Separating Signal from Noise: Advice for Blockchain Startups

John D. Halamka, MD, Editor-in-Chief, BHTY

How many startups have you discovered that promise to solve every outstanding computer science and informatics challenge with blockchain? As a Harvard Medical School Professor of Innovation, Beth Israel Deaconess Chief Information Officer, and mentor to several accelerators/incubators, I listen to startup pitches virtually every day. An increasing number of them sound like this. "We've got a cloud-hosted, big-data, machine-learning, API-driven (application program interface) mobile app, with blockchain!"

If we are not careful, blockchain will become a meme for overpromising and underdelivering in healthcare IT. Here's my rubric to distinguish blockchain signal from noise?

1. When you listen to a pitch, is there a product, a business model, and a management team? Or, is it just a PowerPoint created over a cappuccino that attempts to capture the frenzy around blockchain in the same way that most of us were taught about the Dutch tulip mania, causing fortunes to be made and lost?[1]

2. Is blockchain really necessary as part of their business model and architecture? Blockchain is useful for many things: ensuring data integrity via consensus,[2] consent management via smart contracts,[3] providing a decentralized public ledger not controlled by any corporation or government.[4] However, it is not a database, an analytic tool, a fast/scalable platform, an interoperability solution, or a user-friendly platform.

3. Is the product or service being pitched actually in production? If so, what is the product maturity—a low volume pilot or a high-volume implementation?

4. What is the user experience? I recently heard a pitch in which patients are expected to generate cryptocurrency tokens using command line software, then cut and paste their tokens into web apps that are part of a secure medical record exchange. Few patients are likely to have the technical skills and patience to do this. At the moment, most blockchain user experiences are a multi-step process.[5]

5. What is the scalability? Remember that the worldwide throughput of the public bitcoin blockchain is around four transactions per second.[6] If a startup claims it can support thousands of transactions per second, how will they do it—a private blockchain using technologies like Hyperledger[7] or IOTA?[8]

Of all of these, the most important to me is clarifying the value that blockchain delivers

versus a non-blockchain implementation, so that we really understand the true blockchain application value.

Although Initial Coin Offerings (ICOs) have been described as the next great wave of venture capital, they are increasingly risky. The Security and Exchange Commission has recently provided guidance[9] and been increasingly active in shutting down suspected fraud. It's highly likely that tokens are actually securities,[10] and thus companies must register as a national security exchange—an expensive and time consulting process. Further, tax implications of ICOs are still a work in progress. Bottom line: any ICOs involving U.S. investors are best avoided at this time.

I hope this is useful guidance as you work with blockchain startups. I only support startups that carefully align their products with the strengths of blockchain and avoid unregulated initial coin offerings.

References

1. Goldgar A. Tulipmania: Money, Honor, and Knowledge in the Dutch Golden Age. University of Chicago Press, Chicago, IL 60637 USA. ©2008. ISBN: 9780226301303. URL: http://press.uchicago.edu/ucp/books/book/chicago/T/bo5414939.html.
2. Castor A. A (Short) Guide to Blockchain Consensus Protocol. Coindesk. 2017. URL: https://www.coindesk.com/short-guide-blockchain-consensus-protocols/.
3. Neisse R, Steri G, Nai-Fovino I. A Blockchain-based Approach for Data Accountability and Provenance Tracking. URL: ARES 2017: 14:1-14:10. https://arxiv.org/pdf/1706.04507.pdf
4. GAVRIL M. The Financial Revolution and the Many Benefits It Brings: Cryptocurrency & Blockchain Technology. Forbes. 2017. URL: https://www.forbes.com/sites/forbescommunicationscouncil/2017/11/15/the-financial-revolution-and-the-many-benefits-it-brings-cryptocurrency-blockchain-technology/#4e09fd233cc0
5. How to Buy Bitcoins. wikiHow. Accessed 5/1/18. https://www.wikihow.com/Buy-Bitcoins
6. Transaction Rate. Blockchain Luxembourg S.A. 2017. . URL: https://blockchain.info/charts/transactions-per-second
7. About Hyperledger. The Linux Foundation Projects. 2018. URL: https://www.hyperledger.org/about
8. What is IOTA. IOTA. 2018. URL: https://www.iota.org/get-started/what-is-iota
9. Initial Coin Offerings (ICOs). U.S. Security and Exchange Commission. 2018. URL: https://www.sec.gov/ICO
10. Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO. Securities Exchange Act of 1934. Release No. 81207. 2017. URL: https://www.sec.gov/litigation/investreport/34-81207.pdf