

Supplementary Material

Table S1. Literature search.

MEDLINE	PROQUEST
("blockchain"[MeSH Terms] OR "blockchain"[All Fields] OR "blockchains"[All Fields]) AND ((("equipment and supplies"[MeSH Terms] OR ("equipment"[All Fields] AND "supplies"[All Fields]) OR "equipment and supplies"[All Fields] OR "supplies"[All Fields] OR "supplied"[All Fields] OR "supply and distribution"[MeSH Subheading] OR ("supply"[All Fields] AND "distribution"[All Fields]) OR "supply and distribution"[All Fields] OR "supply"[All Fields] OR "supplying"[All Fields]) AND ("chain"[All Fields] OR "chains"[All Fields] OR "chains"[All Fields])).	blockchain AND supply chain AND healthcare.

Table S2. Description of the extracted variables.

Variable	Subcategory	Description
Nationality	-	First Author's Nationality.
Sector	Drugs, Medical Devices or Vaccines	Based on the main product managed by the blockchain. This data is extrapolated from the paper.
	BOT	Blood, Organ, Tissues. Based on the main product managed by the blockchain. This data is extrapolated from the paper.
Type of blockchain	Public	Permissionless - anyone can have access; transaction speed is slow and energy consumption is high.
Type of blockchain/DLT	Private	Permissioned - a single party acts as a central authority.
	Consortium	Federated, are a semi-private network where a consortium of stakeholders with the same goal forms the authority in the network.
	Hybrid	A combination of Public and Private Blockchain. [18]
Technology	Ethereum (ETH)	Ethereum is a decentralized, open-source blockchain with smart contract functionality.
	ETH+File Coin	ETH blockchain combined with the FileCoin technology.
	Hyperledger Fabric	Hyperledger Fabric is a distributed ledger framework for developing solutions and applications.
	IBM Hyperledger Fabric	The IBM Blockchain Platform is IBM's commercial distribution of Hyperledger Fabric.
	Open Source Blockchain	Open source software is made by many people and distributed under an OSD-compliant license.
	In House	Blockchain developed, or theorized, by the authors themselves.
	Other	Other Blockchain Networks or not specified in the paper

Effectiveness Data management	Accountability	Liability to account for and answer for one's conduct, performance of duties, etc; responsibility. [72]
	Integrity/Security	Integrity: Data that are in a valid state are maintained in that valid state, thereby ensuring integrity, only if authorized manipulations are performed on or with the data. [73] Security: we extrapolated the definitions from the papers. Protecting digital data from destructive action of unauthorized users.
	Confidentiality/Privacy	Confidentiality: Data confidentiality refers to prevent the active attack of unauthorized parties on users' data, and ensuring that the information received by the data receiver is completely consistent with the information sent by the sender. [74] Privacy: required to prevent the use of health data without consent. [75]
	Transparency/Traceability	Transparency: Data transparency is the ability of subjects to effectively gain access to all information related to data used in processes and decisions that affect the subjects. [76] Traceability: the ability to identify and verify the components and chronology of events in all steps of a process chain. [77]
	Reliability	Supply chain reliability is the ability of a supply chain to fulfill end customer demand to the desired level continually over the planning horizon, despite the risks of external and/or internal shocks to the system and prior to any risk mitigation efforts. [78]
Smart Contracts		A program that can execute transactions among peers when predefined conditions are matched. Smart contracts operate as autonomous actors that help in paperless transactions and automatization [62].
	Theoretic	-Basic principles observed. -Technology concept formulated -Experimental proof of concept. [79]

Study		
	Simulated	<ul style="list-style-type: none"> • Technology validated in the lab. • Technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies). • Technology demonstrated in a relevant environment (industrially relevant environment in the case of key enabling technologies). [79]
	Real Case	<ul style="list-style-type: none"> • System prototype demonstration in an operational environment. • System complete and qualified. • Actual system proven in an operational environment. [79]
Scalability	-	The ability of Blockchain technology to handle large data transaction flow and future growth. [80]

Table S3. Quality assessment.

Title	Design.	Conduct.	Analysis.	Conclusions.	Final score
Blockchain-based Supply Chain Traceability for COVID-19 personal protective equipment.	Yes=1	Partially=0.5	Partially=0.5	Partially=0.5	2.5
Protecting Vaccine Safety: An Improved, Blockchain-Based, Storage-Efficient Scheme.	Yes=1	Partially=0.5	Yes=1	Partially=0.5	3
A Blockchain Secured Pharmaceutical Distribution System to Fight Counterfeiting.	Yes=1	Partially=0.5	Yes=1	Partially=0.5	3
Blockchain-Based Distributed Information Hiding Framework for Data Privacy Preserving in Medical Supply Chain Systems.	Yes=1	Partially=0.5	Yes=1	Partially=0.5	3
Blockchain Medledger: Hyperledger fabric enabled drug traceability system for counterfeit drugs in pharmaceutical industry.	Yes=1	No=0	Partially=0.5	Partially=0.5	2
Blockchain for drug traceability: Architectures and open challenges.	Yes=1	No=0	Partially=0.5	Partially=0.5	2
Governance on the Drug Supply Chain via Gcoin Blockchain.	Yes=1	No=0	No=0	Partially=0.5	1.5
Blockchain Technology for Detecting Falsified and Substandard Drugs in Distribution: Pharmaceutical Supply Chain Intervention.	Yes=1	Partially=0.5	Yes=1	Partially=0.5	3
Internet of Things Based Blockchain for Temperature Monitoring and Counterfeit Pharmaceutical	Yes=1	Partially=0.5	Partially=0.5	Partially=0.5	2.5

Prevention.

Blockchain-Based Forward Supply Chain and Waste Management for COVID-19 Medical Equipment and Supplies.	Yes=1	Yes=1	Yes=1	Partially=0.5	3.5
A robust drug recall supply chain management system using hyperledger blockchain ecosystem.	Yes=1	Partially=0.5	Partially=0.5	Partially=0.5	2.5
Blockchain-Based Decentralized Digital Manufacturing and Supply for COVID-19 Medical Devices and Supplies.	Yes=1	Partially=0.5	Partially=0.5	Partially=0.5	2.5
HerBChain, a blockchain-based informative platform for quality assurance and quality control of herbal products.	Yes=1	Yes=1	Yes=1	Yes=1	4
Implementation of a Blood Cold Chain System Using Blockchain Technology	Yes=1	No=0	Partially=0.5	Partially=0.5	2
Securing E-health Networks from Counterfeit Medicine Penetration Using Blockchain	Yes=1	Partially=0.5	Partially=0.5	Partially=0.5	2.5
BloodChain: A Blood Donation Network Managed by Blockchain Technologies	Yes=1	Yes=1	Yes=1	Yes=1	4
An Exploratory Study on the Design and Management Model of Traditional Chinese Medicine Quality Safety Traceability System Based on Blockchain Technology	Partially=0.5	Yes=1	Partially=0.5	Yes=1	3
Go-Win : COVID-19 Vaccine Supply Chain Smart Management System using BlockChain, IoT and	No=0	No=0	Partially=0.5	Partially=0.5	1

Cloud Technologies

A Non-Fungible Token Solution for the Track and Trace of Pharmaceutical Supply Chain	Partially=0.5	Partially=0.5	Partially=0.5	Partially=0.5	2
Blockchain Application Design and Algorithms for Traceability in Pharmaceutical Supply Chain	Partially=0.5	No=0	No=0	Partially=0.5	1
Securing Drug Distribution Systems from Tampering Using Blockchain	Yes=1	Partially=0.5	Yes=1	Yes=1	3.5
A Novel Medical Blockchain Model for Drug Supply Chain Integrity Management in a Smart Hospital	Yes=1	Partially=0.5	Partially=0.5	Yes=1	3
A Blockchain and Machine Learning-Based Drug Supply Chain Management and Recommendation System for Smart Pharmaceutical Industry	No=0	Yes=1	Yes=1	No=0	2
Blockchain-Based Solution for the Administration of Controlled Medication	Yes=1	No=0	Partially=0.5	Partially=0.5	2
A Blockchain-Based Approach for Drug Traceability in Healthcare Supply Chain	Yes=1	Partially=0.5	No=0	Partially=0.5	2
Research on Medical Waste Supervision Model and Implementation Method Based on Blockchain	Yes=1	No=0	Partially=0.5	Partially=0.5	2
Blockchain Enabled Transparent and Anti-Counterfeiting Supply of COVID-19 Vaccine Vials	Yes=1	Yes=1	Yes=1	Partially=0.5	3.5
Improving Opportunities in Healthcare Supply	Yes=1	Partially=0.5	Partially=0.5	Partially=0.5	2.5

Notes.

Design: is there a clear statement of the aims of the research?

Conduct: does the paper provide relevant data related to blockchain assessment?

Analysis: how adequately are the research results documented?

Conclusions: does the study allow answering the research questions?