

# **new/money/hub**

{ working on the monetary systems of the future }

*Presentation at Fintech Startup #13 in Paris  
Tuesday, 8<sup>th</sup> November 2016*

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## { our vision }

*We see a future where money will once again be diverse, with many different issuers, with a variety of credit relationships, where people will take an active interest in the type of money they wish to use.*

*Our aim is to provide the tools to achieve that vision.*

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## { why now? }

Over the past 100 years, we have reached an extreme centralisation of monetary systems, with governments maintaining a jealously guarded monopoly via their central banks.

The crisis of 2008 has shown that monetary monoculture is not the most stable scenario.

Meanwhile, the emergence of bitcoin has had two effects:

- + it reminded us that monetary innovations are still possible
- + it popularised blockchain technology, which happens to be useful for many applications

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*In order to understand our project,  
you need to understand our view of money ...*

*The Banking Law Journal, May 1913*

## WHAT IS MONEY?

BY A. MITCHELL INNES.

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Credit is the purchasing power so often mentioned in economic works as being one of the principal attributes of money, and, as I shall try to show, **credit and credit alone is money.** Credit and not gold or silver is the one property which all men seek, the acquisition of which is the aim and object of all commerce.

## { what is money? }

- + Money is a debt or promise that has undergone a ‘monetary credit conversion’ making it a transferable, fungible and generally accepted instrument for repaying debts within a certain human community. Implicit to this definition are an issuer and a unit of value.
- + Money cannot be owned: it is not an asset, it is a contract - so if something can be owned, it cannot be money.
- + Money is about the future, it represents work that is yet to be done.
- + As debts are incurred with the objective of being repaid, so (most) money is created with the objective of ultimately being destroyed.
- + today we use one type of money, in the past many monies circulated at the same time.

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## { useful concepts }

Proto-money: a debt that is, in some situations, used in lieu of money, but without being money – for example because the credit of the issuer is not sufficiently high.

Money token: 1) anything representing money, such as coins or banknotes, balances recorded on a bank system or on a blockchain etc. 2) anything representing proto-money (in which case it may also be called a *proto-money token*).

Currency: something that is widely accepted for payment, but is not money – typically because it lacks an issuer. Examples: cowrie strings, Maria Theresa thalers (after they ceased to be legal tender), bitcoin.

Unit of value: something that is used, by social convention, for labelling debts and money. This might be a physical thing (a cake of salt, a measure of wheat, an ounce of gold) or something completely abstract (a euro, a bitcoin, ...)

## { money creation and destruction }

**Issuance / creation** : this is when a money token (in whatever form) is transferred from its issuer to another party – it is the moment when money is created

Today, money creation is done almost exclusively by banks. By making loans, banks take the credit of individuals, companies and public sector bodies and convert it into bank credit, or bank money, for a fee.

In the past, many institutions and merchants issued their own tokens which circulated as money.

**Redemption / cancellation** : when the money token returns to the issuer, thereby ceasing to be money (but possibly retaining some value, as with a coin).

NB: not all payments result in debt cancellation, those that do might be called “payments proper”.



## { the backing of money }

Money originating from private sector debt :

- > backed by a **promise to work**, to provide goods and services
- > we call this “productive money”

Money originating from public sector debt:

- > backed by a **promise to tax**
- > we call this “unproductive money” if issued in excess
- > creates an illusion of wealth: “the more government money there is in circulation, the poorer we are” (Mitchell-Innes)

## { useful facts }

- > Money did not originate from barter, and banking systems existed long before coins were invented
- > The metal content of coins was irrelevant throughout most of history
- > Positive interest rates do not necessarily imply an exponentially growing money supply (but still carry the seed of instability in them...)
- > Government money was not always strongest: **"In France not so long ago, not only were there many different monetary units, all called by the same name of livre, but these livres – or such of them as were used by the government – were again often classified into forte monnaie and faible monnaie, the government money being faible."** (Mitchell-Innes)
- > Successful money system have existed for long period without legal tender laws, without central banks and without requirements for high-powered money reserves.

### **{ useful facts – continued }**

- > The idea that money is a store of value is self-contradictory.
- > Everyone wants money, everyone wants to be a creditor, but that is impossible: there must always be as many debits as there are credits.
- > The “capitalists”, representing the commercial sector, are structurally in debt.
- > Private and commercial debtors generally want to repay their debts as soon as possible. This is only possible if the creditors accept the goods and services offered by the debtors. What if the creditors prefer to wait and accumulate credits?
- > Some debtors, mainly the government, are under much less pressure to repay. This can cause distortions in the money system, such as inflation.

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## { scenarios }

*Imagine a system where many types of money and many types of credits coexist, and any two users, or any group of users, can freely choose how to use them.*

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## { local credit systems { or: sometimes a tiny bit of money is enough } }

A few centuries ago, most trade in small communities was done on credit. This can be modelled by the issue of tokens.

<u>Local transaction chain</u>	A	B	C
A buys from B for #10		A# 10	
B buys from C for #8		A# 10	B# 8
C buys from A for #12	C# 12	A# 10	B# 8

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## { local credit systems – clearing }

Debts were cleared from time to time, often during the seasonal fairs. These were largely “circular economies” so residual debits and credits tended to be small. They were carried over or settled with money.

<u>Clearing of debts</u>	A	B	C
Initial holdings (assets)	C# 12	A# 10	B# 8
Tokens issued (liabilities)	A# 10	B# 8	C# 12
Difference	2 CR	2 CR	4 DB

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## { credit conversion }

Say A and C have no credit link, but A is trusted by B, who in turn is trusted by C:

A → B → C

In order to pay C, A might use his trust relationship with B like this:

<u>Credit conversion via token exchange</u>	A	B	C
A exchanges tokens with B	B# 10	A# 10.3	
A buys from C using B's tokens		A# 10.3	B# 10

This is equivalent to B agreeing to have his credit attached to A's token – in this case for a price.

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### { optimal payment path }

Let's again consider a situation where A wishes to purchase goods or services from C, but this time there are different ways of doing so, for example:

$A \rightarrow C$  ;  $A \rightarrow B1 \rightarrow B2 \rightarrow C$  ;  $A \rightarrow B3 \rightarrow C$

Depending on the conditions of each credit relationship, and possibly also on other factors (e.g. when does A expect to settle the debit balance?) one of these paths may be more favourable than the others.

In our system, finding that optimal path will be fully automated.



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## { key platform features }

- > Users can define their own credit relationships, what money and credit they accept, and on what terms.
- > Optimal payment path computed automatically for all payments.
- > Ability to create new currencies, linked to financial assets or other external data.
- > Library of predefined smart contracts for typical use cases (local currency, local credit exchange, ...) that can easily be set up and configured.
- > Ability to create custom contracts - although an audit may be required.
- > Access to fiat currencies and other financial instruments via gateways (banks)
- > Business model: small commissions on transactions

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## { technology }

- > Accessible online or via smartphone.
- > Semi-private blockchain with smart contracts.
- > Nodes will be run by project participants (“local hubs”).
- > Resource-intensive computations (such as finding optimal payment paths, and the clearing of debits and credits) are expected to run off-blockchain, with the resulting transactions verified and validated on the blockchain.
- > A public blockchain will be used to record signatures of blocks of transactions.
- > Later on: APIs

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## **{ use cases }**

- + local currencies
- + quickly set up alternative money/credit systems during crises (Argentina, Greece etc)
- + inter- and intra-company credit systems, to reduce reliance on bank financing
- + partial alternatives to micro-credit systems
- + jump-starting local economies for the world's “underbanked”
- + .... and whatever applications users can come up with.

## { the human factor }

For at least 95% of homo sapiens' 200,000 year history, humans have lived in small groups of at most 150 people. Anthropologists believe that these societies were generally characterised by cooperation and mutual trust.

The past 10,000 years have seen tremendous advances in civilisation, but at a cost.

Neither anonymity, nor working in large groups, seems to be natural to us as a species.

So let's end on a wildly optimistic note:

**That by making money more personal, for example through p2p credit relationships within smaller groups, we might contribute to the development of more civilised monetary systems.**

**Sometimes the tools we have at our disposal can change the way we act!**

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**Thank you!**

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