Analyzing the Evolution and Maturation of Bitcoin Improvement Proposals

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Abstract : This study analyzes the evolution of Bitcoin Improvement Proposals (BIPs), the self-governing mechanism that enables updates to the Bitcoin protocol. By modeling BIP submission frequencies with a Negative Binomial distribution and detecting change points with the Pelt Rupture model, we identify three distinct intervals of proposal activity, suggesting shifts in development priorities over time. Long-term growth patterns, captured by Gompertz and Weibull models, indicate an S-shaped trend in cumulative BIP counts, pointing toward a maturation phase in Bitcoin's protocol. Our findings suggest that Bitcoin may be entering a stable stage, with fewer fundamental changes and more incremental enhancements. This trend highlights the need for further research into BIP content and more studies into its dynamics to better understand decentralized protocol governance and maturation.