



BLACK BOOK™
MARKET RESEARCH

BLOCKCHAIN

THE NEXT BIG HEALTHCARE TECHNOLOGY INNOVATION

11 VENDORS SHAKING UP THE INDUSTRY

PAYMENTS, PAYER CONTRACTS &
POPULATION HEALTH

OCTOBER 2017



Black Book Survey, Q3 2017

Healthcare Industry interest in Blockchain is heating up

Black Book™ conducted a Q3 survey of 88 healthcare payers and 126 provider technology executives, managers and IT specialists to deliver a better comprehensive of current and planned enterprise deployment of Blockchain Solutions.

The survey also pursued to meter the level of organizational investment in healthcare Blockchain Technology and ascertain which companies were consider having the strongest healthcare industry expertise and credentials. A blockchain is an open, continuous, and secure ledger stored online that can't be altered. Users can track supplies and transactions on blockchain and share information among multiple stakeholders, recording transactions between parties efficiently and in a verifiable, permanent way.

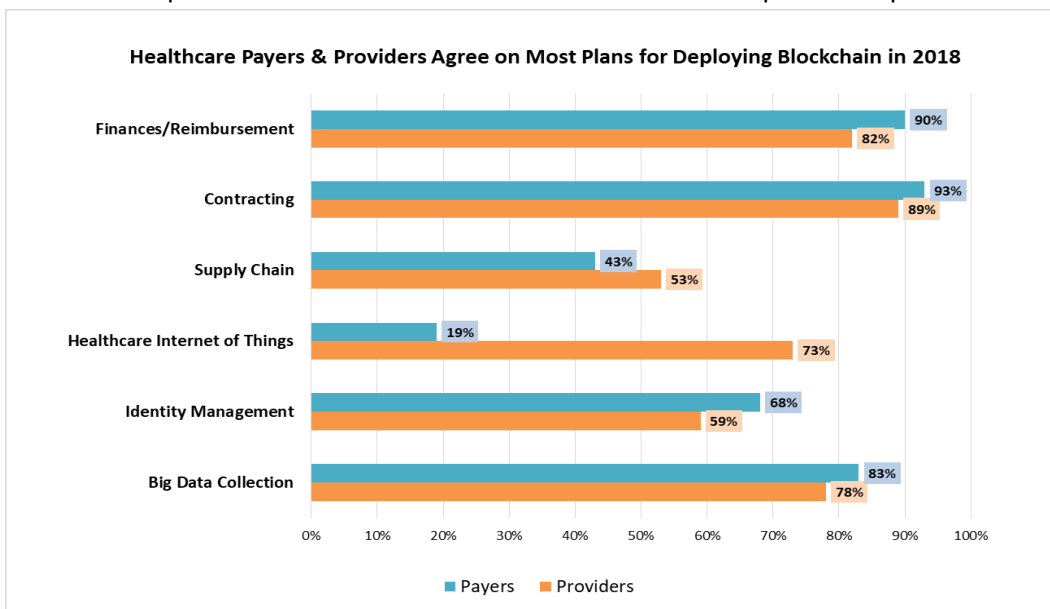
FINDINGS

An Understanding of Healthcare Blockchain has developed dramatically

Black Book determined that 19 percent of responding hospital executives and 80 percent of payers were either considering deploying, or were in the process of implementing Blockchain solutions. This striking swell in blockchain awareness was marked by 29% of hospital leaders and 73% of health insurance executives having a working understanding of Blockchain in Q3. Actual breaches and cyber security events have boosted CIO readiness significantly as compared to last year's survey. Executive Blockchain education has shifted from Blockchain 101 to selecting the appropriate healthcare Blockchain technology protocols.

93% of managed care organization respondents, 70% of hospital respondents, and 58% of physician practice respondents report respectively that blockchain shows promise for healthcare interoperability. The most popular strategy circulating among health care technologists, and even ONC, is blockchain technology. A lack of technical standards for a still-immature technology is causing regulatory uncertainty while the industry anticipates explanations from federal rules at some point in 2018. Interoperability enabled by blockchain has the capability³ to

transfer relevant patient data from one provider to another no matter the location or the providers' particular EHR.



Other interests include:

Healthcare Blockchain Integrations to skyrocket in 2018

Black Book found that all survey-responding payers with plans of 500,000 members are actively considering deploying or were in the process of deploying Blockchain in Q4 2018 and 20% are involved in trial deployments in some form.

68% of payers expected Blockchain to be integrated into their systems by the end of 2018 but only 12% of provider health organizations and systems have firm plans to implement Blockchain by then.

The undetermined cost of Blockchain solutions causes 88% of provider leadership respondents from committing to a time frame for deploying Blockchain in Q3.

95% of hospital and medical group IT specialists and management agree that Blockchain may resolve and expedite most concerns of interoperability and patient record sharing.

Thirteen vendors boast the strongest healthcare credentials

Based on research and recommendation of both providers and payers considering blockchain initiatives in 2018, Black Book respondents who were either deploying, or considering implementing Blockchain, we instructed to rank providers based on their impressions of presentations and offerings to date.

The vendors named in the survey suggest that increased awareness of Blockchain's capabilities leads to a greater understanding of the scale of potential hurdles in healthcare organizations specifically. Eleven vendors received perception scores above 9.00 on the Black Book scale of 1.00 to 10.00



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Blockchain Health	
Headquarters	San Francisco, California, USA
Founded	2016
Website	www.Blockchainhealth.co
Healthcare Expertise	<ul style="list-style-type: none"> Blockchain
Offerings	<ul style="list-style-type: none"> Advanced Auditing Blockchain for Health App Developers
Description	<p>Blockchain Health is a software company that provides healthcare organizations with HIPAA-compliant Blockchain solutions. Users can share health data with researchers using the integrated platform, which creates a tamperproof chain of information custody. It features:</p> <ul style="list-style-type: none"> Public Key Infrastructure: <ul style="list-style-type: none"> Certificate Authorities register certificates publicly All past history is permanently recorded Certificates are easy to register and cost effective Notary Services: <ul style="list-style-type: none"> Publicly register any fact Easy to tie identity services History unchangeable Central registry of facts Chain of Custody: <ul style="list-style-type: none"> Strong identity + permanent notary = tamperproof Chain of Custody HIPAA audits are now a matter of reconciliation Improving Clinical Trials with Blockchain Technology Harnessing the immutability of the Bit coin Blockchain and the Device Identity Model to improve Health Care



Bloq	
Headquarters	20 West Kinzie, 17th Floor. Chicago IL 60654,USA
Founded	2015
Website	www.bloq.com
Healthcare Expertise	<ul style="list-style-type: none"> • Enterprise • Blockchain
Offerings	<ul style="list-style-type: none"> • Bloq Enterprise: Bloq Enterprise, has five key offerings that enable users to create, test, update, customize and analyze their own public, private and permissioned Blockchains • Bloq Think: Consulting service, BloqThink, complements Bloq Enterprise with strategic architecting, design, development and education • Bloq Labs: A Blockchain technology research and testing center formed to work with and foster innovation between global businesses and the open source community
Description	<p>Bloq delivers an enterprise grade Blockchain experience based on our core values of open source, decentralization and reliability. Bloq features itself as and in:</p> <ul style="list-style-type: none"> • Open Source: Bloq maintains a deep open source ethos, built from decades of open source experience • Decentralized: Bloq delivers enterprise grade layers of key software infrastructure to power Blockchain applications • Enterprise Class: Bloq provides essential Blockchain scaffolding that is productized, hardened, tested and documented • Interoperable: Bloq strives to lower the cost and operational barriers for companies to build and innovate with Blockchain-enabled technology



BurstIQ	
Headquarters	Denver, Colorado, USA
Founded	2015
Website	www.burstiq.com
Healthcare Expertise	<ul style="list-style-type: none"> • Blockchain
Offerings	<ul style="list-style-type: none"> • Cloud Enablement • Cyber Security • Agile Transformation • Digital Health • Blockchain & Digital Currency • Data-driven Research • Healthcare • Machine Intelligence, Deep Learning & Artificial Intelligence
Description	<p>BurstIQ's platform and ecosystem will enable a coming transformation in the healthcare space. Data is becoming increasingly critical to clinical, operational, and individual decision-making, and interest in products and partnerships that leverage data is exploding. However, health data is largely soloed, inaccessible, non-standardized across systems, and difficult to understand, use and share.</p> <p>BurstIQ's proprietary platform addresses all of these challenges. The platform combines Blockchain technology with Big Data capabilities, advanced security protocols, and machine intelligence to allow complex data sets to be managed, parsed, shared and mined while maintaining strict security standards and HIPAA compliance. Health data from disparate sources is combined to create individual LifeGraphs(TM) within the platform. LifeGraphs then form the basis for the HealthWallet(TM), from which people can share, sell, license, loan, or donate their data. We believe that within the next five years, data will become the currency that drives the healthcare industry, and BurstIQ will drive the marketplace.</p> <p>The BurstIQ ecosystem enables individuals, businesses and researchers to actively engage with each other to buy, sell, partner and collaborate, all while maintaining the security and privacy of each person's data.</p>



Gem Health	
Headquarters	Venice, California USA
Founded	2016
Website	www.gem.co
Healthcare Expertise	<ul style="list-style-type: none"> • Blockchain • Revenue Cycle Management
Offerings	<ul style="list-style-type: none"> • GemNetwork • GemData • Gameda • Geologic • XenApps • Gismos <p>Gem is an enterprise blockchain company. The gems enterprise platform for healthcare allows all stakeholders secure access to shareable data with the right permissions. The platform is following HIPAA, streamlining communication along the continuum of care. Gem entered into a partnership with Philips in 2016 to explore how blockchain can support the patient-centered approach to care. Los Angeles-based startup Gem has developed the first blockchain product for health claims management, which is being demonstrated at Consensus 2017, the main industry meet-up. The Gem health claims solution takes aim at three of the toughest issues confronting the healthcare industry, said a release. The first is the lack of real-time transparency into health claims transactions involving providers and payers; then there is the amount of time it takes for providers to get paid for their service. Thirdly is the slow rate of provider reimbursements because of the time it takes to generate and deliver the patient's Explanation of Benefits.</p>
Description	<p>Connect to any Blockchain Network: Create flexible applications that can adapt to different protocols, like Ethereum, Hyperedge and more. Run blockchain nodes of varying sizes and functionality to fit your needs, as a validator or read-only participant. Additionally, you can connect to one or many protocols. Create proofs-of-existence with verifiable integrity without surrendering custody of sensitive information.</p>



Guardtime	
Headquarters	A. H. Tammsaare tee 60, Tallinn, 11316 , Estonia
Founded	2007
Website	www.guardtime.com
Healthcare Expertise	<ul style="list-style-type: none"> • Blockchain
Offerings	<ul style="list-style-type: none"> • Advertising Attribution • Cloud Assurance • Cloud Radio Area Networks • Connected Vehicle • Critical Infrastructure Protection • Data Breach Management • Defense & Aerospace • e-Government • Enterprise Security • Insider Threat Mitigation • Insurance • Internet of Things (IoT) • Object Store WORM • Supply Chains • Telecommunications
Description	<p>Guardtime is the world's largest Blockchain platform company by revenue, headcount and actual customer deployments. A team of over 150 cryptographers, developer and security architects, with decades of experience defending networks from nation-state attack. As a Blockchain platform company we look for partners who have the necessary domain expertise to help define customer problems. Guardtime's platform is designed for data and systems security at the industrial level. The company partnered with the Estonian eHealth Foundation in February 2016 to accelerate the adoption of blockchain-based transparency and auditable lifecycle management for patient records. The partnership integrated KSI blockchain with existing Oracle databases for increased security, transparency, auditability and governance for electronic systems and patient records.</p>



Hashed Health	
Headquarters	Nashville, TN, USA
Founded	2016
Website	www.hashedhealth.com
Healthcare Expertise	<ul style="list-style-type: none"> • Blockchain • Distributed Ledger • Healthcare • Smart Contracts
Offerings	<ul style="list-style-type: none"> • Security • Payments • Interoperability • Revenue Cycle • Claims Processing • Supply Chain • Related Contractual Matters
Description	<p>Hashed Health is leading a consortium of healthcare companies focused on accelerating meaningful innovation using Blockchain and distributed ledger technologies. To empower its consortium members, Hashed Health provides value-added services such as product management, product development, regulatory guidance, and technology support services for Blockchain solutions and Blockchain networks. Based in Nashville, TN, Hashed Health's healthcare experts focus on making sure the business problem drives the appropriate technical solution. We help members launch new industry level solutions more effectively and at lower cost. We also provide exposure to existing networks who are actively exploring, piloting, or using existing solutions. For most healthcare organizations, Hashed Health is a collaborative healthcare innovation firm dedicated to blockchain and distributed ledger technologies. In July 2017, independent healthcare IT company Change Healthcare joined Hashed Health's consortium to help advance blockchain innovation and distributed transactional protocols in healthcare.</p>

HEALTHCOMBIX

HealthCombix	
Headquarters	Nashville, Tennessee USA
Founded	2016
Website	www.healthcombix.com
Healthcare Expertise	<ul style="list-style-type: none"> • Global Decentralized Healthcare Ecosystem Platform Network • Disintermediates all healthcare middlemen • Tamper proof & collusion resistant Only the right participants (patients, providers/hospitals/suppliers and risk management advisors)\ • Everything is P2P and real time
Offerings	<p>Healthcombix combines privacy-preserving human data asset management, disease prediction markets, and the power of open, decentralized payment networks to build future healthcare ecosystems, DAOs, & cooperatives.</p> <p>HealthCombix's platform is a token-based healthcare payment and risk management network enabling payments, data asset monetization and risk adjustment. The platform preserves digital privacy while allowing for interoperable data exchange, giving patients and providers control over the data. The company believes blockchain technology will allow consumers to control the brokerage of their data for research, precision health, clinical trials, payment and disease intervention.</p>
Description	<p>Data interoperability remains a major problem in the United States and around the globe hampered by technical complexities, market forces, and jurisdictional regulatory differences and complexities. Open protocols have the potential to remove or significantly diminish these complexities. Closed, private blockchain, or shared infrastructure solutions have the potential to create incremental/evolutionary industry-level efficiency gains, not disruption.</p>



IBM Blockchain	
Headquarters	1 New Orchard Road, Armonk, New York, USA
Founded	1911
Website	www.ibm.com/blockchain/
Healthcare Expertise	<ul style="list-style-type: none"> • Blockchain <ul style="list-style-type: none"> - Develop an application - Govern the network - Operate the network
Offerings	<ul style="list-style-type: none"> • Mediated health data exchange: <ul style="list-style-type: none"> - Give patients control of their own health data and a compliant, secure health data exchange with provenance and governance • Clinical trial management: <ul style="list-style-type: none"> - Provide clinical trial data exchange automation with auditability, provenance and traceability • Outcome-based contracts: <ul style="list-style-type: none"> - Get outcome-based contracts and outcomes exchange with auditability and integrity
Description	<p>The IBM Blockchain Platform is an integrated platform designed to accelerate the creation of a "built for business" global Blockchain network across industries and use cases. Key business benefits of IBM Blockchain are as:</p> <ul style="list-style-type: none"> • Save time: Drastically reduces the time spent resolving disputes, finding information, and verifying a transaction, leading to quicker settlement and deliveries • Remove costs: Decreases overhead and costly intermediaries while automating inefficient processes • Reduce risks: Minimizes the risk of collusion, tampering and unintentional exposure of information • Enable new business models: Builds new revenue streams to interact with clients



PokitDok	
Headquarters	300 28 E 3rd Ave 94401, San Mateo, CA, USA
Founded	2011
Website	www.pokitdok.com
Healthcare Expertise	<ul style="list-style-type: none"> • APIs • Business of Health • E-Health
Offerings	<ul style="list-style-type: none"> • Eligibility • Claims • Identity Management • Pharmacy • Patient Access • Scheduling
Description	<p>PokitDok provides a software development platform to free, secure, and unify data that drives the business of healthcare. Its API endpoints facilitates:</p> <ul style="list-style-type: none"> • Eligibility checks & Claims submissions • Appointment scheduling • Payment optimization • Patient identity management • Pharmacy benefits <p>PokitDok maintains Trading Partner agreements with more than 500 health insurers and payers, representing 93 percent of members across the US. Nearly 1000 third party enterprise applications run on PokitDok, built by healthcare organizations, digital health companies, and business process outsourcing consultants, to improve workflows, cut costs, and speed time to market. PokitDok powers DokChain, Blockchain for healthcare. In 2016, PokitDok established the DokChain Health Alliance, an exclusive opportunity for member participants to run on DokChain. Members, including hospital systems, payers, financial institutions and technology companies are granted authority to contribute to implementation standards and will help prioritize healthcare use cases, with exclusive first access.</p>

Tierion	
Headquarters	555 Asylum Avenue Suite 307 Hartford, CT 06105, USA
Founded	2015
Website	www.tierion.com
Healthcare Expertise	<ul style="list-style-type: none"> • Blockchain • Bit Coin
Offerings	<ul style="list-style-type: none"> • Issue Digital Receipts: <ul style="list-style-type: none"> - Proof of any transaction - Purchases, stock trades, insurance claims • Audit Trail: <ul style="list-style-type: none"> - Create a cryptographically verifiable audit trail - Track data provenance and processes • IoT Data Collection: <ul style="list-style-type: none"> - Capture data from various connected devices - Every record gets a chain point proof • Immutable Records: <ul style="list-style-type: none"> - Medical records, financial records, corporate governance, legal records • Secure Customer Data: <ul style="list-style-type: none"> - Create a verifiable record of customer data - Reduce KYC and compliance costs • Software Integration: <ul style="list-style-type: none"> - Integrate with existing web, desktop, and mobile applications
Description	<p>Tierion turns the Blockchain into a global platform for verifying any data, file, or business process. Company sees a future where the Blockchain is used to verify everything from medical records to online purchases. They started by making an API and tools to collect data and anchor it in the Blockchain. Tierion's HashAPI lets developers anchor up to 100 records per second for free. It's the fastest way to add Blockchain time stamping, data security, and cryptographic audit trails to your applications. Tierion makes it easy to collect data from web and mobile applications. Tierion automatically creates a Chain point proof for every record, which can be used to verify your data was collected at a specific time and remains unaltered.</p>

YouBase

YouBase	
Headquarters	67 W Floyd Ave, Englewood, CO 80110, USA
Founded	2016
Website	www.youbase.io
Healthcare Expertise	<ul style="list-style-type: none"> • Blockchain • Security • Cryptography • Healthcare
Offerings	<ul style="list-style-type: none"> • The YouBase Ecosystem: YouBase combines Blockchain compatible technologies to deliver a secure and flexible container for independent data. It features: <ul style="list-style-type: none"> - Save on Integration - "De-Risk" Sharing - End to end encryption - Greater Insights - Flexible Set Up
Description	<p>YouBase is a new way to store information safely and securely, all independently of any one company or data storage service. Even YouBase cannot access your data. It's yours to keep and use as you wish. Much like digital currencies, your data is encrypted in a network, and only you have the keys to access it. With your YouBase digital wallet, you can use the keys to share information with those you choose. YouBase enables individuals to create and maintain a personal data store on a distributed public network, allowing the unprecedented ability to easily gather, analyze, and share private data for any purpose imaginable. Data is structured hierarchically so that increasingly identifiable data can be placed at levels closer to the root, allowing arbitrarily anonymized data to be shared with whomever is requesting access to it. The data format is flexible, enabling easy integration with third parties. In addition, read-only or read/write access can be granted at any node in the tree, allowing the user to tightly control access to every subtree in the data store. YouBase thus provides the building blocks for the ultimate peer-to-peer central repository for confidential data, enabling individuals, organizations, and the world to make smarter decisions.</p>