# 2 P2P货币

**Peer-to-Peer Money**

**Reinvent Money at Erasmus University; 在大学里重新发明货币**

**Rotterdam, Netherlands; September 2015 荷兰鹿特丹**

Video Link: <https://www.youtube.com/watch?v=n-EpKQ6xIJs>

A lot of people ask me to talk about the latest things in bitcoin, but what I really want to talk about is ancient history. I want to provide a historical context for money and talk about why bitcoin is important in this historical context.

很多人让我谈谈一下比特币的最新情况，但我真正想谈论的是古代历史。

我想提供一个关于钱的历史背景，并谈谈为什么在这个历史背景下，为啥凶狠么比特币是重要的。

## 2.1货币的历史有多长？

**How Old Is Money?**

First, a little pop quiz for the audience: If you think of money as technology, as a technological system that human civilization has invented, how old is this technology? Any ideas? Audience responds with wildly varying answers.

首先，对观众进行一次小的测试：如果你把货币看作技术，作为人类文明发明的一个技术体系，那么这项技术的历史有多长？有概念吗？观众反应激烈，答案各异。

Lots of different answers here. It’s always surprising to me that people say, it’s 400 years old, 1000 years old, 2000 years old. In fact, we don’t really know how old money is. Part of the reason we don’t know how old money is, is because we have yet to discover a civilization so old that it didn’t have money. We know money is as old as civilization.

这里有很多不同的答案。让我总是感到惊讶的是，人们说400年、1000年、2000年。

事实上，我们真的不知道货币的历史有多长。

部分原因是因为我们还没有发现一个不使用货币的古老文明。我们知道的是，货币和文明一样古老。

*"Money is as old as civilization."*

One thing that surprises people is that money is older than writing. We know this because when we look at archeological discoveries of writing, we find hieroglyphics and we find cuneiform. When we look at all of these ancient forms of writing, guess what they’re writing about? Money. They’re writing ledgers. All of the ancient writing we find, the first forms of writing, are ledgers. They are writing about money. Because money is older than writing.

让人惊讶的是，货币比书写更古老。

我们知道这一点，是因为当我们看到了书写的考古发现，我们发现了象形文字，我们发现了楔形文字。

当我们看到所有这些古老的书写形式时，猜猜他们在写什么？货币。他们在记账。

我们发现的所有古代写作，第一种写作形式都是账目。他们在写关于货币的事。因为货币比书写更古老。

Is money older than the wheel? I don’t know, but we do know that wheels were used as money. Perhaps the first wheel was sold for money or was used as a form of money itself. Archeological sites going back into the Stone Age have revealed the presence of money in the form of shells and feathers and beads.

货币比车轮还古老吗？我不知道，但我们知道轮子被用作货币。

也许第一轮子被卖了赚钱，或本身就本用作货币的一种形式。

回到石器时代的考古遗址，已经揭示出，货币的形式有贝壳、羽毛和珠子。

In fact, we can teach primates how to use money. There have been several studies where chimpanzees are taught how to use money. They are taught that a specific type of stone can be exchanged for bananas. Researchers then watch the monkeys to see what they will do with this new information. They very quickly invent armed robbery. They figure out that if you beat up the other monkey and take its stones, you can exchange them for bananas. Surprisingly, the second thing they invent is prostitution. They figure out that sexual favors can be exchanged for stones, which can be used for bananas. What does that tell you about the nature of money?

事实上，我们可以教灵长类动物如何使用货币。

已经有过几项研究，黑猩猩被教导如何使用货币。

他们被教导，一种特定类型的石头可以交换香蕉。然后研究人员观察猴子们将如何处理这些新信息。

他们很快就发明了暴力抢劫。它们发现，如果把另一只猴子打败，获得了它的石头，就可以把它们换成香蕉。

令人惊讶的是，他们发明的第二件事是卖淫。他们发现，性喜好可以换取石头，可以用来得到香蕉。

这些能告诉货币的本质吗？

I think the important insight into the nature of money is that money is a form of communication. At its very basic level, money isn’t value. Money represents an abstraction of value; it’s a way of communicating value. It’s a language. Therefore, money is as old as language because the ability to communicate value is as old as language and money. In many ways, it has characteristics that make it a linguistic construct. It’s a form of communication.

我认为对货币本质的重要认识是，金钱是一种交流形式。

在最基本的层面上，货币不是价值。货币代表一种价值的抽象；是交流价值的一种方式。

它是一种语言。因此，货币和语言一样古老，因为交流价值的能力与语言和货币一样古老。

在许多方面，它具有使其成为语言结构的特征。它是一种交流方式。

"We use money to communicate value to each other, to express to each other how much we value a product, a service, a gesture."

“我们用货币互相交流价值，向对方表达我们认为一种产品、服务、姿态的价值有多少。”

We use money to communicate value to each other, to express to each other how much we value a product, a service, a gesture. We use it as the basis of social interaction because by communicating value to each other, we create social bonds. So, money is also a very important social construct. This is an ancient technology. Yet, ironically, it’s one of the technologies that is least studied from a historical and technology perspective. We look at bitcoin today and it represents an invention, a new form of money. Let’s think about that for a moment.

我们用货币互相交流价值，向对方表达我们认为一种产品、服务、姿态的价值有多少。

我们把它用作社会互动的基础，因为通过相互交流价值，我们创造了社会纽带。

所以，货币也是一个非常重要的社会构件。这是一项古老的技术。

然而，具有讽刺意味的是，从历史和技术的角度来看，这是最不被研究的技术之一。

我们今天看比特币，它代表了一项发明，一种新的货币形式。让我们考虑一下。

## 2.2货币的技术演进

**Technological Evolution of Money**

How often has the technology of money been transformed by invention? How many different forms of money have existed? At a very basic level, a way to communicate value is to exchange things that we consider of equal value. "Here is a goat. I will take 20 bananas for my goat." That’s not really money because it’s a barter transaction, but it’s the first form of communication about value.

货币的技术是否经常被发明转变？有多少种不同形式的货币存在？

在一个非常基本的层面上，一种沟通价值的方式是交换我们认为有同等价值的东西。

“我有一只山羊。我要用它换20只香蕉。”

这不是真正的货币，因为这是易货交易，但这是第一种交流价值的方式。

### 2.2.1易货到贵金属

**Barter to Precious Metals**

Then, we start seeing abstract forms of money. The first major technological evolution is to start exchanging something that you can’t eat—a feather, a bead, a string with knots on it, a colorful something that can be used for aesthetic purposes. That’s when money takes an abstract form. The first major transformational technology moment for money was when money stopped being about the tangible consumption of intrinsic value, but became something that referred to value, as an abstraction.

然后，我们开始看到抽象形式的货币。

第一个主要的技术演进是开始交换一些你不能吃的东西：羽毛、珠子、带结的绳子、可用于审美目的的艳丽的东西。

货币的第一个重大变革技术时刻是，货币不再是内在价值的有形消费，而是作为一种抽象，表示价值的某种东西。

"The first major transformational technology moment for money was when money stopped being about the tangible consumption of intrinsic value, but became something that referred to value, as an abstraction. One of the most popular forms of these abstractions was to use precious metals to express value."

货币的第一个重大变革技术时刻是，货币不再是内在价值的有形消费，而是作为一种抽象，表示价值的某种东西。其中一个最流行的抽象形式是使用贵金属来表达价值。

One of the most popular forms of these abstractions was to use precious metals to express value. Precious metals combine some of the most important characteristics of money: hard to find (scarce); easily transportable (at least when compared to a giant rock or a whole barrel of feathers); easy to divide (you can cut a gold coin into pieces and subdivide the pieces); and universally valued for aesthetic purposes. That’s the second major transformation in money technology. It took hundreds of thousands of years before we saw the introduction of precious metals. Historically, we start seeing precious metals in the beginning of the agrarian civilizations in the Fertile Crescent area in the Middle East. The Babylonians, the Egyptians, and the Greeks developed these precious metals.

其中一个最流行的抽象形式是使用贵金属来表达价值。

贵金属结合了货币的一些最重要的特征：

* 很难找到（稀有）
* 易于运输（至少相比于一块巨石或一桶羽毛）
* 易于分割（你可以把金币切成碎片）
* 出于审美目的而普遍重视

这是货币技术的第二次重大转变。我们花了几十万年才看到贵金属的引入。

历史上，我们在中东肥沃新月地带的农业文明的开始期看到了贵金属。

巴比伦人、埃及人和希腊人发展了这些贵金属。

### 2.2.2贵金属到纸

**Precious Metals to Paper**

Two major technological evolutions and then nothing for a few thousand years. Then someone came up with a brilliant idea: If I deposit gold with someone trustworthy, they can give me a piece of paper that says that I have gold in this trustworthy vault. Then I could trade the paper instead of the gold. It’s easier to carry. As long as I can trust that my money is in the vault, then I’ve got a new form of money.

两个主要的技术演变，然后几千年什么也没变。

然后有人想出了一个绝妙的主意：如果我把黄金存放在值得信赖的人那里，他们可以给我一张纸，上面写着，我在这个值得信赖的金库里有金子。然后我可以交换纸，而不是黄金。纸更容易携带。只要我相信我的钱在金库里，我就有了一种新的货币形式。

With every technological evolution in money, there is skepticism. But I think this might be the moment of the greatest amount of skepticism in human civilization. For a lot of people, this new invention of money as paper was somewhat controversial. You think people are freaking out about bitcoin? Imagine how much they freaked out when you told them that now, instead of trading in gold, they would trade in pieces of paper. For a lot of people, this was unthinkable. I mean, after all, clearly this paper does not have any real value. It took about 400 years for paper, as money, to become accepted broadly. It was a big aberration.

随着货币的每一次技术演进，都存在怀疑。

但我认为，这次可能是人类文明中最为怀疑的时刻。

对于很多人来说，这个新发明有点儿争议。你认为人们对比特币感到恐慌吗？

想象一下，当你告诉他们现在不用黄金交易，而用纸币交易时，他们会多恐慌。

对很多人来说，这是不可想象的。我的意思是，毕竟，这张纸显然没有任何实际价值。

纸作为货币比广泛接受，大约花了400年时间。这是一个很大的异常行为。

*"You think people are freaking out about bitcoin? Imagine how much they freaked out when you told them that now, instead of trading in gold, they would trade in pieces of paper."*

### 2.2.3纸到塑料

**Paper to Plastic**

Then, about 60 years ago, we saw a new form of money in the form of plastic cards. In fact, the first cards were paper again. In the United States, Diners Club was the first to create a credit card, which was a form of traveler’s cheque. Then, people took that and they said, “This isn’t money. Why don’t you give me some of the good old paper money that I know?" That was another big transformation in money.

然后，大约60年前，我们看到了一种新的货币形式——塑料卡片。

事实上，第一张卡片也是纸质的。在美国，Diners Club第一个创造了一张信用卡，它是一张旅行支票的形式。然后，人们拿着它说：“这不是钱，你为什么不给我一些好的旧纸币？”这是货币的又一次重大转变。

### 2.2.4塑料到比特币

**Plastic to Bitcoin**

Now, we have bitcoin. Bitcoin is, in my mind, a pretty radical transformation. It’s as radical as the change from precious metals to paper money. Perhaps even more radical. So what is bitcoin? The fundamental issue in describing bitcoin is that if you use references to our existing experience, that experience is based on thousands of years of understanding what money is in a very physical form. Now, we’re trying to explain a form of money that is completely abstract. "It’s a token that represents acceptance in a network, a network-centric form of money.” But that doesn’t even begin to describe what this thing is.

现在，我们有了比特币。在我看来，比特币是一个相当激进的转变。

它就像从贵金属到纸币的变化一样激进。也许更激进。

那么比特币是什么呢？在描述比特币时，基本问题是，如果你使用我们现有的经验，那些经验是基于几千年来把货币理解为一种物理形式。

现在，我们试图解释一种完全抽象的货币形式。“这是一个token，代表网络上的承认，它是一个以网络为中心的货币形式。”但这还不足以描述这个东西是什么。

One of the most common misunderstandings, when I try to describe bitcoin, is that people think that it’s simply a payment system, that bitcoin is simply a form of digitization of money. It’s digital money. Great. Well, that’s kind of pointless because we already have digital money. All of you use digital money every day, long before bitcoin came along. You have bank accounts. Those bank accounts have digital ledgers. You use those bank accounts to send payments electronically. That’s digital money.

当我试图描述比特币时，最常见的误解之一是，人们认为它只是一种支付系统，比特币只是一种数字化的货币形式。它是数字货币。

这是毫无意义的，因为我们已经有了数字货币。

在比特币到来之前很久，你们每天都使用数字货币。

你有银行账户，那些银行账户有数字账目。你用那些银行账户来发送电子支付。那是数字货币。

"Bitcoin is a fundamental transformation of the technology of money."

“比特币是货币技术的一个根本转变。”

Bitcoin isn’t just digital money. Bitcoin is a fundamental transformation of the technology of money. It’s difficult to grasp because it’s so different from everything we’ve known before. So, I will take a different stab at it. I want to take a look at network architecture for a second.

比特币不仅仅是数字货币。比特币是货币技术的一个根本转变。

这很难理解，因为它和我们以前所知道的一切都不相同。

所以，我将采取不同的方式描述它。我想先看一下网络体系结构。

## 2.3转向一个网络为中心的，基于协议的时代

**Moving to a Network-Centric, Protocol-Based Era**

Bitcoin is not happening in a vacuum. It’s happening at a moment in history when we’re seeing a transformation of many fundamental social institutions. That transformation is the great network-centric era.

比特币不是从真空中冒出的。

它是发生在我们现在看到的许多基本社会结构发生转变的历史时刻。

这种转变是伟大的网络中心时代。

For centuries, social institutions were organized around hierarchical organizations: institutions, democracy, banking, education. All of our social interactions were organized by appeal to authority in these hierarchies, these bureaucracies of people. But something happened with the invention of the internet. We started seeing more and more of these social institutions changing from systems that were closed, opaque, unaccountable hierarchical complexes with their own rules, into platforms. We started seeing the introduction of systems that have interfaces, API’s that we can access, where information can flow in and out of the organization. So, we move from institutions to platforms.

几个世纪以来，社会机构都是围绕等级组织构成的：机构、民主、银行、教育。

我们所有的社会交往都是通过对这些等级中的权威来组织的，这些是官僚机构。

但是，随着互联网的发明，发生了一些事情。我们开始看到，越来越多的社会结构从封闭、不透明、不可解释的层级复合体（有自己的规则），向平台转变。

我们开始看到引入了有接口的系统，这是我们可以访问的API，信息从API从组织流入和流出。

因此，我们从机构走向平台。

Then, we start seeing an even more important transformation, when we move from platforms to protocols. The interesting thing about the change between a platform and a protocol is, when you have a protocol there is no central appeal. TCP/IP doesn’t work in reference to a service provider. TCP/IP works without context everywhere in the world. You don’t have to sign up for an account to use TCP/IP; you just have to use the language. Once you move from a platform to a language, it opens up all of these possibilities.

然后，我们开始看到一个更重要的转变：从平台转向协议。

对于这个变化，有趣的是：当你有了一个协议时，就没有了中心诉求。

TCP/IP并不是根据在服务提供商来工作。TCP/IP在世界各地都是没有背景。

你不必注册账户就可以使用TCP/IP，你只需使用这个语言即可。

一旦你从一个平台移到一个语言，它打开了所有这些可能性。

"Bitcoin is the first network-centric, protocol-based form of money. That means it exists without reference to an institutional or platform context."

比特币是第一个以网络为中心、基于协议的货币形式。

这意味着，它不用根据任何结构或平台背景，就可以存在。

Bitcoin is the first network-centric, protocol-based form of money. That means it exists without reference to an institutional or platform context. I’ll get back to that in a second, this is a really important point.

比特币是第一个以网络为中心、基于协议的货币形式。

这意味着，它不用根据任何结构或平台背景，就可以存在。

我很快会回到这一点，这是一个非常重要的点。

### 2.3.1 P2P架构

**Peer-to-Peer Architecture**

We say that bitcoin is peer-to-peer money. What does that mean? It refers to an architecture used in terms of computer science or networking or distributed systems to describe the relationship between participants and a system. The architecture of bitcoin is peer-to-peer because every participant in the network speaks the bitcoin protocol on an equal level. There are no special bitcoin nodes; all nodes are the same.

我们说比特币是P2P货币。这是什么意思？

它指的是，在计算机科学/网络或分布式系统中使用的一种体系结构，描述了参与者和系统之间的关系。

比特币的体系结构是P2P，因为网络中的每个参与者都在平等的水平上讲比特币协议。

没有特殊的比特币节点，所有节点都是相同的。

Peer-to-peer means that when you send out a transaction to the network, every peer treats it the same. It has no context inside the peer’s system other than what it gets from the network. An interesting issue in distributed systems is this issue of context and state. If you log in to Facebook and you have an account with Facebook, you’re not using a protocol. All of the state is controlled by Facebook. You have a login session and all of the data is held by them. We call that architecture client-server. Bitcoin is different because it’s peer-to-peer, just like email or TCP/IP.

P2P意味着，当你向网络发送一个交易时，每个peer对待它都是一样的。

除了从网络获取的内容之外，它在peer系统中没有任何上下文。

分布式系统中的一个有趣的问题是：上下文和状态的问题。

如果你登录到Facebook，并且你有一个Facebook帐户，你就不是在用一个协议。

所有的状态都由Facebook控制。你有一个登录会话，所有的数据都由他们保存。

我们称这个为C/S架构。比特币不是这样，因为它是P2P，就像email或TCP/IP。

### 2.3.2 C/S架构

**Client-Server Architecture**

We are reluctant to discuss money. In fact, it’s shocking that in almost all countries, money is not part of the education system. Five-year-olds have great questions about money. Most parents find it almost impossible to answer these questions. "What is money, Mommy? How does money work? Why do we not have more of it? Why can’t everyone have more of it?" You don’t say, "Suzy, go back to your room and study inflation, like a good girl, and don’t come back until you understand the answer to those questions!"

我们不愿意谈论钱。事实上，令人震惊的是，在几乎所有的国家，金钱不是教育体系的一部分。

五岁的孩子对于钱有很多问题。多数家长发现回答不了这些问题。

“钱是什么，妈妈？钱是怎么运作的？为什么我们没有更多的钱？为什么不能每个人都有更多的钱？”

你不会说：“Suzy，回你的房间去研究通货膨胀，就像一个好女孩一样，在你明白这些问题的答案之前，不要回来！”

We don’t discuss money. It’s interesting — we use a technology as a foundation of almost every aspect of social interaction, and yet it is a completely taboo subject. We all pretend that we don’t particularly care about money, at least not intrinsically. We have higher goals and aspirations. We use it in everyday experience but we don’t really talk about it. It’s a dirty topic.

我们不讨论钱。有趣的是，我们使用一种技术作为社会互动的几乎每个方面的基础，但它确实禁忌话题。

我们都假装我们并不特别关心钱，至少本质上的是不关心的。

我们有更高的目标和抱负。我们在日常生活中使用它，但我们并没有真正谈论它。这是一个肮脏的话题。

I think the architecture has something to do with it. Before bitcoin, the previous iteration of money — when money started being issued in exchange for precious metals stored in a vault — what that represented was a form of debt. That’s a really important concept to understand because it colors our discussion.

我认为这个架构与它有关系。

在比特币之前，货币的前一次迭代，当时开始发行货币以交换金库里的贵金属时，那代表的是一种债务形式。这是一个非常重要的概念，因为它会影响我们的讨论。

*"Before bitcoin, the previous iteration of money — when money started being issued in exchange for precious metals stored in a vault — what that represented was a form of debt."*

在比特币之前，货币的前一次迭代，当时开始发行货币以交换金库里的贵金属时，那代表的是一种债务形式。

How many of you have money in a bank? None of you has money in a bank. Do you store physical money in a safe deposit box? If so, maybe then you could say you have money in a bank. The rest of you have loaned your money to a bank. For the privilege of loaning your money to a bank, you will be paid the amazing interest rate of 0.00001 percent per year. Your bank will take that money, turn around, and loan it to the people standing next to you for 24.99 percent APR.

你们当中有多少人在银行里有钱？没有人在银行里有钱。

你把实物货币存放在保险箱里吗？如果是这样，也许你可以说你在银行有钱。

其余的人是把钱借给银行。如果你把钱借给银行，你每年将得到0.00001%的利率。银行会把这些钱转借给其他人，年利率是24.99%。

"This is a client-server relationship. Because that money only exists as a form of debt in a ledger that you do not control. A ledger that is stored by a server, and you are simply a client. In fact, you have no control over it at all."

This is a client-server relationship. Because that money only exists as a form of debt in a ledger that you do not control. A ledger that is stored by a server, and you are simply a client. In fact, you have no control over it at all. You don’t even have basic interfaces to that money unless that interface is mediated by the server. That’s what a client-server architecture does.

这是一种C/S关系。因为这些钱只是作为一种债务形式存在于账本中，你无法控制它。

服务器存储的一个账本，你只是一个客户。事实上，你根本无法控制它。

你甚至对那些钱没有基本的接口，除非服务器斡旋那个接口。这就是C/S架构所做的事情。

### 2.3.3主从架构

**Master-Slave Architecture**

We have another term in distributed systems that describes a particular form of client-server architecture, where the secondary party only has a weak copy that isn’t really meaningful. We call that a master-slave architecture. If you think of the previous iteration of money as a master-slave architecture, you have to ask an uncomfortable question: Who is the slave? Because in a system of debt, one of the two parties is always the slave.

在分布式系统中，我们有另一个术语描述了一种特殊形式的C/S架构，辅助方只有一个弱拷贝，而那没有真正的意义。我们称之为主从架构。

如果你把前一个货币迭代看做一种主从架构，你必须要问一个问题：谁是slave？因为在债务系统中，其中一方是slave。

"…in a system of debt, one of the two parties is always the slave."

You are the client. You are not the server. The server doesn’t really serve you; they serve themselves because they’re the master. That is the architecture of money we live in. That is the architecture of money we use in our civilization: an architecture of money where you have no control; an architecture of money where every interaction is mediated by a third party that has absolute control over that money.

你是客户。你不是服务器。服务器并不真正为你服务，他们为自己服务，因为他们是主人。

这就是我们生活中的货币体系。这就是在我们的文明中使用的货币体系：

一个你无法控制的货币体系；在这个货币体系中，每个交互都要由第三方介入，它对货币有绝对的控制。

Today, if you go to an ATM machine and you put in your card, the bank may decide to give you your money. One day—as the people of Cyprus, Greece, Venezuela, Argentina, Bolivia, Brazil, and a list of hundreds of countries over the last several decades and even centuries have discovered—one day, you go to the bank and the bank does not want to give you the money, because they don’t have to. That’s the essence of a master-slave relationship.

今天，如果你去ATM机，你插入你的卡，银行可能会决定给你钱。

有一天，你去银行，银行不想给你钱，因为它们不必给你钱。

在过去几十年，甚至几百年里，塞浦路斯、希腊、委内瑞拉、阿根廷、玻利维亚、巴西和数百个国家发生过这样的事情。

这就是主从关系的本质。

"Bitcoin is fundamentally different because in bitcoin, you don’t owe anyone anything and no one owes you anything. It’s not a system based on debt."

比特币是根本不同的，因为在比特币中，你不欠任何人东西，也没有人欠你任何东西。

它不是一个基于债务的系统。

Bitcoin is fundamentally different because in bitcoin, you don’t owe anyone anything and no one owes you anything. It’s not a system based on debt. It’s a system based on ownership of this abstract token. Absolute ownership. We have an expression in the United States, which is “possession is nine-tenths of the law.” In bitcoin, possession is ten-tenths of the law. If you control the bitcoin keys, it’s your bitcoin. If you don’t control the bitcoin keys, it’s not your bitcoin. You’re back to a master-slave relationship.

比特币是根本不同的，因为在比特币中，你不欠任何人东西，也没有人欠你任何东西。

它不是一个基于债务的系统，这个系统是基于“抽象Token的所有权”。

绝对所有权。我们在美国有一种说法：“所有权是法律的90%”。

在比特币中，所有权是法律的100%。

如果你控制了比特币密钥，它就是你的比特币。如果你失去了对比特币密钥的控制，它就不是你的比特币。

你又回到了主从关系。

"In bitcoin, possession is ten-tenths of the law. If you control the bitcoin keys, it’s your bitcoin. If you don’t control the bitcoin keys, it’s not your bitcoin."

在比特币中，所有权是法律的100%。

如果你控制了比特币密钥，它就是你的比特币。如果你失去了对比特币密钥的控制，它就不是你的比特币。

## 2.4比特币，货币的一个根本转变

**Bitcoin, a Fundamental Transformation of Money**

Bitcoin represents a fundamental transformation of money. An invention that changes the oldest technology we have in civilization. That changes it radically and disruptively by changing the fundamental architecture into one where every participant is equal. Where transaction has no state or context other than obeying the consensus rules of the network that no one controls. Where your money is yours. You control it absolutely through the application of digital signatures, and no one can censor it, no one can seize it, no one can freeze it. No one can tell you what to do or what not to do with your money.

比特币代表了货币的一个根本转变。这个发明改变了我们文明中最古老的技术。

通过改变基础架构，这个发明彻底颠覆了货币，在这里，每个参与者都是平等的。

在这里，交易没有状态和上下文，出了遵守网络的共识规则，没有人控制网络的共识规则。

在这里，你的钱是你的。你通过数字签名完全控制你的钱，没有人能审查它，没有人能获取它，没有人能冻结它。没有人能告诉你该用你的钱做什么和不该做什么。

It is a system of money that is simultaneously, absolutely transnational and borderless. We’ve never had a system of money like that. It’s a system of money that transmits at the speed of light, one that anyone in the world can participate in with a device as simple as a text-messaging phone.

它是一个货币体系，它是即时、绝对跨国、无边界。

我们还从来没有一个这样的货币体系。

这个货币体系以光速传输，世界上任何一个人都可以参与，只要有手机就行。

This represents a technological innovation that is terrifying to a lot of people because it is such a fundamental transformation of money. What they will tell you is that they’re worried. They’re very worried. They’re worried that criminals will use bitcoin. But the truth is that they’re far more terrified that all of the rest of us will.

这是一项技术创新，让很多人感到害怕，因为它是对货币的根本转变。

他们告诉你的是他们很担心。他们很担心。

他们担心罪犯会使用比特币。但事实是，他们更担心我们所有人都使用比特币。

Thank you.