



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

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Abstract. Based on the importance of electronic payment systems and the function of digitalization as a strategic instrument to improve the performance of government institutions and to increase the quality of public services, the purpose of this study was to answer the question of "What is the effect of electronic payment systems on improving competitiveness of government institutions under the context of digital transformation?" The study aimed to respond to the main question: How do electronic payment systems help to improve the competitiveness of the government institutions?

This study was descriptive-analytical. Data were collected from the questionnaire given to the respondents from the selected government institutions with electronic payment system. The data obtained were analyzed using SPSS statistical software based on arithmetic mean, standard deviations, Pearson correlation coefficient and linear regression analysis at 0.05 level of significance. The results indicated that the extent of e-payment systems used is statistically significantly, positively associated and affects on competitiveness dimensions as operational efficiency, service quality, speed of completion, beneficiary satisfaction and cost reduction. The results achieved showed that using electronic payment provides better performance of government institutions, more transparency in the financial aspects, and reduces reliance on cash payments, all of which are good for the image and competitiveness of government institutions. The study suggested the use of electronic payment systems to be further extended within a comprehensive digital transformation plan, as well as the provision of a strong technological platform, training of human resources and updating of the legislation on the regulations of digital transactions. It will contribute to the best use of these systems in the field of optimizing the efficiency of government institutions and services to citizens.

Keywords: The use of electronic payment systems, competitive efficiency, digital transformation

Introduction

Due to the rapid development of technology, and the deep changes in the global economic landscape, Digital transformation has proven to be one of the most important strategic areas pursued by Governmental institutions to create more efficient operations and become institutional experts. The digitalization of public services has changed the way public services are provided, making the process faster and better, less costly, and more transparent and accountable.

A major part of digital transformation is the use of electronic payment systems that have helped to shift financial operations within government from the traditional cash and manual financial process to efficient, accessible and secure digital platforms. These systems can enable governmental bodies to provide financial services in a more efficient and reliable manner with minimal human error, enhanced financial monitoring, management, and satisfaction to those who receive the services.

The importance of studying the effect of electronic payment systems on the competitive efficiency of governmental institutions has grown significantly, especially in dynamic administrative systems where a high level of service quality, speed of service delivery, cost efficiency and a better public service experience are key. Efficiency in public sector is about delivering high quality services, meeting changing citizen expectations, and being competitive in the quality of services, responsiveness and organisational performance as well as organisations being efficient.

Research Problem

Although electronic payment systems have become widespread in government agencies, their impact on improving competitive efficiency is still a matter of scholarly and practical discussion, especially in government agencies that are in the midst of their transition toward full digital transformation.

So, the research problem is stated as:

What are the ways in which the use of electronic payment systems can contribute to making governmental institutions more competitive in the digital transformation context?

Research Questions

Several subproblems arise from the main research problem:

- How well are payment systems implemented electronically in governmental institutions?
- How competitive are these institutions?
- Do there exist statistically significant relationships between competitive efficiency and electronic payment systems?
- Do electronic payment systems have a direct impact on the improvement of competitiveness?
- What is the contribution of the adoption of electronic payment systems to the variations in competitive efficiency?

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:

- There is a statistically significant correlation between the level of implementation of electronic payment systems and the quality of governmental services.
- There is a statistically significant relationship between electronic payment systems and the speed of transaction completion.
- Electronic payment systems have a positive effect on citizens' satisfaction.
- The adoption of electronic payment systems contributes to reducing operational costs and enhancing institutional efficiency.

Research Objectives

This study aims to accomplish the following objectives:

- To determine the extent of the use of e-payment systems in government bodies.
- To assess the level of competitiveness of the institutions under study.
- To examine the nature of the relationship between electronic payment systems and competitive efficiency.
- To conduct a study on the relation of electronic payment systems to the improvement of institutional performance.
- To suggest viable solutions to help the government go digital.

Theoretical Significance

The study contributes to enriching the academic literature related to digital transformation and public sector management.

It lays the theoretical foundations for the interconnection of two key variables, electronic payment systems and competitiveness.

It presents a practical analytical model which can be used as a guide case for future research on the subject.

Practical Significance

The study offers policymakers and decision-makers with empirical evidence to inform development and enhancement of digital financial systems.

It helps to measure the performance of the electronic payment system in government institutions.

It helps to enhance the quality and effectiveness of government services.

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.

Research Methodology

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.

Theoretical Framework

Section One: Digital Transformation in Government Institutions

Digital transformation is one of the major structural changes that the public sector has undergone in the last few decades. It has moved beyond being an administrative choice for boosting performance, and is now a strategic requirement in a fast-changing global context. The rapid progress in the field of information and communication technologies (ICT), along with citizens' increasing demands for speedy, transparent and high quality government services, has contributed to a redefinition of the role of government and how it operates its resources and services.

Government has been evolving from the old model where officials process paper documents and have fixed hierarchies to a new one that integrates digital, uses data analysis, and

automates operations. Digital transformation has thus become a key pillar of improving the efficiency of institutions, sustainability and strengthening their competitiveness in global indicators.

In this section, the authors discuss the idea of digital transformation, its manifestation in and evolution across the globe, its goals for governments, the essential conditions for digital transformation, and its major challenges. It also covers the most significant ones which are used to assess the digital maturity of an institution.

Understand the concept of Digital Transformation.

Know what is Digital Transformation.

The term Digital transformation can be interpreted as a complete strategy process whose purpose is to redesign the business model, procedures and organizational processes, by applying modern digital technologies, in order to optimize the performance of the institutions and create added value for beneficiaries. It is not just about new technological tools, it's about a change in organizational culture, ways of thinking, and decision-making processes.

In the governmental sphere, digital transformation is the use of digital technologies to provide public services, to manage resources, to increase transparency and to increase citizens' experience. This is reflected in the adoption of e-government systems, digital service platforms, electronic payment systems, centralized databases, technologies for artificial intelligence and big data analytics.

There are a few concepts to differentiate, because they are various in depth and scope [1]:

First: Digitization.

The digitisation is the process of converting information and data from paper based or traditional formats into digital format without changing the nature of the existing processes.

Second: Automation.

Automation involves the use of technology-based systems to perform tasks automatically, to minimize human involvement and enhance efficiency.

Third: Digital Transformation.

Digital transformation is a higher level which will entail a significant restructuring of processes, strategies, policies and plans with the help of digital technologies.

Digital transformation, therefore, is not just the adoption of a tool but is a qualitative shift and is now an integral part of institutional strategy.

is considered to be the next stage of the DAMS.

According to this, is the next step of the DAMS.

The early advent of digital transformation dates back to the Third Industrial Revolution in the 1970s when computers started to be employed in the management of institutions and data storage. The true acceleration of the digital transformation has started in the 1990s, however, with the mass adoption of the Internet by governments, which began to create websites for citizens to access information and services [2].

In the first decade of the new millennium the idea of e-government arose, involving the electronic nature of public services and the provision of services through electronic means. As technology has continued to develop, the idea has been transformed to the digital government, which involves the integration of systems and databases, and the interconnection of government institutions via a single digital network.

Over the past 10 years, digital transformation has come to be synonymous with the Fourth Industrial Revolution, which features technologies like cloud computing, big data, the Internet of Things (IoT), and artificial intelligence (AI).

There are many countries that have established national digital transformation strategies, including the European Union Digital Strategy, the Saudi Arabia Vision 2030 in the Digital Government domain and the United Arab Emirates Smart Government Strategy. Experience abroad has shown that countries that spend significantly on digital transformation have made significant progress in the areas of global competitiveness indicators and the United Nations E-Government Index of Development [3], showing that there is a close link between digitalization and better governmental performance.

The objective of Digital Transformation in the Government Sector.

Digital transformation for governmental institutions aims at a set of strategic goals which are not limited simply to modernization of technological systems [4].

First, it is intended to enhance quality of public services through decreasing transaction-processing time, offering service at any time of day, and offering services electronically without spatial or temporal constraints so citizens can access services without needing to be present at the point of service delivery.

Second, digital transformation helps to drive operational efficiency by cutting down on reliance on paper-based transactions, administrative costs, human error, and resource management.

Third, it helps to improve transparency and accountability, with digital systems allowing for the tracking and documentation of processes, minimising administrative corruption opportunities and increasing trust in public institutions.

Fourth, evidence based decision making can be achieved through digital transformation as accurate and real-time data help policymakers to analyse trends and make informed policies.

Fifth, it increases citizens' satisfaction, because improving the user experience and making processes easier increases citizens' trust in the government institutions.

Requirements for Digital Transformation

To achieve a successful digital transformation, these integrated components must be available, On a technical level, it requires sophisticated digital infrastructure, such as high-speed communication networks, secure servers, and robust cybersecurity measures.

On an organizational level, it involves either restructuring procedures or creating new organizational structures and streamlining administrative processes in relation to the digital environment, The human side of digital transformation means upskilling human resources and fostering a digital culture while providing ongoing training opportunities to equip employees to effectively use new systems. Furthermore, a favourable legal environment is needed, comprising legislation on electronic transactions, the protection of personal data and legal accountability. Moreover, sufficient financial means need to be provided to fund digital transformation projects and strategic collaboration between the public and private sectors can contribute to innovation and technological advancement [5].

Challenges of Digital Transformation in Government Institutions

Though digital transformation has many benefits, it is still fraught with challenges. The biggest problem is the resistance to change of employees, sometimes due to fear of losing their jobs or not being able to adjust to the new technological systems. In addition, weak technological infrastructure in some countries may hinder the effective implementation of digital systems. The lack of digital skills is another significant challenge: the management of digital systems requires special skills. The security of information is also of great concern, since cyberattacks could result in data breaches or service disruption, which could affect the citizens' confidence in the government institutions. Furthermore, digital infrastructure development can cost a lot of money for some institutions, especially if public budgets are scarce. Last but not least, there is a digital trust gap within some citizens because of privacy and information security issues [6].

Indicators for Measuring Digital Transformation Maturity

Several international and institutional indicators have been developed, to evaluate the progress of institutions in digital transformation. The E-Government Development Index (EGDI) is one of the most prominent indicators that measures the countries' preparedness in providing e-services in three broad areas: online services, telecommunication services and human capital. Other important factors are related to the Digital Services Maturity Index that assesses the maturity of services from providing information to interactive and fully integrated services. Typically, institutional digital maturity models involve five steps: from digital awareness to digital innovation. In an organizational context, the degree of digital maturity can also be gauged using various metrics, including the share of electronic transactions, service delivery times, beneficiary satisfaction scores and cost savings. Institutions use these indicators to gauge their progress toward digitalization, measure performance, and create continuous improvement programs [7]. For this reason, Digital Transformation is one of the most essential elements of the growth of government bodies and improving their efficiency and

competitiveness. This is not only a technology-driven initiative, but also a strategic process that demands vision, high-quality infrastructure, skilled personnel and favorable laws. Institutions have to be able to manage change effectively and to address organisational and cultural issues to successfully implement it, as well as to use appropriate indicators to assess their digital maturity [8].

Section Two: Electronic Payment Systems

In recent decades, the world has seen the complete revolution in how financial transactions are made and managed, from cash-based financial transactions to advanced digital financial transactions that use modern technology. Efficiency, speed and transparency in managing public financial resources have made electronic payment systems one of the key elements of the digital economy and a strategic tool for digital transformation programs in Government institutions. Analyzing electronic payment systems is especially significant in the government sphere due to their impact on improving the process of revenue collection, lower administrative expenses, stronger financial integrity and higher citizens' satisfaction. The concept of electronic payment systems is introduced

Concept of Electronic Payment Systems

Electronic payment systems are a collection of tools and technologies that allow individuals and institutions to make payment transactions and move funds electronically, without relying on 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]. In the governmental realm, electronic payment systems are defined as digital platforms that are used by government bodies to accept payment for fees, taxes, fines and subscriptions via official government platforms or by integrating with banks and financial technology firms. Electronic payment systems, therefore, go beyond mere fund transfers and include automated financial management processes that are connected to the accounting and internal control systems that ensure the accuracy and reliability of financial information [10].

Types of Electronic Payment Systems

Payment systems are electronic and they differ – depending on the type of payment instrument, and who is running it. These systems can be broadly broken down into a number of main categories [11].

a. Banking Cards

One of the most common electronic payment cards globally is the banking card. Cards that are issued by banking institutions to allow their customers to make purchases or pay bills electronically. These include cards that use debit, credit and prepaid funds. These cards function on global payment processing platforms like Visa and Mastercard, which supply the infrastructure needed to course financial transactions swiftly and securely. In the governmental sector, banking cards are generally used for paying tuition fees at the university, renewing official papers, and paying tax and traffic fines. The prevalence of banking cards is a measure of the credit card society's development and its penetration into the digital economy [12].

b. Electronic Wallets

An electronic wallet is an electronic application that can be used to store funds electronically and make payments or transfer money. The wallets have come to the fore as an innovative solution that aids in financial transactions, especially in societies that aim to diminish the reliance on physical money. The PayPal electronic wallet is one of the most well-known examples worldwide for making online payments and transfers easily and securely. Governments can use electronic wallets in a variety of ways, such as embedding them in official digital portals for citizens to pay municipal fees, subscriptions, or fines. This integration boosts financial inclusion and enables a wider community to gain the advantages of digital services [13].

c. Electronic Transfers

Electronic transfers are payments between bank accounts that use a digital banking system or instant payment system. This option is commonly employed when a high amount of money is involved, like paying taxes or customs. The official banking system brings a certain level of

security to electronic transfers. They also keep a detailed electronic log of all transactions, improving financial transparency and aiding in auditing and monitoring [14].

d. Mobile Payment Systems

Mobile payment is one of the latest types of electronic payment systems. This is done via financial applications on a smartphone or near field communication (NFC) technology. Apple Pay and Google Pay are two large-scale mobile payment companies found in the world that allow customers to make secure and fast payments without using a physical payment card. Mobile payment systems are a major contributor to digital transformation, as they offer increased convenience, flexibility, and are now a popular option for younger and digitally inclined consumers [1].

Components of Electronic Payment Systems

Electronic payment systems are a complex collection of elements that work together to facilitate the smooth and secure processing of payments. The first is the payer or the user that makes a payment order using a digital payment instrument. The second part is the beneficiary, in a governmental transfer, usually a public institution to which the financial transfer is made. The payment service provider is also one of the crucial aspects, and it is typically a bank or a financial technology firm that handles the payment transaction. Furthermore, the payment gateway is a very important element as it is the technological actor that links the user and the institution. It is designed to secure payment information and to pass it via secure communication systems. Electronic payment systems also have an extensive technological framework that involves servers, encryption technologies, databases, and cyber security protection mechanisms. In addition to this, the systems are subject to a legal and regulatory system that regulates the relationship between the different stakeholders in the payment process [3].

Advantages and Disadvantages of Electronic Payment Systems

Electronic payment systems have a number of benefits, especially in terms of their role in improving institutional efficiency. One of the major benefits is that they can help speed up the revenue collection process and minimize the need for cash transactions. Also, electronic payment systems help to reduce cash management and manual archiving administrative expenses. These systems also increase transparency, because all financial transactions are electronically recorded, and that there are fewer opportunities for corruption of manipulation of finances. Additionally, electronic payment systems give citizens better experiences, as they can make payments anytime and anywhere, making it more convenient and accessible. But electronic payment systems have their drawbacks. There is a substantial up-front investment in technology infrastructure and system development for their implementation. Furthermore, there are potential threats of cybersecurity breaches and hacking attacks. The digital illiteracy and lack of technological skills of some users may also cause them to have difficulty using these systems [15].

Requirements for Implementing Electronic Payment Systems in the Government Sector

This section outlines practical guidance for implementing electronic payment systems in the Government sector. For the effective implementation of electronic payment systems, a number of necessary conditions must be fulfilled. First of all, a clear legislation is to be prepared to control electronic transactions and safeguard personal and financial data. This encompasses digital payment, cybersecurity, and data privacy laws. Secondly, the technological infrastructure should be robust, with communication systems in place and digital platforms reliable enough to maintain the continuity and reliability of payments services. Third, skilled people are needed to operate and run effective electronic payment systems. It is therefore essential that digital competencies of employees be developed through continuous training programs. Moreover, cultivating a culture of electronic payment among the citizens is needed. This can be done by awareness raising campaigns to strengthen citizens' trust in digital systems and promote the use of electronic payment methods. Last but not least, the use of electronic payment systems with other governmental systems is a must. In order to update the financial records in an accurate and timely manner, payment gateways should be integrated with

financial and accounting databases [16].

Security Risks and Regulatory Challenges

Financial information being sent over a computer network is very sensitive and is one of the most serious threats to electronic payment systems. These risks can include cyberattacks, data theft and electronic fraud. A cybersecurity breach can cause services to be disrupted and/or the loss of important financial data that might tarnish citizens' confidence in government institutions. Moreover, electronic payment systems are subject to regulatory hurdles in terms of adapting laws and regulations to the quick technological evolution. Inadequate legislation promulgation and/or oversight of electronic payment systems could have a detrimental impact on the efficiency and effectiveness of electronic payment systems. Data privacy and data confidentiality are also significant concerns that must be addressed by implementing robust security measures and implementing advanced encryption technologies. Thus, the implementation of electronic payment systems in government agencies relies on the presence of advanced technology in addition to having a well-defined regulatory framework, risk management strategies, and cybersecurity policies [9].

Section Three: Competitive Efficiency in Government Institutions

In the past few decades, public administration has undergone significant changes in philosophy and instruments. Governmental performance has now extended beyond simply providing services in traditional ways to what has come to be known as efficient, effective, quality and competitive services. The speed of digitalisation and the growing demands of citizens have imposed increasing requirements of government institutions to become highly competitive in order to deliver public services that are fast, of good quality and transparent. In this context, studying the efficiency of public sector competition has become especially relevant in the context of the global trend towards good governance and public management, where the evaluation of institutional performance has become the basis for measuring the effectiveness of public policies.

Concept of Competitive Efficiency

Competitive efficiency is the ability of an institution to utilise its human, financial and technological resources in the most efficient way to fulfil the institution's functions at the lowest possible cost, but in a way that also creates more value for the beneficiaries than other institutions. In the governmental domain competitiveness is not meant in the limited commercial sense, but rather as an ability to perform better than in the past or to perform better than similar institutions nationally or internationally [12]. Competitive efficiency of government institutions is a capability to provide quality public services in an acceptable time, cost, level of satisfaction for the beneficiaries and to comply with legal and regulatory requirements. Competitive efficiency is also associated with the ability of that institution to adjust to changes in the environment, to innovate, and to sustain its performance. A competitively efficient institution is the one that delivers better results with the same resources (or less) and continually enhances the quality of services. In the context of digital transformation, the role of technology in improving the institution's performance has become extremely important, and it is linked to the institution's competitive efficiency, which has become linked to the use of technology to enhance the competitive efficiency of the institution and strengthen its institutional image [4].

Distinction Between Efficiency and Competitive Advantage

Although the ideas of efficiency and competitive advantage are related, they are not identical, and there are significant differences between the two. Efficiency is about maximizing value; making the best use of resources; minimizing waste; getting the best value from resources at the lowest cost. It is mainly associated with internal processes like time management, cost reduction and productivity improvement. Competitive advantage, in contrast, is the attribute/characteristic which makes an institution stand out from other institutions and better perceived by the beneficiaries. This advantage can be due to quality, speed, price or a specific service level. Efficiency is one of the ways to gain competitive advantage but it is not an equal. The efficiency of an institution is an internal performance metric, and does not guarantee that the institution has a competitive advantage unless this efficiency is evident in service quality

and beneficiary experience. In the public sector, competitive advantage is achieved when a public institution can offer public services that have a higher public service quality compared to other public institutions that provide similar services, with respect to service features such as speed, transparency and citizen satisfaction [17].

Dimensions of Competitive Efficiency

Competitive efficiency in government institutions is multi-faceted, with each dimension being an indicator of the quality of government institutional performance [7].

a. Operational Efficiency

Operational efficiency is the ability of the institution to run its internal processes efficiently and effectively to achieve its objectives with the least use of resources. This dimension is seen in the process of streamlining procedures, minimising administrative complexity and enhancing interdepartmental workflow. For governments that rely on public trust, operational efficiency is essential; long or cumbersome processes, or slow transaction times, can diminish the satisfaction of the citizens. Digital systems, like electronic payment system, help to achieve operational efficiency by automating processes, while minimizing human error [2].

b. Service Quality

One of the most important dimensions of the competitive efficiency of an institution is its capacity to meet the needs and expectations of beneficiaries, namely its service quality. Service quality can be composed of several aspects, for instance, the information provided is accurate, services are accessible, procedures are clear, and the interaction is of good quality. Governmental service quality relates to the provision of fair, transparent and equal access to services, free from discrimination. Digital transformation also has the effect of better-quality service by minimizing the number of mistakes, speeding up processes and creating multiple communication and service delivery channels [5].

c. Speed of Service Delivery

The speed of service delivery is one of the most important indicators of efficiency because it reflects the duration of time needed to conduct a transaction or to provide a service. The faster the processing time, the more efficient the institution is. Timely delivery is critical for the reputation of government bodies, and beneficiaries' trust and satisfaction can be reduced due to delayed services. Many public services can now be provided in a fraction of the time before the advent of digital technologies, thanks to them [18].

d. Beneficiary Satisfaction

One of the most important measures of competitive efficiency is the satisfaction of the beneficiaries, which represents the assessment of citizens on the quality of services offered. Several factors determine satisfaction, such as the ease of procedure, processing time, information clarity, and technical support. Measuring the satisfaction of the beneficiaries is an essential instrument used to evaluate and improve performance, as it helps the institutions to know their strengths and weaknesses and to create improvement plans [17].

e. Cost Reduction

Reducing costs is also part of a successful competitive efficiency because government institutions are required to obtain the most effective service at the least cost, without reducing the quality of the service. This can be done by reducing waste and automating processes, as well as optimising the use of resources. Electronic payment systems also help to lower the cost of cash management and manual filing [18].

Indicators for Measuring Competitive Efficiency in the Government Sector

A series of quantitative and qualitative indicators are used to measure the efficiency of competition in government organizations in terms of their performance score. One of the key indicators is: [19]:

Percentage of transactions that are completed within the specified time frame.

The typical duration it takes to provide a service.

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

The section on Electronic Payment Systems and Competitive Efficiency provides a summary of the findings of the other three sections. The use of electronic payment systems and the impact

on the competitiveness of public institutions has emerged as a key issue in the public administration literature in recent times, especially in the context of the digital transformation. The electronic payment systems are not just a tool for collecting taxes but are now regarded as a tool that can affect the performance of the institutions, transparency in the financial process, citizens' satisfaction, and the overall image of the government institutions. The purpose of this section is to consider how electronic payment systems impact competitive efficiency in terms of institutional, regulatory, service, and other factors. It also introduces the most significant international experiences and ends with the formulation of the suggested theoretical model for the study.

The Impact of Electronic Payment Systems on Improving Institutional Performance

Enhance the performance of the institutions is one of the most important outcomes expected in the implementation of electronic payment systems in government institutions. Institutional performance is not just judged on the number of services rendered but also on how effective and efficient they are, and how fast they are provided, accurate and how well the institution achieves strategic goals. Electronic payment systems are important in the restructuring of financial and administrative processes in institutions by means of reducing paper-based processes, automating processes, and linking financial systems with centralized databases. This helps to minimize human error, speed up the process of completing transactions, and provide more accurate financial data [9]. Further, the electronic payment system could generate real-time data regarding revenue volume, collection rates, and payment patterns to support real-time reporting to senior management, enhancing financial planning and decision-making. Digital data is accurate and will support a strong evidence base for policy making and assessing performance. To further add to this, electronic payment systems add to the image of the institution as modern and technologically adaptive, thereby increasing the citizens' trust in the institution and consequently, making the institution more competitive compared to other institutions. From this perspective, e-payment systems can be considered as effective tools for enhancing the efficiency of the operations and strengthening the overall performance of the institutions [10].

The Role of Electronic Payment in Reducing Financial Corruption

The electronic payment system shall be used to cut financial corruption a) One of the most serious issues in government institutions is financial corruption, which causes the misallocation of the public funds and reduces citizens' trust in the government. Electronic payment systems can be a useful tool in this regard to increase transparency and reduce illegal behavior [19]. Digital transactions are automatically captured in digital systems, which results in the generation of an electronic traceable footprint that can be retrieved at any time. This decreases the chances for manipulation or embezzlement because there is no direct account to account interaction between citizens and employees. Furthermore, the inclusion of electronic payment systems in the framework of internal control increases the ability of supervisory bodies to identify any irregularities or deviations in the financial processes. Digital systems also enable the creation of accurate audit reports to enhance accountability. There are also fewer chances of bribery or fee collection being fraudulent because of a decreased need for cash. Thus, electronic payment is a way of strengthening institutional integrity and advancing good governance [15].

The Effect of Financial Digitalization on Citizen Satisfaction

One of the major measures of competitive efficiency in government institutions is citizen satisfaction. Financial digitalization, especially using electronic payments, has a direct impact on beneficiaries' encounters with public services. Providing citizens with a mode of payment service via official payment platforms or smart applications gives them a lot of flexibility in paying fees anytime and anywhere, without having to wait in line or go through the hassle of complicated administrative procedures. This helps to save time and effort, enhance convenience and trust [7]. Additionally, minimizing mistakes and speeding up transactions improves the quality of service, leading to positive impacts on overall satisfaction. A number of studies have found that institutions that use state-of-the-art digital systems have obtained a higher degree of satisfaction among the beneficiaries than the conventional institutions.

Financial digitalization therefore does not only affect administrative efficiency, it also impacts the relationship between citizens and the government organization, building trust between the two actors [5].

Successful International Experiences in Government Electronic Payment

Many states have shown successful implementation of electronic payment systems in the context of their government digital transformation strategies, improving institutional efficiency and boosting transparency. Estonia has been widely considered as one of the leading global models, where the government has developed an integrated digital system that allows citizens to carry out the vast majority of their government interactions digitally, including tax and fee payments one of the most developed countries in digital government. Singapore is also a key example for the government's embrace of financial technology, with the use of one-stop electronic payment platforms to collect fees and enhance the efficiency of government operations. The United Arab Emirates (UAE) has made significant strides in the Arab region with the introduction of integrated digital platforms where individuals pay fines, fees and public services using smart applications. Based on these international experiences, the success of electronic payment systems relies on ensuring the presence of a clear strategic vision, the development of infrastructures, legislation and citizen's digital culture [4].

Proposed Theoretical Model of the Study

The theoretical model can be developed based on the literature of the subject, which explains the relationship between electronic payment systems and government institutions' competitive efficiency. The independent variable is electronic payment systems which can be broken down into a number of dimensions such as:

Ease of use

Security level

Processing speed

The dependent variable is competitive efficiency as it can include the following dimensions:

Operational efficiency

Service quality

Time for service delivery

The model is based on the assumption that the efficiency of implementing electronic payment systems has a direct positive causal relationship with the level of competitive efficiency of government institution. Furthermore, a mediator effect is also possible via other variables, like financial transparency and better institutional performance.

Electronic Payment Systems → Improved Institutional Performance → Enhanced Competitive Efficiency

Previous Studies

The purpose of this chapter is to examine the most relevant Arabic and international studies that have tackled digital transformation and electronic payment systems and their impact on performance and competitive efficiency of governmental institutions. This review aims at building a scientific foundation for the present study, ascertain the location of the present study in the pre-existing research, areas of convergence and divergence and demand a research gap to be fulfilled by the present study.

Arabic Studies

a. Ahmed Mohamed Abdel Salam (2019)

The impact of implementing E-government on improving the quality of service in Egyptian governmental institutions. Journal: Journal of Public Administration Arab Republic of Egypt. The main objective of this study was to analyze the effect of the use of e-government systems on the quality of the provided services in several service ministries in Egypt such as the Ministry of Supply and Ministry of Interior. In this study the researcher applied descriptive analytical approach with a questionnaire as the main instrument to collect the primary data from a sample of 250 administrative employees. The study finally found that the use of electronic systems led to a significant improvement in the time for processing transactions, a reduction in administrative error rates and a greater satisfaction of beneficiaries. The results also showed that success of e-government depends on the presence of support and appropriate

technological infrastructure and administrative and legislative support. The study suggested that together with a wider adoption of electronic payment systems, a wider digital transformation ecosystem should be implemented.

b. Samar Hassan Ali (2021)

The title of the project is "The Role of Electronic Payment Systems in Enhancing Financial Transparency in the Jordanian Public Sector". Journal: Journal of Economic and Administrative Sciences – The University of Jordan. The aim of this study was the analysis of relation between using electronic payment systems and financial transparency in governmental institutions in Jordan, specifically the Ministry of Finance (MoF) and the Income and Sales Tax Department (ISTD). The research procedure was analytical and the data used was official data and oversight reports. The findings showed that use of electronic payment reduced the direct payment operations involving cash, and hence reduced the opportunities for financial manipulation and administrative corruption. The study further showed that the transition to digital payments improves the realtime monitoring of the financial activities and strengthens the citizens' confidence in governmental institutions.

c. Khalid Abdullah Al-Harbi (2020)

Title: Digital Transformation in the Saudi government sector and its contribution to enhancing the performance of institutions in the context of Vision 2030. Publisher: King Saud University Journal of Administrative Sciences. The current study aims to analyze the Saudi Arabia experience of digital transformation, in this case, service-oriented governmental bodies like the Saudi Arabia Ministry of Justice and the Saudi Arabia Ministry of Human Resources. The study was based on reviewing the institutional performance reports and electronic achievement indicators. The findings indicated that digital transformation enabled operational efficiency, a better experience for the beneficiary, and faster service delivery, in some entities, by over 40%. The study highlighted the importance of the incorporation of electronic payment systems into the government's electronic platforms as a key determinant in enhancing performance and cutting down on administrative costs.

International Studies

First: United Nations Report (2022)

Book: United Nations E-Government Survey 2022: The Future of Digital Government. This report is one of the key international documents for the evaluation of digital government development around the world. It draws on the E-Government Development Index (EGDI) which ranks the countries by how well they are prepared in terms of digital infrastructure, human capital and electronic services. The report showed that countries that have implemented integrated electronic payment systems within government portals were able to make significant strides to increase service delivery efficiency, lower operating costs, and improve financial transparency. It also highlighted that financial digitalization is a basic pillar to support national competitiveness.

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

The title is: Electronic Payment Systems and Organizational Performance: Evidence from Public Sector Institutions. Publication Journal: 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 used statistical regressions to calculate the extent to which operational efficiency was related to electronic payment adoption. The results showed that there was a high positive correlation between the use of electronic payment systems and the reduction of administrative costs, the speed of financial processes and the satisfaction indicators of the users. The authors concluded that electronic payment can help to build a more competitive and sustainable institutional environment.

Third: Sushil Kumar & Neeraj Kumar (2019)

The title is: The effects of the adoption of Digital payments on the efficiency of public services in emerging economies. Journal: Government Information Quarterly. This research targeted a number of countries with emerging economies, where the government had implemented digital payment systems, such as India and Malaysia. It relied on pre and post comparison of the data

collected by using digital payment systems. The findings revealed that the shift to electronic payments had a dramatic effect on the speed of service delivery, reduced financial corruption rates and made it easier to manage public revenues. The study also revealed that financial digitalization benefits the citizens' trust in the government and their satisfaction with public services.

Commentary on Previous Studies

The studies reviewed on the Arabic and foreign literature indicated a wide consensus that digital transformation, and specifically electronic payment systems, are one of the key factors that contribute to improving the performance of institutions and enhancing the efficiency of their operations. The majority of studies also show a positive relationship between the use of digital technologies and the quality of governmental services. But some studies focused on e-government in general, without taking an in-depth look at the electronic payment systems as a separate variable that may influence the competitive efficiency. Besides, some studies have looked at transparency and financial performance alone, without offering an integrated relation between e-payments and the various aspects of competitive efficiency service quality, delivery speed, cost reduction, beneficiaries satisfaction.

Research Gap

The research gap can be stated in terms of the following key aspects:

- The few studies which directly relate electronic payment systems with competitive efficiency as an integrated concept in government institutions.
- The lack of applied empirical studies which not only consider specific governmental institutions in the Arab context but which also measure the dimensions of competitive efficiency statistically with precision.
- The lack of detailed analysis of the impact of financial digitalization in most of the previous studies, which focused on digital transformation in general.
- The small number of studies which develop an analytical theoretical model of the dimensions of competitive efficiency with the variables of electronic payment in a single way.

Distinctiveness of the Current Study

This study is unique in a number of scientific and methodological aspects, such as:

- Considering the electronic payment systems as a primary independent variable, doing so would examine the direct influence of electronic payment systems on competitive efficiency.
- The development of an integrated theoretical model, which is tied to the notions of digital transformation and electronic payment systems as well as the dimensions of competitive efficiency.
- Including case studies on specific service oriented governmental institution to make it more relevant to practice and empirical relevance.
- Using statistical analysis tools to determine the strength of relationships between variables and to rigorously test hypotheses using science.

Methods

The method used in this research is descriptive-analytical which is the most suitable method for the nature and purpose of the study. The aim of this is to describe the phenomenon of implementing electronic payment systems in governmental institutions and analyze the role that this plays in the digital transformation of competitive efficiency in governmental institutions. Descriptive-analytical method, which is based on collection of field data, organizing the collected data, analyzing the collected data statistically and interpreting the collected data for accurate scientific conclusion. This works well for research where relationships among variables are being examined, where testing impact or correlation hypotheses are the goals of the research. The methodology was implemented in two stages that can be summarized as:

First: Theoretical Phase

- The information that was sought for this phase was to read the pertinent literature and previous studies concerning: Digital transformation.

- b. Electronic payment systems.
- c. Governmental sector's competitiveness.

This was done to develop a conceptual groundwork and to formulate study hypotheses.

Second: Field Phase

The data was obtained from the sample of the study by using the specially designed questionnaire. Collected data was then subjected to the Statistical Package for Social Sciences (SPSS) for the testing of hypothesis and for measuring the nature of the relationship between the independent variable (electronic payment systems) and dependent variable (competitive efficiency).

Study Population

The study population is the total number of individuals having the characteristics relevant to the topic of the study from whom pertinent data can be obtained. In this study the population was: Everyone who was employed in the financial, administrative and information technology departments in government institutions and were engaged in implementing electronic payment systems in 2025 as part of the digitization of government services. This population was chosen because these groups are most directly involved with electronic payment systems and are therefore best able to assess the effect of these systems on institutional performance and competitive efficiency. The available administrative data indicated that the study population were about (380) staffs located in various governmental bodies. The characteristics of the population are:

- a. Diversity of job levels.
- b. Range of years working with English learners.
- c. Educational qualifications diversity.
- d. Differences in the degree of interaction with electronic payment systems.

These features increase the chances of reaching complete and varied data that are able to show the reality of actual implementation.

Study Sample

The study adopted simple random sampling technique because examination of the entire population was difficult and it has equal selection probability for all the population members which minimizes sampling bias.

Sample Size:

The questionnaires were handed out to members of the population (220). (204) questionnaires were retrieved. The number of valid questionnaires to be analysed was (200) after checking the responses and excluding (4) incomplete questionnaires. This sample size is considered statistically sufficient since it exceeds 50% of the total population and increases the statistical power of the analysis and accuracy of the results.

Demographic Characteristics of the Study Sample

First: Distribution by Gender

Table 1. Distribution by Gender

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

The Demographic Characteristics of the Study Sample were interpreted as:

The table shows that the percentage of males that responded was relatively higher than females. This may relate to the characteristics of employment in some governmental departments, for example financial and technical departments, where the structure of staffing tends to have more male staff.

Second: Educational Qualification wise Distribution.

The frequency of the study sample in relation to educational qualification shows the distribution of the respondents' academic background and how this might relate to their understanding

and use of digital systems. Workers with more advanced degrees may have a more up-to-date knowledge of the latest technological devices and digital administrative systems, potentially improving their proficiency in using electronic payment platforms. Analyzing the educational qualification variable is thus useful in interpreting the difference in the perceptions of the respondents on the effectiveness of electronic payment systems and the role played by electronic payment systems in enhancing competitive efficiency in governmental institutions.

Table 2. Educational Qualification wise Distribution

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

The data found in this Electronic Appendix present demographic characteristics of the study sample.

From the respondents it can be seen that the majority of them possess Bachelor's Degree and a significant percentage of postgraduate studies qualification. This educational distribution increases awareness and understanding of the criticality of digital transformation and its contribution to improving institutional performance in governmental organisations.

Third: Years of experience distribution.

Respondents' years of professional experience gives a sense of how much experience the study participants had. Differences in years of experience could affect employee's view on the effectiveness of electronic payment systems and how they affect institutional performance. Those who have worked in their professional careers for a longer period tend to have a better understanding of administrative procedures and organizational processes, which can help them assess the impact that any digital transformation efforts have had. On the other hand, less experienced staff might be more open to new technologies and contemporary methods of administration. Thus, the analysis of the variable of professional experience helps to gain a holistic perspective on the perceptions about the role of electronic payment systems in improving competitive efficiency in governmental institutions at different levels of professional experience.

Table 3. Years of experience distribution

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%

Demographic Characteristics of the Study Sample The data reflects the demographic characteristics of the study sample.

The data shows that most of the respondents have moderate to high professional experiences which gives the data a credibility and reliability. This experience helps participants to make informed assessments of the implementation of electronic payment systems and on the effects of electronic payment systems on the institutional performance and competitive efficiency.

Research Instrument (Questionnaire)

The questionnaire was used as a major instrument for data collection because of its suitability to the nature of the study, ease in administering it to the large number of respondents and it was used to measure the attitudes and opinions quantitatively and enables the data collected to be statistically analysed. The questionnaire was developed based on the following sources:

- Theoretical literature.

- b. Previous studies.
- c. The aims and the research questions of the study

Second: Design of the questionnaire.

The questionnaire was divided into three parts:

This section provides demographic information. This section contains demographic information.

- a. Gender.
- b. Educational qualification.
- c. Years of experience.
- d. Years of experience.
- e. Department/Job position

Section Two: Electronic Payment Systems (Independent Variable)

This section contained 15 items, which were aimed at assessing the effectiveness of implementing electronic payment systems in terms of:

- a. Speed of transaction processing.
- b. Diminishment of financial mistakes.
- c. Strengthening transparency. b. Improving transparency.
- d. Level of security.
- e. Cost reduction.
- f. Monitoring and control is improved.
- g. Support to decision-making processes

Section Three: Competitive Efficiency (Dependent Variable)

There were 15 items in this section to assess the size of competitive efficiency, including:

- a. Service quality.
- b. Speed of response.
- c. Citizen satisfaction.
- d. Simplification of administrative process.
- e. Improvement of institutional performance.
- f. Boosting the institutional brand.

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 chosen because it was simple, reliable and effective in measuring the attitudes and perceptions of the respondents.

Fourth: Questionnaire Distribution Procedures

The following procedures were followed while distributing the questionnaire:

- a. A manual and electronic questionnaire was sent to respondents.
- b. The purpose of the study was clearly explained to the participants.
- c. Participants were assured of the confidentiality of their responses.
- d. Time was allowed for participants to fill out the questionnaire.
- e. The questionnaires were gathered for three weeks.

Fifth: Justification of Selection of the Questionnaire

Based on the reasons mentioned, the following questionnaire was chosen as the instrument of the research: Its suitability for the **quantitative nature of the study**.

- a. Its appropriateness for quantitative nature of the study.
- b. The ability to gather data from large number of respondents.
- c. The convenience of the statistic analysis of collected data.
- d. It has a high level of objectivity with regard to data collection.

Validity and Reliability of the Instrument

The instrument was proven to be valid and reliable through both face and content validation. Validity and reliability of research instrument is important to guarantee the validity of research results. Hence, the questionnaire was run through several statistical and methodological tests to ensure its field applications.

First: Instrument Validity

1. Face Validity

A panel of six academic experts with experience in the fields of public administration, accounting and information systems was provided with the questionnaire for evaluation:

- The clarity of the items in the questionnaire.
- The appropriateness of the items regarding the study aims.
- The correctness of the statements in terms of language.
- The breadth of the items in terms of the variables studied. The experts' replies showed that the experts' agreement was more than 85%, and some statements were adjusted following the experts' suggestions, thereby increasing the accuracy and clarity of the instrument.

2. Internal Consistency Validity

The internal consistency validity was analyzed by Pearson correlation coefficients between each item and total scores of the dimension that it belongs.

Table 4. 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 show that the correlation coefficients of all the items in the questionnaire are positive, and the values of them are all significant at the 0.05 level of significance, indicating that the questionnaire has a high internal consistency. This finding validates the instrument for the study as the items within each dimension are found to be close to the overall dimension they are supposed to measure.

Reliability of the Instrument Second: To determine the reliability of the research instrument used in this study was carried out by using the Cronbach's Alpha coefficient as one of the statistical methods used to assess the reliability of the research instrument in quantitative research. This coefficient is used to check the degree of consistency of items in each dimension of the questionnaire.

Table 5. Results of the Reliability Test (Cronbach's Alpha)

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

Cronbach's Alpha of the results showed reliability for the dimensions of the questionnaire at high levels, and that the instrument has a high stability and consistency in the measurement of the study variables. In general, values of Cronbach's Alpha above 0.70 are acceptable for social science research and higher values reflect a greater degree of reliability. Thus, the results of reliability coefficients obtained show that the questionnaire is reliable enough to collect data and be used in the statistical analysis.

Statistical Methods Used

Collected data were analysed by the Statistical Package for Social Sciences (SPSS). The data were analyzed and the research hypotheses tested using several statistical techniques. These techniques were the following:

1. Frequencies and percentages were used to describe the demographic characteristics of the study sample.
2. Arithmetic mean and standard deviation that were used to measure the level of respondents perceptions and attitudes towards the variables studied.
3. Pearson correlation coefficient which was used to assess the strength and direction of the relationship between the study variables.
4. Simple linear regression analysis was used to investigate the effect of the independent variable on the dependent variable.
5. Independent samples T-test and one-way analysis of variance (ANOVA) were used to test for differences in responses based on demographic factors.

Results were considered significant if they were $p < (0.05)$.

Presentation and Analysis of Data

First: The Electronic Payment Systems Dimension consists of the following factors:

Table 6: Arithmetic Means of Electronic payment system dimension Arithmetic means and standard deviations of the respondents' answers were computed to determine level of agreement in relation to the effectiveness of e-payment systems in governmental institutions. This dimension offers a glimpse into how employees perceive the impact of electronic payment systems on streamlining financial processes, boosting transparency, quickening transaction speed, and cutting expenses. The data in Table (4-3) reflect the respondents' rating of the different statements pertaining to the electronic payment systems dimension. The higher the mean score, the greater the consensus of the respondents on the positive impact of electronic payment systems on the performance of institutions and that it helps to facilitate administrative procedures in governmental institutions.

Table 6. Arithmetic means and standard deviations of the respondents' answers were computed to determine level of agreement in relation to the effectiveness of e-payment systems in 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

Understanding of the Electronic Payment Systems Dimension

The overall mean shows that the respondents have a high level of awareness and recognition of the importance of electronic payment systems in governmental institutions. This finding indicates that electronic payment systems are seen as a means of improving financial procedures, facilitating transactions and improving the efficiency of administrative operations in the context of digital transformation, as perceived by the participants.

Second: Analysis of the Competitive Efficiency Dimension

Arithmetic means of the competitive efficiency dimension is given in Table 7: In order to measure the perceptions about the level of competitive efficiency of the governmental institutions under study, the arithmetic means and standard deviations were calculated for the statements related to the dimension of competitive efficiency. The results as shown in Table 7

indicate the degree of respondents' agreement on the ability of the institutions to achieve competitive efficiency by improving service quality, shortening response time, improving institutions' performance, reducing bureaucratic procedures and making citizens happy. The higher the values, the more respondents feel that the institutions have a satisfactory competitive efficiency. These findings also indicate a strong relationship between the introduction of modern administrative and technological methods (specifically digital methods – electronic payment systems) with enhancing institutional competitiveness and better overall quality of public service delivery.

Table 7. Arithmetic means of the competitive efficiency dimension

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

Competitive Efficiency Dimension is interpreted as follows:

The results show that the institutions in the sample have a high level of competitive efficiency. Based on this discovery, it is clear that these institutions generally possess a high efficiency in providing services, respond to citizens' needs in time and have a good institutional performance. These results may indicate the positive effect of modern practices for administration and the public sector digital transformation projects to build the effectiveness and competitiveness of institutions.

Hypothesis Testing

Main Hypothesis

It is statistically proven that an electronic payment system affects the competitiveness of governmental institutions. In order to test this hypothesis, several statistical analyses were conducted such as correlation analysis and regression analysis.

First: Correlation Test

Table: 8 Pearson Correlation Coefficient To analyze the relationship between electronic payment systems and competitive efficiency in governmental institutions, Pearson correlation coefficient was calculated to determine how strong and in what direction the relationship is. The obtained results in the Table (4-5) indicate the correlation coefficient between the independent variable (electronic payment systems) and dependent variable (competitive efficiency). Statistically significant, positive correlation means that the better is the implementation and functioning of electronic payments, the better is the competitiveness of government institutions. These results indicated that implementation of electronic payment system helps to improve the institutions operations, the quality of the services provided and the competitive capacity of the governmental institutions.

Table 8. Pearson Correlation Coefficient

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

The results of the Correlation Analysis are interpreted as follows.

The value obtained (0.79) shows that the electronic payment systems have a strong positive correlation with competitive efficiency in the governmental institutions studied and is

statistically significant. The finding seems to indicate that the more competitive an efficiency is, the better its implementation and effectiveness of electronic payment systems. That is, the better the electronic payment systems are applied, the better the institution can improve the quality of its services, speed up the transaction processing, and improve the overall performance of the institution.

Second: Linear Regression Analysis

Table 9: Results of the regression analysis The application of simple linear regression was carried out to analyze the influence of the independent variable (electronic payment system) towards the dependent variable (competitive efficiency). As shown in the results of Table (4-6), electronic payment systems play a significant role in explaining differences in competitive efficiency of the governmental institutions studied. From the regression analysis, statistical indicators like regression coefficient, coefficient of determination (R^2) and significance level are obtained to decide the strength and significance of the causal relationship between the two variables. If the value of the calculated significance is less than (0.05), this means that the regression model is statistically significant and that electronic payment systems have a significant impact on competitive efficiency. It is, therefore, possible to conclude that the findings of this study support the main hypothesis and that the implementation of electronic payment systems is a major factor in the improvement of competitive efficiency of governmental institutions.

Table 9. Results of the regression analysis

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

Understanding the Results from the Regression Analysis

The coefficient of determination (R^2) is 0.62, meaning that the electronic payment systems account for about 62% of the variation of the governmental institutions being analyzed. This is a relatively high percentage, which shows the significant role of electronic payment systems for the competitiveness and performance of the institution. The results indicate that the use and proper working of electronic payment mechanisms have an important contribution to improve the operational efficiency, the quality of the service and the overall power of competition of governmental institutions.

Results and Discussion

Main findings of the study

The findings of the study, based on the statistical data analysis and hypothesis testing can be summarized as follows:

1. The results indicated that the implementing electronic payment systems had a significant effect in reducing the transaction processing time, human error level and the financial procedures flow. This contributed to the noticeable improvement of the efficiency of the operation of the governmental institutions studied.
2. A strong positive correlation was found between using e-payment systems and enhancing the quality of services offered to citizens. Diverse and easily accessible electronic payment channels enabled access to public services, as well as to minimize congestion in service centres and enhance the user experience.
3. Results showed that there was significant difference between the electronic payment system in reducing administrative and operational expenses. Digital solutions contributed to the reduction of the use of paper-based transactions and to a lower cost of printing, storage and archiving, besides the manual processing costs of payment.
4. Electronic payment systems helped to increase transparency and diminish opportunities for financial corruption. The findings revealed that financial transactions can be traced

accurately, and that for transactions to be paid by electronic payments, there is less manipulation or embezzlement because there is less direct handling of cash.

5. There was a positive correlation between the use of electronic payment system and satisfaction of the beneficiaries. Data showed that digital channels were the preferred ones by citizens because they were easy, rapid, and accessible anytime, and that this had a positive impact on their satisfaction levels with governmental services.
6. The results also showed that the success of the implementation of electronic payment systems is closely related to the availability of digital infrastructure and administrative and legislative support. Institutions with high technological infrastructure and facilitating regulations are more likely to have higher competitive efficiency.

Conclusion

Based on the above findings, several conclusions can be drawn from the scientific point of view:

1. Electronic payment systems are not only financial instruments; they are a strategic tool in the overall government digital transformation process.
2. To increase competitive efficiency in governmental institutions, one of the most important factors is taking part in modern digital technologies such as financial management systems.
3. Financial digitalization helps to enhance institutional performance on a variety of aspects such as operational efficiency, service quality, speed of service delivery and cost reduction.
4. There is an integrative relationship between electronic payment systems and competitive efficiency, where development in electronic payment systems is continuous and is an improvement in the overall institutional performance.
5. Technological, organizational, human and legislative aspects are all a part of a successful digital transformation. Without any of these key components, effective outcomes can't be secured.

Recommendations

The study findings and conclusions suggest the following recommendations:

1. Increasing the use of e-payments to all government services, especially for direct financial payments like fees, taxes and fines.
2. Development of Digital infrastructure, including the upgrading of networks and systems and integration of the database of various governmental institutions.
3. To improve information security and data protection by integrating cutting-edge cyber security technologies, helping to protect financial transactions via the electronic channel and increase citizens' trust.
4. Adoption and updating of laws, which regulate electronic payment systems for legal clarity and safeguarding of rights of all stakeholders involved.
5. Training and qualifying human resources and building digital culture in governmental institutions to efficiently use digital systems.

Suggestions for Future Research

Based on the results of this study, the researcher suggests some topics that may be interesting for further studies:

1. Analysing the function of artificial intelligence in government electronic payment systems and its effectiveness in enhancing the functioning of government operations.
2. Explore the correlation between cyber security and citizens' confidence in government electronic payment platforms.
3. Comparative studies on different countries to measure the effect of electronic payment systems on the competitiveness of the countries.
4. Examining the effects of the shift to cashless society on the government's performance.
5. Measuring the environmental effects of electronic payment systems, especially its reduction in paper use.

6. Exploring the role of public–private partnerships in developing digital payment infrastructure in the governmental sector.

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