



# XERON CARE

## WHITEPAPER





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# Abstract

According to the Institute of Health metrics and evaluation forecast, Global spending on healthcare will reach \$18.3 trillion by 2040. It is of no doubt that the health industry is one of the world's biggest. Unfortunately, the health care system is ineffective and inefficient. Fortunes are being spent yearly, and there is a worldwide struggle by governments, hospital, healthcare providers, pathology and radiology companies, healthcare technology companies, insurers, to maintain centralized systems and secure their patient's data. As a fundamental human right, we all have the right to sound health. This should establish the needs for a personal care record. Sound health is not something you sit down and expect to happen and remain permanent forever. Just as we all do for wealth, good health has to be created and well manage. We all cater and care for our lifelong records as regarding wealth; almost no-one does the same for their health. To survive, the healthcare industry must find a way to manage long term records effectively and deliver the best outcomes at the lowest costs and fastest rate.



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# Introduction

## BLOCKCHAIN

### Quoting Eric Schmidt's:

"Blockchain is the second thing that humanity has built that humanity doesn't understand, the largest action in anarchy that we have ever had."

### According to Wikipedia

A blockchain, originally block chain, is a growing list of records, called blocks, that are linked using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data (generally represented as a Merkle tree). By design, a blockchain is resistant to modification of the data. It is "an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way". For use as a distributed ledger, a blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for inter-node communication and validating new blocks. Once recorded, the data in any given block cannot be altered retroactively without the alteration of all subsequent blocks, which requires the consensus of the network majority. Although blockchain records are not unalterable, blockchains may be considered secure by design and exemplify a distributed computing system with high Byzantine fault tolerance. Decentralized consensus has therefore been claimed with a blockchain.



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Blockchain was invented by a person (or group of people) using the name Satoshi Nakamoto in 2008 to serve as the public transaction ledger of the cryptocurrency bitcoin. The identity of Satoshi Nakamoto is unknown. The invention of the blockchain for bitcoin made it the first digital currency to solve the double-spending problem without the need for a trusted authority or central server. The bitcoin design has inspired other applications, and blockchains that are readable by the public are widely used by cryptocurrencies. Blockchain is considered a type of payment rail. Private blockchains have been proposed for business use. Sources such as Computerworld called the marketing of such blockchains without a proper security model "snake oil".

(Source: <https://en.wikipedia.org/wiki/Blockchain>)

Let us review the real meaning behind blockchain.

Blockchain is aimed at bringing about a revolution in 'Trust' and 'Freedom' by breaking free of centralized systems and transferring decision making power to a network of users. Blockchain is designed to expand the decision making nodes from one node to multiple nodes so that the participating multiple nodes become the decision-making institution. With Blockchain, rather than having a system for issuing and transacting money controlled and monopolized by governments or banks, the group of participants itself (network) carries out these functions. This means that mankind's shared resources can be managed using a token economy for personal ID's, insurers etc., instead of by centralized institutions, which might just disappear.



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# What is Medical Data?

In the health care industry, there are lots of data being collected, stored, processed, analyzed, or disseminated upon attending to patients. These data are mostly collections of numbers related to a patient's body temperature, heart rates etc. during a particular visit. But there is potentially more to it than that. Health care or medical data refers to health-related information that is associated with regular patient care or as part of a clinical trial program. There are many categories of such data such as Electronic Health Records, Clinical Data (Administrative data, Patient/disease registries, Health surveys).

## Problem

The Health care industry has several time been an easy target for cybercriminals. The year 2017 was a bumper year for hacking and ransomware attacks. In May 2017 more than 220,000 machines in 150 countries were targeted by the WannaCry attack, including over a dozen NHS Hospitals all over the World. The attack affected millions of patients all over the World, resulting in cancelled appointments and mayhem and loss of vital patient's data. On 27 June 2017 another malware attack occurs destroying systems and data, but this time the attacker offers no option for

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data recovery as it was the case with WannaCry. Healthcare providers and hospitals have begun to realize that existing Personal Health Records protocol are incapable of fully meeting the soaring patient's data interoperability.

It will be a very costly endeavor to seek to integrate a new Personal Health Records protocol, and this is where Xeron Care comes in. Xeron care is an open-source ecosystem which not only efficiently advance interoperability but also reduced the cost associated with implementation.

## Solution

Integrating blockchain to store Medical data will ensure the safe and efficient transfer of confidential health care data. However, it is daunting that we overlooked the important tasks of medical data management. Poor medical data processing are the major reasons for some avoidable medical errors. Implementation of standardized data management systems reduce overall costs, saves time, reduces errors and associated sufferings or loss and saves more lives. Therefore, it is important that we take seriously this dilemma in the health care institution and ensures safe and efficient data management. The necessity to establish appropriate medical data management systems in the health care industry is of high importance.

Poor data management practices are the reasons for recurrent errors and associated injuries or death. With Xeron Care, we set



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out to improve the process, trustworthiness, safety, and efficiency of patient care data management.

This is our major concern and as a result led to the development of Xeron Care and XRX token to advance quality health care service through systemized, safe and efficient health care data storage and retrieval.

## Introducing Xeron Care

- Xeron care is made up of an ecosystem that consists of:
- A Protocol: A Personal Health Record (PHR), which uses the distributed ledger technologies that can be used and owned by the patient.
- A coin: The Xeron (XRX), which will empower the ecosystem.
- The application: An open-source tools.

Xeron care basically intends to create a secure, transparent and readily available transactional layer bound with healthcare that fixes the most common cases which nowadays limit the health care immediate access to patient's data and allowing for a whole better health care experience.

With Xeron care, there will be an Increasing transferability and accessibility of patient records. This is enough power in the hands of patients as it enables patient self-advocacy.



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# Technology

Why does Health care need Blockchain?

We have already reviewed the existing health care system challenges. As a result of these challenges there is a need for technology to solve the following:

- Integrity of data
- Data portability
- Privacy concerns.
- Interoperability between different providers, hospitals, pharmacies.
- Identity fraud.
- Fragmented health care data interchange standards
- Compliance issues

Blockchain technology imprimatur has been well demonstrated with successful solutions in a number of the following ways:

## **Eradication of prescription fraud:**

The transaction between doctors, patients, manufacturers, pharmacists can be easily traced and fully regulated to ensure that only the prescribed patient receives the medication due, in the correct amount with complete provenance of each actor in the supply chain.



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## Reduced Insurance Fraud:

All transactions relating to each patient are immutable and verifiable. In a scenery where data is tampered with maliciously or otherwise, the system immediately flagged it and that can't be undone. This ensures the provenance of data and produces a high level of transparency between all parties.

## Healthcare IoT:

With an increase in the number of connected health devices, it is vital to ensure the integrity and privacy of all data emanating from sensors.

## Protection and Prevention:

Prevents Malicious modification of health care records using blockchain .

## Secure logs:

Blockchain backed logs ensure flagging of any tampering, whatever the reason.



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# Benefits

For an effective and efficient health care intervention as pertaining to the restoration of a patient's health, there is a need for adequate medical data storage and retrieval.

With Xeron Care, patients have their adequate health records, get their regular screening and in turn best health outcomes. Doctors save time and money and free up scarce resources. Health care funders and insurers operate at lowest costs.

## Effective Medical Data Storage will:

- Enables efficient data extraction.
- Improves communication for clinical decision making.
- Improve recording, distributing, monitoring, and implementing preventive measures to decrease morbidity.
- Quality of patient's care.
- Reduced medical data access time.

# Token

**Token name:** XERON CARE

**Token symbol:** XRX

**Decimals:** 18

**Supply:** 750000000



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Digital currencies are on the verge of mass adoption. Our platform will be fueled by the Xeron Care token.

Xeron care is introducing an open-source cryptographic token named XRX, which is visualized as a health care cryptocurrency to be used in medical data storage and retrieval services. XRX is a pure cryptocurrency of a fixed supply (750000000). It is intended to be bought by users and by providers and researchers.

Similar to other cryptocurrencies, the units are mutually interchangeable and transferable, and they will be expected to trade in cryptocurrency.

The user connects to the blockchain via the Xeron Care platform. A user can buy at a market price and spend it on services. Every time the user or the doctor writes on the blockchain there may apply a transaction fee (Details will be revealed later). This fee will be very small and have relatively no impact on the global token “economy” of the user.



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# Implementation:

Xeron Care will be implemented on the public Ethereum blockchain as an ERC20 token. The Ethereum blockchain is widely accepted as the industry standard for issuing custom digital assets and smart contracts. The ERC20 token interface allows for the deployment of a standardized token that is compatible with the existing infrastructure of the Ethereum ecosystem, such as wallets, development tools, and exchanges. With Ethereum's capability to deploy complete trustless smart contracts, it is now possible to issue complex rules for cryptocurrencies, automated incentive structures and digital financial contracts. These sets of advanced features and active ecosystem make Ethereum a natural fit for XRX.

## Market

This involve an on-growing number of people. Sound health is a necessity for every human being. And as a result of that, our potential customer reach includes all patients covered by the NHS (National Health Service) which total over 1.4 billion people.

The cost of healthcare is on the rise across the globe as the world is struggling to deal with the ever aging populations and an increase in ill health burden. The current method of healthcare data management in the World are unsustainable. The rise in digital health service is being countered by the increased costs. In 2015, the global digital health market was valued at \$80 billion and

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by 2020 it is expected to increase to over \$200 billion with a CAGR of 21%.

Xeron Care will be key to improving efficiency and reducing costs.

There is a large market for this solution and some of the benefits include:

- Improved quality of healthcare.
- Better doctor-patient interactions
- Improved access to consultation
- Reduced costs



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