

Translation of Interview by People's Bank of China Director of Technology after their testing of Blockchain.

The interview was conducted by official "China Securities New" journalist to the director of technology of PBOC. (The securities here is "stock etc" not the technology).

The original and full article in Chinese is here

http://www.toutiao.com/i6379961931700109826/?tt_from=weixin&utm_campaign=client_share&app=news_article&utm_source=weixin&iid=7648322321&utm_medium=toutiao_android&wxshare_count=1

央行：区块链规模应用于数字货币的可行性仍待验证

Central bank: the feasibility of large scale application of block chain on digital currency remains to be verified

独家重磅！"数字货币"与走下神坛的区块链——专访央行科技司司长李伟

Exclusive! "Digital Currency" and the Block Chain from the Altar - An Interview with Li Wei, Director - Technology Department of the People's Bank of China

节前，央行推动的基于区块链的数字票据交易平台已测试成功。春节后，央行旗下的数字货币研究所也将正式挂牌。这意味着在全球范围内，中国央行将成为首个研究数字货币及真实应用的中央银行。

Before the (Chinese new year) holiday, the central bank to promote the block-based chain of digital paper trading platform has been tested successfully. After the Spring Festival, the central bank's Digital Currency Institute will also be officially inaugurated. This means that on a global scale, the central bank will become the first central bank to study digital currency and its real application.

26日，中国证券报专访了中国人民银行科技司司长李伟，就区块链适用场景、技术存在的风险、是否适用于数字货币等问题进行了解答。

On the 26th, China Securities Journal interviewed the People's Bank of China Science and Technology Department Director Li Wei. He answers questions on the block chain application scenarios, the risks of technology, whether applicable to digital currency and other issues.

区块链技术在金融领域比较适合于哪些业务场景？

What are the business scenarios that block-chain technology is suitable for in the financial sector?

作为新技术，区块链技术在系统稳定性、应用安全性、业务模式等方面尚

As a new technology, the block chain technology in the system stability, application

未成熟, 目前主要适用于以下业务场景:

- 非实时性的业务场景。由于点对点网络结构中参与节点数量众多、地位对等, 且每个节点均拥有交易记账权并协同提供服务, 交易处理需要消耗较高的计算资源和时间成本。
- 轻量级信息的业务场景。由于区块链技术采用分散化的存储模式, 每个节点需存储完整的历史交易信息, 数据的冗余备份量大, 存储空间消耗多。
- 交易吞吐量较小的业务场景。区块链技术以区块作为存储交易单信息的基本单元, 每一个可信区块都要依靠全网节点完成足够的计算量后才能生成, 生成区块的速度较慢。
- 信息敏感度较低的业务场景。在区块链网络中各节点均能够获得完整的历史数据副本, 且能解读全部历史交易信息, 敏感信息易被泄露, 造成交易欺诈风险。随着区块链技术的进一步改进优化, 将可能在其他业务场景取得突破。

区块链技术在金融领域应用存在哪些值得关注的风险?

由于在共识机制、网络架构、数据存

security, business model, etc. is not yet mature. It is mainly applicable to the following business scenarios:

- Non-real-time business scenarios. Transaction processing consumes high computational resources and time cost due to the large number of nodes in the peer-to-peer network and their equal status, each node having the transaction accounting right, and their coordination to provide the service.
- Business scenario with light volume of information. The data redundancy backup quantity is large and much storage space is consumed as the block chain technology uses decentralized storage model where each node needs to store the complete historical transaction information.
- Low transaction throughput business scenarios. The block chain technology takes the block as the basic unit to store the transaction information. Every trusted block is generated after all nodes complete enough computation. The speed of block generation is slow.
- Business scenarios with information of low-sensitivity. Each node in the block chain network can obtain a complete copy of the historical data, and can interpret all the historical transaction information. Sensitive information can be leaked, resulting in transaction fraud risk. With the further improvement of the block chain technology, it will be possible to achieve a breakthrough in other business scenarios.

What are the risks must be concerned in the application of block chain technology in the financial field?

Due to the inherent characteristics of the

储模式等方面固有的特性, 区块链技术应用于金融领域需要关注以下风险点:

- 点对点网络的安全稳定性风险。区块链技术采用点对点网络结构、消息广播机制, 节点可自由加入或退出网络, 易遭受路由欺骗、地址欺骗攻击, 导致节点共识算法结果的波动。
- 共识机制的交易回滚风险。由于采用分散化存储模式, 同一区块可能在不同时间到达不同节点, 不同节点的共识算法版本难以保持一致, 在达成交易共识过程中易发生区块链分叉, 导致交易回滚风险。
- 交易数据的信息安全风险。区块链技术未采用硬件加密措施, 允许节点在区块中附加自定义信息, 且区块链中历史信息不可更改。若自定义信息中包含病毒或木马, 将会自动传播到全网进行恶意攻击。
- 信用的技术背书风险。区块链技术高度依赖于加解密算法、共识机制等, 一旦密码技术被破解或密钥被盗用, 交易数据将变得不可信。
- 扩展应用的安全漏洞风险。区块

consensus mechanism, network architecture, data storage model and so on, block chain technology should be concerned with the following risk points in the financial field:

- The security and stability risk of peer to peer networks. The block chain technology adopts the peer to peer network structure and the message broadcasting mechanism. The node can join or exit the network freely, and is susceptible to route deception and address spoofing attacks, resulting in the instability of the computation result of the consensus algorithm.
- Risk of transaction rollback for consensus mechanisms. Due to the use of decentralized storage model, the same block may arrive at different nodes at different times, different versions of the consensus algorithm is difficult to maintain the same consensus in the process of consensus-prone block chain bifurcation, resulting in transaction rollback risk.
- Information security risk of transaction data. Block chaining technology does not use hardware encryption measures. It allows nodes to add custom information in the block, and block chain history information cannot be changed. If the custom information contains viruses or Trojans, it will automatically be spread to the whole network for malicious attacks.
- Reliance on technology that could be single point of failure. Block chain technology is highly dependent on encryption and decryption algorithms, consensus mechanisms, etc. Once the password technology is cracked or key is stolen, transaction data will become untrustworthy.
- Extend application security risk. Block

链技术具有可编程扩展性,若加载于区块链上的扩展应用存在后门或安全漏洞,将会对交易安全构成较大隐患。

chain technology is programmable extensible. If the expansion added on the block chain has a back door or security vulnerabilities, it will constitute a greater security risk to transactions.

.....

.....

区块链技术是否适用于数字货币？

Is block chain technology suitable for digital currency?

近年来,区块链技术逐步得到国内外金融行业的密切关注,部分国家的中央银行、商业银行、互联网企业积极探索区块链技术及其在金融领域的应用。

In recent years, the technology of block chain has received close attention from domestic and foreign financial industry. Some central banks, commercial banks and Internet companies have actively explored block chain technology and its application in financial field.

数字货币涉及分布式架构、密码技术、安全芯片、移动支付、可信计算等多种技术。区块链技术仅是数字货币可选择的实现技术之一。未来是否应用于数字货币,取决于区块链技术在网络安全、业务处理性能、交易一致性等方面的不足能否得到解决,有赖于产学研各方在其技术体系、应用框架等方面不懈的探索完善。

Digital currency involves multiple types of technologies including distributed architecture, cryptography, security chips, mobile payment, trusted computing, etc. Block chain is only one of the enabling technologies for digital currency. Whether it can be applied to digital currency in the future depends on whether the industry and academic research institutions can solve the problems of block chain such as network security, business processing performance, transaction consistency, etc , and unremittingly explore and perfect the technology system and application framework.

为此,人民银行于2016年选择在票据业务场景搭建区块链技术应用原型系统,积极组织各方研究其技术成熟度和业务适配度,验证其在金融行业规模应用的可行性。

To this end, the People's Bank of China in 2016 selected to build a block chain technology application prototype system on the invoice processing scene, and actively organize the parties to study the technical maturity and business fit and to verify the feasibility of its application in the financial industry at large scale.

目前国内部分金融机构积极探索区块链技术在金融领域的应用,您如何

At present, some domestic financial institutions are actively exploring the block

看待？

人民银行高度关注新技术发展，一直秉持科学、严谨、开放的态度，坚持规范与创新并重，积极稳妥推进新技术在金融领域的应用工作。

新技术在金融领域的应用能够加快金融业务创新，有助于降低金融交易成本、提升金融服务效率。与此同时，新技术应用提高了业务与技术的耦合度，增强了金融风险的传染性和隐蔽性，网络攻击、技术依赖等风险也相伴而生。

因此，对于区块链技术，金融机构要结合自身特点，把技术研究做实做透，重点从实时性、吞吐量、资源利用率、敏感信息保护等角度分析应用场景，强化技术风险防范，审慎布局区块链技术应用，使其更好地服务于金融业务创新。

chain technology in the financial field. How do you think?

People's Bank of China attaches great importance to the development of new technologies. It has always upheld the scientific, rigorous and open attitude, adhered to both norms and innovation, actively and steadily promotes the application of new technologies in the financial field.

The application of new technology in financial field can accelerate financial business innovation. It helps to reduce financial transaction cost and improve financial service efficiency. At the same time, the application of new technology improves the coupling degree of business and technology, enhances the contagion and concealment of financial risks, and the risks such as network attacks and technical dependence are also accompanied.

Therefore, dealing with the block chain technology, financial institutions should combine their own characteristics to thoroughly research the technology. Focus on real-time, throughput, resource utilization, sensitive information protection, when analyze the application scenes. Strengthen technology risk prevention and carefully plan the applications of block chain technology to better serve the financial business innovation.