Digital Governance in Pakistan: Trends, Challenges, and Sectorial Implementation Endeavors

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KEYWORDS	ABSTRACT
E-governance, Digital Technologies, Citizen Participation, Digital Governance Principles **ARTICLE HISTORY** Date of Submission:21-01-2023 Date of Acceptance:15-03-2024 Date of Publication:31-03-2024 **Funding** This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors	Amidst a rapidly evolving technological landscape, comprehending the intricacies of digital governance is crucial for the successful development and execution of policies. E-governance holds the potential to democratize access to government services, streamline bureaucratic processes, and foster greater citizen participation in governance. This research illuminates Pakistan's digital governance trajectory by examining current trends, such as the use of digital platforms and the integration of e-governance efforts. E-governance is vital for Pakistan to enhance transparency, efficiency, and citizen engagement in public service delivery amidst evolving technological advancements. Furthermore, this study highlights various obstacles that hinder the smooth implementation of digital governance principles, such as limits in infrastructure, concerns regarding cyber security, and impediments related to digital literacy. In order to tackle these difficulties, it is examined the implementation tactics that are relevant to each sector, with a focus on customized approaches that may suit a wide range of demands and circumstances. The implications of this study extend to informing policy decisions aimed at enhancing digital infrastructure and cybersecurity measures in Pakistan.
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1.0 Introduction

The enactment of e-governance plays a crucial role in the ongoing progression of digital transformation. Electronic methods are used for the reciprocal communication between the government and individuals, as well as between the government and enterprises, and for the internal operations of government agencies (Fernández, Fernández et al. 2023). E-governance refers to the incorporation of Information and Communication Technology (ICT) into the government system with the aim of enhancing the efficiency, accessibility, and convenience of working procedures. The primary objective is to enhance the ease, simplicity, and overall effectiveness of many facets of governance. E-governance encompasses more than the mere use of certain technology tools; rather, it entails a transformative shift in attitude and work culture, aimed at integrating government processes and functions to enhance the provision of services to people (Horobeț, Mnohoghitnei et al. 2023).

The Electronic Government Directorate was founded in October 2002 in Pakistan. The National Information Technology Board (NITB) was established in 2014 by the merger of the Directorate and the Pakistan Computer Bureau. The NITB assists Federal Ministries in executing e-governance initiatives aimed at enhancing the delivery of information and services, as well as improving efficiency and transparency (Saleem, Shair et al. 2024). Pakistan is progressively progressing towards the use of e-governance as a means to enhance the accessibility and quality of information and services offered to the general populace via the utilization of information and communication technology (ICT) in a straightforward, cost-efficient, and economically viable method (Hidayat Ur Rehman, Ali Turi et al. 2023).

There is a disparity or digital gap that occurs across people, communities, and enterprises in terms of their access to Information Technology. There exists a strong correlation between economic poverty and the scarcity of information technology resources. Individuals residing below the poverty threshold lack the financial means to acquire a computer and internet connection, so preventing them from accessing the advantages offered by e-government and other online services. Furthermore, the successful implementation of e-governance in Pakistan is hindered by challenges related to infrastructure development and financial constraints. The primary problems for sustainable e-governance in Pakistan include cyber security risks, personnel training, and the gap in public officials (Chohan, Hu et al. 2020).

The resolution of e-government challenges may be achieved via the enhancement of IT expertise. The acquisition of literacy and proficiency in using technical applications and tools has the potential to address prevailing challenges within the public sector (Ahmad, Waqas et al. 2021). Upon completion of training, the government is required to provide a license to anybody seeking to offer IT services. These specialists possess the capability to provide cost-effective services to those who are unable to access e-government programs. It would provide jobless individuals fresh prospects. It is essential to closely monitor the outcomes of the existing

e-governance system. Monitoring the effectiveness of the e-governance system has become a significant responsibility, rather than just implementing it. It is essential to modify the connotation of the letter 'e' inside the term 'e-governance' from electronic to efficient. The implementation of an efficient e-governance system in Pakistan is expected to need a longer duration (Michel 2023).

The analysis of the implementation of e-governance in Pakistan and the challenges associated with effectively utilizing the digital landscape for policy making and service delivery have received significant attention (Adeel, Ahmed et al. 2023). However, the efforts made by the government of Pakistan over the years to gradually implement these digital transformations have not been adequately recognized. Furthermore, the significance of the transition of governance into the digital realm has been disregarded. This research aims to offer a thorough examination of sector-specific initiatives and digital patterns within Pakistan's governance framework, despite the numerous obstacles it faces. Additionally, it seeks to conduct a comprehensive analysis of the efficacy of current e-governance trends in Pakistan (Rizwan 2023).

Aims and objectives
- ✓ To explore the scope of E governance system in Pakistan
- ✓ To analysis of the digital transformation trends in governance landscape of Pakistan
- ✓ To visualize the grave challenges in way of digital transformation in Pakistan
- ✓ To assess the initiatives of e governance approaches by government of Pakistan
- ✓ To propose the strategic measures for effective implementation of digital governance.

2.0 Literature Review
2.1 Evolution from traditional governance methods to e-governance

The transition from conventional governance techniques to electronic procedures is anticipated to have a significant influence on the operational dynamics of the government. In addition to facilitating the work of government officials, it will also lead to enhanced contact between the government and the general public (Dias 2023). In their scholarly article on the transition to e-governance, Mahmood and Nayyar posit that the rationale behind adopting e-government procedures extends beyond enhancing service efficiency. They contend that such a shift also entails fostering technological disruption within the upper echelons of governance, thereby giving rise to intricate challenges that necessitate resolution. Successfully addressing these challenges will not only convey a robust message regarding the government's proficiency, but it will also incentivize organizations to enhance service delivery, democratic processes, and capacity building, thereby bolstering and bolstering government policies (Molobela and Uwizeyimana 2023).

In the modern era of digitalization, every government across the globe will have to adopt e-government prior to loss in competitiveness and extinction (Warsono, Yuwono et al. 2023). As per a recent trend, most governments of underdeveloped nations are utilizing technological innovations to improve service delivery. E-government which has been credibly adopted as a conventional service efficiency strategy in the developed nations is a hope for the nation of hope. However, the developing nations agree that the superiority of this transformation will be centered upon the evolution of sensitivity through improved service delivery, zero-contact service delivery, and massive reduction of delivery investment in comparison to development so far (Vimala, Vasantha et al. 2023).

2.2 Concept of E governance

E-Government refers to the use of Information and Communication Technology (ICT) in the public sector to provide exceptional services to residents, companies, or government personnel. Enhanced availability of information and communication technology (ICT) is crucial for reducing the gap in digital access, facilitating efficient governance, and promoting sustainable development (Grigalashvili 2022). The implementation of E-Government has significant promise in addressing and perhaps resolving administrative and developmental challenges. The primary objective of E-Governance, also known as electronic governance, is to ensure that service delivery to residents is transparent, fair, and accountable. The primary objective of e-governance is to enhance and enhance the standard of governance, while also promoting citizen engagement in the governing process via electronic channels such as email, websites, SMS connections, and other similar platforms (Batool, Gill et al. 2021).

Table 1. Definitions of E-Governance by Reputed Institutes

Definitions	Source
"E-government uses ICTs to improve government service delivery to citizens and businesses. Government operations employ ICT to achieve public goals digitally. A strong e-governance institutional framework reduces financial costs and transaction times to improve public sector operations. To develop sustainable solutions, workflows and procedures are seamlessly integrated and resources are efficiently allocated across varied public sector institutions."	United Nations (2020)
"It examines the use of modern information and communication technologies (ICTs) by governments across various governmental responsibilities. The networking capabilities provided by the Internet and its associated technologies has the capacity to revolutionize the organizational frameworks and functioning of governmental entities."	OECD (2012)
"E-Government encompasses the use of information technology, including Wide Area Networks, the Internet, and mobile computing, by governmental	

entities to revolutionize interactions with individuals, enterprises, and other governmental entities. These technologies have the potential to achieve several objectives, including enhancing the provision of government services to people, facilitating better relationships with businesses and industries, empowering individuals via information accessibility, and improving the efficiency of government administration.".	World Bank (2015)

2.3 Background of e governance in Pakistan

In Pakistan, the internet was introduced in 1995, however the number of internet users was just a few hundred due to the restricted availability of internet services in some locations. During the period of General Pervaiz Musharraf's tenure from 1999 to 2008, the Information and Communication Technology (ICT) sector saw significant growth in the nation (Hasan and Rizvi 2022). The Ministry of Information and Technology was established in 2002, and since then, it has seen significant growth and shown a progressive improvement in its performance (Atique, Htay et al. 2024). The area of telecommunications has seen significant advancements throughout the last decade. As to the International Telecommunications Union (ITU), the internet was used by 11% of the population in Pakistan in 2015. Moreover, the country has been offering 3G and 4G services since 2014. Its revenue during the sale was $1.1 billion. The critical factor in this uplift was the government's commitment to ensuring that the most isolated geographical parts of the country had internet coverage. The Pakistan government has demonstrated a robust realization of the primacy of information technology and initiated several programs to offer its residents, both in urban and rural regions of the nation. The Ministries of Information, MoIT, and EDG ICT have been primarily crucial to the society since their formation in 2002 (Palacin, Zundel et al. 2021).

The development of some major institutions has also emerged including National Database and Registration Authority NADRA and The Citizen Police Liaison Committee CPLC. An example of such is the NADA institution which prominently asserts itself as the biggest IT-based public agency in the nation, offering its customers an extensive line of customizable solutions for e-governance, identification, and secure document management. Another example is the Citizen Police Liaison Committee, one of the most essential organizations in Pakistan has seen a significant increase in activity. In the nation, it offers an internet portal for citizens to look up a car registration certificate. The Pakistan government online car certificate verification in 3 different areas like the status of online car certificate verification in Pakistan (Rizwan 2023).

2.4 Digital Transformation of Pakistan

Within the context of the ever-evolving environment of the 21st century, the digital revolution is presently redefining economies, societies, and governance systems all over the globe. Pakistan is now at a crossroads, as the country is struggling to come to terms with the need of using digital transformation in order to establish its future. This is important since Pakistan has a growing youthful population and a labor force that is skilled in technology (Khan,

Ahmad et al. 2024) . If Pakistan were to perform a comprehensive analysis of the developing technology trends and acknowledge the potential for economic success and domestic growth within this sector, it would be possible for Pakistan to attain both internal and, eventually, international stability. Additionally, the widespread adoption of e-commerce in Pakistan is a clear indication that digital technologies are having a significant impact on the traditional approaches that businesses use to conducting their operations. E-commerce has emerged as a feasible treatment for inflation in Pakistan, driving a considerable number of businesses to shift to online platforms, especially in the wake of the COVID-19 outbreak (Gull, Parveen et al. 2023).
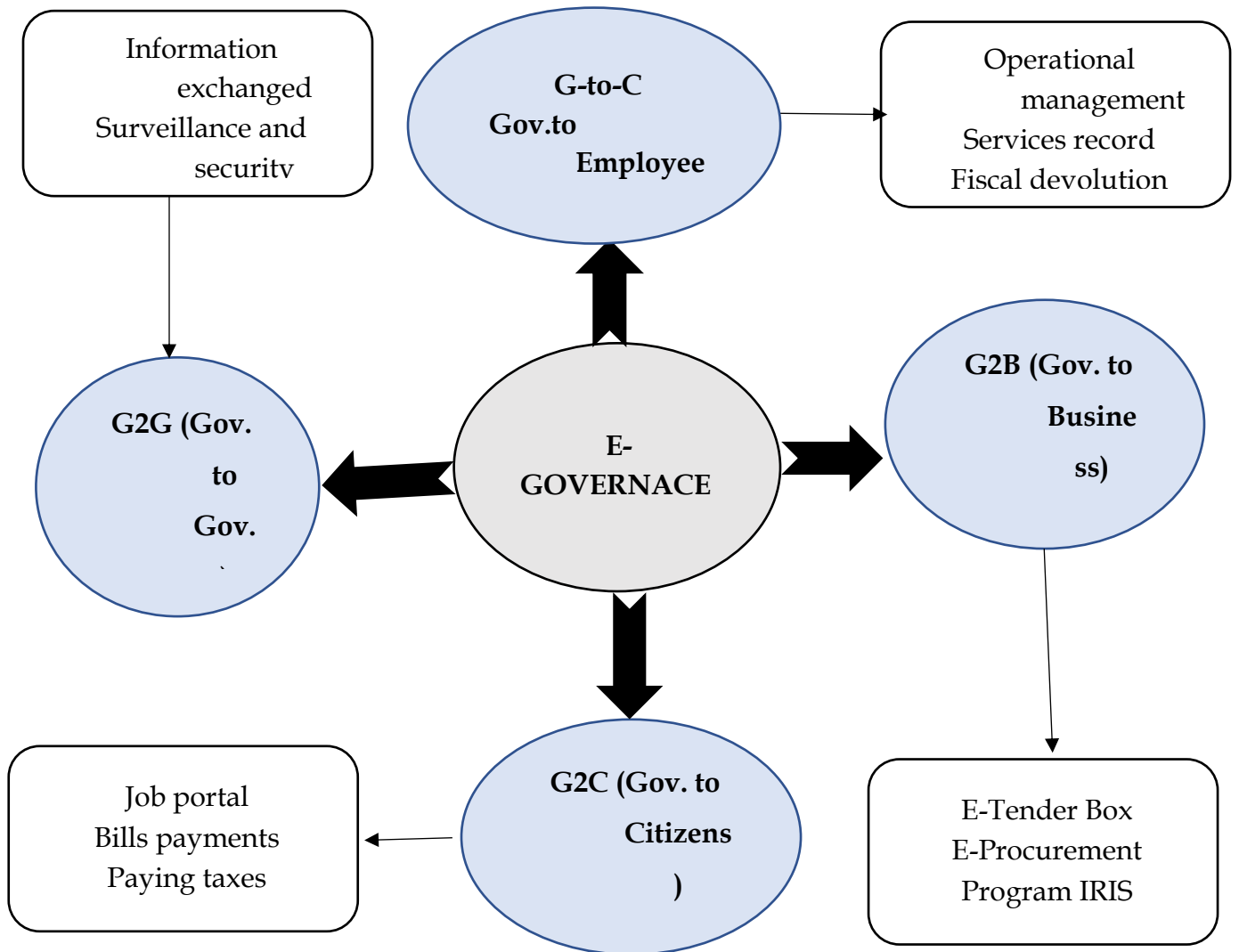
2.5 Types of E governance and terminology

Fig 1 types of E- Governance system

2.5.1 G2G (Government to Government)

The government-to-government sector encompasses the deliberations and exchanges that occur among various government agencies. G2G communication refers to the sharing of information between local or provincial governments and the governments of other nations (Cavalcante 2023).

2.5.2 G2B (Gov. to Business)

This pertains to the contacts and data sharing between governmental entities and commercial enterprises. Global corporate entities are constantly adjusting to the dynamic digital environment and adopting digital commerce solutions that save expenses and enhance transparency and control (Zhao, Teng et al. 2023).

2.5.3 G2E (Gov. to Employee)

This pertains to the transmission of information and the provision of necessary services for the functioning of a department, which occurs between the government and its personnel. This category encompasses the payroll and other services used by workers of a government agency to execute operational activities (Annoni, Nativi et al. 2023).

2.5.4 GEC (Gov. to customer)

All of the interactions and communications that take place between the government and its constituents are included in this category. Any engagement that is connected to the delivery of services, such as seeking any welfare duties on the government, as well as any service that is needed by the government for regulatory or licensing compliance, might fall under this category (Palacin, Zundel et al. 2021).

2.6 Measuring E-Government

There are 193 countries that are recognized by the United Nations, and each year, the Department of Economic and Social Affairs of the United Nations releases a survey report that analyzes the ratings and indices of the electronic government of each of those countries. They have established metrics specifically for the sake of this endeavor. The E-Government Development Index (EDGI) is the primary ranking statistic, and it is established by taking the weighted average of three primary components (Doran, Puiu et al. 2023).

- ✓ Telecommunication Infrastructure Index (TII)
- ✓ Human Capital Index (HCI)
- ✓ Online Service Index (OSI)

There are five metrics that are used to compute the TTI, which is an indication of the condition of a country's technical infrastructure. These metrics include the number of internet users per 100 residents, mobile and landline phone users per 100 citizens, and so on. The Human Capital Index (HCI) is determined by using four components: the adult literacy rate, the predicted number of years spent in school in the nation, the mean number of years spent in school, and the gross enrollment ratio of the inhabitants (Horobeţ, Mnohoghitnei et al. 2023).

Table 2. EDGI Rating and Ranking- Pakistan

Year	Rank	Value
2005	136	0.28358
2008	131	0.316
2010	146	0.27547
2012	156	0.28234
2014	158	0.25799
2016	159	0.25832
2018	148	0.3566
2020	153	0.4183

Source: The data was collected from UN E-Government knowledge Database.

3.0 Methodology

This study adopted a descriptive research design to investigate the trends, challenges, and sectorial implementation endeavors of digital governance in Pakistan. This descriptive approach allowed for the systematic examination and description of existing phenomena, providing insights into the subject matter without altering the natural setting. The examination philosophy underpinning this study revolved around understanding the significance of e-governance in the development of Pakistan. This was grounded in the belief that effective digital governance mechanisms were crucial for enhancing transparency, efficiency, and citizen engagement in public administration, ultimately contributing to socio-economic development.

Statistics for this study were collected from various sources including reports, books, scholarly articles, available datasets, and indexes related to digital governance, e-government initiatives, and development in Pakistan. The population included international agencies, national institutions, respective boards, and national databases involved in digital governance implementation. Statistical examination of available datasets and indexes were done to identify trends and patterns. Contextual analysis of reports, scholarly articles, and case studies to gain deeper insights into challenges and sector-specific implementation strategies. Ethical considerations were paramount throughout the research process. Data collection was conducted ethically, ensuring respect for intellectual property rights and adherence to data protection regulations. Confidentiality and anonymity of participants were maintained, and proper citation of sources was ensured to uphold academic integrity. Additionally, ethical implications of the research findings were carefully considered, aiming to promote transparency and accountability in digital governance practices.

4.0 Findings and Results

4.1. E-Government Barriers in Pakistan

Approximately 80% of the global population resides in developing nations, indicating significant potential for the advancement of e-government. However, a multitude of obstacles

impede the progress of e-government in poor nations. Developing nations encounter specific obstacles that are absent or minimal in developed nations, such as institutional deficiencies, scarcity of skilled personnel, insufficient financial resources, unsupportive local conditions resulting in implementation difficulties, inability to adapt to evolving technology, and absence of a legal framework.

The nation of Pakistan has significant prospects for advancement in the realm of information technology (IT). Recognizing the potential of the IT industry, the Government of Pakistan (GOP) began its first significant endeavor in the early 2000s by introducing the National IT Policy and Action Plan. The National IT Policy and Action Plan (2000) identified several crucial areas for the advancement of the IT sector and its utilization within the country. These areas encompassed Human Resource Development, Infrastructure Development, Software Industry Development, Hardware Industry Development, Internet and IT usage, as well as the legal and regulatory framework. The E-Government Directorate (EGD) was created by the Government of Pakistan in October 2002. Its primary objective is to facilitate and promote the provision of e-services by diverse government organizations and departments.

4.1.1. Demand Side Impediments

4.1.1.1 Demographic Factors

The study identified age, income, and education as major determinants of e-government use among the people using e-government services. The study revealed that internet use and the ability to search for information online were identified as key abilities for predicting individuals' intents to utilize e-government services. However, the study did not find any significant indications related to computer proficiency or past experience with online purchase. The limited buying power of individuals hinders their ability to access and purchase information and communication technology (ICT), thus leading to a diminished demand for e-services.

4.1.1.2 Digital Divide

Virtually all cultures are grappling with the issue of the digital divide, which refers to the disparity between those who possess access to information and those who do not. The existence of the digital gap may be attributed to two primary factors: accessibility and competence. There exists a segment of the population that has internet technology, but another segment lacks access to it. Additionally, a significant portion of the population lacks the requisite abilities to get advantages from internet services. The issue of digital divide in developing nations is of greater magnitude in comparison to that of industrialized nations. There exists a significant disparity in the quality of life between those residing in rural and urban regions, with rural dwellers experiencing a lack of essential amenities such as access to power. In Pakistan, around 38.82% of the population resides in urban regions, while the remaining 61.18% resides in rural areas. The unequal distribution of people implies that any

government project aimed at e-government would be prejudiced, benefiting the affluent individuals residing in metropolitan regions who possess advanced IT skills.

4.1.2 Socio-Political Factors

4.1.2.1 Low Literacy Rate

The low literacy rate is a significant obstacle to the growth of e-government in developing nations, particularly in terms of the demand for e-services. Individuals without literacy skills are unable to get advantages from electronic services. Regarding Pakistan, the literacy rate, defined as the proportion of individuals aged 15 and above who possess the ability to read and write, is at around 61% (PCS, 2010). Consequently, almost half of the country's population finds e-government services to be devoid of significance.

4.1.2.2 Low Level of Trust in E-Government

The acquisition of personal information from citizens is a necessary condition for the provision of electronic services. The implementation of e-government is inherently intertwined with the acquisition of personal information from citizens. Frequently, individuals are requested to provide their personal information to governmental entities, which may include sensitive data. Several studies have proposed the collection of sensitive personal data pertaining to income, credit card numbers, identification card numbers, interests, preferences, and other relevant information, which is thereafter stored in a centralized place.

4.1.2.3 Low Quality of E-Services

People residing in underdeveloped nations may exhibit reluctance in using e-government services due to the substandard quality of those services. In the context of Pakistan, government websites primarily function as a platform for showcasing information about various government departments and agencies, without providing any transactional capabilities. Frequently, there are complaints over the absence of hyperlinks on government websites and frequent malfunctions of those websites. The majority of these websites lack information in local languages.

4.1.3 Supply Side Impediments

4.1.3.1 Technology and Lack of Manpower

An empirical investigation was undertaken to examine the influence of information and computer technology (ICT) and the human development index (HDI) on the advancement of e-governments. The study's findings indicate that the growth of e-government is influenced by both technological and social elements, including information and communication technology (ICT) and human development index (HDI). Including, a greater level of IT and human development is associated with more advanced e-government development.

Internet User of Total Population
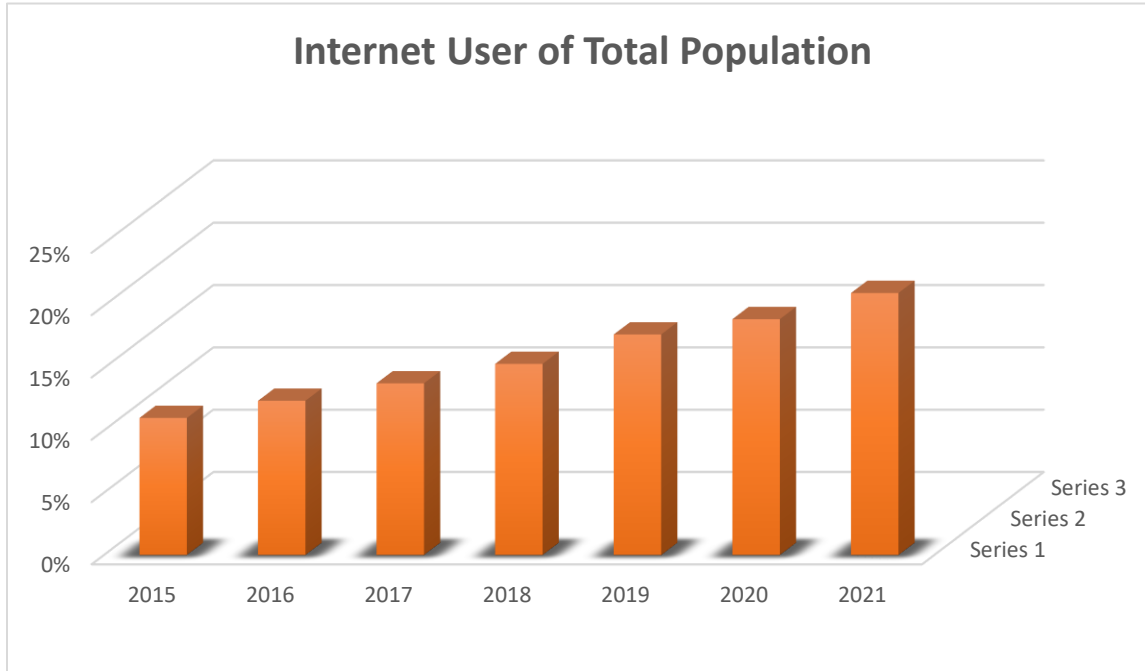
Source: *Pakistan Telecommunication Authority Report 2022*

4.1.3.2. Financial Constraints

The prevailing viewpoint among scholars is that governments are preparing to transition into the transactional phase of e-government development. The provision of financial resources for online transactions has been recognized as a prominent obstacle in the development of e-government.

4.1.3.3. Resistance from Pressure Groups

Certain pressure groups inside the government structure exhibit resistance towards change. These groups have a personal stake in preserving the existing state of affairs and they are concerned about a decline in employment opportunities caused by the use of technology. One significant obstacle on the supply side of e-government is the absence of support from politicians and high-level bureaucrats.

4.1.3.4. Lack of Back-Office Integration

A further challenge identified in scholarly literature pertaining to e-government is the limited collaboration between front office and back-office activities. Consolidating the back-end systems is essential for the successful and efficient delivery of e-services. The integration of back-office operations should be conducted concurrently with the development of front office systems. The process of integrating back-office activities is much more challenging compared to establishing front office. Consequently, the majority of e-government websites only provide information or one-way communication, with only a limited number offering two-way communication and transaction capabilities.
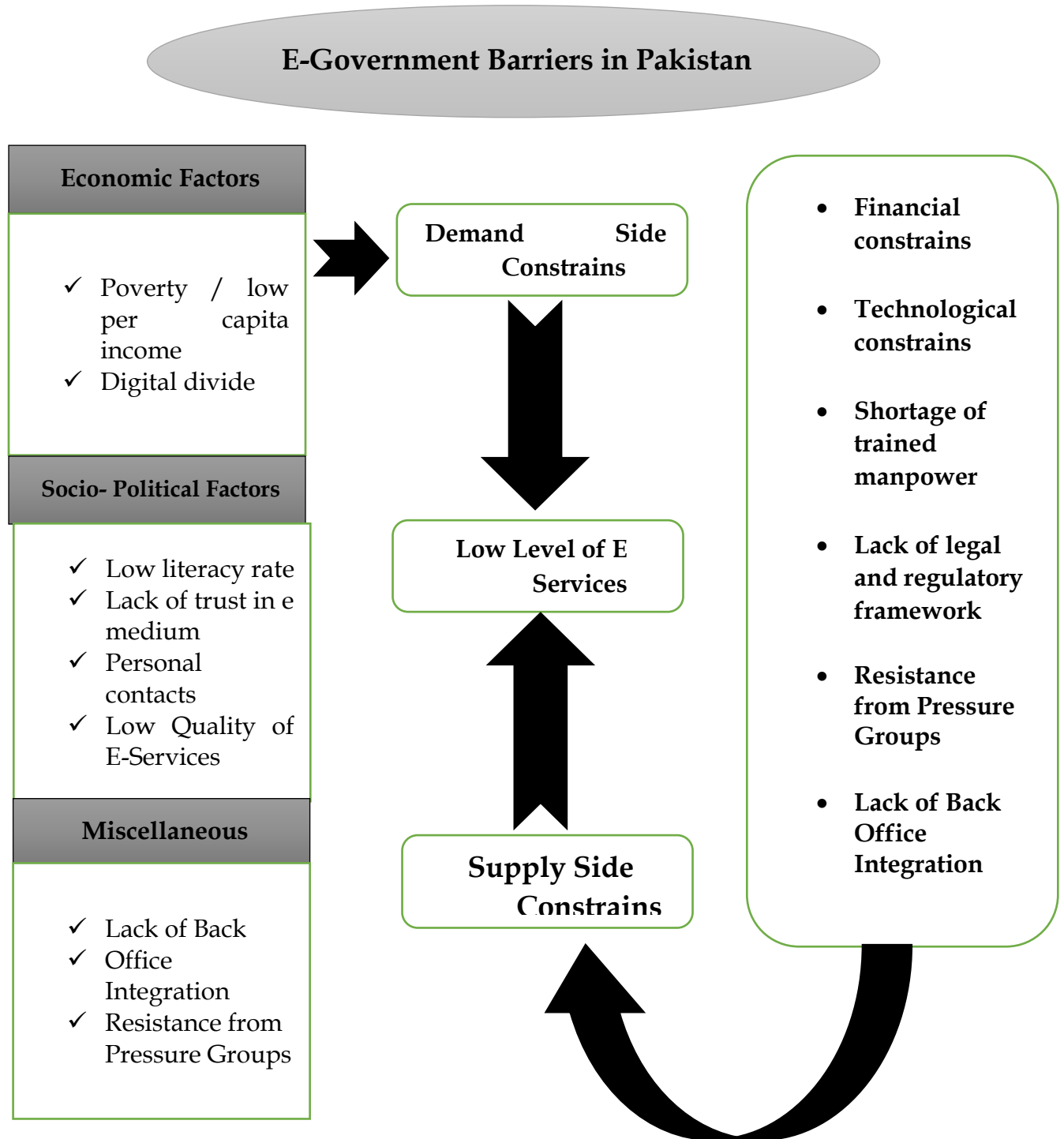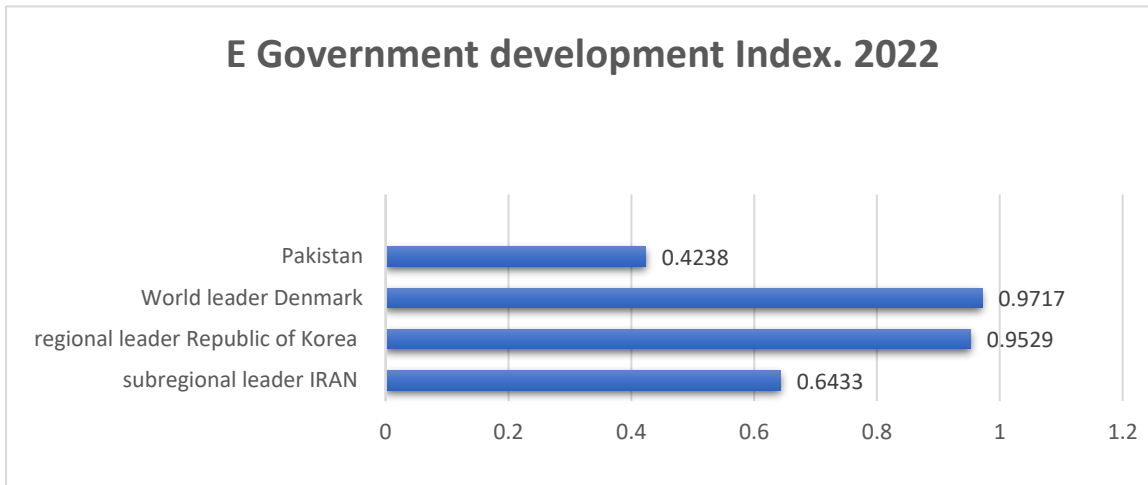
E-Government Barriers in Pakistan

Economic Factors

- ✓ Poverty / low per capita income
- ✓ Digital divide

Socio- Political Factors

- ✓ Low literacy rate
- ✓ Lack of trust in e medium
- ✓ Personal contacts
- ✓ Low Quality of E-Services

Miscellaneous

- ✓ Lack of Back
- ✓ Office Integration
- ✓ Resistance from Pressure Groups

Demand Side Constrains

Low Level of E Services

Supply Side Constrains

- **Financial constrains**
- **Technological constrains**
- **Shortage of trained manpower**
- **Lack of legal and regulatory framework**
- **Resistance from Pressure Groups**
- **Lack of Back Office Integration**

Fig 2 **E-Government Barriers in Pakistan**

4.1.3.5 E Governance Country Ranking

The implementation phase of e-governance in poor countries is now in its nascent stage and encounters several hurdles. Despite the general progress in ICT and the Pro-ICT initiatives of the Government of Pakistan, Pakistan continues to encounter obstacles such as low literacy

rates for ICT use, slow development and acceptance of e-government, and inadequate IT infrastructure. Figure 1 illustrates the temporal evolution of the literacy rate in Pakistan over the years 1951 to 2020. In 2022, the United Nations (UN) performed a study on e-government, which indicated a fall in Pakistan's e-government rating from 150 to 193.

E Government development Index. 2022

	Value
Pakistan	0.4238
World leader Denmark	0.9717
regional leader Republic of Korea	0.9529
subregional leader IRAN	0.6433

Source: UNDP Database 2022

4.2. Endeavors of Gov. of Pakistan Regarding Digital Transformation

Pakistan is progressively progressing towards the use of e-governance as a means to enhance the accessibility and quality of information and services offered to the general populace via the utilization of information and communication technology (ICT) in a straightforward, cost-efficient, and economically viable method. The ITB plays a crucial role in enabling the Federal Ministries and Divisions to effectively execute e-governance initiatives, with the primary objective of improving the government's capacity to meet the diverse requirements of residents across Pakistan. NITB guarantees that e-governance initiatives are result-oriented, cost-effective, and efficient by streamlining the access and delivery of services, distribution of information, and communication in a prompt and efficient way. We provide comprehensive technical support to all projects, adhering to rigorous quality standards, generating innovative ideas, and ensuring compliance with software development and deployment requirements. Furthermore, the National Institute of Technology Business (NITB) analyzes and suggests targeted strategies for automating procedures that need enhancement in order to provide more efficient and enhanced delivery to the populace of Pakistan.

4.2.1 NADRA E Sahulat

In order to provide a simple method for residents, NADRA has lately introduced its E-Sahulat via franchising as a business model. Currently, the E-Sahulat platform facilitates around seven million transactions on a monthly basis. According to statistical data, the utility bill accounts for 23% of the market share.

4.2.2 E Commerce

In 2006, NADRA introduced an e-commerce platform with the objective of offering ID-centric products for domestic money transfers, aiming to optimize time and resource use. Additionally, this platform offers the capability to make payments for cellular network bills.

4.2.3. Multi-Biometric E-Passports

The first multi-biometric e-passport service was introduced by NADRA in 2004, enabling the provision of ICAO standard multi-biometric e-passport services to the populace. Currently, NADRA has distributed over seven million e-passports to its people, according to statistical data**.**
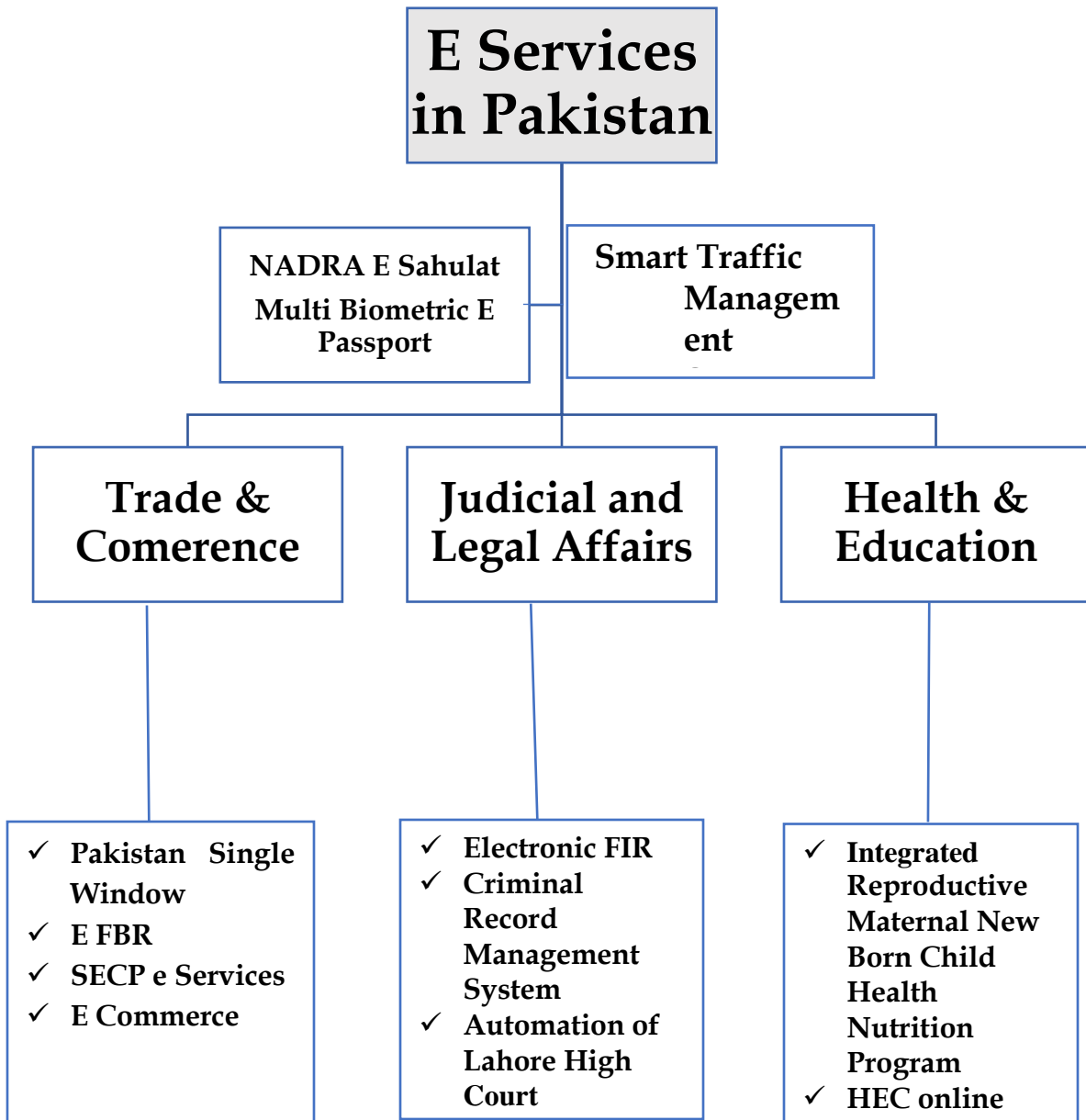
Fig 3 E Services in Pakistan

The health department of Punjab has been updated on ICTs in partnership with PITB. The use of PITB's knowledge was pioneered by this industry. The province has successfully created a reporting system and an effective data collecting system. The use of PITB has facilitated the health department in the establishment of a comprehensive monitoring system for infectious illnesses, including but not limited to dengue and polio. Automated systems have been used to streamline many activities, such as health facility attendance, drug inspection, drug testing, and cleaning systems. The use of automation in the health sector started in Punjab in 2012.

4.2.5. Electronic FIR

Historically, the registration of First Information Reports (FIRs) was conducted through manual means. Subsequently, the subsequent process necessitated a substantial amount of manual labor. This was due to the fact that FIRs underwent multiple stages, including suspect nomination, case proceedings, and closure. Consequently, a substantial volume of paperwork was generated, which underwent scrutiny by various levels of authority in order to facilitate the investigation. The arduous nature of this procedure has significantly hindered the tracking of individual First Information Reports (FIRs), making the monitoring of FIRs and the assessment of progress at each police station unprecedented.

5.0 Conclusion

5.1 Recommendations

In Pakistan, the implementation of e-Government initiatives such as training programs, management programs, and free energy supply necessitates political stability and administrative changes. It is essential to implement targeted reforms, such as enhancing literacy rates and IT skills, specifically targeting residents residing in rural regions (Rizwan 2023). Additionally, it is crucial to foster a sense of trust and confidence among individuals about political structures and administrative changes. The government should designate highly skilled IT professionals and establish a comprehensive "One-Stop portal" that seamlessly connects all other sites, departments, and agencies. A heightened degree of consciousness is necessary in order to use e-Government services, and it is recommended that the government initiate complimentary initiatives aimed at teaching and training individuals to enhance their IT proficiency (Tanveer, Azim et al. 2023). The website should demonstrate flexibility in order to accurately present the culture and language to all stakeholders. In the event that a German entrepreneur seeks to acquire knowledge on Pakistan as a viable business destination, it is imperative that pertinent information be disseminated in the German language (Malik, Saleem et al. 2024).

5.2 Conclusion

In a nutshell, the report provides insight into the changing digital governance situation in Pakistan, highlighting the opportunities and difficulties of using information and communication technology into government operations. The dedication of Pakistan to use digital technologies for enhanced service delivery, transparency, and efficiency is evident via the measures undertaken by institutions such as the National Informational Technology Board, Punjab Information Technology Board, and organizations like NADRA. Nevertheless, the research also highlights the enduring obstacles encountered by the nation in the domain of electronic governance, including limits in infrastructure, budgetary restrictions, and the continuous need for the enhancement of digital competencies. Emphasizing the significance of tackling privacy and security issues, as well as promoting inclusivity in digital activities, is crucial for establishing a stronger and reliable digital governance framework.

However, the case studies provided demonstrate significant progress in improving public services via digital transformation, as seen by advancements in education, health, law enforcement, and trade facilitation. The report emphasizes the need for ongoing endeavors to overcome obstacles, promote advancements, and guarantee that the advantages of digital governance are accessible to all sectors of society. The study's results provide significant insights and suggestions for policymakers, stakeholders, and researchers in Pakistan as they traverse the intricate terrain of digital development. These contributions aim to foster sustainable growth in digital governance within the nation.

Contributions

Shaheera Amin: Problem Identification, Literature search

Huma Ali: Drafting and data analysis, proofreading and editing

Mohsin Raza Zafar: Methodology, Data Collection

Conflict of Interests/Disclosures

The authors declared no potential conflicts of interest w.r.t this article's research, authorship, and/or publication.

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