Blockchain 1.0, 2.0, X.0 …

what is next?

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Digital Drivers

Client Expectations
Omni-accessibility, control & immediate gratification

Pink Pandas
Ready for anything…
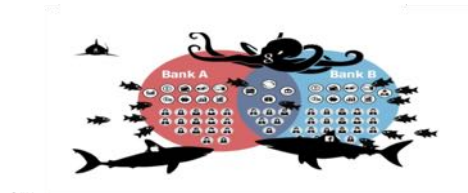
Distribution
Platform Oriented

DIGITALIZATION

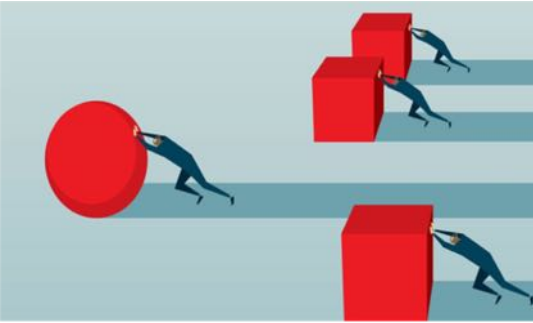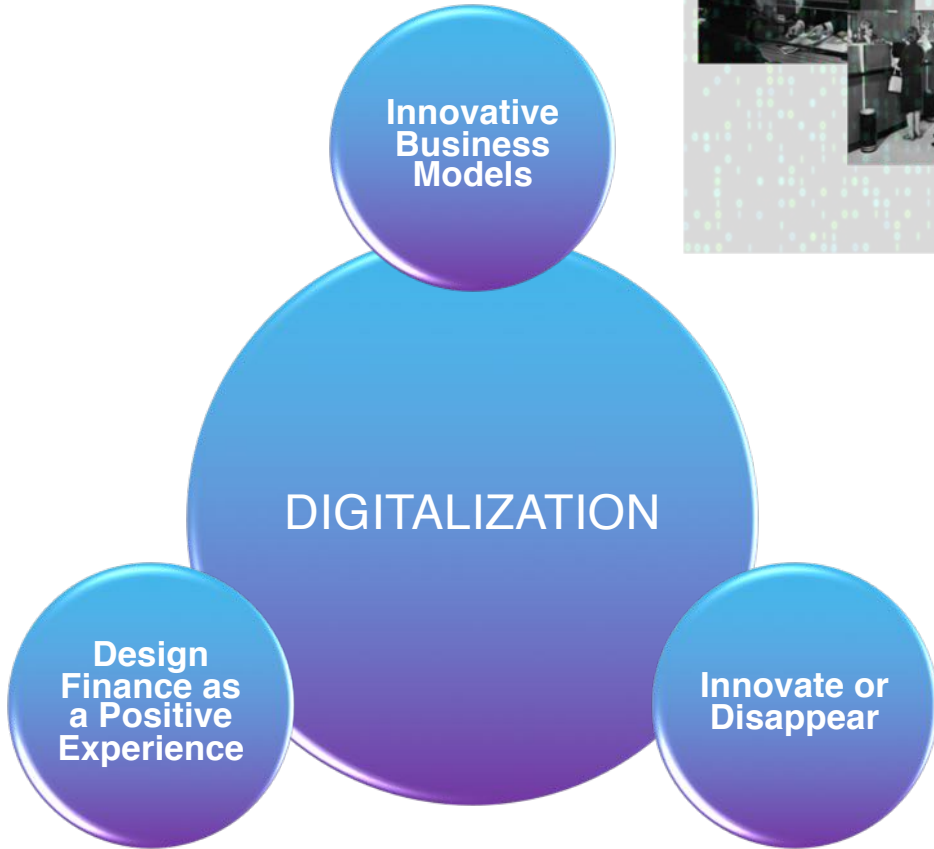**Competitive Landscape**
Assault by New Players and Models

Market Framework
Elusive Marketplace
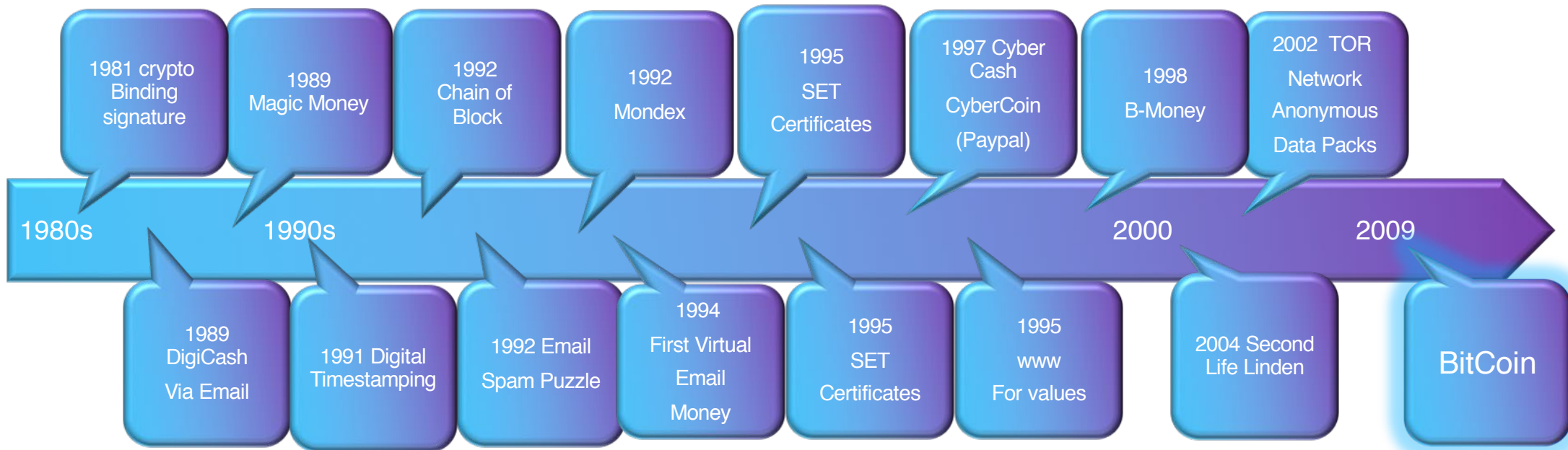
Regulation & Compliance
More + Broader + Stricter

Operational Efficiency
Quantum Leap

Innovative Business Models

DIGITALIZATION

Design Finance as a Positive Experience

Innovate or Disappear

![telindus powered by tango, together with proximus]

Blockchain Origins

Paleo Age

1981 crypto Binding signature

1989 Magic Money

1992 Chain of Block

1992 Mondex

1995 SET Certificates

1997 Cyber Cash CyberCoin (Paypal)

1998 B-Money

2002 TOR Network Anonymous Data Packs

1980s — 1990s — 2000 — 2009

1989 DigiCash Via Email

1991 Digital Timestamping

1992 Email Spam Puzzle

1994 First Virtual Email Money

1995 SET Certificates

1995 www For values

2004 Second Life Linden

BitCoin

Technologies → Crypto – Time Stamping – Digital Signature – Digital Certificate – AlgoPuzzles - etc.
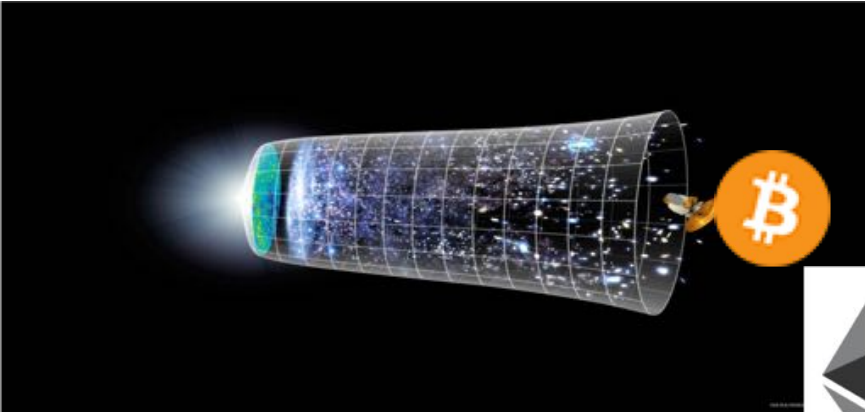
Blockchain Origins

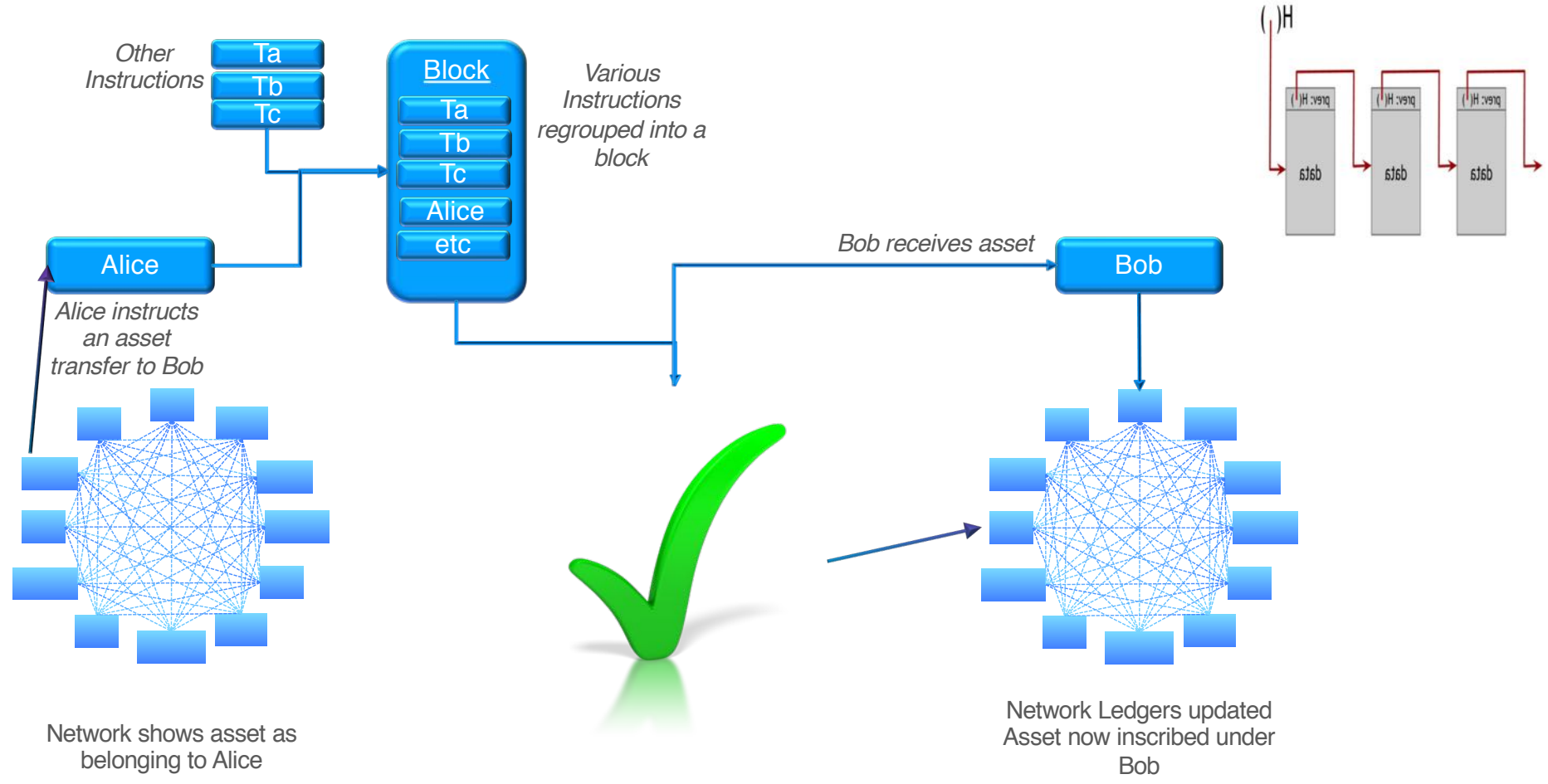1.0 – the Big Bang .. 2.0 – Infancy & Diversity .. 3.0 – Growth & Reality

1.0 Resolving Double-spend with distributed transfer

2.0 Including Conditionality based on Smart-Contract

3.0 Evolving to efficient & flexible Federated Consensus within Permissioned environment
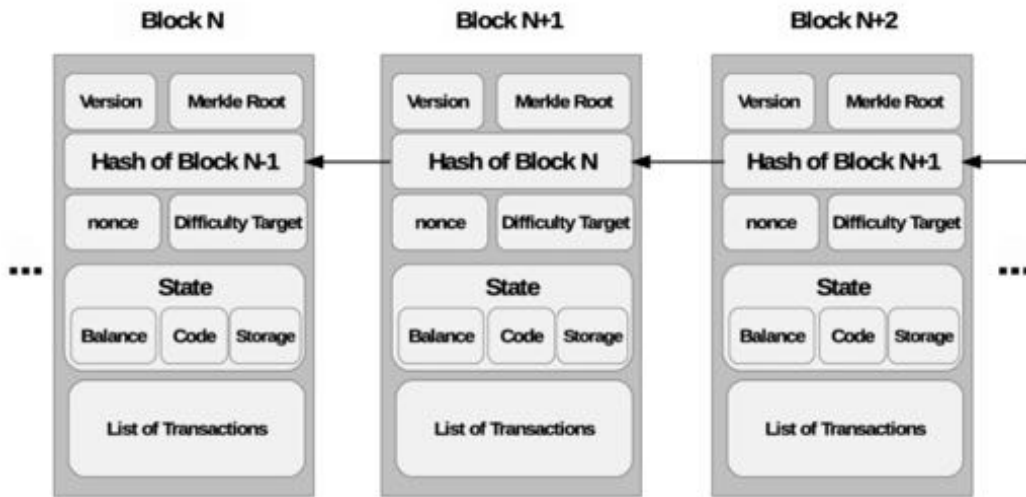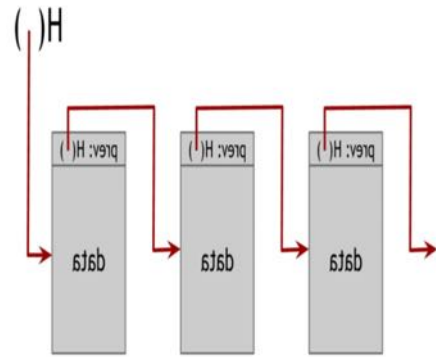
Blockchain Universe

Chain of Blocks

Other Instructions

Ta
Tb
Tc

Block
Ta
Tb
Tc
Alice
etc

Various Instructions regrouped into a block

Alice

Alice instructs an asset transfer to Bob

Bob receives asset

Bob

Network shows asset as belonging to Alice

Every X seconds there is a approval Consensus of the transactions from network

Network Ledgers updated Asset now inscribed under Bob

BlockChain

The Future
- Blocks that contain more data
- Capacity to mange various data types

Blockchain Universe

Consensus

The Future
- Fast Consensus
- Consuming little energy
- Protocol with higher then 51% attack threshold
- Quorum: Select the group members approving

Proof-of-Work   Proof-of-Stake / Delegated Proof Of Stake / Leased Proof of Stake   Proof of Authority /

Delegated Proof of Authority   Proof-of-Assets   Ripple Transaction Protocol (RTXP)

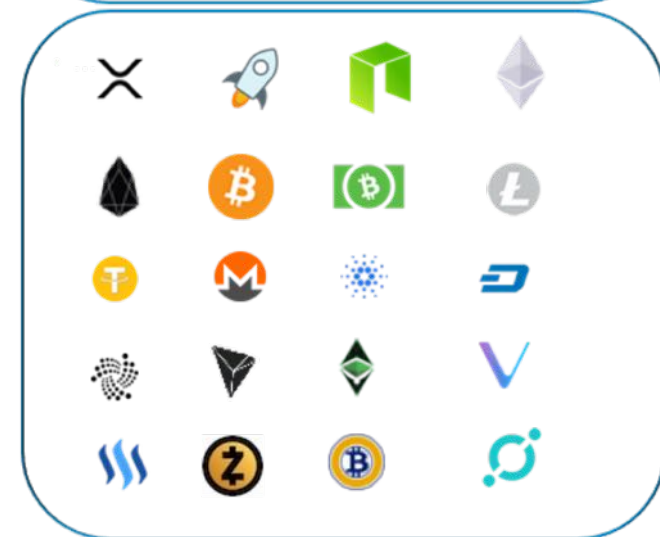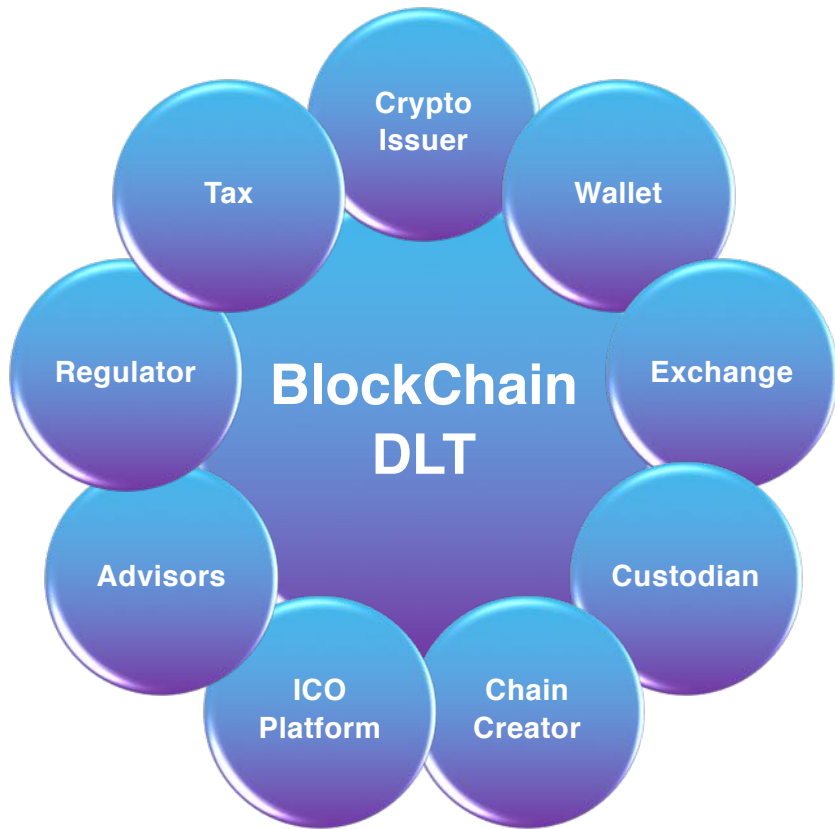**Partitioned Consensus   Federated Byzantine Protocol   Proof o Elapsed Time   Etc.**

The Future

- Always operating, thanks to backups
- Secure as non-penetrable
- Running chains in parallel
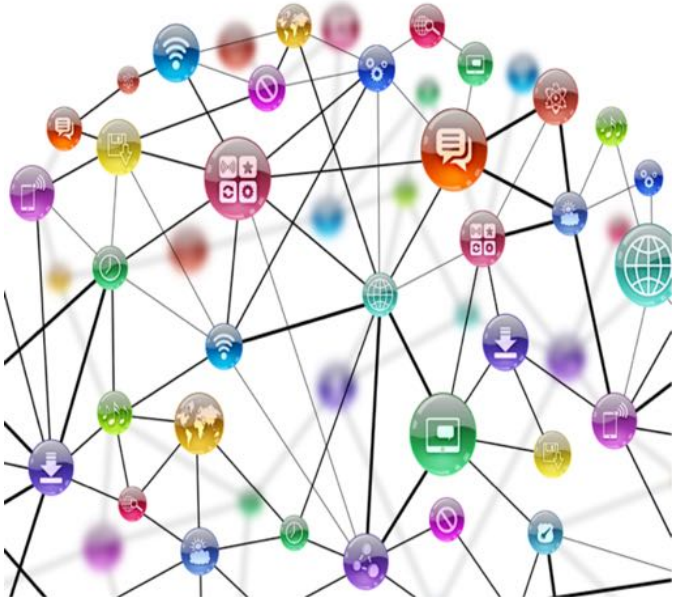- Example: InfraChain initiative   https://infrachain.com

Blockchain Universe

Ecosystem with Chains & Cryptos

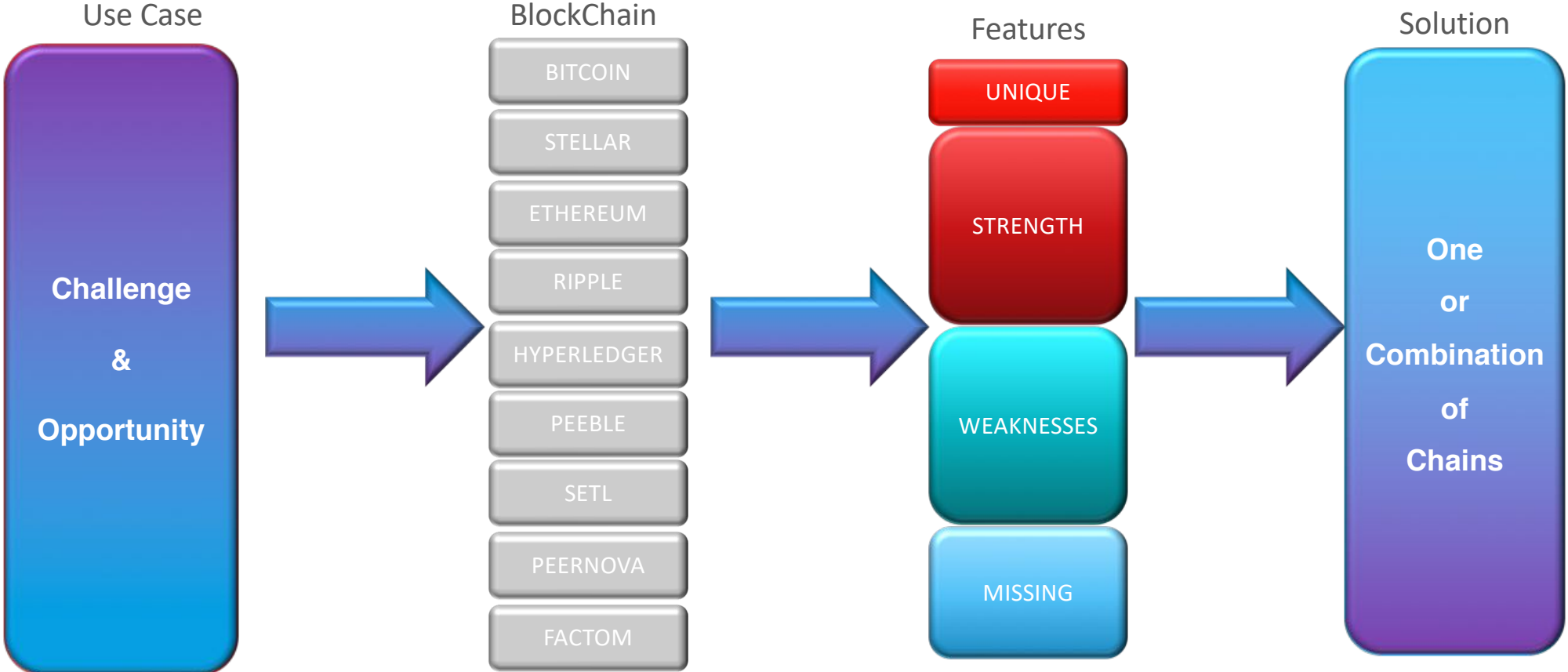# Blockchain Outlook

Specialization – Interoperability - Scalability
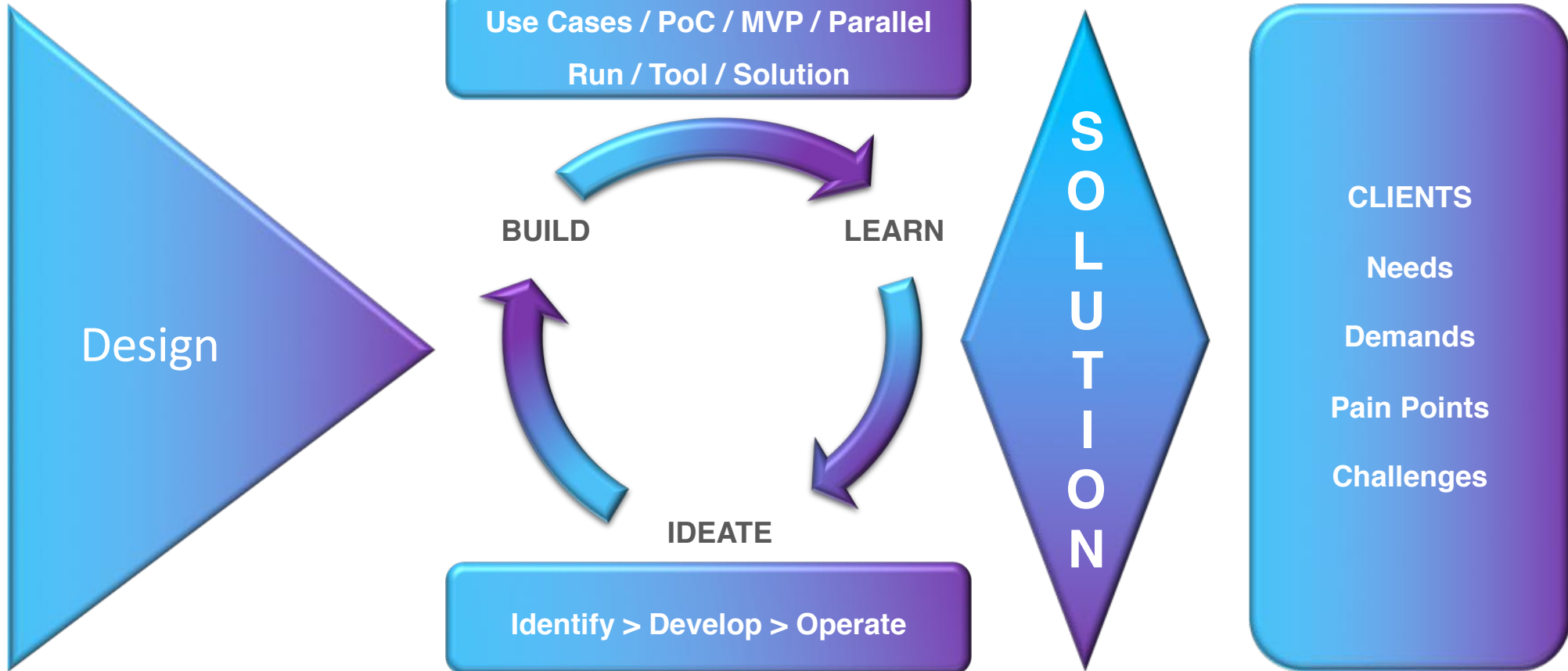
BlockChain-DLT Applications

Select the right Blockchain(s) for each Use-Case

Use Case

Challenge

&

Opportunity

BlockChain

BITCOIN

STELLAR

ETHEREUM

RIPPLE

HYPERLEDGER

PEEBLE

SETL

PEERNOVA

FACTOM

Features

UNIQUE

STRENGTH

WEAKNESSES

MISSING

Solution

One
or
Combination
of
Chains

BlockChain-DLT Applications

Agility

Innovative Tools & Features

Agile Development

Client-Oriented Solution

Design

Use Cases / PoC / MVP / Parallel
Run / Tool / Solution

BUILD

LEARN

IDEATE

Identify > Develop > Operate

SOLUTION

CLIENTS

Needs

Demands

Pain Points

Challenges

BlockChain-DLT Applications

Identifying Opportunities with a broad range of Users

- Retail Banks
- CSDs
- Wealth Managers
- Treasuries
- Depositaries
- Fund Admins
- Asset Managers / ManCos
- Transfer Agents
- Custodians
- CDO Managers
- Governmental Entities
- Big Corporates

- Commodity Exchanges
- Telec
- Media Providers
- Audit Firms
- Transport
- Logistics
- SMEs
- Etc.

Every User requires Specific Solutions

BlockChain-DLT Applications

Developing Value-Generating Use-Cases   1/2

Assets/Data Reconciliation: Various parties multilaterally reconcile assets/data, enabling collaborative plus fast resolutions with minimal errors.

Digitalized KYC: Intra-group & among peers; by matching the various records with blockchain hashes, records can be shared and completed in a safe and efficient manner

Direct Debits: Streamline by identifying and resolving all single line items among given banks.

Fund Parts Safekeeping: Each Fund Part would be allocated to an investor by rendering them traceable and visible on virtual subaccounts.

Loan Collections : The disbursement and collection of loan cash flow as well as the communication with borrowers are optimized through process automatization..

Fund Transactions: Transactions along Distribution networks through platform to distribute Funds in a cheaper, faster and still compliant manner.

Trade Finance: Shared & traceable documents warrant quality.

Interco Financing, Cash Management and Trade Flows: Corporates with hundreds of group entities process substantial intra-group transactions in an automated manner at higher speed, with resolved plus reduced errors.

Loan Trading: Loan origination and trading become faster, cheaper and more transparent to transact = liquid

Power of Signatures: Immediate + shared updates simplify & secure interactions.

Notarization : Validation and sharing of relevant documents.

Prospectus drafting & sharing: Collaborative redaction of capital market prospects with subsequent distribution.

Cross Border Payments : Enable instant payments at ultra-competitive rates.

Micro-transactions : Cost-effective and automatized transactions for micro-amounts that can be aggregated and traced.

Capital Markets Transactions: Clearing & settlement of Equities, Fixed Income and hybrids.

Use-Cases to explore the future – *PoCs, MVPs, Parallel Runs & Solutions*

BlockChain-DLT Applications

Developing Value-Generating Use-Cases 2/2

Tokenization: Creating blockchainized assets and currencies to allow operating in proprietary or public distributed networks and thereby optimize transaction process and engage stakeholders.

Registrars: Set-up of registers of assets of asset owners that are updated in real-time by multiple contributors, traceable and shareable intra- and inter-groups.

Syndication: Management of loan, bond, equity and other syndication processes in fast and transparent manner.

Claims Management: Reunite the multiple actors required in Servicing and Special Servicing of loans by ensuring automatization of recurrent steps, traceability and shared actions.

Board Meetings: Allow auditable information pack sharing, transparent questioning and parallel voting/decision taking.

Crowd-Finance: Engaging crowds onto lending/investment platforms in a secure, transparent and cost-effective manner.

Nutrition: Tracking of food ingredients, their processing and transport, sale and consumption.

Key mechanical Components: Validation of make plus quality of small mechanical pieces used in aeronautics. Tracing their use, maintenance and wear.
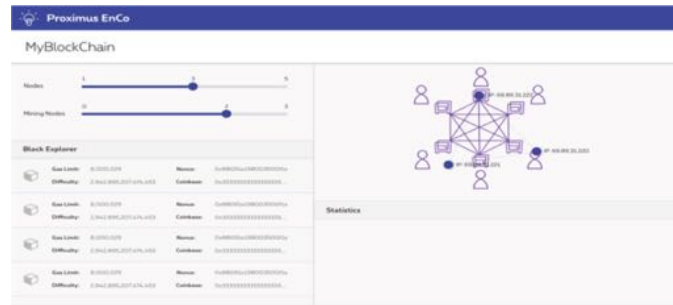
etc.

Certain Use-Cases trigger interest in collaborative exploration among peers
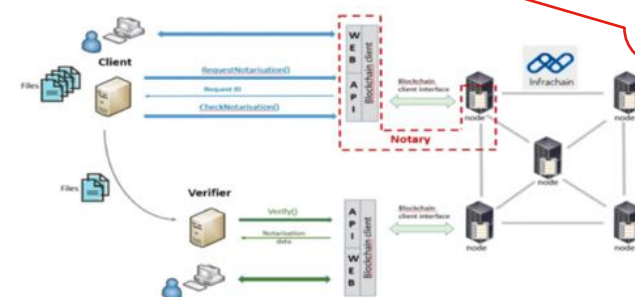
BlockChain-DLT Applications

Examples

PoC

MVP / Solution

Delivered & Operating for EU public sector

Blockchain-as-a-Service

NotarChain

KYXChain

See summary below

TransRecoChain

telindus
powered by tango
together with
pro×imus

BlockChain-DLT Applications

Benefits

Enhance User Satisfaction

UX: Faster, Cheaper and more transparent.

Micro-Services: Micro-Transactions enables innovative business models

Trust: Reliability allows for P2P transactions.

Collaborative: Engaged stakeholders.

Optimize Operational Efficiency

Costs: Significantly reduced.

Speed: Processing faster; near-real-time

Fluidity: Reduced frictions increases efficiency.

Quality: Resolved & Reduced Errors.

Fundamentals: More resources for complex items and process improvements..

Secured Regulatory Compliance

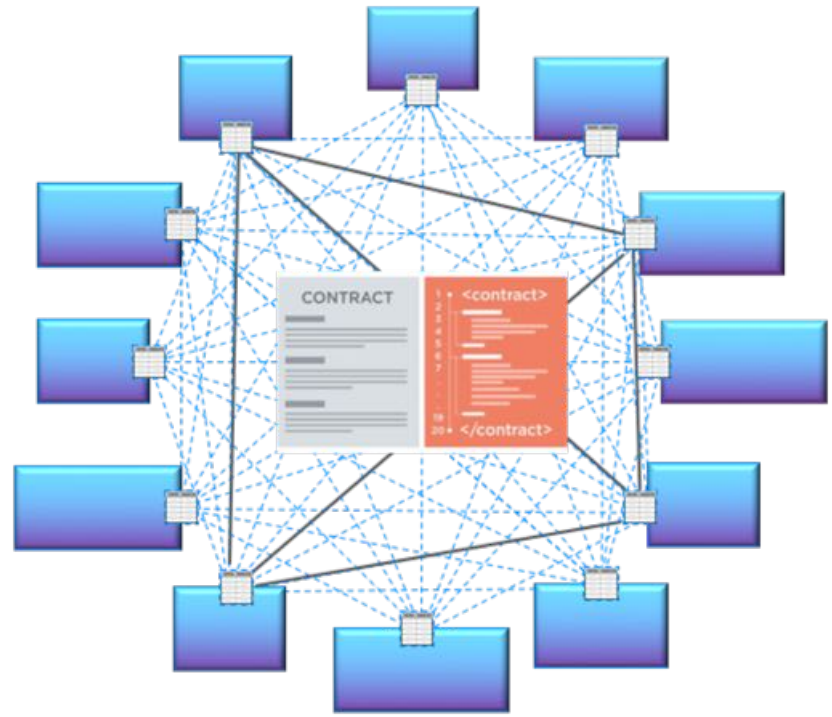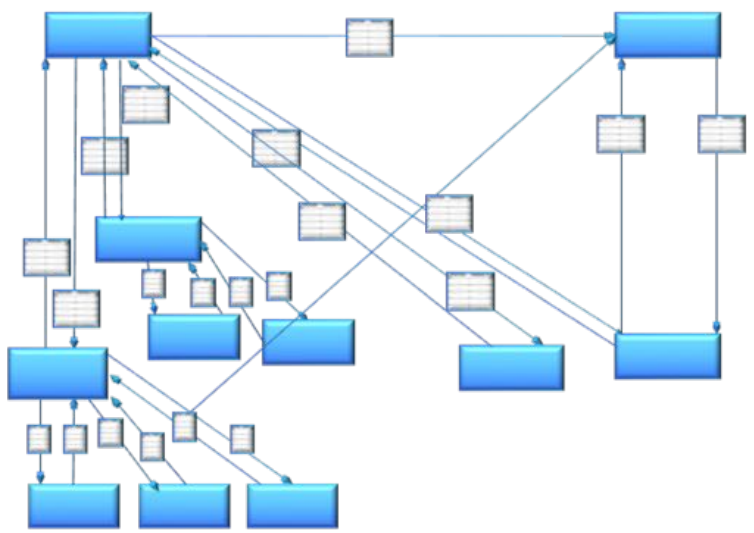Traceability: Easier for Audit purposes

Access: Open for regulators immediate reporting.

Detection: Easier & faster to detect anomalies.

Risk: Reduced risk of breaches & fines.

BlockChain-DLT Applications

From cumbersome bilateral interactions.. .. to swift Multiple-Party Collaboration

Transaction, Reconciliation & Resolution Chain

- Tool to reconcile transactions pre- or/and post-trade, positions, data and other items
- Evolved : Chain > Ethereum > Hyperledger 0.6 > 1.1
- Allow multiple parties to see each others version of truth
- Each party selects who sees what
- In the event of discrepancies, those can be resolves live and collaboratively on the chain
- Actions on the chain are traceable and auditable
- Use Cases encompass:
  - Pre-trade for exchanges
  - Portfolio Assets
  - Fund parts
  - KYC information
  - Collateral Management
  - Etc.

Benefits

Process Efficiency

- Time: Speedily identification, qualification, resolution of breaks
- Friction: Less going back and forth on trivial items.
- Cost: Savings as the basic tasks are automatized and there are less mistakes.

Execution Quality

- Breaks are all identified.
- Resolution errors are minimized.
- Staff focus on the complex items.
- More resources available to improve processes.

User Satisfaction

- Direct users become more effective.
- Positive cascade on other points in the value chain (i.a. NAV).
- External user see enhanced outcomes (i.e. Regulatory reporting).