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A Taxonomy for Cryptocurrency Classification Based on Technical, Economic, and Social Characteristics

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Extended Abstract

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Abstract

The creation of blockchain and distributed ledger technologies have given rise to a myriad of cryptocurrencies. Since the inception of Bitcoin in 2008, there are now more than 9,000 cryptocurrencies worldwide with the top twenty making up over 90% of the market (Statista, 2022). This diversity, coupled with the complexity and uncertainty of the domain, motivated us to take a more systematic approach and categorize existing cryptocurrencies. We developed a taxonomy consisting of three major categories – technical, economic, and social characteristics. We further broke them down into multiple subcategories to differentiate the various aspects of each cryptocurrency more precisely. See Table 1 for more detail. We followed best practices for taxonomy development prescribed by Nickerson et al. (2013) and we identified these dimensions motivated by prior research and the gaps we identified in other studies (Belchior et al., 2021; Gorkhali et al., 2020). We applied the taxonomy and successfully classified nine existing cryptocurrencies, namely: Bitcoin, Aave, Algorand, ApeCoin, Arweave, Avalanche, Axie Infinity, and Binance. Our preliminary results indicate that the proposed taxonomy can be successfully utilized to guide novice cryptocurrency investors and navigate them through the selection process. Our work is grounded in design science theory (Hevner et al., 2004) and offers a relevant solution to a real-world problem by incorporating a rigorous scientific foundation.

While our work is theoretical in nature, its application affects practical aspects such as financial investments and legal implications related to cryptocurrencies. Although we have currently demonstrated how only nine cryptocurrencies can be classified using our proposed artifact, our future work will examine others. We also plan to determine whether the suggested subcategories are exhaustive or perhaps new ones can be added. A significant part of design science revolves around the evaluation of the artifact and our next steps are to solidify the subcategories and then empirically validate them using a much larger sample size of cryptocurrencies. To achieve this objective, we intend to conduct semi-structured interviews or focus groups with cryptocurrency experts. Using their feedback, we will do another iteration of the taxonomy and then validate our revised tool. We will repeat the process until respondents indicate that the artifact can capture the wide variety of cryptocurrency dimensions and complexities.

Table 1. Cryptocurrency Classification Categories

Category	**Subcategories:**
Technical	Proof-of-work vs proof-of-stake Open-source vs proprietary Finite vs infinite blocks Block size Centralized or decentralized network infrastructure
Economic	Hard peg vs soft peg vs no peg Maturity level Market capitalization Volatility
Social	Implicit or explicit ban Public sentiment Public confidence in widespread adoption

Keywords: Cryptocurrency, blockchain, taxonomy, classification, design science research

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