经济学人译文 | 假如世界由区块链来运行

The trust business is little noticed but huge.Startups deploying blockchain technology threaten to disrupt it, and much elsebesides 信用业务不起眼却规模庞大。部署区块链技术的创业公司威胁要颠覆它以及其他许多事

“WE LIKE lists because we don’t want to die.” What Umberto Eco, an Italian writer, said about humanbeings applies even more to the institutions they create. Without lists that keep track of people and things, most big organisations would collapse.

“我们喜欢列清单，因为我们不想死。”意大利作家翁贝托·艾柯（Umberto Eco）描述人类的这句话更适用于人类创造的机构。假如没有清单来追踪记录人和事，大部分大机构都会崩溃。

Lists range from simple checklists to complexdatabases, but they all have one major drawback: we must trust their keepers.Administrators hold the power. They can doctor corporate accounts, delete titles from land registries or add names to party rolls. To stop the keepers from going rogue, and catch them if they do, society has come to rely on allsorts of tools, from audits to supervisory boards. Together, list-keepers and those who watch them form one of the world’s biggest and least noticed industries, the trust business.

从简单的列表到复杂的数据库，清单各式各样。但它们都有一个重大缺点：我们必须信任管理清单的人。行政管理人员拥有权力，可以篡改企业账户、删除土地登记里的产权、往党派名单上添加名字。为防范他们胡作非为，并抓获犯事者，社会开始依赖从审计到监事会等各种机制。清单管理者和监督他们的人一起构成了世界上最庞大却又最不起眼的产业之一：信用业务。

Now imagine a parallel universe in which lists have declared independence: they maintain themselves. This, broadly, is the promise of the “blockchain”, the system which underlies bitcoin, a digital currency,and similar “distributed-ledger” technologies. If blockchains take over, as fans are sure they will, what are the implications of the trust business migrating into the ether?

现在，想象存在一个平行宇宙，在那里，清单已经宣布独立——它们自我维护。这大体上就是“区块链”的承诺。这种系统构成了数字货币比特币以及其他类似的“分类账”技术的基础。假如这种系统真如区块链的拥趸们所笃信的那样，将接管清单的管理，那么迁徙到以太空间的信用业务将会带来怎样的影响？

It would not be the first time a novel form oflist-making changed the world. More than 500 years ago a new accountingtechnique, later known as double-entry book-keeping, emerged in northern Italy.It was a big step in the development of the modern company and economy. WernerSombart, a German sociologist who died in 1941, argued that double-entrybook-keeping marked the birth of capitalism. It allowed people other than theowner of a business to keep track of its finances.

这不是创建清单的全新模式头一次改变世界。五百多年前，一种新的记账方式——后来被称为复式记账法——在意大利北部出现。这是现代企业和经济发展迈出的一大步。1941年去世的德国社会学家维尔纳·桑巴特（Werner Sombart）称复式记账法标志着资本主义的诞生。它让企业主之外的人也能追踪企业的财务状况。

If double-entry book-keeping freed accounting fromthe merchant's head, the blockchain frees it from the confines of anorganisation. That is probably not what Satoshi Nakamoto, the still-elusivecreator of bitcoin, had in mind when he set out on his endeavour. His aim wasto create a "purely peer-to-peer version of electronic cash", as he put it in a"white paper" published in 2008. To do so, he created a new type of database,the blockchain. It provides proof of who owns what at any given moment. It containsthe payment history of each bitcoin in circulation; heavy-duty encryption makesit theoretically impossible to alter it once a transaction is registered;copies are spread around the computers, or "nodes", that form the bitcoinnetwork, so that anybody can check whether something is wrong. A "consensusmechanism", a complex cryptographic process which replaces the list-keeper,turns the blockchain into an independent entity.

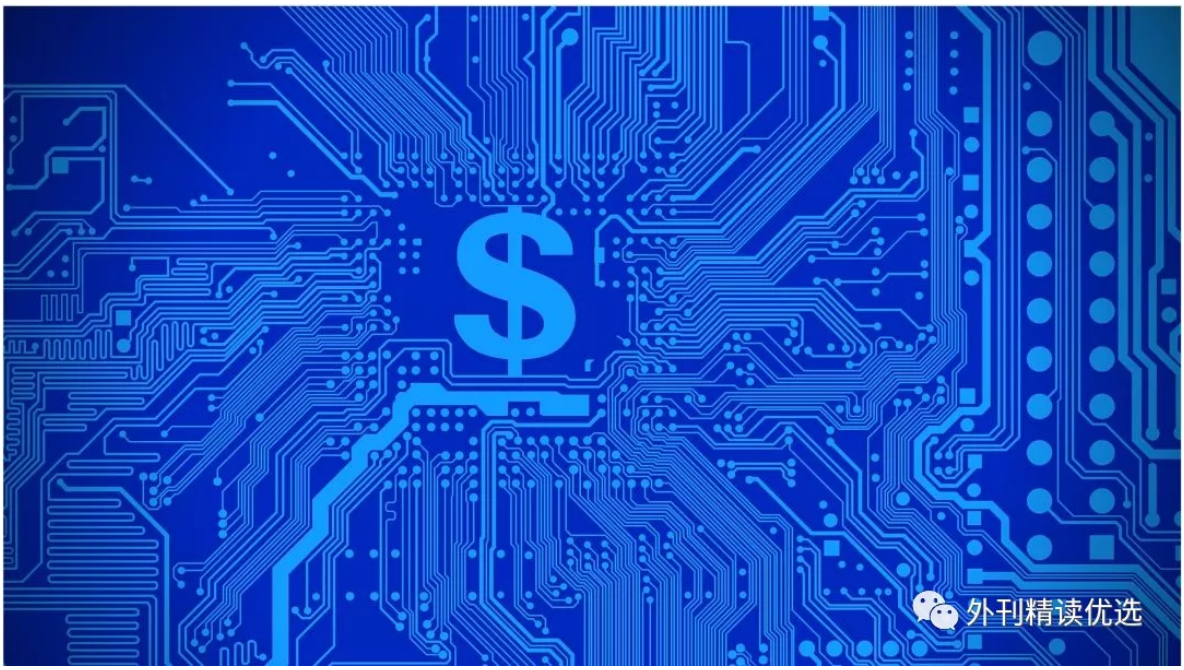
假如说复式记账法让商人不用再自己费心思管账目，区块链则使得会计这一职能突破了机构的限制。这可能是至今行踪神秘的中本聪在创造比特币时未曾想到的。他在2008年发布的"白皮书"中说，他的目标是创造一种"纯粹P2P版本的电子现金"。为此他创造了一个新型数据库——区块链。它可提供证据，显示在任何特定时刻谁拥有什么。它包含所有流通中的比特币的支付历史记录。繁复的加密，使得一项交易一旦登记在册，理论上就再也无法修改。交易的拷贝在构成比特币网络的计算机即"节点"间传播，因此任何人都能查看是否存在问题。"共识机制"，即复杂的加密过程取代了管账簿的人，让区块链变成了一个独立主体。

Clever minds quickly saw that such a set-up can beused for things other than money. Different sorts of self-sufficient lists nowabound. Prominent among them is Ethereum. Like bitcoin, it boasts its owncrypto-currency, called "ether", but it also allows users to add "smartcontracts", code that encapsulates the terms of a business agreement and isexecuted automatically.

聪明的人很快认识到这种设置的用途不止于管钱。现在，五花八门的自洽清单层出不穷。以太坊是其中著名的一个。和比特币一样，它也拥有自己的加密货币，名为"以太币"。但它还同时允许用户添加"智能合约"——一种"封存"商业协议条款并自动执行的编码。

When Luca Pacioli, a Franciscan friar, wrote thefirst textbook on double-entry book-keeping in the late 15th century, he couldnot have foretold what the accounting technique would bring about. But todayplenty of startups suggest ways that blockchains could change the world.

当圣方济各会教师卢卡·帕乔利（LucaPacioli）在15世纪末写出史上第一本复式记账教科书时，他不可能预料到这种会计方法会带来的影响。但今天，许多创业公司都提出了可能用区块链改变世界的方式。



Everledger, for example, keeps track of valuableassets. The firm has registered the ID of more than 1m diamonds, making iteasier to check whether gems were stolen or mined in war zones.

比如，Everledger追踪高价资产。该公司已为一百多万颗钻石登记编号，方便追查钻石是偷来的还是从战区开采来的。

Other firms want to help keep track of people. Oneof the first things done for a baby could be to give the newborn an entry in ablockchain, the crypto-equivalent of a birth certificate. This soundsOrwellian, but it does not have to be. On the contrary, if people's identity isanchored in one or several blockchains, this would give them more control overit and their personal data. If a potential tenant, for example, wants to proveto a landlord that his income is high enough to pay the rent, he need onlydisclose that bit of information, instead of allowing access to his entirecredit history, as is often the case today.

其他公司想要帮助追踪人。为新生儿最先做的事可以包括这一件：在区块链上登记一条信息，相当于出生证的加密版。这让人想到奥威尔的小说，但实情不必非得如此。相反，假如人们的身份信息被固定在一个或几个区块链中，他们将获得对这些信息及其他个人信息更多的控制权。例如，假设一个找租房的人想向房东证明自己的收入足够支付房租，那么他只需要透露这部分信息，而不用再像如今常发生的那样，让别人查看自己完整的信用记录。

In a blockchain world, having such a"self-sovereign identity" may well be a fundamental human right. MoxieMarlinspike, an anarchist entrepreneur, and others have already called for theabolition of the "ID-slavery" imposed by current national registration systems.A slew of startups, including Evernym, Jolocom and uPort, are working onservices that will allow people to register identities.

在区块链的世界里，拥有这类"自我主权身份"很可能会成为一种基本人权。无政府主义企业家莫克西·马林斯巴克（Moxie Marlinspike）等人已经呼吁废除目前国家登记系统强加给人们的"身份奴役"。包括Evernym、Jolocom和uPort在内的一大批创业公司正在研发能让人们登记身份的服务。

Once people are able to manage their identity,other possibilities open up, says Kevin Werbach of the University ofPennsylvania's Wharton business school. People will be able to band together invirtual countries and set their own rules. One such already exists: BITNATION.Anyone can become a citizen by accepting its constitution. To do business inBITNATION, people have to build up reputation, for instance by trading on theplatform.

一旦人们得以管理自己的身份，其他的可能性也随之打开，宾夕法尼亚大学沃顿商学院的凯文·韦尔巴赫（Kevin Werbach）说。人们将能在虚拟的国度里联合起来并设立自己的规则。已经出现了这样一个系统：比特国（BITNATION）。只要接受比特国的宪法，任何人都能成为它的公民。要在比特国内做生意，人们需要通过在该平台上做交易等方式建立起声誉。

chain reaction

连锁反应

This is also an example of the other big functionof such ledgers: they can serve as a source of truth. All kinds of informationcould be attached to an entry in a blockchain. In the case of a car, say, thatcould be where it came from, the history of repairs and even where it wasdriven. Taken together, these data would form the "truth" about a givenvehicle.

身份登记也显现了这类账本的另一大用处：作为真相来源。各种各样的信息都可以被附加在区块链的一个条目上。以一辆车为例，这些信息可以包括它的生产厂家、维修历史，甚至它曾被开去哪里。这类数据汇聚在一起就形成了关于某一件交通工具的"真相"。

Many people are already working on "truthservices". Researchers have proposed creating unique cryptographic identifiers,or "hashes", of the descriptions of clinical trials and registering them in ablockchain, so they cannot be changed to fit desired results. Georgia, Swedenand Ukraine are testing the technology as a way of digitising parts of theirland registries. And Delaware, the American state which has made a big businessout of registering companies from all over the world, is gearing up to allowblockchains for corporate record-keeping.

已经有许多人在经营"真相服务"。研究人员已提议就临床试验描述创造加密标识符，即"哈希"（hashes），并将它们登记在区块链中，这样它们就无法被篡改以符合理想结果。格鲁吉亚、瑞典和乌克兰正在测试用区块链技术来将土地登记部分数字化。美国的特拉华州是全球各地大量企业的注册地——这已成为该州的一大业务，它正在积极准备让区块链来进行企业记录保存。

Transactions on a blockchain could also serve asinput for smart contracts. Slock.it, another startup, is developing physicallocks which have a digital existence on Ethereum. When it is sent some ether,this smart rental contract opens the lock. This could enable new ways ofsharing things. If somebody wanted to rent a car, say, he could simply transfermoney to its smart contract and drive away.

区块链上的交易也可以为智能合约服务。另一家创业公司Slock.it正在研发一种在以太坊上存有数字版本的实体锁。当有人转入一些以太币时，智能租赁合约就会将锁打开。这将开辟共享事物的新方法。例如，如果有人想要租一辆车，他只要往这辆车的智能合约上转一些钱，就可以把车开走了。

Smart contracts promise to change the economy morethan any other feature of the blockchain. They could take over most routinebusiness processes. Some companies could be no more than a bundle of smartcontracts, forming true virtual firms that live only on a blockchain.Predictably, the firstt attempt to create such a “decentralised autonomousorganisation” ended in disaster. Named “The DAO”, the entity was set up a yearago as a sort of virtual venture-capital fund. It raised more than $160m, butthen hackers siphoned off $60m, leading to its demise.

相比区块链的其他功能，智能合约应该会给经济带来更大的改变。它们可以接管大部分日常业务程序。一些企业将仅由一批智能合约构成，成为只存在于区块链空间的虚拟企业。正如所料，首个创立“去中央化的自主机构”的尝试以灾难收场。一年前成立的The DAO公司是某种虚拟风投基金，融资超过1.6亿美元，但被黑客盗走6千万，导致公司灭亡。

Yet simpler versions of such structures, calledinitial coin offerings (ICOs), have since taken off—and created the firstbubble of the blockchain economy. In an automated form of crowdfunding,startups set up a smart contract on Ethereum and publish a “white paper”, orprospectus. Investors can then send ether to the smart contract, whichautomatically creates “tokens” that can be traded like shares. More than $550mhas already been invested in ICOs.

不过，自那以后，这类构造更简单的版本——“首次公开售币”（ICOs）开始流行，创造了区块链经济的首次泡沫。在一个自动化的众筹形式中，创业公司在以太坊上创建智能合约，并发布“白皮书”，即招股书。投资者而后可以向这个智能合约发送以太币，这会自动生成“代币”，它们可以像股票那样交易。至今已有超过5.5亿美元投入这些ICO中。

Some of these projects are scams. And many honestones leave outsiders baffled. EcoBit aims to build a market for carbon credits.Aragon wants to use blockchain tools to manage entire organisations, complete with decentralised arbitration courts. SONM is “a decentralised fogsupercomputer”: users can either buy computing power with the project’s tokensor earn them by adding their machines to the pool.

有些项目是骗局。而不少诚实的项目又让外行看不懂。EcoBit旨在建立一个碳信用额度市场。Aragon想用区块链工具管理整个机构，加之以去中央化的仲裁法庭。SONM是一台“去中央化雾超级计算机”，用户可以用该项目的代币来购买运算能力，也可以把自己的计算设备添加到这个超级计算机网络上赚取代币。