TRUFIELD

FREE DECENTRALIZED MEDICAL RECORDS APPLICATION

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Dear reader,

According to the UK National Information Board, (November 2014) "One of the greatest opportunities of the 21st century is the potential to safely harness the power of the technology revolution...to meet the challenges of improving health and providing better, safer, sustainable care for all". Here at Trufield, we believe blockchain technology affords us the greatest opportunity of all; to help millions of poor people living in developing countries by providing them with free electronic medical record system. After all, we cannot really change the world if we leave millions of people in developing countries behind.

So who are we? We are just passionate, caring people who deeply desire to help others. Our personal and professional experiences have helped us to realize the urgent need for an electronic health data management system in developing countries. Having lived and worked in these communities, we understand firsthand the need for a simple, easy to use, low cost but effective electronic health data system. Our combined professional and personal experiences give us unique insight into the problem and mean we are the best team to deliver this innovative solution. With Trufield, we can use blockchain technology to improve the healthcare of millions of people.

To that end, we are very pleased to launch the Trufield project. Trufield was created primarily to provide an electronic medical records system for people living in developing countries. However, Trufield can also be customized and integrated into existing electronic health systems to improve healthcare for all. Trufield is for everyone, no doubt all users will benefit from this revolutionary decentralized medical records application.

Albert Einstein said "If you can't explain it simply, you don't understand it well enough". Here at Trufield we understand our project well enough to explain it in a concise whitepaper. It is our hope that this whitepaper will help all to see why the world needs Trufield and how Trufield will change the lives of millions.

Trufield Team

Introduction

What use is technology if it does not solve real-world problems? Research has proven that good health data management allows healthcare providers to create holistic views on patients, personalise treatments, improve communication and improve health outcomes. The Trufield project aims to create cutting edge health data technology that is needed in most developing countries using blockchain technology.

There are many ways to consider the value of new technology. The value it creates for a user, how it improves the lives of the user, but most importantly, how it creates a better world. By some estimates, there are already 2 billion mobile phones and there will be 1.6 billion new mobile internet subscribers by the year 2020. Here at Trufield, our vision is to improve the world's health by creating a digitized medical record platform for everyone using already available low-cost mobile phone technology and web based computer platforms. The Trufield projects aims to create an innovative electronic medical records system for people living in poor developing communities. The Trufield decentralized application will be accessible anywhere and at anytime from any mobile device or web based platform. Even where there is no internet access, the Trufield decentralized application will be accessible using our unique USSD protocol. Healthcare providers will be able to access and add new patient information using Trufield's USSD Protocol. Even patients without internet access will also be able to access their medical information using the USSD protocol.

 Trufield will be powered by the Ethereum Blockchain. This way, we can ensure that the data and tools emerging from the new decentralized blockchain technology serve the interests of people across the globe, especially those of poor and vulnerable populations.

Our Vision

Trufield aims to improve the world's health by creating a digitized medical records platform for everyone. Good medical recordkeeping does not only reduce healthcare cost but is essential to assuring quality health care. That is why Trufield aims to create a big data revolution to foster better healthcare for everyone using the potential of blockchain technology to solve real-world problems. The Trufield platform will have a patient-centred approach to storing medical information. This will enable patients to act appropriately when granted access to their own health records. Trufield decentralized application will improve the coordination and continuity of care, reduce errors in information transfer, provide decision-making support for health providers, boost staff accountability, improve legibility of clinical notes and achieve more accurate medical data statistics.

Our key strategic objective is to create free permanent electronic medical records for everyone using low-cost mobile phone technology and web based platforms already available to billions of people worldwide. To do this, we will first create unique digital medical IDs for each user. Here at Trufield, we believe blockchain technology affords us the greatest opportunity of all; to help millions of poor people living in developing countries by providing them with free electronic medical records systems. After all, we cannot really change the world if we leave millions behind. At Trufield, we leave no one behind

The Trufield Project

Good medical recordkeeping is essential to assuring quality health care. Records aid in the medical management of patients while serving vital educational and epidemiological purposes. When recordkeeping is adequately performed, it improves the coordination and continuity of care, support program monitoring including reporting outcomes, budgets, supplies, reinforces decision-making capacities, augments staff accountability and achieves more accurate medical data statistics.

What problems does Trufield solve? It is the epidemic of poor medical records keeping. For centuries, medical records have been kept on paper forms in some parts of the world. Paper-based record keeping is slow, inefficient, time-consuming and simply inadequate to meet patient needs today. Poor medical record keeping does not only contribute to the soaring financial cost of illness, but kills millions of people worldwide each year. For example, researchers at a rural hospital in Ethiopia described a context in which patient registration numbers were replicated, records were lost and patients were assigned new registration numbers, clinical information was recorded on loose scraps of paper and medical records were poorly archived. In another example, at a hospital in Iran, researchers documented that most medical records in the hospital were incomplete and incompatible with established standards. Incomplete charting was attributed to poor handwriting, lack of documentation of requested information (e.g. laboratory results) and missing pages. These examples highlight links between paper-based medical records keeping and poor medical records keeping. There is direct correlation between adequate recordkeeping and quality health care.

Why Trufield?

There are a variety of electronic and paper medical records systems that exist today, so why do we need Trufield? These are the reasons:

»	Data Security	»	Sharing Information
»	Data Analysis	»	Data Organisation
»	Cost	»	Privacy and confidentiality
»	Accessibility	»	Communication
»	Data Ownership	»	Teleconsultation

Let's expand of these issues further:

Data security

Data security is a huge concern for everyone. Paper based-medical records are vulnerable to physical damage, human error and theft. Saving valuable and confidential patient information on paper under lock and key has proven to be less secure, poorly organized and simply inadequate. Digital medical records systems are also vulnerable to hacks by cybercriminals. Cybercriminals have become increasingly complex and are attempting to steal valuable data like patients' health records.

Solution: Trufield decentralized application will run on the Ethereum blockchain, why? Blockchain consensus mechanisms can detect data tampering and provide operational resilience, data encryption, auditability, transparency and immutability of patients' medical records. Owing to their distributed nature, blockchain provide no central point of failure and, thereby, provide more security when compared with various present database-driven structures.

Data Analysis

The traditional focus of detecting disease outbreaks and epidemics has been the collection and analysis of medical health data. But in most cases the data is collected, delivered and analysed days, weeks or even months after the outbreak. By the time the information reaches decision makers, it is often too late.

Solution: Trufield algorithms will analyse all medical data in real time. This will remove any disease reporting delays. All data will be analysed to spot disease outbreaks, allocate resources efficiently, to anticipate future health problems, identify deviations from expected trends and for planning preventative measures.

Cost

The greatest barrier to implementing electronic medical records has been a lack of resources. Existing electronic medical records systems used today are expensive to implement and maintain. Countries and organizations have to channel a large portion of healthcare funds to implement and maintain these systems often at the expense of other healthcare priorities. The alternative paper-based record keeping is inefficient, time-consuming and simply inadequate to meet patient needs today.

Solution: Trufield electronic medical records system is free for all users including patients, healthcare providers and organisations. Integrating a centralized and decentralized platform will ensure that Trufield can be customized and integrated with other existing systems easily. It will enable users to enjoy all the interactive features of Trufield decentralized application at no cost. Users' data will be secured by the decentralized network. Trufield will use blockchain technology to store sensitive medical information without having to make the sensitive information public. Cost of implementing and sustaining the Trufield system will be covered by advertisements allowed on the application. Selective advertising will be permitted on the Trufield application to cover the cost of storing medical information on the Ethereum Blockchain and other cost associated with the use of the application.

Accessibility

What use is information if it cannot be readily accessed? With current medical record systems, patients do not have complete and quick access to their own medical information. Usually, if a patient wants access to a part or full medical records, they may have to put in a request to the relevant healthcare department and wait for their records to be made available to them. This process may take hours or even days to complete. Sometimes, patients have to pay to get their own medical records.

Solution: With Trufield, a patient's medical record will be available to them with just a click of a button. No more paying for your own medical records. No more waiting for your own medical records. All your medical data in one place, accessible anytime and anywhere.

Data Ownership

With existing medical record systems, patients do not have complete control over the acquisition and distribution of their medical data. Usually, consent for disclosure of effectively de-identified data is not required. That means patients' data can be used or passed to secondary organizations without patients' consent.

Solution: With Trufield, patients' will maintain custodianship of their medical data and will have access to their health records. Healthcare providers will need patients' consent first when accessing patients' medical data. Physicians and health system administrators will only be permitted to add new and relevant information to patients' medical files.

Sharing Information

Sharing patients' medical information between different healthcare providers is a real challenge. Further complicating matters is that many existing medical records systems are stand-alone and cannot be easily integrated into other systems resulting in the fragmentation of individual patients' health information across the system. In addition, custodianship is usually held by healthcare providers and institutions, and as a result, patient information can be fragmented across multiple health services.

Solution: Users of Trufield will have legal rights and control over the use of their medical data and can chose to share them with different healthcare providers. Patients will control who, where and how they want their medical information to be used. Users can give consent for selected medical data to be used to help with disease-control planning, plan immunisation and vaccination programmes, clinical surveys, aid population census, market research, targeted advertising, assist governmental agencies to plan essential health services, etc.

Data Organisation

Paper based medical record keeping often comes with a disorganized collection of medical records, to the point where it's unlikely that any one doctor knows a patient's entire health history. So there are clear benefits to electronic record keeping. However, even when electronic medical record systems exist, it surprisingly difficult to share patients' records between different healthcare providers. Compiling your medical history may still mean contacting many different healthcare providers.

Solution: Trufield will eliminate the headache of paper files. Emergency room doctors will no longer have to waste time dashing to the records department for the chart of a patient who was just admitted—they can simply call it up on mobile phone or a computer screen. With Trufield all healthcare providers will use the same electronic health record system. This will make it easier to share patient information and organize patient records. Trufield digitized medical records system will make it easier to share patient information. On Trufield, complied records will also include:

» Log of past procedures

» Description of your chronic medical conditions

» List of all current medication

» Copy of recent test results

» Patients medical wishes

Privacy and Confidentiality

Currently, healthcare providers serve as data controllers. That means they have overall control of patients medical data and can decide how, why, what, when, where and how long that medical data is processed. Privacy of patient data is also of significant concern, particularly if the data are accessible outside healthcare institutions and are available on the internet worldwide. Leaked digital clinical data could compromise patients on a variety of levels and expose medical practitioners to lawsuits related to negligence in the care of patients' data.

Solution: On Trufield electronic medical records system, healthcare providers will not serve as data controllers. Healthcare providers will need patients' consent to access patients' medical information. A patient will have control over who can access their information and how long they can access that medical information. Patients will have the ability to block access to their medical data being used by specific healthcare providers. Patients will have the right to dissent from the disclosure of their identifiable medical data.

Communication

Some patients who missed hospital appointments said their absences were due to issues with appointment letters. Some patients even missed consultations without cancelling or rearranging it first. Failure to attend appointments places huge strain on healthcare providers' resources.

Solution: With Trufield, healthcare providers can send appointments details electronically to patients. Patients can access details of hospital appointments through their smartphones. Trufield application will allow patients to communicate directly with healthcare providers using Voice over internet Protocols (VoIP). With Trufield communication tools, the patient experience is enhanced, costs are reduced and resources become easier to manage.

Teleconsultation

Technology-supported consulting may be a partial solution to the complex challenges of delivering healthcare to an ageing and increasingly diverse population especially in areas where the location of the care center is far from some populations.

Remote consultations offer potential advantages to patients and may help meet the challenge of healthcare delivery in countries with poorly developed infrastructure. Patients and healthcare providers are spared the cost and inconvenience of travel and they may be more cost-effective.

Solution: Trufield application will allow patients to communicate directly with healthcare providers from the comfort of their own homes. Trufield will partner with existing telecommunications companies to integrate voice over internet protocol (VoIP) feature into the Trufield application.

How Trufield works

Users will register to the decentralized application for their unique, electronic medical IDs. So anyone anywhere can have unique digital medical ID on which their medical records will be stored. This will serve as the template on which all other essential medical information can be added and accessed respectively. This will enable users to access their medical records from any mobile or web based platform wherever they are. With patient consent, health professionals will be able to access and add new medical information using just the patient's electronic medical ID. Previous diagnosis, allergy information, patient wishes, laboratory results and other relevant medication records will also be available to users and healthcare providers from any mobile device and web based platform. Even where there is no internet access, healthcare providers will be able to access and add new patient information using Trufield unique USSD network. Patients without internet access will also be able to access their medical information.

The Trufield platform will be a unique blend of centralized and decentralized system powered by Ethereum. This is to reduce data processing cost incurred when using the Ethereum blockchain. When Trufield electronic medical records system is adopted and implemented, it is a sure thing that the overall quality of healthcare will increase. Trufield will eliminate problems; eliminate errors, save time, and save money.
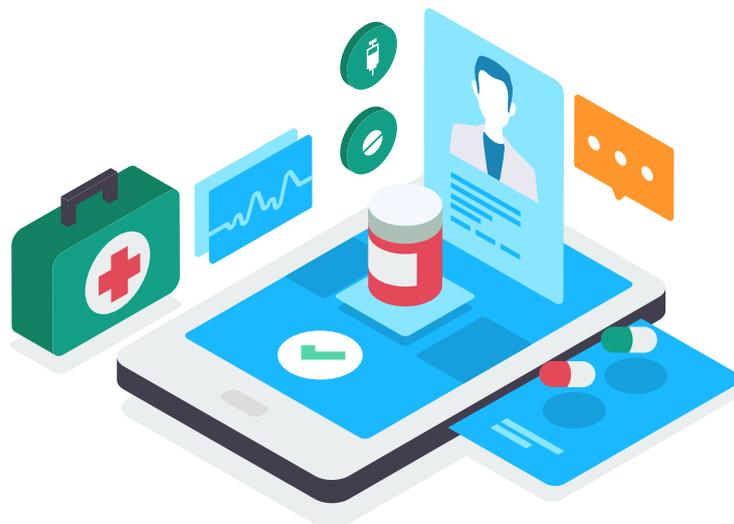
What makes Trufield Unique?

» Trufield is free and will always be free for all users.

» Trufield algorithms will analyse all medical data in real time. This will remove any disease reporting delays. All data will be analysed to identify disease outbreaks, allocate resources efficiently, anticipate future health problems, identify deviations from expected trends and for planning preventative measures.

» Trufield decentralized application will be accessible even to users without internet access using Trufield's unique USSD protocol.

» Trufield decentralized application will be available on computers and mobile phones because these are easy to use, transport, available and are lower in cost than most other electronic systems.

» Trufield will be a unique integration of a centralized and decentralized platform. The centralized platform will host the interactive features of the DAPP while the decentralized platform will host the medical information. This will ensure that only vital medical data is stored on the blockchain thereby reducing cost.

» Trufield will achieve more accurate vital medical statistics for healthcare providers and patients.

» Selective advertising will be permitted on the Trufield application to cover the cost of storing medical information on the Ethereum blockchain and other cost associated with the use of Trufield decentralized application.

» With Trufield, patients will be able to share their medical files with other users and secondary trusted parties.

» With users consent, selected medical data can be used to help with disease-control planning, plan immunisation and vaccination programmes, clinical surveys, aid population census, market research, and advertising, assist governmental agencies to plan essential health services, etc.

Trufield Token Rewards

Users will be able to earn Trufield tokens by performing certain actions on Trufield platform or simply by buying them on an online digital assets exchange.

Ways in which token rewards on the Trufield platform will be available:

» First one million user registration

» Users providing consent to the use of their medical data.

» Donating to partner charitable organisations through Trufield.

» Health providers adding new patient medical information unto Trufield platform.

» Referring new users to Trufield.

Trufield token Usability

» Advertising on the platform can be paid for using Trufield tokens. This should generate an increase in demand for Trufield tokens

» Trufield tokens can be used for charitable donations to Partner Charity Organisations

» With users consent, useful de-identifiable patient medical data can be purchased by vetted institutions and organisations at specified Trufield token amounts, thereby increasing demand for Trufield tokens

» Statistical data collected on healthcare providers can be purchased by using specified Trufield tokens.

» Trufield tokens can be used to gain entry to all Trufield events and conferences

Technical Details

The Token

Trufield tokens will be created over the Ethereum network, which is currently the standard way to create cryptocurrencies.

Trufield token will follow the ERC20 standard, which is the standard expected by exchanges.

Data security

The Trufield project's goal is to provide a high-level of service to everyone. Data security is paramount in the Trufield project. That is why the Trufield decentralized medical records application project will run over a HIPPA server.

HIPPA is a set of rules from the US government required for handling and saving electronic medical records, with a big focus on privacy and security.

Using a HIPPA certified server assures users that their medical data won't be accessible to anyone without your permission.

Using Trufield no matter where you live, your medical data will have the best level of security available.

Project technical description

Trufield will be a mobile and web based application that will allow healthcare providers to upload patients' medical data electronically, patients will give permission for access to their medical information.

The development will be Android first because the vast majority of the target market uses Android rather than IOS

The App and USSD protocol will communicate with the HIPPA compliant server and the server with the blockchain.

Token sale

The goal of Trufield token sale is to sell 70,000ETH worth of tokens during public sale. The total Trufield tokens (TRUF) supply will be fixed at 100,000,000 TRUFs and no more tokens will be created thereafter. Trufield tokens will be priced at 1ETH = 1000 TRUFs. During the pre-sale, Trufield will make available 17,500,000 TRUFs for sale at 25% discount. All unsold tokens will be destroyed after the ICO once the soft cap is reached.

Soft Cap and Hard Cap

The soft cap and hard cap has been set at 1,200ETH and 100,000ETH respectively, why? The soft cap was set at 1,200ETH because that is the estimated funds required to develop a minimum viable product. This will cover programming, design, testing cost etc of the Trufield decentralized application. The hard cap of 100,000ETH will enable us not only to create the application but to deliver it to the targeted users. We understand the challenge of getting individual patients and healthcare organizations motivated to join the effort of storing medical data electronically. Therefore there will be a massive campaign to educate patients and healthcare providers about the need and use of Trufield electronic medical records system. The hard cap will cover the product, marketing and educational programmes cost.

Tokens distribution

- Circulating supply = **70,000,000 TRUFs**
- Founders = **12,000,000 TRUFs**
- Advisors = **5,000,000 TRUFs**
- Development team = **4,000,000 TRUFs**
- Future Partners = **3,000,000 TRUFs**
- Community and User growth = **5,000,000 TRUFs**
- Bounty and referral tokens = **1,000,000. TRUFs**

If a friend using a referral link bought 10 tokens, the bounty user will receive 1 token for free.

ICO Information

We accept Ethers only.

Symbol: TRUF

Soft Cap = 1,200ETH

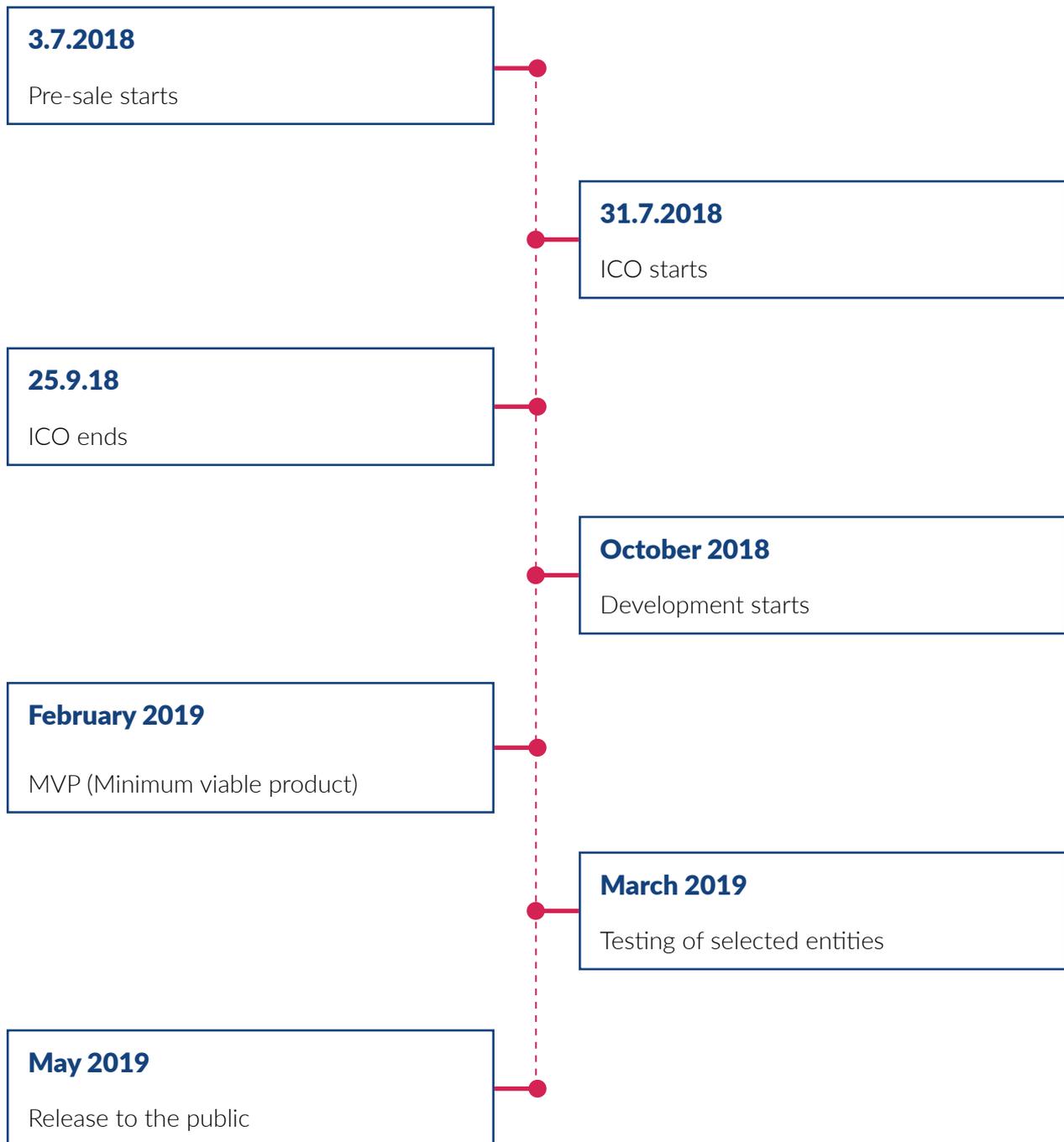Hard Cap = 100,000ETH

Price per token = 0.001ETH

Discount at pre-sale = 25%

Number of tokens for pre-sale = 17,500,000 TRUFs

Maximum amount per person at pre-sale = 200 ETH

Maximum token supply = 100,000,000 TRUFs

Roadmap

3.7.2018

Pre-sale starts

31.7.2018

ICO starts

25.9.18

ICO ends

October 2018

Development starts

February 2019

MVP (Minimum viable product)

March 2019

Testing of selected entities

May 2019

Release to the public

Team

We are aware that many projects overpromise but under deliver. Here at Trufield, we under promise but over deliver. Hence we will cut through the noise and let the project do the talking.

Now meet the Trufield team:

Kwabena Owusu – Founder and Chief Executive Officer

I am the founder and CEO of Trufield. I realized the need for a good medical records system after my mother Christiana had a life changing medical experience. Trufield was created to improve the way medical data is accessed, collected and used to improve healthcare for all. Prior to founding Trufield, I worked in an operational manager role on London's Transport infrastructure, United Kingdom. I have a Bachelor of Science degree from KNUST University, Ghana.

Dr. Joseph Gbene – Co Founder and Chief Operating Officer

My name is Dr. Gbene, Co Founder and COO of Trufield. Having seen firsthand how poor medical record keeping contributes to poor patient care, I realized the need to find an innovative electronic health data management system to improve patient care. Hence I joined in creating Trufield. Prior to founding Trufield, I worked as an Occupational Physician with 13 years experience of working as a Medical Doctor in Ghana. I studied at Cardiff University, United Kingdom.

Luis Angel Pando Castañón – Chief Technology Officer

I have 25 years of experience in software development having worked in banks and security companies, among other sectors. I'm an expert in blockchain development and ICOs. I have an Engineering in Computer Science degree from University of Oviedo, Spain.

Kwadwo Bentum – Chief Market Strategist

I am an experienced marketing strategist and business developer with over 10 years experience in founding and developing businesses. Prior to joining Trufield, I was CEO of Bentum and Sons Limited. A successful distribution company incorporated in the UK. I have an MBA in Finance from University of Leicester, United Kingdom.

Vladislav Negmatulin – Chief Designer

I'm a C # developer, I have been developing for more than 5 years. I have a lot of experience in developing all kinds of Web / Desktop / Service / Game applications. I constantly expand my knowledge, attend various IT conferences (DotNext, DevCon …). I took part in the development of a lot of projects of varying complexity and scale. I studied a Bachelor's degree in Software Development Technologies at Moscow Institute of Technology.

Nee Norteye – Chief Data Analyst

I am in charge of data analysis at Trufield. As an experienced performance analyst, I will develop performance measurement frameworks to analyze the performance of the Trufield decentralized application. I along with the team will be adapting our approach and framework appropriately and in line with any changes. I have an MBA in Research, Economics and Finance from Brunel University, London.

José María Pando Castañón – Blockchain Expert

I am an expert in blockchain development, specially in the language Solidity, used for creating smart contracts on the Ethereum blockchain. I have 3 years of experience in software development. I have an Industrial Engineering degree from University of Oviedo, Spain

Marvin Rotermund – Auditing and Compliance Consultant

I am a Certified Lead Auditor in Corporate Sustainability. With significant experience in compliance and contract monitoring, I will be consulting on the Trufield project. Prior to joining Trufield, I worked as a compliance Officer in the London Borough of Camden. United Kingdom. I studied at University of Central Lancashire where I earned a Bachelor of Science degree.

Edward Obeng – Digital Marketing and Communications

I am in charge of digital marketing and communications at Trufield. I am an experienced content creator and writer. Prior to joining Trufield, I worked as an Editorial Assistant for Gambling Insider and as a Freelance reporter for Blasting News. I studied Journalism at the University of Bedfordshire, United Kingdom.

Advisors

Eric Osei - Advisor

Eric Osei is an experienced business and economic development professional. He has over 20 years senior level experience developing and managing multi-million pound (£) strategies and programmes to support business start-up and growth. Eric has held a number of senior posts as business and economic development specialist at the London Development Agency. Eric holds a Master's Degree in Economic Development (MA), Masters Degree in Business Administration (MBA), post graduate qualifications in Management and Project Management.

Philip Kwabena Kyeremateng – Advisor

Philip is an Environmental Engineer by profession. On the Trufield Project, he will be analysing and advising on the complex interactions between humans and the natural environment and how it affects human health in developing countries. He has a Master's degree from Cranfield University, United Kingdom in Environmental Engineering Technology.

George Tettey – Advisor

George is an innovative and experienced professional responsible for the success and growth of several healthcare agencies in the UK through branding, training and compliance. He has extensive experience in re-structuring and innovating technical solutions to meet complex customer requirements when providing healthcare. He has an MSc in Finance and Investment from University of Ghana Business School.

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