P-ISSN 2664-0422	Pakistan Social Sciences Review	Jan-Feb 2026, Vol. 10, No.1
O-ISSN 2664-0430	https://doi.org/10.35484/pssr.2026(10-I)02	[14-25]

Pakistan Social Sciences Review
www.pssr.org.pk

RESEARCH PAPER

The Role of Digitalization in Promoting Sustainable Development Goals (SDGs) in Pakistan

[1]Arooj Fatima, [2]Neha Arif and [3]Rehmat Arif

1. MS Scholar, Department of Politics & International Relations Government College for women university Sialkot, Punjab, Pakistan
2. MS Scholar, Department of Politics & International Relations Government College for women university Sialkot, Punjab, Pakistan
3. MS Scholar, Department of Politics & International Relations Government College for women university Sialkot, Punjab, Pakistan

Corresponding Author: arj27112002@gmail.com

ABSTRACT

This study is examines the role of digitalization in promoting sustainable development goals in Pakistan, One of the most important aspects of the worldwide in change of government and other institutions is digitalization. Information and communication technology (ICT) is increasingly being used by Pakistani governments in the digital era of to improve efficiency, transparency, and public participations in decision-making processes. They are working to enhancing the SDGs in the areas of industry, education, health, and finance. This article conducts a comprehensive and relevant literature review of research completed between 2018 and 2025 to investigate the role of digitalization in furthering the Sustainable Development Goals (SDGs). This analysis highlights significant trends and knowledge gaps in the body of existing literatures while is offering insights into how digitalization can assist Pakistan in achieving the SDGs. Additionally, it is makes recommendations for future research and legislation to further sustainable development objectives are in Pakistan. Expanding the scope of future research to include many databases. Future research should using quantitative methods to determine public perceptions of how much digitization helps Pakistan accomplish SGDs.

KEYWORDS Digitalization, E-Government, Public Participation, Digital Economy, Transparency

Introduction

Like any other developing nation, Pakistan has a variety of economic issues, including unemployment, poverty, and poor infrastructure. These are elements that have long had a detrimental impact on the nation's advancement and development. But it's important to remember that digitization presents a good chance to get over these financial barriers. Pakistan may make use of the potential of digital technology to accomplish the goals of inclusive growth, efficiency improvement, and new value generation. This strategy is in line with the modern world, where digitization is seen as a growth-promoting factor. Without a question, digitization has played an important role in fostering economic progress in Pakistan. The selling market and inclusion of financial services are increased by the ability of new technology to change several industries, including trading and online financial services. For instance, digital trade, a subset of e-commerce, may create jobs and new business marketplaces, boosting a nation's GDP. Similarly, the unbanked may participate in the economy and encourage entrepreneurship by using mobile phones for banking and other money transfers. Additionally, developing a well-equipped BPO and IT sector might provide highly skilled jobs and position Pakistan as a competitive participant in the global digital economy. Even if Pakistan's path to digital transformation is not without its challenges,

the aforementioned prospects appear to be quite promising. Issues including the digital gap and the absence of agricultural product earnings, which prevents poverty in the nation's rural parts. Pakistan must address challenges like the digital divide, infrastructure, and cybersecurity as part of more comprehensive development plans that prioritize digital infrastructure and human resources in addition to supportive policies if it is to fully reap these advantages.

The Sustainable Development Goals (SDGs) are represents a framework for global development efforts are from 2015–2030, consisting of 17 goals and 169 targets, and 230 indicators (Aslam & Muzaffar, 2025; (Aslam & Muzaffar, 2025b). The UN systems are facilitates these efforts, though Secretary General Antonio Guterres has been noted the international community is not on track to meet the goals, even without the impact of COVID-19. Implementations is voluntary, and while the UN provides crucial data and supporting, individual countries must taking action. Collaboration and capacity building are essentials, especially for developing nations, to ensure success. The UN promotes sustainability norms and aids in coordinating efforts among countries to enhance overall progress. This article reviews the framework for SDG compliance, assesses the roles of digitalization in promoting sustainable developments goals in Pakistan and suggests improvements for their influence in achieving the SDGs. (Aslam & Muzaffar, 2025a) Electronic government, or e-governance, are a rapidly developing concepts in government administration that are uses information and communications technology (ICT) to increase efficiency and transparency, and citizen engagement in public services (Muzaffar, Fern & Yaseen, 2023). It is differs from e-government in that e-governance focuses on the technology-mediated interaction between the government and citizens, whereas e-government are permits electronic transactions and information sharing. The primary objectives of e-governance are to improve accountability and transparency in government activities. Since they are first appeared in the 1990s along with the growth of internet technology, nations like the United States, Singapore, and India have been is in the forefront of e-governance programs worldwide (Muzaffar, Fern & Yaseen, 2024).

The very long-term sustainability of Pakistan governmental institution are threatened by problems are including data security, public digital literacy, and uneven access to technology, despite that the fact that many countries have been adopted e-governance. This article's goal is to analyzing significant thematic and methodical trends from studies on digitalization achieving SDGs that were released between 2018 and 2025. It will identifying y common research methods and knowledge gaps and look at how different digitalization frameworks impacts the efficiency and openness, and inclusivity of public's services. The findings are meant to giving policymakers, practitioners, and researcher's useful information to help Pakistan achieve its sustainable development objectives.

Literature Review

The article examined the use of information and communication technologies (ICT) in achieving sustainable development goals (SDGs). The article further examined the link in South Africa, using the country as a locus of the study. The author aimed to find that relation between ICT and all 17 SDGs. Author examined the impact of ICT on accelerating SDGs, challenges hampered the efficient utilization of ICT for SDGs' implementation. The article used a qualitative approach with desktop analysis to draw significant information. In addition, unobtrusive methods were used such as conceptual analysis and document analysis, to draw conclusions based on the findings. The findings

confirmed that despite ICT policies and infrastructure, the use and impact of ICT on SDGs is not always high. The article suggested that improvements are required at policy, institutional, department and individual levels. The suggestions are applicable globally, based on the technological advancement and socio-economic development in country-specific contexts (Vyas-Doorgapersad, 2022). The process of converting digital signal structures into electronic versions is known as digitization, and it is now essential to the long-term expansion of growing economies. Implementing digitization can have a variety of positive effects on the economy, including more employment and income, greater access to digital literacy, and costs for businesses and nations, even though it may be difficult owing to limited budgets, a lack of strategy, employee resistance, and the current organizational framework. Additionally, digitalization can have a big impact on economic growth because, among other things, it can promote innovation, enhance infrastructure, and open up new job opportunities. The Sustainable Development Goals (SDGs) of the United Nations offer a worldwide agenda for building a more affluent, fair, and sustainable future by 2030. Digital technologies are becoming more and more crucial in solving the obstacles to reaching these goals, especially for emerging economies. However, there are several obstacles in the way of accomplishing these lofty objectives, especially for developing nations. Therefore, the purpose of this study of the literature was to address the possible effects of digital technologies on the SDGs' implementation in emerging economies, backed by academic studies and viewpoints. In conclusion, digital technologies have a great deal of promise to help accomplish the SDGs by fostering innovation and economic growth as well as sustainability, resulting in a more wealthy and just society for everybody (Asghar, Cheema & Muzaffar, 2025; Islam, Ahmed, & Sayed, 2023).

The idea of sustainability is quite intricate, consisting of numerous interrelated elements that may not always complement one another. However, the analysis of lower-level indicators provides a more ambiguous picture, with 2 of the sustainability goals and 22 % of the sustainability indicators included in the SDG Index showing negative associations with digitalization. It appears that while synergies are generated in aspects related to economic and social sustainability, trade-offs occur in areas related to environmental protection such as climate change, depletion of natural resources and waste generation due to their negative associations with existing economic development models (Batool, Asmat, & Muzaffar, 2023; Pérez-Martínez, Hernandez-Gil, San Miguel, Ruiz, & Arredondo, 2023).

Ideas of e-commerce, equitable access to online dispute resolution procedures, e-government (including data protection and public access to information), and the implementation of nondiscriminatory rules for sustainable development. The 2030 Agenda uses international legal tools to accomplish these objectives. The right to a sustainable and healthy environment is becoming into a human right that is acknowledged globally. International law is crucial because environmental aims transcend national boundaries. International environmental legislation should analyze the development of new technologies to determine if they are compatible with a sustainable environment and enable the wider implementation of current clean technologies through technology transfer. Furthermore, equitable access to technology is embodied in the human right to participate in scientific growth and reap its advantages. One of the primary issues with climate change is the legal implementation of sustainable goals in both the public and commercial sectors (Meskic, Albakjaji, Jevremovic, Omerovic, & Adams, 2022, May).

Investigates the potential effects of digital transformation on the localization and accomplishment of the Sustainable Development Goals (SDGs). We gather information on the condition of localization in seven different nations throughout the globe, current e-governance and big data efforts, and the progress achieved toward the SDGs. We discover that localization, which may be strengthened by digital transformation, enables governments to successfully customize sustainable development policies at the local level. Effective planning by local governments is necessary for localization, since they must make sure that financial allotments reflect community goals. Our primary suggestions are that sufficient data must be obtained in order to identify and follow up with decision makers. This called for a assessment of institutional proficiency in handling data and information, as well as the application of digital transformation for this goal. Effective implementation at the local level and appropriate finance for development initiatives are also crucial. This necessitates that policymakers steer and promote investments in the infrastructure and human capital of "The Digital Network Architecture" (DNA). Its sample of nations, each with its unique demographic and cultural characteristics, is a major drawback. Nonetheless, our results offer a solid foundation for analyzing more case studies with more diverse compositions as well as different digital transformation techniques (ElMassah, & Mohieldin, 2020)

Reorienting all sectors at all levels is the result of accepting sustainable development goals. As carbon dioxide emissions decline, the European Union (EU) actively embraces a wide variety of measures to promote environmental sustainability. The EU set aggressive targets to cut carbon dioxide emissions from the transport sector by at least 55% by 2030 and 100% by 2035 as part of the Green Deal Policy, specifically the Fit for 55 packages. To achieve sustainable growth, these objectives need integrating suitable digital technology into the transportation sector's environmentally responsible operations. By offering an efficient transportation sector that operates with the least amount of environmental destruction, this article seeks to analyze how digitalization affects environmental sustainability. Therefore, there are direct negative and statistically significant linear impacts on carbon dioxide emissions from digital inclusion, the GDP contribution of the IT industry, and e-commerce. CO2 emissions may be reduced by 0.136, 2.289, and 0.266, respectively, if digital inclusion, the GDP contribution of the IT industry, and businesses with online sales all increase by one point. However, the influence of digital public services and important enablers on carbon dioxide emissions is nonlinear and statistically significant.

Because port operations, the economy, and the environment are all interconnected, sustainable development is essential to ports. The purpose of this study was to investigate the impact that port digitization projects have had in advancing sustainable development. The World Ports Sustainability Program, which includes 74 port digitization activities, served as the database for the author/authors' mixed methods approach. The distribution of these efforts in relation to sustainable development goals was quantitatively analyzed in the first stage, and then their impact was examined through a thematic analysis. According to the results, over 72% of ports addressed Sustainable Development Goals 8, 9, 13, and 17. The primary goal of digitalization efforts at ports has been to enhance their operational efficiency and infrastructure so they can better handle the problems posed by climate change. The need of collaborations in accomplishing this objective was also acknowledged in this paper (Almeida, & Okon, 2024).

The gap can be filled by ICT in the form of e-government; its dynamic approach can help achieve the goals outlined in Sustainable Development Goal 17 of the United

Nations. The primary emphasis of this study is the identification of e-government services and initiatives implemented in Pakistan to facilitate the effective provision of governmental services to people (G2C). The two fundamental components of e-government, connectivity and online data availability (also known as open data), are directly and indirectly linked to all of the UN SDGs. In order to determine the present state of e-government initiatives made and implemented at the national level, as well as the e-services offered at the NADRA web portal, the desktop research technique is used to examine the National Information and Technology Body (NITB) web page, which is the parent board dealing with ICT and e-government topics. The study's conclusions show that without paying adequate attention to e-service delivery, quality, and dependability, the 2030 SDG agenda and effective e-government implementation are not feasible. It is advised that the government launch several initiatives to inform people about the use, acceptance, and advantages of e-government (e-services) at their doorstep in cost-effective methods (Rehman, Shah, & Ahmed, 2018).

An important factor in promoting economic development (EG) in the economy is the information and communication technology (ICT) industry. Nonetheless, there is still much to learn about the complimentary and nonlinear features of ICT's contribution to EG, especially with regard to Pakistan. Using yearly data from 1985 to 2023, this paper does a thorough investigation of the linear, nonlinear, and complimentary effects of ICT on Pakistan's EG. Unit root tests are used at the beginning of the research to make sure the data is stable. Johansen co-integration tests, which use trace statistics and maximum eigenvalues to evaluate long-term correlations between the highlighted variables, come next. For analysis and findings robustness, this study used both completely modified ordinary least squares and dynamic ordinary least-squares estimation (Sohail, Ullah, Tang, & Moudud-Ul-Huq, 2024).

Digital technologies have been seeking global attention in this time, all people, and future lie in it. This problem affects even emerging countries like Pakistan. This article's goal is to investigate how, in the context of developing nations, digital technologies are assisting in the achievement of the Sustainable Development Goals. Pakistani examples are used to illustrate this idea. As a growing country, Pakistan must overcome a number of obstacles to attain sustainability and technical advancement. The future of industry, people, and everything else is greatly impacted by digitalization. Digital technologies have thus become more well-known. Even developing nations like Pakistan are affected by this issue. This article examined role of digital technologies, like the Internet in developing countries promoting their Sustainable Development Goals. Pakistani examples are used as example (Yoo & Song, 2021).

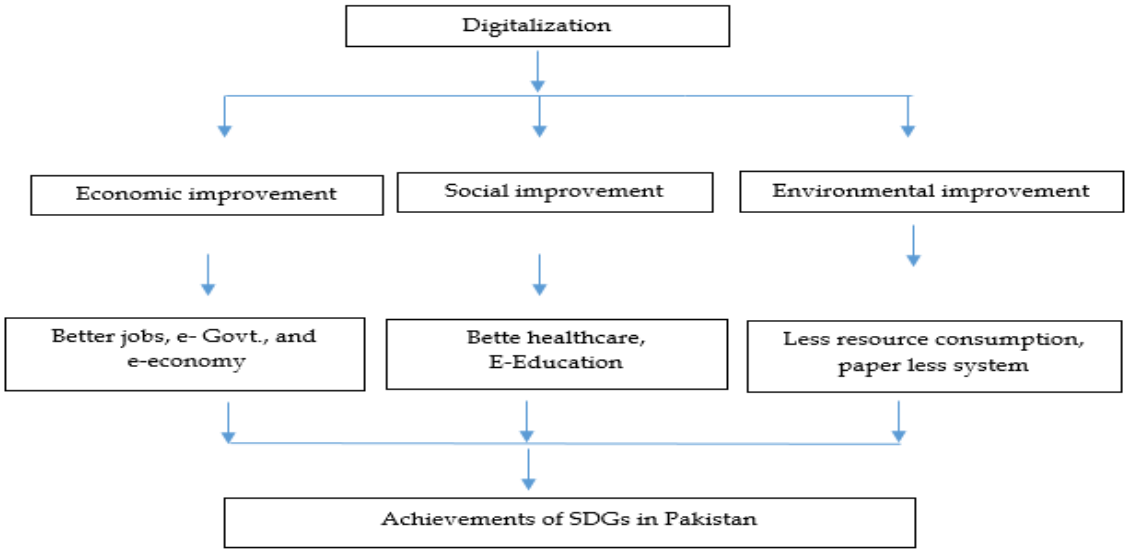

Fig 1 Theoretical framework of sustainable development theory

Material and Methods

The study used a qualitative document analysis methodology to examine how digitalization contributes to the Sustainable Development Goals. Utilizing qualitative text analysis to code and create themes pertaining to e-governance, digital health, digital education, and other ICT-driven sustainability projects. The research procedure has all employed analytical techniques in order to proceed and get to a conclusion. In order to obtain a more thorough knowledge, a variety of sources have been explored, including literature reviews and secondary sources in addition to primary materials are journals, news, official websites, books, reports, policy documents, case studies, and research articles that were chosen from reliable national and international sources. Credible sources and open processes guaranteed reliability. By using publicly accessible data and correctly acknowledging all sources, ethical issues were upheld.

Result and Discussion

Poverty Reduction and Digital Inclusion

Over 2 billion people are worldwide are unbanked, including a considerable proportions residing in Pakistan, especially in rural area regions. Digital financial services such as Easy paisa and Jazz Cash and offer vital instruments for savings, payments, and loans, promoting financial inclusion. The Financial Inclusion Global Initiative (FIGI), launched in 2017 by ITU, the World Bank, and CPMI, with support from the Bill & Melinda Gates Foundation, seeks to improve digital financial inclusion in developing nations, diminish dependence on cash, and empower low-income households to participate in the economy. Although the percentage of people living in severe poverty has dropped badly from 10.8% in 2015 to 8.4% in 2019, development remained sluggish even prior to the COVID-19 pandemic, which reversed gains and raised the number of people living in extreme poverty to 720 million, above earlier estimates. According to projections, 575 million peoples might be living in extreme poverty by 2030 if the current growth rate of 7% continues. Although there are over 100 million unbanked adults in Pakistan, over 50 million peoples utilized mobile money, which promotes financial inclusion. Information and communication technology (ICT) promotes these social progress and inclusion, which has a direct and indirect bad and

good impact on poverty reduction, while digital financial services are essential for reducing poverty in areas because they make financial resources, government assistance, and e-commerce accessible (Muzaffar, Yaseen & Safdar, 2020; Tahir, Shah, Khalil, & Taj, S2025).

Digital Health and Telemedicine

In Pakistan's remote villages, where doctor-to-patient ratios are extremely low roughly one doctor for every 970 people telemedicine and digital health platforms are crucial for solving healthcare access issues. Pakistan is going through an epidemiological change, which presents a number of issues. Pakistan's health status is far behind that of its neighbors and similarly ranking socio-demographic index comparator countries, notwithstanding recent progress. In order to alleviate the burden of disease and enhance the nation's general health status while lowering geographic, age, and sex inequities, this report recommends significant expenditures in health spending and supporting infrastructure. Long-term health planning in Pakistan can be directly influenced by projections. As a crucial element of patient-centered care, health literacy refers to the patient's education and their capacity to communicate, understand medical information, and make educated decisions. It has been shown to be a significant paradigm change, with patients becoming more knowledgeable and engaged in the entire health care delivery process. One Patients started to rely on information from digital media in the early years of the twenty-first century due to the widespread use of smartphones and the internet in both homes and workplaces. They could get immediate answers to their inquiries by using Google and similar applications on their cellphones without verifying the accuracy of the material. As a result, the phrase "digital health literacy" was created to cover all the advantages and difficulties brought about by technological advancements that have an influence on patient healthcare. (Mukhtar, Babur, Abbas, Irshad, & Kiran, 2025; Muzaffar, Chohdhry & Afzal, 2019)

Green Information and Communication Technologies and Clean Energy

Digital technologies (DT) and the internet have altered people's lives, companies, government systems, and the manufacturing sector globally in recent years. Additionally, DT plays a crucial role in encouraging sustainable output growth via digital transformation, increasing the pace of innovation, lowering travel and transaction costs, and giving simple access to information and communications systems across the many sectors of the economy The whole community became aware of how serious climate change was, and global warming emphasized the urgency of taking urgent action. Since transitions to create low-carbon emissions strongly depend on social, economic, and environmental growth, while climate change poses hazards to economic development, both global accords are interdependent and mutually reinforcing. (Arshad, Jadoon, Sarwar, & Javaid, 2024).

Enhancing Economic Growth and Job Creation

In terms of SDG 2, the quick growth of the digital economy might make disparities in access to resources and technology across various geographical areas and socioeconomic groups worse. Adopting modern agricultural technology and gaining access to digital marketplaces may be difficult for farmers in rural and underprivileged regions, which might result in inefficient food production and a rise in food insecurity. One of the most crucial elements needed for the economy to operate effectively in the current world is the digitalization of the economy. Because of its many advantages,

integrating digital technology into the economy is a highly sought-after characteristic for national economies. However, due to a number of obstacles, emerging nations like Pakistan are having difficulty with the digitalization process. In the context of Pakistan, a developing nation, this paper examines the obstacles to the digital economy. And suggests methods for getting beyond these obstacles. A hybrid research technique using ISM and fuzzy QFD was used to analyze the obstacles to and solutions for the digitalization of the economy. The most important obstacles to the digitalization of the economy, according to the results, are inadequate ICT infrastructure, a lack of funding, employee opposition to digitalization, a lack of corporate vision for digitalization, a lack of understanding of business prospects and advantages, and market issues. Artificial intelligence (AI), machine learning, sophisticated analytics, research and development, standardization of digital processes, promotion of online businesses, and enhanced digital data management mechanisms were suggested as the best ways to overcome these obstacles. And results of the study might help with policy-making (Nadeem, Ali, Rehman, & Saarinen, 2024).

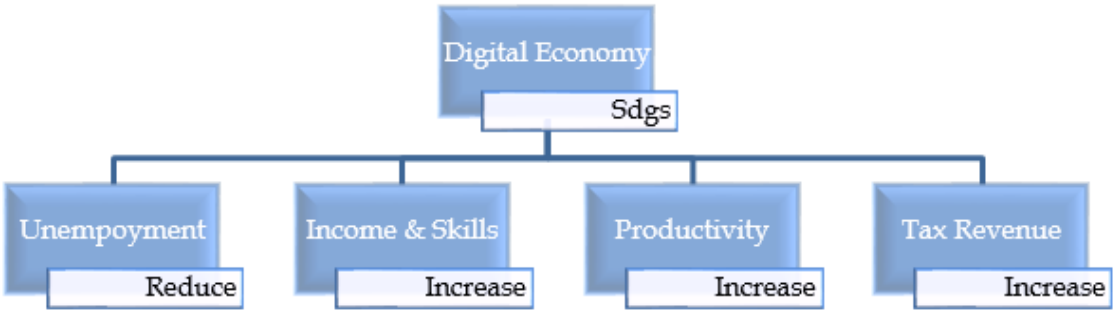

Fig 2 Digital Economy Importance in Pakistan

E-Government and Strong Institutions

The usage of information and communication technology (ICT) has significantly risen in this internet-generation era. A knowledge-based society has emerged as a result of this expansion, offering the general people a variety of tools to carry out certain tasks and procedures in a way that is far more transparent, effective, and seamless. It is part of global civilization. These electronic media also helped governments, enabling them to conduct their operations more effectively and openly. In order to improve the efficacy and efficiency of government processes and operations, ideas such as e-government and e-governance have arisen and are being used (Salam, Jamil & Muzaffar, 2024). The phrases "government" and "governance" are sometimes used interchangeably since they are connected and serve the general public. Although the phrases "e-governance" and "e-government" are frequently used synonymously and many people believe they refer to the same idea, they are really very distinct from one another. The idea of e-government has to do with how the government operates and uses ICT. There are several advantages to using electronic media, such as governments using it to carry out their responsibilities and perform better. It guarantees efficiency and openness in a number of procedures. It facilitates the general public's simple access to information and improves communication between citizens and governments. As a result, the standard of public service is also guaranteed (Malik, Yaseen, & Muzaffar, 2023).

In fact, e-governance is a fundamental shift that makes it easier for governments to carry out their duties and guarantee public access to infrastructure. E-governance only facilitates information availability for corporations and individuals. The adoption of e-

governance technologies are revolutionary process that guarantees open, eliminates corruption, and simplifies public service in Pakistan (Muzaffar & Choudhary, 2017). The practice of provides government services via the internet to increase convenience is known as e-governance. For instance, this modification might significantly reduce the degree of formality in the administration of services like tax filing, and social benefits and the public has easy access to information on digital government platforms, making it extremely difficult for corrupt officials to sway the facts. For instance, is it possible to ensure fair competition and accountability in public procurement using internet channels? These improved ways of carrying out civic responsibilities help not just the individuals and their contentment but also the public's confidence in political institutions. E-governance makes the decision-making process open and the public is pleased with t results. Pakistan's workplace culture is changing due to e-governance. To give citizens better services, it combines different government operations and procedures. The Pakistani government negotiated Memorandums of Understanding with nations including South Korea, China, and Malaysia that had successfully implemented e-government initiatives The first IT policy in Pakistan was the IT Policy and Action Plan 2000, in which the government acknowledged IT as a vital instrument for the nation's sustainable development and focused on establishing IT facilities to carry out state tasks. Subsequently, there was a strong push to implement information technology at all governmental levels (Batool, Gill, Javaid, & Khan, 2021).

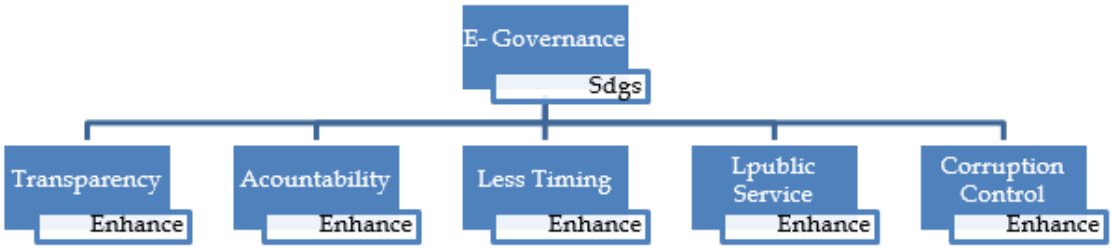

Fig 3 Importance of E- Governance In Pakistan

Conclusion

Although Pakistan's e-government system is just 22 years old, the use of ICT in the various government sectors is impressive. It will improve efficiency, transparency, and citizen involvement. When folks do all of their task intelligently, their time and effort will be minimized. It increases the ability of citizens to be empowered. Individuals' and institutions' performance will also be thoroughly watched, making it simple to identify any gray areas. Since intermediaries and bribes will no longer be used in their interactions with authorities, public contact and trust will rise. As a result of their direct relationship with the public, governments are better able to learn about the needs of the populace.

Recommendations

Ensuring participation and accessibility requires the development of comprehensive, citizen-focused e-governance systems. To protect security and privacy while encouraging moral use of digital technology, strict regulations are required. Working together, the public and commercial sectors will improve the e-governance infrastructure. In order to better comprehend global e-governance practices that are in line with the SDGs, future study should broaden databases to include sources such as the Web of Science. To fully realize the promise of e-government in accomplishing the

2030 Agenda for Sustainable Development, inclusivity, digital equity, and ethical governance are essential. In addition to financial programs for sustainable projects, family planning, and education to control population growth and lessen the environmental impact of urbanization, government incentives and investments in ICT can support sustainable energy sources and improve energy efficiency and sustainability.

Future Research Directions

Future studies should employ quantitative techniques to gauge public opinions regarding the extent to which digitalization contributes to the achievement of SGDs in Pakistan. Future studies should employ Comparative research between emerging and developing nations like china and Pakistan may provide important insights and best practices of improving digitalization.

Reference

Almeida, F., & Okon, E. (2024). Achieving sustainable development goals through digitalization in ports. *Business Strategy and the Environment*, *33*(7), 6737-6747.

Arshad, A., Jadoon, A. K., Sarwar, A., & Javaid, M. F. (2024). Towards Asian Countries Sustainable Development: The Nexus between Information and Communication Technology, Energy Consumption and Carbon Dioxide Emission. *Bulletin of Business and Economics (BBE)*, 13(2), 1-8.

Asghar, N., Cheema, A. T., & Muzaffar, M. (2025). The Impact of Media Coverage on Political Behavior among Pakistani Students: A Case Study of GC Women University Sialkot. *Journal of Development and Social Sciences*, *6*(2), 266–279. https://doi.org/10.47205/jdss.2025(6-II)23

Aslam, H. & Muzaffar, M. (2025). The Interplay between Political Stability and Sustainable Development Goals (SDGs) in Pakistan: An Assessment, *Journal of Development and Social Sciences 6* (2), 221-231

Aslam, H., & Muzaffar, (2025b). Interplay Of Socio-Political Development & Sustainable Development Goals (SDGs) Implementation: Evidence From Pakistan. *Journal Of Social Sciences Development*, *4*(1), 113–124. https://doi.org/10.53664/JSSD/04-01-2025-10-113-125

Aslam, H., & Muzaffar, M. (2025a). Barriers to Sustainable Development: Examining Pakistan's Economic Taboos and SDG Challenges. *Pakistan Social Sciences Review*, *9*(2), 351–366. https://doi.org/10.35484/pssr.2025(9-II)26

Batool, A., Asmat, K., & Muzaffar, M. (2023). Governance and Transparency: A Case of Pakistan. *Annals of Human and Social Sciences*, *4*(3), 846–856. https://doi.org/10.35484/ahss.2023(4-III)78

Batool, S., Gill, S. A., Javaid, S., & Khan, A. J. (2021). Good governance via E-Governance: moving towards digitalization for a digital economy. *Review of applied management and social sciences*, *4*(4), 823-836.

ElMassah, S., & Mohieldin, M. (2020). Digital transformation and localizing the sustainable development goals (SDGs). *Ecological Economics*, *169*, 106490.

Islam, Q. T., Ahmed, J. U., & Sayed, A. (2023). Digitization and integration of sustainable development goals (SDGs) in emerging economies. *Fostering Sustainable Businesses in Emerging Economies: The Impact of Technology*, 23-38.

Malik, A., Yaseen, Z., & Muzaffar, M. (2023). Governance in Pakistan: A Case Study of Pakistan Muslim League-N, *Journal of Politics and International Studies, 9*(2), 35–49

Meskic, Z., Albakjaji, M., Jevremovic, N., Omerovic, E., & Adams, J. (2022, May). Digitalization and innovation in achieving SDGs–impacts on legislation and practice. In *IOP Conference Series: Earth and Environmental Science* (Vol. 1026, No. 1, p. 012061).

Mukhtar, T., Babur, M. N., Abbas, R., Irshad, A., & Kiran, Q. (2025). Digital Health Literacy: A systematic review of interventions and their influence on healthcare

access and sustainable development Goal-3 (SDG-3). *Pakistan Journal of Medical Sciences*, *41*(3), 910.

Muzaffar, M. & Choudhary, S. (2017). Human Development and Democratic Governance: An Analysis, *Orient Research Journal of Social Sciences, 2*(I), 71-94

Muzaffar, M., Fern, Y. S., & Yaseen, Z (2024). Good Governance and Citizen's Trust in Pakistan: A Moderation Effect of Unethical Behavior**,** *Asian Journal of Human Services, 26*, 91-108 https://www.jstage.jst.go.jp/article/ajhs/26/0/26_91/_article/-char/en

Muzaffar, M., Chohdhry, S., & Afzal, N. (2019). Social Media and Political Awareness in Pakistan: A Case Study of Youth, *Pakistan Social Sciences Review*, 3 (II), 1-13

Muzaffar, M., Fern, Y. S., & Yaseen, Z. (2023). Governance Dilemma: A Way Forward For Third World States, *Journal of Research Administration 5*(2), 9792-9803

Muzaffar, M., Yaseen, Z. & Safdar, S. (2020). Role of Social Media in Political Campaigns in Pakistan: A Case of Study of 2018 Elections*, Journal of Political Studies, 27* (2), 141-151

Nadeem, M., Ali, Y., Rehman, O. U., & Saarinen, L. T. (2024). Barriers and strategies for digitalization of economy in developing countries: Pakistan, a case in point. *Journal of the Knowledge Economy*, *15*(1), 4730-4749.

Pérez-Martínez, J., Hernandez-Gil, F., San Miguel, G., Ruiz, D., & Arredondo, M. T. (2023). Analyzing associations between digitalization and the accomplishment of the Sustainable Development Goals. *Science of the Total Environment*, *857*, 159700.

Rehman, K., Shah, A. A., & Ahmed, K. (2018, October). E-Government identification to accomplish sustainable development goals (UN 2030 Agenda) a case study of Pakistan. In *2018 IEEE Global Humanitarian Technology Conference (GHTC)* (pp. 1-6). IEEE.

Salam, Z., Jamil, M., & Muzaffar, M. (2024). The Role of Social Media in Political Awareness and Engagement among University Students: A Quantitative Study. *Journal of Development and Social Sciences*, *5*(4), 691–702. https://doi.org/10.47205/jdss.2024(5-IV)61

Sohail, H. M., Ullah, M., Tang, C., & Moudud-Ul-Huq, S. (2024). Role of ICT in achieving Pakistan sustainable development goals. *Fudan Journal of the Humanities and Social Sciences*, 102309

Vyas-Doorgapersad, S. (2022). The use of digitalization (ICTs) in achieving sustainable development goals. *Global Journal of Emerging Market Economies*, *14*(2), 265-278.

Yoo, S., & Song, Y. (2021). Role of digital technology in achieving the Sustainable Development Goals: Focus on the efforts of the international community. *Journal of International Development Cooperation*, *16*(2), 31-57