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ABSTRACT

Most blockchain users remain susceptible to privacy attacks. Many researchers advocate using anonymous communications networks, such as Tor, to ensure access privacy. We challenge this approach, showing the need for mechanisms through which non-anonymous users can publish and fetch transactions without enabling others to link those transactions to their network addresses or to their other transactions.

A blockchain is a distributed, append-only log of time-stamped records that is cryptographically protected from tampering and revision. In the eight years since blockchains were first proposed, their use as publicly accessible and verifiable ledgers for online financial transactions has become widespread. This rapid adoption has largely been spurred by the success of Bitcoin a digital currency that—owing to its decentralized and pseudonymous nature, support for complex financial instruments (enabled by a powerful, built-in scripting language), and capacity to facilitate fast and inexpensive transactions across the globe—has proven to be a highly disruptive force in the finance and e-commerce sectors. As Bitcoin and alternatives like Ethereum and Ripple continue to mature and grow in market value, it is becoming increasingly likely that blockchains as a means to facilitate financial transactions are here to stay.

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