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The role of E-commerce in improving customer service: An analytical study of the opinions of a sample of customers of "Forever" company in Kirkuk city

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Abstract

The current research aims to determine the role of e-commerce in customer service within the internet sector in Kirkuk Governorate. The study originates from a problem expressed through several intellectual and practical questions, with the main research question being: "Does e-commerce play a role in improving customer service?" To answer these questions, the study adopted a descriptive-analytical approach and formulated a hypothetical model reflecting the nature of the relationships and impacts between the research variables and their dimensions. This resulted in several main and sub-hypotheses, all of which were subjected to statistical analyses and tests using ready-made programs, including (SPSS-27).

The telecommunications and internet sector in Kirkuk Governorate was chosen as the research field, with the total population comprising all users of the services provided by FORE EVER Internet Company in Kirkuk. The study sample consisted of 320 users of the company's services.

The research reached a set of conclusions by presenting and analyzing the hypotheses' results, the most notable of which was: "If the company under study wishes to improve its customer service, it must pay attention to E-Commerce." The study also found a significant correlation and impact relationship between e-commerce and customer service. Based on these conclusions, a set of recommendations was provided, the most important being: "Companies under study must emphasize the importance of e-commerce and rely on it to continuously develop their services, ensuring their ability to adapt and survive in a rapidly changing business environment while maintaining ongoing communication with their customers."

Keywords: E-commerce, customer service, Kirkuk governorate

Introduction

The current era is characterized by an increasing focus on the services sector, which has gained significant importance in the economies of nations, moving beyond the traditional emphasis on the production sector alone. Customer service is the core of any successful business, as it serves as the company's interface with its clients. It acts as the vital bridge connecting the company to its customers, representing the point of interaction between the customer and the products or services offered. This service encompasses addressing customer inquiries, resolving their issues, and providing assistance and technical support when needed, all aimed at achieving customer satisfaction and fostering long-term relationships. The quality of customer service depends on prompt and effective responsiveness, attentive listening to customer needs, and offering suitable solutions in a professional and friendly manner.

Concurrently, the manifestations of technological transformation have spread across various fields, accelerating notably after the end of the Cold War. This transformation has given rise to technological innovations such as computers, satellites, the internet, and other advanced communication tools with superior speed and quality. These technologies hold immense importance, as nothing has influenced life as profoundly as E-Commerce (ICT). ICT has bridged distances between nations and realized the concept of globalization, with its functions multiplying due to its unforeseen features and advantages over other communication means.

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E-commerce has become one of the fundamental factors for organizations to achieve their objectives. Every organization requires systems and tools to collect, organize, and retrieve information, as information has become an integral part of management in organizations and a critical resource for facilitating employee operations and improving service quality. Accessing and effectively utilizing information means making decisions using modern technology and communication tools. Service-oriented institutions, due to the nature of their activities, have an even greater need for information technology and communication. They must create technologically advanced service products to ensure a high level of customer satisfaction. Consequently, it has become imperative for these institutions to offer services that align with market demands and the needs and desires of customers, allowing them to influence and attract a larger customer base and gain their satisfaction.

In this context, e-commerce enables companies to acquire precise information and use it at the right time. Therefore, this study focuses on the role of ICT as a central element in improving customer service and ensuring the continuity of customer engagement with the company.

Section One: Research Methodology

First: Research Problem

The research problem lies in the vast and diverse technological advancements that serve customers in various forms and areas. This diversity necessitates the efficient utilization of technology based on its significance and potential benefits for customer service, without imposing additional burdens on them. E-commerce is considered one of the most critical factors influencing the development of services across various sectors.

In the Kurdistan Region of Iraq, the service sector is witnessing significant transformations due to continuous technological advancements. This necessitates studying the role of e-commerce in enhancing and improving customer service quality. Through this, the importance of e-commerce in the field of customer service can be defined.

Based on this context, the current research seeks to explore and analyze the role of e-commerce in customer service within the internet sectors in Kirkuk Governorate.

Thus, the research problem is articulated in the following main question:

What is the role of e-commerce in customer service within

the internet sectors in Kirkuk Governorate?

Sub-Questions Derived from the Main Research Question

1. Are there significant differences among the opinions of the study sample in the investigated company regarding the study variables based on their personal characteristics?
2. What is the nature of the relationship between E-Commerce and customer service within the study sample?
3. Does E-Commerce have an impact on improving customer service?

Second: Importance of the Research

The importance of this research lies in

1. The role played by modern technologies of various types in enhancing customer service and achieving excellence.
2. Understanding the extent to which modern technologies contribute to delivering new services capable of meeting customer needs.
3. The practical benefits obtained by the management and decision-makers of the studied company from the conclusions drawn by researchers, taking into account the provided recommendations to strengthen positive aspects and address negative ones.

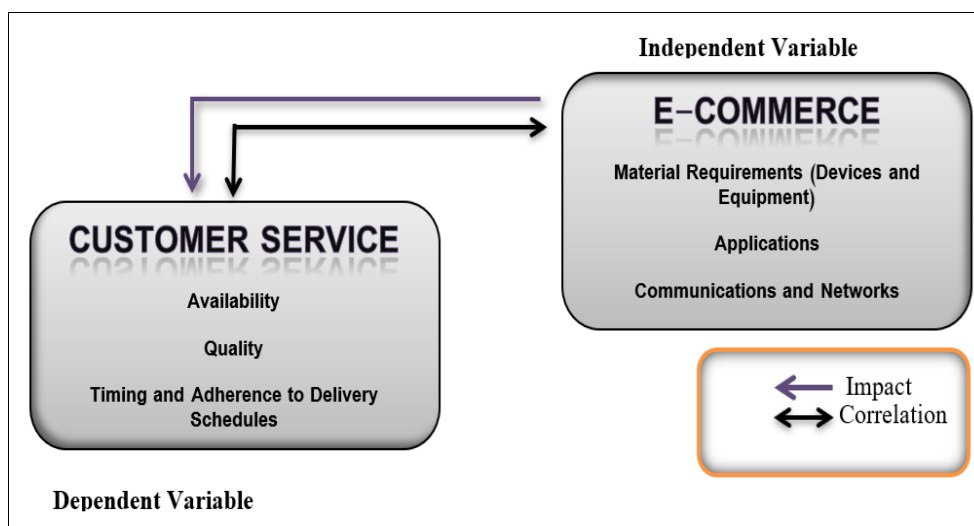
Third: Research Objectives

This research aims to achieve several objectives, the most important of which are

1. Gaining a comprehensive understanding of the theoretical aspects of e-commerce and its components.
2. Clarifying the concept, importance, and dimensions of customer service.
3. Identifying the extent of use and prevalence of E-Commerce in the studied company.
4. Exploring the role of E-Commerce in improving customer service quality.

Fourth: Theoretical Research Model

In light of achieving the research objectives and to define its hypotheses and clarify the relationships and directions of influence between the research variables, a theoretical model for the study was developed, as shown in the following diagram:



Source: Prepared by the Researchers

Fig 1: The Hypothetical Study Model

Fifth: Research Hypotheses

In light of the hypothetical study model, it has become clear how to formulate appropriate statistical hypotheses for the study variables in alignment with the study's objectives. A statistical hypothesis is a speculative or proposed statement that expresses the relationship between two or more variables. It serves as a temporary answer to the study's problem. Accordingly, the current study has built a set of hypotheses, as shown below:

1. **Hypothesis 1:** There are significant statistical differences among the sample members in the surveyed company regarding the study variables, based on their personal characteristics.
2. **Hypothesis 2:** There is a statistically significant correlation between e-commerce and customer service.
3. **Hypothesis 3:** There is a statistically significant impact of e-commerce and its dimensions on customer service.

Sixth: Research Methodology and Data Collection Methods

The researchers clearly relied on the descriptive-analytical method, which was used to answer the study's questions and validate its hypotheses. The researchers gathered extensive information as much as possible on the study topic and analyzed it meticulously to achieve scientific and useful results. This method focuses on surveying the opinions and orientations of the study sample, using the descriptive method to describe the reality of the studied variables. Meanwhile, the analytical method analyzes the results of statistical treatments of the study variables to derive conclusions that form the basis for recommendations. To fulfill the requirements of the fieldwork, the researchers utilized a questionnaire prepared for this purpose.

Seventh: Research Boundaries

1. **Subjective Boundaries:** These include the main variables of the study, represented by (E-Commerce) as the independent variable and (Customer Service) as the dependent variable. This study therefore encompassed the knowledge domains of strategic management and marketing management, as they are considered modern and important topics.
2. **Spatial Boundaries:** The study was applied in the Internet sector, represented by the FORE EVER Internet Company in the city of Kirkuk, Kurdistan Region - Iraq.
3. **Human Boundaries:** A random sample of customers (service users) of the FORE EVER Internet Company in the city of Kirkuk, Kurdistan Region - Iraq.
4. **Temporal Boundaries:** The period of data and information collection related to the study as a whole (theoretical and field aspects), spanning from 16/6/2024 to 31/9/2024.

Eighth: Research Population and Sample

The research population is one of the critical elements that directly contribute to the success or failure of a study. It is a scientific and methodological term that refers to all terms, individuals, or objects that are the subject of the study problem (Ashour, 2017, p. 226)^[3]. The total population for the current study comprises all users of FORE EVER Internet Company's services in the city of Kirkuk. FORE EVER is an Iraqi company established in 2005, aiming to provide unparalleled internet speed in Iraq. To test the research hypotheses, a sample of users of the

surveyed company was selected. The researchers obtained the study sample through Google Forms. According to the formula of Sekaran and Bougie (2016, p. 295)^[28], the sample size for an undefined (infinite) number of users of the company's services is 320 individuals, which is an excellent and analyzable size for administrative science studies.

Chapter Two: Theoretical Framework**Section One: E-Commerce (ICT)****First: The Historical Evolution of E-Commerce**

E-Commerce (ICT), since its emergence, has gone through several historical phases. It is closely linked to communication, information, and technology. Therefore, it is not a recent phenomenon but has evolved through several developments, including:

1. **The First Information and Communication Revolution:** This phase involved the invention of writing and humanity's familiarity with it, such as cuneiform and Sumerian writing, followed by pictorial writing and the advent of alphabets, which ended the era of oral information.
2. **The Second Information and Communication Revolution:** This phase included the emergence and evolution of printing in its various forms, which facilitated the dissemination of information and communication through the increased production and widespread distribution of printed materials across broader geographical areas.
3. **The Third Information and Communication Revolution:** This phase is characterized by the appearance of various types and forms of audio and visual information sources, such as telephones, radios, discs, audio tapes, and wireless communication, alongside printed paper-based sources (Khamkham & Lahelah, 2023, p. 52)^[18].
4. **The Fourth Information and Communication Revolution:** This phase is represented by the integration of advanced computer technology with various types and directions of communication technology. It enabled the transmission of vast amounts of data and information across enormous geographical distances at high speed, regardless of time and place, culminating in the advent of the internet (Ensaf & Sara, 2016, p. 3)^[13].

Second: The Concept and Definition of E-Commerce (ICT)

Technology has been defined by Tinawi (2019, p. 29)^[29] as an organized effort that involves utilizing the results of scientific research and development to enhance the methods and tools used in performing production processes in their broad sense, encompassing all services and activities. This technology is considered more beneficial for the economy, society, and individuals. Similarly, Mohsen *et al.* (2019, p. 121)^[24] defined technology as all methods that assist individuals in their discoveries and inventions to fulfill their needs and desires.

On the other hand, Aisha and Wahiba (2022, p. 10)^[2] defined technology as a set of applied rules, systems, and work methods designed to implement innovative research and studies in the fields of production and services. As for ICT, it is defined as the science of integrating electronic

devices to build advanced computing systems aimed at improving the management of material and human resources. In recent years, economies worldwide have undergone fundamental changes due to the rapid development of this technology (Tinawi, 2019, p. 29) ^[29]. Meanwhile, Jamal Al-Din and Bouazza (2015, p. 24) ^[14] referred to e-commerce as a set of applied systems, rules, and work methods for utilizing innovative research findings in production and services. It represents the systematic application of knowledge and acquired expertise through technical tools and methods used by humans in various aspects of life. Thus, technology is a composite consisting of equipment and human knowledge. They further highlighted that technology encompasses knowledge and expertise aimed at producing goods or delivering services within a social and economic framework.

UNESCO offered a definition of ICT, stating that it refers to the application of electronic technologies, including computers, satellites, and other advanced technologies, to produce, store, retrieve, distribute, and transfer analog and digital information from one place to another (AL-Sabaawe *et al.*, 2020, p. 151) ^[5]. ICT can also be described as the integration of storage and retrieval technologies with broadcasting and communication technologies. It is an independent scientific discipline focusing on delivering information using machines and communication tools to transfer it to beneficiaries (Jamila and Bushra, 2021, p. 24) ^[15]. From the researchers' perspective, e-commerce can be defined as tools and methods employed, along with knowledge and expertise, to establish its foundations and utilize accumulated experience, leading to its integrated development and growth.

Third: Characteristics of E-Commerce (ICT)

Technology possesses immense power to improve individuals' lives, drive economic growth, and create opportunities for individuals, businesses, and nations worldwide. We live in an era of unparalleled digital disruption, marked by massive technological innovations and transformative ways people utilize technology. The key characteristics of ICT include:

1. ICT is an independent science with its foundations, goals, and theories.
2. It is a process that touches people's lives.
3. ICT involves inputs, processes, and outputs.
4. It encompasses all operations related to design, development, and management.
5. ICT is dynamic, reflecting continuous active interaction among its components (Tinawi, 2019, p. 30) ^[29].
6. It is systemic, focusing on systems and their complete outputs.
7. ICT contributes to applying knowledge across all aspects of life.
8. It is an effective tool for finding appropriate solutions to problems (Mar'i and Zaytouni, 2022, p. 14) ^[21].

Fourth: The Importance of ICT

The importance of ICT can be summarized as follows, according to Hamid and Saleh (2018, p. 89) ^[12] and Azayziya and Ben Sheikh (2020, p. 10) ^[8]:

1. Product Design and Development

ICT plays a vital role in designing and developing products using modern automated manufacturing systems such as CAD (Computer-Aided Design) and CAM (Computer-

Aided Manufacturing), achieving high quality at lower costs, in shorter time frames, and with greater precision.

2. Expanding Organizational Activities

ICT enables organizations to expand their activities and operations in less time, allowing them to produce value-added products, gain a larger market share, and remain competitive for extended periods.

3. Enhancing Communication

Due to the high accuracy and speed of communication devices and tools, ICT facilitates seamless transactions with suppliers, transporters, and customers across different locations. It eliminates boundaries of time and place among all parties.

4. Supporting Zero-Defect Systems

ICT is a critical tool in zero-defect systems and comprehensive inspection, ensuring precise and direct control through information and communication systems that provide real-time execution accuracy at every step.

5. Decision Support and Artificial Intelligence

ICT enables decision-making by providing decision-support systems, expert systems, and artificial intelligence tools that empower managers to make swift decisions, test alternatives, and address exceptional situations with minimal damage and rapid comprehensive solutions.

6. Facilitating Managerial Decisions

ICT allows managers to make decisions without excessive psychological or cognitive burdens by providing the required information with the necessary attributes.

7. Knowledge Retention

ICT systems retain field expertise within software systems, making it accessible when needed.

8. High Coordination and Communication

ICT facilitates high coordination and effective communication between departments by building multi-directional communication networks with the highest levels of accuracy, speed, and instant responsiveness.

9. Sustainable Development and Social Responsibility

ICT enables modern organizations to continuously interact with and adapt to external environments, supporting social responsibility and sustainable development. It promotes the adoption of environmental management techniques everywhere in developed and developing countries, reduces the negative impacts of industrial and civil projects, and aligns with sustainable development goals, as noted by Keramati *et al.* (2014, p. 235) ^[17] and Naghshbandi (2024, p. 69) ^[35].

Fifth: Dimensions (Components) of E-Commerce (ICT)

Many studies, including Al-Jaafari (2022, p. 397) ^[4], Hamid and Saleh (2018, p. 86) ^[12], Jamila and Bushra (2021, p. 48) ^[15], and Insaf and Sara (2016, p. 24) ^[13], agree that the components of ICT include the following:

1. **Hardware (Devices and Equipment):** This includes electronic computer systems, hardware components, fax machines, and software. These elements are directly involved in handling data, updating, reviewing, processing, and retrieving stored information.
2. **Applications:** Applications represent the practical

aspect of ICT. They contribute to solving administrative problems by utilizing various technologies, in addition to computers, to collect, store, process, and disseminate information.

3. **Communications and Networks:** This component focuses on transmitting and exchanging ideas among the parties involved in the communication process. Its purpose is to achieve objectives and facilitate the flow of data through various channels, ensuring that information reaches processing centers and benefiting entities efficiently.

Second Axis: Customer Service

First: The Concept and Definition of Customer Service

Customer service is one of the essential and fundamental elements required in any institution. It serves as the backbone of any organization, aiming to meet customer needs and ensure their satisfaction with the institution. This is achieved through intensified efforts and the provision of high-quality services, leaving positive impressions and fostering a good reputation among customers (AL-Sabaawe *et al.*, 2024, p. 236) ^[6].

To understand customer service, it is helpful to first define the customer as a gateway to a deeper understanding of the concept. According to Al-Zahra (2011, p. 11) ^[7], a customer is "an individual or legal entity who purchases goods and services from the market for personal consumption or on behalf of others in a rational manner, aiming to satisfy their needs and requirements through various processes of purchasing and consuming goods and services from the market."

From this perspective, customer service can be defined as a set of activities and actions aimed at achieving customer satisfaction with their interactions with the institution and fostering their loyalty. Simply put, customer service encompasses everything an organization does—or refrains from doing—in the best interest of its customers (Waseela, 2020, p. 58) ^[30].

Abdel-Muttalib and Faisal (2022, p. 33) ^[11] defined customer service as "the assistance provided by the seller to the buyer, enabling them to utilize the product," including product installation, repair, and maintenance. It has also been described as "a series of activities related to fulfilling the desires of a group of customers by meeting their requests, typically beginning with receiving an order or purchase request and concluding with the delivery of the required goods" (Waseela, 2020, p. 58) ^[30].

Second: Importance of Customer Service

The importance of customer service for any organization, whether economic or otherwise, is highlighted in the following points:

1. The customer is the sole justification for the existence of the organization, allowing companies to continually gather feedback on their outputs and products (Abdel-Muttalib and Faisal, 2022, p. 35) ^[11].
2. Customers are central to creating job opportunities and promotion possibilities.
3. Satisfying customer needs is the means to achieve profitability, growth, and stability.
4. The standardized nature of services, difficulty in distinguishing them, market saturation, and high competition levels emphasize the need for strong customer service.
5. Enhancing the organization's social responsibility

(Nasser Al-Din, 2022, p. 2) ^[26].

6. Providing financial and moral support to the organization.
7. Serving as a source of competitive advantage by representing activities that maximize the added value of the product (Waseela, 2020, p. 58) ^[30].

Third: Importance of Customer Relationship Management (CRM)

The importance of CRM for customers can be summarized in the following benefits, as outlined by (Yusuf, 2021, p. 33):

1. Reducing the time required to obtain information or complete an interaction with the organization.
2. Savings on costs associated with rewards, incentives, and special promotional programs.
3. Enhanced perception of service through the delivery of appropriate messages during interactions.
4. Improved service levels for distinguished customers.
5. Comfort and trust in the organization the customer is accustomed to dealing with.
6. Social relationships with the organization, service provider, and its employees, which often result in special treatment.
7. Reduced costs of switching from one marketer to another, whether the costs are social, material, or psychological.

Fourth: Types of Customer Service

Both (Fayed, 2019, p. 2) ^[10] and (Zarqoun and Chtiba, 2013, p. 79) ^[32] refer to several types of customer services as follows:

1. **Free Services vs. Paid Services:** Services that are provided free of charge versus those that come with a cost.
2. **Services Based on Physical Presence:** Services that depend on the degree of physical presence of the beneficiary and their interaction with the service provider.
3. **Deferrable vs. Non-deferrable Services:** Some services, like urgent surgical operations, cannot be postponed, while others can be delayed.
4. **Customer Type-Based Services:** Services classified according to the type of customer, such as final consumers, industrial buyers, and government buyers (e.g., car maintenance services).
5. **Pure Service Without Product:** Services provided without accompanying products (e.g., banking services).
6. **Inductive Services vs. Specific Services:** Inductive services (e.g., laundry services), shopping services (e.g., printing, house rentals, car repairs), and specific services (e.g., medical or legal services).

Fifth: Characteristics of Customer Service

1. **Intangibility:** Unlike physical goods, services cannot be seen, tasted, smelled, or heard before they are purchased. This is one of the key distinctions between services and physical products.
2. **Inseparability:** This refers to the simultaneous production and consumption of services, unlike goods that are produced, stored, and later consumed. Services are produced and consumed at the same time, which is why they cannot be stored for later use (Sami, 2017, p. 8) ^[27].

- 3. **Heterogeneity (Variability):** Services vary depending on the skill, style, and efficiency of the provider, as well as the time and place of delivery. It is difficult to standardize service quality, making it challenging to offer the same level of service consistently (Fayed, 2019, p. 3) ^[10].
- 4. **Perishability:** Due to the inseparability of production and consumption, services cannot be stored for future use. For instance, unused energy or empty airplane seats cannot be saved for later. This leads to fluctuations in pricing, with higher prices during peak demand periods and lower prices during off-peak periods (Mohammed, 2017, p. 61) ^[23].
- 5. **Service Production at the Time of Request:** Services are typically produced when requested, as they are activities or actions performed from one party to another at the moment of demand, whether directly or indirectly (Blaoui and Goumani, 2021, p. 6) ^[9].

Sixth: Dimensions of Customer Service

According to studies by (Michel and Phillip, 2001, p. 103) ^[22], (Kenneth and Rohit, 2010, p. 28) ^[16], and (Wasila, 2020, p. 66) ^[30], the dimensions of customer service are as follows:

- 1. **Availability:** Availability refers to the ability to provide the necessary quantities of products in the desired timeframe. To achieve this, institutions often allocate storage capacities and necessary means to maintain large inventories to meet customer demand and provide the required quantities when needed.
- 2. **Timing and Commitment to Delivery Schedules:** The

- time taken to process orders and deliver them to customers is one of the key factors in customer service. The importance of this lies in the fact that there is a set period within which an order must be delivered. Time management and adherence to delivery schedules play a critical role in performance levels achieved.
- 3. **Quality:** Quality must be maintained throughout all stages of the service lifecycle, from research and development to production and marketing.
- 4. **Adaptability:** Adaptability refers to an institution's ability to respond quickly and effectively to changes in the environment and market, in the right place and at the right time. It also involves adjusting the product mix, quantities, and quality as needed. Adaptability also addresses the institution's ability to handle special cases, such as unusual or unexpected customer requests and exceptional situations.
- 5. **Reliability:** Reliability in customer service is achieved through a combination of functions and activities carried out by the institution. It ensures that these functions are performed correctly and at the same level promised to customers, meeting their needs, desires, and expectations.

Chapter Three: Field Aspect

First: Description of Respondents' Characteristics

This section outlines the personal characteristics of the respondents, including their governorate, company name, gender, age, educational level, and years of service usage, as follows:

Table 1: Descriptive Statistics of Personal Data

Variable	Category	Number	Percentage
Gender	Female	154	47.2
	Male	172	52.8
Age	18–30 years	240	73.6
	31–40 years	62	19
	41–50 years	18	5.5
	51 years and above	6	1.8
Educational Level	High School	40	12.3
	Bachelor’s Degree	228	69.9
	Higher Diploma	36	11
	Master’s Degree	18	5.5
	PHD	4	1.2
Number of Years Using the Company's Service	Less than 1 year	74	22.7
	1–4 years	126	38.7
	5 years and above	126	38.7
Total		326	100

Source: Prepared by the Researchers

A total of 326 individuals were included in this study, with an average age of 28.5 years. The majority of participants fell within the age group of 18-30 years, comprising more than 73% of the sample. The characteristics of the study sample, based on educational attainment as detailed in the table above, revealed that bachelor's degree holders made up the largest proportion at 69.9%, followed by high school graduates at 12.3%, and postgraduate degree holders at

17.7%. Additionally, as shown in Table 1, the characteristics of the study sample regarding the number of years of service usage indicate that the highest percentage of respondents (38.7%) had been using the service for 1-4 years, followed by those with 5 years or more at 38.7%, and those with 1 year or less at 22.7%. This provides a positive indication of the objectivity of the responses to the questionnaire items.

Second: Analysis of the Opinions and Responses of Study Sample Participants Regarding the Study Variables

Table 2: Means and Standard Deviations for the Items Related to (Devices and Equipment)

Axis	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
	Number	Number	Number	Number	Number		
	%	%	%	%	%		
x1	8	2	48	166	102	4.0798	0.83744
	2.5	0.6	14.7	50.9	31.3		
x2	12	12	32	180	90	3.9939	0.92485
	3.7	3.7	9.8	55.2	27.6		
x3	6	10	40	156	114	4.1104	0.86651
	1.8	3.1	12.3	47.9	35		
x4	8	14	58	160	86	3.9264	0.91186
	2.5	4.3	17.8	49.1	26.4		
Total	34	38	178	662	392	4.027	0.8881
	2.607	2.914	13.650	50.766	30.061		

Source: Prepared by the Researchers

It is evident from Table (2) that the means and standard deviations for all items related to devices and equipment show an overall mean score of (4.027) with a standard deviation of (0.88). The general trend for this variable, as a whole, leans towards "Agree." This indicates the agreement of the research community on the use of devices and

equipment, with (50.76%) of respondents at the "Agree" level and (30.06%) at the "Strongly Agree" level, based on their perspectives. Additionally, (13.65%) of the research sample were neutral, while (2.914%) expressed disagreement.

Table 3: Means and Standard Deviations for the Dimension (Applications)

Axis	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
	Number	Number	Number	Number	Number		
	%	%	%	%	%		
c1	12	6	48	136	124	4.0859	0.96332
	3.7	1.8	14.7	41.7	38		
c2	8	16	54	120	128	4.0552	0.98763
	2.5	4.9	16.6	36.8	39.3		
c3	10	24	62	140	90	3.8466	1.00817
	3.1	7.4	19	42.9	27.6		
c4	14	20	60	132	100	3.8712	1.05333
	4.3	6.1	18.4	40.5	30.7		
Total	44	66	224	528	442	3.964	1.0085
	3.374	5.061	17.17	40.490	33.89		

Source: Prepared by the Researchers

It is evident from Table (3) that the means, standard deviations, and trends for all items related to the variable dimension (Applications) indicate an overall mean score of (3.96) with a standard deviation of (1.008). The general trend for this variable, as a whole, leans towards "Agree." This reflects the agreement of the research community on

the items related to the variable (Applications), with (40.49%) of respondents at the "Agree" level and (33.89%) at the "Strongly Agree" level, based on their perspectives. Additionally, (17.17%) of the research sample were neutral, while (5.06%) expressed disagreement.

Table 4: Means and Standard Deviations for the Dimension (Communications and Networks)

Axis	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
	Number	Number	Number	Number	Number		
	%	%	%	%	%		
v1	12	18	58	148	90	3.8773	0.99706
	3.7	5.5	17.8	45.4	27.6		
v2	16	14	54	150	92	3.8834	1.02518
	4.9	4.3	16.6	46	28.2		
v3	8	22	58	172	66	3.816	0.91644
	2.5	6.7	17.8	52.8	20.2		
v4	14	24	54	156	78	3.7975	1.02378
	4.3	7.4	16.6	47.9	23.9		
Total	50	78	224	626	326	3.843	0.9915
	3.834	5.981	17.17	48.006	25		

Source: Prepared by the Researchers

It is evident from Table (4) that the means, standard deviations, and trends for all items related to the variable dimension (Communications and Networks) indicate an

overall mean score of (3.84) with a standard deviation of (0.9915). The general trend for this variable, as a whole, leans towards "Agree." This reflects the agreement of the

research community on the items related to the variable (Communications and Networks), with (48.006%) of respondents at the "Agree" level and (25%) at the "Strongly

Agree" level, based on their perspectives. Additionally, (17.17%) of the research sample were neutral, while (5.98%) expressed disagreement.

Table 5: Means and Standard Deviations for the Dimension (Availability)

Axis	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
	Number	Number	Number	Number	Number		
	%	%	%	%	%		
y1	4	22	64	138	98	3.9325	0.93565
	1.2	6.7	19.6	42.3	30.1		
y2	14	10	30	134	138	4.1411	1.00385
	4.3	3.1	9.2	41.1	42.3		
y3	12	18	48	116	132	4.0368	1.05182
	3.7	5.5	14.7	35.6	40.5		
Total	30	50	142	388	368	4.0368	1.0013
	3.067	5.112	14.51	39.678	37.627		

Source: Prepared by the Researchers

It is also evident from Table (5) that the means, standard deviations, and trends for all items related to the variable dimension (Quality) indicate an overall mean score of (4.03) with a standard deviation of (1.001). The general trend for this variable, as a whole, leans towards "Agree." This reflects the agreement of the research community on the

items related to the variable (Availability), with (39.67%) of respondents at the "Agree" level and (37.62%) at the "Strongly Agree" level, based on their perspectives. Additionally, (14.51%) of the research sample were neutral, while (5.11%) expressed disagreement.

Table 6: Means and Standard Deviations for the Items of the Dimension (Quality)

Axis	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
	Number	Number	Number	Number	Number		
	%	%	%	%	%		
u1	14	24	78	116	94	3.773	1.07732
	4.3	7.4	23.9	35.6	28.8		
u2	20	18	68	130	90	3.773	1.09993
	6.1	5.5	20.9	39.9	27.6		
u3	10	18	92	126	80	3.7607	0.98502
	3.1	5.5	28.2	38.7	24.5		
Total	44	60	238	372	264	3.7689	1.0547
	4.498	6.134	24.33	38.03	26.99		

Source: Prepared by the Researchers

It is evident from Table (6) that the means, standard deviations, and trends for all items related to the variable dimension (Quality) show an overall mean score of (3.76) with a standard deviation of (1.054). The general trend for this variable, as a whole, leans towards "Agree." This indicates that the research community agrees with the items

related to the variable (Quality), with (38.03%) of respondents at the "Agree" level and (26.99%) at the "Strongly Agree" level, according to their perspectives. Furthermore, (24.33%) of the research sample were neutral, while (6.13%) disagreed.

Table 7: Means and Standard Deviations for the Items of the Dimension (Timing and Adherence to Delivery Deadlines)

Axis	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
	Number	Number	Number	Number	Number		
	%	%	%	%	%		
i1	12	38	72	118	86	3.6994	1.09339
	3.7	11.7	22.1	36.2	26.4		
i2	10	24	72	134	86	3.8037	1.00985
	3.1	7.4	22.1	41.1	26.4		
i3	12	26	86	126	76	3.6994	1.02962
	3.7	8	26.4	38.7	23.3		
Total	34	88	230	378	248	3.7341	1.045
	3.476	8.997	23.517	38.650	25.357		

Source: Prepared by the Researchers

It is evident from Table (7) that the means, standard deviations, and trends for all items related to the variable dimension (Timing and Adherence to Delivery Deadlines) show an overall mean score of (3.73) with a standard deviation of (1.045). The general trend for this variable, as a

whole, leans towards "Agree." This indicates that the research community agrees with the items related to the variable (Timing and Adherence to Delivery Deadlines), with (38.65%) of respondents at the "Agree" level and (25.35%) at the "Strongly Agree" level.

Table 8: Means and Standard Deviations for the Items of the Dimension (Adaptability)

Axis	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
	Number	Number	Number	Number	Number		
	%	%	%	%	%		
o1	10	26	100	114	76	3.6748	1.01608
	3.1	8	30.7	35	23.3		
o2	14	16	90	152	54	3.6626	0.95577
	4.3	4.9	27.6	46.6	16.6		
o3	16	22	88	140	60	3.6319	1.01652
	4.9	6.7	27	42.9	18.4		
Total	40	64	278	406	190	3.656	0.9961
	4.0899	6.549	28.425	41.513	19.4274		

Source: Prepared by the Researchers

It is evident from Table (8) that the overall mean score for the dimension (Adaptability) is (3.65) with a standard deviation of (0.9961). The general trend for this variable, as

a whole, is towards "Agree," indicating that the research participants agree with the items related to the dimension (Adaptability).

Table 9: Means and Standard Deviations for the Items of the Dimension (Reliability)

Axis	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
	العدد	العدد	العدد	العدد	العدد		
	%	%	%	%	%		
p1	16	22	86	138	64	3.6503	1.02602
	4.9	6.7	26.4	42.3	19.6		
p2	24	32	74	128	68	3.5644	1.1424
	7.4	9.8	22.7	39.3	20.9		
p3	12	12	44	160	98	3.9816	0.95738
	3.7	3.7	13.5	49.1	30.1		
Total	52	66	204	426	230	3.7321	1.059
	5.316	6.748	20.858	43.558	23.517		

Source: Prepared by the Researchers

It is evident from Table (9) that the overall mean score for the dimension (Reliability) is (3.73) with a standard deviation of (1.059). The general trend for this variable, as a whole, is towards "Agree," indicating that the research participants agree with the items related to the dimension (Reliability). The percentage of respondents agreeing at the "Agree" level is (43.55%), while (23.51%) strongly agree. Additionally, (20.85%) of the sample are uncertain, and (6.74%) disagree.

Third: Hypothesis Testing and Analysis of the (Correlation and Impact) Relationship between Study Variables

Hypothesis 1: There are statistically significant differences among the sample participants in the surveyed company regarding the study variables based on their personal characteristics.

An Independent Samples T-Test and Mann-Whitney U Test were used to identify the variance between the study variables based on personal attributes consisting of only two categories, such as gender. Additionally, One-Way ANOVA and the Kruskal-Wallis Test were used to identify statistical variations between the study variables based on personal attributes with more than two categories, such as age,

education level, and years of service with the company being studied. The results of these tests indicate the following:

1. Differences Based on Gender Attribute

The Independent-Samples T-Test and Mann-Whitney U Test were used to identify the differences between the gender categories regarding the study variables, as the attribute consists of only two categories (male and female). The analysis results shown in Table (10) reveal that the computed t-values for both E-commerce and Customer Service are (0.013) and (0.438), respectively, with corresponding means of (3.9457) for males and (3.9448) for females for the E-Commerce variable, and (3.7698) for males and (3.8035) for females for the Customer Service variable. These results indicate that there are no statistically significant differences in the study sample's views regarding the research variables based on gender. This can also be confirmed by the calculated p-values (0.99 and 0.66), which are greater than the study's significance level of (0.05), hence there is no justification for conducting post hoc tests.

Table 10: Differences Based on Gender Attribute

Study Variables	Gender	Number	Mean	Degrees of Freedom	t-value	Significance Level	U-value	Significance Level
Use of E-Commerce	Male	172	3.9457	324	0.013	0.99	12284	0.258
	Female	154	3.9448					
Improving Customer Service	Male	172	3.7698	324	0.438	0.66	13070	0.838
	Female	154	3.8035					

Source: Prepared by the Researchers

2. Differences Based on Age Attribute

The results in Table (11), related to the One-Way ANOVA and Kruskal Wallis tests, show that there are no significant

differences regarding the independent variable based on the age attribute. The calculated (F) value was (1.207) with degrees of freedom (322, 3), and the p-value was (0.307),

which is greater than the default significance level of (0.05). This confirms that there are no statistically significant differences between the study sample's opinions on the e-commerce variable based on age differences among the sample participants. Similarly, there are no differences among the study participants' views on customer service according to age, as

the calculated (F) value for the dependent variable was (1.435) with degrees of freedom (322, 3), and the p-value was (0.233), which is greater than the default significance level of (0.05). This confirms that there are no statistically significant differences in the study sample's opinions on the dependent variable based on age differences among the sample participants.

Table 11: Differences Based on Age Attribute

Study Variables	Sum of Squares		Degrees of Freedom	Mean Squares	F-value	Significance Level	H-value	Significance Level
	Between Groups	Within Groups						
Use of E-Commerce	Between Groups	1.577	3	0.526	1.207	0.307	5.793	0.122
	Within Groups	140.239	322	0.436				
	Total	141.816	325					
Improving Customer Service	Between Groups	2.056	3	0.685	1.435	0.233	4.569	0.206
	Within Groups	153.833	322	0.478				
	Total	155.889	325					

Source: Prepared by the Researchers

¹ One-Way ANOVA

² Kruskal Wallis Test

3. Differences According to the Characteristic of Educational Attainment

The results shown in Table (a12) related to the one-way analysis of variance (One-Way ANOVA and Kruskal Wallis test) to identify differences according to the characteristic of educational attainment, indicate that there are no significant differences regarding the independent variable. The calculated F values were (2.081) with degrees of freedom (321 and 4), and the significance level (P-Value) was (0.083), which is greater than the study's threshold of significance (0.05). This confirms that there are no statistically significant differences in the study sample's views regarding the e-commerce variable based on differences in educational attainment among the participants.

However, there are differences in the views of the research sample regarding customer service based on the characteristic of educational attainment. The calculated F value for the dependent variable was (3.709) with degrees of freedom (321 and 4), and the significance level (P-Value) was (0.006), which is less than the study's threshold of significance (0.05). This confirms that there are statistically significant differences in the study sample's views regarding the dependent variable based on differences in educational attainment among the participants. Therefore, post-hoc tests are justifiable. Differences according to educational attainment are tested to identify the percentage of differences regarding the dependent variable as shown in Table (13b).

Table (a12): Differences According to the Characteristic of Educational Attainment

Study Variables	Sum of Squares		Degrees of Freedom	Mean Squares	F-value	Significance Level	H-value	Significance Level
	Between Groups	Within Groups						
Use of E-Commerce	Between Groups	3.585	4	0.896	2.081	0.083	7.661	0.105
	Within Groups	138.231	321	0.431				
	Total	141.816	325					
Improving Customer Service	Between Groups	6.887	4	1.722	3.709	0.006	18.339	0.001
	Within Groups	149.002	321	0.464				
	Total	155.889	325					

Source: Prepared by the Researchers

¹ One-Way ANOVA

² Kruskal Wallis test

The results presented in Table (b12), related to the one-way analysis of variance to identify differences according to educational attainment, show that the significance level values (P-Value) for participants with Master's degrees

compared to those with Bachelor's and Secondary education were (0.016 and 0.011), respectively. These values are less than the study's threshold of significance (0.05).

Table (12b): Differences According to the Characteristic of Educational Attainment for the Dependent Variable

	Bachelor's Degree	Postgraduate Diploma	Master's Degree	PHD
Secondary Education	0.982	0.686	0.016	0.354
Bachelor's Degree		0.78	0.011	0.421
Postgraduate Diploma			0.252	0.717
Master's Degree				1

Source: Prepared by the Researchers – Tukey HSD

4. Differences Based on the Years of Service Usage

The results in Table (13) related to the one-way ANOVA and Kruskal Wallis test analysis for identifying differences

based on the number of years of service usage show no statistically significant differences with respect to the independent variable. The calculated F value was (2.381),

with a significance level (P-Value) of (0.094), which is greater than the study's default significance level of (0.05). This confirms that there are no statistically significant differences in the study sample's views regarding the e-commerce variable based on the difference in the number of years of service usage.

However, there are differences among the study participants regarding customer service based on the number of years of

service usage. The calculated F value for the dependent variable was (6.602), with a significance level (P-Value) of (0.002), which is less than the study's default significance level of (0.05). This confirms the existence of statistically significant differences in the study participants' views regarding the dependent variable of the research based on the number of years of service usage. Therefore, there is justification for conducting post-hoc tests.

Table 13: Differences Based on the Years of Service Usage

Study Variables	Sum of Squares		Degrees of Freedom	Mean Squares	F-value	Significance Level	H-value	Significance Level
	Between Groups	Total						
Use of E-Commerce	Between Groups	2.06	2	1.03	2.381	0.094	4.501	0.105
	Within Groups	139.756	323	0.433				
	Total	141.816	325					
Improving Customer Service	Between Groups	6.122	2	3.061	6.602	0.002	9.682	0.008
	Within Groups	149.766	323	0.464				
	Total	155.889	325					

Source: Prepared by the Researchers

¹ One-Way ANOVA

² Kruskal Wallis test

Hypothesis 2: There is a statistically significant correlation between "Use of E-Commerce" and "Improvement of

Customer Service."

Table 14: Results of the Correlation between "Use of E-Commerce" and "Improvement of Customer Service"

Use of E-Commerce	Improving Customer Service	
	Correlation	0.434
	Significance Level	<0.001

Source: Prepared by the researchers

From Table (14), the correlation between (E-Commerce Usage) and (Improvement of Customer Service) is shown, where the correlation value is 0.434. This indicates a positive and significant correlation between them, as the significance level is less than 0.05, confirming the existence

of a statistically significant correlation between (E-Commerce Usage) and (Improvement of Customer Service). Hypothesis 3: There is a statistically significant impact of e-commerce on the improvement of customer service.

Table 15: Results of the impact of (E-Commerce Usage) on the Improvement of Customer Service

Dependent Variable: Improvement of Customer Service						
Independent Variable: E-Commerce Usage	R ²	F value	Significance Level	Regression Coefficient (Beta)	t value	Significance Level
	%21	84.81	<0.001	0.53	9.21	<0.001

Source: Prepared by the researchers

From Table (15), the results of the statistical analysis through the model showed a statistically significant impact between the use of E-Commerce and the improvement of customer service, with a coefficient of determination (R²) of 21%. This indicates that the model explains 21% of the total changes in customer service improvement through the use of E-Commerce, while the remaining 79% represents the contribution of variables not included in the research model or random variables that cannot be controlled.

The significance of this model is confirmed by the calculated F value of 84.81, which is significant at the significance level (<0.001). The regression coefficient (Beta) between the two variables was 0.53, and its significance was tested using the t-test, where the calculated value was 9.21, significant at the significance level (<0.001). This means that there is a significant effect of the use of E-Commerce on improving customer service by 0.53. In other words, for every 100% increase in the use of E-Commerce, the improvement in customer service increases by 53%. Therefore, any increase in the use of E-Commerce corresponds to an increase in the improvement of customer service.

Chapter Four: Conclusions and Recommendations

First: Conclusions

1. It can be concluded that the percentage of service users of the surveyed company, in terms of gender, is approximately equal.
2. It can be concluded that the majority of service users in the surveyed company belong to the young age group, ranging from the third decade to the fifth decade of life, due to their familiarity with modern and contemporary technologies, which are suitable for their age group. This is also driven by the increasing need for the internet in today's world.
3. It can be concluded that the surveyed company has long-term relationships with its customers, as most of the respondents have been using the company's service for more than five years.
4. The analysis results showed that e-commerce is positively correlated with customer service. This means that the more attention given to e-commerce, the better the customer service will be achieved in the surveyed companies.
5. The study concluded that e-commerce affects customer

service, meaning that as the surveyed company focuses more on e-commerce, customer service improves proportionally.

6. The use of E-Commerce in the organization plays a significant and crucial role in improving the quality of the service provided. This technology helps increase the speed of service delivery and enhances the accuracy and credibility of the offered services.
7. E-Commerce contributes to improving service quality through its contributions to increasing the organization's alertness, developing its relationships with customers, and enhancing the productivity and delivery of services.

Second: Recommendations

1. The company should pay equal attention to all members of the community, regardless of their gender differences, in order to increase its market share.
2. The company should place greater emphasis on offering better and more attractive deals to the youth demographic in order to surpass competitors, as most of the survey participants are from the youth group.
3. It is crucial to ensure that the top management of the surveyed company supports the effective use of electronic transactions by making suitable investments in the E-Commerce infrastructure.
4. The company should ensure that the level of service provided aligns with the promises made to customers, aiming to deliver services with high accuracy. This builds customer trust in the organization they engage with.
5. The company should continue to develop the physical aspects of service, particularly those related to customer service and advanced technology for service delivery. This will help save time in obtaining services and reduce errors.
6. The company should adopt a customer service-focused approach at all management levels, ensuring that each individual acts in accordance with their authority, responsibility, and specific tasks.
7. It is essential to handle customer complaints seriously, addressing them and finding appropriate solutions. The company should also focus on facilitating the exchange of information between the organization and its customers.

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