Thesis Project Portfolio

EGEMV on Intel SoCs

(Technical Report)

Bitcoin: Co-Production of Software and Monetary Policy

(STS Research Paper)

An Undergraduate Thesis

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Sociotechnical Synthesis

The field of *Science and Technology Studies* has left a vast literature of case studies and analytical frameworks for social scientific analysis of science and technology. These analytical frameworks are useful lenses for study of social-scientific phenomena. Sheila Jassanoff formally declares a new framework, Co-Production of Science and Social Order, that acts as a balance between the social constructivism and technological determinism. Jassnoff and her co-authors argue that one can only gain the full picture by viewing society and technology as being produced together. A purely social constructivist or natural determinist lens may help one see a subset of the story more clearly, but this is, in Jassanoff's words, a "strategic deletion." Society and technology affect each other continuously. Bitcoin and Nostr (*Notes and Other Stuff Through Relays)* as a case study. These technologies are both influencing and under the influence of policy.

This paper does not argue for co-production as a general theory of society and technology. The frameworks are descriptors for flavors of socio-technical analysis. A social constructivist narrative focuses on how social groups influenced the development of a technology or scientific idea. The foremost scholars of the social constructivist literature, Thomas Pinch and Wiebe Bijkers' analysis of the development of the Bicycle talks mostly about how different groups influenced its design. For example, Women needed something they could ride while still appearing "modest" by the standards of the early 20th century. A technological determinist narrative is focused on the technoscientific prior art that led to the development of the subject technology, as well as the subject technology's resistance to social constraints. Co-production views that neither of these aforementioned paths of analysis is adequate to understand the full picture.

Bitcoin is a case technology that requires Co-Production especially. It is indisputable fact that the pseudonymous creator of Bitcoin was motivated by the government intervention following the 2008 market crash. His seed data in the first block states *"The Times 03/Jan/2009 Chancellor on brink of second bailout for banks."* It appears to be a clear case of social construction and negotiation between stakeholders, namely the citizens and government, over what money is. Is money what the government hands out, or is it whatever the citizens choose? The interpretation of Bitcoin and mere social phenomena misses the intentional indestructible design. Bitcoin was designed as a decentralized network so that no one person or entity can affect it. They can stop participating, but cannot effectively change the amount of coins, who owns each of the coins, and who the owners can transact with. The amount of thought and technical genius that went into Bitcoin is uncanny. This has to be part of the story. While one could view Bitcoin as a purely social or purely technical phenomenon, a Co-Productive perspective is far more enlightening. Bitcoin is activism through technology, which strains social constructivism and technological determinism as both social construction and momentum are key parts of the story.