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The Patient-Centric Blockchain

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EXTENDED ABSTRACT

A revolution is brewing in the healthcare marketplace. In the early nineties, the World Wide Web initiated a new era for the use of the Internet in the consumption of healthcare services. This eventually led to the Big Data movement (Erevelles et al., 2016), which initiated a non-linear transformation in healthcare analytics and developed into a dominant paradigm in the healthcare marketplace. However, the World Wide Web architecture was never designed to support a marketplace in healthcare or, for that matter, a marketplace of any other kind. It was primarily designed for the *sharing of information* and was even referred to as the "information superhighway" in its early days. Despite this, over the years, the World Wide Web has evolved into a foundation (Erevelles et al., 2003) for the healthcare marketplace, widely utilized by the healthcare community. This has resulted in major breakdowns in patient trust, security, and privacy, among other problems, which additionally, have contributed to already sharply rising healthcare costs. For the first time, with the emergence of the blockchain, the healthcare community may finally have a platform specifically designed for the *sharing of value* (Erevelles et al., 2022). Healthcare is critical for almost everyone and faces potentially catastrophic crises. Blockchain's value proposition is strong and distinct: greater trust, security, privacy, authenticity, and disintermediation in the healthcare marketplace. Yet, despite its potential impact, relatively little academic thought has been given to consumer-focused solutions in the healthcare marketplace. To fill this gap, the authors propose a game-theoretic framework for a patient-centric blockchain, and present an initial theoretical framework, with key foundational premises and propositions, that may help in the evolution of a blockchain-centric healthcare marketplace.

This research makes multiple unique research contributions to the literature involving blockchain and healthcare consumption. First, we propose a framework for a patient-centric healthcare blockchain and present a theoretical foundation for healthcare consumption using blockchain technology. Second, we develop a set of propositions based on blockchain-centric logic that could provide theoretical guidelines that could help researchers identify potential research problems and develop solutions for these problems in the future. Third, we propose a hybrid blockchain-based healthcare framework as an initial practical step for the implementation of healthcare blockchains in the shorter term. This research is likely the first to develop a theoretical framework for blockchain-centric logic in a healthcare setting, as well as to identify related technological, behavioral, and managerial issues in the processes involved. Without a doubt, considerable further research is needed to better explore various important theoretical and behavioral questions that may arise. It would be reasonable to conclude, however, that this research provides a crucial first step for the further development of a critical technology that is expected to radically transform healthcare marketplaces and patient behavior in the future.

Keywords: *blockchain, healthcare, trust, Big Data, game theory, institutional economics*

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