Digital Transformation in Public Administration and Data-Driven Decision-Making: A Review of Turkana County Government

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ABSTRACT

Digital transformation is increasingly becoming a focal point for organizations and governments worldwide, including Kenya. In Kenya, the 2010 Constitution introduced devolution, decentralizing governance, enabling county-level implementation of government programs, and extending governance to the grassroots. Among the functions devolved to counties is Early Childhood Development and Education (Pre-primary education), aimed at enhancing efficiency, transparency, and accountability in governance. Turkana County, inhabited primarily by the Turkana people with a history of nomadic pastoralism, views Pre-primary education as crucial for initiating academic life. Embracing digital transformation in Pre-primary education implementation represents a significant shift. The study focused on Turkana County Government's strategies for digital transformation in Pre-primary education and identified key objectives: Assessing digital inclusion in public administration in Turkana County; recommending practical implementation of two systems: Turkana Early Childhood Development Education Management Information System and Continuous Database Updating system; and establishing sustainability measures for data-driven decision-making. The study employed a descriptive research design involving observation and desktop review of county online platforms and libraries. Information gathered affirmed the status of digital transformation in Pre-primary education and guided recommendations. Turkana County Government has implemented two digital systems: Turkana Early Childhood Development and Education Management Information System (a website) and Continuous Database Updating System (Data entry and updating system). The website hosts programs and data related to pre-primary education management, including teacher and learner information, infrastructure development, feeding programs, policy updates, and reports on supervision and evaluation of teachers. Recommendations for successful digital transformation included investing in community engagement for program sustainability, strengthening administrative structures, and enhancing digital technology in Pre-primary education. These measures aim to ensure efficient and effective management of Pre-primary education programs. In conclusion, the Turkana County Government's adoption of the two digital systems marks a significant step towards modernizing Pre-primary education management. By following the study's recommendations, Turkana County can achieve enhanced governance and educational outcomes through digital transformation, thereby serving as a model for similar initiatives across Kenya's counties.

Key Words: Digital transformation, data-driven decision-making, Public Administration, Pre-primary Education

INTRODUCTION

Tiach (2023) defines digital transformation as the use of digital technologies to enhance delivery of public service and management of different public sectors. Public administration on the other hand, as defined by Encyclopedia Britannica refers to the application of policies in providing direction, coordination and order in the administrative activities of the government.

Data-driven decision-making is the process of using data to inform your decision-making process and to

validate your course of action, Stobierski (2019). A research report by Mandinach et. al. (2006) acknowledges data-driven decision making as being a critical component in implementing education policies and practices. The report mentions that data-driven decision making in education systems are implemented through tracking of learners` enrolment progress and trends, monitoring students` performance. There is need for disaggregating, analyzing and reporting on education-related data has influenced education administrators to innovate and implement `home-grown` sustainable data-driven decision-making tools and technologies to help in achieving the need to have reliable data to inform quality and relevant decision-making regarding education matters.

According to Karpenko et. al (2023), digital transformation has become a prevalent feature in Public administration just as in the social life of many communities around the globe. Digital transformation has seen organizations and governments assess their impacts on indicators in population, economic status and transformation and governance. A review of Florin (2023) on digitalization process of public administration points out that the European Union (EU) recognizes the importance and impact of digital transformation in shaping the social and economic status of governments and communities. The European Union implements and is focused on moving on as a Union towards transforming the government sectors using new technology models and Artificial Intelligence, driven by a common agenda dubbed "The Digital Agenda for Europe, 2020", which is implemented under the strategy "Europe`s Digital Decade" with targets of implementation by 2030.

Barao (2023) acknowledges that South Africa and Nigeria are leading in Africa, on exploring sustainable approaches to digital transformation and inclusion in public service, in both normal administration and during national election processes. In Kenya, the past one decade has seen lots of digital transformation in both the government, private institutions and Kenyans have had a noted buzz in utilization of social media platforms like Facebook, Twitter, WhatsApp and Tiktok.

In 2023, the Government of Kenya through the Ministry of Information Communication and the Digital Economy launched the Kenya National Digital Master Plan 2022-2023 strategy, which is meant to leverage on the possible options on how digital inclusion in public service can contribute to the economic, social growth of the country. This strategy looked into digital infrastructure and digital government service, products and data management among other agenda. Through this strategy, implementation included getting access to reliable data to inform a data-driven decision-making for the government essential services. Part of digital transformation realized as a country includes introduction of E-Government, through the government portal "e-citizen". Other platforms include the human resource management portal "Ghris", Finance system through "IFMIS" among others. The National Ministry of Education (MoE) has been implementing National Education Management Information System (NEMIS) from 2018, which is a web-based data management solution for streamlining data management for informed decision-making and planning for the education sector in Kenya; MoE, Kenya (2018).

Turkana County, just as all counties in Kenya, implements policies as directed by the national government. Implementation and utilization of e-government, `Ghris` and IFMIS for example, is a uniform portal for all counties, including Turkana. The county through its County Integrated Development Plan III (CIDP III) of 2023-2027, acknowledges digital inclusion in public sector as a key driver in excellent public service delivery. The CIDP displays the county budgets across the years since inception of devolution, projects and budgetary projections as per existing data. This is a distinct and well elaborate databased budget, which is an indication that the county planning and economics team formulates the budget based on the available data, hence data-driven budgetary allocations. The world has witnessed a great impact on digital transformation, being efficient, fast, and reliable and energy saving among others. Embracing digital inclusion in public service therefore informs quality, reliable, timesaving and cost-effective databased decision-making processes.

This term paper seeks to review the trends in digital transformation in public administration and data-driven decision-making in Turkana County, department of Early Childhood Development and Education (ECDE). It presents the Abstract, Introduction, Problem Statement, Objectives, literature review, theoretical framework, conceptual framework and the methodology to the review study.

Statement of the Problem

Data-driven decision-making is effective in ensuring quality public administration, by facilitating a more accessible, timely, reliable and excellent citizen involvement, that is globally competitive. Turkana County`s Directorate of Early Childhood in the County Department of Education, Sports and Social Protection is one of the fully devolved functions of the county governments, as provided for in the Constitution of Kenya, 2010. Implementing digital databased decision-making in this sector is critical in realizing a digital transformation impact for a nationally competitive ECDE sector. The County government has a key agenda of implementing digital transformation in ECDE through a digital platform called Turkana ECDE Management Information System (TECDEMIS) and Continuous Database Updating System (CODUSYS), Turkana CIDP III (2023-2027).

However, The County Government has initiated implementation plans and carried out Capacity Building initiatives on operationalizing the two platforms, www.turkana.go.ke; but from the typed reports posted in the county website and county social media pages https://www.facebook.com/TurkanaCountyGov (Face Book), there is no evident progress in the county rolling-out TECDEMIS despite efforts to actualize Continuous Database Updating System (CODUSYS).

This term paper therefore seeks to review the milestones in digital transformation in implementation of TECDEMIS and CODUSYS as strategies to implement Public Administration and data-driven decision-making in the County Directorate of ECDE, and seek options and recommendations on how the Directorate of ECDE can utilize TECDEMIS and CODUSYS to effect databased planning, budgeting and programming of activities.

Objectives

i. To assess the state of digital inclusion and transformation in public administration in the Ministry of education, Sports & Social Protection – Turkana County Government

ii. To give recommendations on practically implementing TECDEMIS and CODUSYS

iii. To determine the extent of multi-sectoral engagement in implementation of TECDEMIS

LITERATURE REVIEW

Application of digital transformation and enhancing a data-driven decision making in management of Pre-Primary education is an area that calls for exploration of the needy organization areas that need implementation of digital transformation and the available technological innovations on data management that will facilitate a data-driven decision-making. This section looks into the available scholarly works, on digital transformation in Public Administration, and how to implement them in the Pre-primary education (ECDE) sector in Turkana County. It is sectioned into two parts: Digital transformation in Public Administration and Implementation of data-driven decision-making.

Digital transformation in education, just as in other development sectors globally, involves a change or shift towards a work culture of embracing technological change and development in human and organizational structures, to adopt to the innovative digital technologies, Katyeudo et. al (2021). It further mentions that adoption of digital transformation in education includes students` engagement and capacity-building to prepare students to cope with the fast-developing technological world; adopting digital organizational management practices and using the developing technology to transform education sector management and planning, by having ready, reliable and efficient data for better management of the education sector. In relations to the management of the Pre-primary schools management, embracing digital transformation through innovation and embracing of digital data collection and management information systems will help in planning, resource allocation, management and improvement of the sector through use of digital innovations like TECDEMIS and CODUSYS for management of Pre-primary in Turkana County. Since technology connects the word, this will

facilitate digital competitiveness of the quality of pre-primary education in Turkana County.

According to Mandinach et al (2006), implementing a databased panning and resource allocation and budgeting strategies is not only important to the governments but also development partner organizations. Data-driven decision-making will enhance an informed and guided budgeting system where strategic plans will be implemented and risks properly managed. Challenges can be easily pointed out from this system and will give room for factoring technological innovations invented. Turkana County, being among the marginalized Arid & Semi-Arid (ASAL) counties in Kenya, has among its development strategies, Education as a facilitator for economic transformation. Implementing databased decision making in the management of the pre-primary sector will enhance standard budgetary allocation and grants from the County Government and its partner organizations, based on a reliable informed databased gaps and areas of intervention and improvement.

According to Zhao et. al (2020), Policies and laws can be formulated and programs designed by countries to ensure provision of equitable and inclusive digital education through Open Education Resource, to enhance digital transformation in education and facilitate sustainable education system. It acknowledges the utilization of resources like Mobile phones and human resource to alleviate access to digital transformation and enhance implementation of policies on sustainable public education administration. According to The Kenya National Policy on Information and Communication Technology (ICT) in Education and Training – Ministry of Education (2021), the Government of Kenya continues to invest in ICT in Education in both curriculum delivery and Education management to inform mainstream data management and informed decision-making.

However, while striving to achieve digital transformation and digital data generation for the education sector management, Zhao et. al (2020), acknowledge that policy makers only tend to focus on technological advancements and innovations, while ignoring the social and organizational aspects that will in unison facilitate realization of the outcomes. Implementation of this critical aspects, technological, organizational and massive resource commitments which sometimes, if there`s no strategic sustainable approaches to dealing with them, can always hinder progress.

Investing in accessibility and availability of technological resources in Turkana as a county, will enhance data collection and data management (using android phones, digital systems like TECDEMIS, CODUSYS and Kobo Collect applications, computers and internet). Efficient organizational policy administration aspects of contextualized County Policies on digital transformation in Pre-primary sector, capacity building of human resource and the willingness to change to embrace digital transformation Pre-primary administration in the county; are the current glaring missing links to digital transformation and implementing of data-driven decision making in the Pre-primary sector in the county. This paper seeks to bridge the status of the county by providing recommendations to the realization of digital transformation and implementing of data-driven decision making in the Pre-primary sector.

Theoretical Framework

This review revolves around two theories: Digital transformation theory and Theory of Change; where the Digital transformation in the context of this paper, facilitates change.

Digital transformation theory elaborates the processes and modalities of improving organizations and government entities by triggering significant changes through technological techniques. This is the process of moving from the analog way of implementing public policies and administration (commonly in Kenya through paper work) to embracing digital technology innovations replacing the analogue ways.

Theory of Change looks into the detailed process of the milestones and necessities to realize the desired change. It involves ascertaining the current state of the organization versus its desirable state; while exploring the technical demands, resources and phases of implementation to realize the desirable change. Implementation of this theory, as per this paper, is on exploration of technological platforms and tools, training of public administrators and scripting of the stages and phases of implementing the change of behavior and way of service execution to decision-making (Behavioral change theory) to realization of the desired state of digital

transformation and data-based decision making.

Conceptual Framework

In this paper perceives Digital transformation of public administration as a facilitating agent for data-driven decision-making, in pre-primary education sector in Turkana County.
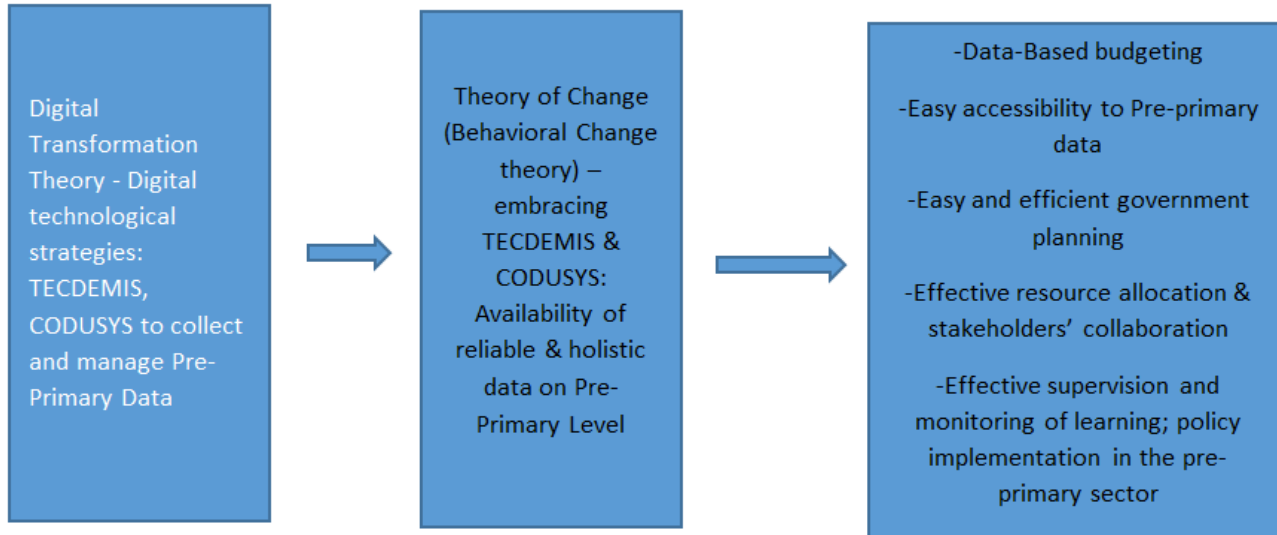
METHODOLOGY

This paper employs a descriptive research design using observation method by reviewing available information from County websites, reports and planning documents. Descriptive observation design is used to study, describe and gather data and information on phenomena without altering the variables. This paper pursues non-participant observation design where the researcher only observes and describes the state of the variables without partaking in or contributing to the status. This approach is the most suitable for this study, given the time limits and its nature of being a desktop review, limiting fieldwork data collection.

Data and information reviewed is through Observation and online review of the available sources in Turkana County websites, published reports and CIDP progress reports. While descriptively comparing its implementation design as of the National Government Ministry of Education`s NEMIS, to give practical recommendations of what the county can do to maximize TECDEMIS and CODUSYS to realize digital transformation in public administration and data-driven decision-making in the pre-primary sector in Turkana County.

FINDINGS

Assessment of digital inclusion and transformation in public administration in Turkana County

Digital inclusion and transformation is a key agenda that the county departments in Turkana are actively taking up. This is implemented through Integrated Finance Management Information System (IFMIS), Human Resource system (Ghris), Active updating and running of the county website, online application and access of County bursary applications and now the newly initiated ECDE management information system.

The basic idea of initiating and developing the digital Management Information Systems (TECDEMIS and CODUSYS) as a county is a big step towards implementation of digital transformation. Turkana County Government has engaged different stakeholders and partner organizations in developing TECDEMIS and CODUSYS. CODUSYS is implemented by the County Government and will integrate and make up TECDEMIS. CODUSYS is a feeder data collection tool that is being used to collect real time data, and filling in monthly reports to be used in developing of TECDEMIS, www.turkana.go.ke . TECDEMIS as a system is fully developed, and is ready for launching and implementation.

Recommendations on practical implementation of TECDEMIS and CODUSYS

Accountability, Participation, responsiveness, Fairness and Law-oriented governance Sari (2023) are key elements and indictors of successful government projects. Implementing administration and policy strategies of government programs revolve around good administration.

Practical implementation and sustainability of public programs call for a diverse ways and strategies of putting into action the planned implementations and work-plans for a long-term sustainability of the projects.

Deep review of Turkana County plans, reports and progress records as published and posted in the county digital platforms, this study gives the following recommendations on practical implementation of TECDEMIS and CODUSYS:

Multi-sectoral engagement in implementation of TECDEMIS and CODUSYS - According to World Bank (2016), Local, National and International Partner Organizations, can help push for sustainability of various school programs. This includes supporting the government in formulating and implementing policies on social sustainability, supporting the communities on innovation and diversification of livelihoods and advocating for sourcing of School programs. By this, the partner organizations are at the center, standing between the government and communities while directing the focus towards sustainability of school meals program.

The official records in the county`s official website, CIDP and social media handles is that TECDEMIS and CODUSYS are an outcome of the county`s engagement with stakeholders and its development partners implementing pre-primary education programs. World Food Programme (WFP), and CODUSYS, Japan International Corporation Agency (JICA) supported development of TECDEMIS. The County as conducted several stakeholders' engagement, reviews and validation workshops for the two systems.

Turkana County will attain successful implementation of TECDEMIS and CODUSYS by working hand in hand with the development partners implementing ECDE programs. The county government can engage the development partners and stakeholders in financing and system strengthening for the ECDE sector in the county. Working with the partners in training teachers, ECDE officers, reviewing and continuous development and maintenance of CODUSYS and TECDEMIS will enhance a consistency of the systems, financing for digital tools like computers, tablets, internet connectivity and other digital demands.

Multi-sectoral engagement will help eliminate duplication of ECDE programs by development partners, streamline systems and concentrate efforts on digital transformation for quality delivery of ECDE programs in the county.

CONCLUSION

Digital transformation is a gradual process that demands availability of resources, finances, technical work force and willingness on the part of the program implementers. The development of TECDEMIS and CODUSYS is a major step that Turkana County has already initiated. The County should invest in its already existing government systems in the ECDE sector to enhance efficiency of these systems. Multi-sectoral engagement of all ECDE implementers in the county, adding up to the resources and funding by the county government will help facilitate digital transformation. Identification of development partners in the digital transformation sector like World Food Program and Japanese International Corporation (JICA) is a major step in collaboration to realize digital transformation. Turkana County government should engage and through a multi-sectoral round-table, engage other development partners to work together to make better and develop better versions and implementation of the digital systems.

RECOMMENDATIONS

i. The county government should invest more on research and securing funds to successfully implement digital administration of the devolved education sectors

ii. The county government should enhance its implementation of TECDEMIS and CODUSYS through capacity building, training and system strengthening of all implementers and users of the two systems.

iii. Turkana County Government should strengthen its stakeholders engagement to enhance resource mobilization and widen the scope of implementation of digital inclusion in its systems

REFERENCES

1. Barao, J. (2023, December). How Digital transformation is shaping Kenya`s Public sector. Convene.
2. Ellen B. Mandinach, M. H. (2006). A Theoretical Framework for Data driven decision-making. Research findings, San Fransisco. Retrieved from https://cct.edc.org/sites/cct.edc.org/files/publications/DataFrame AERA06.pdf
3. Florin, F. B. (2023). Digitalization Process of Public Administration in European Union: Advances and Perspectives. Journal of Public Administration, Finance and Law.
4. Katyeudo K, S. O. (2021). Digital transformation towards education. Vilnius University. Zurich: Vilnius University. doi:10.15388/infedu.2022.13
5. Kenya, M. o. (2018). NEMIS. Retrieved from Ministry of Education (MoE) - Kenya: https://experience.arcgis.com/experience/2e537cf1b44f49f292b1301b640b6db6/page/Home-Page/
6. Man Zhao, H.-T. L.-P. (2020). A Literature Review on Digitization, Digitalization, Datafication & Digital Transformation. 6th International Conference on Human and Social Science Research. China.
7. Oleksandr Karpenko, T. Z. (2023, November 29). Digital transformation of public administration in countries with transition economies. European Review.
8. Stobierski, T. (2019, August 26). Business Insights. Retrieved 4 20, 2024, from Havard Business School Online: https://online.hbs.edu/blog/post/data-driven-decision-making
9. Tiach, M. (2023, October). Digital Transformation in Public Administration: A systematic literature review. International Jornal of Professional Business reviews. doi:10.26668/businessreview/2023.v8i10.2372