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THE IMPACT OF ELECTRONIC PAYMENT SYSTEMS ON ENHANCING THE COMPETITIVENESS OF GOVERNMENT INSTITUTIONS IN LIGHT OF DIGITAL TRANSFORMATION

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Abstract. This study aimed to analyze the impact of electronic payment systems on enhancing the competitiveness of government institutions in light of digital transformation, based on the importance of digitalization as a strategic tool for improving institutional performance and raising the quality of public services. The study sought to answer the main question: To what extent do electronic payment systems contribute to enhancing the competitiveness of government institutions? The study adopted a descriptive-analytical approach. Data was collected through a questionnaire distributed to a sample of employees in several government institutions that implement electronic payment systems. The data were analyzed using the SPSS statistical software, relying on arithmetic means, standard deviations, Pearson's correlation coefficient, and linear regression analysis, at a significance level of 0.05. The results showed a statistically significant positive correlation and impact between the level of implementation of electronic payment systems and the dimensions of competitiveness, namely operational efficiency, service quality, speed of completion, beneficiary satisfaction, and cost reduction. The results also showed that electronic payment contributes to improving institutional performance, enhancing financial transparency, and reducing reliance on cash transactions, which positively impacts the image and competitiveness of government institutions. The study recommended expanding the application of electronic payment systems within a comprehensive digital transformation strategy, while providing a robust technological infrastructure, developing human resources, and updating legislation governing digital transactions. This will ensure that these systems are used to their fullest potential in enhancing the efficiency of government institutions and improving the quality of services provided to citizens.

Keywords: Electronic payment systems, competitive efficiency, digital transformation

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Introduction

In light of the accelerating pace of technological advancement and the profound transformations in the global economic environment, digital transformation has emerged as one of the most significant strategic approaches adopted by governmental institutions to enhance operational efficiency and achieve institutional excellence. Digitalization has fundamentally reshaped the mechanisms through which public services are delivered by improving the speed and quality of service provision, reducing operational costs, and strengthening transparency and accountability in administrative and financial processes.

Among the most prominent tools of digital transformation are electronic payment systems, which have played a critical role in shifting governmental financial transactions from conventional methods—largely dependent on physical cash and manual financial procedures—to integrated digital platforms characterized by efficiency, accessibility, and security. These systems enable governmental institutions to provide financial services in a more efficient and reliable manner, thereby minimizing human errors, facilitating the monitoring and management of financial operations, and enhancing the overall satisfaction of service beneficiaries.

The significance of examining the impact of electronic payment systems on the competitive efficiency of governmental institutions has increased considerably, particularly within dynamic administrative environments that require rapid service delivery, high-quality performance, cost efficiency, and improved public service experiences. Competitive efficiency in the public sector extends beyond internal organizational performance; it also encompasses the institution's capacity to provide high-quality services, respond effectively to the evolving expectations of citizens, and maintain a competitive position relative to other institutions in terms of service quality, responsiveness, and operational performance.

Research Problem

Despite the growing adoption of electronic payment systems within governmental institutions, the extent to which these systems contribute to enhancing competitive efficiency remains subject to scholarly and practical debate, particularly in administrative environments undergoing transitional phases toward comprehensive digital transformation.

Accordingly, the research problem can be articulated through the following central question:

To what extent do electronic payment systems contribute to enhancing the competitive efficiency of governmental institutions within the context of digital transformation?

Research Questions

The central research problem gives rise to several subsidiary questions:

1. What is the level of implementation of electronic payment systems in governmental institutions?
2. What is the level of competitive efficiency within these institutions?
3. Is there a statistically significant relationship between electronic payment systems and competitive efficiency?
4. Do electronic payment systems exert a direct influence on the enhancement of competitive efficiency?
5. To what extent can variations in competitive efficiency be explained by the implementation of electronic payment systems?

Research Hypotheses

Based on the theoretical framework and relevant previous studies, the following hypotheses were formulated:

Main Hypothesis:

There is a statistically significant effect of electronic payment systems on the competitive efficiency of governmental institutions at a significance level of (0.05).

Sub-Hypotheses:

1. There is a statistically significant correlation between the level of implementation of electronic payment systems and the quality of governmental services.
2. There is a statistically significant relationship between electronic payment systems and the speed of transaction completion.

3. Electronic payment systems have a positive effect on citizens' satisfaction.
4. The adoption of electronic payment systems contributes to reducing operational costs and enhancing institutional efficiency.

Research Objectives

This study seeks to achieve the following objectives:

1. To identify the level of implementation of electronic payment systems in governmental institutions.
2. To measure the level of competitive efficiency in the institutions under investigation.
3. To analyze the nature of the relationship between electronic payment systems and competitive efficiency.
4. To examine the impact of electronic payment systems on improving institutional performance.
5. To propose practical recommendations that support digital transformation within the governmental sector.

Significance of the Study

First: Theoretical Significance

1. The study contributes to enriching the academic literature related to digital transformation and public sector management.
2. It establishes a conceptual linkage between two significant variables, namely electronic payment systems and competitive efficiency.
3. It provides an applied analytical model that may serve as a reference for future research in this field.

Second: Practical Significance

1. The study provides policymakers and decision-makers with empirical evidence that supports the development and improvement of digital financial systems.
2. It assists in evaluating the effectiveness of electronic payment systems within governmental institutions.
3. It contributes to improving the quality and efficiency of governmental service delivery.

Research Boundaries

Temporal Boundary:

The study was conducted during the year 2025.

Spatial Boundary:

The study was limited to a number of governmental institutions that implement electronic payment systems.

Thematic Boundary:

The study focuses on examining the impact of electronic payment systems (independent variable) on competitive efficiency (dependent variable) without addressing other potential organizational variables.

Methods

The study adopted the descriptive-analytical research approach, which is considered appropriate for examining relationships between variables and interpreting empirical data within social and administrative research contexts. Data were collected through a structured questionnaire consisting of two principal dimensions related to the variables of the study.

The collected data were analyzed using the Statistical Package for Social Sciences (SPSS). Several statistical techniques were employed, including the arithmetic mean, standard deviation, Pearson correlation coefficient, and linear regression analysis, in order to examine the relationships and effects between the study variables. A statistical significance level of (0.05) was adopted as the criterion for determining the significance of the results.

Results and Discussion

Results

Chapter Two

Theoretical Framework

Section One: Digital Transformation in Government Institutions

Digital transformation represents one of the most significant structural transformations experienced by the public sector in recent decades. It is no longer merely an administrative option aimed at improving performance; rather, it has become a strategic necessity imposed by the rapidly evolving global environment. The tremendous advancement in information and communication technologies (ICT), combined with the growing expectations of citizens for fast, transparent, and high-quality government services, has led to a fundamental redefinition of the role of the state and the way it manages its resources and services.

Governments have gradually shifted from the traditional administrative model—characterized by paper-based procedures and rigid hierarchical structures—to a more flexible model based on digital integration, data analytics, and automated processes. Digital transformation has therefore become a fundamental pillar for enhancing institutional efficiency, achieving sustainability, and strengthening the competitive capacity of states in global performance indicators.

This section aims to examine the concept of digital transformation, trace its global emergence and development, clarify its objectives within the governmental sector, review its fundamental requirements, and analyze the key challenges associated with its implementation. In addition, it discusses the most important indicators used to measure institutional digital maturity.

Concept of Digital Transformation

Digital transformation can be defined as a comprehensive strategic process aimed at redesigning business models, procedures, and organizational structures through the use of modern digital technologies in order to improve institutional performance and generate added value for beneficiaries. It does not merely involve introducing new technological tools; rather, it entails a fundamental shift in organizational culture, modes of thinking, and decision-making mechanisms.

Within the governmental context, digital transformation refers to the utilization of digital technologies in the delivery of public services, the management of resources, the enhancement of transparency, and the improvement of citizens' experiences. This transformation is manifested through the implementation of e-government systems, digital service platforms, electronic payment systems, centralized databases, artificial intelligence technologies, and big data analytics.

It is important to distinguish between several concepts related to digital transformation, as they differ in depth and scope [1]:

First: Digitization.

Digitization refers to the process of converting information and data from paper-based or traditional formats into digital formats without fundamentally altering the nature of existing processes.

Second: Automation.

Automation refers to the use of technological systems to execute processes automatically with the aim of reducing human intervention and increasing operational efficiency.

Third: Digital Transformation.

Digital transformation represents a more advanced stage, involving the comprehensive restructuring of processes, strategies, and policies based on digital technologies.

Accordingly, digital transformation represents a qualitative shift that goes beyond the use of technology as a supporting tool to become a central component of institutional strategy.

Emergence and Global Development of Digital Transformation

The early foundations of digital transformation can be traced back to the **Third Industrial Revolution in the 1970s**, when computers began to be used in institutional management and data storage. However, the real acceleration of digital transformation occurred with the

widespread adoption of the Internet during the 1990s, when governments began developing websites to provide information and services to citizens [2].

During the first decade of the new millennium, the concept of **e-government** emerged, focusing on digitizing public services and delivering them through electronic platforms. With continuous technological advancement, the concept evolved into **digital government**, which relies on the integration of systems and databases and the interconnection of government institutions through unified digital networks.

In the last decade, digital transformation has become closely associated with the **Fourth Industrial Revolution**, characterized by technologies such as cloud computing, big data, the Internet of Things (IoT), and artificial intelligence.

Many countries have adopted comprehensive national digital transformation strategies, such as the **European Union Digital Strategy**, **Saudi Arabia's Vision 2030 in the field of digital government**, and the **United Arab Emirates Smart Government Strategy**. International experiences have demonstrated that countries investing heavily in digital transformation have achieved notable progress in global competitiveness indicators and the **United Nations E-Government Development Index**, reflecting the close relationship between digitalization and improved governmental performance [3]

Objectives of Digital Transformation in the Government Sector

Digital transformation in governmental institutions seeks to achieve a set of strategic objectives that extend beyond the mere modernization of technological systems [4].

First, it aims to improve the quality of public services by reducing transaction processing times, providing services around the clock, and enabling citizens to access services electronically without spatial or temporal limitations.

Second, digital transformation enhances operational efficiency by reducing dependence on paper-based transactions, lowering administrative costs, minimizing human errors, and improving resource management.

Third, it contributes to strengthening transparency and accountability, as digital systems enable the tracking and documentation of processes, thereby reducing opportunities for administrative corruption and enhancing trust in public institutions.

Fourth, digital transformation supports evidence-based decision-making by providing accurate and real-time data that enable policymakers to analyze trends and formulate informed policies.

Fifth, it enhances citizen satisfaction, as improving the user experience and simplifying procedures contribute to strengthening trust between citizens and government institutions.

Requirements for Digital Transformation

The successful implementation of digital transformation requires the availability of several integrated components.

From a technological perspective, it necessitates the establishment of advanced digital infrastructure, including high-capacity communication networks, secure servers, and robust cybersecurity systems.

From an organizational perspective, it requires the restructuring of procedures, the development of organizational structures, and the simplification of administrative processes in alignment with the digital environment.

From a human perspective, digital transformation requires the qualification of human resources, the promotion of digital culture, and the provision of continuous training programs to ensure employees' ability to operate new systems effectively.

In addition, a supportive legislative framework is essential, including laws regulating electronic transactions, protecting personal data, and defining legal responsibilities.

Furthermore, adequate financial resources must be allocated to finance digital transformation initiatives, while strategic partnerships with the private sector can support innovation and technological development [5].

Challenges of Digital Transformation in Government Institutions

Despite its numerous benefits, digital transformation faces several challenges.

One of the most significant challenges is resistance to change among employees, often resulting from concerns about job displacement or difficulties adapting to new technological systems.
In addition, weak technological infrastructure in some countries may hinder the effective implementation of digital systems.
Another major challenge is the shortage of digital skills, as the management of digital systems requires specialized expertise.
Cybersecurity risks also represent a critical concern, as cyberattacks may lead to data breaches or service disruptions, thereby undermining citizens' trust in government institutions.
Moreover, the high financial costs associated with developing digital infrastructure may constitute an obstacle for some institutions, particularly in the context of limited public budgets.
Finally, a digital trust gap exists among some citizens due to concerns related to privacy and information security [6].

Indicators for Measuring Digital Transformation Maturity

In order to assess the progress of institutions in digital transformation, several international and institutional indicators have been developed.
One of the most prominent is the E-Government Development Index (EGDI)**,** which measures countries' readiness to provide digital services based on three main dimensions: online services, telecommunications infrastructure, and human capital.
Another important indicator is the Digital Services Maturity Index, which evaluates the evolution of services from simple information provision to interactive and fully integrated services.
Institutional digital maturity models generally consist of five stages, beginning with **digital awareness** and culminating in full digital innovation**.**
At the organizational level, digital maturity can also be measured through indicators such as the proportion of electronic transactions, service delivery time, beneficiary satisfaction levels, and cost reduction rates.
These indicators help institutions determine their level of digital advancement, evaluate performance, and develop continuous improvement plans [7].
Consequently, digital transformation represents a fundamental pillar in the development of government institutions and the enhancement of their efficiency and competitiveness. It is not merely a limited technological project but rather a comprehensive strategic process that requires a clear vision, advanced infrastructure, qualified human resources, and a supportive legislative framework. Its success depends largely on the ability of institutions to manage change effectively, overcome organizational and cultural challenges, and adopt accurate indicators for measuring digital maturity [8].

Section Two: Electronic Payment Systems

Over the past decades, the world has witnessed a fundamental transformation in the management of financial transactions, as economies have shifted from traditional cash-based systems to advanced digital systems relying on modern technologies. Electronic payment systems have consequently become one of the fundamental pillars of the digital economy and a strategic tool supporting digital transformation programs in government institutions due to their efficiency, speed, and transparency in managing public financial resources.
The study of electronic payment systems is particularly important in the governmental sector because of their role in improving revenue collection processes, reducing administrative costs, enhancing financial integrity, and increasing citizens' satisfaction.

Concept of Electronic Payment Systems

Electronic payment systems can be defined as an integrated set of tools and technologies that enable individuals and institutions to perform payment transactions and transfer funds through digital channels without the need to use physical cash. These systems include technological infrastructure, software platforms, intermediary institutions, and regulatory procedures that ensure the secure and efficient execution of financial transactions [9].
Within the governmental context, electronic payment systems refer to digital platforms adopted by public institutions to collect fees, taxes, fines, and subscriptions through official

electronic portals or through integration with banks and financial technology companies. Electronic payment systems therefore extend beyond simple fund transfers to encompass automated financial management processes integrated with accounting and internal control systems, ensuring the accuracy and reliability of financial data [10].

Types of Electronic Payment Systems

Electronic payment systems vary depending on the nature of the payment instrument and the entity responsible for operating it. These systems can generally be classified into several major categories [11].

Banking Cards

Banking cards are among the most widely used electronic payment instruments worldwide. These cards are issued by banking institutions to enable customers to conduct purchases or settle payments electronically. They include debit cards, credit cards, and prepaid cards.

Such cards operate through international payment networks such as **Visa** and **Mastercard**, which provide the infrastructure necessary for processing financial transactions quickly and securely. Within the governmental sector, banking cards are commonly used to pay university tuition fees, renew official documents, and settle taxes and traffic fines. The widespread use of banking cards reflects the level of development of a country's financial system and the extent to which it is integrated into the digital economy [12].

Electronic Wallets

An electronic wallet is a digital application that enables users to store funds electronically and use them to perform payment transactions or transfer money. These wallets have emerged as an innovative solution for facilitating financial transactions, particularly in societies seeking to reduce dependence on physical cash.

One of the most prominent global examples of electronic wallets is the **PayPal platform**, which enables users to conduct payments and financial transfers online in a simple and secure manner. In the governmental context, electronic wallets can be integrated with official digital portals to allow citizens to pay municipal fees, subscriptions, or fines. This integration enhances financial inclusion and allows broader segments of society to benefit from digital services [13].

Electronic Transfers

Electronic transfers refer to the movement of funds between bank accounts through digital banking systems or instant payment systems. This method is widely used for high-value financial transactions such as the payment of taxes or customs duties.

Electronic transfers are characterized by a high degree of security due to their reliance on official banking systems. In addition, they provide a documented electronic record for every transaction, which enhances financial transparency and facilitates auditing and monitoring processes [14].

Mobile Payment Systems

Mobile payment represents one of the most advanced forms of electronic payment systems. In this method, financial transactions are executed through smartphone applications or **Near Field Communication (NFC)** technologies.

Prominent global examples of mobile payment services include **Apple Pay** and **Google Pay**, which enable users to complete transactions securely and rapidly without the need for a physical payment card. Mobile payment systems represent a significant step in the digital transformation process due to their convenience, flexibility, and increasing popularity among younger and digitally oriented users [1].

Components of Electronic Payment Systems

Electronic payment systems consist of several interconnected components that function together to ensure the efficient and secure execution of financial transactions.

The first component is the **payer or user**, who initiates the payment order through a digital payment instrument. The second component is the **beneficiary**, which in the governmental context is typically the public institution receiving the financial payment.

Another key component is the **payment service provider**, which is usually a bank or a financial technology company responsible for processing the payment transaction.

In addition, the **payment gateway** plays a critical role as the technological intermediary connecting the user with the institution. It encrypts payment data and transmits it through secure communication networks.

Electronic payment systems also rely on a comprehensive technological infrastructure that includes servers, encryption technologies, databases, and cybersecurity protection mechanisms. Furthermore, these systems operate within a legal and regulatory framework that governs the relationships between the various stakeholders involved in the payment process [3].

Advantages and Disadvantages of Electronic Payment Systems

Electronic payment systems offer numerous advantages, particularly in enhancing institutional efficiency. One of the most significant advantages is their ability to accelerate revenue collection procedures while reducing reliance on physical cash transactions.

Additionally, electronic payment systems contribute to lowering administrative costs associated with cash management and manual archiving processes. These systems also enhance transparency, as all financial transactions are electronically recorded, thereby reducing opportunities for corruption or financial manipulation.

Furthermore, electronic payment systems improve citizens' experiences by enabling them to conduct payments at any time and from any location, thereby increasing convenience and accessibility.

However, electronic payment systems are not without limitations. Their implementation often requires significant initial investments in technological infrastructure and system development. Moreover, cybersecurity risks such as data breaches and hacking attacks represent potential threats. Some individuals may also encounter difficulties using these systems due to limited digital literacy or inadequate technological skills [15].

Requirements for Implementing Electronic Payment Systems in the Government Sector

The successful implementation of electronic payment systems requires the availability of several essential conditions.

First, a clear legislative framework must be established to regulate electronic transactions and protect personal and financial data. This includes laws governing digital payments, cybersecurity, and data privacy.

Second, strong technological infrastructure must be available, including stable communication networks and reliable digital platforms that ensure the continuity and reliability of payment services.

Third, qualified human resources are required to manage and operate electronic payment systems effectively. Continuous training programs are therefore necessary to develop employees' digital competencies.

Additionally, promoting a culture of electronic payment among citizens is essential. This can be achieved through awareness campaigns aimed at increasing trust in digital systems and encouraging citizens to adopt electronic payment methods.

Finally, the integration of electronic payment systems with other governmental systems is essential. Payment gateways should be connected with financial and accounting databases to ensure the accurate and immediate updating of financial records [16].

Security Risks and Regulatory Challenges

Security risks represent one of the most significant challenges facing electronic payment systems due to the sensitive nature of financial data transmitted through digital networks.

These risks include the potential for cyberattacks, data theft, and electronic fraud. Cybersecurity breaches may lead to service disruptions or the loss of critical financial information, which could negatively affect citizens' trust in government institutions.

In addition, electronic payment systems face regulatory challenges related to updating laws and regulations in line with rapid technological developments. Delays in the issuance of appropriate legislation or weaknesses in regulatory oversight may reduce the effectiveness and efficiency of electronic payment systems.

Issues related to privacy protection and data confidentiality also represent critical concerns that require the adoption of strict security standards and advanced encryption technologies. Therefore, the success of electronic payment systems within the governmental sector depends not only on the availability of advanced technologies but also on the existence of a comprehensive regulatory framework, effective risk management strategies, and well-defined cybersecurity policies [9].

Section Three: Competitive Efficiency in Government Institutions

Public administration has witnessed a substantial shift over recent decades in both its philosophy and operational instruments. The concept of governmental performance is no longer confined to delivering services through conventional procedures; rather, it has become increasingly associated with efficiency, effectiveness, quality, and competitiveness. With the acceleration of digital transformation and the rising expectations of citizens, government institutions are now required to achieve a high level of competitive efficiency that enables them to provide public services characterized by speed, quality, and transparency. Examining competitive efficiency in the public sector has therefore gained particular importance in light of global trends toward good governance and modern public management, where assessing institutional performance has become a key criterion for evaluating the success of public policies

Concept of Competitive Efficiency

Competitive efficiency refers to an institution's capacity to optimally utilize its human, financial, and technological resources in order to achieve its objectives at the lowest possible cost, while generating added value for beneficiaries that differentiates it from other institutions. Within the governmental context, competitiveness is not intended in a narrow commercial sense; rather, it denotes the ability to excel in delivering public services compared with prior performance levels or relative to comparable institutions at the national or international level [12].

Competitive efficiency in government institutions can be defined as the ability to provide high-quality public services within an appropriate timeframe, at a reasonable cost, and with a high degree of beneficiary satisfaction, while maintaining compliance with legal and regulatory standards. Competitive efficiency is also linked to the institution's capacity to adapt to environmental changes, adopt innovation, and ensure sustainability in performance. A competitively efficient institution is one that achieves superior outcomes using the same resources—or fewer—while continuously improving service quality. Under digital transformation, competitive efficiency has become closely associated with the institution's ability to leverage technology to enhance performance and strengthen its institutional image [4].

Distinction Between Efficiency and Competitive Advantage

The concepts **of** efficiency **and** competitive advantage are often conflated despite fundamental differences. Efficiency refers to the optimal use of resources, the minimization of waste, and the achievement of the best possible outcomes at the lowest cost. It is primarily linked to internal processes, such as time management, cost reduction, and productivity improvement. By contrast, competitive advantage refers to the attribute or characteristic that distinguishes an institution from others and makes it superior in the perception of beneficiaries. Such advantage may result from higher quality, greater speed, lower cost, or a distinctive level of service. Efficiency constitutes one of the sources through which competitive advantage can be achieved; however, it is not synonymous with it. An institution may be internally efficient, yet it does not necessarily possess a clear competitive advantage unless this efficiency is reflected in service quality and beneficiary experience. In the public sector, competitive advantage emerges when a government institution is able to deliver public services with superior features relative to comparable institutions—whether in terms of processing speed, transparency, or citizen satisfaction [17].

Dimensions of Competitive Efficiency

Competitive efficiency in government institutions encompasses multiple dimensions that collectively reflect the quality of institutional performance [7].

Operational Efficiency

Operational efficiency refers to the institution's ability to manage its internal processes in an organized and effective manner, ensuring the achievement of objectives with minimal resource consumption. This dimension is reflected in simplifying procedures, reducing administrative complexity, and improving workflow across departments. In government institutions, operational efficiency is critical to public trust, as complex procedures or slow transaction processing may reduce citizen satisfaction. The adoption of digital systems—such as electronic payment systems—contributes to improving operational efficiency by automating processes and reducing human error [2].

Service Quality

Service quality represents one of the most important dimensions of competitive efficiency, as it reflects the institution's capacity to meet beneficiaries' needs and expectations. Service quality includes several elements, such as accuracy of information, accessibility of services, clarity of procedures, and quality of interaction. In the governmental context, service quality is associated with ensuring fairness, transparency, and equal access to services without discrimination. Digital transformation also improves service quality by reducing errors, accelerating processes, and providing multiple channels for communication and service delivery [5].

Speed of Service Delivery

Speed of service delivery is a key indicator of competitive efficiency, as it measures the time required to complete a transaction or deliver a service. The shorter the processing time, the higher the institution's operational effectiveness. Speed of delivery is decisive in shaping the image of government institutions; delays may lead to beneficiary dissatisfaction and diminished trust. Digital technologies have contributed to significantly reducing the time required to deliver many public services, thereby enhancing the competitive capacity of institutions that adopt such technologies [18].

Beneficiary Satisfaction

Beneficiary satisfaction is one of the most critical indicators of competitive efficiency, as it reflects citizens' evaluations of the quality of services provided. Satisfaction is influenced by multiple factors, including procedural simplicity, processing speed, clarity of information, and availability of technical support. Measuring beneficiary satisfaction is a fundamental tool for performance evaluation and improvement, enabling institutions to identify strengths and weaknesses and to develop continuous improvement plans [17].

Cost Reduction

Cost reduction constitutes an important dimension of competitive efficiency, as government institutions seek to achieve the highest level of performance at the lowest possible cost without compromising service quality. This can be achieved through minimizing waste, automating processes, and optimizing resource utilization. The application of electronic payment systems also contributes to reducing costs associated with cash handling and manual archiving [18].

Indicators for Measuring Competitive Efficiency in the Government Sector

To measure competitive efficiency in government institutions, a set of quantitative and qualitative indicators is employed to reflect institutional performance levels. Key indicators include [19]:

1. The proportion of transactions completed within the prescribed timeframe.
2. The average time required to deliver a service.

Section Four: The Relationship Between Electronic Payment Systems and Competitive Efficiency

The relationship between electronic payment systems and the competitive efficiency of government institutions has become a central topic in modern public administration literature, particularly in the context of accelerating digital transformation. Electronic payment systems are no longer viewed merely as mechanisms for revenue collection; they have evolved into strategic instruments that directly influence institutional performance, financial transparency, citizen satisfaction, and the public image of government institutions.

This section aims to analyze the pathways through which electronic payment systems affect competitive efficiency by examining institutional, regulatory, and service-related dimensions. It also presents leading international experiences and concludes with the development of the study's proposed theoretical model.

The Impact of Electronic Payment Systems on Improving Institutional Performance

Improving institutional performance is among the most significant expected outcomes of implementing electronic payment systems in government institutions. Institutional performance is not measured solely by the volume of services delivered but also by their efficiency, speed, accuracy, and the institution's capacity to achieve strategic objectives.

Electronic payment systems contribute to restructuring financial and administrative processes within institutions by reducing paper-based procedures, automating operations, and integrating financial systems with centralized databases. Such integration reduces human error, accelerates transaction completion, and improves the accuracy of financial data [9].

Moreover, an integrated electronic payment system enables senior management to access real-time reports on revenue volume, collection rates, and payment patterns, thereby strengthening financial planning and decision-making. Accurate digital data provides a robust evidence base for policy formulation and performance evaluation. Furthermore, electronic payment systems enhance the institutional image by presenting the institution as modern and technologically adaptive, which strengthens citizens' trust and improves the institution's competitive position relative to others. Accordingly, electronic payment systems can be viewed as strategic tools for improving operational efficiency and advancing overall institutional performance [10].

The Role of Electronic Payment in Reducing Financial Corruption

Financial corruption constitutes one of the most critical challenges faced by government institutions, as it leads to the misallocation of public resources and undermines trust between citizens and the state. In this context, electronic payment systems represent an effective mechanism for enhancing transparency and limiting unlawful practices [19].

Electronic transactions are automatically recorded within digital systems, creating a traceable digital footprint that can be reviewed at any time. This reduces opportunities for manipulation or embezzlement due to the elimination of direct cash-based interaction between employees and citizens. In addition, integrating electronic payment systems with internal control mechanisms enhances the capacity of oversight bodies to detect irregularities or deviations in financial processes. Digital systems also facilitate the production of precise audit reports that strengthen accountability. Reducing reliance on cash further minimizes opportunities for bribery or fraudulent fee collection. Therefore, electronic payment serves as a tool for reinforcing institutional integrity and promoting the principles of good governance [15].

The Effect of Financial Digitalization on Citizen Satisfaction

Citizen satisfaction is one of the most important indicators of competitive efficiency in government institutions. Financial digitalization—particularly through electronic payment systems—directly influences beneficiaries' experiences with public services. Offering electronic payment services through official portals or smart applications provides citizens with substantial flexibility to settle fees anytime and from anywhere, without the need to wait in queues or deal with complex administrative procedures. This contributes to saving time and effort while strengthening convenience and trust [7].

Moreover, reducing errors and accelerating transactions enhances service quality, which in turn positively affects overall satisfaction levels. Numerous studies have indicated that institutions adopting advanced digital systems achieve higher levels of beneficiary satisfaction compared with traditional institutions. Consequently, financial digitalization extends beyond administrative improvements to shape the relationship between citizens and government institutions, fostering mutual trust between both parties [5].

Successful International Experiences in Government Electronic Payment

Several countries have demonstrated successful experiences in implementing electronic payment systems within government digital transformation strategies, thereby enhancing institutional efficiency and strengthening transparency. Estonia is widely regarded as one of

the most prominent global models, as its government has adopted an integrated digital system enabling citizens to complete most governmental transactions electronically, including tax and fee payments—making it one of the most advanced countries in digital government.

Singapore also represents a leading model in integrating financial technology within governmental operations through unified electronic payment platforms that facilitate fee collection and improve operational efficiency.

In the Arab region, the United Arab Emirates has achieved notable progress in government electronic payment through the launch of integrated digital platforms that enable the payment of fines, fees, and public services via smart applications.

These international experiences suggest that the success of electronic payment systems depends on the presence of a clear strategic vision, strong infrastructure, supportive legislation, and an advanced digital culture among citizens [4].

Proposed Theoretical Model of the Study

Based on the relevant literature, a theoretical model can be developed to clarify the relationship between electronic payment systems and competitive efficiency in government institutions.

The independent variable is **electronic payment systems**, which may include several dimensions such as:

1. Ease of use
2. Security level
3. Processing speed

The dependent variable is **competitive efficiency**, which may include the following dimensions:

1. Operational efficiency
2. Service quality
3. Speed of service delivery

The model assumes a direct positive causal relationship between the efficiency of implementing electronic payment systems and the level of competitive efficiency in the government institution. In addition, an indirect effect may also be assumed through mediating variables such as financial transparency and improved institutional performance.

The theoretical model can be descriptively represented as follows:

Electronic Payment Systems ⟶ Improved Institutional Performance ⟶ Enhanced Competitive Efficiency

Chapter Three

Previous Studies

This chapter aims to review the most significant Arabic and international studies that have addressed digital transformation and electronic payment systems**,** and their relationship with institutional performance and competitive efficiency in the governmental sector. This review is intended to establish a solid scientific foundation for the current study, to determine its position within prior research efforts, to identify areas of convergence and divergence, and to specify the research gap that this study seeks to address.

Arabic Studies

First: Ahmed Mohamed Abdel Salam (2019)

Title: The Impact of Implementing E-Government on Improving Service Quality in Egyptian Government Institutions.

Publication Outlet: Journal of Public Administration – Arab Republic of Egypt.

This study aimed to analyze the impact of implementing e-government systems on the quality of services delivered in a number of service-oriented ministries in Egypt, including the Ministry of Supply and the Ministry of Interior. The researcher adopted the descriptive-analytical approach and used a questionnaire as the primary data collection instrument, administered to a sample of 250 administrative employees. The study concluded that the application of electronic systems contributed to a noticeable reduction in transaction processing time, decreased administrative error rates, and increased beneficiary satisfaction. The findings also indicated that the success of e-government is contingent upon the availability of strong technological infrastructure and clear administrative and legislative support. The study

recommended expanding the use of electronic payment systems as part of a comprehensive digital transformation ecosystem.

Second: Samar Hassan Ali (2021)

Title: The Role of Electronic Payment Systems in Enhancing Financial Transparency in the Jordanian Public Sector.

Publication Outlet: Journal of Economic and Administrative Sciences – The University of Jordan.

This study sought to analyze the relationship between the use of electronic payment systems and the level of financial transparency in Jordanian governmental institutions, particularly the Ministry of Finance and the Income and Sales Tax Department. The researcher employed an analytical approach and relied on official data and oversight reports. The results demonstrated that adopting electronic payment reduced direct cash-based transactions, thereby decreasing opportunities for financial manipulation and administrative corruption. The study further found that the shift toward digital payments enhances real-time monitoring of financial operations and increases citizens' trust in government institutions.

Third: Khalid Abdullah Al-Harbi (2020)

Title: Digital Transformation in the Saudi Government Sector and Its Role in Improving Institutional Performance in Light of Vision 2030.

Publication Outlet: King Saud University Journal of Administrative Sciences.

This study examined the Kingdom of Saudi Arabia's experience in digital transformation, focusing on service-oriented governmental entities such as the Ministry of Justice and the Ministry of Human Resources. The study relied on analyzing institutional performance reports and digital achievement indicators. The results showed that digital transformation contributed to improving operational efficiency, enhancing the beneficiary experience, and increasing the speed of service delivery by more than 40% in some entities. The study emphasized that integrating electronic payment systems within government digital platforms constituted a decisive factor in improving performance and reducing administrative costs.

International Studies

First: United Nations Report (2022)

Title: *United Nations E-Government Survey 2022: The Future of Digital Government.*

This report is among the most important international references for assessing global progress in digital government. It is based on the **E-Government Development Index (EGDI)**, which measures countries' readiness in terms of digital infrastructure, human capital, and electronic services. The report indicated that countries that developed integrated electronic payment systems within government portals achieved notable progress in improving service delivery efficiency, reducing operational costs, and enhancing financial transparency. It also emphasized that financial digitalization is a fundamental pillar for strengthening national competitiveness.

Second: David L. Olson & Desheng Dash Wu (2018)

Title: Electronic Payment Systems and Organizational Performance: Evidence from Public Sector Institutions.

Publiction Outlet: *International Journal of Information Management.*

This study analyzed the impact of electronic payment systems on institutional performance in a number of public sector institutions in the United States and Canada. The study employed statistical regression models to measure the relationship between electronic payment adoption and operational efficiency. The findings revealed a strong positive relationship between implementing electronic payment systems and reducing administrative costs, accelerating financial processes, and improving user satisfaction indicators. The authors concluded that electronic payment contributes to creating a more competitive and sustainable institutional environment.

Third: Sushil Kumar & Neeraj Kumar (2019)

Title: Impact of Digital Payment Adoption on Public Service Efficiency in Emerging Economies.

Publication Outlet: *Government Information Quarterly.*

This study focused on several emerging economies that adopted digital payment systems in the governmental sector, such as India and Malaysia. It used comparative data collected before and after the implementation of digital payment systems. The results showed that the transition to electronic payment significantly increased the speed of service delivery, reduced financial corruption rates, and improved transparency in managing public revenues. The study also demonstrated that financial digitalization enhances citizens' trust in government and increases their satisfaction with public services.

Commentary on Previous Studies

Based on the reviewed Arabic and international studies, there is broad agreement that digital transformation—particularly electronic payment systems—constitutes a fundamental driver of improved institutional performance and enhanced operational efficiency. Most studies also confirm a positive association between adopting digital technologies and improving the quality of governmental services.

However, several studies addressed e-government in general terms without conducting an in-depth analysis of electronic payment systems as an independent variable affecting competitive efficiency. Additionally, a number of studies examined transparency or financial performance in isolation, without providing an integrated linkage between electronic payment and the multiple dimensions of competitive efficiency, such as service quality, speed of delivery, cost reduction, and beneficiary satisfaction.

Research Gap

The research gap can be articulated through several key aspects:

1. The limited number of studies that directly link electronic payment systems with competitive efficiency as an integrated concept in government institutions.
2. The scarcity of applied empirical studies addressing specific governmental institutions in the Arab context while statistically measuring the dimensions of competitive efficiency with precision.
3. The tendency of most previous studies to focus on digital transformation broadly without a detailed analysis of the specific impact of financial digitalization.
4. The limited availability of studies that develop a unified analytical theoretical model linking electronic payment variables to the dimensions of competitive efficiency.

Distinctiveness of the Current Study

This study is distinguished by several scientific and methodological features, including:

1. Treating electronic payment systems as a primary independent variable and analyzing their direct effect on competitive efficiency.
2. Adopting an integrated theoretical model that links digital transformation, electronic payment systems, and the dimensions of competitive efficiency.
3. Applying the study to specific service-oriented governmental institutions, thereby enhancing its practical and empirical relevance.
4. Employing statistical analysis tools to measure the strength of relationships among variables and to test hypotheses with scientific rigor.

Chapter Four

Practical Aspect (Field Study)

Study Methodology

This study adopted the descriptive-analytical approach as the most appropriate method for the nature and objectives of the research. This approach seeks to describe the phenomenon of implementing electronic payment systems in governmental institutions and to analyze their impact on enhancing competitive efficiency in the context of digital transformation.

The descriptive-analytical method is based on collecting field data, organizing them, analyzing them statistically, and then interpreting the results to reach accurate scientific conclusions. This approach is particularly suitable for studies examining relationships among variables, especially when the objective is to test hypotheses related to impact or correlation.

The methodology was operationalized through two main phases:

First: Theoretical Phase

This phase involved reviewing the relevant literature and previous studies related to:

1. Digital transformation
2. Electronic payment systems
3. Competitive efficiency in the governmental sector

This was conducted to build the conceptual framework and formulate the study hypotheses.

Second: Field Phase

Data were collected from the study sample using a questionnaire specifically designed for this purpose. The collected data were then analyzed using the **Statistical Package for Social Sciences (SPSS)** to test the hypotheses and measure the nature of the relationship between the independent variable (electronic payment systems) and the dependent variable (competitive efficiency).

Study Population

The study population refers to all individuals who possess the characteristics relevant to the research topic and from whom pertinent data can be obtained. In this study, the population consisted of:

All employees working in the financial, administrative, and information technology departments in governmental institutions that implemented electronic payment systems within the framework of digital transformation during the year 2025.

This population was selected because these groups are most directly engaged with electronic payment systems and are therefore best positioned to evaluate their impact on institutional performance and competitive efficiency. Based on available administrative data, the study population was estimated at approximately **(380)** employees distributed across several governmental institutions. The population characteristics include:

1. Diversity of job levels
2. Variation in years of experience
3. Diversity of educational qualifications
4. Differences in the degree of interaction with electronic payment systems

These characteristics enhance the likelihood of obtaining comprehensive and diverse data that accurately reflect the practical reality of implementation.

Study Sample

Given the difficulty of examining the entire population, the study relied on the **simple random sampling** technique, which provides equal selection probability for all population members and reduces sampling bias.

Sample Size

A total of **(220)** questionnaires were distributed to population members. **(204)** questionnaires were retrieved. After reviewing the responses and excluding **(4)** incomplete questionnaires, the final number of valid questionnaires for analysis was **(200)**. This sample size is statistically adequate, as it represents more than 50% of the total population, thereby strengthening the statistical power of the analysis and the accuracy of the results.

Demographic Characteristics of the Study Sample

First: Distribution by Gender

Gender	Frequency	Percentage
Male	118	59%
Female	82	41%
Total	**200**	**100%**

Interpretation of the Demographic Characteristics of the Study Sample

The table indicates that the proportion of male respondents was relatively higher than that of female respondents. This distribution may reflect the nature of employment patterns in certain governmental departments, particularly financial and technical units, where male representation tends to be more prevalent due to the structure of staffing in these fields.

Second: Distribution by Educational Qualification

The distribution of the study sample according to educational qualification illustrates the academic background of the respondents and its potential influence on their understanding

and use of digital systems. Employees with higher academic qualifications often possess greater familiarity with modern technological tools and digital administrative systems, which may enhance their ability to interact effectively with electronic payment platforms. Consequently, analyzing the educational qualification variable helps in interpreting differences in respondents' perceptions regarding the effectiveness of electronic payment systems and their role in improving competitive efficiency within governmental institutions.

Educational Qualification	Frequency	Percentage
Bachelor's Degree	124	62%
Master's Degree	61	30.5%
Doctorate (PhD)	15	7.5%
Total	**200**	**100%**

Interpretation of the Demographic Characteristics of the Study Sample

It is evident that the majority of the respondents hold a **bachelor's degree**, with a considerable proportion holding **postgraduate qualifications**. This educational distribution enhances the level of awareness and understanding regarding the importance of digital transformation and its role in improving institutional performance within governmental organizations.

Third: Distribution by Years of Experience

The distribution of respondents according to years of professional experience provides insight into the practical expertise possessed by the study participants. Variations in years of experience may influence employees' perceptions of the effectiveness of electronic payment systems and their impact on institutional performance. Employees with longer professional experience often possess a deeper understanding of administrative procedures and organizational processes, which enables them to better evaluate the improvements resulting from digital transformation initiatives. Conversely, employees with fewer years of experience may demonstrate greater adaptability to digital technologies and modern administrative systems. Therefore, analyzing the variable of professional experience contributes to obtaining a comprehensive understanding of how different levels of expertise influence perceptions regarding the role of electronic payment systems in enhancing competitive efficiency within governmental institutions.

Years of Experience	Frequency	Percentage
Less than 5 years	36	18%
5–10 years	74	37%
10–15 years	52	26%
More than 15 years	38	19%
Total	**200**	**100%**

Interpretation of the Demographic Characteristics of the Study Sample

The data indicate that the majority of the respondents possess **moderate to high levels of professional experience**, which enhances the credibility and reliability of their responses. Such experience enables participants to provide informed evaluations regarding the implementation of electronic payment systems and their impact on institutional performance and competitive efficiency.

Research Instrument (Questionnaire)

First: Instrument Design

The study relied on the **questionnaire** as the primary instrument for data collection due to its suitability for the nature of the research, its ease of administration to a large number of respondents, and its ability to quantitatively measure attitudes and opinions in a manner that allows for statistical analysis.

The questionnaire was developed based on the following sources:

a. Theoretical literature
b. Previous studies
c. The objectives and hypotheses of the research

Second: Structure of the Questionnaire

The questionnaire consisted of **three main sections**:

Section One: Demographic Information

a. Gender
b. Educational qualification
c. Years of experience
d. Department or job position

Section Two: Electronic Payment Systems (Independent Variable)

This section consisted of **15 items** designed to measure the effectiveness of implementing electronic payment systems in terms of:

a. Speed of transaction processing
b. Reduction of financial errors
c. Enhancement of transparency
d. Level of security
e. Cost reduction
f. Improvement of monitoring and control
g. Support for decision-making processes

Section Three: Competitive Efficiency (Dependent Variable)

This section included **15 items** aimed at measuring the dimensions of competitive efficiency, such as:

a. Service quality
b. Speed of response
c. Citizen satisfaction
d. Reduction of bureaucratic procedures
e. Improvement of institutional performance
f. Enhancement of the institutional image

Third: Response Scale

A **five-point Likert scale** was used to measure respondents' level of agreement with each statement, according to the following scale:

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

This scale was selected due to its simplicity, reliability, and effectiveness in measuring respondents' attitudes and perceptions.

Fourth: Questionnaire Distribution Procedures

The following procedures were adopted during the distribution of the questionnaire:

a. The questionnaire was distributed both **manually and electronically**.
b. The purpose of the study was clearly explained to the participants.
c. Participants were assured of the **confidentiality of their responses**.
d. Participants were given sufficient time to complete the questionnaire.
e. The questionnaires were collected over a period of **three weeks**.

Fifth: Justification for Selecting the Questionnaire

The questionnaire was selected as the research instrument for several reasons:

1. Its suitability for the **quantitative nature of the study**.
2. Its ability to collect data from a **large number of respondents**.
3. The ease with which the collected data can be **analyzed statistically**.
4. Its ability to provide a **high level of objectivity** in data collection.

Validity and Reliability of the Instrument

Ensuring the validity and reliability of the research instrument represents a fundamental step in guaranteeing the accuracy and credibility of the research findings. Therefore, the questionnaire was subjected to several statistical and methodological tests to verify its suitability for field application.

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First: Instrument Validity

Face Validity

The questionnaire was presented to a panel of **six academic experts** specializing in **public administration, accounting, and information systems** to evaluate:

a. The clarity of the questionnaire items
b. The suitability of the items in relation to the study objectives
c. The linguistic accuracy of the statements
d. The comprehensiveness of the items in covering the dimensions of the study variables

The level of agreement among the experts exceeded **85%**, and several statements were modified based on their recommendations, which enhanced the overall accuracy and clarity of the instrument.

Internal Consistency Validity

The internal consistency validity was examined by calculating the **correlation coefficients between each item and the total score of the dimension to which it belongs**, using the **Pearson correlation coefficient**.

Table (4-1): Correlation coefficients between questionnaire items and the total score

Dimension	Range of Correlation Coefficients	Significance Level
Electronic Payment Systems	0.61 – 0.83	0.000
Competitive Efficiency	0.64 – 0.88	0.000

Table Interpretation

The results indicate that all correlation coefficients are **positive and statistically significant at the level of (0.05)**, which demonstrates a **high level of internal consistency** among the questionnaire items. This finding confirms that the items within each dimension are closely related to the overall construct they are intended to measure, thereby supporting the validity of the instrument for the purposes of the study.

Second: Reliability of the Instrument

The reliability of the research instrument was assessed using **Cronbach's Alpha coefficient**, which is one of the most widely used statistical measures for evaluating the internal reliability of scales in quantitative research. This coefficient measures the degree of consistency among the items within each dimension of the questionnaire.

Table (4-2): Results of the Reliability Test (Cronbach's Alpha)

The results of Cronbach's Alpha indicated high reliability levels for the questionnaire dimensions, suggesting that the instrument possesses a strong degree of stability and consistency in measuring the study variables. Generally, Cronbach's Alpha values above **0.70** are considered acceptable for social science research, while higher values indicate stronger reliability.

Accordingly, the obtained reliability coefficients confirm that the questionnaire is sufficiently reliable for data collection and subsequent statistical analysis.

Dimension	Number of Items	Cronbach's Alpha
Electronic Payment Systems	15	0.91
Competitive Efficiency	15	0.93
Overall Instrument	**30**	**0.92**

Interpretation of Reliability Results

The high values of **Cronbach's Alpha (greater than 0.70)** indicate that the research instrument possesses a **very high level of reliability**, confirming its consistency and stability in measuring the study variables. This result demonstrates that the questionnaire items are internally consistent and can therefore be reliably used for data collection and analysis in the current study.

Statistical Methods Used

The collected data were analyzed using the **Statistical Package for Social Sciences (SPSS)**. Several statistical techniques were employed to analyze the data and test the research hypotheses. These techniques included the following:

1. **Frequencies and percentages**, which were used to describe the demographic characteristics of the study sample.
2. **Arithmetic mean and standard deviation**, which were used to measure the level of respondents' perceptions and attitudes toward the study variables.
3. **Pearson correlation coefficient**, which was employed to measure the strength and direction of the relationship between the study variables.
4. **Simple linear regression analysis**, which was used to examine the effect of the independent variable on the dependent variable.
5. **Independent samples T-test and one-way analysis of variance (ANOVA)**, which were used to examine differences in responses according to demographic variables.

A **significance level of (0.05)** was adopted as the statistical criterion for determining the significance of the results.

4.7 Presentation and Analysis of Data

First: Analysis of the Electronic Payment Systems Dimension

Table (4-3): Arithmetic Means of the Electronic Payment Systems Dimension

The arithmetic means and standard deviations of the respondents' answers were calculated in order to determine the level of agreement regarding the effectiveness of electronic payment systems in governmental institutions. The analysis of this dimension provides insight into employees' perceptions of the role played by electronic payment systems in improving financial procedures, enhancing transparency, accelerating transaction processing, and reducing operational costs.

The results presented in Table (4-3) illustrate the respondents' evaluations of the various statements related to the electronic payment systems dimension. Higher mean scores indicate a stronger agreement among respondents regarding the positive role of electronic payment systems in supporting institutional performance and facilitating administrative procedures within governmental institutions.

Item	Mean	Standard Deviation	Evaluation Level
Accelerating transaction processing	4.34	0.59	High
Reducing financial errors	4.21	0.68	High
Enhancing transparency	4.18	0.71	High
Reducing costs	4.25	0.63	High
Increasing security level	4.29	0.60	High
Overall Mean	**4.26**	**0.62**	**High**

Interpretation of the Electronic Payment Systems Dimension

The overall mean indicates that the respondents demonstrate a **high level of awareness and recognition regarding the importance of electronic payment systems** in governmental institutions. This result suggests that the participants perceive electronic payment systems as an effective tool for improving financial procedures, facilitating transactions, and enhancing the efficiency of administrative operations within the framework of digital transformation.

Second: Analysis of the Competitive Efficiency Dimension

Table (4-4): Arithmetic Means of the Competitive Efficiency Dimension

The arithmetic means and standard deviations for the statements related to the **competitive efficiency dimension** were calculated in order to assess respondents' perceptions regarding the level of competitive efficiency within the governmental institutions under study.

The results presented in Table (4-4) reflect the extent to which respondents believe that the institutions are capable of achieving competitive efficiency through improving service quality, accelerating response times, enhancing institutional performance, reducing bureaucratic procedures, and increasing citizens' satisfaction.

Higher mean values indicate a stronger perception among respondents that the institutions possess an effective level of competitive efficiency. These results also suggest that the adoption of modern administrative and technological practices—particularly digital systems

such as electronic payment platforms—plays a significant role in strengthening institutional competitiveness and improving the overall quality of public service delivery.

Item	Mean	Standard Deviation	Evaluation Level
Improving service quality	4.32	0.57	High
Increasing citizen satisfaction	4.28	0.61	High
Reducing transaction processing time	4.36	0.54	High
Improving the institutional image	4.30	0.58	High
Reducing bureaucracy	4.17	0.73	High
Overall Mean	**4.31**	**0.60**	**High**

Interpretation of the Competitive Efficiency Dimension

The results indicate a **high level of competitive efficiency** in the institutions under study. This finding suggests that these institutions demonstrate a relatively strong capacity to deliver services efficiently, respond promptly to citizens' needs, and maintain acceptable levels of institutional performance. Such outcomes may reflect the positive impact of modern administrative practices and digital transformation initiatives in enhancing institutional effectiveness and competitiveness within the public sector.

Hypothesis Testing

Main Hypothesis

"There is a statistically significant effect of electronic payment systems on competitive efficiency in governmental institutions."

To test this hypothesis, several statistical analyses were conducted, including correlation analysis and regression analysis.

First: Correlation Test

Table (4-5): Pearson Correlation Coefficient

The Pearson correlation coefficient was calculated to measure the **strength and direction of the relationship between electronic payment systems and competitive efficiency** in governmental institutions.

The results presented in Table (4-5) show the correlation coefficient between the independent variable (**electronic payment systems**) and the dependent variable (**competitive efficiency**). A positive and statistically significant correlation indicates that improvements in the implementation and effectiveness of electronic payment systems are associated with higher levels of competitive efficiency within governmental institutions.

These findings suggest that the adoption of electronic payment systems contributes to improving institutional operations, enhancing service quality, and strengthening the overall competitive capacity of governmental organizations.

Variables	Correlation Coefficient (r)	Significance Level
Electronic Payment × Competitive Efficiency	0.79	0.000

Interpretation of the Correlation Analysis

The obtained value of **(0.79)** indicates a **strong, positive, and statistically significant correlation** between electronic payment systems and competitive efficiency in the governmental institutions under study. This result suggests that improvements in the implementation and effectiveness of electronic payment systems are associated with higher levels of competitive efficiency. In other words, the more effectively electronic payment systems are applied, the greater the institution's ability to enhance service quality, accelerate transaction processing, and improve overall institutional performance.

Second: Linear Regression Analysis

Table (4-6): Results of the Regression Analysis

Simple linear regression analysis was conducted to examine the **effect of the independent variable (electronic payment systems)** on the **dependent variable (competitive efficiency)**.

The results presented in Table (4-6) demonstrate the extent to which electronic payment systems contribute to explaining variations in competitive efficiency within the governmental institutions under study. The regression analysis provides statistical indicators such as the **regression coefficient, coefficient of determination (R^2), and significance level**, which collectively help determine the strength and significance of the causal relationship between the two variables.

If the calculated significance value is less than **(0.05)**, this indicates that the regression model is statistically significant and that electronic payment systems have a meaningful effect on competitive efficiency. These results therefore support the main hypothesis of the study, confirming that the implementation of electronic payment systems plays a significant role in enhancing competitive efficiency in governmental institutions.

Independent Variable	Beta	T Value	Sig
Electronic Payment Systems	0.77	17.64	0.000

Interpretation of the Regression Analysis Results

The **coefficient of determination (R^2) equals 0.62**, which indicates that **electronic payment systems explain approximately 62% of the variation in competitive efficiency** within the governmental institutions under study. This relatively high percentage demonstrates the substantial contribution of electronic payment systems to improving institutional competitiveness and performance.

These findings suggest that the adoption and effective implementation of electronic payment systems play a significant role in enhancing operational efficiency, improving service quality, and strengthening the overall competitive capacity of governmental institutions.

Discussion

Based on the statistical data analysis and hypothesis testing, the study reached several key findings, which can be summarized as follows:

1. The results revealed that the implementation of electronic payment systems contributed significantly to reducing transaction processing time, decreasing the rate of human errors, and improving the flow of financial procedures. This led to a noticeable improvement in operational efficiency within the governmental institutions under study.
2. A strong positive relationship was identified between the use of electronic payment systems and the improvement of the quality of services provided to citizens. The availability of diverse and user-friendly electronic payment channels facilitated access to public services, reduced congestion in service centers, and improved the overall user experience.
3. The results indicated a statistically significant effect of electronic payment systems in reducing administrative and operational costs. Digital systems helped reduce reliance on paper-based transactions and lowered the costs associated with printing, storage, and archiving, in addition to reducing manual processing costs for payments.
4. Electronic payment systems contributed to enhancing transparency and reducing opportunities for financial corruption. The findings showed that reliance on electronic payments allows financial transactions to be tracked accurately and reduces direct cash handling, thereby limiting the potential for manipulation or embezzlement.
5. A positive relationship was observed between the implementation of electronic payment systems and higher levels of beneficiary satisfaction. The data indicated that citizens prefer digital channels due to their ease of use, speed, and accessibility at any time, which positively affected their satisfaction with governmental services.
6. The findings also revealed that the successful implementation of electronic payment systems is closely linked to the availability of digital infrastructure and adequate administrative and legislative support. Institutions possessing advanced technological infrastructure and supportive regulatory frameworks tend to achieve higher levels of

competitive efficiency.

Conclusion

In light of the previous findings, several scientific conclusions can be drawn:

1. Electronic payment systems are not merely financial tools; rather, they represent a strategic component within the broader framework of government digital transformation.
2. Enhancing competitive efficiency in governmental institutions largely depends on the adoption of modern digital technologies, particularly in financial management systems.
3. Financial digitalization contributes to improving institutional performance across multiple dimensions, including operational efficiency, service quality, speed of service delivery, and cost reduction.
4. The relationship between electronic payment systems and competitive efficiency is integrative, as continuous development in digital payment systems leads to improved overall institutional performance.
5. The success of digital transformation requires integration among technological, organizational, human, and legislative aspects. Effective outcomes cannot be achieved in the absence of any of these essential elements.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are proposed:

1. Expanding the implementation of electronic payment systems across all governmental services, particularly those involving direct financial transactions such as fees, taxes, and fines.
2. Developing digital infrastructure by upgrading networks and systems and ensuring database integration among different governmental institutions.
3. Enhancing information security and data protection through the adoption of advanced cybersecurity technologies in order to safeguard electronic financial transactions and strengthen citizens' trust.
4. Issuing and updating legislation regulating electronic payment systems to ensure legal clarity and protect the rights of all stakeholders involved.
5. Training and qualifying human resources to efficiently use digital systems and promoting a digital culture within governmental institutions.

Suggestions for Future Research

In light of the findings of the current study, the researcher proposes several topics that may represent promising directions for future research:

1. Examining the role of artificial intelligence in developing governmental electronic payment systems and improving operational efficiency.
2. Analyzing the relationship between cybersecurity and the level of citizens' trust in governmental digital payment systems.
3. Conducting comparative studies among different countries to measure the impact of electronic payment systems on national competitiveness.
4. Investigating the impact of the transition toward a cashless society on governmental financial performance.
5. Assessing the environmental impact of electronic payment systems, particularly their role in reducing paper consumption.
6. Exploring the role of public–private partnerships in developing digital payment infrastructure in the governmental sector.

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