Emerging Healthcare Leaders Webinar

Blockchain & Healthcare: What is it, How does it impact healthcare, How can we benefit from it?

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Upcoming Events

• **Next EHL Webinar**
  • May 17, 2022 | 11:00am CT/12:00pm ET
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  • Resume review and coaching available
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Meet Our Speakers

Avni Parekh
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Learning Objectives

Objective 1
Understand what blockchain is, and how it works.

Objective 2
Discuss the potential benefits and use-cases of blockchain in the healthcare industry.

Objective 3
Illustrate the potential risks of implementing blockchain in the healthcare industry.

Objective 4
Identify and consider real life examples of healthcare organizations using blockchain technology, and where this technology is headed in the future.
Global & Industry Impact

- 300M users
- 22% population owns Bitcoin
- 81 countries

- Cryptocurrency
- Government Benefits
- Insurance
- Music Industry
- Gambling
- Banking
- Logistics and Supply Chain
- Healthcare
## Intro to Blockchain

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<table>
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Key Terms

- **Ledger**: Record of transactions
- **Block**: Unit of data/record holding set of transactions
- **Hash**: Digital fingerprint; adds security
- **Consensus Mechanism**: Proof-of-Work & Proof-of-Stake
- **Miner**: Blockchain user/node that validates blocks
- **Blockchain**: Digital distributed ledger
How does a transaction get onto the blockchain?

1. Transaction Request
2. Block created
3. Block sent to nodes
4. Nodes validate transaction
5. Nodes receive reward
6. Block added to blockchain
7. Distribute update
8. Transaction complete
Blocks, Hashing, and the Blockchain

Hash 1Z8F  Previous Hash 0000
Hash 6BQ1  Previous Hash 1Z8F
Hash 3H4Q  Previous Hash 6BQ1
Consensus Mechanisms and Decentralized Networks

Centralized Overlay
Central peer facilitates the interactions

Decentralized Overlay
No central authority, all peers treated equally.

Hybrid Overlay
Hierarchical topology
Uses in Healthcare

- Supply Chain Technology
- Electronic Health Records
- Smart Contracts
- Internet of Medical Things
Supply Chain Technology

**Problem:** Medications & Medical Supplies Travel system to system in different locations
  - Can cause distribution of counterfeit prescription medicines and devices leading to thousands of deaths.

**Solution:** Blockchain can verify authenticity of medicines, expiration dates, and other important information.

**Current Examples:**
  - National Health Services in UK
  - Everyware Ltd, & Hadera Hashgraph
  - MediLedger
  - IBM
Electronic Health Records

**Problem:** Often times, patients do not have their healthcare managed in one health system.

- Leads to gaps in patient’s medical history and makes providers prone to medical errors
- According to Johns Hopkins University, medical errors & poor care coordination was the third leading cause of death in the US.

**Solution:** All medical records can be interconnected through a blockchain-based EHR system.

**Current Example**
- HealthChain
Smart Contracts

**Problem**: We use an outdated process for prior authorizations

- Current process can be timely, costly, and requires usage of multiple systems.

**Solution**: With smart contracts, an automated authoritative system can be used for prior authorizations.

- This will greatly reduce the amount of time needed in the Revenue Cycle management.
Internet of Things

**Problem:** More types of applications and systems are used today.

- Patients information has an increased risk of breach.

**Solution:** Blockchain technology can secure all information from various devices and allow permitted users access to patient information when needed.

**Current Example:**

- IOTA - Internet of Things Application
Regulatory Considerations

HIPAA Compliance

GDPR Compliance

Anti-Money Laundering
Benefits

**Security**
- Authorized users
- Maintaining privacy
- Access denial to unauthorized users

**EHR Interoperability**
- Data sharing
- Smart contracts can be used to automate data

**Decentralized System**
- Omits a central administrator
- Control given to the users
- Security, accessibility, data privacy

**Data Provenance**
- Single, longitudinal patient records
- Traceable and robust data
Benefits

Cut Costs
- Reduce days in AR
- Reduce labor for medical records management

Stop Counterfeit Drugs
- Secure and trusted tracking system that identifies proof-of-origin of a product

Provider/Patient Relationships
- Holistic picture of patient’s health
- Care coordination

One Medical Record System
- Prevent medical record duplication and mismatching
**Downsides & Risks**

1. Suitability for large data sets
2. Limitations to data uses
3. Data privacy and regulatory barriers
4. No single data controller; distributed ledger
5. Speed and scalability
Case Study

How do you picture blockchain altering the healthcare space in the next 5-10 years?

We heard from Tommy Wang, the founder of “Color Tree Labs”, an innovator in the healthcare blockchain space to understand where we are heading.
What makes blockchain different from the other available methods of data management?

1. Higher Efficiency
2. Lower Costs
3. Global Transparency

“Blockchain's greatest asset is the distributed ledger”
In Summary

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4. **Objective 4**
   Identify and consider real life examples of healthcare organizations using blockchain technology, and where this technology is headed in the future.
Thank you!

Questions?
Add your question into the Q+A section

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IOTA Foundation Inc. (2021). What is IOTA. IOTA. Retrieved April 15, 2022, from https://www.iota.org/get-started/what-is-iota


References


