

Opportunities of Distributed Ledger Technology (DLT) for payments and securities infrastructure

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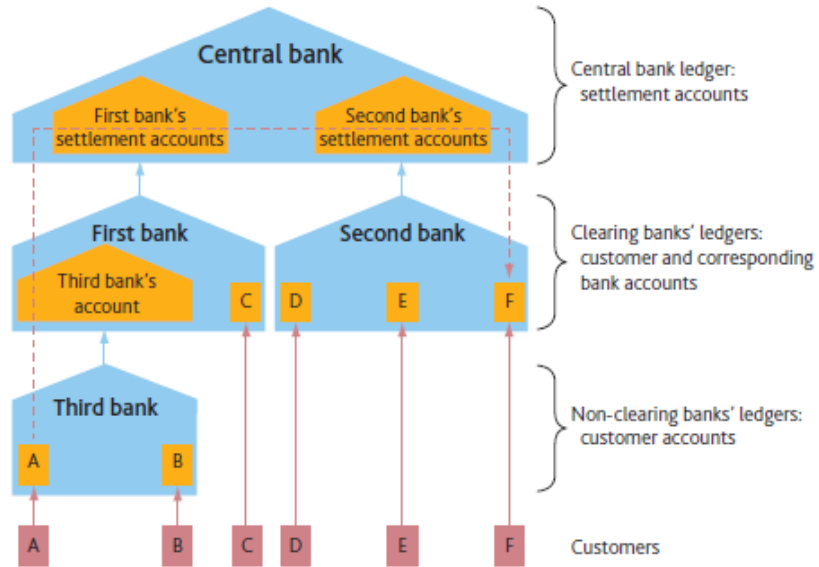


Agenda

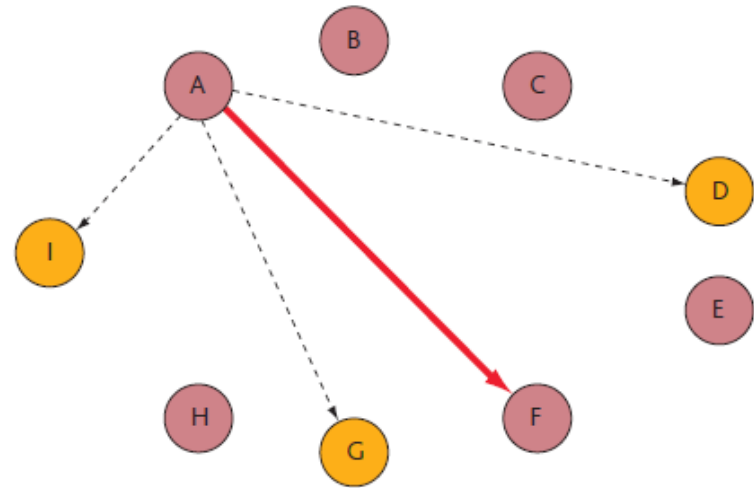
- Why DLT?
- What is Lykke?
- Lykke Exchange Architecture
- First Experiences & Outlook



Why DLT?

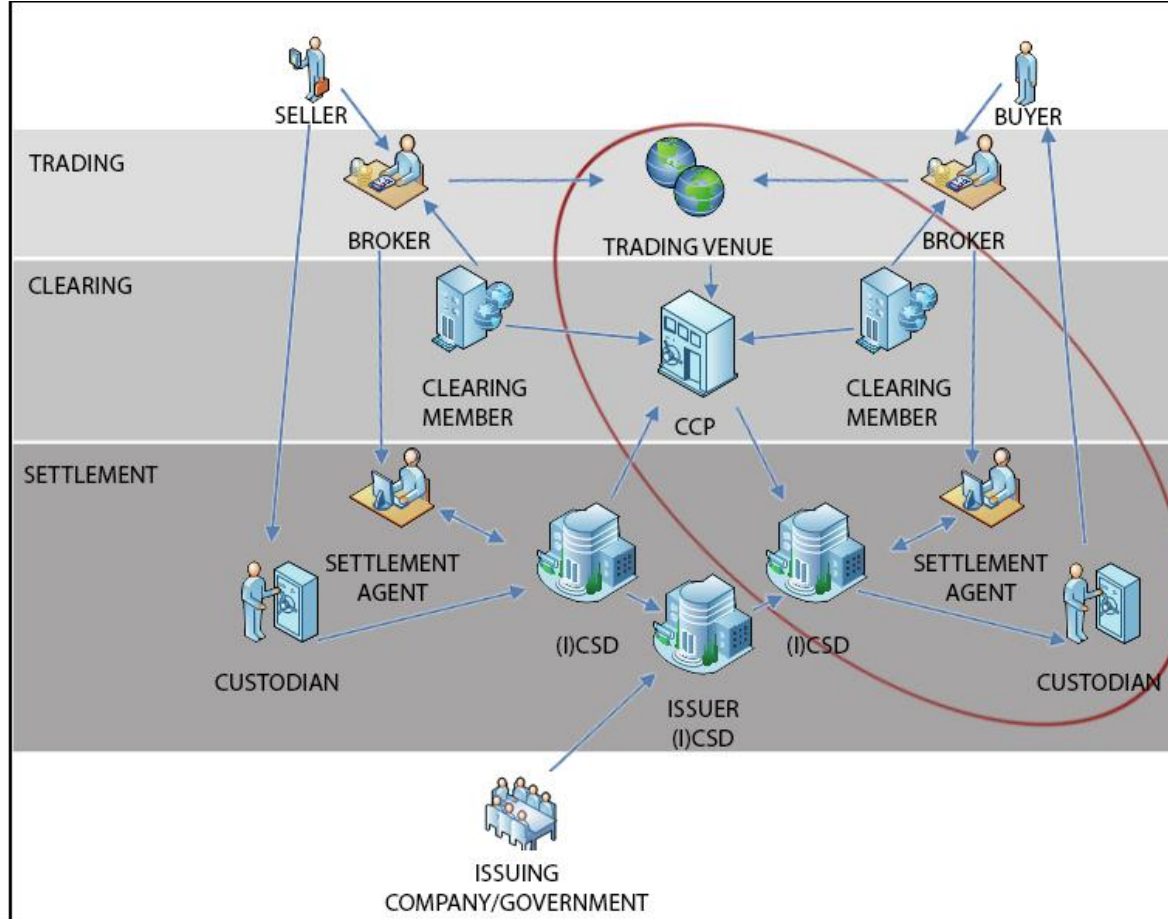


Centralized payment system

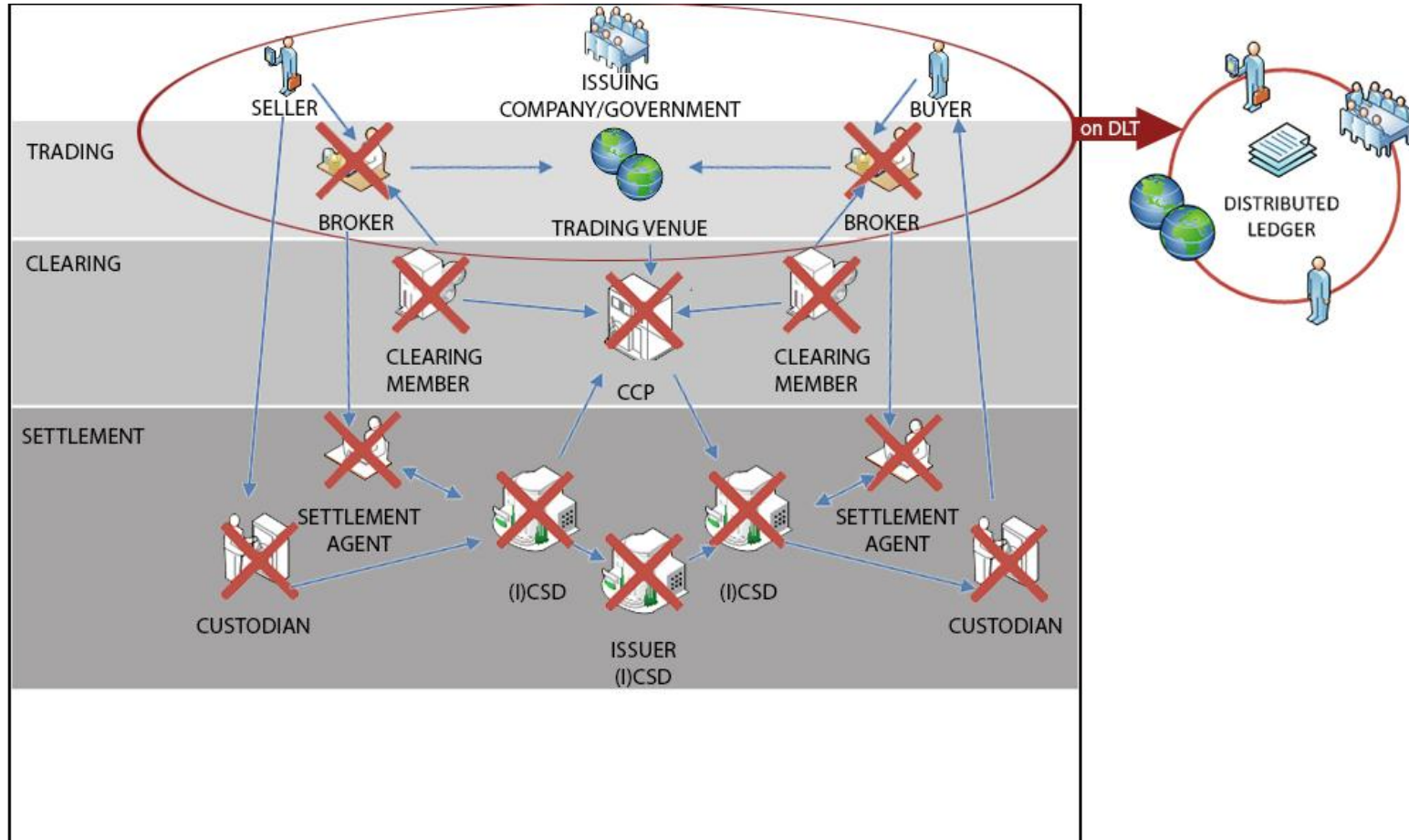


Decentralized payment system

Today's financial market is a pile of spaghetti























Peer-to-peer set up



DLT Ecosystem

Public DLT (permissionless)	Enterprise DLT (permissioned)
Bitcoin, Ethereum, Lisk, Stellar, etc.	Hyperledger, R3 Corda, Chain OS 1, etc.
Inherent cryptocurrency	Tokens of value might be added
Typically PoW (mining)	Typically PoS
Transparent	Controlled privacy
Permissionless, Pseudo-anonymous	Permissioned
Open, scale-free	Closed, club-based enter
Ecosystem-driven governance	Stakeholders-driven governance
Universal/retail-oriented	Enterprise-oriented

Top-10 public DLT

▲ #	Name	Market Cap	Price	Available Supply	Volume (24h)	% Change (24h)	Price Graph (7d)
1	 Bitcoin	\$9,643,245,206	\$606.70	15,894,612 BTC	\$45,374,600	0.20%	
2	 Ethereum	\$1,108,919,122	\$13.13	84,450,470 ETH	\$5,964,350	-1.34%	
3	 Ripple	\$312,590,319	\$0.008816	35,458,607,580 XRP *	\$8,842,430	5.96%	
4	 Litecoin	\$184,293,296	\$3.86	47,766,404 LTC	\$1,037,150	0.42%	
5	 Monero	\$120,575,468	\$9.27	13,004,229 XMR	\$1,393,960	-0.83%	
6	 Ethereum Cla...	\$103,922,800	\$1.23	84,393,338 ETC	\$856,819	-1.45%	
7	 Steem	\$78,918,537	\$0.501681	157,308,203 STEEM	\$92,868	-0.17%	
8	 Dash	\$78,799,363	\$11.64	6,770,345 DASH	\$364,448	0.43%	
9	 NEM	\$41,793,390	\$0.004644	8,999,999,999 XEM *	\$108,574	-1.00%	
10	 Factom	\$26,229,021	\$3.00	8,753,219 FCT *	\$402,793	2.29%	

Vision

Global notary service will rewire financial system

The DLT/blockchain is essentially an Internet based notary service that maintains a log of all financial transactions and keeps track of the ownership of digital assets

There will be one internet based, decentralized exchange for all financial instruments with immediate global consensus about completed transactions and asset ownership



Three fundamental components

1. **Global notary service = DLT/Blockchain**

All transactions and ownerships can be logged in this universally accessible distributed ledger

2. **Standardized securitization = Colored Coins**

Every financial instrument can be a listed security in the form of a digital token for recording in the blockchain

3. **Digital Signatures/Encryption = Wallet**

Every owner of a colored coin has direct ownership protected through a private key in his digital deposit box



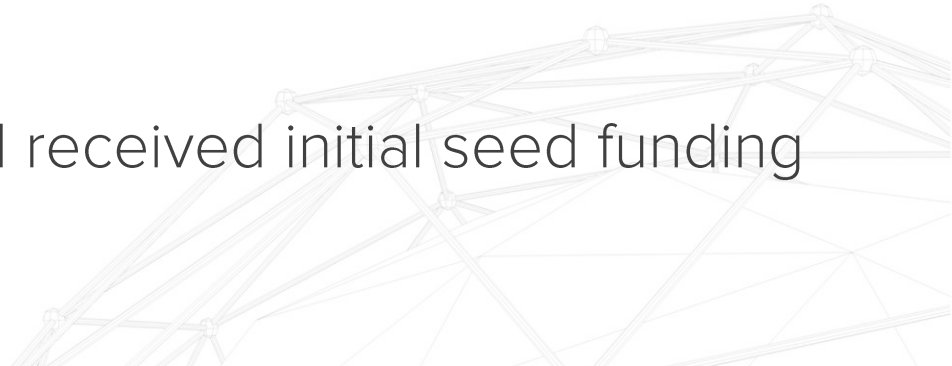
What is Lykke?

Lykke builds a global marketplace for all asset classes and financial instruments, that is a level playing field and where everyone has access

Uses open DLT to offer immediate settlement and direct ownership

Swiss registered FinTech company that is crowd based at all levels

Founded by Richard Olsen and received initial seed funding in 2015





Lykke in a nutshell

1.6m CHF total investment

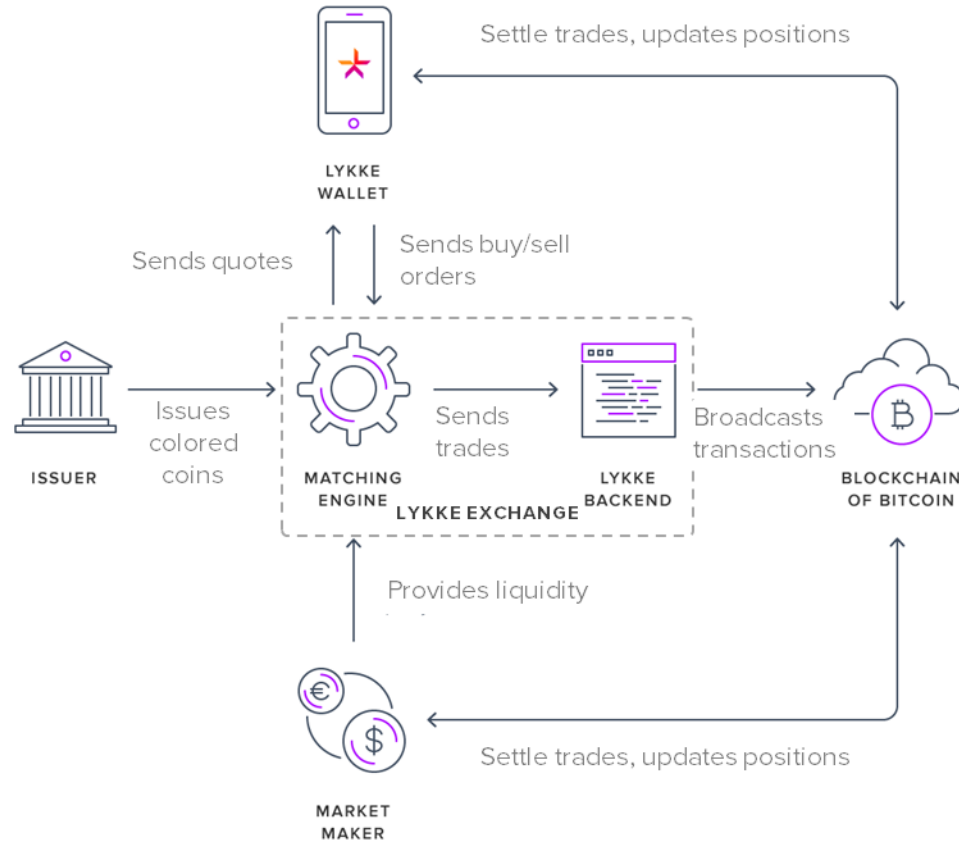
580 Lykke shareholders

20 core team members in **8** countries

1.5m lines of code in Lykke GitHub repository



High-level architecture



Issuance

Digital asset is issued on the blockchain as Colored Coin (API/Web)

Example <https://www.coinprism.info/asset/AXkedGbAH1XGDpAypVzA5eyjegX4FaCnvM>

Lykke Corp Equity



Asset ID	AXkedGbAH1XGDpAypVzA5eyjegX4FaCnvM
Ticker	Lykke
Type	Stock
Issuer	lykke.com ✔ The authenticity of the issuer has been verified
Divisibility	Divisible to 6 places
Asset definition URL	https://lykke.com/asset/LKK

Information >

Asset webpage >

Coin holders >

Contract Details


Lykke Corp is Swiss registered company that is crowd based at all levels. Lykke shares are issued in the form of Colored Coins. Lykke builds a global marketplace for all asset classes and financial instruments. Our marketplace will use the distributed ledger technology pioneered by Bitcoin to offer immediate settlement and direct ownership.

Issuance

Metadata defined in the JSON file protected by SSL certificate

Lykke Corp JSON example <https://lykke.com/asset/LKK>

```
{  
  "asset_ids": [ "AXkedGbAH1XGDpAypVzA5eyjegX4FaCnvM" ],  
  "contract_url": "https://lykke.com/Lykke_Corp_Placement_Memorandum.pdf",  
  "name_short": "Lykke",  
  "name": "Lykke Corp Equity",  
  "issuer": "Lykke Corp",  
  "description": "Lykke Corp is Swiss registered company that is crowd based at all levels. Lykke  
shares are issued in the form of Colored Coins. Lykke builds a global marketplace for all asset  
classes and financial instruments. Our marketplace will use the distributed ledger technology  
pioneered by Bitcoin to offer immediate settlement and direct ownership.",  
  "description_mime": "text/x-markdown; charset=UTF-8",  
  "type": "Stock",  
  "divisibility": 6,  
  "link_to_website": true,  
  "icon_url": "https://www.lykke.com/img/coins/lykke-48.png",  
  "image_url": "https://www.lykke.com/img/coins/lykke-260.png",  
  "version": "1.0"  
}
```



Real-time ownership structure

Ownership is automatically updated after confirmation of each transaction

e.g. Lykke ownership <https://www.coinprism.info/asset/AXkedGbAH1XGDPaYpVzA5eyjegX4FaCnvM/owners>

Lykke Corp Equity



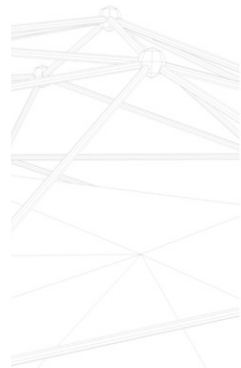
Information >

Asset webpage >

Coin holders >

Stakes as of Thu, 14 Jul 2016 09:42:59 GMT Block 420673


Address	Ownership	Amount
akCk9f5nYnwjaKUvSURWmG9FjxQYaTKUU4T	38.88%	500,000,000 Lykke
akFi7XEmeEXPw5zPBxtktGWf4NiJlpFvGK	16.47%	211,858,726 Lykke
akPvNDTnUo1xBYyhUu7qMGRn1nvkfs6UWS1	15.55%	200,000,000 Lykke
akF4HNP7iCeHyVxnCubQZQf2HWQEVYNQhzY	5.68%	73,148,200 Lykke
akDGQF41VQcF75gNjzdirN3xv6vw5vSCP9b	3.98%	51,203,700 Lykke
akVZCeN9rkFVosLKRBL4qBbWmQV3zze91Bi	3.88%	50,000,000 Lykke
akRSrnj7XLGnmpBCpN2wDwMSecAvYaUG97L	2.84%	36,569,110 Lykke
akUXbR8SCdrDRdaAZo5w3RNZ5X1vKecBcFT	2.77%	35,690,000 Lykke
akUCWoU9R4TTmAAH7RucVgkhZ3hCAgkc7zm	1.92%	24,740,000 Lykke
akVPuW5iH4Nuk3h9bM8YbbfFBQ3doUe1GWE	1.58%	20,335,117 Lykke
akB34FAEsXxQQcpug2D7USAAzy61vXmrBw	1.42%	18,287,000 Lykke
akHsPEToBjvnJjYpVfnDYNLMGfHx9KQvU3i	0.97%	12,500,010 Lykke



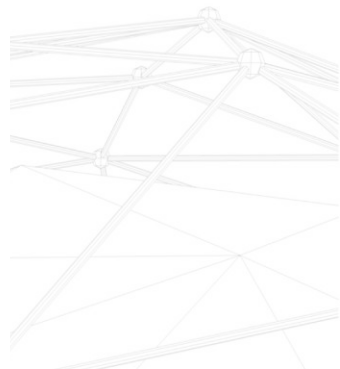
Guaranteed delivery-vs-payment transactions

Transactions are settled as atomic swaps on bitcoin blockchain. Settlement risk is zero. Cost is small.
See LykkeX transaction log <https://www.coinprism.info/address/anjBX5sKFK4vnbywKWE2NQa9xrvLJEqRAB2>

Transactions

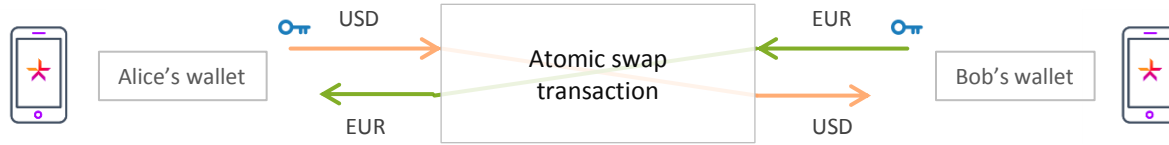
234c6663477ccaaa5d1bc0783620062ce0b69848ca7ea989a57429ed21d67716				
Thursday, July 14, 2016 8:30:32 AM				14 confirmations
Bitcoin				
	<div>← akD1mWd1jv9HLBuQx7AqsF6NLQ35HbX7wnb</div> <div>← anM5ECyEo3ctcBnLpDv22orZFmfU9PzB9rG</div>	<div>-0.0005724</div> <div>-0.999973</div>	<div>anjBX5sKFK4vnbywKWE2NQa9xrvLJEqRAB2</div> <div>Fees</div>	<div>1.00</div> <div>0.0005454</div>
Lykke EUR			AbjAzsV5s5ANrGK3Kf3qbKQVQYSS3McFUH	
	<div>← anjBX5sKFK4vnbywKWE2NQa9xrvLJEqRAB2</div>	<div>-590.44</div>	<div>anM5ECyEo3ctcBnLpDv22orZFmfU9PzB9rG</div>	<div>590.44</div>

025945a211dd4f780036a490282abedd268e56f3db4d72180fcec1ac5aa4545f				
Wednesday, July 13, 2016 7:53:10 PM				80 confirmations
Bitcoin				
	<div>← akD1mWd1jv9HLBuQx7AqsF6NLQ35HbX7wnb</div> <div>← anM5ECyEo3ctcBnLpDv22orZFmfU9PzB9rG</div>	<div>-0.0005724</div> <div>-0.099973</div>	<div>anjBX5sKFK4vnbywKWE2NQa9xrvLJEqRAB2</div> <div>Fees</div>	<div>0.10</div> <div>0.0005454</div>
Lykke EUR			AbjAzsV5s5ANrGK3Kf3qbKQVQYSS3McFUH	
	<div>← anjBX5sKFK4vnbywKWE2NQa9xrvLJEqRAB2</div>	<div>-59.48</div>	<div>anM5ECyEo3ctcBnLpDv22orZFmfU9PzB9rG</div>	<div>59.48</div>



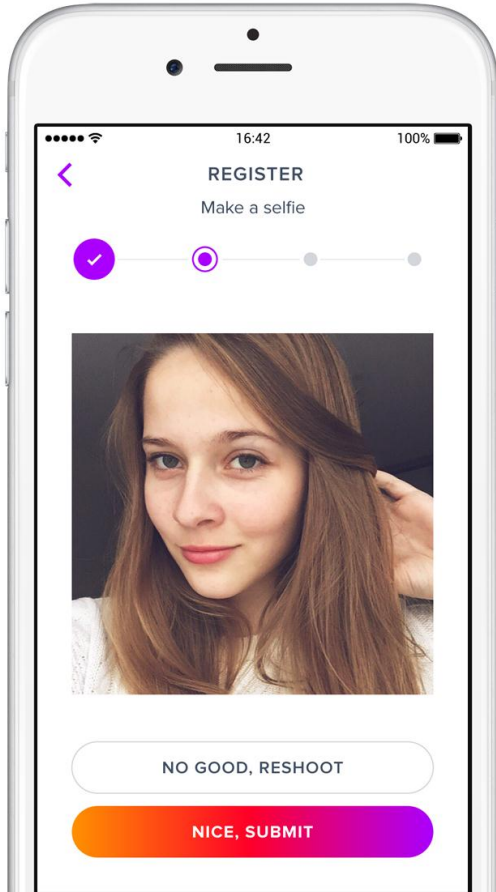
Colored Coins Settlement

DVP atomic transactions are used to swap assets between peers



There are two signatures are required to broadcast the atomic swap transaction on the bitcoin blockchain

Lykke Wallet



ONBOARD EASILY

Simple as making a selfie

DEPOSIT SECURELY

Deposit bitcoins and digital assets to multisig wallets with an encrypted private key and refund insurance

TRADE FREELY

Buy and sell bitcoins and digital assets with 0% commission

SETTLE IMMEDIATELY

Receive the proof of your trade in 10 minutes

OWN DIRECTLY

Verify your asset ownership on the “trust machine” of blockchain

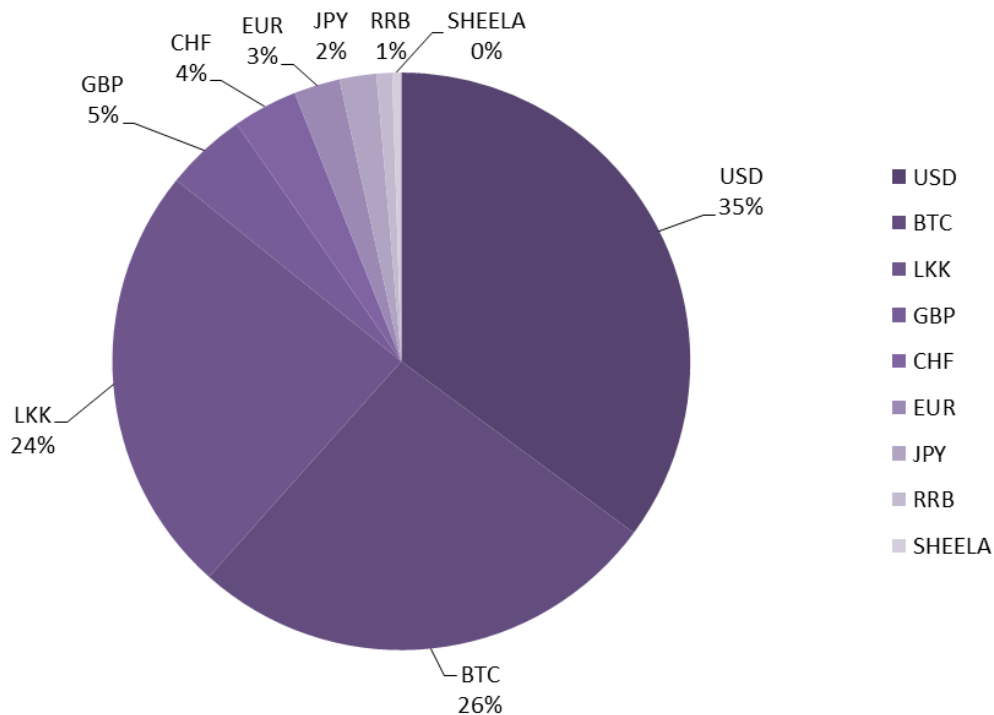
WITHDRAW TIMELY

Receive immediate withdrawal to your bitcoin wallet without any fee



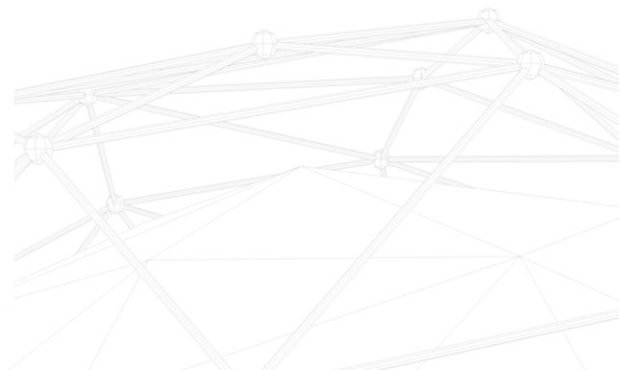
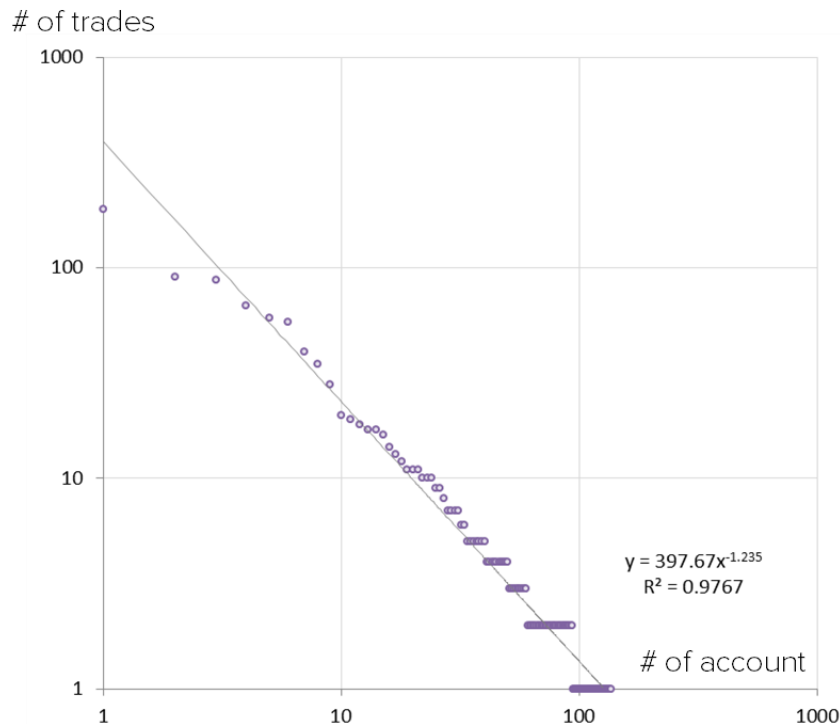
Trading stat

Structure of trading activity on Lykke Exchange, %



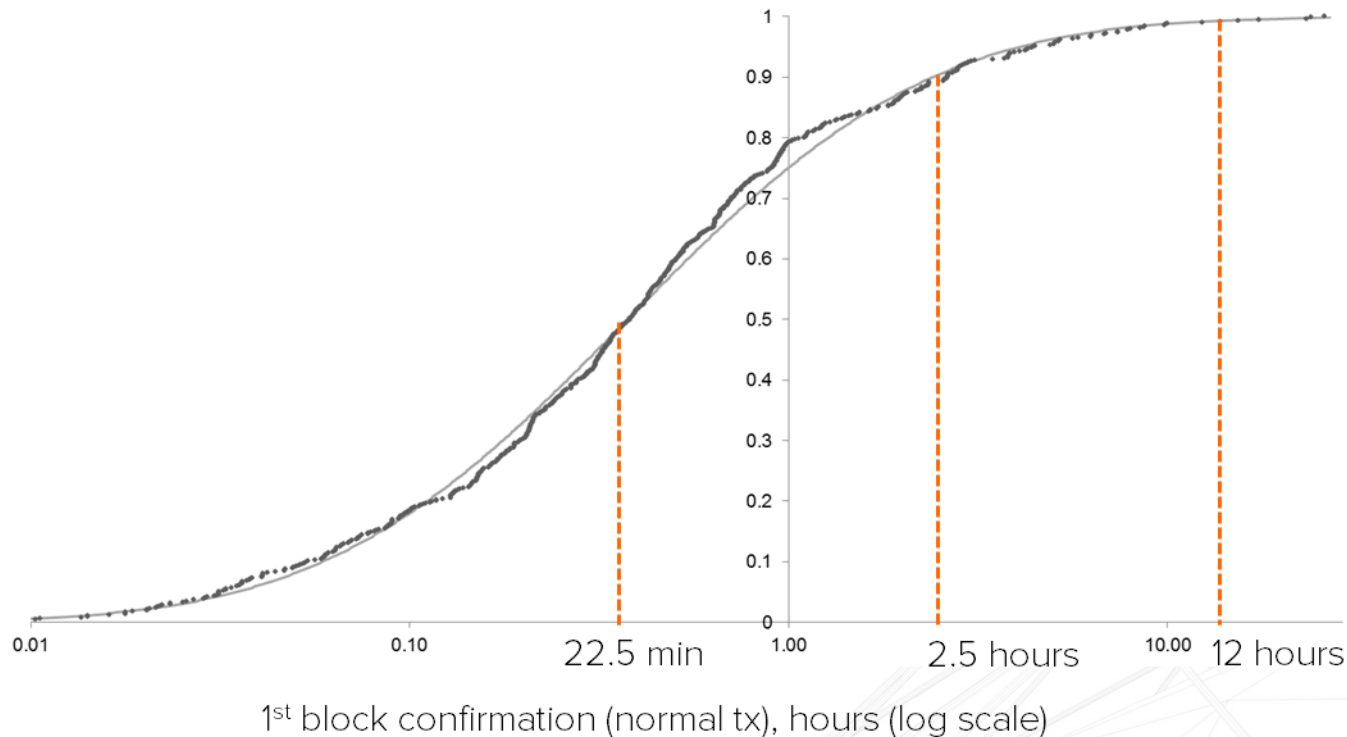
Trading stat

Distribution of trading activity on Lykke Exchange (in log-log scale)

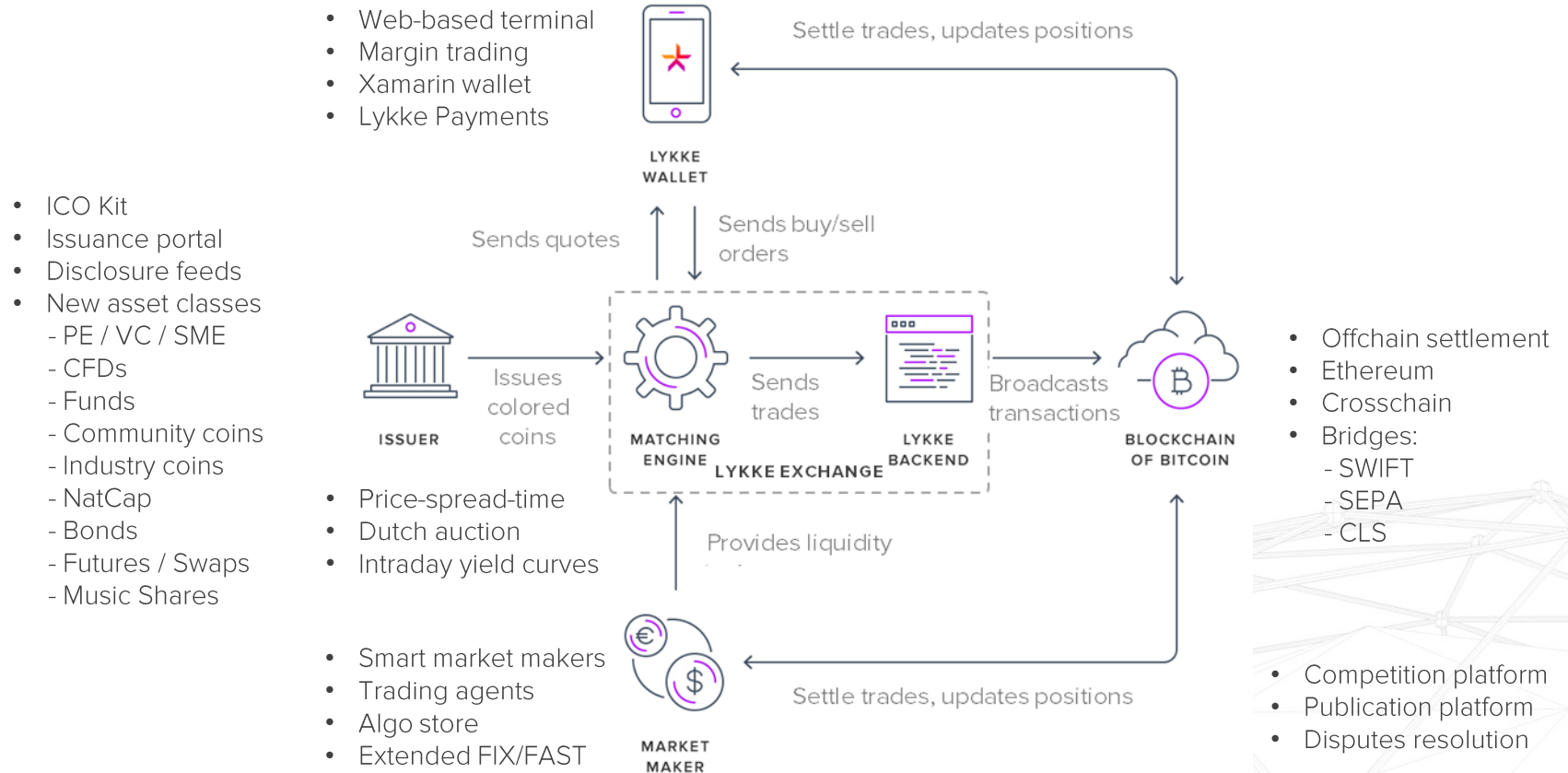


Trading stat

Distribution of confirmation time on Lykke Exchange (hours, log scale)



Architecture Roadmap



Conclusion



The value transmission protocols will evolve and in future there will be many blockchain-based digital assets.

The important component that is missing is a global marketplace that enables efficient pricing and secure exchange of digital assets.

DLT will change the way how financial markets are operated.

See [ESMA Consultation Paper on DLT](#) for details.