# MEDILEDGER:
# REVOLUTIONIZING HEALTHCARE THROUGH BLOCKCHAIN

BY

BLESSING AKPAN

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# Oath Of Office

I solemnly promise to uphold the principles and responsibilities of a blockchain professional. I recognize the significance of blockchain technology in shaping the future of trust, transparency, and decentralization. In taking this oath, I commit myself to the following:

Integrity and Ethics:

I will demonstrate the highest standards of integrity and ethical conduct in all my interactions within the blockchain community. I will act honestly, transparently, and with fairness, ensuring the security and trustworthiness of blockchain systems and networks.

Continuous Learning:

I will dedicate myself to continuous learning and professional growth in the field of blockchain technology. I will stay informed about the latest advancements, trends, and best practices, striving to expand my knowledge and expertise to contribute effectively to the blockchain ecosystem.

Confidentiality and Privacy:

I understand the importance of confidentiality and privacy in blockchain systems. I will respect the privacy rights of individuals and organizations, ensuring the secure handling and protection of sensitive data. I will adhere to relevant privacy regulations and guidelines.

Responsible Innovation:

I will promote responsible and sustainable innovation in the development and implementation of blockchain solutions. I will consider the social, economic, and environmental impacts of blockchain technology, aiming to create positive change and avoid harm to individuals and society.

Collaboration and Openness:

I will foster a culture of collaboration and openness within the blockchain community. I will actively engage with others, sharing knowledge, insights, and resources to promote the collective advancement of blockchain technology. I will respect diverse perspectives and encourage inclusivity.

Education and Awareness:

I will strive to educate and raise awareness about blockchain technology among individuals, businesses, and institutions. I will contribute to the dissemination of accurate and accessible information, helping others understand the potential benefits and challenges of blockchain.

Compliance and Legal Standards:

will uphold the applicable laws, regulations, and legal standards governing blockchain technology. I will promote compliance within the blockchain ecosystem, working to address legal and regulatory challenges to ensure the responsible and lawful use of blockchain systems.

By taking this oath, I solemnly pledge to uphold these principles and honor my responsibilities as a blockchain professional. I acknowledge the significance of this oath and the impact of my actions on the broader adoption and advancement of blockchain technology.

Signed,

Date: June 30th,2023.

INTRODUCTION

# *Revolutionizing Healthcare Through Blockchain*

- Blockchain technology holds immense potential to address critical challenges related to data security, interoperability, and patient-centricity.
- The AHCN healthcare project envisions a future where individuals have access to and control over their medical records, ensuring universal access to effective and efficient healthcare regardless of geographical location or financial circumstances.

Our project's objectives include creating a user-friendly, highly secure blockchain network that gives patients authority over their medical records and raises the standard of care in all healthcare settings.

The AHCN healthcare project's all-encompassing strategy aims to transform the healthcare sector by giving people ownership over their medical data and enhancing healthcare results for all.

# VISION

To create a future where people have access to and control over their medical records, and to facilitate access to effective and efficient healthcare for all humans, irrespective of their location, financial status or circumstances.

# MISSION

Our mission is to establish a Blockchain network that utilizes tokenization, effectively harnessing the power of distributed ledger technology to offer a comprehensive platform for users' medical records. This network will be accessible and beneficial to all stakeholders, fostering a seamless and inclusive healthcare ecosystem.

# GOALS

To create an accessible and secure platform that is user-friendly for all individuals.

To give power to the patients over their own medical records, as opposed to the autocratic domination enjoyed by doctors today.

To ameliorate the quality of healthcare and healthcare practices in all facilities.

To reduce the mortality rate by drastically cutting down waiting times in emergency situations in hospitals.

To promote the adoption of Blockchain technology on a large scale in all countries

# OBJECTIVES

Develop a secure and scalable token that requires a very low gas fee for usuage.

Ensure the product team launches a dApp with easy-to-use UX/UI to encourage users.

Establish partnerships with governments and concerned NGOs for mass education.

Implement robust security measures to protect user data and preserve user privacy.

Organize tens of thousands of events around the world to educate new users on how to utilize their wallets and tokens.

# Problem Statement

Billions of people in many developing countries in the world today are unable to store their medical records, and those in developed countries make use of Electronic Health Records (EHRs) that are usually inaccessible by the patients, controlled by doctors, and limited by geographical regulations.
Applied Healthchain is a project that aims to provide as many humans as possible with the ability to store medical records on the Blockchain network and the freedom to present and use these records anywhere in the world

# Why is this problem so important ?

There have been grave consequences, such as death, and if this problem is not tackled, we will continue battling with inefficient healthcare and the loss of lives.

The categories of humans most affected include, but are not limited to:

- Residents in Africa who do not have EHRs;
- Citizens in developed countries who have to go through a lengthy and expensive process to transfer their records within their country;
- Doctors who spend a large amount of their work hours and free time scrolling through medical records.

# AFRICAN COUNTRIES DO NOT HAVE EMRS OR EHRS

"EMR" is a term that refers to a database that is managed by a single hospital,

"EHR" refers to an electronic health record that is complete and includes information from several healthcare providers.

Repeating medical tests is frequently necessary for several African nations due to relocation or changing healthcare providers.

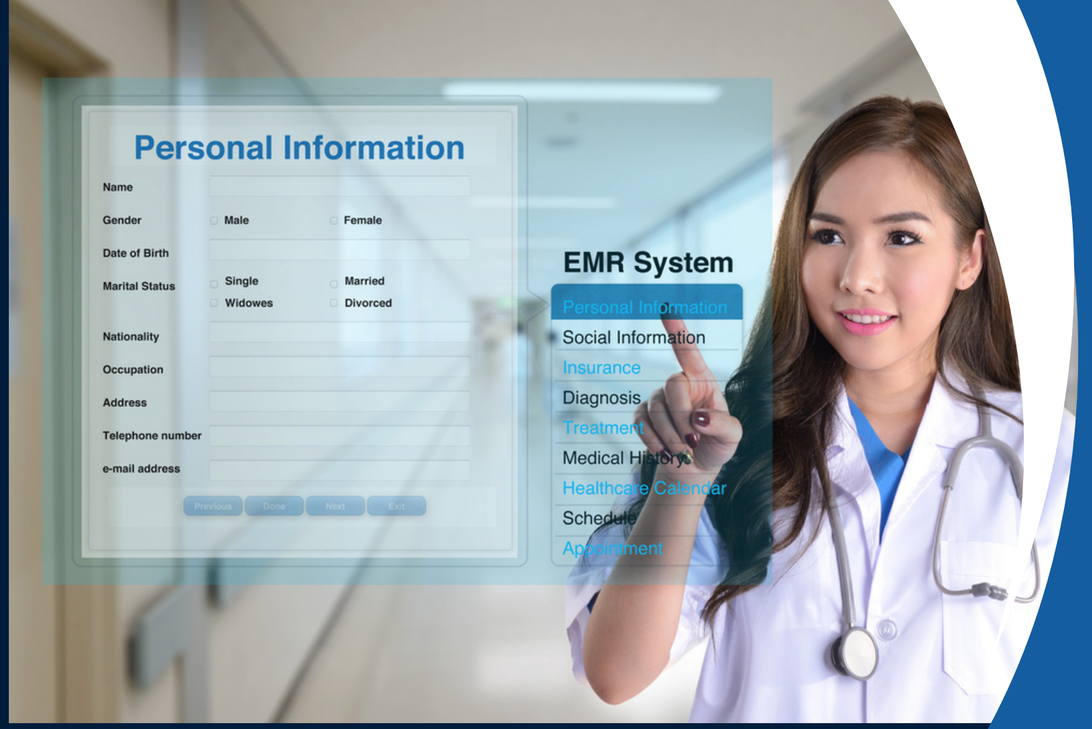
The widespread use of paper-based medical records, which hinder efficiency and efficacy, is to blame for this.

# HIGH COST OF TRANSFERS

In countries like Australia, Canada, Italy, and the United States of America, the cost of transferring medical records internally can range from $44.85 to $85.95 per record.

This cost does not include taxes and shipping fees.

# *Time Spent on Transfers*




To transfer medical records, citizens have to follow the following steps:

- Discuss with the new provider to determine what type of records they need.
- Visit or call your current physician to learn about the process for transferring medical records.
- Submit the records request: Some doctors easily accept verbal requests, while others require written notice.

Typically, healthcare providers are required to fulfill record requests within a 30-day timeframe, or 60 days if necessary. This results in a maximum duration of eight weeks, not accounting for any time spent by the patient on their initial visit to the doctor.

# *Spending too much time on EHR*

*According to a study published in the Annals of Internal Medicine, physicians spend an average of 16 minutes and 14 seconds actively using the EHR for each patient they see, surpassing the typical 15-minute appointment slot.*

It is worth noting that these 16 minutes only account for the "active time," as doctors spend a total of 30 minutes reviewing patients' medical records.

This extra task encroaches on their personal time, including sleep, meals, and recreation, without compensation, as physicians are typically only remunerated for procedures or face-to-face interactions with patients.

# Solution To The Problem

The Applied Healthchain project offers a comprehensive solution to address the challenges faced in the healthcare sector by leveraging the power of blockchain technology. The core component of this solution is the Applied Healthchain token (AHCN), which serves as the means to acquire storage space for medical records on IPFS.

Users can easily upload their electronic records on the platforms database system.Pending data will be collectively uploaded by Applied Healthchain's data storage experts and stored on the Interplanetary File System (IPFS). IPFS is a distributed system for uploading,storing and accessing files.
The bulk storage will be completed every 24hours and the Applied Healthchain platform will integrate IPFS as a cloud server. The data experts will encrypt all data information.


# Advantages Of The Solution

One key advantage is its ability to address the lack of electronic health records (EHRs) and electronic medical records (EMRs) in African countries.Through the user- friendly decentralized application (dApp), individuals can access their medical records with ease and share them with healthcare practitioners whenever necessary.

**The Applied Healthchain token effectively tackles the issue of high transfer costs associated with EHRs and and EMRs in countries like Australia, Canada, Italy and the United States.**

By maintaining a low token value, the project ensures affordability for users across different financial backgrounds.

Another significant advantage of the AHCN token is the time saved during transfers.

If embraced and endorsed by government regulatory bodies, this project has the potential to eliminate the need for cumbersome transfers altogether, allowing individuals to travel freely without restrictions, regardless of their medical conditions.

Moreover, Applied Healthchain caters to patients who frequently visit different specialists. By securely storing and sharing their comprehensive medical records on the blockchain, healthcare practitioners can make more informed diagnoses and treatment decisions. Furthermore, the implementation of this solution benefits the health and well-being of doctors themselves.

By reducing the time spent reviewing EMRs, physicians can allocate their full working hours to attending to 50% more patients.

This increased efficiency not only improves patient outcomes but also allows doctors to have more time for personal activities, leading to a better work-life balance.

Lastly, Applied Healthchain's solution contributes to a reduced mortality rate by enabling quick access to medical records during emergencies.

The platform eliminates the need for duplicate tests and facilitates timely treatment, addressing one of the key factors contributing to delayed care.

# Comparison To Past Solutions

## The Paper File System

This is prevalent in countries like the Philippines, Sri Lanka, Bangladesh, and Nigeria, the advantages are evident.
While the traditional paper-based system lacks proper management and storage guarantees, Applied Healthchain offers a secure and regulated platform for storing and accessing medical records.

The project ensures that citizens' records are protected and easily accessible, even during transitions between cities or healthcare providers.

## *EMRs and EHRs*

In countries where EHRs and EMRs are widely adopted, such as the UK, the United States, and Canada, the Applied Healthchain solution improves upon existing systems by addressing key challenges.
By significantly reducing the high costs associated with transfers, enhancing the efficiency of record review, and improving overall accessibility and interoperability, the project offers an upgraded approach to medical record management.

# Draw Backs & Implementation Challenges

While the Applied Healthchain project presents a promising solution, there are some potential drawbacks and implementation challenges to consider.

These include:

- Lack of digital literacy in developing countries: The adoption of blockchain technology and the use of the dApp require a certain level of digital literacy, which may be lacking in some developing countries.
- Limited access to mobile devices: A significant portion of the population in developing countries may not have access to smartphones or other mobile devices necessary for utilizing the dApp.
- Financial constraints: the affordability of data subscriptions and limited access to wifi for operating the app could be a challenge for some individuals in developing countries.

Efforts to ensure accessibility and availability should be of a key focus during implementation.

- Blockchain literacy: Blockchain technology is still relatively new, and many individuals, including healthcare professionals, may have limited knowledge and understanding of its benefits and applications.
- Acceptance by governments and healthcare associations: Gaining acceptance and endorsement from government bodies and healthcare associations in both developed and developing countries is essential for widespread adoption.
- Technological glitches and smart contract vulnerabilities: As with any technological system, there is a risk of technical glitches and vulnerabilities in the smart contracts utilized by the project.

# Approaches For Promoting The Project

To promote the Applied Healthchain project effectively, two primary approaches can be considered:

**Independent Promotion:**
Initially, the project can be promoted independently, targeting individuals and healthcare providers who are open to adopting new technologies.
While this approach may take time to achieve widespread adoption, it can help build trust and demonstrate the value of the solution over time.

**Government Partnerships:**
A more strategic approach involves partnering with the government of each concerned country.
By presenting a comprehensive proposal to key government officials and securing their endorsement, the project can gain credibility and facilitate wider acceptance. Collaborating with government bodies and affiliated institutions can expedite implementation and ensure regulatory compliance.

# Recommended Course Of Action

A recommended course of action would be to pursue partnerships with governments.

Below is a hypothesis of how the Applied Healthchain team could acquire a partnership with the government.
This involves a thorough preparation of presentations for relevant officials, including the Minister of Health and the Executive President, to showcase the project's benefits and secure their endorsement.

Simultaneously, efforts should be made to establish connections with political officials at different levels of government to facilitate support for the project.
Once the endorsement is obtained, intensive mass education programs should be launched, targeting both healthcare professionals and the general population.
A combination of online and in-person events can be organized, ensuring comprehensive blockchain and digital literacy education.

Leveraging the existing network of states in Nigeria as an example, hundreds events can be conducted each week, gradually educating 1-2 million of citizens within a year.

These efforts should be supplemented by online events to reach a wider audience.

By partnering with governments, undertaking widespread education initiatives, and ensuring regulatory compliance, the Applied Healthchain project can make significant strides in transforming medical record management and improving healthcare outcomes.

# Token Name

The token name "Applied HealthChain" for the proposed capstone project is a suitable and relevant choice for several reasons.

Firstly, the name "HealthChain" effectively conveys the project's focus on utilizing blockchain technology in the healthcare industry.

Secondly, the inclusion of "Applied" in the token name emphasizes the project's primary purpose, which is to enhance the healthcare sector.

Additionally, the term "Chain" in the token name alludes to the blockchain technology used in the project.

By adopting the token name "Applied HealthChain," the project effectively communicates its mission to revolutionize healthcare through the secure and transparent management of data, facilitating improved patient outcomes, interoperability, and efficiency within the industry.

# Token Ticker

The token ticker "AHCN" has been chosen by our group of students for our capstone project. The acronym stands for "Applied HealthChain," representing our project's core focus on utilizing blockchain technology to revolutionize the healthcare industry.

The token ticker "AHCN" accurately reflects the purpose of our project, which aims to create a secure, efficient, decentralized, and transparent platform for managing patient records and facilitating the fast transfer of patients' health data.

By harnessing the power of blockchain, we aim to establish seamless data exchange, promote interoperability, and ensure the utmost security and privacy of healthcare data.

We believe that the token ticker "AHCN" encapsulates our project's dedication to creating a transformative platform that revolutionizes healthcare data management and drives positive change within the industry.

# Token Maximum Supply

Unlimited number of AHCN tokens.

The project has implemented an innovative token supply system, where the number of AHCN tokens is unlimited and minted on demand through a smart contract.

This approach was carefully chosen to align with the project's objectives. Considering the current global population of over 8 billion people and projections of even larger numbers in the future, this unlimited token supply ensures inclusivity and accessibility for various stakeholders, including healthcare providers, regulators, and patients.
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Having an unlimited token supply ensures seamless token transactions and exchanges, contributing to the platform's overall efficiency and usability.

As the demand for healthcare data management solutions increases, the project can accommodate a growing user base and expanding data needs without encountering supply constraints.

In summary, the project has opted for an unlimited token supply of AHCN tokens to support its goals of creating a secure, efficient, and transparent healthcare data management platform.

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# Budget Allocation

55% - Project Development
20% - Team Salary
15% - Marketing

The budget allocation proposed for the blockchain project is well-justified based on the following considerations:

**Project Development (55%):**
This allocation covers expenses related to research, design, programming, testing, and deployment of the platform. By investing a significant portion of the budget in project development, the project can ensure a robust and secure platform that meets the needs of the healthcare industry.

Team Salary (20%):
Blockchain development requires specialized skills, and it's important to have a skilled and dedicated team working on the project. By allocating 20% of the budget to team salaries, the project can attract experienced professionals and ensure their long-term commitment to the project's success.

Marketing (15%):
Setting aside 15% of the budget for marketing activities is crucial for creating awareness and driving the adoption of the token and the healthcare platform. Marketing efforts can include online and offline campaigns, social media promotion, content creation, community management, and partnerships. By prioritizing project development, team salaries, and marketing, the project can ensure the necessary resources are allocated to key areas while fostering engagement and adoption.

# Token Slogan

## "Empowering Healthcare through Decentralization & Data Interoperability"

We have chosen the token slogan "Empowering Healthcare through Decentralization & Data Interoperability to reflect the core values and objectives of our project.
The phrase "Empowering Healthcare" emphasizes our project's focus on transforming the healthcare landscape by placing the power of decision-making and control in the hands of patients and healthcare providers alike.

The inclusion of "Decentralization" highlights our dedication to utilizing decentralized technology, such as blockchain, to create a robust and tamper-proof infrastructure for healthcare data management.
The phrase "Data Interoperability" underscores our dedication to facilitating the smooth and secure exchange of health information between stakeholders.

In summary, our token slogan "Empowering Healthcare through Decentralization & Data Interoperability" encapsulates our commitment to transforming healthcare through decentralized technology, data security, and seamless information exchange.


# Launch Date

Launch Date: August 2024

The AHCN token is expected to launch on August 17th, 2024, based on the projected timeline for the development and testing of the blockchain-based platform.
The project team plans to develop a minimum viable product (MVP) of the platform within 6 to 12 months, starting in August 2023.

Once the MVP is developed, the team will test and validate it with healthcare providers and patients and gather feedback for further improvements.

This testing and validation process is expected to take around 3 months, which brings us to May 2024.

Based on the feedback received, the team will then work on developing a scalable and modular platform that can be customized to meet the specific needs of healthcare providers and stakeholders.

This development process is expected to take around 3 months, which brings us to August 2024, the proposed launch date for the AHCN token.

Launching the token in August 2024 will allow the project team to leverage the upcoming holiday season and international healthcare conferences and events for healthcare providers and professionals, potentially increasing adoption and engagement with the platform.

# Token Logo


The logo incorporates the colour green, which signifies nature, health, and well-being.
It emphasizes the significance of implementing eco-friendly initiatives, reducing waste, and utilizing renewable energy sources to foster a healthier and more sustainable environment.
The colour blue symbolizes trust, reliability and security while the colour white symbolizes hygiene, purity clarity and transaparency.
The central element of the logo features a stylized letter "A" representing th eproject's dedication to creating a practical solution for th ehealthcare industry.
The logo "AHCN" effectively communicates the project's focus on developing an applied,secure and cost-effective solution for managing healthcare data, particularly in terms of patient record-keeping.

# About Me


## Blessing Akpan

Blockchain Enthusiastic, Educator

&

Content Writer