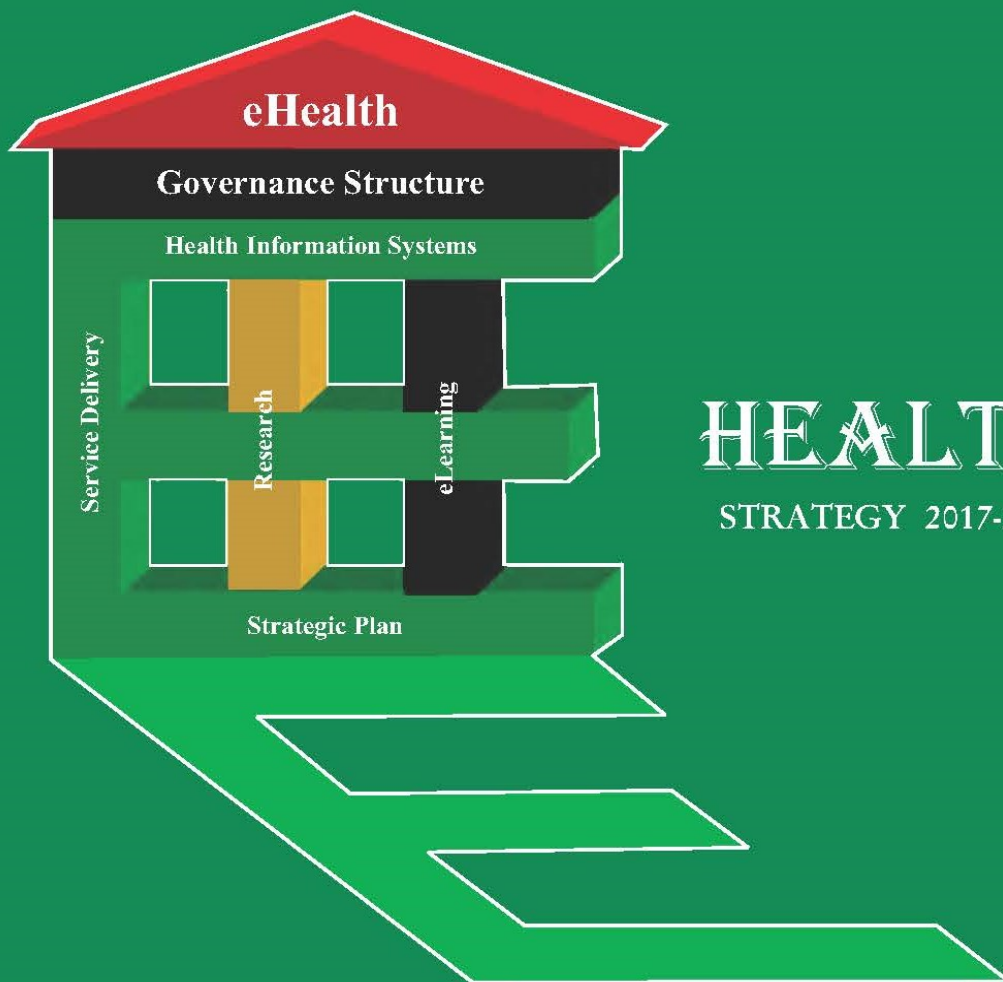




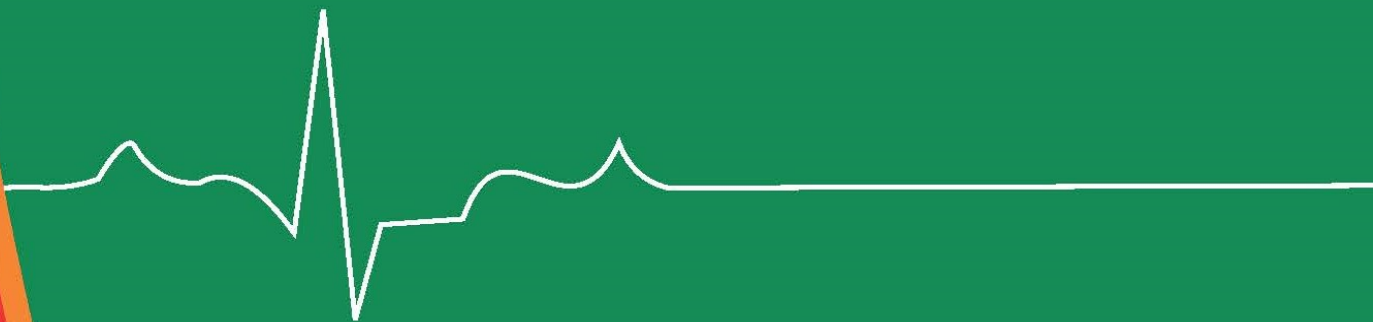
# Republic Of Zambia

Ministry of Health



## HEALTH

STRATEGY 2017-2021



## FOREWORD



The Government of the Republic of Zambia through its ongoing health sector reforms aims to improve health outcomes. As a part of these reforms the Ministry of Health had developed, among other strategies, the National Health Strategic Plan (2011 to 2015) and the eHealth strategy (2014 to 2016) to guide priority setting and deployment of resources in the health sector. Although implementation of the strategies promised to produce many positive results, realising the best outcomes in the face of increasing pressures on the healthcare system requires a fundamental transformation in the way health care is delivered and managed. The Ministry of Health recognizes the potential of information and communication technology (ICT) in transforming healthcare delivery by enabling information access and supporting healthcare operations, management, and decision making. However, the Zambian health sector is still characterized by a fragmented landscape of ICT pilot projects and numerous data and health information system (HIS) silos with significant barriers to the effective sharing of information between healthcare participants. Although the government, partners, and private institutions are continuing to invest in various ICT initiatives, in the absence of a national plan and coordination, there is a real risk of continued duplication, ineffective utilization of resources, and the creation of new solutions that cannot be integrated or scaled across the continuum of care. Information and Communication Technologies have, over the past few years, significantly impacted many aspects of society and have the potential to impact positively on the delivery of health care services. The development of the national eHealth Strategy 2017-2021 therefore comes at a critical moment when the capability of ICTs to support and transform health care has been widely recognized. The purpose of this strategy is to use ICTs to leverage service delivery for successful implementation of eHealth systems. The development of this strategy coincides with the Government of Zambia adopting a different paradigm through the implementation of a “SMART Zambia Now”. It is my considered view that, with appropriate levels of commitment and support from the Government, health workers, Cooperating Partners (CPs) and other key stakeholders, this strategy will significantly contribute to the improvement of the management of the health sector. I therefore, urge all stakeholders involved in the implementation of the eHealth strategy to familiarize themselves with this important document. The Ministry is fully committed to ensuring the successful implementation of the strategy.

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Hon. Dr. Chitalu Chilufya MP  
**MINISTER OF HEALTH**

## ACKNOWLEDGEMENTS



In order to have a strategy that is holistic and inclusive, the development of the eHealth strategy used a participatory process which brought together key stake holders such as CEEGICT, ZICTA, CDC, USAID and CHAI to share their experiences in the implementation of eHealth interventions.

The process benefited greatly from expert input which took into account information from other sectors.

On behalf of the Ministry of Health, I also wish to acknowledge the financial and technical support rendered to the Ministry of Health by our Cooperating Partners and other line ministries in supporting the development of this strategic plan.

Finally, I now wish to thank all members of staff of the Ministry of Health for their participation, contributions and support to the process of formulating this eHealth strategy 2017-2021.

A handwritten signature in black ink, appearing to read 'Jabbin Mulwanda', written in a cursive style.

Dr. Jabbin Mulwanda  
**PERMANENT SECRETARY**  
**MINISTRY OF HEALTH**

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## ACRONYMS

CDC	Centre for Disease Control & Prevention
CEEGICT	Centre of Excellence for eGovernance and ICT
CHAZ	Churches Health Association of Zambia
CIDRZ	Centre for Infectious Disease Research in Zambia
CPD	Continuous Professional Development
CPs	Cooperating Partners
CT	Counselling and Testing
DHIS	District Health Information System
DMO	District Medical Office
ECT	Electronic Transactions
EHR	Electronic Health Records
EID	Early Infant Diagnosis
eLMIS	Electronic Logistics Management Information System
GIS	Geographic Information System
GNC	General Nursing Council
GPRS	General Packet Radio Service
GRZ	Government of the Republic of Zambia
HIV/AIDS	Human Immune Virus/ Acquired Immune Disease Syndrome
HMIS	Health Management Information System
HPCZ	Health Professionals Council of Zambia
HR	Human Resource
HRH	Human Resources for Health
HRIS	Human Resources Information System
ICT	Information and Communication Technology
ICTs	Information and Communication Technologies
IEC	Information Education and Communication
JSI	John Snow Inc – USAID  Deliver Project
LAN	Local Area Network
LIS	Laboratory Information System
LMIS	Laboratory Management Information System
LMIS	Logistics Management Information System
M & E	Monitoring & Evaluation
MoH	Ministry of Health
MSL	Medical Stores Limited
NCDs	Non-Communicable Diseases
NHRA	National Health and Research Authority
NHRA	National Health Research Act
NHS	National Health Standards
PCR	Polymerized Chain Reaction
PMO	Provincial Medical Office
SWAp	Sector Wide Approach
TWG	Technical Working Group
WHO	World Health Organization
ZICTA	Zambia Information and Communication Technology

## EXECUTIVE SUMMARY

The Ministry of Health's National eHealth strategy recognises the impact that eHealth is bringing to the delivery of health care and how it is making health systems more efficient and responsive to dynamic needs globally. Social and cultural changes contribute to the understanding that the health sector must now integrate information and communications technology into its way of delivering quality health services to its citizens. Emerging from a severely constrained health system are opportunities for eHealth in Zambia.

Focus Area	Objectives
Service Delivery	To develop and implement efficient e-Health solutions for quality health service delivery.
Research	To increase technology use in health research.
e-Learning	To reach more students through the use of technology and integrate life skills curriculum that give students the interpersonal skills needed for the work place.

### Governance Framework

- Design governance, management structures and processes specific to the needs of a large-scale e-Health implementation
- Establish a project coordination unit to support the e-Health TWG initiatives
- Develop high-level advocacy for e-Health within the GRZ
- Identify and empower strategic and operational leadership
- Develop a sustainability plan that builds institutional capacity and resources for e-Health projects

Globally, all sectors are embracing Information and Communication Technologies (ICT) to enhance service delivery and increase competitiveness and efficiency. The effective and efficient use of ICT will not only translate into better and efficient service delivery but will also improve training of health personnel and research in the health sector. The three (3) pillars of the *Zambian eHealth Strategy* are **Service Delivery, Research, and eLearning**. The focus areas have been tabulated into a five (5) year time frame with specific objectives. The Ministry of Health is currently implementing programmes using electronic computer systems to improve health service delivery by tracking HIV diagnostic services, managing patient data, providing telehealth infrastructure and eLearning platforms, and building the capacity of the Ministry to provide strong leadership and governance to ensure effective management in the application of health services. One key focus area of system implementation is the development of the interoperability layer, that will enhance accuracy and data exchange. The Ministry of Health has developed a framework to improve the governance structures by supporting project coordination and eHealth implementation in Zambia which promotes strategic operational leadership and sustainability. This National eHealth strategy is designed to guide and mainstream the use of ICTs in health and other related sectors and provides clear operational guidelines that will drive growth and transformation through the effective use of ICTs. **Core interventions are establishment of governance structures, development of the eHealth Centre and development of the interoperability layer.**



Component	Role	Description
Leadership, governance and multi-sector engagement	Enabling environment	<ul style="list-style-type: none"> <li>• Direct and coordinate eHealth at the national level; ensure alignment with health goals and political support; promote awareness and engage stakeholders.</li> <li>• Use mechanisms, expertise, coordination and partnerships to develop or adopt eHealth components (e.g. standards).</li> <li>• Support and empower required change, implementation of recommendations and monitoring results for delivery of expected benefits.</li> </ul>
Strategy and investment	Enabling environment	<ul style="list-style-type: none"> <li>• Ensure a responsive strategy and plan for the national eHealth environment. Lead planning, with involvement of major stakeholders and sectors.</li> <li>• Align financing with priorities; donor, government and private-sector funding identified for medium term.</li> </ul>
Legislation, policy and compliance	Enabling environment	<ul style="list-style-type: none"> <li>• Adopt national policies and legislation in priority areas; review sectoral policies for alignment and comprehensiveness; establish regular policy reviews.</li> <li>• Create a legal and enforcement environment to establish trust and protection for consumers and industry in eHealth practice and systems.</li> </ul>
Workforce	Enabling environment	<ul style="list-style-type: none"> <li>• Make eHealth knowledge and skills available through internal expertise, technical cooperation or the private sector.</li> <li>• Build national, regional and specialized networks for eHealth implementation.</li> <li>• Establish eHealth education and training programmes for health workforce capacity building.</li> </ul>
Standards and interoperability	Enabling environment	<ul style="list-style-type: none"> <li>• Introduce standards that enable consistent and accurate collection and exchange of health information across health systems and services.</li> </ul>
Infrastructure	ICT environment	<ul style="list-style-type: none"> <li>• Form the foundations for electronic information exchange across geographical and health-sector boundaries. This includes the physical infrastructure (e.g. networks), core services and applications that underpin a national eHealth environment.</li> </ul>
Services and applications	ICT environment	<ul style="list-style-type: none"> <li>• Provide tangible means for enabling services and systems; access to, and exchange and management of information and content. Users include the general public, patients, providers, insurance, and others. The means may be supplied by government or commercially.</li> </ul>

## INTRODUCTION

Zambia has a high disease burden which is mainly characterised by high prevalence and impact of communicable diseases, particularly, malaria, HIV and AIDS, STIs, and TB, and high maternal, neonatal and child morbidities and mortalities. The country is also faced with a rapidly rising burden of non-communicable diseases, including mental health, diabetes, cardiovascular diseases and violence. Emerging from a severely constrained health system, are opportunities for eHealth in Zambia.

## BACKGROUND

The eHealth strategy is a product of collaboration with stakeholders within the Ministry of Health, Cooperating Partners and end users of eHealth. The effective and efficient use of ICTs will not only translate into better and efficient service delivery but will also improve training of health personnel and research in the health sector. The eHealth strategy provides the Ministry with clear guidelines that will drive growth and transformation through the effective use of ICTs. The strategy will give broad operational guidelines on how to make the various eHealth systems efficient and interoperable. The priority focus areas include: Service Delivery, Research and eLearning.

Furthermore, the strategy has been designed to provide everyone within the health sector with new opportunities for collaboration, skills development, and access to important information for research and decision-making. The strategy also leverages potential to expand and build on the current eLearning training programs for pre-service and in-service personnel. In order to harness and provide adequate protection to the ICT resources, various components of the strategy ensure that ICT is well developed, maintained and utilised.

## THE CASE FOR A NATIONAL eHEALTH STRATEGY

Globally, all sectors are embracing Information and Communication Technologies to enhance service delivery and increase competitiveness. Health care is no exception. ICTs can transform how health care is delivered and how health systems are run. The use of Information and Communication Technologies in health care service delivery is termed eHealth. The World Health Organisation defines eHealth as “the combined use in the health sector of electronic communication and information technology for clinical, education and administrative purposes, both at the local site and at a distance.”. In more practical terms, eHealth is the means of ensuring that the right health information is provided to the right person at the right place and time in a secure, electronic form for the purpose of optimizing the quality and efficiency of health care delivery, research, education and knowledge.

Some of the solutions that eHealth can provide for the health sector include:

- **Computerised point of care services:** resource wastage can be avoided if electronic medical record systems are used to facilitate real-time referral services and improve quality of care;
- **Telehealth services:** can facilitate cost effective provision of specialist services to communities, without need to travel long distances;
- **Electronic surveillance systems:** can provide decision makers with the power to formulate

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<sup>3</sup>WHO/ITU National eHealth Strategy Toolkit

<sup>4</sup>WHO/ITU National eHealth Strategy Toolkit



- appropriate interventions, and provide services relevant to the target population;
- **Electronic performance reporting and analytical systems:** can be used to leverage financial and health service output data to monitor program performance, identify potential inefficiencies, and optimise the use of resources invested in responding to health needs of the population.

## SITUATION ANALYSIS

### **Internet and Communications Technology**

According to the Zambia information communication technology agency (ZICTA), Zambia has about 6million (39% of the population) accessing the Internet. The country continues to increase its access into the World Wide Web through numerous fiber optic links connecting the country to the rest of the world through international links such as the West African cable system (WACS) and the Sat-3, through telecom Namibia in order to boost the country's broadband capacity. The mobile subscriptions are about 11.5million representing an estimated 74.3% of the population.

### **Power**

Despite the country facing an erratic power supply in some areas, the country expects to triple power output to 6,000 megawatts (MW) in 2 years through expansion of solar energy by foreign investors.

### **Policies**

A national ICT policy and eHealth strategy (2014-2016) are in place and efforts are being made to incorporate other sector wide policies.

### **System Integration**

There are multiple eHealth systems being implemented, operated and maintained by MoH. New projects continually are being introduced. There are several eHealth systems and initiatives currently in use. As the eHealth governance structures and functions such as the clearing house get established, approval processes for new systems will be formalized and an up-to-date inventory of systems shall be maintained. Most of the systems work in isolation and are disjointed, there is need for interoperability to foster integration.

## 1.1 SWOT ANALYSIS

Strengths	Weakness
<ol style="list-style-type: none"><li>1. Increased ICT literacy levels among health workers.</li><li>2. 13 nursing schools have a basic platform, infrastructure and content to support eLearning.</li><li>3. Capacity of tutors and learners to use the eLearning methodologies.</li><li>4. Availability of some eHealth infrastructure and systems.</li><li>5. Political and institutional will in supporting eHealth.</li><li>6. Inclusion of eHealth in the national health strategic plan.</li></ol>	<ol style="list-style-type: none"><li>1. Lack of an interoperability framework</li><li>2. Parallel systems and duplication of resources.</li><li>3. Inadequate change management and capacity building initiatives.</li><li>4. Inadequate human resource capacity to effectively support eHealth.</li><li>5. Inability to access timely integrated data for improved decision making at various levels of service delivery.</li><li>6. Inadequate policies and guidelines to regulate the development and implementation of eHealth solutions.</li><li>7. Low availability of publications on eHealth initiatives in Zambia.</li><li>8. Low utilization of ICT potential for research.</li><li>9. Inadequate implementation of information systems Security standards.</li><li>10. Inadequate ICT infrastructure in health facilities.</li><li>11. Lack of an investment plan and budgets for eHealth resource mobilization.</li></ol>

Opportunities	Threats
<ol style="list-style-type: none"> <li>1. Centralized placement and movement of ICT staff by CEEGICT enhancing coordination.</li> <li>2. Greater stakeholder interest and support for eHealth systems as well as fund and build capacity for research</li> <li>3. Plans to improve telecommunications infrastructure.</li> <li>4. Increase in mobile technology penetration.</li> <li>5. Initiatives to implement e-government ICTs including a national data centre.</li> <li>6. Initiatives to provide alternative power solutions by government and cooperating partners.</li> <li>7. Existence of legislation, policy and guidelines to support data access and use (NHRA 2013, ECT Act 2009).</li> </ol>	<ol style="list-style-type: none"> <li>1. Inconsistent electricity supply - load shedding.</li> <li>2. Donor dependency for financing of key projects.</li> <li>3. Limited access to required technologies.</li> <li>4. Inadequate regulations and capacity to enforce data security.</li> <li>5. Poor telecommunications infrastructure to support e-government.</li> <li>6. Inadequate capacity to prevent cybersecurity threats.</li> </ol>

## STRATEGIC FOCUS

### 1.2 VISION

To have quality, timely, secure and accessible Health information through an integrated national eHealth system by 2021.

### 1.3 MISSION

To promote effective and efficient delivery of Health to all Zambians using ICTs

### 1.4 GUIDING PRINCIPLES

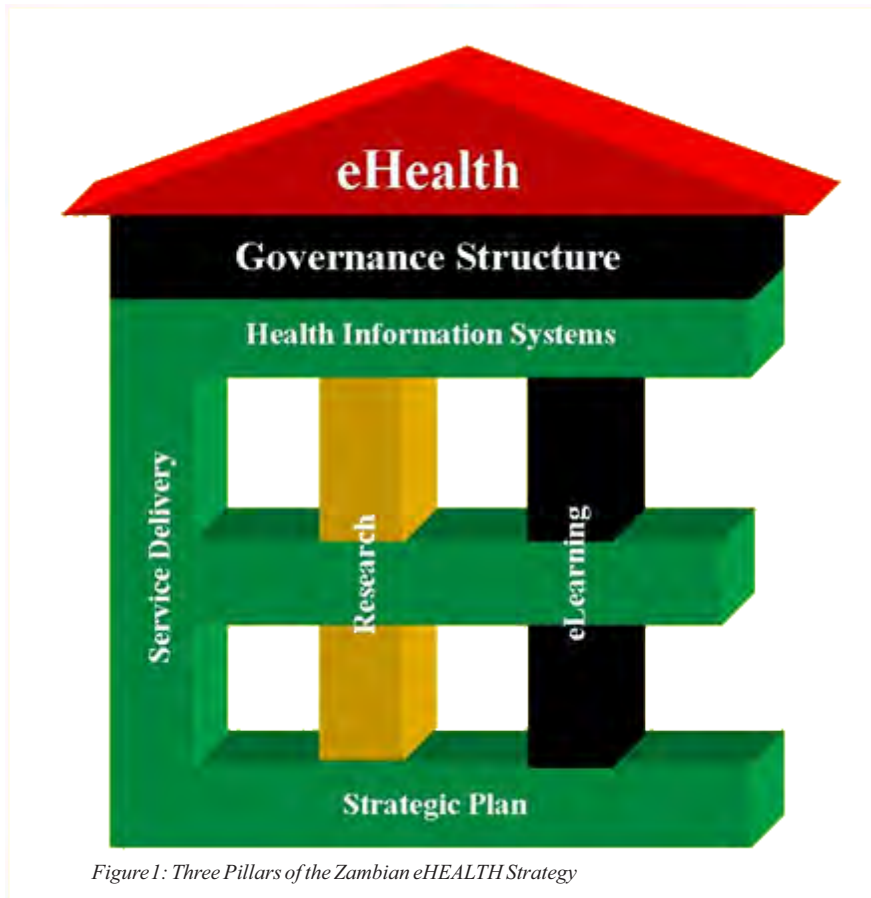
- Priority shall be given to the establishment of Public-Private Partnerships (PPPs), coordination and collaboration between Government, cooperating partners, and stakeholders at different levels to allow for integration of ICTs in key functions of society in order to ensure sustainability of ICT programmes and projects;
- Strong leadership and governance mechanism to ensure effective management in the implementation of eHealth;
- The strategy is designed to guide and mainstream the use of ICTs in health and other related sectors; hence it is designed to fit within the socio-economic development agenda of the country rather than a stand-alone technology framework permitting exploitation of existing structures and use of an incremental approach;
- Guarantee of patient information rights, integrity, and confidentiality in line with emerging public health access needs<sup>6</sup>;
- Patients' personal health information will be held and transferred securely<sup>7</sup>.

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<sup>6</sup>National Health Care Standards 2011, *Electronic, Communications and Transactions Act 2009*

<sup>7</sup>*Electronic Transactions Act 2009*

## STRATEGIC PRIORITIES



### 1.5 SERVICE DELIVERY

#### 1. Investment and sustainability

The coordination and collaboration between Government, Co-operating Partners, Stakeholders and Public-Private Partnerships (PPPs) will allow the integration of ICTs in key functions of society in order to ensure sustainability.

#### 2. Interoperability

In view of the current fragmented technologies, it is necessary that all systems interoperate through a National Health Information Exchange. This will be developed by:

- A. Stakeholder consultation;
- B. Establishment of Technical Working Group;
- C. Develop Road Map or Blueprint;
- D. Implementation Plan.

#### 3. eHealth Coordination Team

Establish an eHealth Coordination Team which will ensure eHealth system efficiency, integration, interoperability, and sustainability. MoH should leverage local and international technical capacity to enable knowledge transfer for project management and technology implementation expertise. The functions of the eHealth Coordination Team will be to:

- Support interoperability;
- Ensure knowledge transfer to the MoH team;



- Increase sustainability through partnerships with the local private sector;
- Be custodians of eHealth policies, procedures, protocols and standards;
- Facilitate project review and approval processes;
- Maintain and disseminate project Monitoring and Evaluation reports;
- Identify potential partners for key eHealth strategic areas;
- Ensure ownership of software source code and associated resources;
- Ensure compliance to e-government regulations defined by CEEGICT.

#### 4. Security

- Physical Security.
  - Enhance physical security to safeguard eHealth infrastructure.
  - Enforce Policy and Standards according to CEEGICT rules and regulations.
- Data Security.
  - Enhance digital privacy mechanisms to protect data from corruption and enhance monitoring.
  - Formulate Data Access policies and guidelines.

#### 5. Data Exchange Standards:

- Adoption and customization of international data exchange Standards;
- Dissemination of Adopted standards;
- Monitoring and evaluation of adherence to Adopted standards;
- Review and updates of the Data Exchange standards;
- Design and implementation of a data exchange layer (e.g. data exchange middleware - the software that arbitrates between software interactions).

#### 6. Data Governance:

- Standardization of enumerated data items (e.g. occupations, administrative units; and vocabularies).
- Reference / develop appropriate policy documents.
  - International Guidelines on Patient Record Management.
  - National Guidelines on Patient Record Management.
  - Record Access Management.
  - Consent Management.
  - Code of Ethics for Regulatory Authorities.
- Develop Data Governance Model.

#### 7. Alternative energy

- Promote energy efficient technologies

#### 8. Clearing House

Formation a top level ministerial body that will regulate eHealth. The body will draw its membership from various directorates of the ministry and donors. The body will consider any new initiatives to avoid duplication. The eHealth Coordination Team will provide technical advice to this team.

#### 9. Capacity Building

The Change and Adoption work stream focuses on what needs to be done to encourage and enable participants in the eHealth care system to adopt eHealth solutions and to change their work practices to be able to use them effectively. The aim of this work stream is to enact national strategies to drive the adoption of eHealth in Zambia to a self-sustaining tipping point as quickly as possible.

The majority of eHealth adoption and change activities will be undertaken and managed at local and regional levels across the Zambian health care system with support from the eHealth control team. There is a need for national strategies to accelerate the adoption of eHealth in Zambia to a self-sustaining tipping point as quickly as possible. This will require a coordinated program of awareness, training and education, and incentive and compliance programs. The targets of these programs will be consumers, care providers, health care managers and vendors, with a particular focus on driving the adoption of eHealth solutions across Zambian consumer and care provider communities.

A strongly coordinated focus on the people dimension of the national eHealth deployment should be supported by the following mechanisms:

- **National awareness campaigns** - Design and implement national awareness campaigns that focus on communicating the scope and benefits of high priority solutions to consumers and care providers;
- **Financial incentive programs** - Establish financial incentive programs, targeted primarily at key private provider segments, to encourage the adoption and use of high priority eHealth solutions as they become available;
- **Care provider accreditation** - Facilitate changes to national care provider accreditation regimes to make the adoption and use of eHealth solutions a core accreditation requirement.
- **Education and Training** - Implement changes to vocational and tertiary training programs to increase the number of skilled, nationally available eHealth practitioners;
- **Stakeholder engagement forums** - Establish national eHealth stakeholder reference forums and working groups with cross sectorial representation and clearly defined objectives and goals<sup>8</sup>.

## 10. Infrastructure

- A. Creation of an enabling environment for eHealth service delivery tools.
- B. Construction of an eHealth (Informatics) Centre .
- C. Institutionalizing an eHealth Coordination Team within the Ministry of Health, supported by partners, which will increase the coordination of eHealth system projects funded by both the GRZ and Cooperating Partners.
- D. Creation of a Command Centre to enhance ICT support for the emergency response system which will be located in the eHealth Centre.
- E. There is need to embrace and promote TeleHealth as an intervention where the geographical divide between the patient and theHealth specialist is bridged through the use of appropriate technologies.
  - i. Promote the use of TeleHealth in the Health sector by developing a comprehensive framework, guidelines and operational model on the use of TeleHealth in Zambia.
  - ii. Setup and implement link to health facilities using networks and provide TeleHealth services critical for last mile connectivity to the health center.
  - iii. Creation of a call Centre to provide primary care advisory services within eHealth Centre.

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<sup>8</sup>Australian National e-Health Strategy, 2008

## 11. eHealth usability criteria

- A. Development of meaningful usability criteria of eHealth tools (as per SOPs).
- B. Dissemination/awareness of meaningful user guidelines  
This would be in coordination with the change management activities.

## 12. Lobby for Creation of an Act that will stimulate adoption of electronic health record and supporting technologies (e.g. Health Information Technology for Economic and clinical health Act-HITECH Act 2009 of USA), Existing acts, policies and guidelines (National Health Research .

## 1.6 eLEARNING

The objective of eLearning is to improve and aid health practitioners obtain Continuous Personal Development (CPD) through availing eLearning opportunities.

Focus areas are:

- i. Infrastructure
  - a. Harness eLearning infrastructure.
  - b. Capacity building.
  - c. Transcription of learning content into eLearning platform.
  - d. Create Synergies for optimal use of infrastructure (CEEGICT guidelines)
- ii. Scale-up.
  - a. Addition of programmes into eLearning courseware.
  - b. Increase coverage of eLearning to cover all health disciplines.
- iii. Integration of eHealth systems into eLearning.
  - a. Integrated content management development for single platform (e.g. SmartCare and eLMIS training in eLearning).

To support research through access to timely, accurate and comprehensive data collection, analysis and reporting tools by:

- i. Strengthening research using eHealth tools to inform service delivery
  - a. Enhanced and efficient data extraction for analysis.
  - b. Standardized way of representing database schemas (ontologies) for ease of access.
  - c. Formulation of data access protocols (Consent, non-disclosure).
- ii. Strengthen (make efficient) eHealth data access
  - a. Creation of a research portal to host current and historic health data and publications (Localized, PubMed, google scholar).
  - b. Training of stakeholders on how to use eHealth research portals.
- iii. Informatics
  - a. Create awareness of informatics tools and concepts as per specialization
- iv. Creation of an enabling environment for eHealth research.
  - a. Create effective infrastructure to facilitate research at all levels of service delivery.
  - b. Facilitate in-country forums and conferences for dissemination of health research.
  - c. Identify and publish international forums and funding sources for research work.

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<sup>9</sup>National health Care standards), the electronic communications and transactions act, 2009 National ICT Policy, CEEGICT guidelines, ICTact, HPCZ, GNC, ZICTA etc.

## 1.7 MONITORING AND EVALUATION

It is essential to monitor and evaluate performance of the eHealth strategy on a half yearly basis.

### **Objective:**

To ensure that the objectives of the strategy are adhered to, as well as to provide input for future planning.

### **Key Strategies:**

- a) Enforcement of compliance with the legal and regulatory regime;
- b) Maintenance of quality standards in service provision;
- c) Improved surveillance – based on agreed service delivery indicators;
- d) Effective management of project and budget execution.

## IMPLEMENTATION FRAMEWORK

The envisaged timelines for the implementation of the focus areas have been tabulated within a 5-year time frame and are shown in the implementation framework given as shown in Table 1.

## 1.8 SERVICE DELIVERY

### **Goal:**

To develop and implement efficient eHealth solutions for quality health service delivery;

### **Objectives:**

1. To strengthen leadership and governance for eHealth in Zambia;
2. To consolidate eHealth structures for efficiency;
3. To foster integration and interoperability of eHealth systems ;
4. To enhance human resources for eHealth;
5. To enhance technology linkages to service delivery;
6. To improve data availability.

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<sup>10</sup>WHO/ITU Tool Kit

Figure 2: eHealth Components

Figure 3: eHealth Components Description

**Table 1: Service Delivery**

Objectives	Strategies	Indicators	Outcome
<p><b>1. To strengthen leadership and governance for eHealth in Zambia</b></p>	<ol style="list-style-type: none"> <li>1. Formation of an eHealth TWG to achieve SMART Zambia.</li> <li>2. Conduct clearing of all eHealth technology solutions.</li> <li>3. Develop guidelines, standards and policies for eHealth development and implementation (including policies on access rights to systems and data developed by partners, Unique Identifiers for patients).</li> <li>4. Conduct High level advocacy for eHealth to ensure political support and promote awareness and (eHealth briefs in all meetings / permanent agenda in meetings/ all speeches given by the Ministers to include eHealth within all contexts).</li> <li>5. Inclusion of computer literacy in all job descriptions to achieve SMART Zambia.</li> <li>6. Enforcement through establishment of monitoring mechanisms (annual reviews of eHealth).</li> <li>7. Mobilizing resources for eHealth interventions.</li> <li>8. Develop tools to ensure comprehensive BPA so that funding is based on planned activities/projects. (establish structures/framework specifying key areas of focus for the sector).</li> <li>9. Construct EHealth Coordination Team specifically for increasing the coordination of eHealth system projects.</li> </ol>	<ol style="list-style-type: none"> <li>1. Number of eHealth solutions cleared by the TWG</li> <li>2. Number of guidelines, standards and policies developed</li> <li>3. Proportion of senior management meeting where eHealth is discussed</li> <li>4. Proportion of job descriptions with computer literacy as requirement</li> <li>5. Number of reviews of eHealth strategy</li> <li>6. Proportion of funds raised for eHealth</li> <li>7. Number of BPAs conducted</li> <li>8. Increased efficiency of project implementation for eHealth initiatives</li> </ol>	<ol style="list-style-type: none"> <li>1. Improved quality of eHealth implementations</li> </ol>



Objectives	Strategies	Indicators	Outcome
<p><b>2. To consolidate eHealth structures for efficiency</b></p>	<ol style="list-style-type: none"> <li>1. Establish an eHealth centre</li> <li>2. Personnel and co -location. (resourced from various partners).</li> <li>3. Internet connectivity and short codes.</li> <li>4. Shared security.</li> </ol>	<ol style="list-style-type: none"> <li>1. Proportion of system (Software, Hardware and Personnel) hosted at the eHealth centre.</li> <li>2. Proportion of Health institution connected to the GWAN.</li> </ol>	
<p><b>3. To foster integration and interoperability of eHealth systems</b></p>	<ol style="list-style-type: none"> <li>1. Develop online master facility list for ease of citizen access (health facility registry).</li> <li>2. Establish a EHealth Coordination Team that will ensure eHealth system integration, interoperability, efficiency and sustainability across all eHealth projects.</li> <li>3. Develop an electronic master patient index accessible to all eHealth systems, with a Unique ID.</li> <li>4. Develop an electronic master drug listing available to all eHealth Systems.</li> <li>5. Conduct mapping of all existing systems and functions.</li> <li>6. Adopt standards for integration and interoperability. <ul style="list-style-type: none"> <li>• International Standard protocols (H17) and nomenclature (ICD10, ICD0, ICPC2 SNOMED, LOINC)</li> <li>• Local Standards – e.g. ZICTA (ITU website - eHealth multiple H20 &amp; 49 – Web services).</li> </ul> </li> <li>1. Research and development of an interoperability layer.</li> <li>2. Enforcement of interoperability and integration standards. <ol style="list-style-type: none"> <li>i. Conduct annual eHealth systems review.</li> <li>ii. Certification of eHealth systems (Accreditation).</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. Proportion of systems that are interoperable</li> <li>2. Number of eHealth projects that have committed resources to the PCU.</li> <li>3. Proportion of systems that are integrated.</li> <li>4. Number of systems that conform to the standards.</li> </ol>	

Objectives	Strategies	Indicators	Outcome
<p><b>4. To strengthen and increase Human resources for eHealth</b></p>	<p>1. <b>ICT staff</b> : Develop a staffing plan for ICT staff at all levels</p> <p>2. <b>ICT skills</b> : Include ICT in pre-service training curriculum, in - service, task shifting of ICT tasks (Basic user to super user).</p> <p>3. Integration of all existing eHealth curricula for modular and cadre based training.</p>	<p>1. Staffing plan for ICT staff at all levels developed.</p> <p>2. Number of training curriculum reviewed to include ICT and eHealth.</p> <p>3. Proportion of eHealth curricula integrated.</p>	
<p><b>5. To improve coverage of Health Information Technology (HIS)</b></p>	<p>1. Promote provision of quality, efficient and cost effective health care at all levels through the use of Technology (<i>e-patient management, OPD, IPD, Lab, Finance, procurement, - quantification to plan for resources, e-notification, e - referrals. Smart cards, connectivity solutions, security, costing approaches to determine unit costs per patient</i>)</p> <p>2. Increase coverage and use of EHR</p>	<p>1. Proportion of services provided electronically.</p> <p>2. Number of facilities using electronic systems in care delivering.</p>	

Objectives	Strategies	Indicators	Outcome
<p><b>6. To improve data availability</b></p>	<ol style="list-style-type: none"> <li>1. Develop a national health data warehouse.</li> <li>2. Develop dashboards for ease of access to data.</li> <li>3. Improve data quality.</li> <li>4. Improved data use to measure and improve patient outcomes: Customized reports at all levels, advanced analysis and feedback, link findings of analysis to decisions (public health-planning).</li> </ol>	<ol style="list-style-type: none"> <li>1. Proportional of staff accessing and using data at all levels.</li> </ol>	

## 1.9 RESEARCH

### **Goal:**

To increase use of ICT in health research

### **Objectives:**

1. To increase utilization of efficient and cost effective ICTs in conducting health research;
2. To increase the utilization of eHealth data for research in accordance to ethical guidelines;
3. To promote availability and utilization for ICT in research to develop innovative interventions for health service delivery.

Objectives	Strategies	Output Indicators	Outcome Indicators
<p><b>1. To increase utilization of efficient and cost effective ICTs in conducting research</b></p>	<ol style="list-style-type: none"> <li>1. Design and make available ICT platforms for research.</li> <li>2. Advocate for use of technology in research by conducting sensitization meetings and fostering collaboration (experts, researchers, programme officers, medical and institutions of higher learning).</li> <li>3. Facilitate capacity building and knowledge transfer on eHealth technologies and platforms.</li> <li>4. Facilitate reuse of information technology applications, tools and associated resources to avoid duplication of efforts.</li> <li>5. Promote systems integration to make data for research available.</li> </ol>	<ol style="list-style-type: none"> <li>1. Number of research activities conducted using electronic tools increased by <b><u>25% annually.</u></b></li> <li>2. Number of sensitization meetings or trainings conducted on use of technology increased by <b><u>25% annually.</u></b></li> <li>3. Number of capacity building trainings conducted on the use of survey technology increased by <b><u>25% annually.</u></b></li> <li>4. Increase of number of protocols approved for eHealth research by <b><u>25% annually.</u></b></li> </ol>	<ol style="list-style-type: none"> <li>1. Improved quality and efficiency of research projects <b><u>25%.</u></b></li> <li>2. Online data repository for research publications implemented by the end of <b><u>year 1.</u></b></li> <li>3. Increase in annual number of publications using eHealth data for decision making and policy by <b><u>20%.</u></b></li> </ol>



Objectives	Strategies	Output Indicators	Outcome Indicators
<p><b>2. To increase the utilization of eHealth data for research</b></p>	<ol style="list-style-type: none"> <li>1. Establish the eHealth standard rules and protocols for data extraction in accordance to ethical guidelines.</li> <li>2. Increase access of data generated by eHealth systems for research.</li> <li>3. Identify priority areas eHealth data that can be used for research.</li> <li>4. Increase awareness on data available for research.</li> <li>5. Foster collaborations among partners using technical working groups.</li> </ol>	<ol style="list-style-type: none"> <li>1. Number of meetings conducted by TWGs.</li> <li>2. Number of projects utilizing eHealth data.</li> <li>3. Number of sensitization meetings/trainings on use of eHealth data.</li> <li>4. Number of people trained for integration of ICT skills for use in research.</li> </ol>	<ol style="list-style-type: none"> <li>1. Online data repository for research.</li> <li>2. Number of publications using eHealth data for decision making and policy.</li> <li>3. 30% increase in number of personnel with ICT skills for research.</li> </ol>
<p><b>3. To promote research into innovative interventions for health service delivery.</b></p>	<ol style="list-style-type: none"> <li>1. Create platforms for publication of research and increase awareness of the existence of these platforms.</li> <li>2. Promote research on usage of Advanced technology such as Artificial intelligence for surveillance and public health preventive measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Comprehensive Platform created for hosting research publications by <b><u>Year 1.</u></b></li> <li>2. Number of research projects on innovative technologies for use in the health sector increased by <b><u>25% annually.</u></b></li> </ol>	<ol style="list-style-type: none"> <li>1. Comprehensive platform for innovative interventions available to stakeholders by <b><u>Year 1.</u></b></li> <li>2. Number of publications on innovative technologies for use in surveillance and public health prevention measures annually.</li> <li>3. Number of innovative technology projects implemented annually</li> </ol>

## 1.10 eLearning

**Goal:**

To reach more students through the use of technology and integrate life skills curriculum that give students the interpersonal skills needed for the work place.

**Objectives:**

1. To increase the number of training programs delivered using eLearning methodologies;
2. To establish an eLearning Resource Centre at MOH by the end of 2017.

**Table 2: eLearning**

Objectives	Strategy	Output Indicator	Outcome
<p><b>1. To increase the number of training programs delivered using eLearning methodologies</b></p>	<ul style="list-style-type: none"> <li>• To develop Continuous Professional Development (CPD) learning modules in at least 10 key courses.</li> <li>• Link CPD points to the regulators such as GNC and HPCZ.</li> <li>• Establish partnerships to carry out sensitizations without incurring huge costs.</li> <li>• Establish public private partnerships to expand the coverage of eLearning in Zambia.</li> <li>• Orient staff on various courses available, through meetings, flyers, websites, SMSs.</li> <li>• Develop systems that allow for different specialists/tutors to deliver lectures through video conferencing in schools</li> </ul>	<ul style="list-style-type: none"> <li>• No. of long term training programs provided using eLearning methodologies.</li> <li>• No. of CPD training programs provided using eLearning methodologies.</li> <li>• No. of existing training CPD modules transcribed into eLearning.</li> <li>• No. of students enrolled in long eLearning programmes.</li> <li>• No. of students trained using eLearning CPD modules.</li> <li>• Number of schools using video conferencing facilities</li> <li>• Number of schools accessing eLearning training programmes</li> </ul>	<p>Qualified trained staff.</p> <p>Qualified trained staff.</p> <p>Quality training materials</p> <p>Students enrolled</p>

Objectives	Strategy	Output Indicator	Outcome
<p><b>1. To establish an eLearning centre at MOH by end of 2017.</b></p>	<ul style="list-style-type: none"> <li>• Build workforce capacity to support eLearning.</li> <li>• Establish a forum (users, developers, technology experts, academia etc.) that will promote development of eLearning materials.</li> <li>• Forge partnerships with external entities that are already offering eLearning (Partner mobilisation).</li> <li>• Revise induction of staff to include eLearning methodologies.</li> <li>• Leverage CEEGICT resources.</li> </ul>	<ul style="list-style-type: none"> <li>• eLearningcentre established.</li> <li>• eLearning forum established.</li> <li>• Number of partnerships established with external institutions providing eLearning services.</li> </ul>	<p>Knowledge forum</p>

## GOVERNANCE FRAMEWORK

### **1.0 Design governance, management structures and processes specific to the needs of a large-scale eHealth implementation.**

The framework seeks to establish an eHealth TWG which will feed into the Sector Advisory Group and function on the lines of the SWAp mechanisms. The TWG will also function as a Clearing House for all proposed technology based solutions and innovations in the health sector in line with CEEGICT guidelines. The TWG will, among its ToRs, develop guidelines, standards and an implementation plan. The TWG will, among others, provide guidelines on access rights to systems and data developed by partners as well as Unique Identifiers for patients.

Integration of the different information systems will leverage many potential benefits, and contributes to a stronger health system by creating a national enterprise architecture.

### **1.1 Establish a eHealth Coordination Team to work in conjunction with the eHealth TWG. The eHealth TWG will empower and support the eHealth Coordination Team in the coordination of all eHealth projects.**

#### **Develop high-level advocacy for eHealth within the GRZ**

The eHealth TWG will provide high-level advocacy for eHealth that would increase the visibility of eHealth among key decision-makers, making sure that the eHealth is central to any planning or policy-formulation. The TWG will proactively identify any linkages with projects in different departments and ministries such as CEEGICT, and remove barriers to coordination.

### **1.2 Identify and empower strategic and operational leadership**

The TWG will provide strong leadership in the implementation of eHealth and champion the eHealth agenda to transform health systems and create impact. Leadership will also ensure that eHealth goals and objectives are in alignment with those of the health system's national development goals. The eHealth TWG shall work in collaboration with relevant stakeholders.

### **1.3 Develop a sustainability plan that builds institutional capacity and resources for eHealth projects.**

A sustainability plan shall incorporate appropriate institutional capacities. Capacity building shall be achieved through hiring, training, mentoring or outsourcing and institutionalisation of programmes. The plan shall include well defined transition outputs.

## 1.11 POLICY AND REGULATORY FRAMEWORK

The strategy will mainly be guided by and will comply with the National Health Policy, National Health Service Act, the National Decentralization Policy and the National Health Strategic Plan 2017-2021 and other relevant policies in order to facilitate improved service delivery. Various government institutions (such as CEEGICT) and other stakeholders will be involved in monitoring and providing clear guidelines throughout the term of this strategic document.

### **1.4 Legal References**

The areas to be addressed by way of legislation in order to foster smooth transition to eHealth include compliance with:

- a) The Constitution and Laws of Zambia;

- b) ZICTA, Information Communication Technologies ICT Act No.15 of 2009;
- c) ZICTA, Statutory Instrument on the Registration of Electronic Communication Apparatus No. 65 of 2011;
- d) National ICT Policy - Zambia;
- e) The regulatory documents for bodies such as the Health Professional Council, Zambia Institute of Chartered Accountants and the Computer Society of Zambia;
- f) National Health Research Act. No 2 of 2013;
- g) Electronic Communications Transactions ACT of 2006.

### **1.5 Institutional and coordination framework**

The strategy will be implemented through the existing health sector institutional structures and coordinating framework. MoH will take the overall responsibility for coordinating and ensuring successful implementation and attainment of the objectives of this plan. However, several other players will be involved in its implementation. These include other line ministries and government departments, Churches Health Association of Zambia (CHAZ), private sector, traditional and alternative medicines sector, civil society and communities; and the Cooperating Partners.

To ensure efficient and effective coordination of the partnerships with all the players, the eHealth initiatives will leverage MoH's plan to strengthen the SWAp and inter-sector collaboration and coordination mechanisms at all levels. Emphasis will be placed on strengthening the leadership and governance systems and structures, so as to ensure the highest levels of participation, transparency and accountability at all levels.

## **MONITORING AND EVALUATION**

Monitoring and Evaluation of the plan will be conducted through appropriate existing and new systems, procedures and mechanisms. The eHealth Technical Working Group will be responsible for providing monitoring and evaluation.

There will be two evaluations during the duration of the eHealth Strategy developed under this plan. These will consist of a mid-term review at the end of the second year of implementation and a comprehensive final evaluation at the end of the duration. The following describe the main tools and approaches that will be applied in the monitoring and evaluation of the implementation of the strategy:

### **1.1 eHealth Indicators**

MoH and its partners will harmonize key performance indicators, and use these as the basis for monitoring and joint reviews. Indicators will include: performance benchmarks and triggers budget support, output and process indicators to assess service delivery, eLearning and research aspect of the eHealth Strategy. The eHealth Strategy M & E plan will be aligned to the National Health Strategic Plan for consistency of implementation and cost effectiveness;

### **1.2 Monitoring**

The eHealth TWG will be responsible for coordinating eHealth monitoring and reviews. The HMIS and other existing routine systems will be the major tools for data collection. A data repository will be created and all stakeholders will be encouraged to utilize eHealth systems. Provincial Information Communication Technology Officers (PICTOs), Senior Health Information Officers (SHIOs) and Clinical Care specialists (as owners of the systems) will

observe utilization and functionality of the implemented systems. They will escalate any issues and bring these to the attention of the TWG through MOH;

### 1.3 Evaluation

There will be two evaluations during the duration of the eHealth strategy developed under this plan, a mid-term review, after the first 2 years of implementation, and a final review at the end of the duration. Stakeholders will jointly agree on the timing, terms of reference and composition of these two review missions.

## MONITORING PROCESSES, SYSTEMS AND TOOLS

The eHealth monitoring and evaluation strategy will be undertaken through the following processes and systems:

- a) Budget execution monitoring;
- b) Project spot monitoring;
- c) Analysis of administrative data or Management Information Systems;
- d) Benefits measurement;
- e) Impact assessments;
- f) Surveys; and
- g) Research and development.

The plans will be monitored through Quarterly Progress Reports, Annual Progress Reports, Mid-Term Review Reports and the Final Evaluation Report. To effectively monitor and evaluate the implementation of sector programmes, the output matrix and key performance indicator tables will be used.

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<sup>11</sup>*eHealth strategy 2014-2016*



## ANNEX

### 1.2 KEY PERFORMANCE INDICATORS

S/No	INDICATORS	BASELINE		ANNUAL TARGETS					SOURCE OF DATA
		YEAR	VALUE	2017	2018	2019	2020	2021	
	<b>OUTPUT INDICATORS</b>								
1	Number of facilities using Electronic systems in health care delivery.	2016	TBA						Facility listing on MOH Website.
2	Number of long term training programs provided using eLearning methodologies.	2016	1	2	2	2	2	2	Human Resources.
3	Number of eHealth solutions cleared by the TWG.	2016	0	4	4	4	4	4	eHealth TWG.
4	Number of eHealth standards and protocols established.	2016	0	1	1	1	1	1	ZABS, ZICTA.
5	Number of research projects on innovative technologies for use in surveillance and public health prevention measures.	2016	5	3	3	3	3	3	MOH, Clinical Care and Research Units.

## 1.1 COST FRAME FOR SERVICE DELIVERY, eLEARNING AND RESEARCH

THEMATIC AREA: SERVICE DELIVERY											
	Timeframe					Cost by funders					Funding Gap
	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	Amount Required	GRZ	Donor	Total		
	<i>Output 1.0: To improve Leadership and Government at all levels of health care delivery system</i>										
<i>1.1 Conduct clearing of all eHealth technology solutions</i>	x	x	x	x	x	1,200,000	600,000	600,000	1,200,000	600,000	
<i>1.2 Develop guidelines, standards and policies for eHealth development and implementation (including policies on access rights to systems and data developed by partners, Unique Identifiers for patients) (Handbook)</i>	x		x			800,000	0	800,000	800,000	800,000	
<i>1.3 Conduct High level advocacy for eHealth to ensure political support and promote awareness and (eHealth briefs in all meetings / permanent agenda in meetings/ all speeches given by the Ministers to include eHealth within all contexts)</i>	x	x	x		x	300,000	0	300,000	300,000	300,000	
<i>1.4 Inclusion of computer literacy in all job descriptions to achieve SMART Zambia</i>	x	x				200,000	200,000	0	200,000	0	0

<i>1.5 Enforcement through establishment of monitoring mechanisms e.g. annual reviews of eHealth strategy</i>	x	x	x	x	x	x	x	0	1,000,000	1,000,000	1,000,000
<i>1.6 Mobilizing local resources for eHealth interventions</i>	x	x	x	x	x	x	x	5,000,000	5,000,000	5,000,000	5,000,000
<i>1.7 Develop tools to ensure comprehensive Business Process Analysis so that funding is based on planned activities/projects. (establish structures – framework specifying key areas of focus for the sector)</i>	x							200,000	800,000	1,000,000	800,000
<b>Sub-Total</b>								<b>6,000,000</b>	<b>3,500,00</b>	<b>9,500,000</b>	<b>6,000,000</b>

<b>Output 2.0: To have a coordinated and pooled infrastructure resource for sustainability</b>																					
2.1. Establishment of an eHealth centre	x	x	x				x			17,500,000	1,500,000	16,000,000	17,500,000	16,000,000							16,000,000
2.2. Personnel and co-location (resourced from various partners)	x	x	x				x			0	0	0	0	0							0
2.3. Internet connectivity and short codes for e.g. sms	x	x	x				x			3,500,000	3,500,000	0	3,500,000	0							3,500,000
2.4. Shared security	x	x	x				x			1,000,000	0	1,000,000	1,000,000	1,000,000							1,000,000
2.5 wide area networks and local area networks(22 hospitals)	x	x	x				x			22,000,000	3,000,000	19,000,000	22,000,000	19,000,000							19,000,000
<b>Sub-Total</b>										<b>44,000,000</b>	<b>8,000,000</b>	<b>36,000,000</b>	<b>44,000,000</b>	<b>36,000,000</b>							<b>36,000,000</b>
<b>Output 3: To establish standards for all eHealth solutions to enhance interoperability</b>																					
3.1 Mapping all existing systems and functions	x	x								250,000	250,000	0	250,000	0							250,000

3.2 Developing the standards for the integration and interoperability i. International Standard protocols (HL7) and nomenclature (ICD10, ICD0, ICPC2, SNOMED, LOINC) ii. Local Standards – e.g. ZICTA – (ITU website- eHealth multip H20 & 49 – Web services)	x								500,000	0	500,000	500,000	500,000
3.3 Enforcement of interoperability and integration standards. i. Annual system assessments ii. Certification of systems	x	x	x	x	x				750,000	750,000	0	750,000	0
<b>Sub-Total</b>									<b>1,500,000</b>	<b>1,000,000</b>	<b>500,000</b>	<b>1,500,000</b>	<b>500,000</b>
<b>Output 4.0: To ensure the health sector utilises technology for decision making</b>													
4.1 Change Management meetings	x								2,500,000	2,500,000	0	2,500,000	0
4.2 ICTcapacity: Develop a staffing plan for key ICT personnel (Developers, ICT support, DBAs, Data Managers etc.) at all levels	x	x							13,000,000	13,000,000	0	13,000,000	0

4.3 ICT skills: Include ICT in pre-service training curriculum, in-service, task shifting of ICT tasks (Basic user to super user)	x	x	x	x	x	x	x	x	1,500,000	0	1,500,000	0
4.4. Integration of all existing eHealth curricula for modular and cadre based training	x	x	x	x	x	x	x	x	1,250,000	750,000	1,250,000	750,000
<b>Sub-Total</b>									<b>18,250,000</b>	<b>17,500,000</b>	<b>18,250,000</b>	<b>750,000</b>
<b>Output 5.0: To enhance visibility of eHealth systems</b>												
5.1 To promote provision of quality health care at all levels through the use of e-patient management (OPD, IPD, Lab, Finance, procurement, - quantification to plan for resources) e-notification, e-referrals. Smart cards, connectivity solutions, security (costing approaches – determine unit costs per patient)	x	x	x	x	x	x	x	x	5,000,000	3,500,000	5,000,000	3,500,000
5.2 Improve quality of data: Incorporate data quality checks (range and logic checks)	x	x	x	x	x	x	x	x	10,000,000	7,000,000	10,000,000	7,000,000

<i>5.3. Data availability (dashboards): Access and visibility of eHealth data at all levels</i>	x								1,000,000	7,000,000	8,000,000	7,000,000
<i>5.4. Improved data use to measure and improve patient outcomes: Customized reports at all levels, advanced analysis and feedback, link findings of analysis to decisions (public health-planning, data mining etc)</i>	x								1,000,000	1,500,000	2,500,000	1,500,000
<b>Sub-Total</b>									<b>6,500,000</b>	<b>19,000,000</b>	<b>25,500,000</b>	<b>19,000,000</b>
<b>Grand-Total</b>									<b>39,000,000</b>	<b>59,750,000</b>	<b>98,750,000</b>	<b>59,750,000</b>



**THEMATIC AREA: RESEARCH**

	Timeframe							Amount Required	Cost by funders			Funding Gap
	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	GRZ	Donor		Total			
<b>Output 1.0: To Increase the number of research activities using electronic tools</b>												
<i>1.1 Hold Advocacy Meetings</i>	x	x	x	x	x		750,000	250,000	500,000	750,000	500,000	
<i>1.2 Attend eHealth Conferences</i>	x	x	x	x	x		1,050,000	1,050,000	0	1,050,000	0	
<i>1.3 Infrastructure</i>	x						228,000	0	228,000	228,000	228,000	
<i>1.4 Local Staff training</i>	x	x					825,000	825,000	0	825,000	0	
<i>1.5 Regional Staff training</i>	x	x	x				2,052,000	2,052,000	0	2,052,000	0	
<b>Sub-Total</b>							<b>4,905,000</b>	<b>4,177,000</b>	<b>728,000</b>	<b>4,905,000</b>	<b>728,000</b>	

<b>Output 2.0: Increase the utilization of eHealth data for research in accordance to ethical guidelines</b>												
	x								50,000	132,500	182,500	182,500
2.1 Develop eHealth standards and protocols for use in research									182,500	132,500	182,500	132,500
2.2 Increase number of projects utilizing eHealth data	x	x							22,800	0	22,800	0
2.3 Increase Number of health workers with integrated ICT skills for research	x	x	x						825,000	500,000	825,000	500,000
2.4 Create a Comprehensive Platform created for hosting research publications	x								114,000	114,000	114,000	114,000
<b>Sub-Total</b>									<b>397,800</b>	<b>746,500</b>	<b>1,144,300</b>	<b>746,500</b>

<b>Output 3.0: Promote availability and utilization for technology in research to develop innovative interventions for health service delivery.</b>																						
<i>3.1 Research fund (Increase number of eHealth Research initiated by MOH)</i>	x	x	x	x	x	x	x	x	x												0	
<b>Sub-Total</b>																						0
<b>Grand Total</b>																						1,474,500

**THEMATIC AREA: E-LEARNING**

	Timeframe							Cost by funders			Funding Gap
	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	Amount Required	GRZ	Donor	Total		
<b>Output 1.0: To increase the number of training programs delivered using eLearning methodologies</b>											
<i>1.1 To develop eLearning modules for long term programmes in at least 10 key courses (Cost of transcribing not included -TBA)</i>	x	x	x	x	x	2,500,000	500,000	2,000,000	2,500,000	2,000,000	2,000,000
<i>1.2 Link CPD points to the regulators such as GNC and HPCZ</i>	x	x	x	x	x	1,750,000	1,750,000	0	1,750,000	0	0
<i>1.3 Establish partnerships to carry out sensitizations</i>	x	x	x	x	x	10,000	10,000	0	10,000	0	0
<i>1.4 Establishment of public private partnerships to expand the coverage of eLearning in Zambia</i>	x	x	x	x	x	10,000	10,000	0	10,000	0	0
<i>1.5 Orient staff on various courses available, through meetings, IEC materials, websites, SMSs</i>	x	x	x	x	x	700,000	0	700,000	700,000	700,000	700,000

1.6 Develop systems that allow for different specialists/tutors to deliver lectures through video conferencing in schools	x	x	x	x	x	x	x	x	5,060,000	2,000,000	3,060,000	5,060,000	3,060,000
<b>Sub-Total</b>									<b>10,030,000</b>	<b>4,270,000</b>	<b>5,760,000</b>	<b>10,030,000</b>	<b>5,760,000</b>
<b>Output 2.0: To establish an eHealth Centre at MOH by end of 2017</b>													
2.1 Build workforce capacity to support eLearning	x	x	x	x	x	x	x	x	3,852,660	3,852,660	0	3,852,660	0
2.2 Establish a forum (users, developers, technology experts, academia etc.) that will promote development of eLearning materials		x							1,600,000	1,600,000	0	1,600,000	0
2.3 Forge partnerships with external entities that are already offering eLearning (Partner mobilisation)	x								2,500,000	500,000	2,000,000	2,500,000	2,000,000
2.4 Revise induction of staff to include eLearning methodologies	x	x	x	x	x	x	x	x	1,320,000	1,320,000	0	1,320,000	0
<b>Sub-Total</b>									<b>9,272,660</b>	<b>7,272,660</b>	<b>2,000,000</b>	<b>7,272,660</b>	<b>2,000,000</b>
<b>Grand-Total</b>									<b>19,302,660</b>	<b>11,542,660</b>	<b>7,760,000</b>	<b>19,302,660</b>	<b>7,760,000</b>

### 1.13 LIST OF PARTICIPANTS TO THE EHEALTH STRATEGY

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30. Ms. Zeleniya Banda - MoH: Financial Specialist
31. Mr. Lameck Chilebo – MoH: Livingstone Central Hospital Biomedical Technologist
32. Mr. Stanley Banda - MoH: Strategic Information Coordination
33. Ms. Grace Musonda - MoH CoAg Coordinator
34. Ms. Christine Simfukwe – EGPAF Senior Program Manager
35. Mr. Davies Kimanga – EGPAF HIS Director
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37. Dr. Bwalya Chiteba - CDC: Health Informatics Branch Chief
38. Mr. Derrick Munene – CDC Health Analyst / Applications Development Manager
39. Mr. Chris Opit - JSI/DELIVER Project: Senior IT Advisor
40. Mr. Kalumbu Pupe – CHAI – IT Country Lead
41. Mr. Nawa Samatebele – ZICTA Cyber Security Officer
42. Ms. Phoebe Kenny – USAID Health Procurement Supply Chain Advisor
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## 1.14 GLOSSARY OF TERMS

### **Ministry of Health**

All the departments, statutory boards and institutions in this MoH eHealth strategy will be referred to as MoH.

### **Health Management Information Systems (HMIS)**

HMIS is an aggregate routine information system used for planning, monitoring and evaluation and decision making at all levels of the health sector. Health information management is the practice of maintenance and care of health records by traditional (paper-based) and electronic means in hospitals, physician's office clinics, health departments, health insurance companies, and other facilities that provide health care or maintenance of health records. With the widespread computerization of health records and other information sources, including hospital administration functions and health human resources information, health informatics and health information technology are being increasingly utilized in information management practices in the health care sector. HMIS is now called District Health Information System (DHIS).

### **SmartCare**

SmartCare is an electronic health record system developed in Zambia. It is an initiated nationally scalable Electronic Health Record System designed specifically for low resource, disconnected settings. SmartCare has the objective of improving the quality of health care and health by providing support to deliver "Continuity of Care" where existing paper systems are failing to preserve a longitudinal data view, and where clinics may often have no telecommunications.

### **Information and Communications Technology**

A generic term used to express the convergence of telecommunications, information, broadcasting and communications such as computers and the internet, fixed and mobile telephone, high frequency radio, radio and television and related applications such as email, voicemail and Voice over Internet Protocol (VoIP).

### **ICT Infrastructure**

A generic term to mean computer hardware and peripheral devices, communication equipment including networks.

### **eHealth**

eHealth is 'the combined use of electronic communication and information technology in the health sector'. In the MoH's practical use of eHealth, it means the use of ICTs to improve access to quality healthcare as close to the family as possible through the deployment and exploitation of ICTs and other modern technologies.

### **Information Systems**

These are systems used in the health sector which involve the receipt of data and transforming it into information, examples are Health Management Information Systems, SmartCare, Supply Chain Manager and Integrated Financial Management Information Systems.

### **Telemedicine**

The use of modern audio and video telecommunication, computers and telemetry to deliver health services to remote patients and to facilitate information exchange between primary care physicians and specialists at some distance from each other.



**TeleHealth**

The off-set provision of a wide array of health-related activities, such as professional continuing education, professional mentoring, community health education, public health activities, research and health services administration, as well as consultative and diagnostic health care.

**Interoperability**

Interoperability describes the extent to which systems and devices can exchange data, and interpret that shared data. For two systems to be interoperable, they must be able to exchange data and subsequently present that data such that it can be understood by a user.