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DIGITAL TRANSFORMATION AND INSTITUTIONAL EFFECTIVENESS IN PUBLIC SERVICE DELIVERY. A CASE OF OGUN STATE MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY, NIGERIA

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ABSTRACT

Digital transformation remains one of the main reform agenda in the administration of public sector that is aimed at ensuring effectiveness in service delivery. In Nigeria, State governments, through the Ministries are increasingly adopting ICT-driven systems to enhance administrative performance. The study examines the influence of digital transformation on institutional effectiveness in the Ogun State Ministry of Education, Science and Technology, Nigeria. Quantitative research design was used. Through the use of structured questionnaire, primary data were collected from 304 administrative and technical staff using the stratified random sampling. Data gathered were analysed using descriptive statistics, and inferential statistics with the help of SPSS. The findings of the study revealed that ICT infrastructure, automation systems, and staff digital competencies, significantly enhance institutional effectiveness. However, some challenges such as irregular power supply, inadequate staff training opportunities, inadequate ICT infrastructure, and resistance to technological change, hinder optimal performance. The study concludes that digital transformation significantly improves institutional effectiveness in the Ministry of Education, Science and Technology and recommends that there should be sustainable investment in power supply, human capital development and ICT infrastructures.

Keywords: Digital Transformation, Institutional Effectiveness, ICT, Public Administration, Ogun State, Ministry of Education.



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1. Introduction

Globally, digital transformation has become an important defining characteristic of public sector reforms. Governments are increasingly leveraging Information and Communication Technologies (ICTs) to promote transparency, accountability, administrative efficiency, and effectiveness to facilitate public service delivery (Sofyani, Riyadh & Fahlevi, 2020). The emergence of digital transformation has revolutionised the traditional administrative system by improved decision-making, enhanced record management, and effective public service systems. In recent times, digital transformation is recognised as an important factor in the modernisation of institutions, good governance and sustainable development in both developed and developing countries (Maheshwari, Mohan & Mishra, 2025).

In developing countries, the adoption of ICTs within public institutions has gained momentum as governments seek innovative ideas to address the lapses and challenges encountered such as corruption, poor record management, and administrative delays in service delivery (Manyerere & Manyerere, 2018). Much emphasis has been placed on the importance of digital transformation by the international organisations, as a means for improving the performance of public sector and achieving sustainable development goals (Obiageli, Anthony & Junior, 2020).

Nigeria has embraced digital transformation as part of public sector initiatives to improve governance and public service delivery. The federal and state governments of Nigeria have invested significantly in ICT infrastructure, digital record systems, and electronic financial management processes to reduce administrative inadequacies and enhance the quality of public services (Chima, Ahmadu & Folorunsho, 2021). The increasing recognition of technology has sped up institutional effectiveness and encouraged government agencies to integrate digital technology in their daily activities (Omweri, 2024). Ogun State has emerged as one of the consistent users of ICT-driven systems. Through various digital transformation programs and initiatives, the state government has sought to promote administrative efficiency across the various ministries, departments, and agencies to promote data-driven decision-making and achieve efficiency in public service delivery (Amanawa & Ebiegberi, 2025).

The Ogun State Ministry of Education, Science and Technology, is an institution that expends more efforts in the usage of digital technology and infrastructure to implement educational policy and coordinate science and technology development within the State. The Ministry has increasingly utilised digital tools to enhance administrative activities and improve institutional effectiveness given the primary role of education in socioeconomic development (Obisanya, Aminu & Adebola, 2025). However, the achievement of the full benefits of digital transformation remains hindered by several issues such as epileptic power supply, inadequate ICT infrastructure, insufficient funding, and resistance to organizational change among the public sector employees (Adenubi, Olaide, Nathaniel, Oyesola & Abayomi, 2024). These challenges pose important questions on the impact of digital transformation and improved institutional effectiveness. In addition, government has invested heavily on digital technologies yet there exist few empirical information on their effects on administrative efficiency and service delivery in Nigerian state educational institution (Agbeyangi, Makinde & Odun-Ayo, 2024). This study therefore examines the impact of digital transformation on institutional effectiveness of public service delivery, in Ogun State Ministry of Education, Science and Technology. Specifically, the study examined the level of digital transformation, determine the relationship between digital transformation and institutional effectiveness and identify challenges affecting digital transformation in the Ogun



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State Ministry of Education. The study is guided by null hypothesis that states that digital transformation has no significant effect on institutional effectiveness.

Conceptual Review

Digital Transformation

Digital transformation (DT) has emerged as one of the most important developments in organizational operations and service delivery in the twenty-first century. It is the application of digital technologies and tools to organizational processes, activities and culture to improve efficiency and effectiveness of organisational performance. It consists of a comprehensive organisational change process that influences the interaction of the institutions with stakeholders, information management, and outcome delivery. According to Vial (2019), DT is a process that aims to improve an organization by changing its properties through combinations of communication, information, computing, and interactive technologies.

Similarly, Verhoef et al. (2021) view DT as the strategic use of digital technologies to improve operational activities and promote organisational performance. In the public sector, digital transformation involves the usage of digital platforms, ICTs, electronic databases and automated systems to improve public service delivery. The increase in the demand for efficient delivery of public services has encouraged governments at various levels to introduce DT strategies globally. In Nigeria, DT has become an important strategy to reduce corruption, address bureaucratic bottlenecks and improve record storage and management to strengthen organisational performance. However, an effective implementation of DT programs often depends on adequate funding, effective infrastructure, and digital capability (Al Maazmi, Piya & Araci, 2024).

Institutional Effectiveness

Institutional effectiveness refers to the level to which an organization achieves its objectives and desired outcomes through the efficient usage of available resources. It reflects the ability of an institution to perform its functions effectively and deliver quality services to achieve sustainable organisational performance. Institutional effectiveness is often measured through indicators such as level of productivity, operational efficiency, service quality, responsiveness, and employee performance (Masyk et al., 2023).

In public sector, institutional effectiveness is necessary for ensuring efficient service delivery and good governance. Government ministries, departments and agencies are expected to maximize the available resources and implement policies effectively so as to provide timely services that meet the needs of citizens. Digital transformation has become a crucial determining factor of institutional effectiveness because it improve communication, promote information management, decision-making, and operational efficiency. By reducing the level of bureaucratic bottlenecks and digital transformation, public institutions are able to achieve higher levels of effectiveness and organizational performance (Isaeva, Karasartova et al., 2025).

Empirical Review

Onah, Chiekezie and Onwuchekwa (2024) examined the relationship between DT and the performance of public organisations in Anambra State, Nigeria. The study used a survey research approach to gather data from employees of selected public institutions to determine the extent to which the usage of digital tools influence organisational outcomes. The findings showed that DT significantly improved operational efficiency, decision-making processes, and public service delivery. In addition, the study established that organisations with higher levels of digital



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technology usage recorded better performance outcomes than those with lower levels of technological usage. However, the study recorded some challenges such as insufficient funding, inadequate infrastructure, and low level of digital literacy among employees as barriers to effective digital transformation in the institutions. The study concluded that capacity building of employees and sustained investment in digital technologies are important for improved performance in the public institutions.

Chiekezie and Aniekwe (2024) examined the effect of e-governance on public sector management performance in Nigeria. The study investigated the relationship between technology infrastructure, transparency, digital service delivery, administrative efficiency, and accountability. Using survey data collected from respondents who are mainly the employees, the study showed that e-governance significantly enhances public service delivery, policy implementation, and organizational effectiveness. The study also revealed that organisations that made use of digital governance platforms experienced higher level of transparency and accountability than those that relied on traditional administrative systems. The study recommended that investment in technological infrastructure should be increased and staff training should be made continuously to improve the effectiveness of e-governance programmes.

Another study carried out by Inakefe, Bassey, and Amadi (2024) evaluated the policy implications and institutional implications of digital tools in e-governance reforms and public service delivery within the Cross River State Civil Service. The study used a quantitative approach and found that digital tools significantly improved communication, administrative efficiency, and public service delivery. However, the system is bedeviled by poor funding, inadequate ICT facilities, and inadequate employee training which affected the successful implementation of digital governance reforms. The study specifically focus on the essence of digital literacy initiatives, sufficient funding and infrastructural development in accomplishing sustainable DT within public institutions.

The empirical study conducted by Abdullahi and Abdul Manaf (2025) on DT and the effectiveness of e-governance in the public sector of Malaysia. The study used a quantitative research design to examine 354 civil servants across the government institutions. The study findings revealed that policy, technological competency, organisational capability, and suitable conditions significantly influence the effectiveness of e-governance. Out of these factors, organisational capability is the main factor responsible for successful DT. The study concluded that effective DT is a determinant of available technology, institutional capability, and technology acceptance by the employees.

A systematic review by Escobar, Almeida, and Varajão (2023) examined the successful factors responsible for effective DT within public organisations. The review analysed different case studies from which over fifty factors associated with successful DT initiatives were identified. The study concluded that DT contributes significantly to improved institutional performance when technological tools and organizational readiness are adequately provided for.

All these reviewed studies collectively demonstrate that DT significantly contributes to organisational effectiveness within public institutions. Extant existing literature indicates that ICT infrastructure, digital competencies, e-governance systems, and process automation enhance transparency, efficiency, accountability, and public service delivery. However, the reviewed studies also reveal persistent challenges such as inadequate infrastructure, insufficient funding, employee resistance, and limited digital skills.



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Theoretical Framework

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), was propounded by Fred Davis in 1989. The theory provides a popular frameworks for understanding the adoption and utilisation of information and communication technologies (ICTs) within organizations. TAM explains the determinants of technology acceptance and usage among individuals subsequently. This made it became applicable in studies examining digital transformation or any related topic in both private and public organizations. TAM opines that the acceptance and usage of technological systems by individuals are influenced mainly by their perceptions on the ease of use and its usefulness (Davis, 1989).

According to TAM theory, perceived usefulness is the extent to which an individual believes that the usage of a particular technological tool will improve efficiency, ease their job and enhance job performance which will eventually lead to the achievement of organisational goals. On the other hand, perceived ease of use, relates to the level to which an individual believes that the use of a particular technological tool will make one to be free from physical and mental stress (Davis, Bagozzi, & Warshaw, 1989). These two perceptions of TAM determine the individual attitudes toward technology and influence their behavioral intentions. TAM is relevant to this study as its opinion lies in its ability to explain how public servants respond to digital transformation initiatives to carry out their operations such as administrative processes, record management, communication systems, and decision-making within public institutions. However, the successful implementation and usage of digital transformation is highly dependent on the available infrastructure and the willingness of employees to adopt and utilise the available technologies in their daily activities. Despite the widespread application of the TAM, the theory has been criticised for focusing mainly on human technology adoption and not considering the organizational issues.

2. Methodology

This study adopted a cross-sectional survey design. The population of the study consist of 254 staff of the ministry from all the departments and units. A sample size of 152 respondents was derived using the Krejcie and Morgan (1970) Sample Size Determination Table. Structured questionnaire were used to gather data and the data gathered were analysed using SPSS version 25. Descriptive statistics, presented in form of mean and standard deviation were employed to summarise the variables of the digital transformation. Pearson Product-Moment Correlation Analysis was used to determine the relationships between digital transformation dimensions and institutional performance indicators. In addition, multiple regression analysis was used to assess the influence of digital transformation variables on institutional performance and to determine the extent to which variations in institutional performance could result from the adoption of digital technologies within the ministry.



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3. Results and Data Analysis

Table 1: Table Showing the Mean and Standard Deviation of Variables of Digital Transformation

Variables	Mean	Std. Dev.	Interpretation
ICT Infrastructure	3.54	0.91	Moderate
E-Governance Systems	3.69	0.86	High
Staff Digital Skills	3.35	0.95	Moderate
Process Automation	3.61	0.87	High

Source: Field Survey, 2026

The findings showed that the Ministry of Education, Science and Technology has a relatively high level of digital transformation adoption. E-governance systems has the highest mean score ($M = 3.69$, $SD = 0.86$), and process automation ($M = 3.61$, $SD = 0.87$) which indicate that the respondents perceive digital transformation as widely used within the ministry. ICT infrastructure ($M = 3.54$, $SD = 0.91$) and staff digital skills ($M = 3.35$, $SD = 0.95$), were moderately high, suggesting that employee capacity and technological competence still requires some training and development.

Table 2: Pearson Product-Moment Correlation Matrix

Variables	IE	ICT	E-Gov Skills	Automation	
Institutional Effectiveness (IE)	1.00				
ICT Infrastructure	0.61**	1.00			
E-Governance Systems	0.67**	0.56**	1.00		
Staff Digital Skills	0.52**	0.46**	0.50**	1.00	
Process Automation	0.65**	0.58**	0.60**	0.49**	1.00

p < 0.01

Source: SPSS

The correlation analysis shows that there is a positive significant relationship between all the variables of digital transformation and institutional effectiveness. E-governance systems has the strongest relationship with institutional effectiveness ($r = 0.67$), followed by process automation ($r = 0.65$) and ICT infrastructure ($r = 0.6$). Staff digital skills demonstrate a weak positive significant relationship with institutional effectiveness ($r = 0.52$). This result shows that improvements in staff digital skills, infrastructure, e-governance system, and automation process are associated with increased institutional effectiveness within the ministry.



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Table 3: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	41.72	4	10.43	41.36	0.000
Residual	37.08	147	0.25		
Total	78.80	151			

Source: SPSS

The ANOVA results showed that the regression model is statistically significant ($F = 41.36$). This implies that the combined effect of factors such as e-governance, ICT infrastructure, staff digital skills, and process automation significantly relates to the institutional effectiveness within the ministry. The result also affirms that digital transformation contribute to enhancing organisational performance and administrative effectiveness.

Table 4: Regression Coefficients

Variable	Beta (β)	t-value	Sig.
ICT Infrastructure	0.28	4.92	0.000
E-Governance Systems	0.37	6.14	0.000
Staff Digital Skills	0.21	3.67	0.001
Process Automation	0.32	5.41	0.000

Source: SPSS

The regression coefficients show that all four variables of digital transformation significantly influence institutional effectiveness. E-governance systems emerged as the highest predictor of institutional effectiveness ($\beta = 0.37$), showing an increase in the adoption of e-governance channels and how it substantially promotes organizational performance. Process automation was the higher predictor ($\beta = 0.32$), reflecting that automated administrative processes improve institutional effectiveness. ICT infrastructure also showed a significant positive relationship on institutional effectiveness ($\beta = 0.28$), revealing the importance of adequate technological facilities on DT. Staff digital skills had the lowest significant relationship ($\beta = 0.21$), indicating that employee competence in digital technologies is also a determinant of institutional effectiveness. In all, the findings showed that DT significantly promotes institutional effectiveness in the Ogun State Ministry of Education, Science and Technology.

Discussion of Findings

The findings revealed that DT has a significant positive influence on institutional effectiveness in the Ogun State Ministry of Education, Science and Technology. The findings showed that the adoption of DT has significantly contributed to improving effectiveness, accountability, and public service delivery. The positive relationships between e-governance systems, staff digital skills, process automation, ICT infrastructure. This indicate that DT has become an important tool for promoting organisational performance in the public sector.

Despite the positive influence of DT on institutional effectiveness, the study identified some challenges that hindered the successful implementation and utilisation of DT such as resistance to



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digital change, unstable electricity supply inadequate ICT infrastructure, among some staff members, limited opportunities for ICT training and budgetary constraints within the ministry.

4. Conclusion and Recommendations

The study concludes that DT is a tool for improving institutional effectiveness in the public institutions. The sustainability and success of DT initiatives depend on the ability of government to provide adequate infrastructure, financial support, human capacity, and effective organizational culture that embraces technological innovation. The following recommendations were proposed:

- i. The ministry should improve power supply and expand ICT infrastructure across all units and departments.
- ii. Provision should be made for continuous training and capacity-building programmes aimed at improving the digital competencies of the employees.
- iii. The ministry should also implement comprehensive change management strategies to encourage staff acceptance and utilization of digital technologies.

References

- Adenubi, A. O. A., Olaide, A., Nathaniel, S. N. S., Oyesola, O. A. O. O. A., & Abayomi, A. K. A. (2024). Achieving Effective ICT Service Delivery in Government: Ogun State in Perspective. *Nigerian Online Journal of Educational Sciences and Technology*, 6(1), 214-234.
- Agbeyangi, A., Makinde, A., & Odun-Ayo, I. (2024). Nigeria's ICT and economic sustainability in the digital age. *arXiv preprint arXiv:2401.03996*.
- Al Maazmi, A., Piya, S., & Araci, Z. C. (2024). Exploring the critical success factors influencing the outcome of digital transformation initiatives in government organizations. *Systems*, 12(12), 524.
- Amanawa, D. E., & Ebiegberi, D. (2025). Evaluating ICT-Driven Innovation in Nigeria's Public Sector: A Comparative Perspective on Enterprise Service Delivery. *International Journal of Engineering and Information System*, 9(9), 50-58.
- Chima, P., Ahmadu, J., & Folorunsho, O. G. (2021). Implementation of digital integrated personnel and payroll information system: Lesson from Kenya, Ghana and Nigeria. *Governance and Management Review*, 4(2).
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *Management Information Systems Quarterly*, 13(3), 319. <https://doi.org/10.2307/249008>
- Davis, F.D., Bagozzi, R.P., & Warshaw, P.R (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982-1003.
- Escobar, F., Almeida, W. H. C., & Varajão, J. (2023). *Digital Transformation Success in the Public Sector: A Systematic Literature Review of Cases, Processes, and Success Factors*.
- Fernández, A., Gómez, B., Binjaku, K., & Meçe, E. K. (2023). Digital transformation initiatives in higher education institutions: A multivocal literature review. *Education and information technologies*, 28(10), 12351-12382.
- Haug, N., Dan, S., & Mergel, I. (2023). *Digitally-Induced Change in the Public Sector: A Systematic Review and Research Agenda*.



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- Inakefe, G. I., Bassey, V. U., & Amadi, J. O. (2024). Evaluation of the policy and institutional implications of digital tools in e-governance reforms implementation for service delivery in Cross River State Civil Service, Nigeria. *Sage Open*, 14(4), 21582440241297047.
- Inakefe, G. I., Bassey, V. U., & Amadi, J. O. (2024). *Evaluation of the Policy and Institutional Implications of Digital Tools in E-Governance Reforms Implementation for Service Delivery in Cross River State Civil Service*.
- Isaeva, R., Karasartova, N., Dznunusnalieva, K., Mirzoeva, K., & Mokliuk, M. (2025). Enhancing learning effectiveness through adaptive learning platforms and emerging computer technologies in education. *Jurnal Ilmiah Ilmu Terapan Universitas Jambi*, 9(1), 144-160.
- Maheshwari, N., Mohan, G., & Mishra, D. (2025). Digital transformation in governance: Preconditions for achieving good governance. *Public Policy and Administration*, 09520767251355715.
- Manyerere, D., & Manyerere, J. (2018). The contribution of effective electronic record management to fight corruption: Evidence from selected public service offices in Tanzania. In *Standing Conference of Eastern, Central and Southern African Library and Information Associations-2018*.
- Masyk, M., Buryk, Z., Radchenko, O., Saienko, V., & Dziurakh, Y. (2023). Criteria for governance' institutional effectiveness and quality in the context of sustainable development tasks. *International Journal for Quality Research*, 17(2).
- Meyer, J. W., and B. Rowan. 1977. "Institutionalized Organizations: Formal Structure as Myth and Ceremony." *American Journal of Sociology* 83(20) 340–363.
- Mohamed Hashim, M. A., Tlemsani, I., & Duncan Matthews, R. (2022). A sustainable university: Digital transformation and beyond. *Education and Information Technologies*, 27(7), 8961-8996.
- Obiageli, O. H., Anthony, U. O., & Junior, C. D. C. (2020). E-governance and service delivery in the Nigeria civil service. *World Journal of Innovative Research (WJIR)*, 9(3), 49-49.
- Obisanya, A. R., Aminu, T. N., & Adebola, O. L. (2025). Technology Adoption and Service Delivery in Federal Polytechnic Ilaro, Ogun State. *Lead City Journal of the Social Sciences*, 10(2), 72-84.
- OECD (2020). *Digital Government Index: 2019 Results*. Paris: OECD Publishing.
- Olayinka-Agboola, M., Ismail, Y., & Eke, C. I. (2025). *Impact Of Digitalization On Public Service Delivery In Nigeria: A Case Study Of Federal Civil Service In Nigeria*.
- Omweri, F. S. (2024). A systematic literature review of e-government implementation in developing countries: examining urban-rural disparities, institutional capacity, and socio-cultural factors in the context of local governance and progress towards SDG 16.6. *International Journal of Research and Innovation in Social Science*, 8(8), 1173-1199.
- Sofyani, H., Riyadh, H. A., & Fahlevi, H. (2020). Improving service quality, accountability and transparency of local government: The intervening role of information technology governance. *Cogent Business & Management*, 7(1), 1735690
- Timotheou, S., Miliou, O., Dimitriadis, Y., Sobrino, S. V., Giannoutsou, N., Cachia, R., ... & Ioannou, A. (2023). Impacts of digital technologies on education and factors influencing schools' digital capacity and transformation: A literature review. *Education and information technologies*, 28(6), 6695-6726.



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- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889–901.
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *Journal of Strategic Information Systems*, 28(2), 118–144.
- World Bank (2021). *GovTech Maturity Index: The State of Public Sector Digital Transformation*. Washington, DC: World Bank.