Lykke Exchange: Architecture, First Experiences and Outlook

Agenda

- Lykke in a nutshell
- Architecture
- Trading Statistics
- Outlook & Roadmap
- ICO Campaign
- Contacts

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

147 Lykke shareholders / coinholders

16 core team members in **8** countries

1.5m lines of code in Lykke GitHub repository

2.3k Lykke community members

*As of 12 September 2016

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

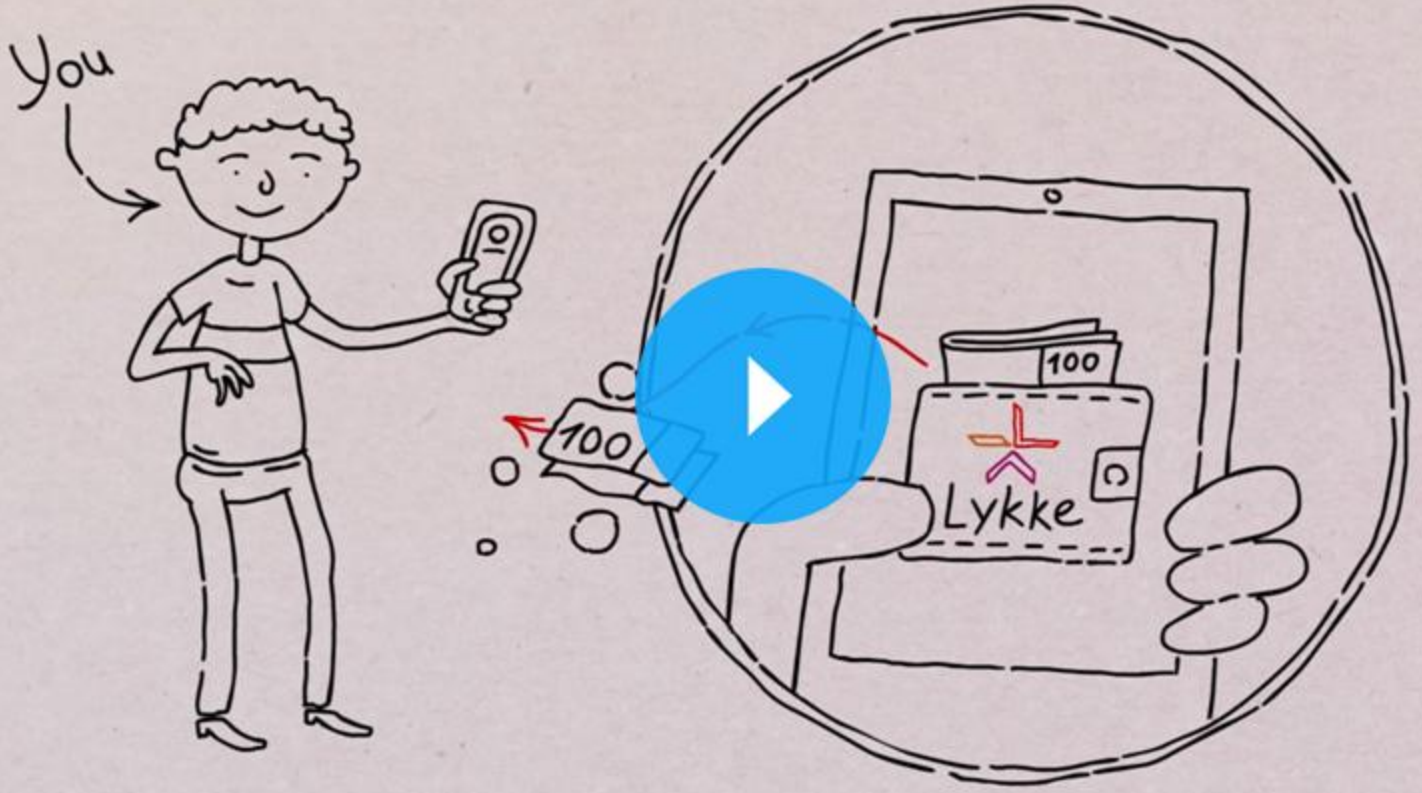
There will be one internet based, decentralized exchange for all financial instruments with immediate global consensus about completed transactions and asset ownership

Three fundamental components

1 **Global notary service = Blockchain**
All transactions and ownerships can be logged in this universally accessible distributed ledger

2 **Asset digitalization = 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 safe on the blockchain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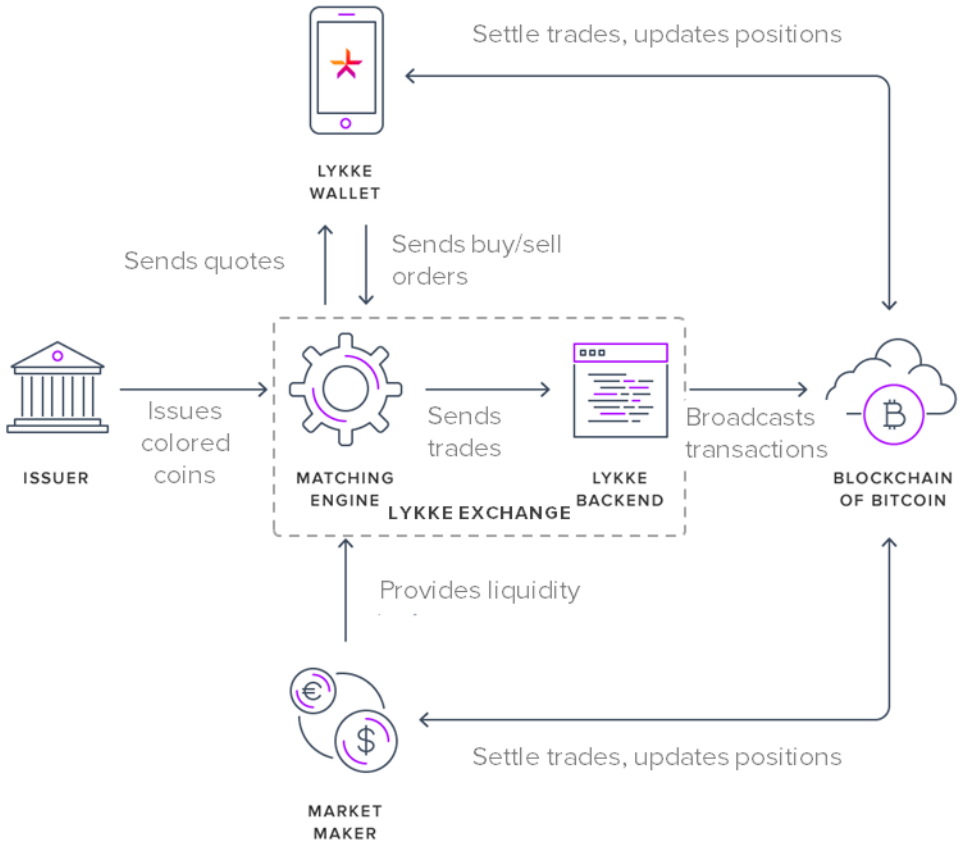
Lykke

High-level architecture



Lykke Exchange specs

Spec	Lykke Exchange implementation
Colored coin protocol	Open Asset
Blockchain	Bitcoin blockchain
Matching engine type	Centralized order book
Settlement type	Decentralized settlement on blockchain (atomic swap)
Auction type	Continuous double auction w/ Price-Spread-Time priority
Multisignature wallets	2-of-2 (client+exchange)

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.

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

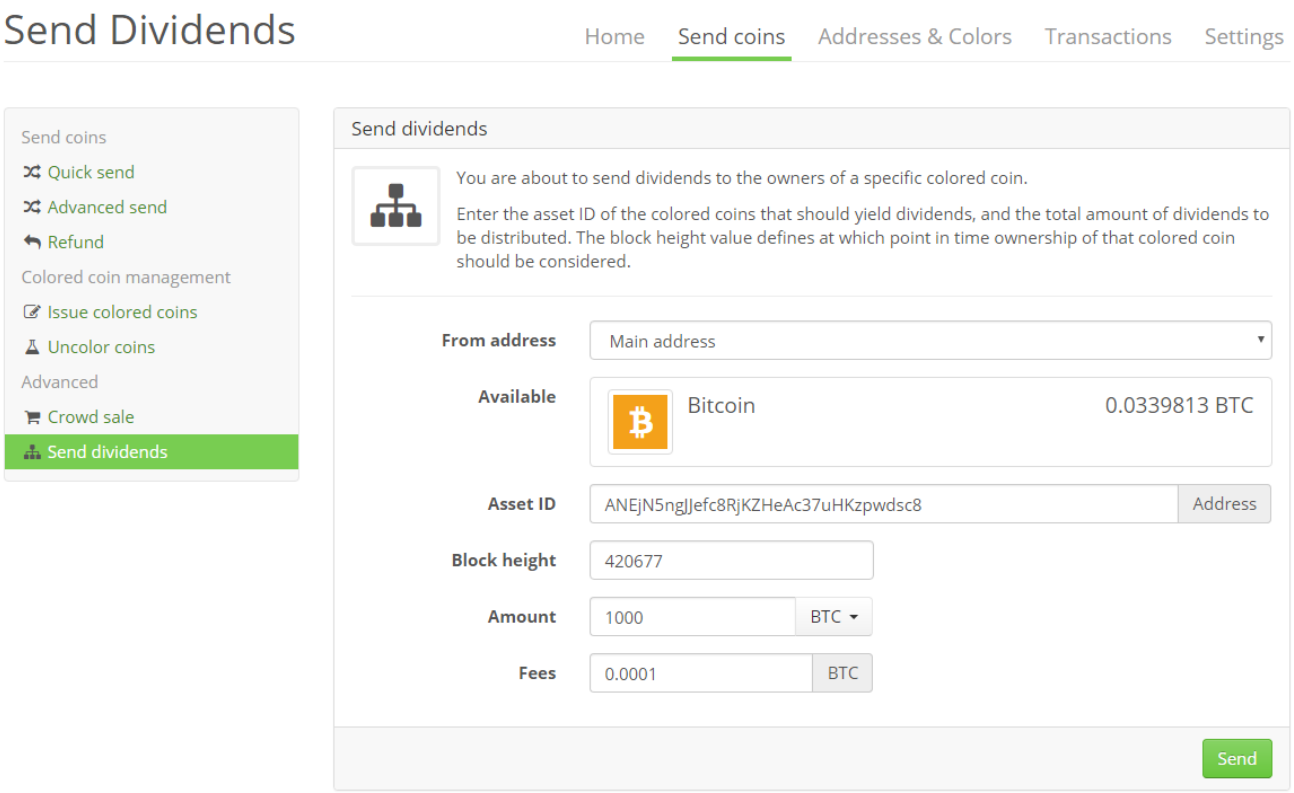
- Information
- Asset webpage
- Coin holders

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

Address	Ownership	Amount
akCk9f5nYnwjaKUvSURWmG9FjxQYaTKUU4T	38.88%	500,000,000 Lykke
akFi7XEmeEXPw5zPBxtktGWf4NiqJJpFvGK	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
akB34FAEsXxQQcpug2D7USAAzy617vXmrbw	1.42%	18,287,000 Lykke
akHsPEToBJvnJjYpVfnDYNLMGfHx9KQvU3i	0.97%	12,500,010 Lykke

Dividends distribution

Dividends can be broadcasted in bitcoins or fiat colored coins (EUR, CHF, etc.)

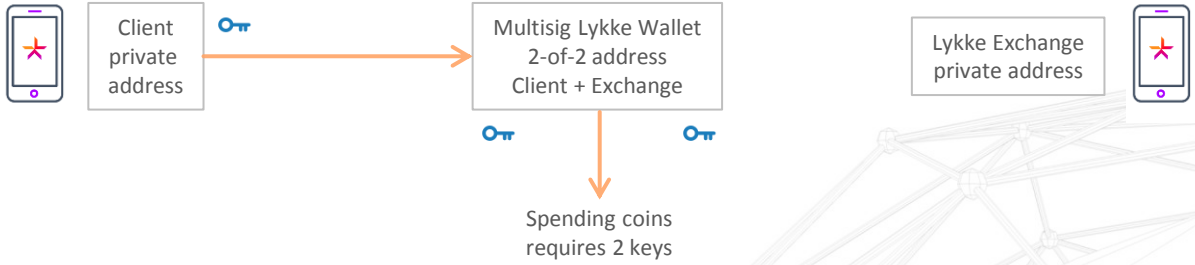


MultiSig wallets

Multisignature wallets are used to deposit client's coins. The exchange does not take possession of the traded coins.

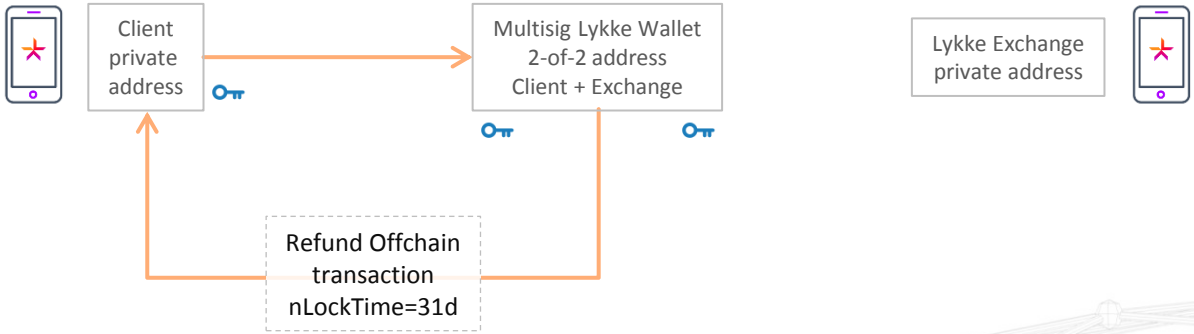
2-of-2 Multisig address requires two signature to spend coins from it:

- Client's signature
- Exchange signature



MultiSig wallets funds safety

To guarantee funds recovery from the MultiSig wallet Exchange provides offchain «refund transaction»

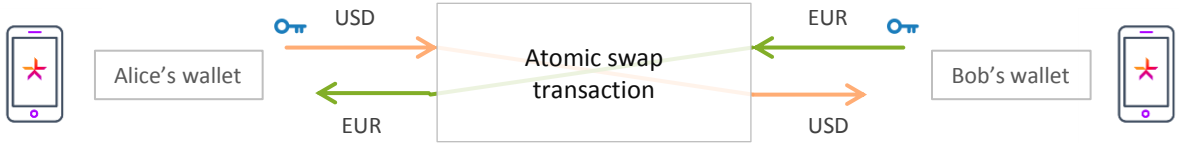


Client can get his money back in
31 days without asking Exchange

Refund transaction can be broadcasted after 31 days

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

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

akD1mWd1jv9HLBuQx7AqsF6NLQ35HbX7wnb	-0.0005724	anJBX5sKFK4vnbywKWE2NQa9xrvLJEqRAB2	**1.00**
anM5ECyEo3ctcBnLpDv22orZFmfU9PzB9rG	-0.999973	Fees	0.0005454

Lykke EUR — AbjAzsV5s5ANrGK3Kf3qbKQVQYSS3McfUH

anJBX5sKFK4vnbywKWE2NQa9xrvLJEqRAB2	**-590.44**	anM5ECyEo3ctcBnLpDv22orZFmfU9PzB9rG	590.44

025945a211dd4f780036a490282abedd268e56f3db4d72180fcec1ac5aa4545f

Wednesday, July 13, 2016 7:53:10 PM — 80 confirmations

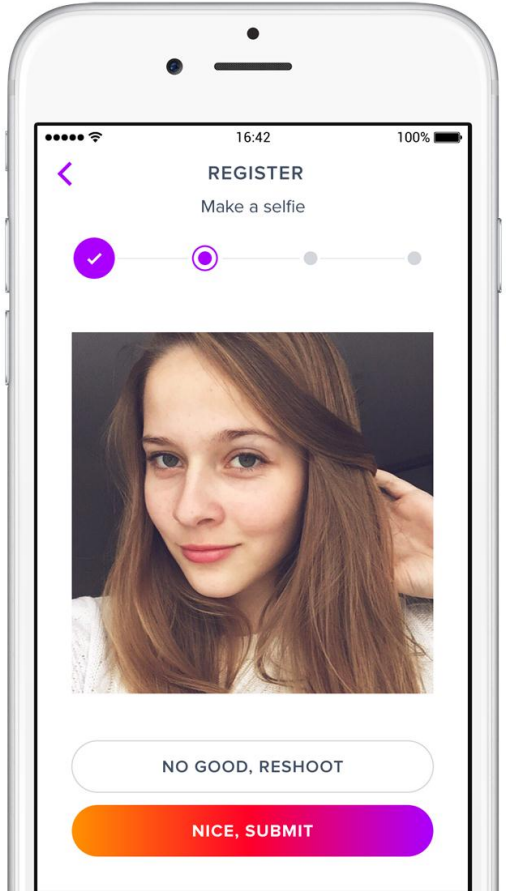
Bitcoin

akD1mWd1jv9HLBuQx7AqsF6NLQ35HbX7wnb	-0.0005724	anJBX5sKFK4vnbywKWE2NQa9xrvLJEqRAB2	**0.10**
anM5ECyEo3ctcBnLpDv22orZFmfU9PzB9rG	-0.099973	Fees	0.0005454

Lykke EUR — AbjAzsV5s5ANrGK3Kf3qbKQVQYSS3McfUH

anJBX5sKFK4vnbywKWE2NQa9xrvLJEqRAB2	**-59.48**	anM5ECyEo3ctcBnLpDv22orZFmfU9PzB9rG	59.48

Lykke Wallet



Download on the App Store

GET IT ON Google Play

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

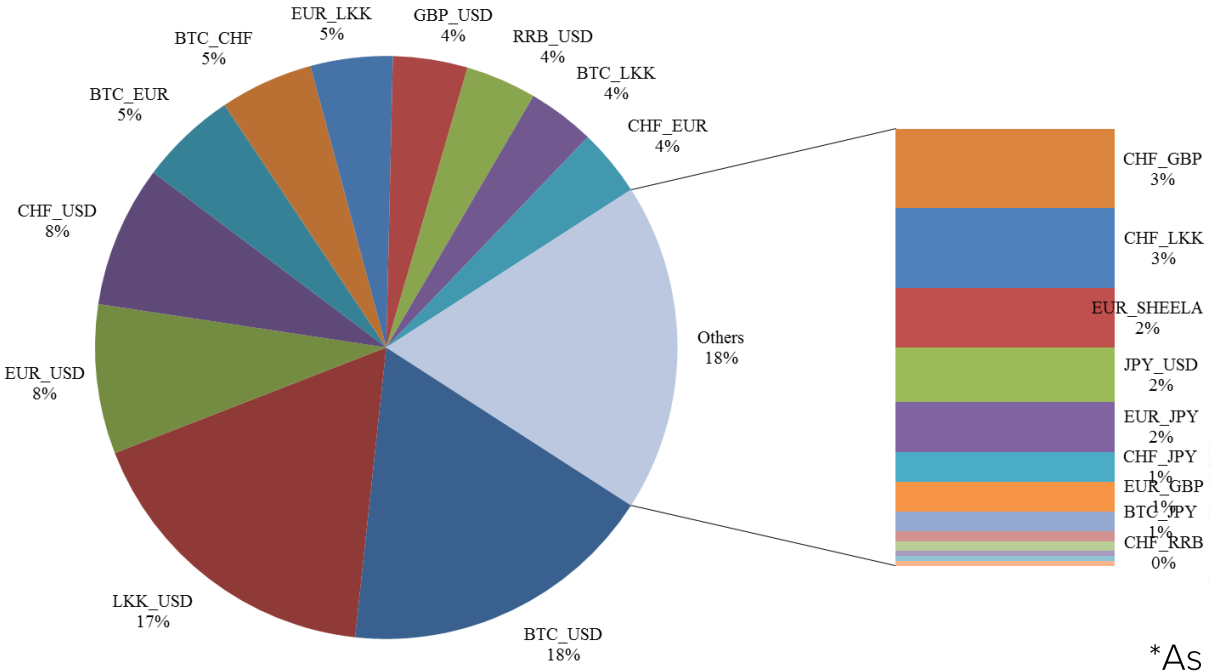
Trading stat*

103	days live
99.92%	uptime
150	accounts opened
10m	orders (quote update)
700	trades
$450k	volume
23min	median confirmation time (1 block)
68min	median settlement finality time (6 blocks)
12h	99% confidence confirmation time

*As of 12 September 2016

Trading stat*

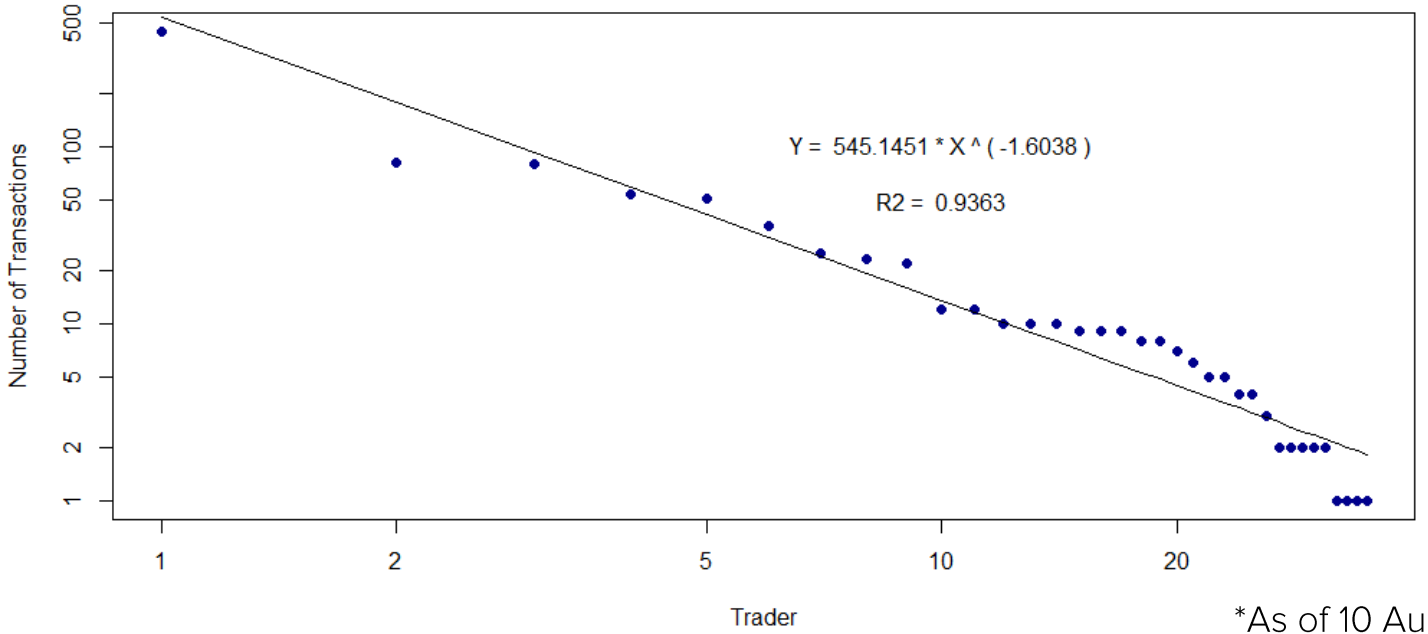
Structure of trading activity on Lykke Exchange, % in number of trades



*As of 10 August 2016

Trading stat*

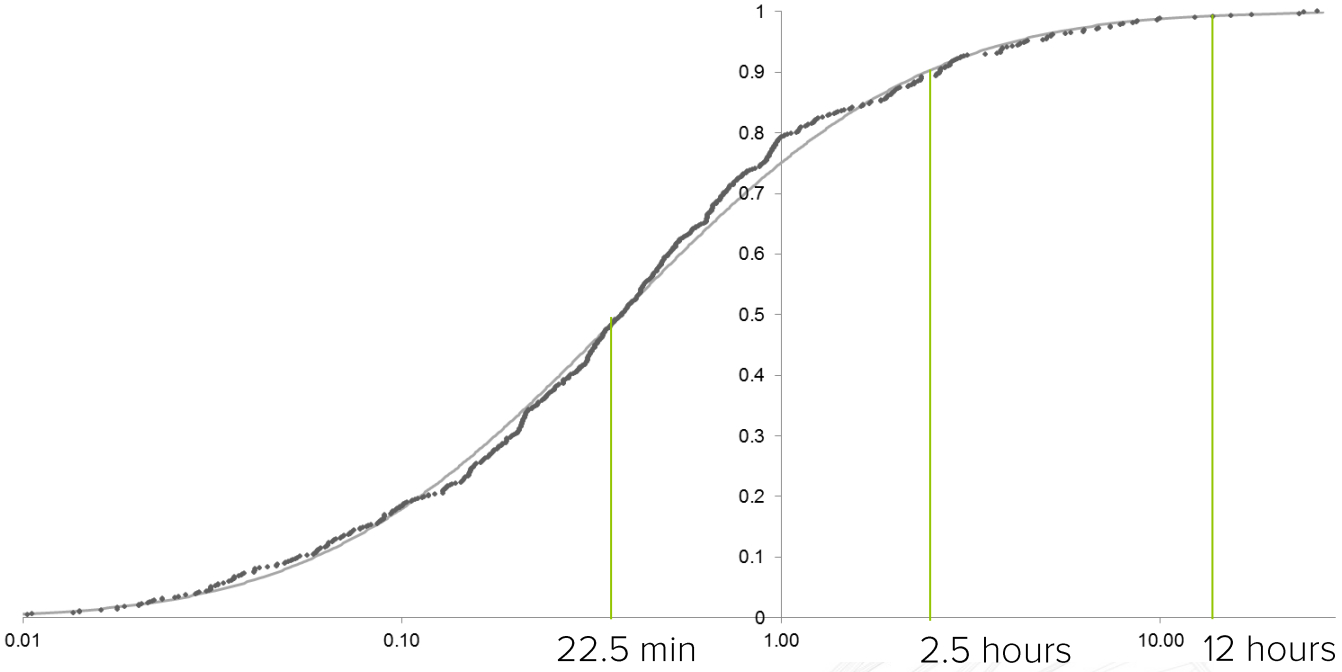
Distribution of trading activity on Lykke Exchange (in log-log scale)



*As of 10 August 2016

Trading stat*

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



*As of 1 September 2016

Research

Research themes

- Empirical market microstructure of digital assets marketplace;
- Scaling laws and optimal market design;
- Intraday yield curves estimation and impact to liquidity;
- Market participants ecology and behavioral studies;
- Market abuse detection;
- Settlement finality research;
- Consequences for systemic risk;
- Macroeconomic impact of digitizing financial assets.

Research

Research links

- Stefano Battiston, University of Zurich, Switzerland
- Tomaso Aste, UCL Centre for Blockchain Technologies, UK
- Guido Caldarelli, IMT Institute for Advanced Studies Lucca, Italy
- Katya Malinova, University of Toronto, Canada
- Rosario Mantegna, University of Palermo, Italy
- Andrei Kirilenko, Imperial College London, UK
- Dean Fantazzini, Moscow State University, Russia

New asset classes

- Futures & options on digital assets
- Private equity financing
- Digital bonds
- Contracts for difference (CFD)
- Zero coupon bonds and other fixed income
- Natural capital assets
- Industry and community coins
- Music shares

Regulatory approval status

Regulator	Entity	Ownership	License	Coverage	Status
Vanuatu Financial Services Commission	Lykke Vanuatu	100%	Dealer in securities	Asia, Africa	Approved
CySEC	Lykke Cyprus	100%	Investment firm	EU	Applying
FCA	Lykke MTF	100%	Multilateral trading facility	UK&EU	Applying
FINMA	Lykke OTF	100%	Organized trading facility	EU	Preparing application
Finanzmarktaufsicht Liechtenstein	Lykke Payments	100%	Payment system provider	EU	Preparing application

Singapore, US, Canada, Japan, Australia to follow in 2017.

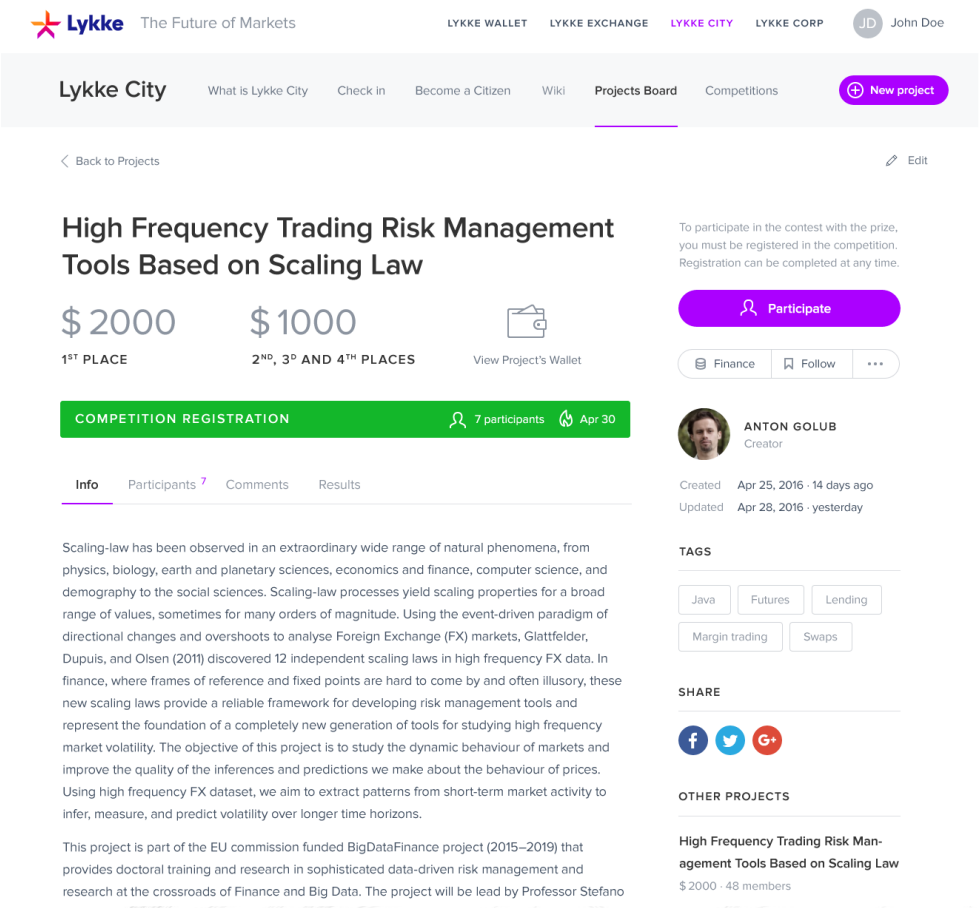
Roadmap

- Competition platform (Q4 2016)
- Margin trading (Q4 2016)
- Offchain settlement (Q4 2016)
- Extended FIX/FAST (Q1 2017)
- Ethereum settlement (Q1 2017)
- Payment system (Q2 2017)
- Multilateral trading facility (Q3 2017)
- Publication platform (Q4 2017)
- 1 billion USD average daily volume (end of 2017)

Competition Platform

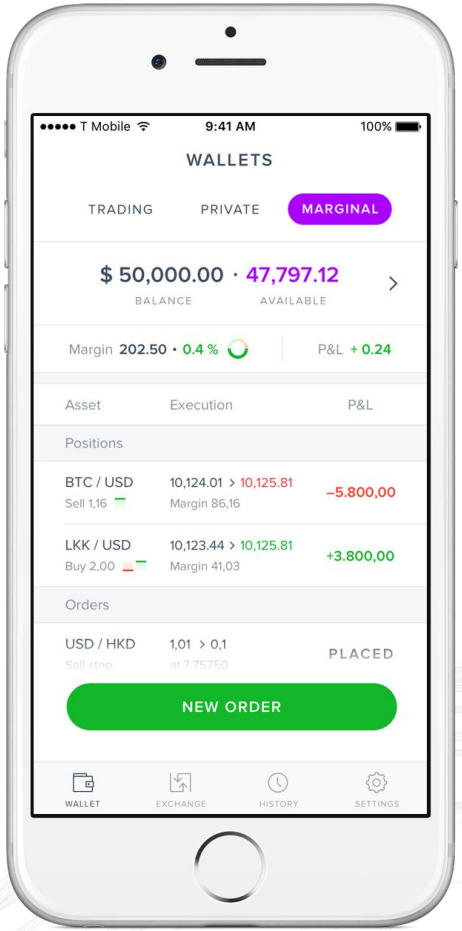
Competitions

- Software development
- Architecture
- Design
- Web-development
- Research projects
- Legal opinion
- Risk evaluation
- Translation



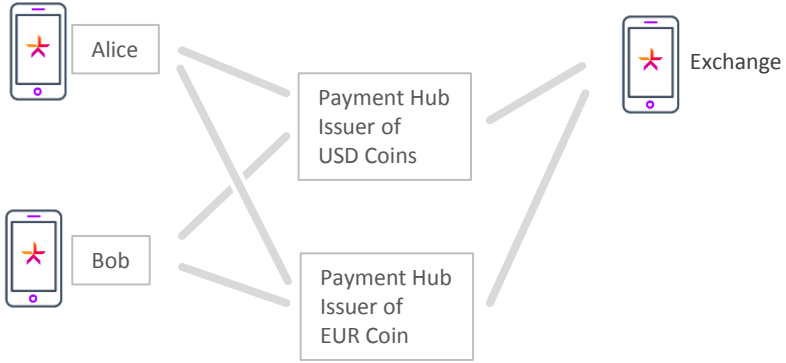
Margin trading

- Leveraged trading
- Pending orders
- Order book display
- Trading on chart
- Mobile + web-based



Offchain Settlement

- Payment channels
- Scalability 100k+ tps
- Payment hubs
- FIX/FAST bridge



Lykke @ Ethereum

Lykke Exchange Smart Contract

- Tokens issuance
- Multisignature wallets
- Refund transactions
- DvP settlement
- Interblockchain DvP swaps (ETH<>BTC, tokens <> colored coins)
- Offchain settlement

Initial Coin Offering Campaign

28 Days

30M Lykke coins (**300K** shares) offered

0.05 CHF per Lykke coin (**5 CHF** per Share)

56M CHF market value

ico.lykke.com

Contacts

Lykke Corp

52 Bahnhofstrasse
Zurich, Switzerland
lykke@lykke.com
+41 43 508 63 79

Twitter
Facebook
LinkedIn
Instagram
Github
YouTube
Commercial register