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Bitcoin: The End of Money as We Know It

By Torsten Hoffmann

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[Voiceover] Look closely.
What do we all have in common?
No matter what corner of
the world you live in,
You need food, water,
shelter and money.
Half of every transaction
involves money,
in exchange for
goods or services.
Stocks, a loaf of
bread, illegal drugs,
You gotta pay for it.
We spend much of our
live chasing money
to make a living,
and accomplish our dreams.
But it's also an
instrument of destruction.
Some might say evil.
Driving criminals to lie,
steal and even murder.
- The existing banking system,
extracts enormous
value from society
and it is parasitic in nature.
- [Voiceover] Money is
a catalyst for the worst
and the best of human endeavor.
Before civilization,
we created currency.
Fuel for wars.
The path to power.
Champion and enemy
of innovation.
Money is so integral
to our society,
and our global economy,
that its true nature
remains a mystery to most.
This is the story of money.
Perhaps the end of
money as we know it.

No matter how fat
your bank account,
or how thin your wallet.
To us it's all cold, hard cash.
There are some who
want to kill it.
Get rid of it.
Burn your dollars,
your euros, your yen,
and transform every
penny you have,
into ones and zeros.
Digital currency
entrusted to the web
and computers spread
across the planet.
Magic internet money.
It's called
cryptocurrency, Bitcoin.
Invented in secret,
it was a gift to the world.
- It's not just a currency,
but it's actually
programmable money.
- [Voiceover] A potential
curse on bankers.
- I mean, there's nothing
that the big banks or
politicians can do to stop it.
- [Voiceover] Breaking
every governments grip
on money supply.
- What the internet
did for information,
Bitcoin is doing for money.
- Could it be the new gold?
- No, you have to really stretch
your imagination,
to infer what the intrinsic
value of Bitcoin is.
- Regulators, the Federal
Reserve, the banking system,
at least understand
this is a thing

that they have to
take seriously.

- This going to change
the economic culture.

- Bitcoin could be a
micro-economic miracle worker
and it could be a
macro-economic wrecking ball.

- [Voiceover] Is Bitcoin
the currency of the future,
a Godsend for criminals,
or a recipe for
financial disaster?

If you trust your
money just as it is,
we have a little story to share.

(dramatic instrumental music)

Once upon a time
there was a big party,
with everyone standing
around the punch bowl, drunk.

Politicians credited
the strong economy
to their wise decisions.

Businesses jumped into
new profitable markets,
ignoring risk.

If fact the experts
said there was no risk.

Then, troubling market
data from minor countries,
spooked the markets.

Rumors spread.

More bad news rattled
housing prices,
at the heart of the
financial world.

A major bank went insolvent.

Investors and
businesses made a run
on the other banks,
demanding their cash deposits.

The largest financial
institutions

in the center of the
modern world were frozen.
Assets were seized,
banks foreclosed.
A credit crunch threatened
the entire world economy,
and then finally,
the government stepped in.
The largest bank bailout ever.
Swift action by the head
of state had saved the day.
Remember that?
No you don't.
It happened 2,000 years ago.
Rome, 33 A.D.
Ground zero for the first
recorded liquidity crisis
and government
bailout in history.
The largest empire the
world had ever seen,
was brought to its knees
by a banking disaster.
Emperor Tiberius used money
from the National Treasury,
to bail out the country's
troubled banks and companies.
History may not repeat itself,
but it certainly rhymes, badly.
People in power and their money,
have always been at
the very center of it.
(violin instrumental music)
The story of money
is as old as
civilization itself.
When we lived in small tribes,
keeping track of debt was easy.
You owed somebody
a load of firewood.
A neighbor owed you
a piece of meat.
Credits and debits
were kept in your head.

A mental ledger.

- Currency's a language that allows us to express transactional value between people.

It's technology that's older than the wheel.

It's as old as fire.

- [Voiceover] When humans wanted to trade outside their tribe or village, they needed something, everyone could agree had value. Something scalable.

Enter commodity monies.

There were many kinds, but each had to embody the same five characteristics.

A commodity money is relatively scarce, easily recognizable, can be cut into smaller pieces.

You can substitute one piece for another of equal value.

And you can carry it around without too much trouble.

In ancient Rome, it was salt.

The Aztecs used Cacao beans.

It was whale teeth on Fiji.

Yak dung in Tibet.

Shells in Africa and China.

Grains, metal, ivory, rare stones, leather, fish.

If it had the five characteristics of commodity money, someone probably used it as currency.

- And then you ask, what value did these currencies have?

If you go into a primary school, you'll see children exchanging rubber bands

and Tamagotchi
and Poke-man cards
and baseball cards and sweets
and candy and any
other form of currency.
People invent currency,
when they have no
other currency.
And now they're going to
invent digital currencies.
- [Voiceover] But commodities
that aren't durable,
are a lousy store of value.
A bad Cacao crop,
or a huge new salt discovery,
can throw your currency
and economy into turmoil.
A more stable system was needed.
About 2,500 years ago,
the first metal coins
were minted in China,
and in what is now Turkey.
These coins shared the
same five characteristics
with commodity money,
but were also very durable.
In some cases,
coins are the only thing left
of entire civilizations.
- Money does not originate
with governments.
Money arises naturally,
as markets begin to develop.
And as people with a
division of labor realize,
that if I have eggs,
and you have a cow,
we may need some
medium of exchange,
in order for you to buy my eggs,
or for me to buy your cow.
- [Voiceover] Coins
were an objective
and universal unit of account

and they allowed people
to buy and sell goods
over vast regions.
The market economy was born.
Coins worked,
but only if people trusted
that the king or emperor,
who issued them,
wasn't cheating on
the metal content.
Using coins also meant,
that an authority now
controlled the supply
of your currency.
Money and political power,
were inextricably
linked, centralized.
Minting coins in a steady
and predictable manner,
allowed economic
growth and stability.
The Wu Zhu coin in China,
retained its value
for 500 years.
In Constantinople, the solidus
lasted for 700 years.
- But in those times,
the coins didn't
have the milled,
this sort of milled edge.
They were flat,
and what used to happen,
was as coins were passing
from people to people,
people would cut
little bits off.
And in fact,
some of the taxation
that the kings would do,
would actually be
take one eighth
of the coin off.
- [Voiceover] Taxes
built castles,

and financed military campaigns,
expensive hobbies.

Soon, royal mints were
substituting cheaper metals,
for silver and gold.

This is called debasement.

And Europe's kings
made a habit of it.

The currency of France was
debased every 20 months,
for 200 years.

If no one can trust the
gold or silver content
of your coins,

how can you trade
with other countries?

International merchants
found a solution.

They recognized that
one person's debt,
has value.

It can be traded or transferred.

When those IOU's came
from reputable sources,
they could be used
as a form of money.

Paper money.

This money was not based
on hard commodities,
or metal, but instead,
on someone's promise to pay.

Merchant families
like the Medici,
in 15th century Florence,
acted as clearing
houses for these IOU's.

It worked like this.

An English trader ordered a
shipment of Italian cloth,
from the Medici
for 100 gold coins.

His promise to pay the
Medici was put on paper.

Meanwhile, the Medici

owed 100 gold coins,
to another trading partner,
for delivery of
wine from France.
The parties didn't
go to the expense
of transporting and
exchanging gold coins.
Instead, the paper
was transferred.
Everyone agreed that
the paper had value,
100 gold coins.
But only because the
everyone trusted the Medici,
as solvent middlemen.
They had created a
paper money machine.
Within a few generations,
they rose from low crime
to high finance.
Their great wealth,
helped fuel the
Italian renaissance
and elevated the family
to levels of enormous
political power.
The power to marry
into royal families
and get elected as popes.
The ties binding money
to power, politics
and influence now ran
through church and state.
Merchants had proven that
creating paper currency
could be wildly profitable.
Goldsmiths wanted
in on the action.
- Imagine it like this,
if the goldsmith had seen
over a period of time that some
of the coins he is storing for
people were gathering dust.

The people who own them,
don't need them right now.
So what if I go and lend
them out into the community
and I charge them
interest on this loan.
So he starts out lending
some of these gold coins
and then later he
realizes, actually people
don't even want the gold
coins they just want the piece
of paper that says that the
gold coins are in the bank
and with the goldsmith.
So I can now make a loan
with these pieces of paper.
And whatever I write
on the piece of paper,
as long as the people trust
me, they'll trust the paper.
And effectively the goldsmiths,
the early day bankers,
they had literally acquired
the power to print money.
- [Voiceover] More and more
such private paper money
from merchants and
banks circulated
and began to rival
the crown's coins.
The power inherent
in controlling
and issuing money began
slipping away from the rulers.
They couldn't tax or de-base
this new kind of money.
But they had bigger ambitions
than ever with trading posts,
colonies, and empires that now
stretched across the globe.
For centuries,
European countries
would take turns

building massive fleets
and waging war on each
other to rule the world.

(yelling)

- Government wanted to
take the people's money
in order to finance its wars.

That's essentially
the history of money.

Money and warfare go together.

- [Voiceover] War is expensive.

One year's income taxes
simply aren't enough.

Kings and queens had to borrow
money against future taxes.

They needed a ground breaking
financial innovation,
government bonds.

The loans came from rich
merchant families and goldsmiths,
who by now had become powerful
financiers and bankers.

Sovereign debt and deficit
spending had been born.

(upbeat instrumental music)

In 1694, the bank of
England was established
to fund a war against France.

England's central bank
was privately owned
and granted the monopoly
to issue banknotes,
paper that could be
redeemed for an equal amount
of gold from the
government's coffers.

The central bank soon also
managed the entire debt
of the crown.

- Money has been a tool of
sovereignty for centuries.
Being able to issue
currency gave you the power
but it also gave the value

to that monetary supply
by backing it with
the force of state
with essentially
the debt of state.

- [Voiceover] When the U.S.
won independence from Britain,
the first article of
the new constitution
gave congress the exclusive
right to "coin money".
This currency's value was tied
to gold in government vaults.
From 1781 until
the panic of 1907,
the financial system of the
U.S. was an economic Petri dish.
Brief central banks, state
banks, private banks,
private currency,
government currency,
depressions, strong
growth, recessions,
regular boom and bust cycles.

- The long term, as far
as capital is concerned,
people want predictability,
people want stability.
From the back of
that they can plan
and it is very hard to
plan in the long term
with it such a
level of volatility.

- [Voiceover] In 1913, bankers
and politicians decided
that it was in the country's
best interest, and theirs,
to have a permanent
central bank.

They created the
Federal Reserve.
Among its jobs, expand
or contract the supply

of a single national currency,
the Federal Reserve note.

The dollar was tied to
gold and strategic control
of it would avoid booms
that lead to busts.

At least that was the plan.

Then came 1929.

(yelling)

The great depression would
have a profound effect
on monetary policy worldwide.

- [Roosevelt] I shall
ask the Congress
for the one remaining
instrument to me the president,
broad executive power.

- [Voiceover] Soon, the Fed had
printed nearly all the money
it legally could to pump
life back into the economy.

It needed gold to
fire up the mint.

So in 1933, President
Roosevelt issued
a controversial executive order,
forcing all U.S. citizens
to sell their gold
to the Federal Reserve
at a fixed price,
or go to prison.

The Fed offered far more cash
to foreign governments
for their gold.

Many jumped at the offer.

Gold flowed in,
and dollars spread
across the globe.

World War II devastated
nearly every major economy,
except the United States.

The military and industrial
juggernaut emerged
as the global

financial super power.
The dollar had become
the world's most stable
and trusted currency.
Other countries pegged their
currency to the dollar,
which could still be
redeemed for gold.
In fact, the U.S.
owned more than half
of the world's gold reserves.
In the next few decades,
more dollars flowed
to foreign countries.
Governments began
debasement their coins
with cheaper metals
and printing more
of their own currency
than they had in gold.
The bond between precious
metals and paper currency
was cracking.

- This is a 1966 50 cent piece.
It was the last coin
in regular circulation
in Australia to contain silver.
It contains 80% silver,
so in 1966, this was 50 cents.
Nowadays it's 8
dollars, roughly,
in silver alone.

- [Voiceover] By 1966,
foreign nations had had enough
of the U.S. collecting
gold and printing cash.
And they had more value
in dollars than the U.S.
had bullion in its vaults.
They demanded gold in return
for their paper dollars.
Arguments about the
value of the dollar
versus their currency ensued.

In 1971, President Nixon
settled the matter.

He severed United States'
currency from the gold standard.

- I directed Secretary Conelly
to suspend temporarily
the convertibility
of the dollar into gold
or other reserve assets
except in amounts and
conditions determined
to be in the interest
of monetary stability
and the best interest
of the United States.

- [Voiceover] Never again
could anyone legally demand
U.S. Government gold in
exchange for paper dollars.
For better or worse, the
dollar was now backed solely
by the full faith and credit
of the United States Government.

The wealthiest nation
the world had ever known
would bet its future on
a single word, trust.

- People have this
mythology of money
that is based on
very little fact.

And one of the nice
things about Bitcoin
is that it forces people
to start to ask questions
about the fundamentals of money.

- A Bitcoin is an attempt
to adopt the advanced
computerized system
that we have, the internet,
to resurrecting to what
money used to be all about.

(upbeat instrumental music)

- I think our dollar policies

our monetary policies
our fiscal policies
have absolutely created
a nation of debtors.

Not just personal debt,
not just corporate debt
but government debt,
you have to look
at those all together
as one big thing.

What is the wealth
of the nation?

Well, the wealth of the
nation is a gigantic hole
of money that we owe to
the rest of the world,
that is never going
to be paid back.

- [Voiceover] Today the
United States pays more
than 400 billion
dollars in interest
to its creditors, every year.

When a government
spends more money
than it collects in taxes,
it simply borrows more
or it creates more.

At one time, every
piece of paper money
was backed by gold.

Remember, for every
20 dollar bill,
there was \$20 worth of
gold in a government vault.
Not anymore.

Today, governments
create currency
by first creating bonds
or treasury-bills.

These bonds are
sold in the market,
generating funds for the
government that issued them.

Large banks buy U.S.
bonds to flip them,
selling them to the Federal
Reserve at a profit.
This is the magic money machine.
You see, the Fed is
America's central bank.
But it doesn't have any money,
no cash on its balance sheets.
When a bank buys a
bond and takes it
to the Federal Reserve,
the Fed simply says
"thank you Mr. Banker,
"here's the principal
and some profit."
(ching, ching)
New money isn't exchanged,
it simply appears on
the bank's accounts.
Magic.
For 100 years and counting,
the precise mechanisms
of these bond purchases
have remained a secret.
Here's where it gets
really interesting.
The Federal Reserve is
not a Government agency.
It's a private entity
and its shareholders
are banks which earn a dividend.
As much as 80 billion
dollars per year, total,
are paid out to some
of the very same banks
that sell the Government
debt to the Fed.
Which banks?
Don't even bother asking.
That's also a secret.
In other words, the magic money
machine answers to no one.
The Fed also sets the bar

for how much interest you pay
for a car, home,
or business loan.

- The Federal Reserve has
been given the impossible task
of trying to run the credit
and monetary system
as though we are
the Soviet Union.

It's the central planner
for the key aspect
of capitalism which is how money
and credit is allocated.

The Federal Reserve, on balance,
does not help the economy.

On balance, it
hurts the economy.

And it's bound to make mistakes
even with the best
of intentions.

- [Voiceover] The Fed is also
supposed to boost employment
with low interest rates.

Encouraging people and
businesses to buy more goods
and services.

- Governments getting
involved in money
is a good thing, and
it's also a bad thing.

It's a good thing because money
is the arteries of the economy,
the blood supply of the economy.

Markets are subject to
bouts of euphoria and despair.

And it makes sense
for governments
to back currency and
to manipulate it.

Moving the money
supply up and down
is the most powerful
way to sedate
that boom and bust cycle.

- [Voiceover] Manipulating
the supply of money
has short term and
long term consequences.

(instrumental music)

Central banks aim to
create new money carefully,
strategically and
very, very slowly.

Releasing more money
into the economy
cause prices to rise,
ideally by 2% every year.

That's supposed to
foster economic growth.

But, 2% inflation
means the buying power
of one cash dollar
in your pocket today,
will be 98 cents next year.
And less nearly
every year to come.

- Since 1913, when the
Federal Reserve took over
the United States dollar,
we've seen that the United
States dollar has decreased
in value 98%.

Inflation is a far higher tax
because on your income
you pay it just once.

If inflation is 2%,
you're paying a 2% tax
on your net worth
every single year.

Your net worth that
you held in currency.

- [Voiceover] So,
what does that mean?

If you earned a dollar in 1913,
you could buy 16
loaves of bread.

Today, a dollar
barely buys you one.

That's not a quaint notion of
how cheap things used to be.
It's proof that the
value of your cash
is slowly withering away.
That one dollar
invested at 2% in 1913
would now be worth 7
dollars and 24 cents.
More than a 600% return
versus a near-total loss.

- The U.S. dollar has gone
from being worth one dollar
to now being worth
about 4 cents,
so that's 96% of
its original value.
That's a direct result
of government control.
- [Voiceover] Governments
don't create money
from thin air all alone.
You play a key role in
the magic money machine.
- It's not really the central
banks that are the problem.
They are part of the problem.
But the real problem is
that we've given the power
to create money
to the same banks
that caused the
financial crisis.
- [Voiceover] We put our
paychecks and savings
into a bank account and
draw from it as we need it.
The banks are the custodians
of our money, right?
Wrong!
It is now the
property of the bank,
on their balance sheets.
They can do just about

anything they want with it,
for example create new money.
Here's how, your bank
account shows 100 dollars,
but the bank only holds
three and loans 97
to Bob to buy something.
In the bank's computers,
you still have 100 dollars
in your account.
But Bob now has 97 dollars
of new virtual money
in his account.
Just digits on a
computer screen.
There's no cash, no
gold, or anything else
backing up the new
numbers in Bob's account.
Just his promise to pay it back.
This is new money
created as debt.
When those 97 dollars
are spent, say in a shop,
the shop owner deposits
it into another bank
and it is lent out again
and again and again.
And each of these
people have numbers
in their accounts showing
that they own this money.
So your original 100
dollars has multiplied,
now there are over 3,300
dollars in the system.
This process of loaning
out far more money
than a bank actually
has, as cash on hand,
is called fractional
reserve banking.
- In the U.K., 97% of
the money that exists,

is just numbers in
the computer system.
And those numbers have
been created by the banks.
- [Voiceover] Banks earn
untold billions in interest
every year by creating
and lending virtual money.
What's more, banks don't
even need your deposit
to create new money.
If they consider someone
credit-worthy for a loan,
they can put new magic money
into his or her account,
and start charging interest.

- So, reporters
talk about Bitcoin
as though it's the
first digital currency.
But actually we use
digital currency
every time you
make a transaction
through internet banking,
or your bank card.
Actually it's not
only digital currency
it's digital currency
that is created by
the banks, essentially,
out of nothing.

- [Voiceover] In other
words, all new money is debt.
This is the part
of money creation
that isn't taught
in economics class.
Money in paychecks,
bank accounts,
401ks, that loan to
Bob, credit card debt,
your homeloan, all began
life as virtual money

created by the banks.
The entire system
is based on trust.
Trust in the bank's solvency.
Trust in the debtor's
ability to repay their debt.
If all bank customers
demanded just 3%
of their deposits
right now, in cash,
this "run on the banks"
would reveal the truth.
Almost none that paper
currency you think
is in your bank account exists.
It never did.

(birds chirping)

Remember the drunken party?

(rock instrumental music)

Our financial crisis
had everything
to do with virtual dollars.
Too many people, with
very little income,
borrowed a lot of money
they could never repay.
But the banks didn't care.
They didn't have to.
They quickly made
and sold shaky loans
to someone else, for a profit.

- And I got them all approved.

- Hey!

(laughter)

- Apply now.

- [Voiceover] Selling bad
loans was a good business,
until the whole thing blew up
in a global financial crisis.
The magic money machine
destroyed 30 million real jobs.
The United States alone
lost 16 trillion dollars
in household wealth.

And the banks foreclosed on
more than 1 million homes.
(angelic instrumental music)
Selling subprime loans and
betting they will fail,
may not be sacred,
but it is lucrative.
As much as a quarter of
our best and brightest
are being lured by the siren
call of the money machine.
Instead of science, engineering,
or medicine, they chose
a career playing with,
betting with, other
people's money
to get rich quick.
Very rich.
And sometimes, they
take shortcuts.
Get by on a nickle and a dime,
Money has a funny
way of bringing us down
They say it makes the
world go round and around
- My ancestors in Greece talked
about the corrupting
influence of power.
And nothing has changed
in these 3,000 years.
When you give control of
a massive amounts of money
to a few individuals,
they will take advantage
of that control.
Oh, oh, oh
- Banks today are
factoring in fines
and money laundering and all
the rules that they break
into their cost
of doing business.
JP Morgan is today
coming out and saying

that Bitcoin is not a legitimate way of doing business.

Banks today are tied into a system that is completely rigged to basically harvest money from the entire global economy and pump it into the hands of the very few.

Don't get consumed by your greed

La la la la la la

- The existing banking system is cozy.

It's captured the regulators, it extracts enormous value from society without delivering anything in return and it is parasitic in nature.

- The banks play a very pivotal role in an economy.

You look at any successful economy it has successful banks.

There is a very close correlation with banking profits and the economy as a whole.

- [Voiceover] In Medieval Europe, a banker who couldn't repay depositors was hanged.

Today, that same banker would get bailed out, paid bonuses and enjoy some tax benefits, too.

To date, no senior U.S. banking executive has been charged for selling the bad loans that fueled the great recession.

In December 2014, just 6 years after the last banking crisis brought the world to its knees, a Congressman snuck a

last minute provision,
written by Citigroup into
a crucial funding bill.
The provision allows
the largest U.S. banks
to once again make
risky derivatives bets
with bank deposits.
But no need to worry,
if the banks implode again,
lost deposits must be paid back
by U.S. taxpayers.

(bell rings)

Today's financial
innovators package assets
in ever more complex
ways, slicing, dicing,
securitizing, always using
someone else's money.
They sell debt, transfer
risks, leverage bets.
That's what they
call innovation.

- When you're talking
about financial innovation,
Bitcoin certainly is
a very good example
of innovation, but
there's also been
other innovations that people,
a bit closer to the
world of finance
would cite as good examples.
An example of that would be
the original swaps market,
from there moving on to
the credit default swap.
It is an excellent example
of financial innovation.
But also if it's
used incorrectly,
it can create a lot of
problems as we've just seen.

- [Voiceover] History teaches

that the most revolutionary
and disruptive innovation
nearly always comes
from the fringe, not
from corporate cubicles.
True innovators see
the world differently.
They see the big picture.
Creating new products
and entire systems
that lead to new industries.
Steve Jobs called them the
"square cogs in round holes".

- It's unsurprising
that new innovations
always come from a niche
group of early adopters
because it is inherently
very hard for many people
to realize the benefits
of new technologies.
In 2011, most Bitcoin
community people
were either
people from the technology
space, the geeks and hackers,
or people from the traditional
financial industry.
There are even some bankers
and hedge fund traders
using Bitcoinica at
that time as well,
which was really
surprising to me.

- [Voiceover] A radical
new idea is often met
with skepticism,
ridicule, even hostility
from those who stand to
lose most from its success.
Case in point, the automobile.
In the late 19th
century, Karl Benz
and others built the first cars,

contraptions that could threaten the stagecoach and railroad industries. These "self-propelled vehicles'" or road trains, would certainly scare horses, injure people and damage roads. Cars, the railroad barons said, were just too dangerous. And to protect us, they used their power to pass a law in 1865. It required every automobile in England to observe a four mile per hour speed limit and to be operated by a crew of three, a driver, an engineer and a flag man. This heroic flagman walked in front of the car to warn fellow citizens of the coming danger. The railroad tycoons, the lawmakers, the self-appointed gatekeepers used regulation to stifle innovation. But they didn't invent the flagman. He's been around for a long time. For centuries, very few could read. Books were copied by hand. The people in control, political and religious leaders, wanted to keep it that way. And they greeted Johann Gutenberg's printing press with licensing laws, publishing bans, taxes.

In some parts of the world,
printing was a crime,
punishable by death.
After all, they were
just protecting us
from dangerous ideas.
Before the printing
press, there were
an estimated 30,000
books in all of Europe.
50 years later, there
were 10 million.
As Gutenberg's
invention flourished,
the Dark Ages withered.
Progress couldn't be stopped.
But the flagman
never stops trying.
His masters set
him loose on each
of these innovations
because they threatened
someone's profits,
someone's control.
But remember, this is
a story about money.
What if a technological
innovation allowed anyone
in the world to
be their own bank,
to create a currency free
from taxes and banking fees?
The U.S. Constitution forbids
citizens from printing
or minting their own
currency, competing with
or undercutting reliance
on the U.S. dollar.
In 1998, Bernard
von Nothaus decided
to test the resolve of
the federal government.
- The Liberty Dollar
was available in gold,

silver, platinum, and copper.
It was available in three
forms, both in specie,
in other words, gold and silver,
in paper, as warehouse
receipts and in digital form.

Obviously, the government
didn't like it.

They arrested me
and convicted me
of counterfeiting,
fraud, and conspiracy.

And Im currently
awaiting 22 years sentence
in federal prison.

- [Voiceover] Lesson learned.

- At a hacker's
convention in Netherlands,
there was a young hacker there
who used the alias
of Satoshi Nakamoto,
and he talked to
a friend of mine
and he identified the
Liberty Dollar and me
as inspiring him to
create a new currency.

- [Voiceover] Bernard
von Nothaus's arrest
for creating "private money",
may also have inspired
Bitcoin's inventor
to keep a lower profile,
publishing the
invention under an alias
and vanishing.

- Part of me is interested
to know who Satoshi is.
Maybe that's part of the
mystique of the story,
it's completely irrelevant
to the functioning of Bitcoin
because we have
the code to read.

But it would be
kind of fun to know.
- Who is Archimedes?
Who is Euclid?
We don't know.
We don't know if Euclid was
one person or multiple people?
And you know what?
It doesn't matter.
Euclidian geometry works
whether I know who
Euclid was or not.
Whether Euclid was a
moral and good person.
Or whether he was a corrupt
plutocrat and a bastard.
Science and mathematics
have essential truths
that stands alone
irrespective of its inventors
and irrespective
of their motives.
Well, Bitcoin is a system based
on mathematical truths.
And these mathematical
truths stand alone.
We can read the
source code in Bitcoin
and understand it
and it will be true
whether Satoshi Nakamoto
is a man, a woman,
a collection of individuals,
a government agency
or aliens from the future.
- [Voiceover] Bitcoin
is digital currency
and computer software.
Capital B Bitcoin
is the shared code
that creates a global
payment network,
using computers connected
to the internet.

Bitcoins are virtual currency.
Digital money created, stored
and exchanged on that network.
But unlike virtual dollars
created by a banker,
this new currency
was created with math
by an anonymous inventor.
Bitcoin is an open-source
software protocol,
like much of the code supporting
the internet and email.
Open-source means anyone,
everyone can use the protocol.
No one person or
company can control it.
Every change to the
software is public,
open and transparent.
The code was first
developed by Satoshi.
Then there were
dozens, now hundreds
of programmers
constantly collaborating
to improve Bitcoin's
features and security.
So what makes Bitcoin
a breakthrough?
It tackles an
ancient human dilemma
and solves a computer
science problem.
Any shared information, or data
can be flawed, corrupted.
Anything can be faked.
How do we know that what we're
receiving can be trusted?
- In our traditional mindset,
it's very important
to know who is behind
this currency because
their reputation
is significant in

knowing that our funds
in the true wealth
is actually safe.

- [Voiceover] In
finance, we rely
on trusted third
parties like banks,
credit card companies,
remittance services.
They keep track of
money as it moves
from one account to another.
And they charge us
handsomely for it.
We trust that their
digital ledgers of credits
and debits balance.
A financial system that
cuts out these middlemen
could be faster, cheaper
and more secure.
But Bitcoin is digital.
Music and movies are easily
pirated, copied, stolen.
How can a digital
currency retain value
if anyone can make
a million copies?
The answer is at the core
of Satoshi's invention.
A Bitcoin is not a
file on a computer.
It's an entry in the
publicly- distributed database
called the blockchain.
Just as the Medici kept a
ledger of credits and debits.
Today's banks record
each transaction
as a plus and minus
in their ledgers.
Now we call them databases.
Bank accounts are replaced
by a digital wallet

that you alone control.
Bitcoin's ledger
is the blockchain.
A record of every
bitcoin in existence
and every bitcoin
transaction ever made.
It always balances because
no bitcoin ever leaves it.
When a bitcoin is "sent"
from one digital wallet
to another, what they
are really sending
is control over that
part of the database.
Code that is a unique
key for the new owner.
As the network
processes transactions,
it constantly synchronizes
the one ledger
across the global network.
Each computer, or Bitcoin miner,
has a complete and
identical copy.
And because the
blockchain is public,
it cannot be controlled by
any one person or computer.
Owners of the Bitcoin
mining computers
are rewarded with new Bitcoins
for processing transactions
and keeping the network secure.
In other words, the Bitcoin
network replaces banks
and bankers.
Today, the combined
computing power
of this global
network is greater
than the 500 biggest
supercomputers combined,
times 10,000!

And because every
transaction is verified
and recorded by the network,
a bitcoin cannot be forged.
Digital currency cannot be
debased with cheap metals,
or printed by the
billion at will.
Too much currency can
unleash a monster,
skyrocketing prices,
trillion dollar bills
that can't buy a loaf of bread.

- There is a big movement
in the U.S. demanding
that the Fed be audited so
that we can find out
what they are doing.
Nobody really knows
how many dollars
are in existence for example.
Ben Bernanke created
several trillions
of dollars over the
last several years.
But nobody really knows
where they landed.

- At any time for any reason,
the central banks can print
as much money as they want.
They call it fancy things
like quantitative easing.
And when they do that
it makes the dollar
or euros or yen that you
and I have worth less.
So if the world starts using
bitcoin as their currency
it can't be controlled by
central bankers or politicians.

- [Voiceover] Remember,
central banks create money
to boost the economy and try
to pull it back out

before inflation heats up.
But no one knows how much
magic money global banks
are creating to boost their
profits with questionable loans.

- Bitcoin is completely
the opposite.

It's totally transparent.
You know exactly how many exist.

- [Voiceover] The computer
code behind Bitcoin
has a built in brake pedal,
cutting the creation of bitcoins
in half every four years.

This ensures a transparent
controlled scarcity
and ultimately limits the
total number of bitcoins
to 21 million.

No lobbyist, no politician,
no banker can create more,
or change the mathematical
rules dictating their creation.

- Advancing accountability.
And that's something that's
the most exciting about Bitcoin
and technology behind it.

Is not so much that it
will supplant the dollar
or that it will supplant
government itself.

But all of a sudden there is
a competitor to government.

And that government
itself now needs
to look over its shoulder
more than it did.

- [Voiceover] This
new digital currency
can be purchased online
with a credit card
or in person with cash.
And it has the five key
characteristics of money.

But is it a store of value?
Is it stable or will
it diminish over time,
like a commodity rendered
useless, or a crop that fails?
The ultimate power
of a cryptocurrency
is unleashed by
mainstream adoption
and an ever-growing
volume of transactions.

- With bitcoin, the
currency is being created
much more slowly than
other currencies.

And the effect of that has been
to turn it into what is
essentially a speculative asset.
If you ask a lot of
Bitcoin enthusiasts
whether they are spending
the currency, they're not.
They're sitting on it and
waiting for the price to go up.
It isn't a currency if you
don't use it to pay people.
The point is that the
average person is quite happy
to walk into a bar and hand
over a five dollar note
in order to get a drink.
So you've got to
realize that most people
are happy with the
money system they have.

- [Voiceover] If most
people are happy with cash,
they're in love with plastic.
In the U.S. two-thirds
of in-person sales
are done with debit
or credit cards.
That plastic is a 60
year old technology,

created by a middleman.
Never designed for the internet.
Each transaction
requires personal data
like your name and address.
Credit card databases
are regularly hacked
with fraudulent purchases
charged to your account.
Criminals buy and sell
stolen credit cards
by the thousands in dark
corners of the internet.
In some parts of
London, one-third
of all online credit card
transactions are fraudulent.
Card issuers don't hold
you responsible for fraud
but protection
comes with a price,
2 to 4% in fees.
That's 50 billion
dollars a year.

- The issue with credit cards
from the merchant's perspective
is there's a lot of risk.
If they take a credit card,
there might be a chargeback,
there might be
fraudulent purchases.
In fact there are
hundreds of billions
of dollars every year
in fraudulent purchases.

- [Voiceover] A bitcoin
purchase is done for pennies
but there are no protections.
If you lose your passwords,
or are fooled into
paying the wrong person,
you can never get
your money back.
It is like digital cash.

For a seller, this means
no chargeback risks.

For an e-commerce companies
like Expedia or Overstock,
cutting credit card fees can
double their profit margin.

- You could not miss the
point more effectively
than by thinking of
bitcoin as a currency
and payment network that
will make shopping easier
for the first world.

Bitcoin is about everything
else, everywhere else.

- [Voiceover] There
are 2.5 billion people
without a bank account.
With Bitcoin, a mobile phone
with an internet connection
is now a bank, with access
to the global market place.

- What happens when
Bitcoin services
and infrastructure
and Bitcoin wallets
and payment processors start
going into these countries.
These people will be
able to gain benefits
from trade where they
could not previously.
These people will be
able to send money home,
international
remittance, which is one
of the major pain points of
the current financial system.
- Here, if I send 100 dollars.
With banks it's
going to cost me 20%.
Western Union's
going to cost 10%.
Other options that are

competing with Western Union
are still going to be about 5%.
And if you are sending
to really remote areas
it's going to be anywhere
between 15 and 30%.

- So in terms of
money remittances
it is going to be a game
changer using Bitcoin.
You do not need a bank account.
You just need an
internet connection
and a wallet to get set up.
It's a tool to give
people an access
into the global ecosystem
and give them a promise
for an economic future and
specifically provide a way
for them to not be
dependent on a government
that could shut down
their bank accounts
or even could go into
their bank accounts
and take out finances.

- Goldman Sachs came
out with a report
and they basically looked at
if you were to replace
all transactions globally,
so FX, bank to bank transactions
with the Bitcoin protocol and
still charging 1%, mind you,
it would save the global
economy 200 billion,
not million, 200
billion dollars a year
in saved transaction costs
which ultimately goes back
into the hands of the consumer.

- [Voiceover] An
international wire transfer

can take up to four days.

Yet the internet
allows us to instantly
and globally share
text, pictures, videos,
anything digital.

Why not money?

Money, which, we
now know only exists
as digits in a bank's database?

- Wouldn't it be great,
if you could send
Bitcoin transactions
just simply via a tweet?

For example, you would
say @theendofmoney
one dollar worth of bitcoin
and so we built just that.
All you have to do is to
hashtag it with tippercoin.
Press send.

And our twitterbot will
process the transactions,
notify you and give you a
link and this will allow you
to either withdraw your bitcoins
or send it to someone else.

- With Bitcoin, you
can send one dollar
or 1,000,000 dollars worth of
value anywhere in the world.

You can do it for free
or you can pay the
Bitcoin network fee,
which is still just
around a penny.

And there is nothing
that the big banks
or the politicians
can do to stop it.

- [Voiceover] A cryptocurrency
that can only be created
and transferred with
computer networks

may be the next step of
the digital revolution.

The rise of machines.
Self-driving cars, drones,
robots that rely less
and less on humans.

- What I often think is
that the future of Bitcoin
or digital currency from
a broader perspective
is really about machine
to machine payments.

So by the time you have an
un-manned taxi driving you
around New York, and
then going to power up
at an unmanned power station,
or going to get repairs
at an un-manned auto shop.
You'll see the machine
to machine payments done
with some sort of
digital currency.

- We actually built this
world that we live in
over the last two or 300 years.

We made some mistakes.

We've learnt to
make things better.

The idea that there
is this magic key
that if you just sort of
stop doing a few things,
that they'll be perfect
order that will settle,
is a very childish,
ideological delusion
in my opinion.

But that's not to say
that Bitcoin isn't
an exciting thing.

It's an terrifically
exciting thing.

But we have to try

and engage with it
with working minds not
with magical thinking.

- People are suggesting
that it's going
to be another world currency
rivaling the dollar, or
the euro, or the yen.
I think that's not
going to happen.
I prefer to trust the banks
or the central government
compared to the Bitcoin is
because someone is accountable.
Whereas with the Bitcoin it
is completely deregulated.
There is no central control.
There is no one
held accountable.
It is a free float, purely
demand and supply driven.

- So, clearly, this
is not a currency.
Currencies don't
behave like this.
But what this is is a high-risk,
speculative commodity.

- So, for the
entrepreneurs, the bankers,
the governments and
anyone else studying
and watching Bitcoin,
all I have to say
is that there will probably
be a lot of volatility
in an upward trajectory
and to buckle up.

- [Voiceover] Criminals,
scam artists, bad actors,
are drawn to any kind of
money like a moth to a flame.

- Silk Road was a
marketplace that was online.
it existed in the

underground web.

Now this marketplace
allowed people
to sell things that were
illegal to governments.

- [Voiceover] Fake
ID's, pirated music,
bibles in North Korea.

Are cryptocurrencies
inherently bad
or just the newest tool
to acquire the forbidden?

- Porn is illegal in Iran.

Well, there was a few
percentages of sales
on Silk Road was to
sell porn to Iranians.

Now, a much broader one,
that gets a lot of press for
the guys at Silk Road is drugs.

- I've been doing research
over the past couple of years
into the online
drug marketplaces
in the Dark net
using TOR and Bitcoin
as technologies to enable
illicit drug transactions.

We did a global
survey of drug users
and we had over
20,000 people respond
to that and the
majority of those people
were buying traditionally
illicit drugs.

Ecstasy, cannabis.

The F.B.I. brought
down Silk Road.

It certainly hasn't
stopped the trading
of illicit drugs online.

- A lot of people want
to criticize Bitcoin

for the use for illegal things or illicit things. But if you look at it, the most popular currency in the entire world for doing bad things is the U.S. dollar.

- If you think of Bitcoin as a platform instead of a currency then you really begin to see the potential it has.
- The ledger which cannot be forged, it cannot be changed and is universally accepted is Genius. There will be Bitcoin technology forever and it will have applications for years to come.
- [Voiceover] Creating a secure, global payment system may just be the beginning. Patents, contracts, land titles, proof of ownership can be baked into Bitcoin. Securely held in the public ledger.
- I read up more about Bitcoin. I played with the source code. I built some things that I realized, this is a actually a very, very powerful protocol. It's not just a currency but it's actually programmable money.
- [Voiceover] The digital age has fundamentally changed the world. We have embraced digitized music, film, medical records, communications, the internet. The free exchange of information

and currency can
fuel revolutions,
help in a disaster.
But our money is shackled
to the 20th century,
manipulated by
governments and banks.
The champions of Bitcoin ask us
to imagine payments
without a middle man.
Investments without a broker.
Loans without a bank.
Insurance without
an underwriter.
Charity without a trustee.
Escrow without an agent.
Betting without a bookie.
Record keeping
without an accountant.
Global, secure, nearly instant
and free.
Is it fantasy or the future
of money and commerce?
(intense instrumental music)
- I love bitcoins.
I'm really into bitcoins.
Well Satoshi Nakamoto
That's a name I love to say
And we don't know
much about him
But he came to save the day
If you don't know what
a Bitcoin is, right,
usually the way
people describe it
is a digital cash.
It's money for the internet.
Bitcoin as your going
into the old blockchain
Oh Bitcoin, I know you're
going to reign, gonna reign.
They were like, "oh,
I love my bank."
I'm like, "really?"

You ask a banker, "you
know what's two plus two?"
He's like, "well, I can
tell ya but there's a fee."
(laughter)

Down the road it will be told
About the Death
of Old Mount Gox
About traitors
trading alter coins
And miners mining blocks
Now Bitcoins is
a new technology.
I like to say it's
banking (mumbling)
All of the convenience,
none of the evil.

(laughter)
Oh Bitcoin, as your going
into the old blockchain
Oh Bitcoin, I know you're
going to reign, gonna reign
Till everybody knows,
everybody knows
You know when I go in line
and I buy like, I don't
know, a pair of socks.
If I pay with a credit card
I'm just buying socks.
Right, if I buy those
socks with bitcoin,
it's a revolution.

(laughter)
I am sticking it to the man.
Oh Lord, pass me some more
There's always people
who are not ready
to get into the new technology.
You know, like when
the internet came out,
there was people going,
"nah, I don't think this
is going to be popular."
(laughter)

And then e-mail came out
and people were like,
"nah, this isn't
gonna catch on."
And now Bitcoin comes out,
people are like,
"I don't think,"
I'm like, "aren't you
sick of being wrong?"
"Get on this train."