



*Identifying and Addressing the Critical Resources  
Needed for Efficient Adoption of Digital Health  
Technologies.*



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<b>ACRONYMS</b>	
1. ADP	- Annual Development Plan
2. BETA	- Bottom-Up Economic Transformation Agenda
3. CAK	- Communications Authority of Kenya
4. CBK	- Central Bank of Kenya
5. CHP	- Community Health Promoters
6. CIDP	- County Integrated Development Plan
7. COVID -19	- Coronavirus Disease 2019
8. DHIS2	- District Health Information Systems 2
9. DHTs	- Digital Health Technologies
10. ECHIS	- Electronic Community Health Information System
11. EHIS	- Electronic Health Information System
12. GDP	- Gross Domestic Product
13. ICT	- Information and Communications Technology
14. KeHIA	- Kenya Health Informatics Association
15. KHPOA	- Kenya Health Professionals Oversight Authority
16. KMHFL	- Kenya Master Health Facilities List
17. KMTC	- Kenya Medical Training College
18. mHealth	- Mobile Health



- 19. MOH - Ministry of Health
- 20. NHIF - National Health Insurance Fund
- 21. OHIE - Open Health Information Exchange
- 22. Open MRS - Open-Source Medical Record System
- 23. SHIA - Social Health Insurance Act
- 24. SHIF - Social Health Insurance Fund
- 25. UHC - Universal Health Coverage
- 26. WHO - World Health Organization



## EXECUTIVE SUMMARY

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This report examines the resource gaps hindering Kenya's healthcare system from efficiently adopting digital health technologies. Despite Kenya's progress in digital transformation, challenges like limited internet access in rural areas, technological disparities, and interoperability issues persist.

Kenya's "Digital Health Superhighway," a national health information exchange – is intended to:

- Promote the use of interoperability concepts and standards in harmonising health information exchange technical and architectural activities within the Kenya eHealth ecosystem.
- Enhance the application of interoperability guidelines to facilitate interoperability design, analysis, and assessment.
- Introduce appropriate governance mechanisms and organisational practices in support of interoperability.

The report focuses on four counties—Kitui, Kiambu, Tharaka Nithi, and Kisumu—to identify resource gaps and provide recommendations for policymakers. The aim is to present evidence that can support advocacy and planning for increased government resources toward digital health technologies, accelerating the implementation of the Digital Health Superhighway to improve access to and quality of healthcare services nationwide.

This analysis did not go through ethical approval as no data was being collected directly from any subjects.

## KEY FINDINGS

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**During the analysis, several cross-cutting issues were identified:**

**1. Inadequate Budgetary Allocations:** The four counties reviewed averaged 0.5% allocation toward digital health as a percentage of the total county budget, across the three financial years. Kisumu County allocated 1.3% in 2023/2024 and Kitui county allocated 1.1% of their 2021/2022 budgets toward digital health, respectively. Limited budgets lead to phased implementation, increasing costs and reducing efficiency as projects stretch out over time.

**2. Poor Flow of Funds:** According to the budget implementation reports by the Controller of Budgets for the three financial years 2021/2022, 2022/2023, and 2023/2024, all four counties experienced irregular funds disbursement from the treasury with most only receiving up to 83% of their budgets at the close of the financial year. Inefficient delivery of domestic resources and delays in funding



from the County Treasury cause cash-flow issues, impacting the timely implementation of healthcare activities.

**3. Staffing Shortages:** As observed during the roundtable discussion with the key stakeholders from the four counties, it was evident that there is a shortage of human resources for health and the available staff have limited digital skills and are thus unable to fully and effectively roll out digital health initiatives.

**4. Delays in Documentation and Procurement:** Procurement and digital health project implementation are often delayed for political and logistical reasons. It was noted during the stakeholders' forums that some projects that started three years ago are not complete to date. Moreover, some projects were abandoned when the new government was elected to office during the 2022 general elections. In some instances, the procurement process is delayed until a few days before the end of the financial year thus rendering the projects unimplementable. Slow project documentation and bureaucratic procurement processes result in late starts and frequent budget overruns thus leading to ineffective project implementation. Further, insufficient and lack of robust monitoring and evaluation mechanisms may lead to delayed completion and unnoticed substandard work, affecting the overall quality of outcomes.

## KEY RECOMMENDATIONS

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The snapshot outlines several critical recommendations to address the identified challenges and accelerate Kenya's progress in Digital Health:

- 1. Increase Budgetary Allocations:** The Government, both at the national and county levels, should provide sufficient and uninterrupted funding to the Ministry of Health to ensure uninterrupted and efficient implementation of digital health programs in Kenya.
- 2. Enhance Fund Flow:** Streamline the flow of funds from the County Treasury to the Ministry to mitigate cash-flow constraints and ensure the smooth execution of digital healthcare programs.
- 3. Address Staffing Gaps:**
  - **Targeted Recruitment:** Implement strategies to fill targeted vacancies that can enhance digital health implementation across various levels within the healthcare system.
  - **Capacity Building:** Invest in on-the-job training for the existing workforce to enhance their skills and expertise in digital health implementation at both national and county levels.



4. **Streamline Project Implementation Processes:** Improve project documentation and procurement processes to minimise delays and cost overruns, ensuring efficient execution.

5. **Strengthen Project Supervision:** Establish robust monitoring and evaluation mechanisms to ensure accountability, timely completion, and optimised project outcomes.

6. **Enhance Health Research and Development Capacity:** Improve the capacity of the health research and development unit to secure grants and funding. Provide training and support for manuscript writing, publications, and grant writing to boost competitiveness in securing domestic and foreign grants for digital health projects.

By adopting these recommendations, policymakers and stakeholders can address resource limitations, empower the workforce to use digital tools, and optimise implementation processes, significantly advancing Kenya's digital health agenda.

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## BACKGROUND

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Universal Health Coverage (UHC) is a major goal of the Kenyan Government. Pilot programs launched in 2018 across four counties tested the feasibility of nationwide implementation. The Third Medium Term (2018-2022) positioned UHC as a cornerstone of the “Big Four” agenda, focusing on expanded health insurance coverage, improved access to quality care, and financial protection. Although the plan has concluded, it laid the groundwork for social and economic progress.

The government continues to strive for UHC under the Bottom-Up Economic Transformation (BETA) and UHC priorities for 2022-2027. Recent policies, including the Digital Health Act (2023) and the Primary Health Care Bill (2023), the Social Health Insurance Fund (2023), and the Facility Improvement Fund (2023) reflect the administration’s commitment to enhancing healthcare accessibility and quality. The Digital Health Act is particularly pivotal, emphasising interoperability and standardisation of health information exchange to drive digital health reforms at the national level.

Kenya's healthcare landscape comprises a mix of public and private providers, with the public sector accounting for approximately 43% of all health facilities. The Kenyan Master Facility List (KMHFL) includes all officially registered health facilities, totaling 9,696 across the country. The Ministry of Health (MOH) plays a crucial role in coordinating and ensuring that all services adhere to established policies and standards, recognizing that good health is essential for socio-economic development.

Health insurance coverage in Kenya stands at 25%, leaving 75% of the population relying on out-of-pocket payments for healthcare services. According to the World Bank, out-of-pocket expenditures account for 25% of the total current health expenditure, indicating a significant financial burden on households.

Kenya is among the top African countries in mobile and internet penetration, with its digital economy contributing 7.7% to GDP. The adoption of digital technologies has expanded access to information, education, healthcare, and other services, improving lives and livelihoods. However, disparities remain: 44% of the urban population has internet access, compared to only 17% in rural areas. This highlights the need for better infrastructure, including internet, electricity, and telecommunications networks, to ensure everyone can participate in the digital economy.

Public hospitals increasingly use digital technologies for patient administration, billing, and managing outpatient clinical services. Open-source tools such as



DHIS2 and openMRS, have improved health data management and clinical outcomes. However, challenges persist, particularly with interoperability with existing systems. Despite supportive policies, there is still a lack of systems that facilitate communication between county and national government hospitals, and private institutions. Additionally, there are resource shortages, including funding, human resources, and technological infrastructure.

To address these issues, the Ministry of Health (MOH), in collaboration with stakeholders, developed the Kenya Health Information Systems Interoperability Framework. This framework establishes a Digital Health Enterprise Architecture (DHEA), offering a solution to health information exchange challenges in Kenya. The DHEA promotes shared infrastructure and the reuse of existing information and services, addressing gaps in resource efficiency and data exchange. Core principles include standardised data formats, stakeholder collaboration, and leveraging existing infrastructure.

The DHEA aims to ensure seamless communication between various health facilities, eliminating data silos and providing a holistic view of patient's medical records. This facilitates better access to healthcare services, as patients can receive treatment at different facilities without encountering information barriers. Improved data exchange leads to better-informed diagnoses and treatment plans, ultimately enhancing healthcare quality.

The newly established Digital Health Agency, mandated by the Digital Health Act (2023), is a crucial step toward achieving the goals of the Digital Health Enterprise Architecture (DHEA). While the Ministry of Health (MOH) continues to develop standards in consultation with the Digital Health Agency (DHA) and other entities, the DHA will manage the health information exchange and implement interoperability standards. This centralised approach can address resource gaps by providing dedicated oversight of these critical functions. The DHEA and the Digital Health Agency represent significant advancements toward creating efficient and interoperable digital health systems in Kenya.

## OBJECTIVES

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- 1. Identify Essential Resources:** Determine the necessary resources for the effective and widespread adoption of digital health technologies, particularly the digital health enterprise architecture envisioned by the Kenya Health Information Systems Interoperability Framework (KHISIF).
- 2. Develop Recommendations:** Create clear and actionable recommendations to help policymakers and stakeholders develop effective strategies. These recommendations will leverage the reforms established by the Digital Health Act,



addressing identified resource gaps to ensure the Act's successful implementation.

**3. Advocate for Resource Allocation:** To provide evidence for advocacy for robust resource allocation for Digital Health Technologies (DHTs) within the framework established by the Digital Health Act. Emphasise the alignment between allocated resources and the Act's mandated goals to facilitate robust implementation through sustainable funding.

## SCOPE OF THE ANALYSIS

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This snapshot investigates the resource gaps in Kenya's healthcare system, focusing on four counties with diverse geographic and demographic characteristics (see below). The analysis relied on the publicly available information and the information that was shared by the stakeholders during the stakeholder validation forums held in the four counties. It largely focused on the financial resource gaps from the analysis of budget documents and roundtable discussions. The report attempted to also analyse the digital health technologies already deployed by various counties albeit not exhaustively as the data sources were quite limited and therefore no conclusive recommendations were provided in this regard.

- **Kisumu:** As Kenya's third-largest city with a population of 1,155,524, Kisumu serves as a benchmark for digital health initiatives. Its strong agricultural and fishing industries fuel the economy, and it has 333 primary healthcare facilities. Kisumu's involvement in the national Universal Health Coverage (UHC) pilot program provides valuable insights for future UHC strategies.
- **Kitui:** Representing rural settings, Kitui has a population of 1,136,761 and relies heavily on subsistence farming. It is home to 430 primary healthcare facilities. Kitui County was one of the very first counties to adopt UHC and piloted different initiatives to achieve UHC in the county.
- **Tharaka Nithi:** The smallest of the four counties, Tharaka Nithi has a population of 393,177 and 183 primary healthcare facilities, providing a rural contrast to Kisumu.
- **Kiambu:** A peri-urban county with the largest population of 2,417,735, Kiambu has a service-based economy and 711 primary healthcare facilities, offering a perspective on healthcare delivery outside major cities.

By including counties not involved in the UHC pilot program, the snapshot avoids bias and presents a comprehensive view of resource gaps. This broad approach enhances the generalizability of the findings, highlighting challenges and opportunities within Kenya's digital healthcare landscape across varying population sizes, economic activities, and primary healthcare facilities.



By leveraging the diverse experiences of these counties, the snapshot seeks to provide actionable insights for the effective implementation of Digital Health Technologies, ultimately improving healthcare outcomes nationwide.

In our analysis of what constitutes digital health allocation, we took into consideration allocations for items that will have a direct impact on the operationalization of digital health despite not being managed by the health departments. A specific example of this is laying the Fibre optic cables in facilities that will usually be managed by the ICT ministries and departments.

## LITERATURE REVIEW

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Kenya's healthcare landscape is at a critical juncture, with Digital Health Technologies (DHTs) are poised to transform access, quality, and affordability of care. However, realising this potential requires a thorough analysis of existing resource gaps. This review examines several key documents ([see Appendix](#)), including:

SN	County	Planning and Budgeting Document FY 2021/2022 to 2023/2024
1	Kisumu	<ul style="list-style-type: none"> <li>- County Integrated Development Plan 2023/2023</li> <li>- Annual Development Plan 2021/2022</li> <li>- Annual Development Plan 2022/2023</li> <li>- Annual Development Plan 2023/2024</li> <li>- County Budget Estimates 2021/2021</li> <li>- County Budget Estimates 2022/2023</li> <li>- County Budget Estimates 2023/2024</li> </ul>
2	Kitui	<ul style="list-style-type: none"> <li>- County Integrated Development Plan 2023/2027</li> <li>- Annual Development Plan 2021/2022</li> <li>- Annual Development Plan 2022/2023</li> <li>- Annual Development Plan 2023/2024</li> <li>- County Budget Estimates 2021/2022</li> <li>- County Programme Based Budget 2023/2024</li> </ul>



3	Kiambu	<ul style="list-style-type: none"> <li>- County Integrated Development Plan 2023/2027</li> <li>- Annual Development Plan 2021/2022</li> <li>- Annual Development Plan 2022/2023</li> <li>- Annual Development Plan 2023/2024</li> <li>- County Programme Based Budgets 2021/2022</li> <li>- County Programme Based Budgets 2022/2023</li> <li>- County Programme Based Budgets 2023/2024</li> </ul>
4	Tharaka Nithi	<ul style="list-style-type: none"> <li>- County Integrated Development Plan 2023/2027</li> <li>- Annual Development Plan 2021/2022</li> <li>- Annual Development Plan 2022/2023</li> <li>- Annual Development Plan 2023/2024</li> <li>- County Programme Based Budgets 2021/2022</li> <li>- County Programme Based Budgets 2022/2023</li> <li>- County Programme Based Budgets 2023/2024</li> </ul>

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- County Integrated Development Plan 2023-2027
  - Annual Development Plans 2021/2022, 2022/2023, and 2023/2024
  - County Budget Review and Outlook Papers 2021/2022, 2022/2023, and 2023/2024
  - Programme Based Budgets 2021/2022, 2022/2023, and 2023/2024
  - Annual Budget Implementation Reports
  - Draft Kisumu County Digital Health Roadmap
  - Universal Health Coverage (UHC) strategy
  - National Health Policy
  - Digital Health Act 2023
  - Draft National Data Governance Framework

By synthesising findings from these diverse sources, this review highlights the multifaceted resource gaps hindering Kenya's digital health ambitions. It underscores the need for a comprehensive approach to address these gaps



across regulatory, technological, human resources, user engagement, and financial dimensions to unlock the full potential of DHTs in transforming healthcare delivery in Kenya.

This analysis combines the qualitative examination of digital health programs prioritised by the four counties over the past three years with quantitative analysis focusing on budgetary allocations during the same period. By considering both qualitative and quantitative aspects, a comprehensive understanding of the financial gaps in Kenya's digital health initiatives is obtained, enabling stakeholders to develop targeted strategies for improvement.

## **Regulatory Frameworks**

Kenya leads digital transformation in Africa with a robust regulatory framework, recognized as “generation 4” (G4) by the International Telecommunication Union (ITU), prioritising the broader digital economy. Key frameworks like the Digital Health Act 2023, the Data Protection Act 2019, and the Central Bank of Kenya Regulations play essential roles in fostering trust, privacy, and quality standards. However, comparing Kenya's regulations with global best practices reveals areas for improvement.

Kenya has laid promising groundwork for regulating Digital Health Technologies (DHTs). Existing bodies like the Medical Practitioners and Dentist Board (KMPDC) and the Pharmacy and Poisons Board (PPD) oversee aspects of telehealth and mHealth. The Digital Health Act 2023 establishes a central authority, the Digital Health Agency, that will streamline regulations and promote a holistic approach to establishing the National Health Information Exchange (NHIE) in Kenya.

Financial regulations are critical. The Central Bank of Kenya (CBK) regulates mobile money transactions impacting mHealth platforms, ensuring security and transparency. The Data Protection Act 2019 safeguards health data privacy, while regulations from the Competition Authority of Kenya and the CBK protect users from predatory lending practices in mHealth financing. The National Health Insurance Fund (NHIF) governs digital tools for health insurance management, ensuring transparency.

However, the Act falls short of addressing resource constraints. It lacks provisions for budgetary allocations and human resources essential for operationalizing its recommendations. Our research aims to bridge this gap by investigating complementary strategies to address resource limitations, including securing funding and building a competent workforce.



The Digital Health Act 2023 and the Social Health Insurance Fund offer promising avenues for bridging resource gaps. Specific implementation steps must address resource limitations, including budgetary allocations and staffing shortages. Building capacity within the healthcare workforce and fostering public awareness of DHTs are also crucial.

## **Technological Infrastructure**

Kenya's vision for leveraging digital health solutions relies on a strong technological infrastructure, connecting patients, healthcare providers, and vital health information. However, challenges in internet connectivity, especially in rural areas, hinder equitable access. Only 32.7% of Kenyans had internet access at the start of 2023, falling short of the 75% target outlined by the Communications Commission of Kenya Strategic Plan (2018-2023).

To bridge this gap, targeted investments in expanding internet coverage, particularly through Fibre optic networks and innovative solutions like low-orbit satellites, are crucial. Additionally, making mobile data plans more affordable can encourage wider adoption, especially in rural areas.

Beyond connectivity, Kenya's healthcare system faces infrastructure deficiencies highlighted by the WHO's Global Digital Strategy 2020-2025. Only 6% of sampled hospitals have essential facilities, hindering healthcare workers' ability to leverage digital platforms for tasks like maintaining patient records and conducting telemedicine consultations.

By addressing connectivity gaps, equipping healthcare facilities, and promoting digital health adoption, Kenya can ensure everyone, regardless of location, benefits from these transformative technologies.

## **Human Resources**

Kenya's journey towards establishing a thriving digital health ecosystem hinges on a skilled and empowered workforce. However, the country faces challenges due to a shortage of medical professionals, with only 2.26 doctors per 10,000 population, falling below the WHO's recommended standard of 2.5 medical staff per 1,000 people.

Efforts like the 2014-2018 Health Sector Human Resources Strategy aimed to address this gap by increasing mid-level and community health workers' numbers and diversifying their skill sets. Despite progress, there is limited availability of specialised digital health skills, particularly in rural areas, and concerns around job security and career paths for digital health professionals.



Moreover, there's a fundamental gap in digital literacy, with only 29% of the population possessing basic digital skills. This lack of foundational knowledge exacerbates challenges posed by specialised skills deficiencies.

A fragmented landscape with responsibility for health workforce development scattered across various agencies presents a major obstacle. Strengthening the Kenya Health Professions Oversight Authority's (KHPOA) mandate and equipping it with the necessary resources and authority could drive consistency and foster a comprehensive strategy for preparing Kenya's health workforce for the digital age.

### **User Engagement and Adoption**

Digital literacy and accessibility gaps, especially in rural areas, hinder access to health information due to limited internet and smartphone affordability. Lack of awareness and trust in DHTs, compounded by concerns about data privacy and security, further impede adoption. Moreover, many DHTs lack user-centred design, failing to meet the specific needs of diverse Kenyan communities. Tailoring DHTs to address local health challenges and incorporating local languages and cultural contexts is crucial. Without focused efforts to improve digital literacy, build trust, and ensure user-centred design, vulnerable populations risk further marginalisation from vital health services.

### **Financial Resources**

Kenya has embraced digital health solutions to enhance healthcare accessibility, but financial constraints limit their implementation. Adequate resources are vital for infrastructure, training, and sustaining initiatives.

A deeper analysis of resource allocations in four selected counties reveals significant funding gaps. Bridging this gap requires increased government allocation, partnerships with private and international organisations, and innovative financing mechanisms.

To understand these gaps, we reviewed county planning and budgeting documents (presented below in Table 6).

## **METHODOLOGY**

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The snapshot employed a mixed-methods approach, combining quantitative analysis of planning and budgeting documents for the financial years 2023/2024 and 2024/2025 with qualitative roundtable discussions in four diverse counties: Kisumu, Kiambu, Tharaka Nithi, and Kitui.





- Kisumu, a leader in digital health, offered insights from its participation in the UHC pilot program, while
- Kiambu represented a peri-urban environment.
- Tharaka Nithi and Kitui provided contrasting perspectives from rural settings.

## Snapshot Questions

This snapshot aims to investigate key questions hindering the effective adoption of DHTs in Kenya:

1. What Digital Health Technologies are currently in use in your counties?
2. What are the primary challenges encountered in effectively utilising these DHTs?
3. What resources are currently available to support the use of DHTs in your counties?
4. What critical resources are still lacking to achieve widespread and efficient adoption of DHTs in your counties?
5. What essential resources are needed nationwide to ensure successful and sustainable implementation of DHTs?

## Snapshot Design

In-depth roundtable discussions will involve key stakeholders from each county, totalling 80 participants. These stakeholders include:

- Members of County Health Management Teams,
- Digital health department/division staff,
- Health Record Information Officers (HRIOs),
- System users such as nurses and clinical officers,
- ICT department staff,
- Policy department staff,
- Finance and planning department staff,
- County health economists,
- Finance department team members, and
- County research staff



These discussions aim to gather insights into the current landscape of resource allocation for digital health, exploring both funding levels and utilisation challenges.

**Table 1 Methods used to answer snapshot questions**

snapshot Question	Method Used to Answer Question
What Digital Health Technologies are currently being utilised in your counties?	Roundtable discussions
What are the Primary challenges you encounter in effectively using these DHTs?	Roundtable Discussions
What resources are currently available to assist with DHTs use in your counties?	Desktop Review/Roundtable Discussions
What critical resources are still missing to achieve widespread and efficient adoption of DHTs in your counties?	Desktop Review/ Roundtable discussions
For the Country as a whole, what are the essential resources needed to ensure successful and sustainable implementation of DHTs?	Desktop Review/ Roundtable Discussions



## Limitations

This snapshot identifies several limitations. Firstly, the desktop review was constrained by the early stage of DHT implementation in Kenya, leading to limited availability of comparative documents, historical data, and financial commitments that would ordinarily serve as the baseline for the analysis. Challenges in accessing crucial reports, such as UHC reports for pilot counties, further restricted contextualization of county-level resource allocations within the national UHC framework.

Secondly, roundtable discussions revealed limitations within the healthcare workforce, with many lacking extensive experience with DHTs, hindering detailed recommendations. Some participants prioritised more immediate concerns like staff shortages over DHTs, indicating potential competition for resources within county health structures.

Despite these limitations, this snapshot offers valuable insights into early DHT adoption in Kenya. Acknowledging these constraints underscore the need for further research with expanded data availability and deeper engagement with DHT-experienced health workers. Addressing these limitations can lead to a more comprehensive understanding of resource allocation challenges and inform effective strategies for DHT implementation in Kenya.

## Results

This section examines the status of DHT implementation in four Kenyan counties: Kitui, Kisumu, Kiambu, and Tharaka Nithi. While each county has made strides in adopting various DHT solutions, common challenges persist. Below are the findings based on each of the snapshot questions.

### County DHT Priorities Analysis and Findings

Table 2 illustrates the increased recognition of the importance of DHTs in health service delivery by counties as demonstrated by the significant number of systems under consideration and/or development totalling to about 29 across the four counties some of which are similar across the counties. However, there is gradual adoption of Digital Health Technologies (DHTs) across the four counties since a big number of systems currently in use are private sector supported. Systems such as electronic health records and appointment scheduling are becoming standard. Additionally, innovative counties like Kisumu are utilising DHTs for revenue management and commodity control, addressing various challenges within the healthcare system such stock outs and revenue leakages.



**Table 2: DHTs being Utilised in the Counties**

County	Type of DHTs Available	DHTs in Use
Kitui	<ul style="list-style-type: none"> <li>• EMRs</li> <li>• EHRs</li> <li>• Logistics Management Systems</li> <li>• Aggregate data management systems</li> <li>• Facility Registries</li> <li>• Community information management system</li> </ul>	<p>Kenya Health Information System (KHIS), National Cancer Register, Kenya Electronic Medical Record (EMR), Logistics Information Systems, Patient Information System, Damu KE, National Health Portal (NHP), e-CHIS (Electronic Community Health Information System)</p>
Kisumu	<ul style="list-style-type: none"> <li>• EMRs</li> <li>• EHRs</li> <li>• Logistics Management Systems</li> <li>• Aggregate data management systems</li> <li>• Facility Registries</li> <li>• Financial management information systems</li> </ul>	<p>Electronic Medical Record Systems (EMRS), Elephant, Funsoft, Laboratory Information Management Systems (LIMS), eCHIS, Financial Information System (FIS), District Health Information System (DHIS), Maisha Meds, open IMIS, M-Tiba, IRIS, Kenya EMR, TiBU</p>



	<ul style="list-style-type: none"> <li>• Community information management system</li> <li>• Telemedicine platforms</li> </ul>	
Kiambu	<ul style="list-style-type: none"> <li>• EMRs</li> <li>• EHRs</li> <li>• Logistics Management Systems</li> <li>• Aggregate data management systems</li> <li>• Facility Registries</li> <li>• Community information management system</li> <li>• Telemedicine platforms</li> </ul>	HMIS, KEMSA Logistics Management Information System (LMIS), Chanjo system, AfyaKE, Telemedicine services
Tharaka Nithi	<ul style="list-style-type: none"> <li>• EMRs</li> <li>• EHRs</li> <li>• Logistics Management Systems</li> <li>• Aggregate data management systems</li> <li>• Facility Registries</li> <li>• Financial</li> </ul>	Kenya-EMR, HMIS, Biometric Registration for NHIF, KHIS, ECHIS, Telemedicine (ICT Scan), 1513 Toll-Free Line, Lab IMS, Drone Technology, ANC SMS Prompt, KEMSA LMIS, Chanjo System, AfyaKE, SoftCare, SANITAS, M-Tiba, M-Pesa, HICS



	<p>management information systems</p> <ul style="list-style-type: none"> <li>• Community information management system</li> <li>• Telemedicine platforms</li> <li>• Toll free lines</li> </ul>	
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Table 3 reveals common challenges obstructing digital health adoption and implementation across counties. Limited funding for DHTs, weak ICT infrastructure, and a shortage of skilled healthcare workers are significant hurdles. These issues lead to unreliable internet connectivity, inadequate equipment, and staff resistance to new technologies. Addressing these factors is crucial to ensure the successful adoption and utilisation of DHTs.

**Table 3: Primary Challenges Encountered**

County	Challenges Encountered	Common Challenges Across Counties
Kitui	Inadequate internet connectivity, resistance to change, insufficient ICT infrastructure, power inconsistency and lack of backups, shortage of healthcare staff and ICT support, lack of proper e-waste disposal guidelines, insufficient security measures, budget constraints	<ul style="list-style-type: none"> <li>• Inadequate Digital Infrastructure across all the counties</li> <li>• Limited funding for Digital Health Programs</li> <li>• Inadequate skilled human resources for health to implement digital health solutions</li> <li>• Limited internet connectivity across the counties</li> </ul>
Kisumu	Inadequate infrastructure, hardware shortages, limited	



	computer skills, change resistance, poor internet connectivity, user attitude, lack of interoperability, user readiness, poor power supply, lack of skilled human resources	
Kiambu	Inadequate funds for health and health research, weak programmatic monitoring and coordination, insufficient stocks of health commodities, sub-optimal digitalization and ICT infrastructure coverage	
Tharaka Nithi	Hardware resource limitations, ICT infrastructure challenges, skills and capacity gaps, change management for staff, inadequate financial resources, insufficient workforce	

Table 4 analyses resource availability and gaps focusing on infrastructure, human resources as well as enablers like electricity connectivity across the four counties for the implementation of DHTs. While some areas show existing IT infrastructure, health information systems, and hardware, critical gaps persist. These include budget constraints, a shortage of trained personnel, inadequate ICT infrastructure, and unreliable power, all of which hinder the successful adoption of DHTs.

**Table 4: Resources Analysis -Availability and Gaps for the Use of DHTs in Counties**

County	Resources Available	Limitations for full adoption of the available DHTs Resource Gap
Kitui	IHMIS software installation in	Inadequate budget for DHT



	KCRH and Mwingi hospitals, HMIS implementation in all 14 hospitals, construction of modern Health Records departments in KCRH and Mwingi hospitals	programs, lack of proper ICT infrastructure, lack of storage space, lack of proper e-waste disposal systems/mechanisms, technical knowledge gap among staff members, and inadequate ICT support staffing
Kisumu	Kisumu County Integrated Network Infrastructure (KCINI) project, revenue management system enhancement project, County Integrated Health Management System (Kisumu) implementation	Digital Hardware, Human Resource, internet connectivity, lack of interoperable systems, and alternative power supply methods
Kiambu	Equipping facilities with ICT equipment, network cable installation, providing internet connectivity, queue management systems adoption, desktops and laptops for CHMTs and SCHMTs, data quality protocol adoption, KHIS portal reporting, healthcare worker training, HMIS/LMIS automation, HPT HMIS software and hardware procurement, server, router, and intercom installation	County policies, guidelines, and SOPs on ICT and digital health, capacity Building for HRH, and support and Mentorship in DHT's implementation
Tharaka Nithi	ICT department, Workforce, Strategic partnerships with stakeholders, Optic Fibre Cables, Safaricom Internet, Servers and Access Points, Intelligence Access Points, Standby Power generators	Financial resources for capacity building, purchase of modern ICT equipment, electricity reticulation in health facilities, power connectivity and Reliable power backup supplies, internet and network connectivity, human resources, and hardware and software infrastructure





**Table 5** illustrates the funding priorities of counties for DHT initiatives. There's a notable emphasis on infrastructure development and system implementation. Budget allocations prioritise expanding internet connectivity (seen in Kisumu and Kiambu), equipping facilities with technology (Kiambu), and completing the rollout of an electronic health records system (HIMS) across hospitals in Kitui. Tharaka Nithi focuses on health information system upgrades, while Kisumu plans to enhance its revenue management system.

**Table 5: Counties’ DHT Funding priorities 2021/2022 to 2023/2024 financial years.**

County	Priority Programmes	Amount KES -	Amount in USD
Kitui	Completion of Installation of integrated health management information system (IHMIS) in all 14 Hospitals	76,801,920	590,794
	ICT works at the new OPD at KCRH	1,000,200	7693
	Construction of Modern Health Records and Information Departments in all the KCRH and Mwingi Hospital and equipping the offices with desktops for data entry	5,000,000	38461
Kisumu	Kisumu County Integrated Network Infrastructure (KCINI): Three (3) additional County institutions are to be covered on both LAN and WAN connectivity. This will bring the total number of facilities and institutions	179,000,000	1,376,923



	<p>covered on LAN/WAN to seven (7).</p> <p>The Directorate in partnership and collaboration with user departments is planning to enhance the revenue management system to include end-to-end automation of the revenue stream and deploy a Health Management System</p> <p>County Integrated Health Management System) in all health facilities as the major project this financial year</p>		
Kiambu	Facilities equipped with ICT equipment and accessories	270,000,000	2076923
	CCTV surveillance system enhanced		
	Facilities with laid-down network cables		
	Facilities connected with Stable and fast internet		
	HF Provided with Intercom Connectivity		
	Health Facilities with adequate health data collection tools		
	functional EMRs at the OPD installed		



	Operating point of care EMRs at the comprehensive care units improved		
	Queue management system adopted		
	Desktops and laptops procured for the CHMT and SCHMTS to support data management		
	Health facilities adopted with Data Quality Protocols		
Tharaka Nithi	<ul style="list-style-type: none"> <li>Health information services Computerization of health systems in all health facilities</li> <li>Maintenance of the EMR system by upgrading the existing systems</li> </ul>	30,000,000	230769

## Understanding Planning and Budget-Making Process in Kenya

### National Level

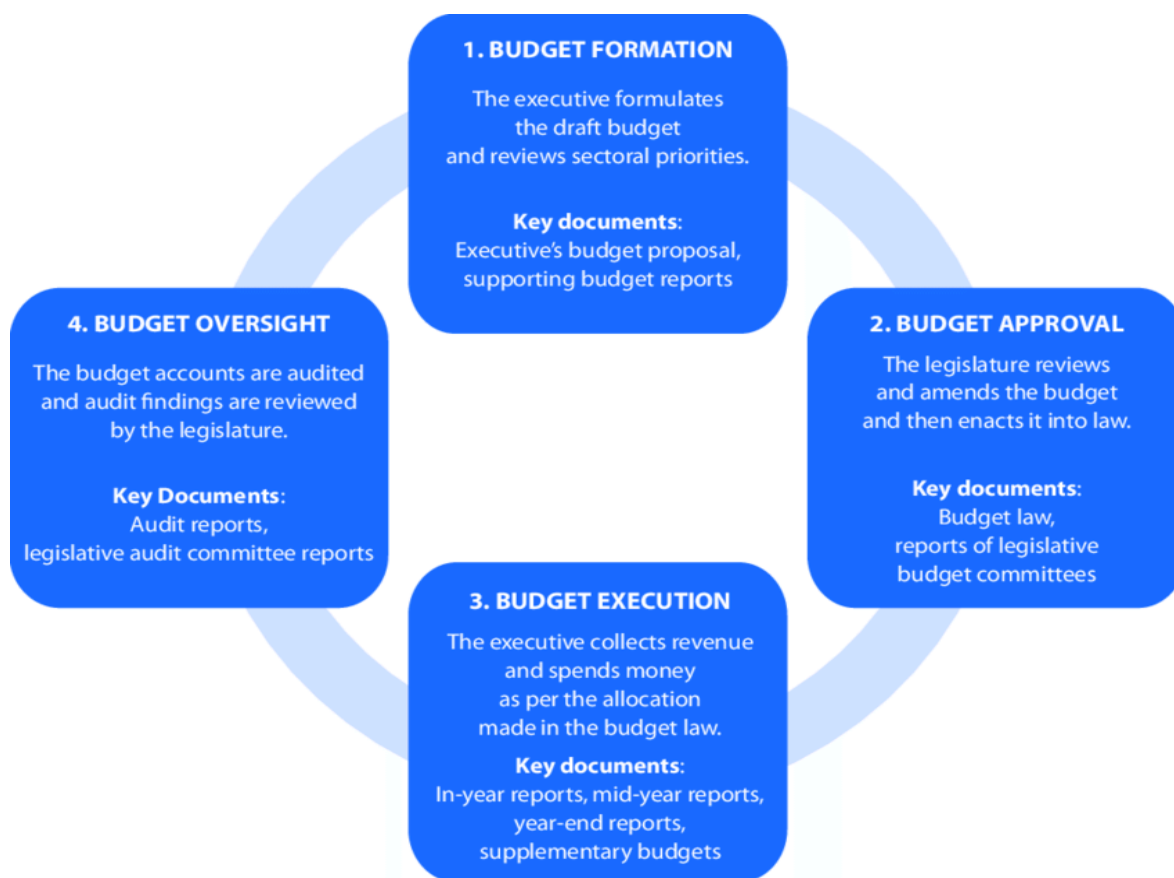
The Medium-Term Expenditure Framework (MTEF), introduced in Kenya in 1998 and implemented in the budget from the financial year 2001/2002, aimed to enhance fiscal discipline, political accountability, and public participation in financial matters. It sought to improve government efficiency through measures like Budget Ceilings, Sector Working Groups, and frequent Expenditure Reviews (PER, 2010).

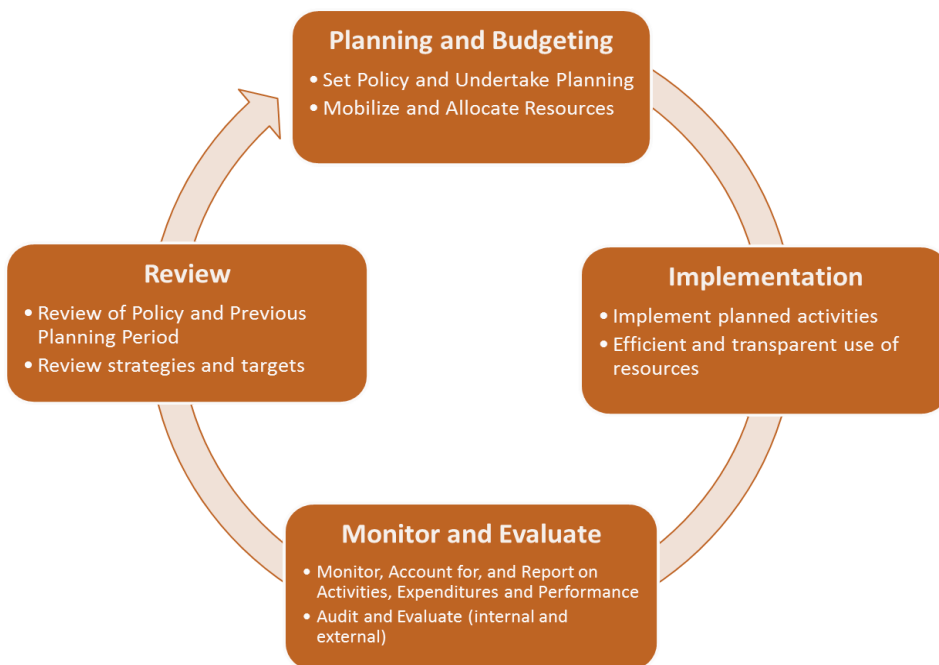
The formulation and preparation of the national government's budget involve the development and submission of key documents for approval by the Cabinet and Parliament. This process follows a budget calendar outlining timelines for various activities to finalise the budget and submit it for approval by April 30th of each



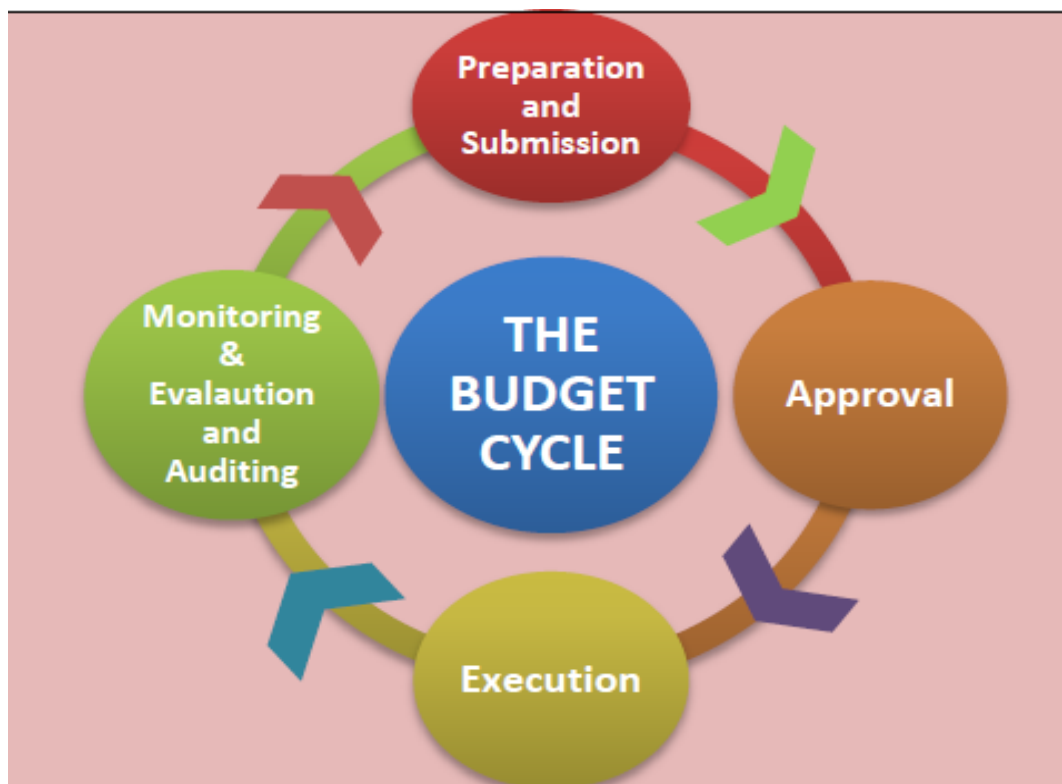
financial year. The budget calendar is typically outlined in a Treasury circular issued under Section 36 of the Public Finance Management Act, 2012, providing guidelines for preparing the subsequent financial year's budget and the Medium-Term Budget.

*Budget formulation by the Kenya National Government*





*County Budget Cycle*



*County Planning and Budgeting Calendar*



**Table 6: Budget making process-documents and timelines**

Timeline	Activity	Public Participation
Every 5 years	<b>County Integrated Development Plan (CIDP)</b> is prepared—a 5-year plan that is a roadmap for development in the county and forms the basis for all county spending in the coming 5 years.	The public can be involved in the plan through SWGs, the CBEF, and MCAs; in public forums organised by county administrators at sub-county, ward, and village levels.
30 August	The County Treasury releases a <b>Budget Circular</b> to all departments informing them that the budget process is beginning, so they can prepare their funding requests.	The circular should outline ways the public can be involved in the budget preparation process.
1 September	<b>Counties prepare and table an Annual Development Plan (ADP) to the County Assembly for approval. The ADP is drawn from the approved CIDP.</b>	<b>Public forums as above. The plan must be made public within 7 days.</b>
30 September	<b>County Budget Review and Outlook Paper (C-BROP)</b> submitted to the CEC.	Public forums as above. After approval, the CBROP should be publicised.
1 January	Commission on Revenue Allocation (CRA) recommendations on how revenue should be divided between national and county governments.	These recommendations are published by the CRA.
28 February	County Fiscal Strategy Paper (CFSP) tabled in the County Assembly.	Consultative forums on the CFSP through the CBEF can be at sub-county levels. Written and oral submissions can be made by the public.



<b>30 April</b>	County Executive submits Budget Estimates (spending plan) to the County Assembly.	The public can be involved in budget preparation through the SWGs, CBEF, and MCAs.
<b>May</b>	Debate and changes to the proposed budget estimates.	Public consultations on the Budget Estimates take place.
<b>30 June</b>	Deadline for counties to approve the budget, Finance Bill, and Appropriation Bill. End of Financial Year.	The budget is to be published and published within 21 days after 30 June.

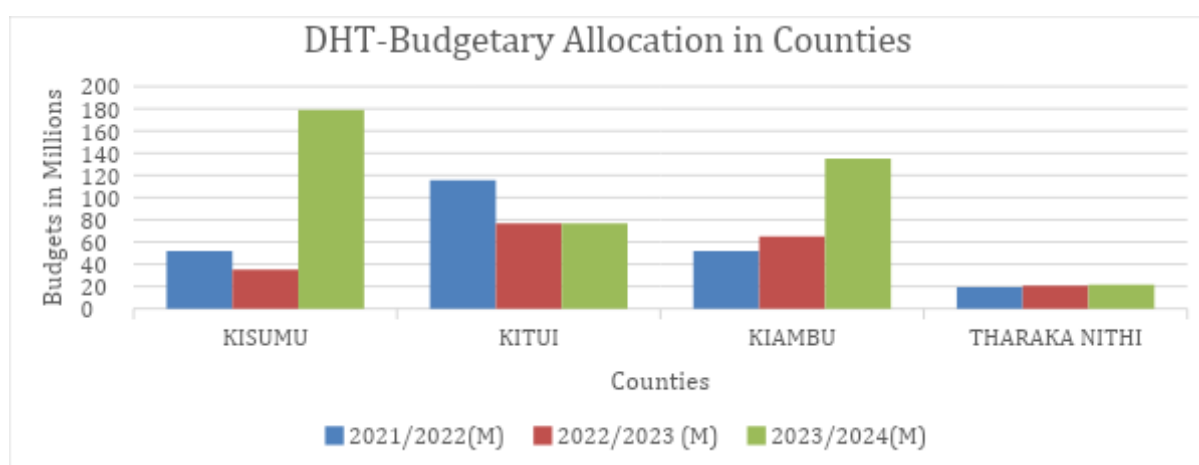


Table 7 shows the budgetary allocation across three financial years. Digital health typically received less than 1% of the county budgets: the four counties averaged roughly 0.5% allocation of budgets toward digital health as a percentage of the total county budget across the three financial years, with the exception of Kisumu County which allocated 1.3% in 2023/2024 and Kitui county that allocated 1.1% of their 2021/2022 budgets toward digital health.

**Table 7: Comparative analysis of budgetary allocation towards DHT as a % of county(s) total budgets-FY 2021/2022 to FY 2023/2024**

COUNTY	2021/2022(M)	Total Budget(M)	%	2022/2023(M)	Total Budget(M)	%	2023/2024(M)	Total Budget(M)	%
KISUMU	52	9450	0.55	35	10250	0.34	179	13610	1.32
KITUI	115.8	10840	1.07	76.8	12350	0.62	76.8	13990	0.55
KIAMBU	52	15140	0.34	65	16630	0.39	135.14	24500	0.55
THARAKA NITHI	19.5	4910	0.40	20.5	5410	0.38	21.4	6500	0.33

Some counties have succeeded at increasing the budget allocation to digital health over time. Apart from Tharaka Nithi and Kitui whose budgets have shown minimal increment, both Kisumu and Kiambu have steadily increased their DHT budgets over the years as shown in the graph.









## DISCUSSION

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The analysis of DHT implementation in four Kenyan counties uncover key challenges and opportunities for improvement.

### Key Issues:

**1. Funding and Sustainability:** Inadequate financial resources restrict investments in infrastructure, software, capacity building, and maintenance, posing challenges to the sustainability of DHT initiatives.

**2. Human Resources and Skills Gap:** Shortages of skilled personnel, including IT professionals and trained healthcare workers, hinder the deployment and utilisation of digital health solutions.

**3. Infrastructure and Connectivity:** All four counties face challenges with internet connectivity, power supply, and hardware availability, limiting the reliability and accessibility of DHT systems, particularly in rural areas.

**4. Change Management and User Adoption:** Resistance to change among healthcare staff impedes the integration of DHT into existing workflows and practices.

**5. Data Quality and Interoperability:** Concerns about data quality and interoperability between DHT systems hinder effective data analysis, decision-making, and continuity of care.

### Possible Explanations:

**1. Lack of cohesion between national and county governments:** Counties are 90% funded by the national government under the division of revenue framework. Challenges may stem from delayed resource allocation and disbursement by the national government, impacting program implementation at the county level.

**2. Implementation Strategies:** Counties like Kisumu City County have developed clear implementation roadmaps focusing on training and change management to facilitate user adoption of DHT. These strategies can be adopted by other counties for the effective implementation of DHTs.

**3. Monitoring and Evaluation:** Weaknesses in monitoring and evaluation processes hinder tracking progress, identifying challenges, and measuring the impact of DHT initiatives.



## Implications and Impact

The identified issues can hamper DHT programs in various ways:

1. **Reduced functionality:** Limited infrastructure and capacity can hinder DHT systems, affecting data management and service delivery.
2. **Data inaccuracies:** Poor data quality and interoperability issues can lead to inaccurate information, impacting decision-making and patient care.
3. **Adoption challenges:** Resistance to change and lack of user training can impede DHT adoption and sustainability.

## Limitations and Considerations

This analysis is based on data from four counties and may not capture all complexities. External factors like national policies and cultural contexts could also influence results.

## RECOMMENDATIONS

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Addressing infrastructure limitations, building capacity, securing funding, and improving change management can enhance DHT implementation. To address the findings and challenges identified in the implementation of Digital Health Technologies (DHT) in the four counties, the following recommendations are proposed:

1. **Increase Budgetary Allocations:** The Government, both at the national and county levels should provide sufficient and uninterrupted funding to the Ministry of Health to ensure uninterrupted and efficient implementation of digital health programs in Kenya.
2. **Enhance Fund Flow:** Streamline the flow of funds from the County Treasury to the Ministry to mitigate cash-flow constraints and ensure the smooth execution of digital healthcare programs.
3. **Address Staffing Gaps:**
  - **Targeted Recruitment:** Implement strategies to fill targeted vacancies that can enhance digital health implementation across various levels within the healthcare system.
  - **Capacity Building:** Invest in enhancing the existing workforce's skills and expertise in digital health implementation at both national and county level.



4. **Streamline Project Implementation Processes:** Improve project documentation and procurement processes to minimise delays and cost overruns, ensuring efficient execution.

5. **Strengthen Project Supervision:** Establish robust monitoring and evaluation mechanisms to ensure accountability, timely completion, and optimal project outcomes.

6. **Enhance Health Research and Development Capacity:** Improve the capacity of the health research and development unit to secure grants and funding. Provide training and support for manuscript writing, publications, and grant writing to boost competitiveness in securing domestic and foreign grants for digital health projects.

## CONCLUSION

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To address these issues and unlock the full potential of digital health technologies, several key strategies are recommended:

1. **Improve Internet Connectivity:** Invest in extending network coverage and implementing technologies like satellite internet to ensure reliable access to digital health services.

2. **Address Infrastructure Gaps:** Allocate funds for procuring essential hardware devices and upgrading existing ICT infrastructure to bolster capacity for deploying DHT systems effectively.

3. **Enhance Power Connectivity:** Implement renewable energy solutions like solar power to mitigate the impact of inconsistent power supply on digital health operations.

4. **Strengthen Workforce Capacity:** Recruit and train skilled IT professionals and healthcare workers to enhance the efficiency and effectiveness of DHT implementations.

5. **Overcome Resistance to Change:** Implement comprehensive training programs and engage stakeholders through education and incentives to foster widespread acceptance and adoption of DHT solutions.

6. **Address Budget Constraints:** Prioritise investment in maintenance and upgrades for DHTs within the national and county Ministry of Health budgets. Explore innovative financing mechanisms like public-private partnerships to ensure the long-term sustainability of digital health programs.

7. **Foster Political Goodwill and Commitment:** Advocate for policy reforms and strategic investments in DHT infrastructure and capacity-building efforts to create an enabling environment for innovation and progress.



## **WAY FORWARD**

By implementing these strategies with the support of government, healthcare stakeholders, and development partners, Kenya can realize its UHC goals and ensure equitable access to quality healthcare for all its citizens. KeHIA remains committed to supporting the country in filling these identified gaps and collaborating closely with governments and stakeholders to achieve these objectives.

KEHIA remains committed to supporting the counties in bridging these identified gaps and collaborating closely with governments and stakeholders to achieve these objectives. Specifically, KEHIA/THK coalition members will:

- Engage in continuous dialogue with the GoK to highlight and address resource deficiencies in DHT implementation and adoption.
- Strengthen the capacity of stakeholders on budget advocacy that includes the budget making process, ensuring effective public participation and enforcing transparency in the utilisation of DHTs funds. This will strengthen our advocacy efforts towards increased allocation of resources towards critical areas such as Digital Health Technologies (DHTs) and UHC in general.
- Partner with private sector entities to leverage additional resources and expertise to bridge the resource gap DHT implementation in counties.
- Work closely with the Ministry of Health and other relevant government bodies to ensure that budget allocations align with the identified needs and priorities in the healthcare sector.
- Participate in budget making and review processes to advocate for sufficient and sustainable funding for DHTs.
- Develop a monitoring and evaluation framework to ensure that the funds allocated and optimally utilised in an effective and transparent manner.



## APPENDIX 1

SN	County	Planning and Budgeting Document FY 2021/2022 to 2023/2024
1	Kisumu	<ul style="list-style-type: none"> <li>- County Integrated Development Plan <a href="#">2023/2023<sup>1</sup></a></li> <li>- Annual Development Plan <a href="#">2021/2022<sup>2</sup></a></li> <li>- Annual Development Plan <a href="#">2022/2023<sup>3</sup></a></li> <li>- Annual Development Plan <a href="#">2023/2024<sup>4</sup></a></li> <li>- County Budget Estimates <a href="#">2021/2021<sup>5</sup></a></li> <li>- County Budget Estimates <a href="#">2022/2023<sup>6</sup></a></li> <li>- County Budget Estimates <a href="#">2023/2024<sup>7</sup></a></li> </ul>
2	Kitui	<ul style="list-style-type: none"> <li>- County Integrated Development Plan <a href="#">2023/2027<sup>8</sup></a></li> <li>- Annual Development Plan <a href="#">2021/2022<sup>9</sup></a></li> <li>- Annual Development Plan <a href="#">2022/2023<sup>10</sup></a></li> <li>- Annual Development Plan <a href="#">2023/2024<sup>11</sup></a></li> <li>- County Budget Estimates <a href="#">2021/2022<sup>12</sup></a></li> </ul>

<sup>1</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/4375/KISUMU-CIDP-III-2023-2027.pdf?sequence=1&isAllowed=y>

<sup>2</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/3919/Approved%20ADP%20%20%20FY%202022-2023.pdf?sequence=1&isAllowed=y>

<sup>3</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/3919/Approved%20ADP%20%20%20FY%202022-2023.pdf?sequence=1&isAllowed=y>

<sup>4</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/4445/Kisumu-ADP-2023-2024.pdf?sequence=1&isAllowed=y>

<sup>5</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/3425/KISUMU%20APPROVED-BUDGET-ESTIMATES-FY-2021-2022.pdf?sequence=1&isAllowed=y>

<sup>6</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/4138/APPROVED-BUDGET-ESTIMATES-FY-2022-2023.pdf?sequence=1&isAllowed=y>

<sup>7</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/4442/KISUMU%20APPROVED-BUDGET-ESTIMATES-2023-2024-1-2.pdf?sequence=1&isAllowed=y>

<sup>8</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/4333/CGOKTI-FINAL-KITUI-COUNTY-CIDP-2023-2027....submitted-to-CA.pdf?sequence=1&isAllowed=y>

<sup>9</sup> [County Government of Kitui Department of Economic Planning Kitui County Annual Development Plan 2021/2022 August 2020 The County](https://www.kitui.go.ke/County-Government-of-Kitui-Department-of-Economic-Planning-Kitui-County-Annual-Development-Plan-2021/2022-August-2020-The-County)

<sup>10</sup> [https://repository.kippra.or.ke/bitstream/handle/123456789/3785/KITUI\\_AD\\_P\\_2022\\_23...pdf?sequence=1&isAllowed=y](https://repository.kippra.or.ke/bitstream/handle/123456789/3785/KITUI_AD_P_2022_23...pdf?sequence=1&isAllowed=y)

<sup>11</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/4809/KITUI%20ADP%2023-24.pdf?sequence=1&isAllowed=y>

<sup>12</sup>

[https://repository.kippra.or.ke/bitstream/handle/123456789/3476/CGOKTI\\_FINAL\\_FY\\_2021-22%20BUDGET.pdf?sequence=1&isAllowed=y](https://repository.kippra.or.ke/bitstream/handle/123456789/3476/CGOKTI_FINAL_FY_2021-22%20BUDGET.pdf?sequence=1&isAllowed=y)



		- County Programme Based Budget <a href="#">2023/2024</a> <sup>13</sup>
3	Kiambu	<ul style="list-style-type: none"> <li>- County Integrated Development Plan <a href="#">2023/2027</a><sup>14</sup></li> <li>- Annual Development Plan <a href="#">2021/2022</a><sup>15</sup></li> <li>- Annual Development Plan <a href="#">2022/2023</a><sup>16</sup></li> <li>- Annual Development Plan <a href="#">2023/2024</a><sup>17</sup></li> <li>- County Programme Based Budgets <a href="#">2021/2022</a><sup>18</sup></li> <li>- County Programme Based Budgets <a href="#">2022/2023</a><sup>19</sup></li> <li>- County Programme Based Budgets <a href="#">2023/2024</a><sup>20</sup></li> </ul>
4	Tharaka Nithi	<ul style="list-style-type: none"> <li>- County Integrated Development Plan <a href="#">2023/2027</a><sup>21</sup></li> <li>- Annual Development Plan <a href="#">2021/2022</a><sup>22</sup></li> <li>- Annual Development Plan <a href="#">2022/2023</a><sup>23</sup></li> <li>- Annual Development Plan <a href="#">2023/2024</a><sup>24</sup></li> <li>- County Programme Based Budgets <a href="#">2021/2022</a><sup>25</sup></li> </ul>

<sup>13</sup>

<https://repository.kippra.or.ke/bitstream/handle/123456789/4142/KITUI%20COUNTY%20PBB%202022-23%20%281%29.pdf?sequence=1&isAllowed=y>

<sup>14</sup>[https://repository.kippra.or.ke/bitstream/handle/123456789/4431/Kiambu\\_CIDP\\_2023\\_2027\\_compressed.pdf?sequence=1&isAllowed=y](https://repository.kippra.or.ke/bitstream/handle/123456789/4431/Kiambu_CIDP_2023_2027_compressed.pdf?sequence=1&isAllowed=y)

<sup>15</sup> County Government of Kiambu

<sup>16</sup> <https://dev.kiambu.go.ke/wp-content/uploads/2022/11/CADP-2022-2023-Draft-FINAL.pdf>

<sup>17</sup>

<https://repository.kippra.or.ke/bitstream/handle/123456789/4687/Kiambu-County-Annual-Development-Plan-ADP-2023-2024.pdf?sequence=1&isAllowed=y>

<sup>18</sup>

<https://repository.kippra.or.ke/bitstream/handle/123456789/4139/FY-2021-2022-PBB-ITEMIZED-BUDGET-FINAL.pdf?sequence=1&isAllowed=y>

<sup>19</sup>

<https://repository.kippra.or.ke/bitstream/handle/123456789/4140/FY-2022-2023-PBB-AND-ITEMISED-FINAL.pdf?sequence=1&isAllowed=y>

<sup>20</sup>

<https://repository.kippra.or.ke/bitstream/handle/123456789/4685/Kiambu%20PBB-BUDGET.pdf?sequence=1&isAllowed=y>

<sup>21</sup>

<https://repository.kippra.or.ke/bitstream/handle/123456789/4339/Tharaka%20Nithi%20CIDP%202023-2027%20FINAL.pdf?sequence=1&isAllowed=y>

<sup>22</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/2604/CADP%20FY%202021-2022.pdf?sequence=1&isAllowed=y>

<sup>23</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/3494/Annual%20Development%20plan%202022-23%20Final%20-CA%20Submitted.pdf?sequence=1&isAllowed=y>

<sup>24</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/4842/Annual%20Development%20plan%202023-24%20.pdf?sequence=1&isAllowed=y>

<sup>25</sup> <https://repository.kippra.or.ke/bitstream/handle/123456789/3496/TNC%20Program%20Based%20Budget%202021-22%20FY.pdf?sequence=1&isAllowed=y>



		- <a href="#">2022/2023<sup>26</sup></a> County Programme Based Budgets
		- <a href="#">2023/2024<sup>27</sup></a> County Programme Based Budgets

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<sup>26</sup><https://repository.kippira.or.ke/bitstream/handle/123456789/3762/tharaka%20Revised%20Program%20Based%20Budget%202022-23%20FY%20Final.pdf?sequence=1&isAllowed=y>

<sup>27</sup><https://repository.kippira.or.ke/bitstream/handle/123456789/4501/TNC%20Program%20Based%20Budget%202023-24%20FY%20%282%29.pdf?sequence=1&isAllowed=y>





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