



Electronic Management and Its Role in Enhancing Governmental Sector Efficiency in Libya

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Abstract

This article examines the role of electronic management (e-management) in enhancing the efficiency of Libya's public sector. It highlights the efforts and challenges associated with implementing e-management initiatives, which represent a fundamental shift in government operations, promoting transparency, accountability, and citizen engagement. Libya's unique post-conflict context, combined with limited resources, inadequate infrastructure, socio-cultural constraints, and low public trust in technology, poses significant obstacles to successful adoption. The article adopts a descriptive-narrative approach, employing a mixed-methods design that integrates both qualitative and quantitative data to examine the effectiveness of e-management services. A literature review informs the development of a conceptual model for e-management adoption in Libya, providing insights into strategies, benefits, and barriers. The findings indicate that e-management has significant potential to improve public sector performance by enhancing transparency, accountability, service delivery, and citizen participation. However, successful implementation depends on multiple factors, including technological infrastructure, organizational readiness, user acceptance, and socio-economic conditions. Persistent challenges such as limited digital literacy, economic instability, security concerns, and corruption must be addressed. Overall, the study concludes that e-management can play a central role in raising the level of Libya's governmental sector, but meaningful improvements require a comprehensive and coordinated approach that simultaneously strengthens institutional, technological, and social capacities while tailoring strategies to the country's post-conflict context.

Keywords

Electronic Management; Governmental; Sector Government Efficiency; E-Government; Libya.



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الإدارة الإلكترونية ودورها في تعزيز كفاءة القطاع الحكومي في ليبيا

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الإدارة الإلكترونية؛ القطاع الحكومي؛ كفاءة الحكومة؛ الحكومة الإلكترونية؛ ليبيا.

المستخلص

تتناول هذه الدراسة دور الإدارة الإلكترونية في تعزيز كفاءة القطاع الحكومي في ليبيا، مع التركيز على جهود تطبيقها والتحديات التي تواجهها في ظل محدودية الموارد وضعف البنية التحتية، والظروف الاجتماعية والاقتصادية، والأمنية. واعتمدت الدراسة المنهج الوصفي السردى باستخدام منهج مختلط يجمع بين البيانات الكمية والنوعية، إلى جانب مراجعة الأدبيات ذات الصلة. وتوصلت إلى أن الإدارة الإلكترونية تمتلك إمكانات كبيرة لتحسين أداء القطاع الحكومي من خلال تعزيز الشفافية والمساءلة وجودة الخدمات ومشاركة المواطنين. غير أن نجاح تطبيقها يرتبط بتوافر البنية التحتية التقنية، والجاهزية المؤسسية، وقبول المستخدمين، وتحسين الظروف الاقتصادية والاجتماعية. كما يتطلب التغلب على تحديات الأمية الرقمية وعدم الاستقرار الاقتصادي والمخاوف الأمنية والفساد نهجاً متكافئاً ومنسقاً يراعي خصوصية السياق الليبي.

Introduction

Socio-economic sustainability development has become a priority for governments all over the world. Governments are continuously seeking to exploit the opportunities offered by the advent of new technologies in an efficient manner. The mindset across the world is to adopt fast changes in modes and service delivery of the government. Various stakeholders have shifted from traditional government to electronic government (E-Government). According to Waisanen (2002), electronic government is composed of information technology, government, and the people. Electronic government is the application of electronic means to improve the interaction between the people and the government. E-government increases the administrative effectiveness and efficiency in internal government operations. This article illustrates the use of electronic management in raising the level of the governmental sector in Libya.

The deployment of electronic management has been on the increase all over the world. The developed nations have deployed massive investments in electronic management. This has seen these nations, such as the United States of America and China, raise their level of governance. The deployment of information technology to government processes brings Simple, Moral, Accountability, Responsive, and Transparent (SMART) governance in the country. E-management also enables the government to use information and communications and technologies (ICT) such as the internet, cloud computing, and mobile computing to exercise state functions effectively and efficiently. This helps in transforming the relations between the state and its citizens, business, and other government agencies (Verma, Kumari, Arteimi, Deiri & Kumar 2012).

Electronic management is used for a variety of public, private, and productive reasons. Practical deployments of ICT can have multiple effects in the government sector. It can create more earning

opportunities and jobs in the government sector. E-management can also improve the delivery and access to essential services such as security, health, and education. E-management has also been credited for increasing transparency, accountability, and effectiveness in the governmental sector. This improves the enabling environment for developing the delivery service of the state.

Research aim

This article investigates how the efficiency of Libya's governmental sector can be enhanced through the implementation of electronic management (e-management) in public operations. The Libyan government has introduced e-management across most of its sectors, with many ministries operating websites to provide services to the public. In addition, new strategies and programs have been developed to expand e-management adoption across all government departments. However, these initiatives remain limited, fragmented, and lack a comprehensive framework to ensure effective implementation. This study seeks to propose a unique model that can strengthen and elevate the performance of Libya's governmental sector.

The motivation for this research stems from lessons learned from e-management practices in other countries, aiming to increase the likelihood of successful implementation in Libya. It emphasizes that e-management initiatives must be carefully planned and systematically executed to achieve meaningful improvements in government efficiency, transparency, and service delivery.

Research objectives

The successful implementation of electronic management services is the ultimate goal of Libya. The citizens, businesses, and government stakeholders will be able to receive services efficiently and transparently. Accountability in the governmental sector will also be elevated. The system will also improve the knowledge and skills of all the people using it. The deployment of e-management

in Libya has been attributed to the widening gap created by the rapid advancement of new technologies. Development gaps between nations are widening.

Just as companies invest in new technologies and seek new markets to be competitive, governments should invest in new technologies to improve service provision, efficiency, and accountability. E-management contributes to quality services to the public. This study will analyze the role of e-management in raising the level of the governmental sector in Libya.

Research question

The main objective of this article is to address the following central research question that guides the study: What is the role of electronic management in enhancing the efficiency of Libya's governmental sector?

Literature review

E-management activities are increasingly capturing the attention of government policy makers, citizens, and government development agencies all over the world. Third-world nations are imitating the deployment of e-management policies and systems by the developed nations to improve service delivery to the citizens. Huge financial investments have been set up to develop e-management initiatives by the governments. Most of the nations are putting efforts to develop service-oriented, citizen-centered e-management government strategies that are truly representative of the people (Grant & Chau, 2005).

In the recent past, many scholars have researched electronic management and deployment by governments all over the world (Rahman 2012). Research papers have also elaborated on the role

of electronic management in raising the level of governance. The opportunities and challenges it creates have also been elaborately analyzed. For example, electronic management can achieve competitive and knowledge advancement. However, there is the problem of the digital divide and human capital that hampers the full realization of the effects of e-management in government.

According to research carried out by Asaduzzaman, Rahman, and Jinia (2011), electronic management in government is concerned with the provision of public services to citizens electronically. The deployment of e-management is a digitization of public administration processes. It is also a transformative force affecting all operations and functions of governments. The main role is to ensure public services are undertaken and delivered to the right stakeholders effectively and efficiently. ICT offers the government a powerful means with which their main objective is to serve its citizens in a better way.

The deployment of e-management in governance is determined by the resources available. According to research carried out by Al-Omari and Al-Omari (2006), technology, financial resources, human and legal facilities must be under the command of the government in order to facilitate the e-management activities accordingly. However, most developing nations, such as Libya, have not set out elaborate e-management protocols to enhance service delivery. An analysis of government websites for availability, public access, and service delivery also shows that e-management by the government is tremendously weak (Abanumy & Mayhew 2005).

Libya overview

Libya has experienced prolonged turmoil since the Arab Spring uprising, leaving the country far removed from its pre-conflict conditions. The political fragmentation and deteriorating security environment have pushed the Libyan economy into a state of severe distress. Since the fall of the

former regime, the security situation has deteriorated sharply, with oil facilities—once the backbone of the national economy—frequently targeted or disrupted by armed groups. As a result, oil production and exports have been repeatedly suspended, capital expenditure has declined substantially, and both domestic and foreign investment have reached historically low levels, further undermining economic recovery and investor confidence.

Consequently, Libya's internal and external balances have deteriorated markedly, while ongoing armed conflict has rendered political and economic stability increasingly elusive. The country's current account and fiscal balances have followed a sustained downward trajectory, largely driven by recurrent oil blockade standoffs. The fragile security environment has severely constrained economic activity across multiple sectors. Consumer prices have surged, and Libya has faced escalating food prices due to declining imports, with rising transaction, transportation, and logistics costs ultimately borne by end consumers. Unemployment remains persistently high, particularly among the youth, many of whom have become militarized, presenting a profound socio-economic challenge for a government struggling to improve living standards and restore economic confidence.

Although the broader literature highlights the potential benefits of e-government and digital public administration (e.g., Al-Omari, 2006), recent evidence indicates that Libya's post-conflict context has intensified existing structural and institutional deficiencies. Shwehdy (2025) emphasizes that these challenges are exacerbated by the government's monopolization of the telecommunications sector, weak regulatory and policy frameworks, and limited institutional capacity. The central research gap in the Libyan context lies in the insufficient adaptation of global e-government models to local realities characterized by political instability, post-conflict governance constraints, and fragmented state authority. This gap is further corroborated by international assessments

showing that Libya ranked 169th globally in the E-Government Development Index (EGDI) in 2022, reflecting persistently low levels of digital government readiness and service delivery.

E-management in Libya

Several studies have examined the adoption and effectiveness of e-government and e-management in Libya and beyond, highlighting both opportunities and challenges in post-conflict contexts. Shwehdy (2025) investigated the key drivers and barriers affecting e-government implementation in Libya using an integrated TOE–UTAUT framework and a mixed-methods approach. The study found that technological, organizational, environmental, and user acceptance factors significantly shape adoption, emphasizing the need for centralized strategic planning, improved digital infrastructure, public–private partnerships, digital literacy, and policy reforms. Similarly, Saleh (2024) explored user perceptions and satisfaction with e-government services in Libya, identifying ease of access and service efficiency as positive factors, while limited digital literacy, infrastructural gaps, and socio-economic constraints hindered adoption. Both studies underline the importance of tailored strategies to advance digital transformation in post-conflict public sectors.

In a broader context, Nabous et al. (2025) reviewed global e-government adoption patterns, noting that developed countries such as South Korea, the UK, and Singapore achieve high e-government maturity due to robust ICT infrastructure, digital literacy, and institutional frameworks. In contrast, developing nations face challenges including limited infrastructure, low public awareness, and weak policy environments. The study stresses that socio-economic status alone does not guarantee success; instead, context-specific strategies, inclusive policies, and user trust are critical for sustainable digital governance.

Within Africa, governments generally lag in fully result-oriented e-management approaches. In Libya, e-management policies focus on affirming state initiatives such as the Interim Poverty Reduction Strategy Program (IPRSP) through ICT standards and operational systems, setting models for local ICT programs, and extending academic curricula to promote ICT careers and awareness. Libya has achieved full mobile penetration, and although most internet users rely on dial-up connections, affordable broadband and upcoming state-owned WiMax networks are expected to facilitate broader e-management adoption. The policies also prioritize improving education quality through ICT, encouraging research on how e-management can enhance the overall performance of the governmental sector.

Overall, these studies and policy insights highlight that while Libya has made progress in ICT adoption and e-management, challenges remain in infrastructure, literacy, and context-specific strategy implementation. Lessons from global and regional experiences emphasize the need for integrated, strategic approaches to strengthen e-government adoption and ensure sustainable digital transformation.

The role of e-management services

Using e-management in government operations is a powerful tool for both the private and public sectors worldwide. Private companies and citizens are taking advantage of the growing opportunities brought by the use of e-management in government (Sharma 2007). Demographic changes, globalization, and the growing impact of technology are also profoundly reshaping daily life. Economies built on electronically empowered government departments are giving rise to a set of critical success factors for survival in the global marketplace.

All over the world, governments are mobilizing resources, including human resources and energy, to develop, implement, and promote the use of e-management services (Basu 2004). The Libyan government's venture into the virtual world has raised the government sector despite the scarcity of electronic resources. By borrowing a leaf from developed nations, Libya is set to benefit from the use of e-management in its operations.

Challenges in e-management in Libya

In Libya, the public has high expectations of the government. Thus, the state has no option but to provide services efficiently to meet public expectations. The deployment of e-management in government strategies and operations is inevitable. Traditional methods of service delivery have been phased out. The government has made investment decisions for roping in e-management based on the resultant efficiency of services.

Studies have shown that the shift of the focal point from traditional government to e-management necessitates the transfer of power from the state officials to the citizens. For successful e-management and service delivery, the government must focus on the whole public experience (Verma, Kumari, Arteimi, Deiri & Kumar 2012). The state has to integrate information from all points of public interaction in order for e-management to raise the level of the governmental sector. The e-management should also be extensible and scalable to adapt to the changing environment and citizen requirements.

Challenges facing the success of e-management in Libya**Literacy**

In Libya, there is a significant disparity in literacy levels between men and women. Women's participation in e-management activities is still a challenge in Libya. Thus, raising the level of the governmental sector is a challenge if one group is marginalized.

Localisation

The worldwide ICT solutions and infrastructure are designed and deployed in English-language interface. This is a challenge to the citizens of Libya because they are not fluent in English, and the local language is the common means of communication. Access to tools to enhance e-management is a challenge.

Infrastructure

E-management projects in Libya focus on internal automation processes. The projects are also hardware and infrastructure-driven driven with little focus on citizen services. Successful e-managed to raise the level of the governmental sector can never be achieved swiftly, more so in a developing economy like Libya. It is important to incorporate all government departments on the internet in order to enhance the provision of government services.

Research methodology

The research methodology underpins the philosophical approach and methods of data collection that underpin this work. Selecting a research design, along with gathering and analyzing the data, are essential concerns for any researcher. This article centers on the role of electronic management in raising the level of the governmental sector in Libya.

Justification of philosophical approach

The research methodologies used in this article are based on the interpretivist and critical philosophical approach. The approaches are based on standardized and suitable research methods that enhance the credibility of the research. The nature of the variables and data used in the analysis is vital in determining an appropriate research method (Ezell & Crowther 2007).

Interpretive approach

Interpretive research assumes that access to reality is a function of social construction. Thus, an analysis, decoding, and representation must be carried out (Yanow & Schwartz-Shea, 2013). A good example is a case study. This research applies interpretive research through a case study of Libya's electronic management in raising the level of the governmental sector. The interpretive approach enables one to understand the particular phenomena. This is achieved by assessing the meanings assigned to the phenomena. This includes interviews, questionnaires, and research.

Critical approach

The critical approach assumes that the social reality is historically constituted. The public is an agency with respect to their economic and social decisions. Thus, the choices are controlled by economic, political, and cultural forces (Jackson 2015). Thus, a critical approach focuses on the conflicts and debates in society, and they impact the individuals. A case example is the current security constraints in Libya. How are they affecting the economic activities and government operations in Libya? Are they rolling back the gains of e-management?

Research design

The gathering of research data and the methods used for its analysis are carried out during the research design. It also encompasses literature review and analysis of the collected data from

articles, books, government websites, and research from the internet. This gives an insight into the information being sought in the subject area. The gaps identified go a long way in facilitating the selection and design of the appropriate tools and methods for the study. The collected information is also used to measure the challenges that the subject nation faces in its implementation of e-management strategies.

Results

According to an online survey carried out, it can be argued that electronic management has raised the level of the intergovernmental sector in Libya. Libya has tried to implement e-management services from the beginning. This has been achieved by ensuring the entire country of Libya is covered by e-management operations and by creating awareness among the people. The online survey attracted respondents from different regions in Libya. This confirms the assertions that an effective implementation of e-management practices in Libya could raise the level of the governmental sector. Moreover, technological infrastructure has been used to empower and evolve all economic and political development.

The respondents in the online survey were above the age of 18-year years. This confirms the findings that internet distribution is a challenge in Libya. The social-cultural practices and lack of technological infrastructure are a challenge with respect to raising the level of the governmental sector in Libya. Being an Arab state, social-cultural factors prohibit minors from using the internet on computers. The high cost of the internet makes it hard for minors to afford the costs involved. Minors who are full-time students need to access the internet to complement their schoolwork. However, infrastructural provision is a major challenge in raising the level of the governmental sector through the use of e-management.

Finding e-management services awareness

The first finding, which indicates an increase in transparency, directly fulfills the second research objective concerned with improving governmental efficiency. This result is supported by Shwehdy (2025), who emphasizes that electronic management reduces human intervention and enhances administrative efficiency. Such alignment between findings and objectives strengthens the internal coherence of the study and reinforces its connection to the main research question.

The primary aim of this article was to assess public awareness regarding the availability of e-management services, as well as to examine the compatibility of these services with citizens' lifestyles and cultural contexts. In addition, the study sought to evaluate the extent to which e-management services in Libya have been developed to meet citizens' needs. The results indicate that the majority of respondents rely on ICT tools to access e-government services. However, a portion of respondents reported limited awareness, low levels of trust, and compatibility challenges related to the use of e-government services in Libya.

Overall, the findings suggest that e-management has contributed to raising the performance level of the governmental sector in Libya. Nevertheless, inadequate technological infrastructure continues to constrain the effective implementation of e-management practices. The relatively low adoption of digital technologies among Libyans, along with limited internet and computer usage, reduces the potential impact of electronic management on governmental performance. Despite these challenges, the government has implemented structured measures to support e-management initiatives, and most governmental agencies now operate official websites to provide public services.

Given Libya's vast geographical area and relatively small population, electronic management has played a significant role in reducing physical distances between governmental institutions and both internal and external stakeholders. It has also led to substantial reductions in time and effort required by public employees. Furthermore, e-management has been associated with improvements in accountability, transparency, and public commitment. The integration of e-management policies within educational institutions has contributed to raising early awareness of e-governance benefits, while academic research has supported governmental efforts to expand e-management across public sectors.

In sum, e-management has transformed Libya's governance structure into a more streamlined and integrated framework. By incorporating ICT infrastructure, the government has enabled citizens and the business community to adapt to emerging global opportunities and to work collectively toward societal development, consistent with the objectives of modern governance (Banister, 2007).

Electronic management has raised the level of the governmental sector in Libya through:

- Meeting the requirements of the public by facilitating quick governmental procedures, the ease of interaction, and instant access to public information. Government-to-public interactions help to foster the adoption and implementation of citizen-centered development models.
- Business services have also improved through the use of e-management. Regulation of the activities of international trade and commerce in the agency's procurement of goods and services is more efficient. The government-business interaction has also improved after the formation of e-commerce initiatives.

- Government administration and operations are more transparent. E-management has boosted the activities of anti-corruption agencies and helped improve and raise the level of governance in Libya.
- Electronic management facilitates an efficient and timely disbursement of information and data across the different government departments and their agencies. Government-to-employee interactions have also been improved, thus increasing the level of productivity and value of public funds. Government information and data are provided via internet connections. This facilitates faster decision-making, thus improving the level of governance (Asgarkhani 2005).

Conclusion

The findings indicate that the adoption of e-management in Libya has significant potential to enhance public sector performance by improving transparency, accountability, service delivery, and citizen engagement. Success is influenced by multiple factors, including technological infrastructure, organizational readiness, user acceptance, and socio-economic conditions. Despite these opportunities, persistent challenges such as limited digital literacy, inadequate infrastructure, economic instability, and security concerns continue to hinder effective implementation. Furthermore, corruption remains a critical barrier that e-management can help address by fostering greater accountability. The results highlight that while e-management offers a strategic tool for improving the governmental sector, its effectiveness depends on the simultaneous development of institutional, technological, and social capacities, alongside tailored strategies adapted to Libya's post-conflict context. Overall, the study concludes that e-management can play a central role in raising the level of the governmental sector, but meaningful improvements require a comprehensive and coordinated approach that addresses both structural and operational challenges.

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