

DISCUSSION

Highlights from Advancing the Business of Health with Blockchain and Frontier Tech at ConV2X Symposium 2023

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Keywords: blockchain, blockchain in healthcare, business applications in healthcare, ConV2x, DeSci Community, digital twin, healthcare technology, Web3

Abstract

Many people in the healthcare industry mistake the turbulent cryptocurrency market for a technology that offers significant benefits to healthcare administration, including improved interoperability, revenue recapture, and enhanced security and patient safety. Recently, these subjects were explored during the ConVerge2Xcelerate (ConV2X) 2023 Symposium held at Loyola University in New Orleans, Louisiana, USA.

Who benefits most from this discussion – service providers, those seeking to transform outdated business models, or both? The mention of blockchain technology often discourages conversation, causing those who have sound success solutions to approach the topic from alternate perspectives. In the Blockchain in Healthcare Platform Approaches Special Issue, Volume 7, Issue 1, 2024, we share valuable insights based on specific use cases to provide healthcare executives with a nuanced understanding.

Several open-access recordings are available, providing a glimpse into the wealth of knowledge and insights shared to advance the business of health with blockchain technology. Recognizing the need for a paradigm shift, we explore topical subjects and cases with various thought leaders in the field.

Submitted: 27 October 2023; Accepted: 26 January 2024; Published: 31 January 2024

The Maryville Experience

BurstIQ CEO Frank Ricotta and President Brian Jackson (ConV2X Platinum Sponsors) discussed market forces, collaborations with higher education institutions, and their partnership with Maryville University to establish a transparent, reliable data ecosystem that incorporates data, artificial intelligence (AI), blockchain, and analytics.

Upon closer examination, Maryville University's innovative approach offers a revolutionary model that dismantles silos in higher education and aligns with Gartner's view¹ on transitioning data-enabled businesses to where information technology (IT) plays a supportive rather than a controlling role. In this context, blockchain emerges as a crucial catalyst for establishing reliable data objects and promoting transparent communication in scientific research.

In contrast to many other universities, Maryville operates without an IT department. The cost for a university to maintain an IT department varies widely depending on the size and needs of the institution. However, it typically involves significant expenses related to staff salaries,

hardware and software purchases, maintenance, and upgrades.

Furthermore, Maryville's approach allows for cost savings due to the collective technologies that revolve around person-centric data (Figure 1). This involves creating data and communities that showcase diplomas, credentials, and verified skills throughout various career paths. It is an approach that is particularly useful in the healthcare workforce and extends to undergraduate, graduate, and alumni communities.

The traditional role of the chief information officer (CIO) shifts towards being a "conductor" who integrates information and creates seamless experiences at the data level. This novel approach allows businesses to transform into human users who take responsibility for their own data management. It is a concept that aligns with Gartner's idea of transitioning data-enabled businesses, data access, data usage, and data governance to where IT serves as an enabler instead of a controller. Students now hold their "superpower" in the form of their own data – known as a digital twin.

Blockchain technology plays a crucial role in this approach by creating dependable data objects (active metadata) that are treated as digital assets with clear ownership and permissions, featuring three dimensions in one product. Emphasis is on connecting data and constructing data ecosystems. In some health systems, the monetary value of this approach is estimated to deliver savings of up to \$9 million in operating costs. Expert predictions suggest that graph models will emerge as powerful tools in the market over the next few years (Figure 2).

The Desci Community

At ConV2X, Jelani Clarke, Executive Lead at DeSci-World, and Ray Dogum, Manager at Vibe Bio, discussed the decentralized science (DeSci) community and incentivization systems within science. They focused on the quest for fairness and equity in scientific endeavors, with these innovators working towards ensuring that everyone involved in scientific research benefits from the incentives

directed towards sharing knowledge across diverse decentralized landscapes.

Perspective Moderator Jason Cross, Chief Strategy Officer at Rymedi, addressed bridging DeSci with legacy health innovation, as most healthcare organizations run through centralized organizations and comply with laws using traditional liabilities and compliance standards to get things done. Some of the most interesting current design projects employ decentralized autonomous organizations (DAOs) and intellectual property non-fungible tokens (IP NFTs). According to Dr. Cross, there is a need for a business model that supports the monetizable value that feeds into compliant ecosystems. “We need to consider whether platform providers will bridge centralized health innovation institutions with decentralized activities.”

Compliance issues require attention to ensure that findings are actionable for regulators and replicable from the perspective of scientific credibility. Managing rights in DeSci follow a wide variety of approaches. These include intellectual property rights for what is created, patient data

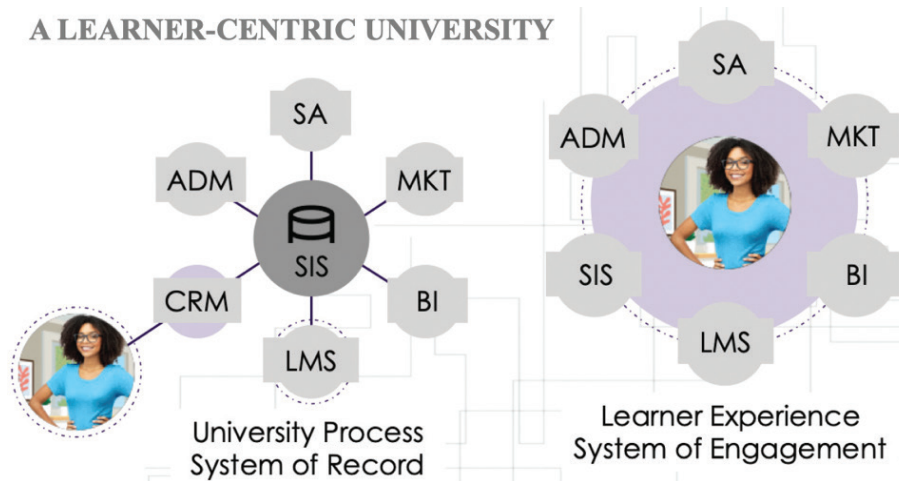


Fig. 1. Organizational chart of a learner-centric university. ADM: application data management; BI: business intelligence; CRM: customer relationship management; LMS: learning management systems, MKT: marketing; SA: system administrator; SIS: server intelligent storage. Reproduce with permission.

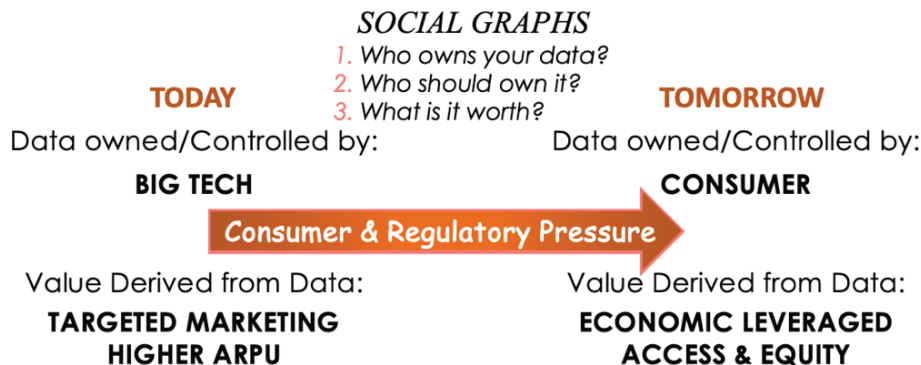


Fig. 2. Evolving consumer and regulatory pressure. Reproduced with permission.

rights, and downstream monetization rights of patients in the value streams created from their data or biological samples via material transfer agreement rights management. Each of these factors must be considered and planned.

Additional real-life cautionary development considerations included:

1. Interacting with legacy health innovation institutions, where all parties need to know about litigation (aka who to sue).
2. Phone number(s) to call for customer support.
3. Negotiation, organizational, and business scale issues; for example, how does a DAO with 10,000 patients negotiate with a health system over patient cut and data monetization versus negotiating on behalf of 10 million patients?
4. Standards that enable bargaining power to democratize visions for the future.
5. Liability issues are related to referring individuals, as no current legal infrastructure makes it safe for individuals coming into or from a DAO.

When you try to merge that with traditional legacy pharma or legacy health innovation, there is no corporate structure or employment structure. In addition, there is no structure to preserve or keep the data and movement in a specific format or between any more open guardrails.

Many questions must be answered. These topics and discussions will, no doubt, continue.

Navigating Enterprise Business Decisions

In his informative keynote, Sathya Krishnasamy, former Senior Director at Elevance Health, discussed the global phenomenon of blockchain technology (Figure 3).

He emphasized its potential to improve the efficiency of any supply chain by automating the center rather than the periphery – whether it involves people, data, numbers, or money. He commended the ERC 20/ERC 721 token standards for enabling interoperability, which allows numerous decentralized applications (dApps) to communicate and self-organize.

Mr. Krishnasamy highlighted the self-organizing capabilities of the blockchain developer community, which can collectively solve problems. In addition, he emphasized the convergence of blockchain with enterprise and emerging technologies. Mr. Krishnasamy challenged the idea that everyone will be on a single blockchain. Instead, he proposed a multi-chain world's natural evolution, urging enterprises to prepare for blockchain interoperability.

During his keynote, Mr. Krishnasamy identified opportunities for healthcare as part of the next level of blockchain advancement. He emphasized the core theme of consumer ownership of data as the focus of the Web3 era. Mr. Krishnasamy highlighted the potential to drive healthcare consumer engagement by understanding back-end costs for specific processes and leveraging them. He explored data quality and the removal of inefficiencies through counter-party sensitive data aggregation with on/off-chain designs. In addition, he delved into the potential for business decision convergence and distinguished between multilateral and unilateral decisions in reference implementations and use cases. Mr. Krishnasamy noted full provenance and incremental data exposure/zero-knowledge proof (ZKP) as mechanisms to induce further efficiencies.

For a deeper dive into this topic, a systematic review is published in Blockchain in Healthcare Today Platform

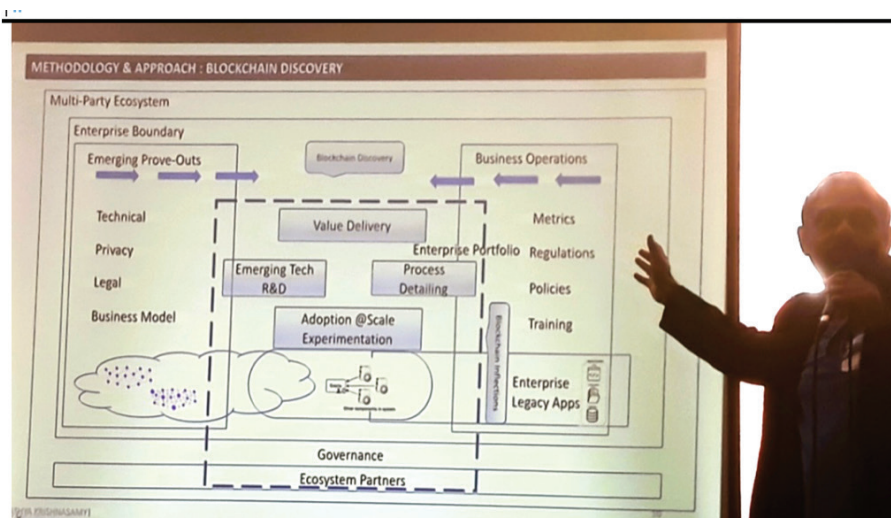


Fig. 3. Keynote speaker Sathya Krishnasamy discussed the global phenomenon of blockchain technology, emphasizing its potential to improve the efficiency of any supply chain by automating the center rather than the periphery.

Approaches in Healthcare journal by Sathya Krishnasamy and available to read open access at DOI: <https://doi.org/10.30953/bhty.v6.280>.

Blockchain: New Architecture for Internet and Human Data

Robert Rachford is Vice President of Biostatistics and Statistical Programming at ProPharma, a mid-sized Contract Research Organization (CRO). During his presentation, Mr. Rachford shared insights into the regulatory challenges that service providers face when implementing blockchain solutions (Figure 4). He highlighted success stories and emphasized risk mitigation, real-world evidence, and digital signatures as critical factors in navigating risk-based organizations.

Multijurisdictional clinical trials have gained market acceptance without explicitly mentioning blockchain. However, regulatory gaps exist, particularly in transferring digital records and the need to regulate Current Procedural Terminology (CPT) codes. Mr. Rachford envisions a future where the adoption of blockchain in the healthcare industry is complemented by regulatory guidance.

Personalized Health Narratives and Future Technologies

During the conference, Brigette Piniewski, the author of “Wealthcare,” presented a thought-provoking perspective



Fig. 4. Robert Rachford shared insights into the regulatory challenges that service providers face when implementing blockchain solutions.

on the intersection of blockchain and personalized health narratives (Figure 5). Dr. Piniewski emphasized the importance of educational programs to bridge the gap between increasing blockchain-based solutions and investor understanding.

She envisions a future where individuals will define what is researchable and leverage data aggregation for personalized insights that foretell future patient journeys and outcomes, potentially avoiding unattractive journeys.

The discussion explored potential outcomes decades into the future and drew parallels with successful models in the cannabis, sleep, and high-performance athletics arenas. Dr. Piniewski advocated for creating data aggregation platforms similar to Strava, enabling individuals to glean insights into various aspects of their health.

Holographic Teleportation and Remote Healthcare

Fernando De La Peña, CEO of Aexa, introduced groundbreaking holographic teleportation technology for remote healthcare. The technology, demonstrated by NASA Flight Surgeon Josef Schmid, showcased the potential for real-time, immersive patient care. Dr. De la Peña emphasized the transformative potential of holographic technology, envisioning its widespread adoption within the next 3–5 years. He positioned Aexa’s HoloConnect as a tool that bridges the gap between academic and consumer use, making remote healthcare accessible to all.

Aexa is the company that successfully followed Dr. Josef Schmid from NASA Mission Control to the space station, in October 2021, and performed multiple holographic teleportations, pushing patient care technology to the next level in a challenging environment, traveling at 17,500 miles per hour. Seeing a patient in volumetric form is analogous to 3D printing with many “slices” and options for making videos or photographs. With teleportation, it’s possible to create 10,000 slices of video, producing a realistic 3D image of a person.

Aexa was invited to ConV2X because they promote low-cost access for everyone. The application can be downloaded for only \$9 per month, using equipment that people already own – a smartphone – making this agnostic technology accessible to anyone and anywhere, representing the next frontier in healthcare.

A Historic First

During ConV2X, in a historic first on earth, Josef Schmid, III, NASA Flight Surgeon and Major General (ret), was projected from Russia to the stage in New Orleans, Louisiana, USA. The photo below (Figure 6) shows the test conducted on September 21st, where he appeared at the podium.

The HoloConnect Color technology from Aexa Aerospace is available on the Android store and is encrypted, ensuring that Aexa does not monitor conversations.



Fig. 5. Brigitte Piniewski, the author of “Wealthcare,” shared her perspective on the intersection of blockchain and personalized health narratives.



Fig. 6. In a historic first on earth, Josef Schmid, III, NASA Flight Surgeon and Major General (ret), was projected from Russia to the stage in New Orleans, Louisiana, USA.

Four types of communication tools are available, and color protection creates volume for project applications. Dr. De la Peña believes this field will enable tools everyone will use in three to five years. Currently, both users need to have an iOS device. No other application is required; just download it, and you’re ready to go. It’s similar to Star Trek’s technology but even better.

Streaming Audio Transcription Pilot

To enhance accessibility for the hearing impaired and non-English speaking audience, ConV2X was extremely pleased to pilot a new 140 multilingual streaming audio transcription app created by Dan Scarfe, CEO at XRAI Glass. The app, demonstrated during the symposium, offers seamless transcription of discussions, further

enriching the accessibility and reach of the event. ConV2X thoroughly appreciated his generosity in providing the hardware to pilot at the event. The discussion recaps for writing this article were derived with the assistance of an English transcription app on September 21, 2023. To view the entire ConV2X Blockchain in Healthcare 2023 agenda and speakers, visit <https://conv2xsymposium.com>.

Conclusions

The ConV2X event brings together world-leading innovators and researchers to converge ideas, foster collaboration, and push the boundaries of what is possible at the intersection of healthcare, platform, and blockchain technology. The conference dispels misconceptions, presents innovative applications, and provides a panoramic view of the diverse facets of blockchain technology in healthcare.

Recognizing the need for a paradigm shift, Dr. Anjum Khurshid, Chief Data Scientist and Lead Informativist for Sentinel Operations Center at Harvard Pilgrim Health Care, emphasized the significance of conferences like ConV2X, which focuses on research, technical, and business applications of blockchain technology, bringing practitioners, developers, and researchers together. Robert Ratchford, Vice President at ProPharma, praised the quality of attendees and speakers at ConV2X 2023, describing it as “the highest among blockchain conferences focused on industry adoption” while also calling for the overcoming of outdated perceptions and fostering trust in a technology capable of transforming business operations.

The convergence of thought leaders, industry experts, and innovators at ConV2X highlights the transformation occurring in healthcare delivery and business operations. The discussions at the event left attendees with a profound sense of pragmatic possibilities and current market applications – leveraging blockchain to advance healthcare.

These visionaries are driving us to the crossroads of technology and healthcare for the benefit of all. We look forward to an expansive ConV2X 2024 encompassing blockchain and emerging tech in healthcare and life sciences. ConV2X 2024 is scheduled to take place in September in Boston, Massachusetts, USA.

Funding

No funding was provided for the preparation of this article.

Financial and Non-Financial Relationships

Each contributor is affiliated with the organization listed in the article.

Contributors

The author is the Founder, publisher, and curator of Blockchain in Healthcare Today and ConV2X. The discussion recaps for this article were derived with the

assistance of the XRAI Glass app transcription in English on September 21, 2023.

Acknowledgments

Thanks to the speakers for lending their expertise and to the judges of the Ignition Pitch Competition. Thanks to sponsors BurstIQ, Discover, and MediLedger for making the event possible. Thanks to participants around the globe who attended in person and virtually. Thanks to ConV2X advisory committee members.

Reference

1. Gartner. Building an edge computing strategy. [cited 2023 Nov 11]. Available from: <https://www.equinix.com/resources/analyst-reports/gartner-edge-computing-strategy>

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