



Blockchain: Use cases in life sciences and health care

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00:05–00:41 **Heidi:** Blockchain is no longer the new technology kid on the block, but has its potential been fully realized, or are we barely scratching the surface? What are the possibilities for blockchain or blockchains across the life sciences and health care industry? Welcome to Tales of Transformation. Today I have Jonathan Fox, Ravi Kalakota, and Tim Smith from the Deloitte Consulting LLP Life Sciences and Health Care Practice with me to discuss the transformative potential of blockchain in life sciences and health care. Welcome, gentlemen.

00:41–00:42 **Ravi:** Good to be here.

00:42–00:42 **Tim:** Thank you for having me.

00:43–00:44 **Jonathan:** Yup, great to be here.

00:44–01:03 **Heidi:** This is going to be a great show. You three are going to be able to provide our listeners a robust understanding of how blockchain will potentially revolutionize your various industries. Many people associate blockchain with bitcoin; we hear that a lot. Ravi, help us move beyond bitcoin for this discussion.

01:04–01:42 **Ravi:** Blockchain is much bigger than bitcoin. So let's start with the definition. A blockchain is a distributed decentralized transaction ledger with identical copies of information maintained on multiple computers. Now the key word is "information." So information can be medical records, they can be provider records, they can be payments, they could be claims, they could be drug prescriptions, and other documents. Blockchain could be applied to pretty much any type of information movement across the network.

01:42–01:50 **Heidi:** Let's talk about the value of blockchain in life sciences and health care. Jonathan, where are the strongest use cases in life sciences?

01:50–02:40 **Jonathan:** Well, when we talk with our Pharma clients about blockchain, I think at the broadest level there are three key areas that organizations are looking at: first, is around R&D and in particular thinking about patient records, the idea of protecting and creating a safe and trusted environment around those patient records and aggregating cross-trials is a very appealing use case. Secondly, organizations are definitely looking within their supply chain organization. This is an area where others across industries are looking, and one that I think holds a lot of promise, to really have integrity of products maintained, and third, is around some of the process and workflow that they have with their insurer collaborators and to hopefully try to do more real-time adjudication of claims and payments back to their collaboration partners. So I think those at the highest level are the three key areas.

02:40 -02:43 **Heidi:** And Ravi, what about health plans?

02:43–04:20 **Ravi:** Health plans are looking at blockchain to solve a variety of problems. The ability to do claims adjudication and billing management is one of the more critical use cases that everybody's focused on. The second one that people are focused on is clinical health data exchange and interoperability. So how do I take a patient's information and be able to spread it across multiple organizations and make sure care is delivered to that person in a systematic way? The third one is data supply chain integrity and provenance because the issue of opioids is a great one, where you want to be able to track the prescription all the way from fulfillment to delivery to actual taking of the drug. So the concept of how do you prevent the drug prescription from fraud and abuse is a critical one. Care management is another one, as people go through the life cycle of care, especially acute and post-acute care. And then of course, the Internet of Things is a big deal right now, where how do you control and manage the information that is coming out of various devices. Let's say your biometric information from your device that's extracted: biometrics one, biometrics two, to insulin pumps or your blood pressure cuffs. All these Internet of Things are proliferating, and we're capturing a lot of critical information that's related to a patient. So how do you organize and keep that information in one continuous blockchain is a very critical use case.

04:20–04:31 **Heidi:** You make an interesting point, Ravi, about this organization of information. And so I'm curious about the next answer to the question. Tim, what are you seeing in the health care provider space?

04:31–05:29 **Tim:** So at this point providers are all opportunity and potential and not a lot of experience in reality, which is the unfortunate part, but when I think of the ultimate use case within the provider side of health care, it's this idea of truly having a distributed ledger of patient-level data, distributed across health systems that interact with that patient, and yet the patient owns the key to that data. And I think there's a lot of opportunity for the patient to then control more information about themselves across all the different health systems that they might interact with, but then also to share that data to all the organizations that intend to use it, like health plans, like life sciences companies, like clinical trials management and other things. And so really the ultimate opportunity I think around blockchain is to have this patient data broken into blocks and distributed and managed across the health system.

05:29–05:39 **Heidi:** We're coming to the close of our first part of two parts on blockchain. So in your opinion, is this the year for blockchain to move beyond hype to adoption?

05:39–06:16 **Tim:** I think in provider, unfortunately, I can say no, I don't think it is the year, but I think it is the year to see demonstration of blockchain making an impact in other aspects of health care like in life sciences to where then there's a bit more proof to health care organizations that the promise of blockchain, you know, could be realized within our industry. So I'm thinking it's a few years out still. And I think one of the biggest inhibitors will be a focus around a regulatory change to help create standardization of what those blocks of patient data could be and should be.

06:16–06:18 **Heidi:** Jonathan, Ravi, where do you think we are this year in blockchain?

06:18–07:24 **Ravi:** The euro blockchain is coming, but it's not 2018 in health plans, especially. But one of the fundamental things that we are seeing in health plans is pretty much every health plan is experimenting and innovating around blockchain. They're trying to pick and choose the right use case that would create business value for them. So there's a lot of action and activity taking place. Now with the spate of mergers, that are taking place in health plans, we are definitely seeing that consumerization and better care is driving a lot of the mergers. So health plans are realizing that they have to transform using technology. Basically, the digitization of health plans is starting to happen or digitization or care, and that is driving a lot of focus into the blockchain area. Very similar to what we see in financial services with fintech. We're starting to see around what we call health tech, and that's the trend that we are at Deloitte monitoring very carefully.

07:25–07:29 **Heidi:** Jonathan, where are you seeing blockchain this year as it relates to life sciences?

07:29–08:28 **Jonathan:** I think we're in a similar place to how Ravi characterized the health plan sector. If I rewind the clock 18 to maybe two years ago, really there were no one was talking about blockchain except for some very, kind of cutting-edge technology folks. In the last year though, we've seen a tremendous amount of focus in exploration on the topic. About 12 months ago I think it was really about what's the right use case. And now I see organizations moving even beyond that and saying, what's the prototype? So either let's build a pilot or let's prototype this so we can actually show our organization what octane would look like, in addition to just talking about the impact that it could make. So I feel like that's where we are from an industry perspective.

I think we're definitely a couple of years away, at least 18 months away from scale in particular areas, but some of our clients are looking to do things internally with blockchain, which I think could scale more rapidly.

08:28–08:50 **Heidi:** Individual organizations can probably only go so far in promoting blockchain. It sounds like we're still in gestation period. Architecture that can connect everyone must have broad acceptance before it does connect everyone. I want to thank my guests Jonathan Fox, Ravi Kalakota, and Tim Smith for joining me today on Tales of Transformation. Thank you, gentlemen.

08:50–08:51 **Ravi:** Thanks for having us.

08:52–08:52 **Jonathan:** Thank you.

08:52–08:53 **Tim:** Thank you.

08:53–09:15 **Heidi:** Next up. There's more to explore around blockchain and it's transformative potential in life sciences and health care. On our next episode we'll take a deeper dive into how blockchain can break down industry silos and enable collaboration, coordination, and connectivity across the stakeholders within the industry. Stay tuned.

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