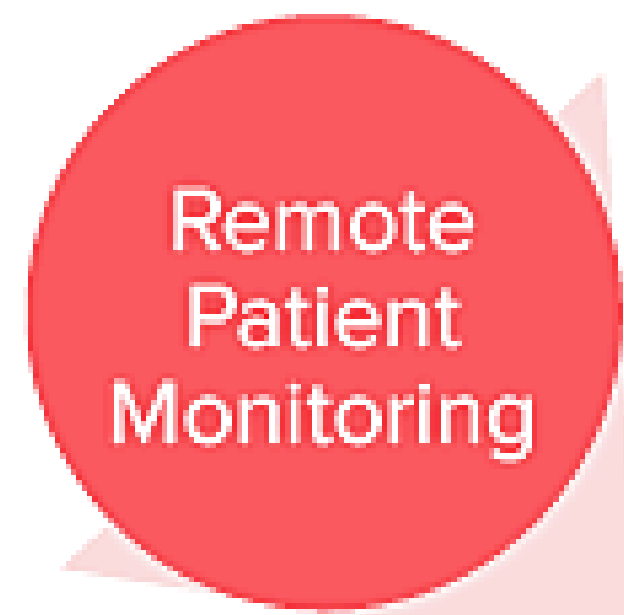


Innovative Solutions for Healthcare

Blockchain in Healthcare

Shlok Nandanwar - D11ADB (37)



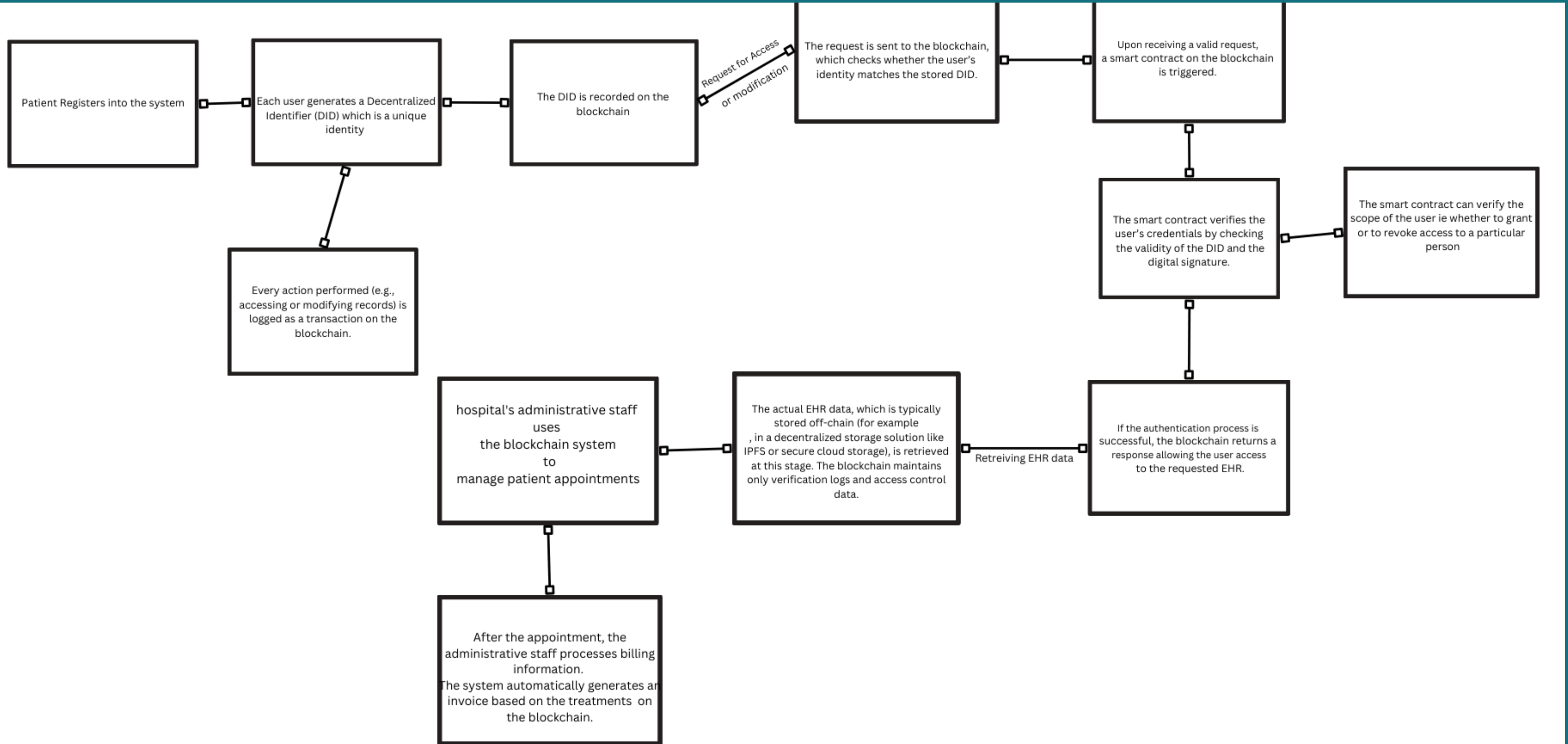


Blockchain in Healthcare

Blockchain technology offers **revolutionary solutions** for enhancing patient data security. By providing a decentralized and transparent framework, it ensures that sensitive information remains **protected** from unauthorized access. As healthcare organizations adopt blockchain, we can expect improved trust and compliance, ultimately leading to better patient outcomes and streamlined processes.



Blockchain in Healthcare



Patient Sign-Up & Secret Identity Creation:

Patients hop aboard the system, crafting their very own superhero Decentralized Identifier (DID), etched permanently onto the mighty blockchain. Every superhero move (a.k.a. access or tweaks) gets logged like a comic strip for all to see.

Knock-Knock, Who's There? & Proof of Identity:

When someone knocks on the EHR data door, the system checks if they've got the secret handshake matching their DID. A magical smart contract gets summoned to check their credentials and permissions using the DID and their digital superhero signature.

Fetching Data Like a Ninja:

If the identity check is a success, the gates swing open. The top-secret EHR data lounges off-chain (think IPFS or cloud storage), while the blockchain keeps tabs on who's who and what's what.

Appointment & Billing Magic Show:

Hospital staff wield the system to juggle appointments and billing like pros. After a treatment session, invoices magically poof into existence, thanks to services logged on the blockchain!

Blockchain Benefits

Blockchain technology offers enhanced **security and privacy** for patient data. This article delves into two key concepts: data integrity and secure sharing, which are crucial for protecting sensitive healthcare information in our modern digital age.

Data Integrity	Immutable records for patient information	Real-time data verification and updates	Audit trails for compliance and accountability
Secure Sharing	Access control for authorized personnel only	Efficient communication across healthcare providers	Encrypted transactions for data protection

Blockchain Benefits

Drawbacks

Scalability issues

Limited speed and transaction capacity for large healthcare data

Data storage limitations

Cannot store large files (like MRI etc) on-chain; needs off-chain solutions.

High energy consumption

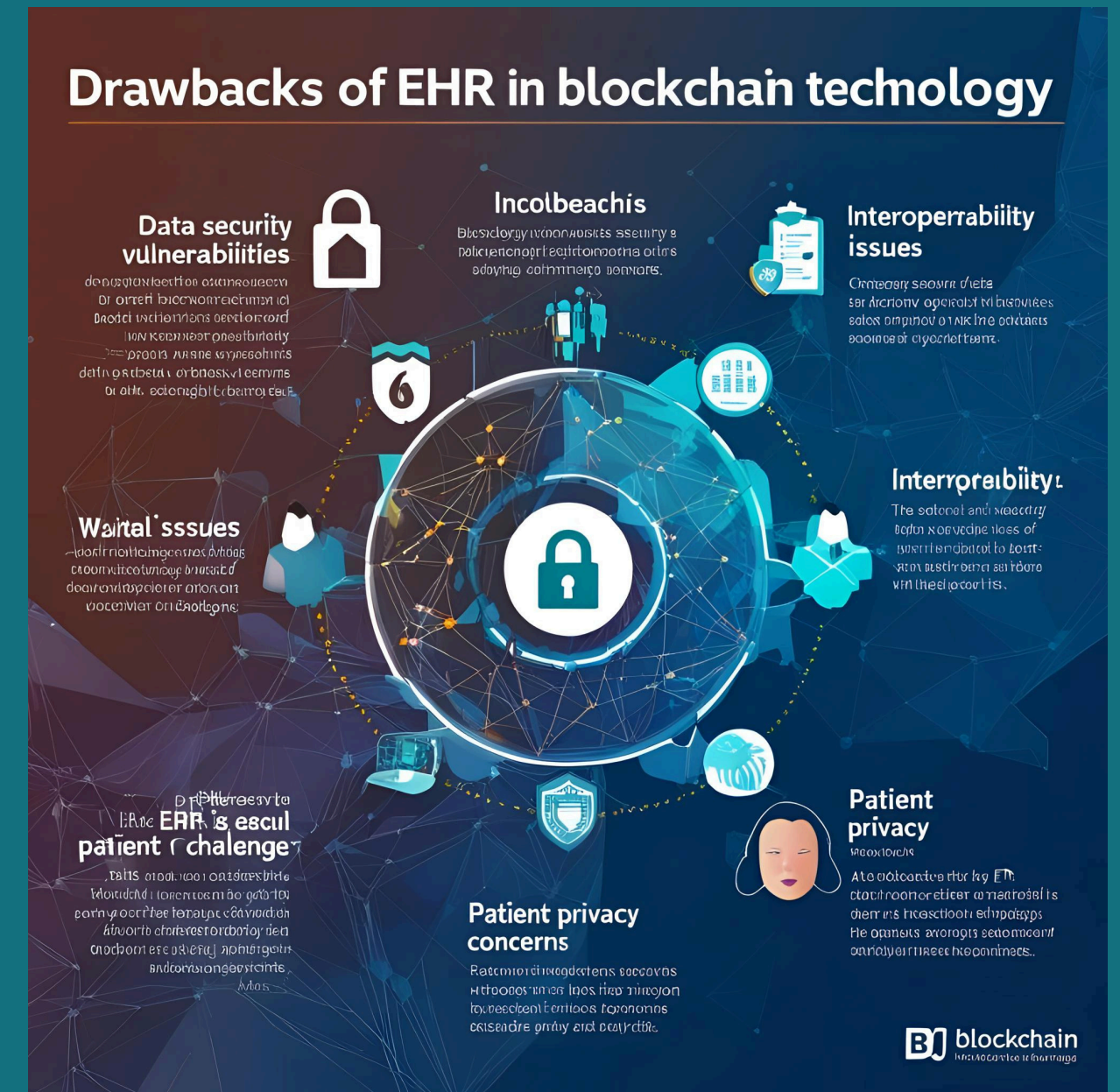
Especially with proof-of-work blockchains.

Integration Challenges

Difficult to connect with existing hospital systems.

High implementation cost

Expensive setup and infrastructure requirements.



Real world Examples

MedRec (MIT Media Lab)

- Manages Electronic Health Records (EHRs) using Ethereum.
- Allows patients to control access to their health data.
- Focuses on interoperability between healthcare providers.

Medicalchain

- Uses blockchain for secure storage and sharing of medical records.
- Enables telemedicine and health data monetization.
- Patients give controlled access to doctors and researchers.

BurstIQ

- Provides a blockchain platform for secure data exchange.
- Focuses on population health management and personalized care.
- HIPAA-compliant with integrated machine learning.



Future Scope for Blockchain in healthcare

Integration with AI and IoT

- AI can analyze blockchain-verified health data for diagnosis/prediction.
- IoT medical devices can securely log real-time data onto the blockchain.

National and Global Health Records

- Possibility of unified, tamper-proof health records across countries.
- Cross-border healthcare coordination and emergency access.

Stronger Data ownership and Privacy

- Patients gain full control over who accesses their data and when.
- Selective sharing with researchers can drive personalized medicine



Conclusion

- Blockchain ensures secure, transparent, and patient-controlled healthcare data.
- Adoption challenges exist but the potential is transformative.
- Future developments may lead to widespread implementation.



Efficiency & Interoperability Benefits



5.55%

Improvement in
Health Data
Integration



4.0%

Cost Reduction
in Patient
Engagement

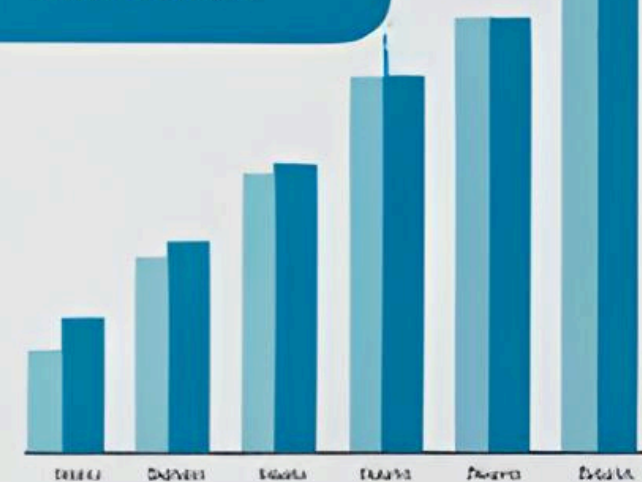


-53%

Reduction in
Healthcare
Expenditure

Efficiency and Interoperability

Efficiency and Interoperability



Inspiring Innovation Worlds



Standardized Content Analysis
for Health Information Systems
and Data Interoperability

THANK YOU