Sharing, analyzing, and verifying data is key to more efficient healthcare, and blockchain technology may be the vehicle to get us there. “Bitcoin was the world’s first successful glimpse at what blockchain technology can do for a distributed system where information sharing is desirable, but data security is paramount,” says Tim Paffel, senior principal IT technologist at Medtronic. “And while the technicality of it has a steep learning curve, there’s tremendous potential in blockchain’s application across other industries beyond the financial world.” Paffel and his Medtronic colleagues are exploring blockchain’s potential to drive better outcomes at lower costs in healthcare.

**Blockchain Technology Fundamentals**

Blockchain is a distributed ledger of digital information “blocks.”

In its purest form, blockchain would offer healthcare a decentralized, automated third-party system to transfer data freely and securely. Leveraged to its highest functionality, blockchain promises to optimize real-time data through its vast connectivity. From uncovering demographic trends, to making electronic health records (EHRs) more accessible to patients, blockchain has the potential to:

- Accelerate R&D
- Create more efficient care pathways
- Improve — and measure — patient outcomes

Current, disconnected systems restrict information from getting to the people who need it, when they need it most. With healthcare losing an estimated $300 billion a year in untapped data integration,¹ a solution is essential.

"... there’s tremendous potential in blockchain’s application across other industries beyond the financial world."

Healthcare is losing an estimated $300B per year in untapped data integration¹

In its purest form, blockchain would offer healthcare a decentralized, automated third-party system to transfer data freely and securely.
Blockchain’s Potential in Healthcare

While few disagree about its potential, the use and application of blockchain is still in its very early phases. At Medtronic, we’re starting by looking at how easier access to data can empower patients to better manage their healthcare information.

“Within the past year, we prototyped a blockchain to provide patients with a trusted, private third-party intermediary that helps them share their electronic medical records with providers of their choosing,” explains Paffel.

In addition to exploring new methods of data exchange between health system stakeholders, Medtronic has recently developed Medcoin™. The cryptocurrency is intended to help manage and maintain internal distributed ledger transactions, such as executing smart contracts between teams.

Like any innovation, blockchain use faces existing structural, technical, and behavioral barriers. The switch from centralized, small-scale technologies to distributed, worldwide systems will take work. Healthcare players working on blockchain are still trying to prove concepts, facing inefficiencies such as time-consuming data mining and expensive operations. Nonetheless, the challenge excites Medtronic innovators. Paffel explains, “We are encouraged by the feasibility the technology holds to not only deliver short-term benefits to patients and providers, but also long-term benefits of a robust data system that powers a global healthcare system.”

The Future of Blockchain

While the perfect application of blockchain seems futuristic, conversation around its potential must happen now. Researchers project that 55 percent of healthcare applications will have adopted blockchain for commercial deployment by 2025.2 “The first player to identify the ultimate use case where data integration and efficiency are achievable together will have tremendous opportunity to impact the healthcare industry,” says Paffel. “All of us are working toward a better future, and blockchain [distributed ledger] is — and will become — a very smart path forward.” Our commitment at Medtronic to better care outcomes at lower costs drives our exploration of this promising technology.

To learn more about how Medtronic is providing value in healthcare, visit medtronic.com/value

References