

**Another Chapter in the Demystification of Money:
Mutual Credit Blockchain for Sustainable Local Development**

Joint Business School Research Seminar and Computer Science Research Colloquium
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The blockchain is a type of distributed database technology that first emerged in 2009 as the ledger for Bitcoin. Its most innovative contribution is to have solved the ‘consensus problem’ among a distributed set of servers. This algorithm has made it possible to create an immutable record of past behaviour in any field of human endeavour – not just for Bitcoin transactions – that is not controlled by any single entity. The ‘permissionless’, bottom-up, and distributed nature of the blockchain has therefore been of great appeal to both economic and political libertarians, interested in disintermediating the banks and the state, respectively. The need to operate in a ‘trustless’ environment, furthermore, has led the blockchain to rely on very strong cryptographic techniques to make the data secure. More recent developments (such as Ethereum) have introduced programmatic conditions on transactions that can plausibly claim the status of ‘smart contracts’. Banks and governments have taken notice and are investing huge funding to back open source consortia that are developing ‘permissioned’ variants of the original architecture – functionally distributed but with top-down centralized ownership and control. Creation of money takes place also on several blockchains through so-called ‘native tokens’. Therefore, as technologists and the general public start imagining the possibility to “design” different kinds of money to fit specific requirements and objectives, it is becoming increasingly urgent to develop an interdisciplinary dialogue between social scientists and computer scientists through which the blockchain can be analysed and interpreted collaboratively.

Mutual credit appears to be central to socio-economic resilience and sustainable development, meaning a stable and constructive integration of market activity with democratic institutions. Therefore, it is interesting to investigate how the blockchain’s distributed architecture could add to the socio-economic properties of mutual credit. Mutual credit challenges prevailing notions about the nature of money, and the financial and economic autonomy that a relatively poor region can aspire to, because *it creates its own money* by allowing its members to create debt that is backed by the products and services they will sell in the subsequent 12 months – and therefore by high levels of trust. A crucial element for a market-based mutual credit instrument to lead to ‘positive’ socio-economic impact is for the rate of interest to be zero on all debt and credit balances; this focuses economic activity on goods and services with immediate socio-economic impact, rather than financial instruments operating on a longer-term horizon and under greater risk. Another key component in the institutional design of a mutual credit circuit is the incentive structure provided to members to align their actions toward the desired behaviour so as to prevent, or at the very least mitigate, free-riding and defection.

Preliminary research on the electronic, B2B, complementary Sardex mutual credit circuit established on the island of Sardina in 2009 (<https://sardex.net/>) can be interpreted as suggesting the emergence of institutional complementarities between Sardex and the performance of the Sardex SME members. This suggests that a market with a zero-interest currency and an appropriate incentive structure is part of the solution to the sustainable development problem posed by some of the new forms towards which contemporary capitalism is evolving (Gagliardi 2017). It has beneficial properties reminiscent of Adam Smith’s ‘circular flow’ or Schumpeter’s ‘circulating debt’, where there is no hoarding and (from the point of view of the availability of the medium of exchange) the market functions most efficiently. However, setting the interest rate to zero undermines investment-dependent entrepreneurship. The challenge is then to retain some aspects of capitalist growth while keeping its more detrimental effects in check. Empirical evidence and theoretical arguments point to a solution in terms of a monetary system that resonates with Douthwaites’s ‘monetary ecology’, in which local or regional economies should be established on a different footing to the national economy.

UH is participating in a FET OPEN Launchpad project led by Sardex S.p.A. to develop a mutual credit variant of an open source blockchain for the Sardex mutual credit system. Although this platform will be permissioned, it begins to distribute some of the auditing functions to circuit members. This seminar will consist of an interdisciplinary talk on themes related to Sardex, the blockchain, and sustainable development, and will be followed by open discussion and a Q&A session.