



Blockchain: Breaking down industry silos

Jonathon Fox, Specialist Leader, Deloitte Consulting LLP

Tim Smith, Principal, Deloitte Consulting LLP

Ravi Kalakota, Consulting Managing Director, Deloitte Consulting LLP

00:05–01:10 **Heidi:** Many industries are investing heavily in blockchain. A year ago, the *Harvard Business Review* predicted that blockchain would revolutionize banking in the same way the Internet changed media. And many manufacturers are looking to link the technology to smart contracts that can be digitally verified and enforced. But where are we in life sciences and health care? Are we looking at a revolution or an evolution in the adoption of blockchain? 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 continue our discussion on the transformative potential of blockchain in life sciences and health care. We talked last time about the individual opportunity within the sectors, but now let's take a more holistic view of how blockchain can break down industry silos and enable collaboration, coordination, and connectivity across health care stakeholders. Welcome, gentlemen.

01:10- 01:12 **Tim:** Thank you so much for having me.

01:13–01:14 **Ravi:** It's great to be here.

01:14–01:15 **Jonathan:** Good to be here.

01:15–01:25 **Heidi:** Blockchain has been around and we've been talking about it for a while. Let's talk from life sciences perspective. Jonathan, is there an opportunity for blockchain to link these sectors

01:25–02:28 **Jonathan:** I think as I look at one of the key integration points potentially with health care provider organizations, I think about clinical trials, I think about all of the patient data that we're aggregating, I think about the patient in general and all of the information that they're aggregating. How do we think about blockchain as a potential mechanism to both integrate and share data in a more effective way? 

So I think there's a lot of opportunity to link those two sectors together from a health plan perspective and the relationship of pharma, generally around the therapies and medications that patients are on, and there's a number of mechanisms for contracting. We've been talking with our clients about how to utilize smart contracts in a way to create more efficiency in terms of the information that they're sharing and how to use that information with downstream impact with regards to reporting and some financial relationships that they have. So there's a tremendous opportunity to integrate many different parts of the health care ecosystem.

02:28–02:43 **Heidi:** Jonathan, I want to keep you on this conversation a little longer because I'm passionate about clinical trials. To me, blockchain provides this key opportunity. Would you mind sharing a little bit more about clinical trials around the spectrum of care?

02:43–03:20 **Jonathan:** I think blockchain can serve as one particular aspect. Because we're able to aggregate data, because we're able to learn more about patient population, can we then also start to think about how to use that information to even be more proactive in our design around patient populations. There's also interesting dynamics around how to be able to share information across trials or across different doctors, or institutions. So I think it plays in the world of clinical trials, but there's also a practical reality of just sort of day-to-day care could play a role as well.

03:20–03:25 **Heidi:** So talking about the provider, Tim, give us your opinion in terms of the spectrum of care.

03:25–04:13 **Tim:** I talked about this ultimate view of having a truly longitudinal blockchain-enabled patient record and that being sort of the North Star of what blockchain's potential could be. And if we ultimately got to that, think of the ability to integrate that full spectrum view of the patient into clinical trials and to be able to direct patients better to what opportunities there are out there for trials based on whatever conditions they may have. I also get excited when I think about, in Ravi's world in the health plan area, to be able to integrate that same record into care management to be able to have more effective care management for people with chronic diseases and where many patients have multiple chronic diseases, and to be able to supply that to a care manager, would really change the game I think for healthcare.

04:13–04:28 **Heidi:** Let me turn it over to you, Ravi. Last time you mentioned in our episode 2 this potential of blockchain for health plans in this provider network directories. Tell us more about that opportunity and how it drives collaboration and connectivity.

04:28–05:51 **Ravi:** So, provider data management is a huge expense today in the health care industry. Every health plan needs to create provider directories that are relevant for Medicare, Medicaid, commercial, and even retail exchanges. So every plan today has a huge number of people dedicated to both creating, credentialing, and maintaining provider data and so what plans are realizing is instead of every individual organization creating a separate provider directory, they're saying why don't we just have a provider blockchain where we keep track of the NPI, the national provider identification, the provider tax ID, the specialties, the background information, the addresses, that might be, you know, a doctor could be multiple offices. So keep track of all of that in one blockchain is really where the market is headed. And that's the concept of a longitudinal provider blockchain. And this is where a lot of the health plans are starting to converge around because it really takes a lot of cost out of the equation.

05:51–06:13 **Tim:** Just to jump in from a provider perspective, we watch the health plans, and I think if they can get this provider network blockchain right, it really provides some good proof that even though a patient record is going to be far more complex than that, but that there is potential to really share provider information across the country, across health plans.

06:14–06:22 **Heidi:** I think what's also significant about this is that we're going to potentially eliminate or alleviate a lot of the waste and save healthcare dollars.

06:22–07:00 **Ravi:** I mean right now, we are in the \$3.5 trillion health care industry, we are 18 percent of the US economy. So every dollar we can save is pretty critical, especially for the Medicare, Medicaid programs, which taxpayers are funding. So provider directory, directory management, if you think about how many billions are spent on it across every single company, it's a lot of expenditure. So the ability to trim and save that money is fairly significant.

07:08–07:06 **Heidi:** Ravi, what role can blockchain play in moving the industry forward with value-based agreements and contracts?

07:06–08:45 **Ravi:** This is a very critical question. The fee for service, which is the current model, is increasingly giving way to fee for value. And value-based contracts between payers and providers is a very critical element of fee for value. So a key element of fee for value as part of the contract is tracking the patient across the spectrum of care and making sure every party touching the patient has the most up-to-date information about the patient—test results, referrals, drugs they're taking, and so on—as the providers are enabling the care or providing 

the care. So in the value-based contract world, what providers are increasingly being asked to do by payers is track the patient across the continuum of care and then increasingly measure what improvements they're seeing for that particular patient. So that if, let's say the outcomes are better, then the payers tend to pay the providers more money. If the outcomes are worse, then the payers actually decrease the amount of payments they would make to the providers. So these are all incentive-based models, and all these incentives require tracking around the patient, and that's why the patient blockchain is very critical because we're not just tracking the patient information, we are also tracking what value we are creating for the patient across a longitudinal period.

08:46–08:55 **Heidi:** So, Tim, from a provider perspective, what role can blockchain play in moving this industry forward from a value-based care perspective.

08:55–10:01 **Tim:** I think there's two things I would pick up on. Ravi mentioned the continuum of care, and I think what's important to think through is the fact that oftentimes the continuum of care is not owned by one health system. So as a health system signs up for a value-based contract, it's important to have that visibility across the continuum of care, which they might not fully own. And so a benefit to blockchain if we had it would be to be able to see detailed information about the patient, no matter where that patient was seen, and that would definitely allow the health system to be able to react accordingly based on a more comprehensive view of that patient. The other area that I think is worth discussing is integration with social services because we know so much about the patient's ultimate health is beyond just their interactions with a health system, the idea that I might be able to have blockchain extend further into social welfare would really be kind of an ultimate solution and truly provide a view that would allow overall health care to be managed more effectively.

10:01–10:07 **Heidi:** Jonathan, we know how important life sciences is to this entire conversation. What's the tipping point in life sciences?

10:07–11:33 Jonathan: We've reached a point now where I think we've gone beyond sort of the art of the possible. People are really looking to understand practically, what can I do? I think there's a couple of potential places where we could look. I think one may not be a tipping point but an interesting place for momentum is within the organization. I've seen some of our life sciences clients start to use blockchain within their internal finance organizations, to manage those processes more effectively, more efficiently, and more securely. I think one of the areas that I'm particularly excited about is with regards to a new type of therapy CAR T therapy, which is an immunotherapy which has a tremendous amount of patient interaction, where patients are literally taking their own blood and providing it back to the manufacturer. So it's a truly personalized therapy that's being engineered and provided back to the patient. And there's a tremendous process and number of handoffs and integration points across a number of organizations. I think it's very early stages for that therapy and there's a lot of reasons why people will be nervous about integrating a new technology to a new therapy, but I wonder if that might represent a tipping point where we actually find a particular use case where there's truly a lot of value and a new therapy that needs the value drivers of blockchain, but time will tell.

11:34–11:49 **Heidi:** The immunotherapy side of this is really exciting and the idea that blockchain could help to integrate that conversation even further is quite exhilarating from a patient care standpoint. Tim, healthcare, will that lead industry to broader adoption?

11:49–12:45 **Tim:** Yeah, I think it will. We also keep coming back to this idea that we need a truly holistic view of patient data across the health care system. And I think there's two main things that are needed in order for that to be realized. I think one is that regulators, we need a little help there, and I think there's so much focus on interoperability within Congress today that I think if we could move towards some requirements around interoperability, across states, across health systems, that will ultimately push towards a meaningful change in potential adoption of blockchain. I think the other is having patients get a little bit more pushy and own their information more than what they do today, because I think the push from a patient to really have that integrated view of their own data across every health system they interact with will be a game changer for them.

12:45–12:58 **Heidi:** This idea of patient-centered care is going to be an exciting place to participate in health care. Ravi, what are the specific challenges facing the industry when it comes to a broader adoption of blockchain?

12:58–13:53 **Ravi:** I think there are several challenges. I would start with identifying and converging on the right use cases. The second one that managers worry about is the business value and the ROI of doing a blockchain implementation. The third one, of course, is infrastructure capability and maturity. So if a firm wants to move into a blockchain implementation and they need to put up \$100 million and let's say the technology changes next year they need to have the confidence that the next version of technology is, of course, backward compatible. The fourth one is transformation execution. We're talking about transforming a business process across multiple firms and those tend to be nontrivial exercises because you have to bring a lot of people in line to make it happen.

13:53–13:59 **Heidi:** Jonathan, what do you see as specific challenges facing the industry from a life sciences perspective for broader adoption?

13:59–15:19 **Jonathan:** First of all, change is scary. We have a lot of our different pharma clients who work in different functional areas and are trying to accomplish a particular objective. When you're trying to develop a new therapy and working in R&D, you're very focused on the science and maybe don't see adding something as necessarily better or enhancing. So I think we have to overcome organizational inertia. I also think just from a regulatory perspective with all of these new technologies, whether it's blockchain or others, whether true or perceived, organizations will raise their regulatory card to question whether or not this is something that's going to be okay or endorsed or supported from a regulatory perspective. The last one I'd highlight is, it's sort of a chicken and the egg, but as a result of the lack large-scale examples of blockchain, I think there's still questions about the technology. We hear on one hand that, absolutes around trust and security, and then the others, and I know there are different examples and maybe not directly are great analogs, but there are other cases in the cases of bitcoin where there has been security issues. So I think with regards to the actual technology and understanding the value, how to implement, etc., there are some challenges and questions that people have.

15:19–15:26 **Heidi:** As we come to the close of the show, Tim, what do you see as challenges facing this area when it comes to broader blockchain adoption.

15:26–15:53 **Tim:** I think it comes down to silos. I think it's organizational silos, its technology silos, those are the things that inhibit sharing of patient information today. And I think the more there's incentive to push information for the benefit of patients across health systems, the more we're going to see technologies like blockchain be the solution for at least the provider industry.

15:55–16:21 **Heidi:** Making blockchain serve health care will require working at a number of understandings. Thank you, gentlemen, for giving us so much more information about where we stand with blockchain, its opportunity to integrate and to share health data for life sciences, for the plans and provider, and ultimately, the patient, I want to thank my guests Jonathan, Ravi, and Tim for joining me today on Tales of Transformation.

16:21–16:21 **Tim:** Thanks for having us again.

16:21–16:21 **Jonathan:** Thank you.

16:21–16:22 **Ravi:** Thank you very much.

16:24–16:35 **Heidi:** Next up. How is the no-collar workforce and the future of work transforming the life sciences and health care industries, and are we ready?

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