce financial reports on a daily, weekly, monthly, quarterly, and annual basis with the ability to present them on a visual screen is greatly enhanced by the usage of electronic data operation (Debrechny, et. al., 2005). Making rational operational decisions and monitoring financial performance in real-time are also made possible. By efficiently collecting and utilizing information to provide better value for consumers and enhance business operations, AIS plays a critical part in this process (Lee, 2001).

2.2.4.1.3- The Impact of Changes in Business Models on AIS in light of E-Commerce:

The evolution of business models brought on by the rise of E-commerce is directly related to AIS (Al-Serafi, 2009). E-commerce has fundamentally altered how businesses run, which has an influence on the development and use of AIS (Muda et. al., 2019). E-commerce has increased market reach by enabling businesses to sell products and services online, allowing them to reach clients anywhere in the globe at any time through their website (Teo & Pian, 2004), (Lee, 2001). New business models including subscription-based models and online marketplaces have emerged as a result of this, which need specialist accounting software to manage the particular transactions and revenue streams connected to them (Phillips, and Kirby, 2002).

Advanced accounting systems have been developed as a result of E-commerce and include features like integrated reporting, invoicing, automated billing, and real-time stock control to handle the growing complexity of transactions and market expansion. (Kamalakaran, and Edhayavarman, 2018).

Company invests in cutting-edge AIS to adapt to changing business models. With the use of AIS, financial transactions, inventory and customer data can be tracked and managed in real-time (Alsharari, 2021). There are also tools for

reporting and analysis to help with decision-making. The impact of AIS can be precisely defined in the following (OECD, 2000):

1. **Real-time Data Management and Tracking:** AIS enables companies to monitor inventory, customer data, and financial activity in real-time, allowing them to react swiftly to changes in consumer demand and market circumstances.
2. **Enhancing decision-making:** A company can use the business performance analysis and reporting tools offered by (AIS) to find chances for efficiency and expansion by learning about sales patterns, customer behavior, and other important data.
3. **AIS provides a solution for organizing and tracking client interactions and transactions,** allowing E-commerce businesses to offer a more personalized shopping experience by better knowing their consumers' requirements and preferences (Teo & Pian, 2003).
4. **Increased Efficiency:** Automation provided by (AIS) leads to savings of time and resources that can be used in other tasks, like business development and sales.

2.2.5- Requirements for AIS in light of E-Commerce:

AIS must meet various requirements in the e-commerce age, including (OECD, 2000), (Andam, 2003), (Dhyani, 2020), (Thuan et. Al., 2022):

1. **Security:** AIS ought to be strong enough to prevent unauthorized access to Sensitive financial information and data, especially when online transactions are involved (Romney and Steinbart, 2009), (Hassoun, 2017).
2. **Integration:** In order to simplify information sharing and assist business processes, AIS must be capable of integration, merger and the rest of other systems, like customer relations management (CRM), Workflow Management Systems (WFMS) and resource planning systems (ERP).
3. **Scalability:** During periods of high E-commerce activity, the system should be able to manage a significant volume of transactions.
4. **User-friendliness:** AIS should be simple to use and navigate so that staff members can enter and obtain financial data quickly and simply (Albadainah, 2019).
5. **Automation:** To increase productivity and lower the chance of mistakes, AIS must be capable of automating numerous accounting operations, such as creating invoices and reviewing bank statements.
6. **Compliance:** AIS must be capable of supporting compliance to pertinent laws and rules, like those pertaining to taxation, Data privacy protection, and financial statement.
7. **Market networking:** Involving as many users as possible from around the world until it eventually turns into an efficient market. (Kurdiya, 2007).

3- Study Methodology

The study applied the survey methodology and developed a questionnaire to assist in the data gathering process. The survey method is particularly practical for gathering data, especially when big numbers must be gathered in the smallest amount of time.

The questionnaire was distributed to employees of businesses in the Kingdom of Saudi Arabia.

3.1 The Questionnaire Design

The study sample consisted of a group of Saudi commercial institutions, as for the sampling unit, it consisted of (Financial and Information Systems' managers, Deputy financial manager, heads of accounting departments and accountants in Saudi commercial institutions, The researcher used the Descriptive and Analytical method to describe the impact of The E-Commerce on accounting information systems (AIS).

The questionnaire of five Likert scale of approvals, it consisted of 35 items, and it was divided into two parts.

1. The first part: the sample's characteristics which consist of (5) questions.

2. The second part: includes three main fields as follows:

Field one: The contribution of E-commerce and modern communication methods in enabling Saudi commercial institutions to provide new commercial transactions and services: include (9) questions.

Field two: The role of E-commerce and modern communication methods in improving the effectiveness of accounting information systems (AIS) in Saudi commercial institutions include (11) questions.

Field three: The role of e-commerce and modern communication methods in improving the efficiency of accounting information systems (AIS) in Saudi commercial institutions: include (10) questions.

3.2. Measurement of data and Statistical Analysis Tools

In order to be able to select the appropriate approach for analysis, the level of ordinal scales was used, as Ordinal scale is a ranking or a rating data that normally uses integers in ascending or descending order, based on the Likert scale, we have the following:

Item	Strongly agree	Agree	neutrally	Disagree	Strongly Disagree
Scale	5	4	3	2	1

To achieve the research objectives, the researcher used the Statistical Package for the Social Science (SPSS) for Manipulating and analysing the data. The researcher utilized the following statistical tools:

- 1) Pearson correlation coefficient for Validity.
- 2) Cronbach's Alpha for Reliability Statistics.
- 3) One-sample T test, it is used to determine if the mean of an item is significantly different from a hypothesized value 3 (Middle value of Likert scale).
- 4) Frequency and Descriptive analysis.

3.3. Validity of the Questionnaire

Validity refers to the degree to which an instrument measures what it is supposed to be measuring. Validity has a number of different aspects and assessment approaches. Statistical validity is used to evaluate instrument validity, which includes internal validity and structural validity.

1. **External (Pre-Pilot):** Validity of the Questionnaire: It is essential to pre-pilot the questionnaire to identify any ambiguities in the questions and to identify the potential problems for each question. To ensure the developed tool's high level of reliability and validity.
2. **Internal Validity:** It is the first statistical test that is used to test the validity of the questionnaire through measuring the correlation coefficients between each item in one field and the whole field.

Table (1): Correlation Coefficient of each Item of "the First Field" and the Total of this Field

No.	Item	Pearson Correlation Coefficient	P-Value (Sig.)
1	The institution depends on the distribution of goods and follow-up of sales procedures using the Internet	0.795	0.00*
2	Customers can pay financial obligations online and other electronic means	0.864	0.00*
3	Contracts and deals can be concluded with your customers or suppliers online	0.370	0.008*
4	It is possible to negotiate and interact with the buyer and seller electronically online	0.370	0.008*
5	Customers can electronically link the relationships that support purchasing and after-sales services Online	0.462	0.001*
6	Customers can obtain information about products, prices, and services electronically online	0.743	0.00*
7	Goods and services are announced electronically to customers	0.896	0.00*

8	The institution conducts electronic exchange for banking transactions	0.413	0.003*
9	The company electronically exchanges invoices with the customer	0.900	0.00*

* Correlation is significant at the 0.05 level

Table (1) clarifies the correlation coefficient for each item of the "The contribution of E-commerce and modern communication methods in enabling Saudi commercial institutions to provide new commercial transactions and services" and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the items of this field are consistent and valid to be measure what it was set for.

Table (2): Correlation Coefficient of each Item of "the Second Field" and the Total of this Field

No.	Item	Pearson Correlation Coefficient	P-Value (Sig.)
1	AIS association with the organizational structure, which provides important information to achieve management goals	0.830	0.00*
2	AIS demonstrate the interdependence of various administrative activities through a useful set of periodic reports used to achieve administrative goals	0.900	0.00*
3	AIS aid in the development of work improvement plans for all of the institution's administrative levels	0.291	0.04
4	AIS provide sufficient information to senior management about the outcomes of plan implementation by comparing actual results to previously drawn plans and policies	0.618	0.00*
5	Providing analytical and detailed data to meet the needs of the decision maker	0.561	0.00*
6	The possibility of analyzing the positive and negative impact of the decision and distinguishing between its efficiency and effectiveness	0.896	0.00*
7	The system's ability to adapt to changes in strategic objectives and influence environmental factors	0.618	0.00*
8	The possibility of achieving a balance between accuracy and cost and the appropriate timing for preparing accounting reports	0.891	0.00*
9	Using AIS to serve various departments within the institution, such as marketing, finance, and others	0.934	0.00*
10	The information extracted from these systems contributes to improving the performance of the institution	0.711	0.00*
11	AIS that are used with e-commerce provide appropriate information that is one of the cornerstones of the success of the institution	0.748	0.00*

* Correlation is significant at the 0.05 level

Table (2) clarifies the correlation coefficient for each item of the "The role of E-commerce and modern communication methods in improving the effectiveness of

accounting information systems (AIS) in Saudi commercial institutions" and the total of the field. The P- values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the items of this field are consistent and valid to be measure what it was set for.

Table (3): Correlation Coefficient of each Item of "the Third Field" and the Total of this Field

No.	Items	Pearson Correlation Coefficient	P-Value (Sig.)
1	The accuracy of the information obtained through these systems	0.950	0.00*
2	The information extracted from these systems is presented in an attractive and appropriate Manner	0.483	0.00*
3	The information obtained contributes to rationalizing the decisions of the institution	0.839	0.00*
4	The ability of the systems to cover the largest possible area of the jobs in the institution	0.928	0.00
5	The possibility of these systems contributing to dealing with the newly banking activities	0.198	0.167
6	The ability of these systems to integrate with other information systems in the institution	0.974	0.00*
7	The ability of these systems to accommodate a larger number of dealers and the activities	0.957	0.00*
8	Contribute to providing smooth and easy outputs	0.825	0.00*
9	The outputs of accounting information systems enable decision makers to rely on and trust them	0.962	0.00*
10	AIS can provide the necessary protection for their components	0.783	0.00*

* Correlation is significant at the 0.05 level

Table (3) clarifies the correlation coefficient for each item of the "The role of E-commerce and modern communication methods in improving the efficiency of accounting information systems (AIS) in Saudi commercial institutions" and the total of the field. The P-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the items of this field are consistent and valid to be measure what it was set for.

- 3. Structure Validity of the Questionnaire:** It is the second statistical test that used to test the validity of the questionnaire structure by testing the validity of each field and the validity of the whole questionnaire. It measures the correlation coefficient between one field and all the fields of the questionnaire that have the same level of liker scale.

**Table (4): Correlation Coefficient of each Field and
the whole of Questionnaire**

Field	Pearson Correlation Coefficient	P-Value (Sig.)
The First Field	0.966	0.00*
The Second Field	0.979	0.00*
The Third Field	0.986	0.00*

* Correlation is significant at the 0.05 level

Table (4) clarifies the correlation coefficient for each field and the whole questionnaire. The p-values (Sig.) are less than 0.05, so the correlation coefficients of all the fields are significant at $\alpha = 0.05$, so it can be said that the fields are valid to be measured what it was set for to achieve the main aim of the study.

3.4. Reliability of the Questionnaire (Cronbach's Coefficient Alpha)

to provide evidence that the instrument produced the data for which it was designed, reliability test was conducted.

**Table (5): Cronbach's Alpha for each Field of the
Questionnaire**

Field	Number of Items	Cronbach's Alpha Coefficient
The contribution of E-commerce and modern communication methods in enabling Saudi commercial institutions to provide new commercial transactions and services	9	0.845
The role of E-commerce and modern communication methods in improving the effectiveness of accounting information systems (AIS) in Saudi commercial institutions	11	0.921
The role of E-commerce and modern communication methods in improving the efficiency of accounting information systems (AIS) in Saudi commercial institutions	10	0.940
All Items of the Questionnaire	30	0.970

Table (5) shows the values of Cronbach's Alpha for each field of the questionnaire and the entire questionnaire for the fields, values of Cronbach's Alpha were in the range of between 0.845 and 0.940. This range is considered high; the result ensures the reliability of each field of the questionnaire. Cronbach's Alpha equals .970, reliability value gained was greater than 0.70 indicating an acceptance of research testing. Reliability

less than 60% are generally considered to be poor, these in the 70% range to be acceptable and those are over 80% to be excellent reliability (Sekaran, 2003).

Therefore, it can be said that the researcher proved that the questionnaire was valid, reliable, and ready for distribution for the population sample.

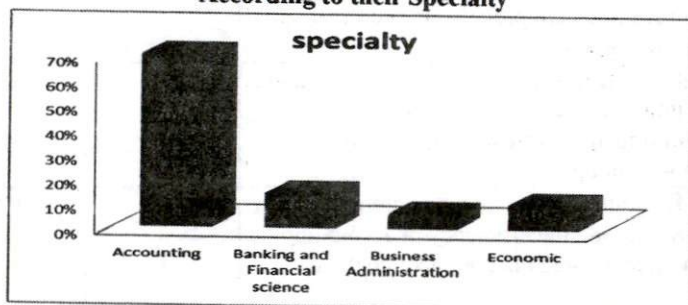
3.4-The Study Sample:

The following is the distribution of the sample according to the variables (specialty, Qualification degree, Occupational level, Years of experiences, participation level).

**Table (6): Classifying the Individuals of the Study
According to their Specialty**

Specialty	Frequency	Percentage
Accounting	35	70%
Banking and Financial Science	7	14%
Business Administration	3	6%
Economic	5	10%
Total	50	100%

**FIG (1): Classifying the Individuals of the Study
According to their Specialty**

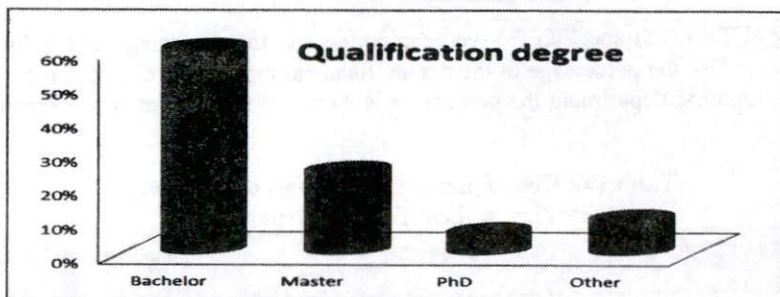


Looking at Table (6) and FIG (1), we can notice that most individuals have a BA degree in the accounting major, which forms a percentage of around 70% of the tested sample, while the percentage of those who have a BA degree in banking and financial sciences reached 14%, as those who have a BA degree in economic their percentage was around 10%, and those who have a BA degree in business administration, their percentage was around 6%.

**Table (7): Classifying the Individuals of the Study
According to their Qualification Degree**

Qualification Degree	Frequency	Percentage
Bachelor	13	60%
Master	12	24%
PhD	3	6%
Other	5	10%
Total	50	100%

**FIG (2): Classifying the Individuals of the Study
According to their Qualification Degree**

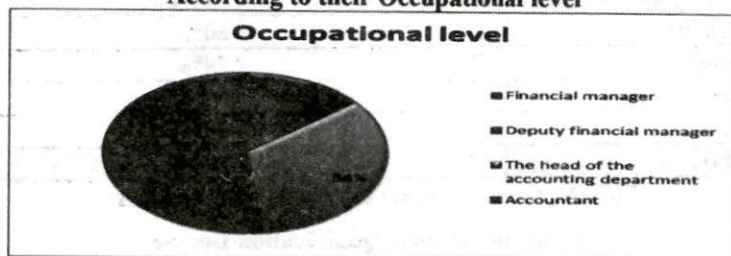


Looking at Table (7) and FIG (2), we notice that the percentage of those who have a BA degree is around 60%, MA degree percentage is around 24%, other degree is around 10%, and the percentage of those who have PHD degree is 6%.

**Table (8): Classifying the Individuals of the Study
According to their Occupational level**

Occupational level	Frequency	Percentage
Financial manager	4	8%
Deputy financial manager	3	6%
The head of the accounting department	17	34%
Accountant	26	52%
Total	50	100%

**FIG (3): Classifying the Individuals of the Study
According to their Occupational level**

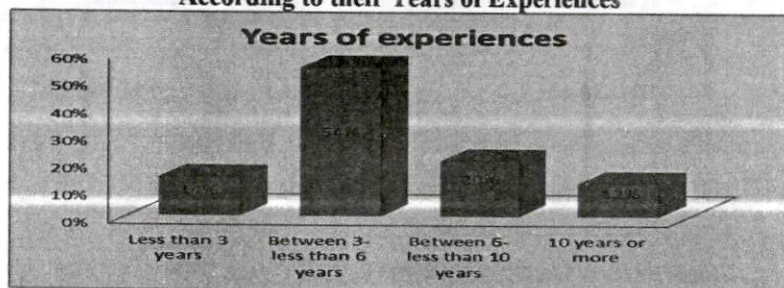


Looking at Table (8) and FIG (3), you can notice that the percentage of the financial managers is 8%, the percentage of the deputy financial manager is 6%, as for the heads of the accounting department the percentage is 34% and the accountants percentage is 52%.

**Table (9): Classifying the Individuals of the Study
According to their Years of Experiences**

Years of experiences	Frequency	Percentage
Less than 3 years	7	14%
Between 3- less than 6 years	27	54%
Between 6- less than 10 years	10	20%
10 years or more	6	12%
Total	50	100%

**FIG (4): Classifying the Individuals of the Study
According to their Years of Experiences**

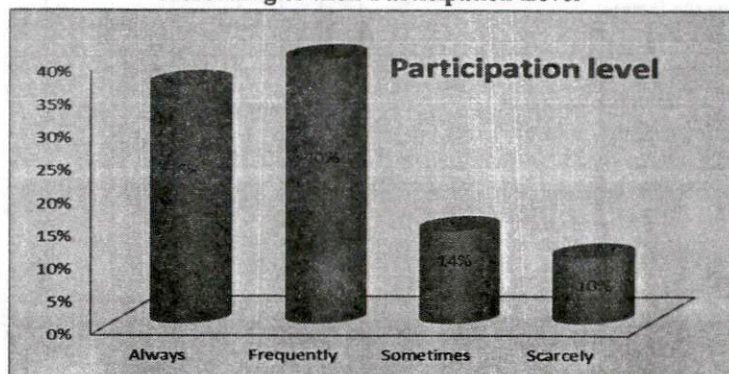


Looking at Table (9) and FIG (4), most of the individuals of the sample have an experience between (3-less than 6 years) with a percentage of around 54%, the percentage of Between (6- less than 10 years) is 20%, as for (Less than 3 years) and (10 years or more) the percentage is 14%,12%respectively.

**Table (10): Classifying the Individuals of the Study
According to their Participation Level**

Participation level	Frequency	Percentage
Always	18	36%
Frequently	20	40%
Sometimes	7	14%
Scarcely	5	10%
Total	50	100%

**FIG (5): Classifying the Individuals of the Study
According to their Participation Level**



Looking at Table (10) and FIG (5), most of the individuals of the sample have an frequently participation with a percentage of around 40%, the percentage of always participation is 40%, as for sometimes and scarcely participation the percentage is 14%,10%, respectively.

3.5-Analysis of the Study Hypotheses:

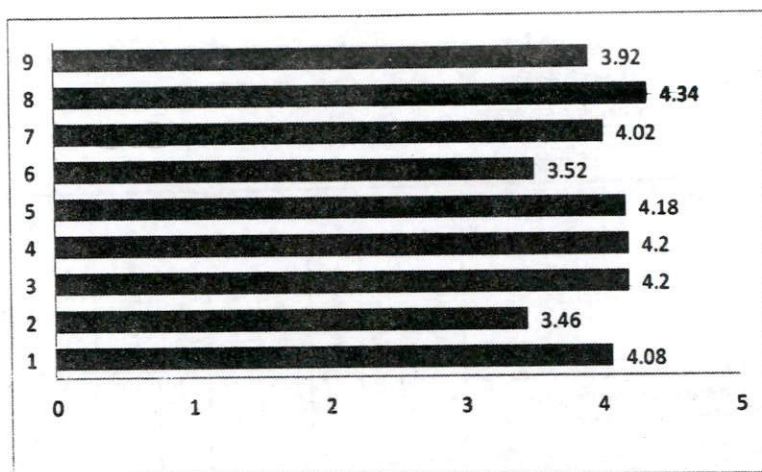
To test the study hypotheses H1, H2 and H3 the mean, relative arithmetic mean, the standard deviation was calculated and the T test using the data gotten from the questionnaire.

H1: E-commerce and contemporary communication techniques contribute positively to enabling Saudi commercial organizations to provide new commercial transactions and services.

Table (11): First Hypothesis Result

NO.	Rank	Item	Responses					Mean	Std. Deviation	Test value	P-Value	Level of agreement
			Strongly agree	Agree	Neutral	Disagree	strongly disagree					
1	5	The institution depends on the distribution of goods and follow-up of sales procedures using the Internet	16	26	5	2	1	4.08	0.877	8.70	0.00 *	high
2	9	Customers can pay financial obligations online and other electronic means	6	22	14	5	3	3.46	1.034	3.14	0.00 *	high
3	2	Contracts and deals can be concluded with your customers or suppliers online	13	34	3	0	0	4.20	0.535	15.87	0.00 *	Very high
4	3	It is possible to negotiate and interact with the buyer and seller electronically online	13	34	3	0	0	4.20	0.535	15.87	0.00 *	Very high
5	4	Customers can electronically link the relationships that support purchasing and after-sales services Online	19	25	2	4	0	4.18	0.850	9.81	0.00 *	high
6	8	Customers can obtain information about products, prices and services electronically online	10	19	9	2	0	3.52	1.129	3.25	0.00 *	high
7	6	Goods and services are announced electronically to customers	16	23	7	4	0	4.02	0.892	8.08	0.00 *	high
8	1	The institution conducts electronic exchange for banking transactions	22	25	2	0	1	4.34	0.745	12.71	0.00 *	Very high
9	7	The company electronically exchanges invoices with the customer	14	22	10	4	0	3.92	0.900	7.22	0.00 *	high
All Items of the Field								3.99	0.570	12.28	0.00 *	high

* The mean is significantly different from 3



FIG(6): The first field Result

Table (11) shows the following results:

The mean of item #8 "The institution conducts electronic exchange for banking transactions" equals 4.34 (Very high), Test-value = 12.71, and P-value = 0.000 which is smaller than the level of significance 0.05. The sign of the test is positive, so the mean of this item is significantly greater than the hypothesized value 3. This means that the respondents agreed to this item.

The mean of item #2 "Customers can pay financial obligations online and other electronic means" equals 3.46 (high), Test-value = 3.14, and P-value = 0.000 which is smaller than the level of significance 0.05. The sign of the test is positive, so the mean of this item is significantly greater than the hypothesized value 3. This means that the respondents agreed to this item.

The mean of the field "The contribution of E-commerce and modern communication methods in enabling Saudi commercial institutions to provide new commercial transactions and services" equals 3.99 (high), Test-value = 12.28, and P-value = 0.000 which is smaller than the level of significance 0.05. The sign of the test is positive, so the mean of this field is significantly greater than the hypothesized value 3.

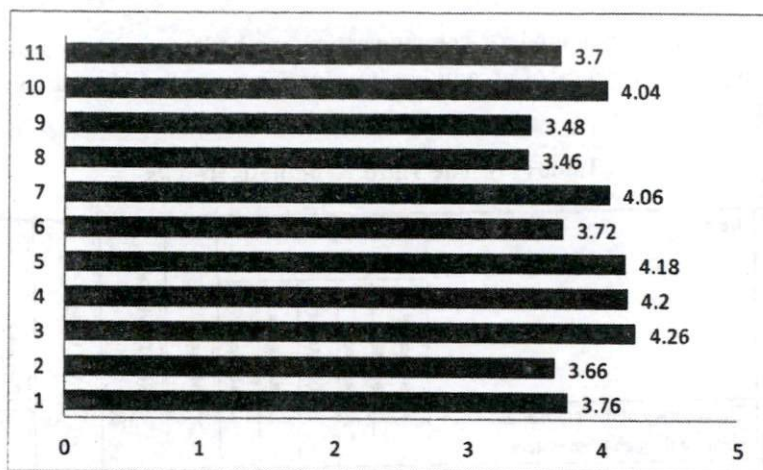
According to these results, the field "E-commerce and modern communication methods contribute positively to enabling Saudi commercial institutions to provide new commercial transactions and services" is statistically significant at the significant level of $0.05 \geq \alpha$, so according to these results, we accept the first hypothesis.

H2: E-commerce and modern communication methods contribute positively to improving the effectiveness of accounting information systems in Saudi commercial institutions.

Table (12): The Second Hypothesis Result

NO.	Rank	Item	responses					Mean	Std. Deviation	Test value	P-Value	level of agreement
			strongly agree	agree	neutrally	disagree	strongly disagree					
1	6	AIS association with the organizational structure, which provides important information to achieve management goals	15	18	9	6	2	3.76	1.135	4.73	0.00 *	high
2	9	AIS demonstrate the interdependence of various administrative activities through a useful set of periodic reports used to achieve administrative goals	10	20	15	3	2	3.66	1.002	4.65	0.00 *	high
3	1	AIS aid in the development of work improvement plans for all of the institution's administrative levels	16	31	3	0	0	4.26	0.565	15.78	0.00 *	Very high
4	2	AIS provide sufficient information to senior management about the outcomes of plan implementation by comparing actual results to previously drawn plans and policies	16	28	6	0	0	4.20	0.639	13.28	0.00 *	Very high
5	3	Providing analytical and detailed data to meet the needs of the decision maker	20	22	5	3	0	4.18	0.850	9.81	0.00 *	high
6	7	The possibility of analyzing the positive and negative impact of the decision and distinguishing between its efficiency and effectiveness	11	21	13	3	1	3.72	1.011	5.03	0.00 *	high
7	4	The system's ability to adapt to changes in strategic objectives and influence environmental factors	17	22	9	1	3	4.06	0.890	8.42	0.00 *	high
8	11	The possibility of achieving a balance between accuracy and cost and the appropriate timing for preparing accounting reports	10	16	14	7	3	3.46	1.147	2.83	0.00 *	high
9	10	Using AIS to serve various departments within the institution, such as marketing, finance, and others	8	19	12	11	1	3.48	1.015	3.34	0.00 *	high
10	5	The information extracted from these systems contributes to improving the performance of the institution	19	20	6	4		4.04	1.009	7.28	0.00 *	high
11	8	AIS that are used with e-commerce provide appropriate information that is one of the cornerstones of the success of the institution	12	20	10	7	1	3.70	1.055	4.69	0.01 *	high
All Items of the Field								3.86	0.713	8.577	0.00	high

* The mean is significantly different from 3



FIG(7): The second field Result.

Table (12) shows the following results:

The mean of item #3 "AIS aid in the development of work improvement plans for all of the institution's administrative levels" equals 4.26 (Very high), Test-value = 15.78, and P-value = 0.000 which is smaller than the level of significance 0.05. The sign of the test is positive, so the mean of this item is significantly greater than the hypothesized value 3. This means that the respondents agreed to this item.

The mean of item #8 "The possibility of achieving a balance between accuracy and cost and the appropriate timing for preparing accounting reports" equals 3.46 (high), Test-value = 3.83, and P-value = 0.000 which is smaller than the level of significance 0.05. The sign of the test is positive, so the mean of this item is significantly greater than the hypothesized value 3. This means that the respondents agreed to this item.

The mean of the field "The role of e-commerce and modern communication methods in improving the effectiveness of accounting information systems (AIS) in Saudi commercial institutions" equals 3.86 (high), Test-value = 8.577, and P-value = 0.000 which is smaller than the level of significance 0.05. The sign of the test is positive, so the mean of this field is significantly greater than the hypothesized value 3.

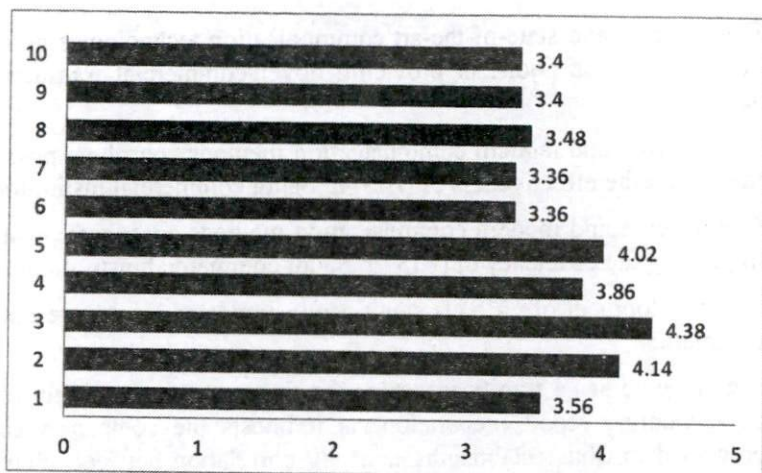
According to the result we accept the second hypothesis that stated that E-commerce and modern communication methods contribute positively to improving the effectiveness of accounting information systems in Saudi commercial institutions.

H3: E-commerce and modern communication methods contribute positively to improving the efficiency of accounting information systems in Saudi commercial institutions.

Table (13): The Third Hypothesis Results

NO.	Rank	Item	responses					Mean	Std. Deviation	Test value	P-Value	Level of agreement
			strongly agree	agree	Neutral	disagree	strongly					
1	5	The accuracy of the information obtained through these systems	10	21	9	7	3	3.56	1.146	3.45	0.00*	high
2	2	The information extracted from these systems is presented in an attractive and appropriate Manner	9	21	8	2	0	4.14	0.833	9.67	0.00*	high
3	1	The information obtained contributes to rationalizing the decisions of the institution	37	0	8	5	0	4.38	1.086	8.98	0.00*	Very high
4	4	The ability of the systems to cover the largest possible area of the jobs in the institution	16	19	9	4	2	3.86	1.088	5.58	0.00*	high
5	3	The possibility of these systems contributing to dealing with the newly banking activities	16	22	10	1	1	4.02	0.892	8.08	0.00*	high
6	9	The ability of these systems to integrate with other information systems in the institution	7	18	14	8	3	3.36	1.102	2.31	0.025*	aver age
7	10	The ability of these systems to accommodate a larger number of dealers and the activities	8	19	11	7	5	3.36	1.208	2.10	0.04*	aver age
8	6	Contribute to providing smooth and easy outputs	9	20	9	10	2	3.48	1.129	3.00	0.00*	high
9	8	The outputs of accounting information systems enable decision makers to rely on and trust them	11	17	9	7	6	3.40	1.309	2.16	0.036*	high
10	7	AIS have the ability to provide the necessary protection for their components	8	20	9	10	3	3.40	1.161	2.43	0.018*	high
All Items of the Field								3.69	0.888	5.536	0.00*	high

* The mean is significantly different from 3



FIG(8):The third field Result.

Table (13) shows the following results:

The mean of item #3 "The information obtained contributes to rationalizing the decisions of the institution" equals 4.38 (Very high), Test-value = 8.98, and P-value = 0.000 which is smaller than the level of significance 0.05. The sign of the test is positive, so the mean of this item is significantly greater than the hypothesized value 3. This means that the respondents agreed to this item.

The mean of item #7 "The ability of these systems to accommodate a larger number of dealers and the activities" equals 3.36 (average), Test-value = 2.13, and P-value = 0.02 which is smaller than the level of significance 0.05. The sign of the test is positive, so the mean of this item is significantly greater than the hypothesized value 3. This means that the respondents agreed to this item.

The mean of the field "The role of E-commerce and modern communication methods in improving the efficiency of accounting information systems (AIS) in Saudi commercial institutions" equals 3.69 (high), Test-value = 5.53, and P-value = 0.000 which is smaller than the level of significance 0.05. The sign of the test is positive, so the mean of this field is significantly greater than the hypothesized value 3. So according to the results we accept the third hypothesis that states that E-commerce and modern communication methods contribute positively to improving the efficiency of accounting information systems in Saudi commercial institutions.

4. Results and Recommendations:

The study's analysis of how E-commerce affects accounting information systems produced the following findings:

1. E-commerce and state-of-the-art communication technologies assist Saudi commercial institutions in providing novel commercial transactions and services.
2. E-commerce and modern communication methods contribute positively to improving the effectiveness of (AIS) in Saudi commercial institutions.
3. E-commerce and modern communication methods contribute positively to improving the efficiency of (AIS) in Saudi commercial institutions.
4. The development of (AIS) is significantly impacted by the presence of E-commerce.
5. E-commerce has a significant impact on the accuracy, cost, and timeliness of accounting report preparation, as it boosts the company's ability to process data, thus establishing a strong correlation between e-commerce and accounting reports.
6. E-commerce through the implementation of (AIS) has allowed Saudi businesses to offer new commercial services and transactions.
7. The use of E-commerce has led to significant improvements in the performance of (AIS).
8. Accounting information systems (AIS) play a vital role in rationalizing the electronic commerce decisions of the enterprise.
9. Companies use accounting information systems to improve their performance and comply with the requirements of E-commerce.

Recommendations:

1. For the survival of the companies, it is important to keep track of the developments in accounting information systems which leads to the improvement of business efficiency.
2. There is a need to put in continuous efforts to tackle the challenges that come with the rising pressure on the logistics of shipping and delivery sectors, owing to the rapid expansion of E-commerce.
3. To stay competitive in E-commerce, companies must adopt and continually improve modern (AIS) to align with the technical and technological demands of e-commerce.
4. Saudi companies must stay informed about the latest advancements in (AIS) and be aware of international standards and developments in the field of accounting to remain competitive.
5. To fully leverage the opportunities provided by e-commerce and its various aspects, companies should adopt automated systems and continuously work on enhancing them.

6. Companies should prioritize training and developing the skills of employees and teams to improve their performance.
7. To enhance the growth and expansion of E-commerce in the Saudi market, businesses can focus on implementing robust and integrated (AIS) that can support e-commerce operations, building trust and reputation, and providing an excellent customer experience.

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