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Blockchain, Bitcoin, Crypto Assets and ICOs: Emergence of a New Asset Class

Prof. Dr. Philipp Sandner
Blockchain Center
Frankfurt School of Finance & Management

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Internet: www.fs-blockchain.de

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BLOCKCHAIN HOLDING

DLT | CAPITAL

What do we do?

Workshops, trainings, research projects, Ethereum prototypes, startups

For whom?

Banking, mobility, Industrie 4.0, internet of things, crypto assets, initial coin offerings

Dates

Workshop: How do ICOs work? (Dec. 2017)

Crypto Assets Conference 2018 (Feb. 2018)

Blockchain Certificate Program (May 2017)

Crypto Funds: Investment Vehicles (May 2018)

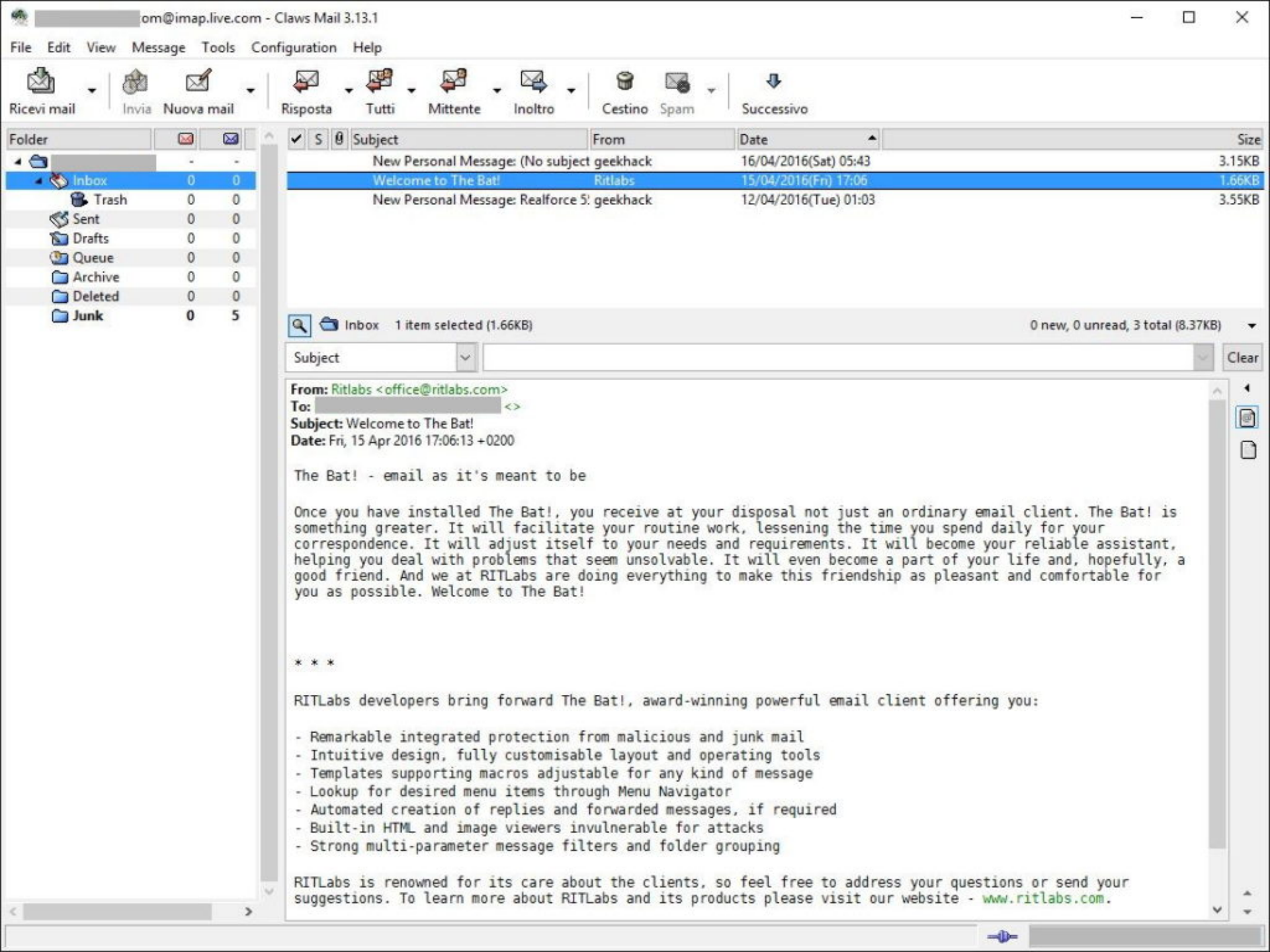
Crypto Startup Summer School (Feb. 2018)

Contact

Prof. Dr. Philipp Sandner
p.sandner@fs.de
www.fs-blockchain.de

Which problem does blockchain technology solve?

POST-BRIEFKASTEN
Leerung täglich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Invia
Nuova mail
Risposta
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Spam
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Folder
Inbox 0 0
Trash 0 0
Sent 0 0
Drafts 0 0
Queue 0 0
Archive 0 0
Deleted 0 0
Junk 0 5
Subject From Date Size
New Personal Message: (No subject geekhack 16/04/2016(Sat) 05:43 3.15KB
Welcome to The Bat! Ritlabs 15/04/2016(Fri) 17:06 1.66KB
New Personal Message: Realforce 5! geekhack 12/04/2016(Tue) 01:03 3.55KB
Inbox 1 item selected (1.66KB)
0 new, 0 unread, 3 total (8.37KB)
Subject
Clear
From: Ritlabs <office@ritlabs.com>
To: [redacted] <>
Subject: Welcome to The Bat!
Date: Fri, 15 Apr 2016 17:06:13 +0200
The Bat! - email as it's meant to be
Once you have installed The Bat!, you receive at your disposal not just an ordinary email client. The Bat! is something greater. It will facilitate your routine work, lessening the time you spend daily for your correspondence. It will adjust itself to your needs and requirements. It will become your reliable assistant, helping you deal with problems that seem unsolvable. It will even become a part of your life and, hopefully, a good friend. And we at RITLabs are doing everything to make this friendship as pleasant and comfortable for you as possible. Welcome to The Bat!
* * *
RITLabs developers bring forward The Bat!, award-winning powerful email client offering you:
- Remarkable integrated protection from malicious and junk mail
- Intuitive design, fully customisable layout and operating tools
- Templates supporting macros adjustable for any kind of message
- Lookup for desired menu items through Menu Navigator
- Automated creation of replies and forwarded messages, if required
- Built-in HTML and image viewers invulnerable for attacks
- Strong multi-parameter message filters and folder grouping
RITLabs is renowned for its care about the clients, so feel free to address your questions or send your suggestions. To learn more about RITLabs and its products please visit our website - www.ritlabs.com.

100
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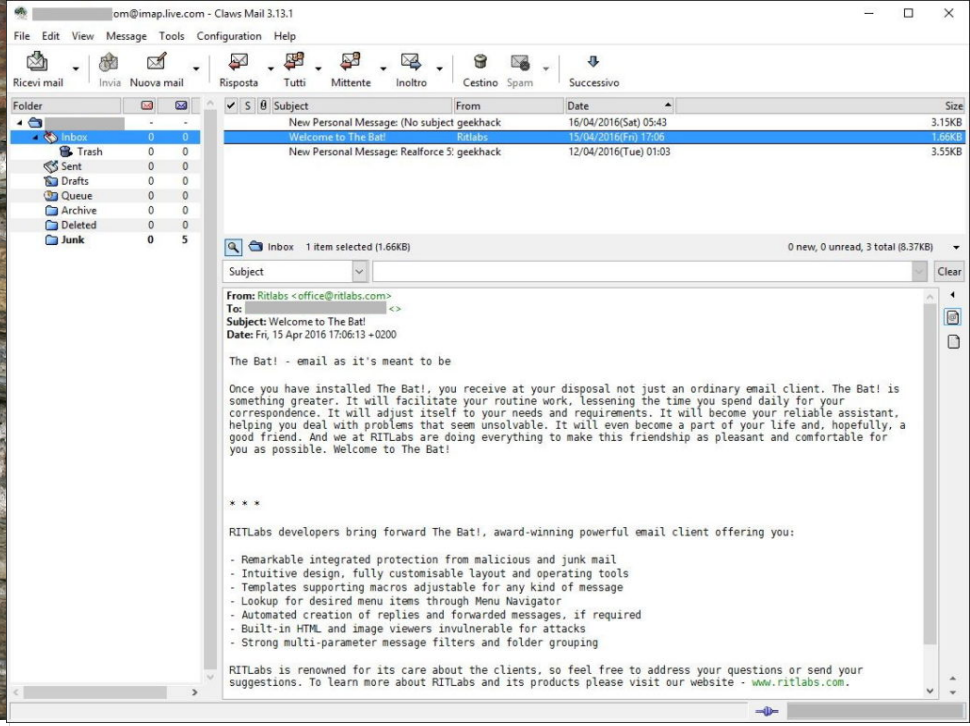
5 EURO

BLOCKCHAIN

POST-BRIEFKASTEN
Leerung täglich


om@imap.live.com - Claws Mail 3.13.1
File Edit View Message Tools Configuration Help
Ricevi mail Invia Nuova mail Risposta Tutti Mittente Inoltro Cestino Spam Successivo
Folder
Inbox 0 0
Trash 0 0
Sent 0 0
Drafts 0 0
Queue 0 0
Archive 0 0
Deleted 0 0
Junk 0 5
Subject From Date Size
New Personal Message: (No subject geekhack 16/04/2016(Sat) 05:43 3.15KB
Welcome to The Bat! Ritlabs 15/04/2016(Fri) 17:06 1.66KB
New Personal Message: Realforce 5: geekhack 12/04/2016(Tue) 01:03 3.55KB
Inbox 1 item selected (1.66KB)
0 new, 0 unread, 3 total (8.37KB)
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100
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20
10
5
5 EURO

BLOCKCHAIN

Inbox (4) - sandnerphilipp@gmail.com - Gmail

Google

Gmail

COMPOSE

Inbox (4)
Starred
Important
Drafts (26)
Spam
More

Sign in

g in will sign you into
gouts across Google
Learn more

evert to the old chat

Money

Wolfgang

Money

Dear Wolfgang,

Prof. Dr. Philipp Sandner
Frankfurt School Blockchain Center

Frankfurt School of Finance & Management gGmbH
NORMA Group Junior Professor for Manufacturing
Sonnemannstrasse 9-11
60314 Frankfurt am Main
Germany

Phone: +49 151 25339641
Mail: email@philipp-sandner.de
Web: www.frankfurt-school.de/sandner

Management Board: Prof. Dr. Udo Steffens
Head of Foundation Board: Rainer Nesko

Sans Serif

Send

Save failed

Inbox (4) - sandnerphilipp@gmail.com - Gmail

Google

Gmail

COMPOSE

Inbox (4)
Starred
Important
Drafts (26)
Spam
More

Sign in

g in will sign you into
gouts across Google
Learn more

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Money

Wolfgang

Money

Dear Wolfgang,

please find attached $200.

Best, Philipp

Prof. Dr. Philipp Sandner
Frankfurt School Blockchain Center

Frankfurt School of Finance & Management gGmbH
NORMA Group Junior Professor for Manufacturing
Sonnemannstrasse 9-11
60314 Frankfurt am Main
Germany

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Important
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Spam
More

Sign in

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Learn more

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Money

Wolfgang

Money

Dear Wolfgang,

please find attached $200.

Best, Philipp

Attachment

200,00 USD
Click to download

Prof. Dr. Philipp Sandner
Frankfurt School Blockchain Center

Frankfurt School of Finance & Management gGmbH
NORMA Group Junior Professor for Manufacturing
Sonnemannstrasse 9-11
60314 Frankfurt am Main
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Sans Serif

Send

Sample transaction on Ethereum

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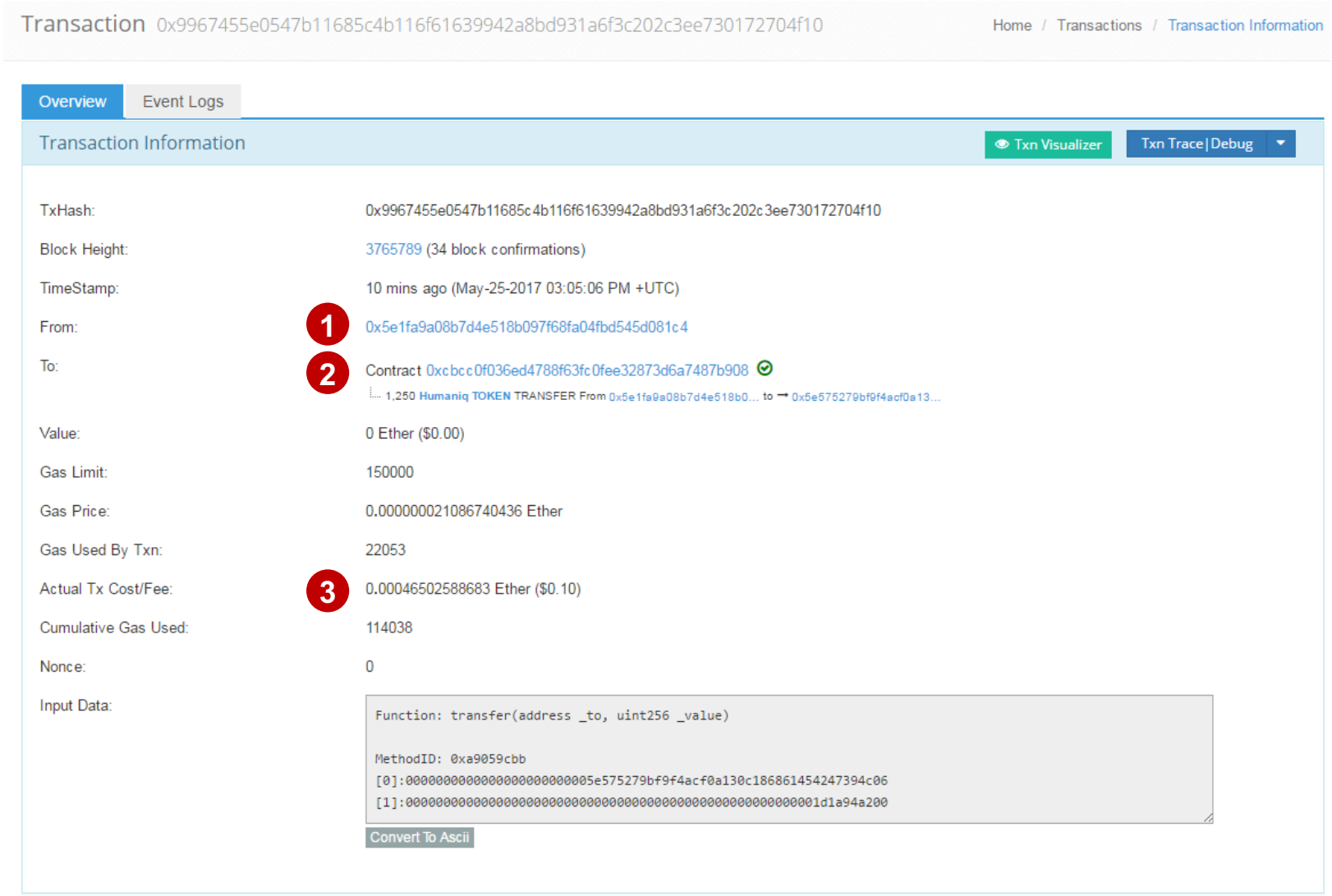

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Blockchain technology provides a layer for the "Internet of Value" in addition to the existing "Internet of Information"

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The **Internet** allows sending information: documents, PDFs, emails. Yet, value cannot be transferred via the internet.

Blockchain technology now allows the electronic transmission of "value": e.g. money, stocks, rights on assets. This is much more than displaying the bank account in online banking.

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Payment process between two parties

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Sophie

A payment requires multiple stages:
this costs time and can induce errors

Alex

Bank	Correspondent bank	Correspondent bank	Bank
Ledger	Ledger	Ledger	Ledger

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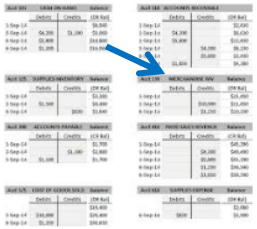
The core of blockchain technology

The core of blockchain is that
all transactions of a specific asset
are recorded in one common distributed database

Sophie

Ledger



Alex

The ownership for a property will thereby be transferred from an old owner to a new owner

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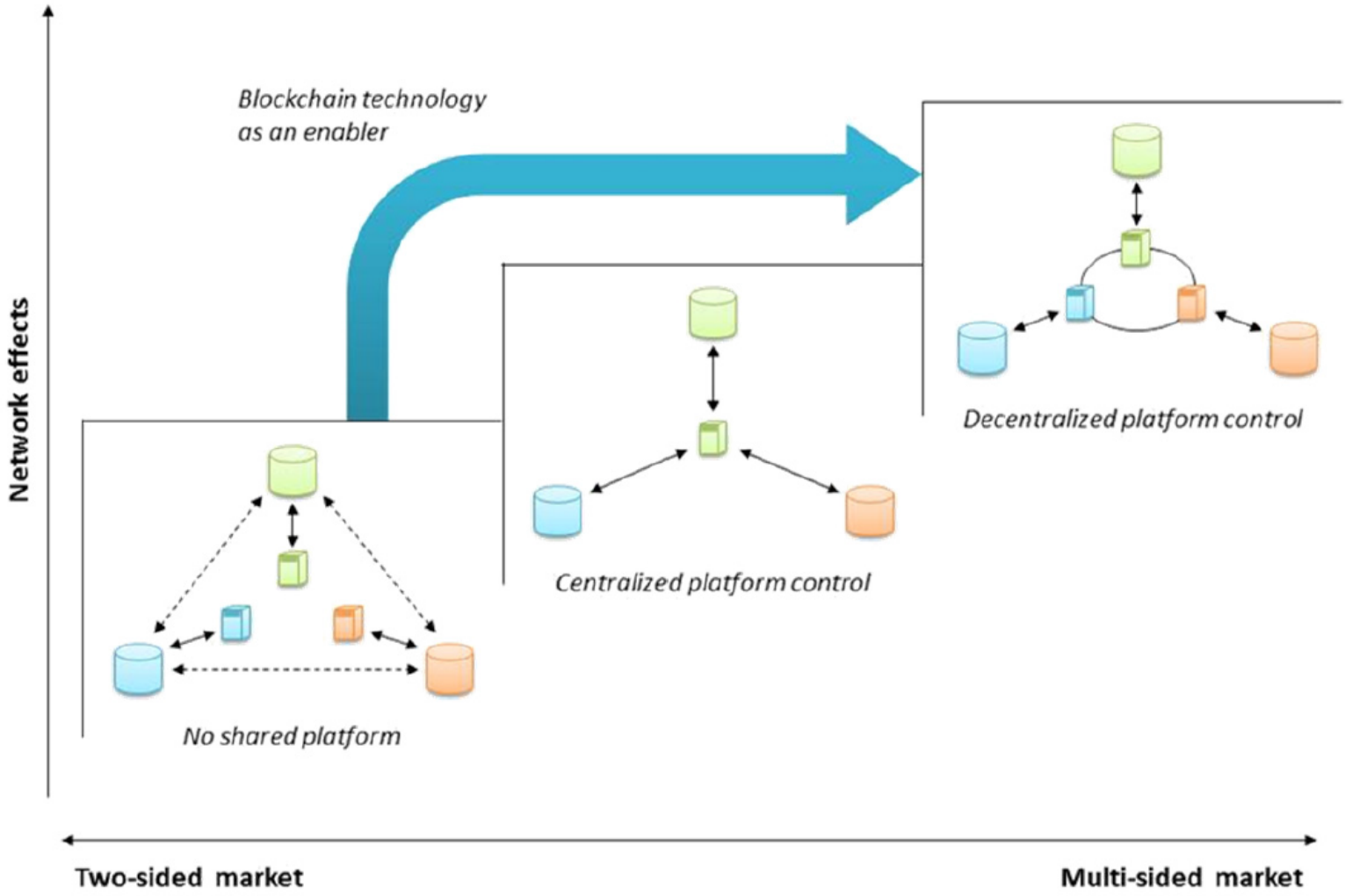
Blockchain technology has enabled platforms in which platform control is decentralized



Source: Mattila et al. (2016)

Anwendungen

Generelle Use Cases

Blockchain use cases listed by industry

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Financial
Trading
Deal origination
POs for new securities
Equities
Fixed income
Derivatives trading
Total Return Swaps (TRS)
2nd generation derivatives
The race to a zero middle office
Collateral management
Settlements
Payments
Transferring of value
Know your client (KYC)
Anti money laundering
Client and product reference data.
Crowd Funding
Peer-to-peer lending
Compliance reporting
Trade reporting & risk visualizations
Betting & prediction markets

Insurance
Claim filings
MBS/Property payments
Claims processing & admin
Fraud prediction
Telematics & ratings

Media
Digital rights mgmt
Game monetization
Art authentication
Purchase & usage monitoring
Ticket purchases
Fan tracking
Ad click fraud reduction
Resell of authentic assets
Real time auction & ad placements

Computer Science
Micronization of work (pay for algorithms, tweets, ad clicks, etc.)
Expanse of marketplace
Disbursement of work
Direct to developer payments
API platform plays
Notarization & certification
P2P storage & compute sharing
DNS

Medical
Records sharing
Prescription sharing
Compliance
Personalized medicine
DNA sequencing

Asset Titles
Diamonds
Designer brands
Car leasing & sales
Home Mortgages & payments
Land title ownership
Digital asset records

Government
Voting
Vehicle registration
WIC, Vet, SS, benefits, distribution
Licensing & identification
Copyrights

Identity
Personal
Objects
Families of objects
Digital assets
Multifactor Auth
Refugee tracking
Education & badging
Purchase & review tracking
Employer & Employee reviews

IoT
Device to Device payments
Device directories
Operations (e.g. water flow)
Grid monitoring
Smart home & office management
Cross-company maintenance markets

Payments
Micropayments (apps, 402)
B2B international remittance
Tax filing & collection
Rethinking wallets & banks

Consumer
Digital rewards
Uber, AirBNB, Apple Pay
P2P selling, craigslist
Cross company, brand, loyalty tracking

Supply Chain
Dynamic ag commodities pricing
Real time auction for supply delivery
Pharmaceutical tracking & purity
Agricultural food authentication
Shipping & logistics management

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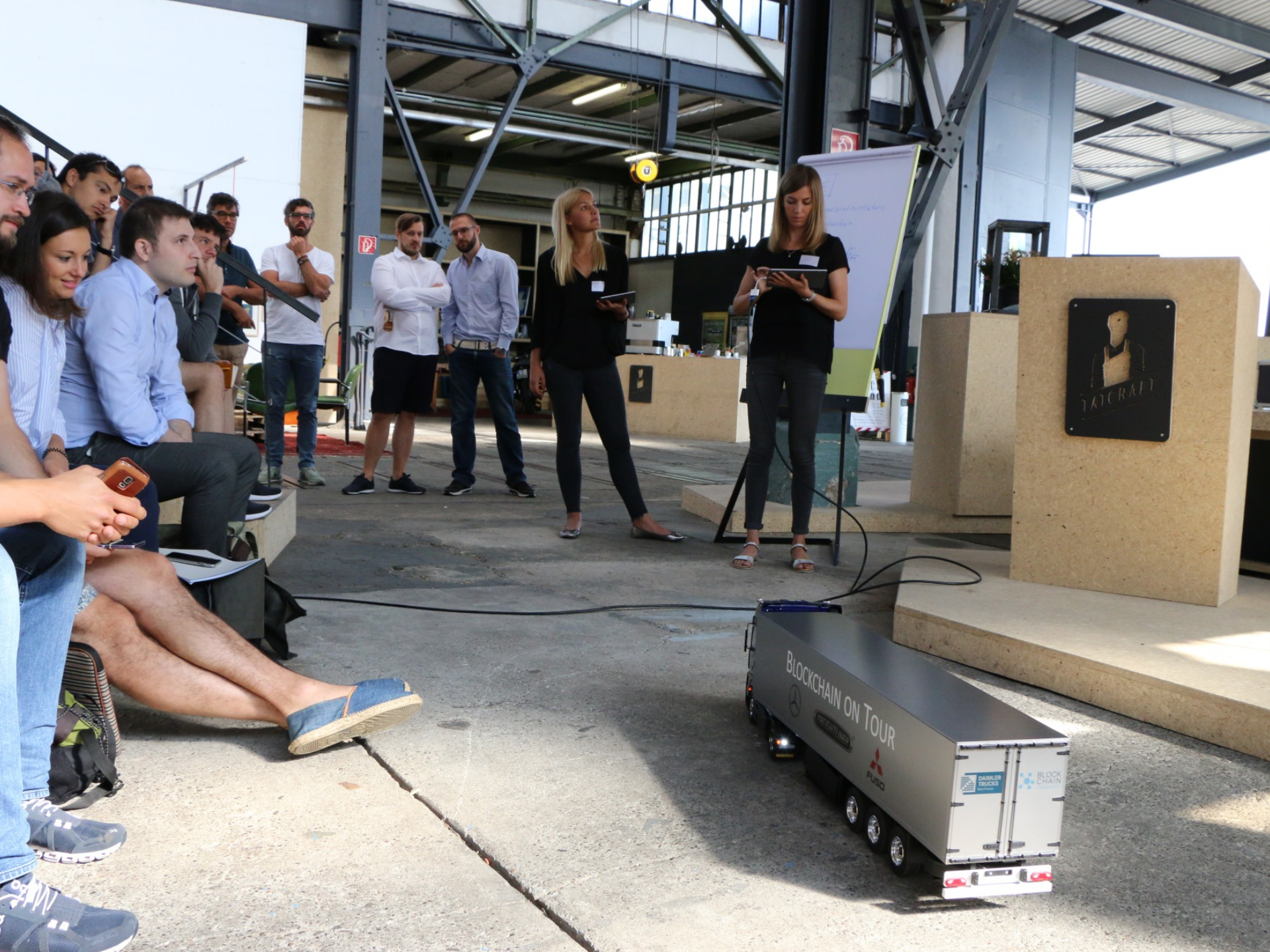
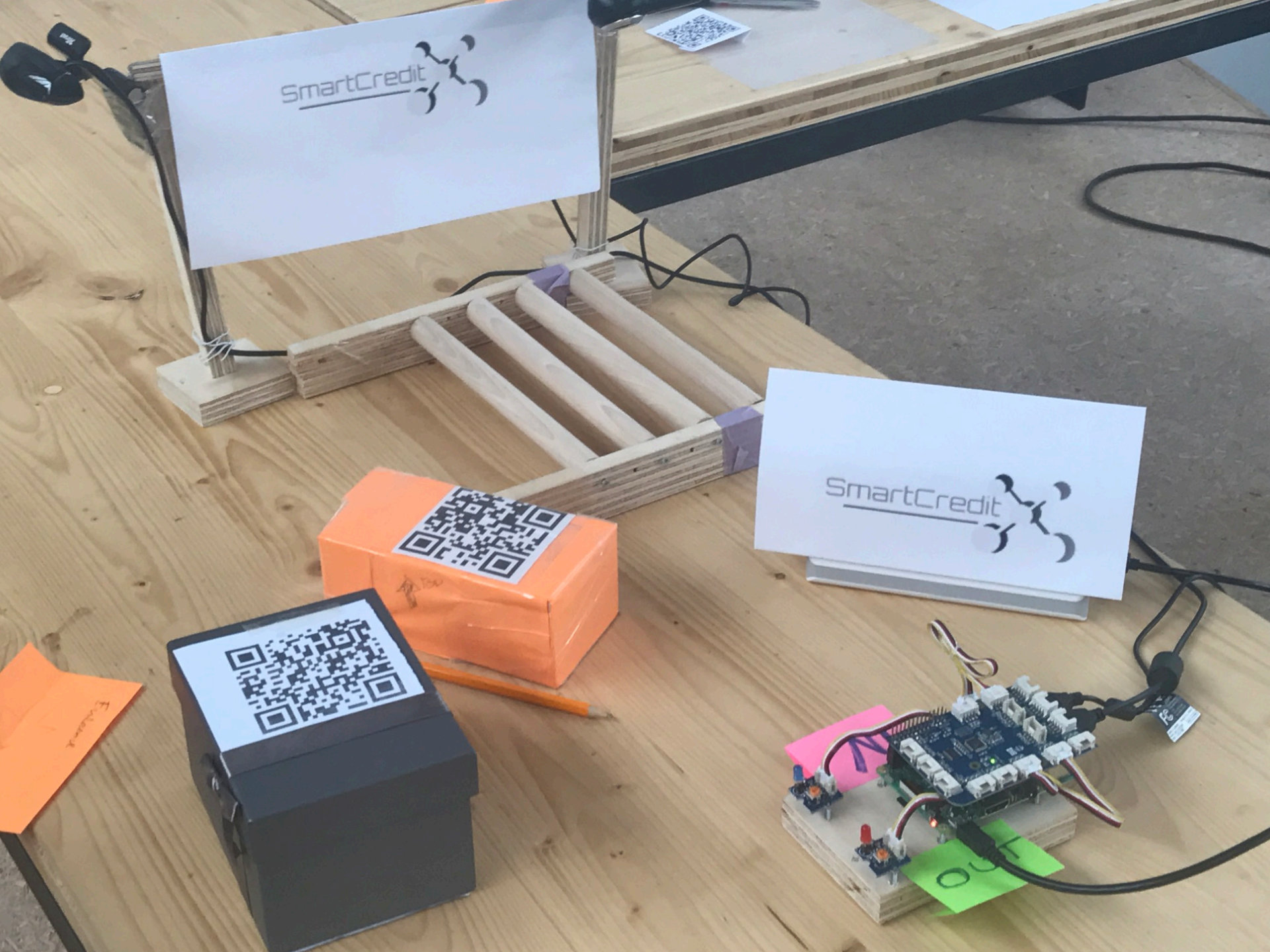
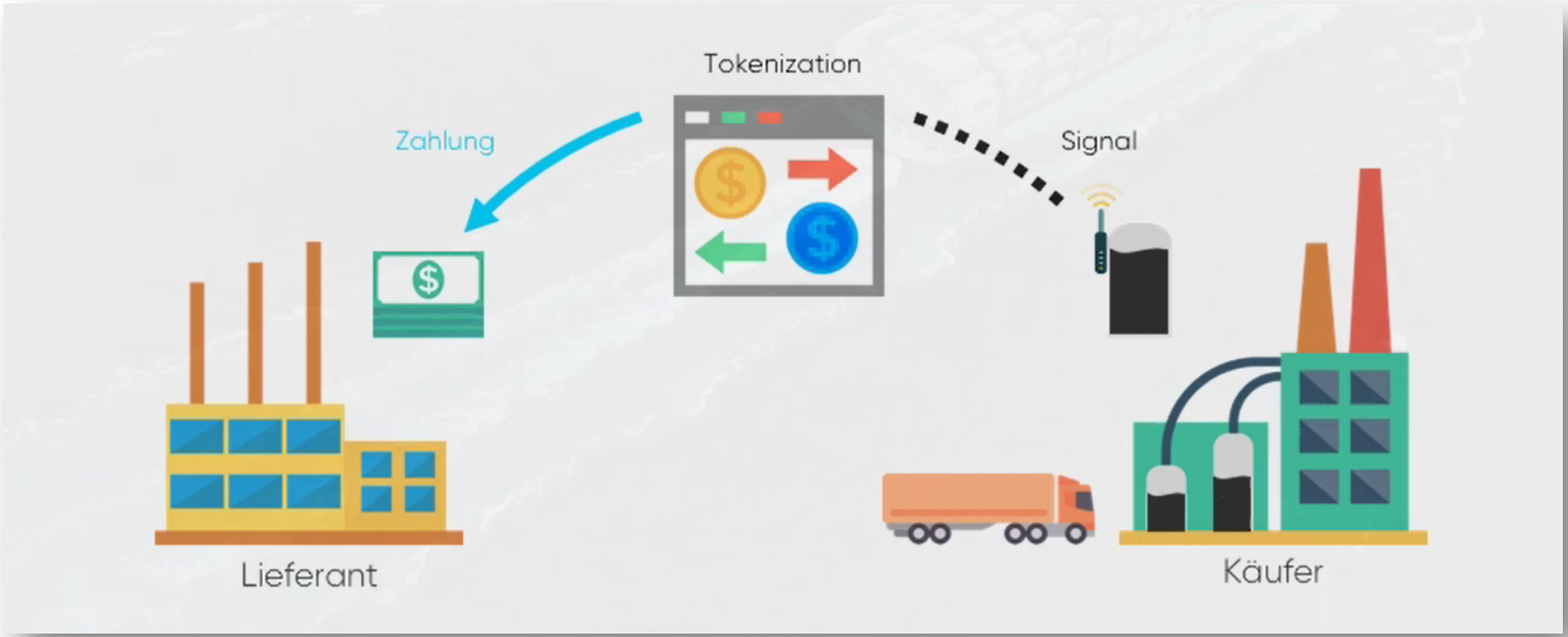

BLOCKCHAIN ON TOUR
DAIMLER TRUCKS
FUSO
BLOCK CHAIN


SmartCredit
SmartCredit

Azhos: tokenizing the processing industry



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Public Blockchain (Crypto Assets)

Ranking of crypto currencies

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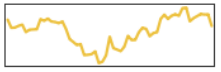
All ▾ Coins ▾ Tokens ▾ USD ▾ Next 100 → View All

#	Name	Market Cap	Price	Volume (24h)	Circulating Supply	Change (24h)	Price Graph (7d)
1	Bitcoin	$148.113.189.405	$8.746,84	$5.875.380.000	16.933.337 BTC	-3,98%	
2	Ethereum	$53.305.787.209	$542,03	$1.594.970.000	98.344.536 ETH	-6,48%	
3	Ripple	$25.727.393.779	$0,658089	$454.117.000	39.094.094.840 XRP *	-7,06%	
4	Bitcoin Cash	$17.135.404.726	$1.006,10	$349.421.000	17.031.513 BCH	-4,62%	
5	Litecoin	$9.257.874.733	$166,09	$439.059.000	55.739.774 LTC	-4,46%	
6	Cardano	$5.142.323.316	$0,198338	$220.359.000	25.927.070.538 ADA *	-10,08%	
7	EOS	$4.952.945.918	$6,65	$962.119.000	744.456.857 EOS *	7,34%	
8	NEO	$4.562.473.500	$70,19	$172.850.000	65.000.000 NEO *	-8,56%	
9	Stellar	$4.450.447.204	$0,239930	$60.461.400	18.548.940.124 XLM *	-9,62%	
10	IOTA	$3.643.297.114	$1,31	$48.596.000	2.779.530.283 MIOTA *	-7,38%	
11	Monero	$3.389.202.247	$213,81	$49.477.800	15.851.764 XMR	-8,65%	
12	Dash	$3.320.865.726	$417,14	$98.254.100	7.961.091 DASH	-6,29%	

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Bitcoin: price rocketed in 2017

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Vier Wellen von Krypto-Investoren: F-G-H-I

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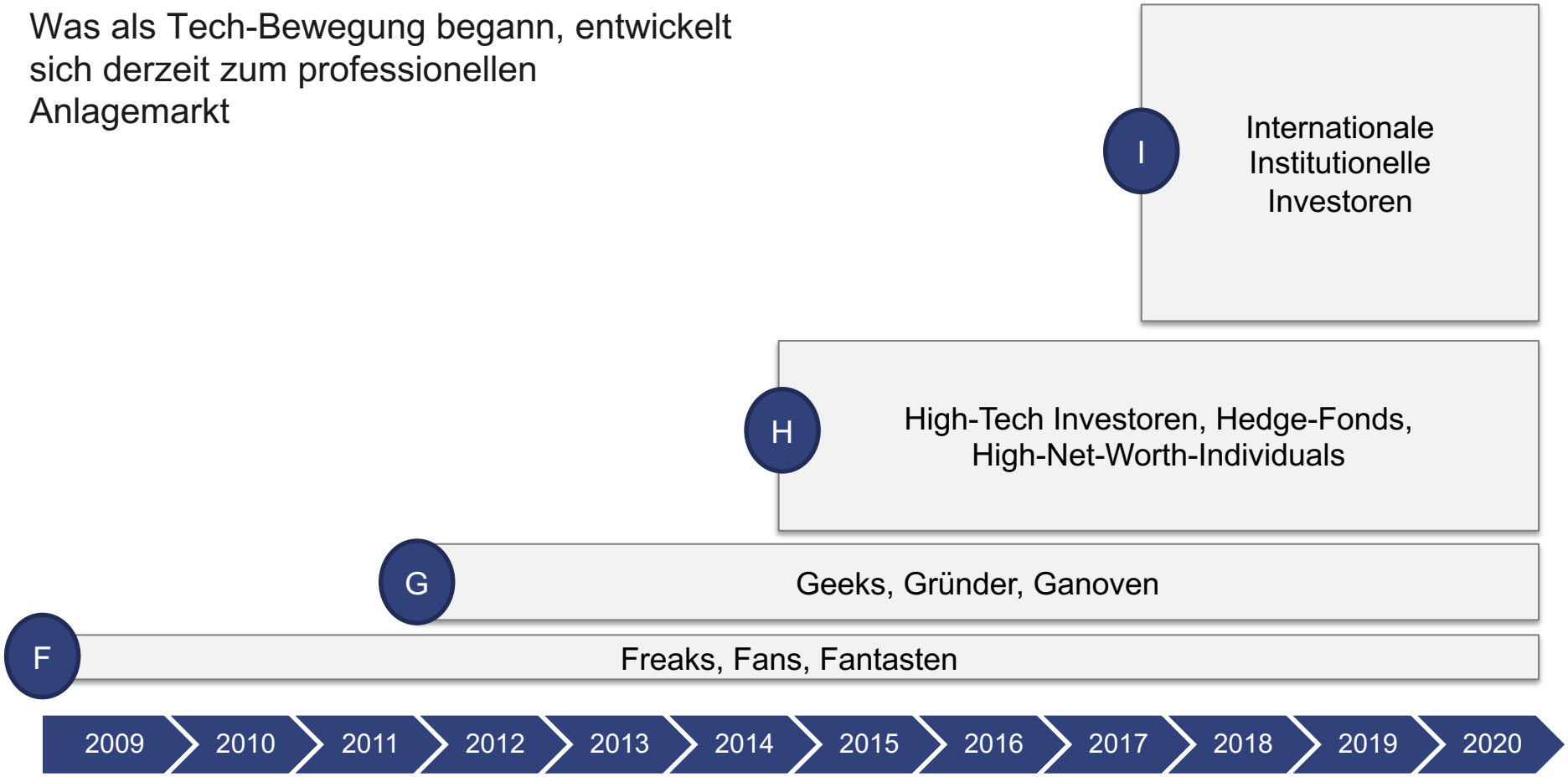
Was als Tech-Bewegung begann, entwickelt sich derzeit zum professionellen Anlagemarkt



Source: Postera Capital (2017)

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ICO funding raised $5.6bn in 2017 and VC funding $800mn: ICO exceeded VC by 7x

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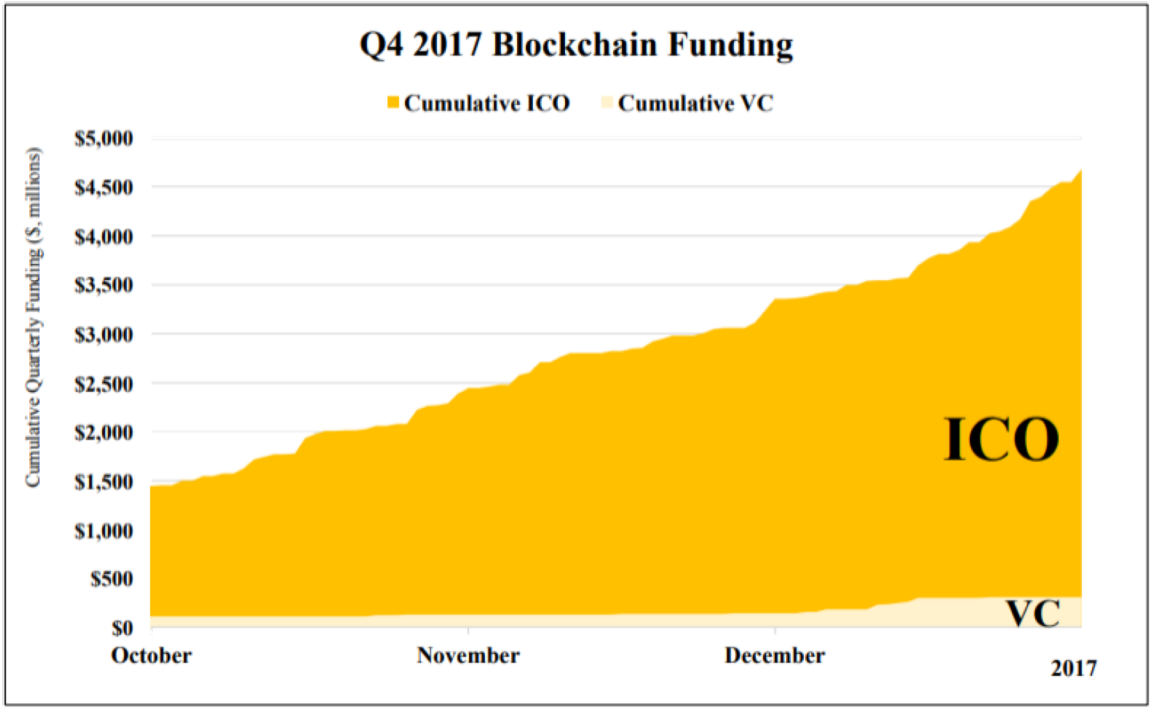

Q4 2017

ICO	VC
$3,231mn	$200mn

Top ICO Deals:	Top VC Deals:
Sirin Labs - $157.9mn Polkadot - $144.6mn Qash - $107.3mn COMSA - $95.4mn	BitGo - $42.5mn BitPay - $30mn OKCoin - $27.2mn Abra - $16mn

Q2		Q3	
ICO	VC	ICO	VC
$797mn	$235mn	$1,316mn	$156mn

Source: CoinDesk (2017)

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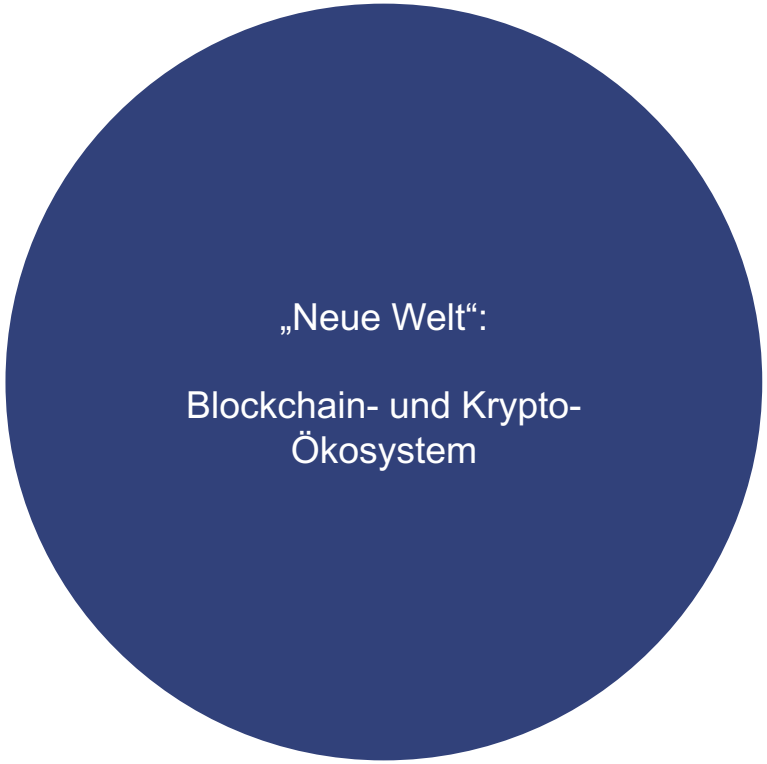
Das Blockchain- und Krypto-Ökosystem ist großenteils außerhalb etablierter Strukturen gewachsen



Source: Postera Capital (2017)

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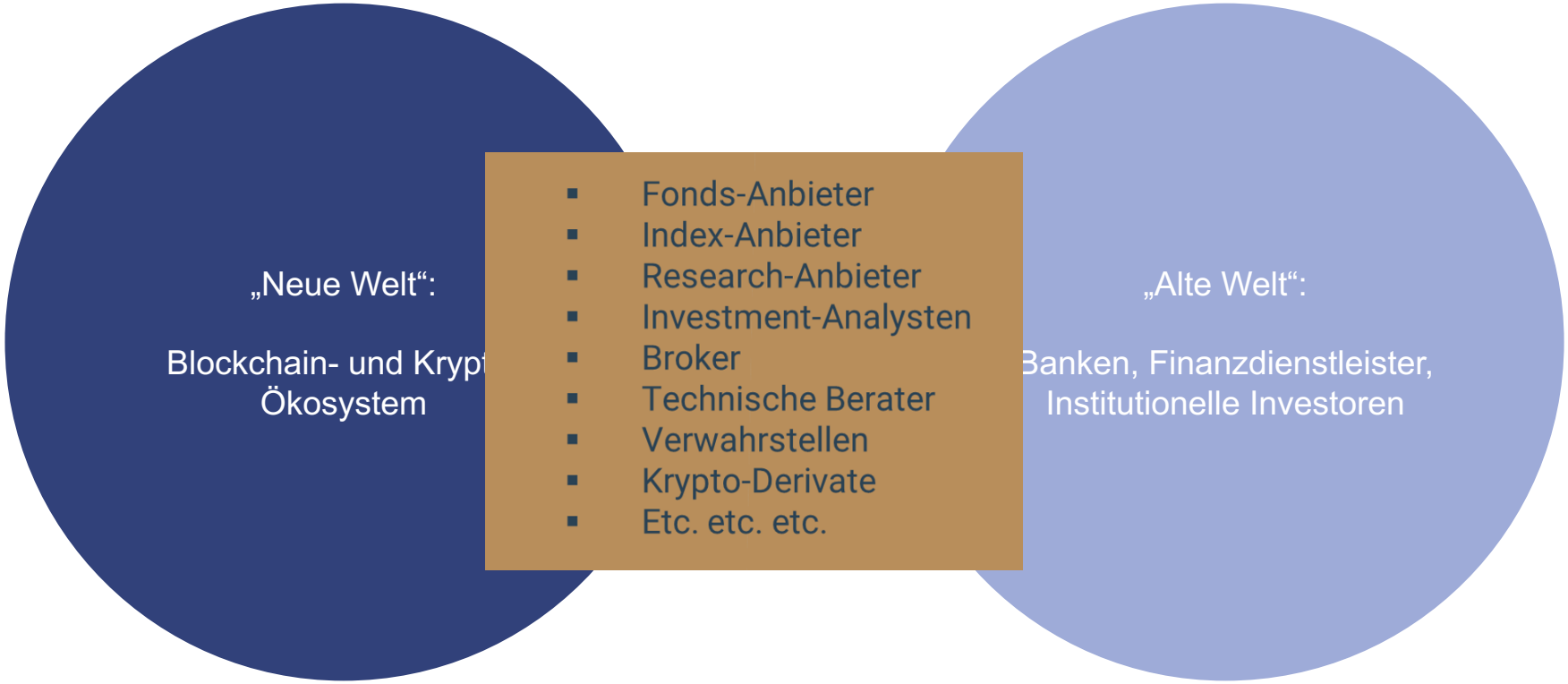
An der Schnittstelle zwischen „neuer“ und „alter“ Welt entsteht eine Infrastruktur an Dienstleistern, die professionellen Investoren investitionsfähig machen



Source: Postera Capital (2017)

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Anlagemöglichkeiten in Kryptoassets: Übersicht

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Anlage in Coins & Tokens		Anlagen in das Blockchain-Ökosystem bzw. Krypto-Ökosystem	
Direkt	**Indirekt**	**Infrastruktur**	**Unternehmens-beteiligungen**
▪ Erwerb über Handelsplätze ▪ Erwerb über Bank/Broker	▪ Zertifikate ▪ Futures ▪ Single-Asset-Fonds ▪ Token-Fonds ▪ Hedgefonds ▪ Gemischte Fonds ▪ CFDs	▪ Mining ▪ Masternoding	▪ Aktien ▪ Venture Capital

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How does it work?

Seizing the opportunity of market inefficiencies.

Bitfinex

BitcoinCash

1 BCC = 0,148359975 BTC

Buy BCC

Bittrex

BitcoinCash

1 BCC = 0,14979299 BTC

Sell BCC

+ 0,957% spread

The algorithm constantly monitors the market and whenever an arbitrage return can be realised a trade is simultaneously executed on both exchanges (requests every second)

Source: Blocksize Capital (2018), www.blocksize-capital.com

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Example of a crypto fund

Arbitrage spread analysis and trade execution

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1ST/BTC	MAX spread: 0,3322 %	BUY: HitBTC SELL: Bittrex
TRST/BTC	MAX spread: 0,6452 %	BUY: Bittrex SELL: HitBTC
AEON/BTC	MAX spread: 0,2624 %	BUY: Bittrex SELL: HitBTC
SWT/BTC	MAX spread: 0,2898 %	BUY: Bittrex SELL: HitBTC
SNT/ETH	MAX spread: 0,6488 %	BUY: HitBTC SELL: Bitfinex
SAN/ETH	MAX spread: 2,6271 %	BUY: HitBTC SELL: Bitfinex
BCH/ETH	MAX spread: 0,2778 %	BUY: HitBTC SELL: Poloniex
ZRX/USD	MAX spread: 0,7476 %	BUY: Bitfinex SELL: HitBTC
QTUM/ETH	MAX spread: 3,9736 %	BUY: Bittrex SELL: HitBTC
GAME/BTC	MAX spread: 7,3352 %	BUY: HitBTC SELL: Bittrex
NEO/USD	MAX spread: 0,5042 %	BUY: Bitfinex SELL: HitBTC
XVG/BTC	MAX spread: 0,8333 %	BUY: Bittrex SELL: HitBTC
TRX/USD	MAX spread: 0,5683 %	BUY: Bitfinex SELL: HitBTC
SNT/BTC	MAX spread: 0,1211 %	BUY: HitBTC SELL: Bitfinex
BTG/USD	MAX spread: 0,5848 %	BUY: Bitfinex SELL: HitBTC
QTUM/USD	MAX spread: 4,9812 %	BUY: Bitfinex SELL: HitBTC
QTUM/BTC	MAX spread: 4,0296 %	BUY: Bittrex SELL: HitBTC
OMG/USD	MAX spread: 0,111 %	BUY: Bitfinex SELL: HitBTC
FLDC/BTC	MAX spread: 0,3831 %	BUY: Bittrex SELL: Poloniex
GRC/BTC	MAX spread: 0,3145 %	BUY: Poloniex SELL: Bittrex
OMNI/BTC	MAX spread: 0,4265 %	BUY: Bittrex SELL: Poloniex
NAV/BTC	MAX spread: 0,4648 %	BUY: Bittrex SELL: Poloniex
SYS/BTC	MAX spread: 0,032 %	BUY: Poloniex SELL: Bittrex
VIA/BTC	MAX spread: 0,1644 %	BUY: Bittrex SELL: Poloniex
XVC/BTC	MAX spread: 20,6494 %	BUY: Poloniex SELL: Bittrex

Source: Blocksize Capital (2018), www.blocksize-capital.com

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Leiter des Frankfurt School Blockchain Center

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Frankfurt School Blockchain Center

BEI Business Engineering Institute St. Gallen

Competence Center Sourcing in der Finanzindustrie

3. Forum

Blockchain im Finanzbereich – neue Geschäftsmodelle und deren Umsetzung

Donnerstag, 08. November 2018
09:00-17:00
Frankfurt am Main

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Organization

Frankfurt School Blockchain Center

DLT CAPITAL

BLACK ARROW

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Speakers

CARDANO FOUNDATION

IOTA Foundation

DASH Embassy D-A-CH

NEO

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CONSENSYS

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DIGIX

MATRIX

·santiment·

CEVEN

BCW

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Prof. Dr. Philipp Sandner

Frankfurt School of Finance & Management
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Geboren 1980 in Heidelberg
Kontakt: email@philipp-sandner.de

2000-2005	Studium der BWL an der Universität Mannheim
2005-2011	Promotion an der Ludwig-Maximilians-Universität München
	Auslandsaufenthalte an der Copenhagen Business School und an der University of California at Berkeley
	Post-Doc an der Technischen Universität München
2010-2015	Mitgründer einer auf Innovationsstrategie und IP spezialisierte Unternehmensberatung
2015	Professor an der Frankfurt School of Finance & Management; Themengebiete: Digitalisierung, Entrepreneurship und Innovation;
seit 2017	Leiter des Frankfurt School Blockchain Centers
Themen	Blockchain, Crypto Assets, Initial Coin Offerings (ICOs), Digitalisierung und Entrepreneurship
Praxis	Beratung von Unternehmen hinsichtlich ihrer Blockchain-Aktivitäten, u.a. auch den ersten Crypto Fund Europas oder Startups in Consensys' Token Foundry Programm
Engagement	FinTechRat des Bundesministerium der Finanzen, Mitgründer des Blockchain Bundesverband e.V., Multichain Asset Managers Association

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