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## Blockchain's Medical Potential

In the [Joint Economic Committee Republicans'](#) new podcast "[Main Street Economics](#)," Chairman Pat Tiberi (R-OH) and Committee member Representative David Schweikert (R-AZ) discussed the vast potential of blockchain technology.

**A revolution in ledgers:** Blockchain is the distributed ledger technology that underlies digital currencies such as Bitcoin. A ledger is the accounting tool that tracks the movement of money from one person or account to another. Conventionally, such records are stored in central locations like banks, headquarters, Paypal servers, etc. Blockchain revolutionizes the ledger technology with a network of distributed ledgers. Instead of one central, authoritative record of all transactions or information, blockchain creates potentially thousands of identical ledgers in computers and servers all over the world.

Bitcoin's blockchain creates a new record of verified transactions approximately every ten minutes and packages them into a so-called "block." Each block contains data related to Bitcoins sent and received, as well as digital signatures using cryptographic keys, by which each party confirms its agreement to a transaction. Each block is chained to the previous block, as computers throughout the network confirm its validity. Once a block is in the chain, it can never be removed or altered and will be there for everyone on the network to see. The protocol then begins working on the next block in the chain.

**Not just for digital currencies:** The blockchain concept applies to a much larger world than just digital currencies. Since blockchains store and verify data in a distributed manner, they open up innovative ways to revamp the way people utilize and access records. Additionally, blockchains' design and encryption are among the most secure technologies in the world. With distributed identical encrypted records, an attacker would need to break the encryption, rewrite the

records, and convince a majority of servers the altered history is correct before a new block joins the chain.

Many researchers, organizations, and countries have started exploring new blockchain applications. Sweden is exploring using the technology to [track property records accurately](#). Even within the United States, property owners in Brooklyn use blockchains to [trade solar power credits generated from building roofs](#). United Nations officials used blockchain cryptocurrency, Ethereum, to [purchase olive oil, pasta, and lentils for Syrian refugees](#).

**Application to medical records:** As Representative Schweikert described, healthcare companies already started researching blockchains as a [secure way to keep medical records](#) on personal smartphones or within provider networks. He elaborated on what this means for Americans in the future:

“[M]edical records have no value if they don’t move with you. So think of if I could put my medical records on a blockchain where just like on many phones, I could use my thumbprint and a password and with a certain type of encryption...It would be [HIPAA](#) compliant. Now all of a sudden you and I and the rest of society can carry their medical records on their phone.”

Representative Schweikert further revealed he is [working with institutions like the Massachusetts Institute of Technology \(MIT\) and the National Institute of Standards and Technology \(NIST\)](#) to develop encryption standards that would protect Americans’ private medical data and allow transfers across providers as needed.

In 2016, the United States Department of Health and Human Services (HHS) announced the [“Use of Blockchain in Health IT and Health-Related Research” Ideation Challenge](#). The initiative requested white papers examining the role blockchains could play in healthcare information technology. Researchers submitted 77 papers and [15 won awards for their work](#). As an HHS official said about blockchain, [“We really couldn't keep our heads in the sand, because we really knew what was coming on.”](#)

**Stay tuned:** Many challenges remain to achieve widespread implementation of blockchain technology, but as Representative Schweikert emphasized in the podcast, an amazing economic revolution is happening right before our eyes. You can receive updates on economic developments by subscribing to [Main Street Economics](#) and [signing up for Joint Economic Committee e-mail updates](#).