Leondrino Exchange

BLOCKCHAIN

Examples of using blockchain for use case driven implementations and their potential impact on Big Data approaches

Sandra Leonie Ritter / CEO - Leondrino Exchange, Inc.
April 13, 2016

Leondrino Exchange, Inc. – Startup in FinTech

Leondrino Exchange (LEX) is:

- Issuer of virtual currencies of brands
- Administrator of virtual currencies of brands (= Leondrino Currencies)
- Trusted third-party between brands and its customers and suppliers which supports a neutral environment for sustainable business models and growth
- Supports “Blockchain Technology” and will interoperate with other currency exchange platforms
- Is supported by strong strategic partners who are interested in participating in a Leondrino Currency implementation

“LEX will complement the existing monetary systems and become the most trusted issuer and administrator of private branded currencies.”

Agenda

- Introduction
- Use Cases & Implementations
- Costs & Benefits
- Co-Innovation Opportunities
- Attempt to Predict the Future of Blockchain

INTRODUCTION

Brief introduction and assessment of the current possible applications

A Note on Terminology

The industry now uses the phrases ‘blockchain’ and ‘distributed ledgers’ interchangeably:

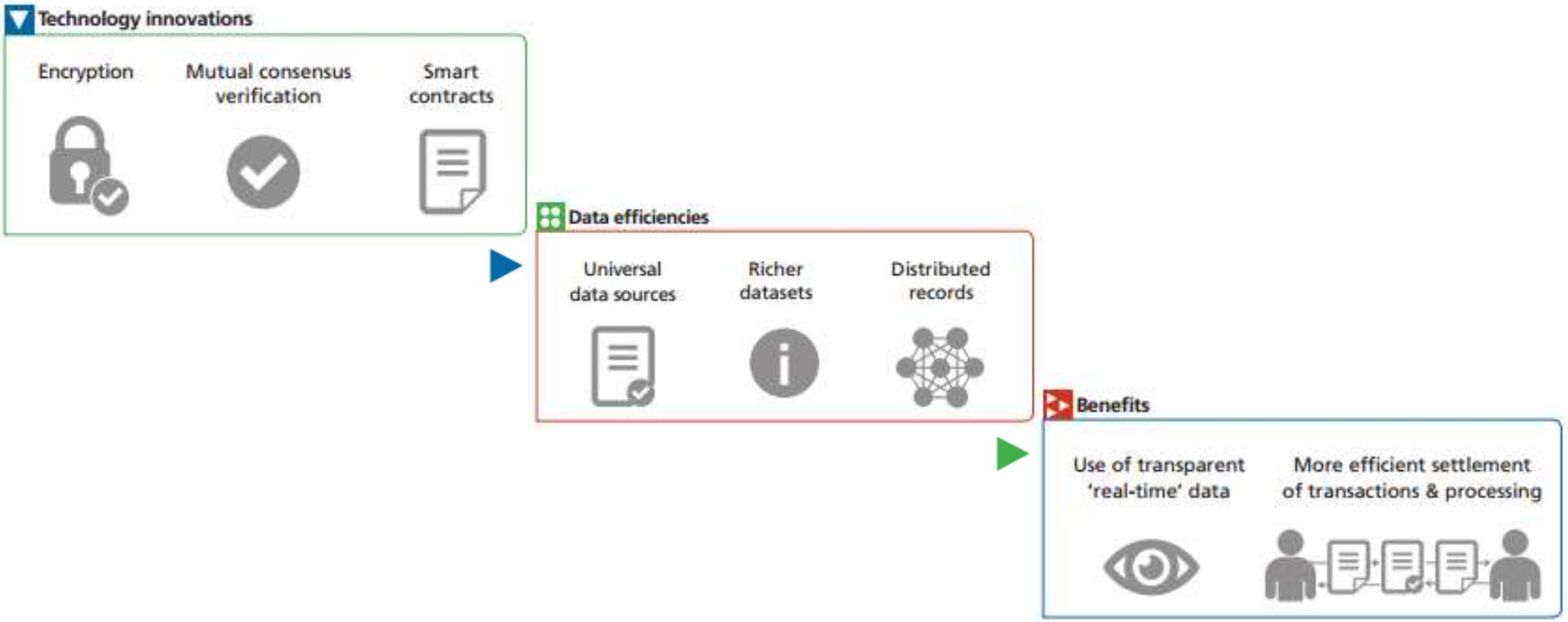
Blockchains
most known for underpinning the Bitcoin protocol, the term is used to describe a process of adding blocks of cryptographically signed data to form perpetual and immutable records.

Distributed Ledgers
a term which describes a database architecture where all nodes in a system collaborate to reach a consensus on the correct state of a shared data resource.

Smart Contracts
programmes or code uploaded to a ledger, rather than basic passive data entries. Smart contracts are programmed to generate instructions for downstream processes (such as payment instructions or moving collateral) if reference conditions are met. Like passive data, they become immutable once accepted onto the ledger.

! Not all distributed ledgers necessarily use the blockchains.

Understanding the Potential



Source: Simplified view of Distributed Ledger approach by Oliver Wyman

Key Features

Immutable

- Create / Read / ~~Update / Delete~~

Non-repudiable

- Digital signatures
- Sign & Verify

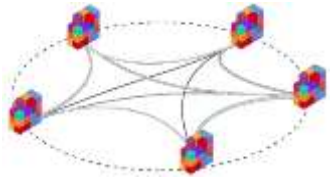
Fault-tolerant

- Censorship resistant
- Partially-connected mesh resilience

Source: Taylor Gerring, Blockchain Consulting Expert and Director of Technology at Ethereum Foundation

Blockchain –Implementation Concepts

Public (open)



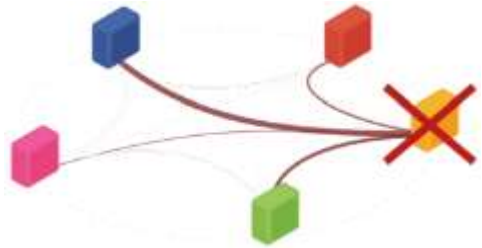
- Anyone can opt in
- Decentralized governance
- Size is endogenous
- Blocks updated via comeptition
  - Organic rewards to miners
  - Bidding by users to advance in queue

Private (permissioned)

- Participation restricted
- Powerful gatekeeper
- Size is limited
- Block updated by central authority
  - User fees charged

Consortium (Semi-Public / Semi-Private)

- Like private but
  - secured by known entities
  - Blocks updated by a group of trusted and authorized entities



General Benefits of BlockChain

Shared Infrastructure/Shared Risk
- Scaling costs are shared
- Resilience for reasonable costs

Jurisdiction – Flexible Application
- Estonia e-Residency; Everywhere/nowhere or
- Regulated application such as under bitlicense in state NY

Identity built-in
- Sharable reputation
- No more passwords

Auditable
- Triple-entry accounting
- If you want it

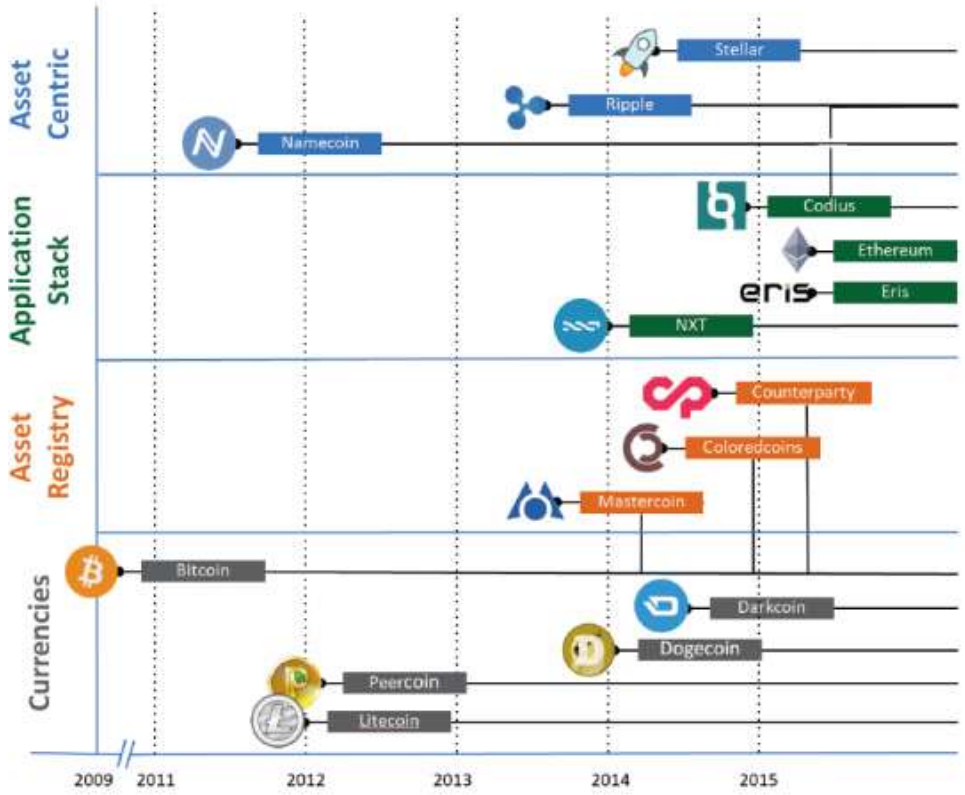
Censorship-resistant
- State & corporate actors
- Controversial ideas

M2M transactions
- Internet of things (IoT)
- Microtransactions

USE CASES & IMPLEMENTATIONS

Examples of use cases and potential implementations

EBA‘s View on Blockchain Technologies



The four development categories of cryptotechnologies

A paper of the EBA Working Group on Electronic and Alternative Payments called “*Cryptotechnologies, a major IT innovation and catalyst for change*” describes four actual use cases:

1. foreign exchange/remittance
2. real-time payments
3. documentary trade
4. asset servicing

Source: EBA Paper *Cryptotechnologies, a major IT innovation and catalyst for change as of May 11, 2015*

Examples

Obvious Use Cases

- Payments
- Trade settlement and clearing
- Value transfer
- Transfer of assets
- Escrow
- Audit
- ID Management (blockchain)
- etc.

Possible Use Cases

- Copyright use cases
- Renting/Leasing use cases (Airbnb/Drive now)
- Delivery Chain use cases
- Insurance use cases
- Government use cases
  - Elections
  - Social benefits payment
- etc.

Health Insurance – Initial Situation

Health Insurance Company (HIC) goals

- Gain market share
  - Improve customer retention
  - Acquisition of new customers
- Reduce costs
  - Increase number of compliant members
  - Take advantage of given trust through blockchain technology
  - Take advantage of technology efficiencies (i.e. Blockchain) and reduce human intervention in administration processes and costs

Idea

Behavioral change of the members through an innovative incentive program that factors in different populations and contains cash-back bonuses.

Leondrino Use Case Examples in Health Insurance Context

Grocery/OTC Case

- New OTC data provides better data analysis from capture of additional member data.
- Potential to check for adverse interactions between OTC products and prescribed medication represents safety benefit as well as potential costs related to negative impact of ineffective or even detrimental results from OTCs, herbals and other non-regulated supplements – reduction or avoidance of additional treatments and follow-up costs

Pediatrician Case – Well-child Care Program

- Stable condition of the insured child
- Reduce costs by
  - cutting out third party administrators
  - chance to intervene earlier, if mothers are not meeting scheduled well-baby, adolescent check ups, or if timeline and costs get out of control (because of faster, and accurate information flow)

Pediatrician Case - Realization Steps

HIC initiates a Well-Child Care Program (WCCP) and formulates with the help of Leondrino Exchange (LEX) an innovative Smart Contract. This Blockchain supported Smart Contract defines the events that trigger incentives.

WCCP Example:

HIC determines that insured mothers generally adhere to the recommended schedule for well-child care visits, but after 30 months many mothers discontinue regular well-child care check ups.

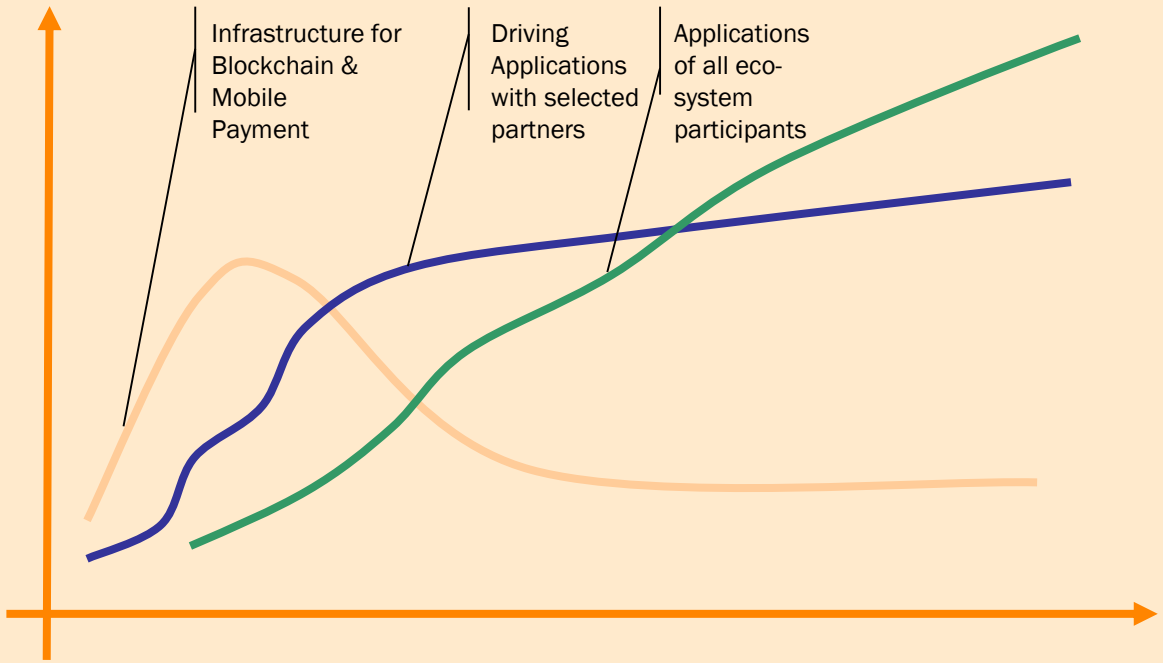
To change a mother‘s behavior, the HIC initiates a WCCP and defines in a Smart Contract that a „cash-back“ bonus is paid to both members (the mother and the child) if one of the following criterion are met:

- for each well-child care visit the HIC pays a small incentive (e.g. 1 HIC Brand Currency); and
- for 5 well-child care visits in a row the HIC rewards the members with an additional incentive (e.g. an extra bonus of 5 HIC Brand Currency); and
- for those well-child care visits that are usually not performed by mothers the HIC pays a substantial incentive (e.g. a bonus of 15 HIC Brand Currency instead of 1 HIC Brand Currency); and
- for fully compliant completion of well-child care program the HIC pays an additional substantial incentive (e.g. an extra bonus of 50 HIC Brand Currency)

COSTS & BENEFITS

Expected short-term and midterm

Introduction in 3 Waves



Three waves

- Infrastructure
  (blockchain, mobile payment,...)
  → initially additional costs / low or no benefit

- Short-term
  - driving applications with selected partners
  - deeper automation of existing processes

  Example: use cases targeting cost reduction through process automation
  → trade-off through apps with quick ROI

- Midterm/long-term
  - applications of all eco-system participants

  Example: special health motivation porgrams of employers
  → benefit through valu-added apps from others

Potential Benefits for Capital Markets

1 KYC – Know Your Customer, KYCC – Know Your Customer's Customer
2 AML – Anti-Money Laundering

Source: Oliver Wyman and Euroclear "Blockchain in Capital Markets" report, February 2016

Benefits for Consumers

- Reduced transaction costs
- Quicker speed of money transfer / trading
- More accurate record-keeping and voting
- Transparency of ownership
- Autonomous “smart contracts”
  - Instructions / contingencies can be irrevocably coded into the blockchain
  - Certainty of specific performance
  - Elimination of need for a trusted third party = reduced administration costs
  - Cash-Back for compliant behavior

CO-INNOVATION

Opprotunities for Co-Innovation

„European Innovation“ – Collaboration instead of Schumpeter

Banks/insurance firms can offer

- Scalability
- Critical mass through access to demand
- Regulatory expertise
- Sizable head start in compliance initiatives
- Banking license

FinTechs can offer

- Innovation, using latest technologies
- Speed of execution
- Openess for new middleware concepts (no compromizes based on existing infrastructure)
- Naive enough to go after big challenges

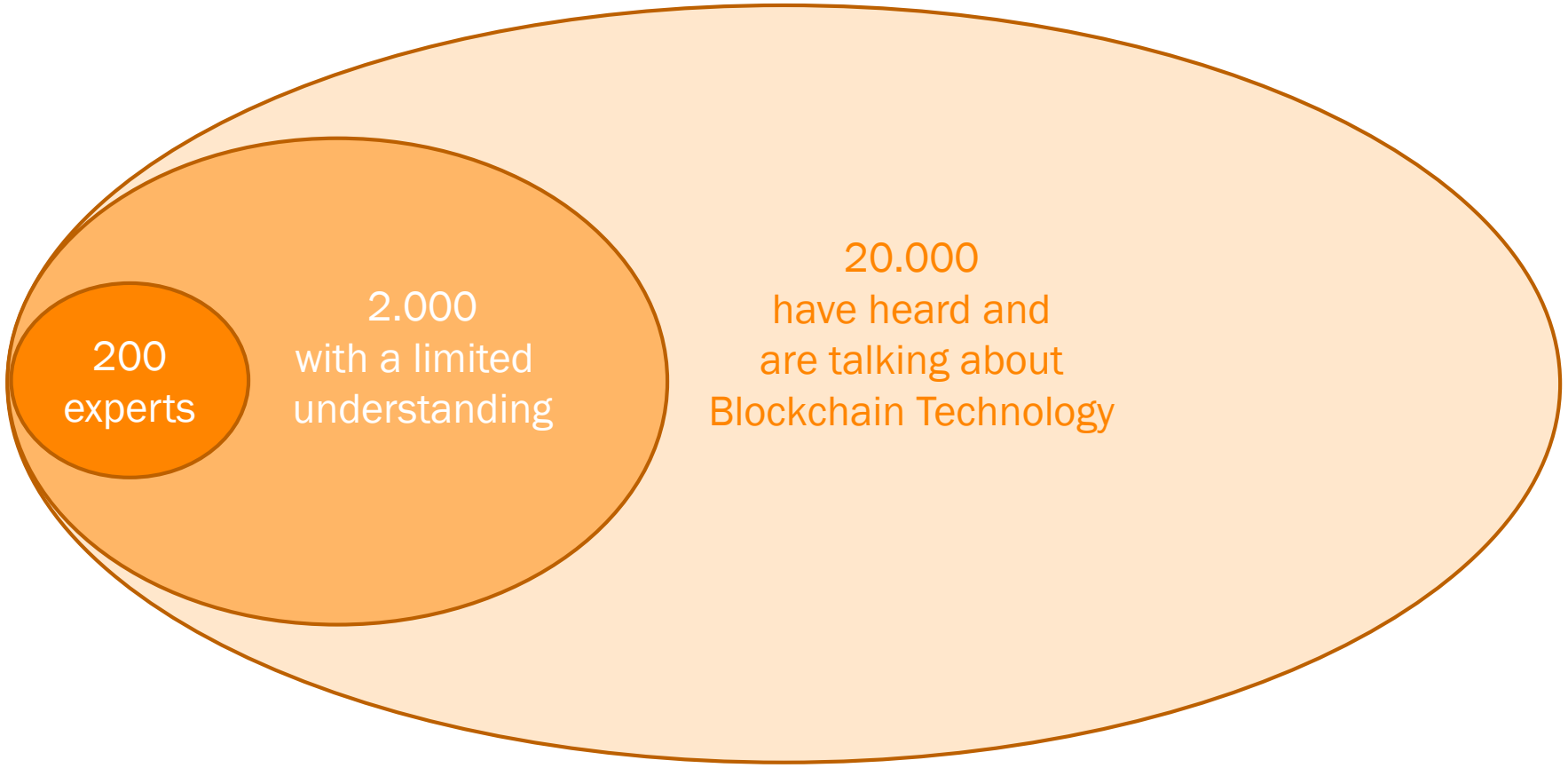
Proposal for Innovation Approach

Step 1
Become (better) educated about and get a better understanding of the benefits of blockchain technology

Step 2
Identify the business processes of your organization where blockchain technology may benefit your organization

Step 3
- Organize RFP, send it to relevant FinTech´s and delegate the task
OR
- Set up a co-innovation team and recruit experts
OR
-Joint Venture with a FinTech Startup

Current Know How Pool regarding Cutting Edge Blockchain Implementations



FUTURE

Attempt to predict the future about blockchain in IT daily life

Wall Street Discovers the Blockchain

The March of Financial Services Firms into Bitcoin and Blockchain Startups

Source: David Yermack, NYU Stern School of Business - National Bureau of Economic Reseach

Blockchain based networks as key infracture: When – Not If

The key gap is education – blockchain is a nascent technology.

The opportunities are so significant that it's a question of when, not if, these applications will emerge.

Blockchain has the potential to transform many different processes. Companies should be discussing these developments at the board level and asking how this technology could help them and whether they should be investing in it.

Which Approach Will Win?

Challengers

- wildcat firms bypassing the status quo, transforming the customer experience, trying to reshape payments and move many relationships from transaction based to brand based
- Cross-border payments inefficiencies are opening doors for new players and new ways of doing things

Collaboration

- consortia of existing market participants
- Digitization in retail banking has important implications for transaction bankers

Mandates by regulators or legislatures

- Regulation in Europe is forcing banks to open access
- Regulation itself may change the way things have been done traditionally, in itself creating opportunities

Hurdles to Adoption

- Scalability of the technology
- Regulation and legislation will enable innovation and foster trust
- Common standards and governance
- Operational risks of transition
- Managing anonymity

Blockchain technology
will change
financial services

as profoundly as the

internet
changed
entertainment and media

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