Meeting Agenda
Florida Blockchain Task Force
October 28, 2019
1:00 p.m. – 5:00 p.m.

110 Senate Office Building
404 South Monroe Street
Tallahassee, FL 32399-1100

I. Introduction
II. Adoption of Minutes
III. Presentation: Different types of blockchains, both public and private, and different consensus algorithms
IV. Sector Presentations on current industry, growth and development opportunities
V. Open Discussion
VI. Other Business & Public Testimony
VII. Adjourn

For information regarding this meeting, please contact Meredith Stanfield with the Department of Financial Services at (850) 413-2890 or Blockchain@MyFloridaCFO.gov.

Visit the Florida Blockchain Task Force website here.

TAB 1

Adoption of Minutes

FLORIDA BLOCKCHAIN TASK FORCE

Florida Blockchain Task Force Meeting
Meeting Date: September 23, 2019
110 Senate Office Building
404 South Monroe Street
Tallahassee, Florida

Agenda

I. Comments from Chief Financial Officer Jimmy Patronis
II. Member Introductions
III. Presentation: Overview of Chapter 2019-140, Laws of Florida
IV. Consideration and Adoption of Task Force Bylaws
V. Election of Task Force Chair and Vice Chair
VI. Presentation: Government in the Sunshine Training
VII. Review Proposed Schedule
VIII. Open Discussion
IX. Other Business & Public Testimony
X. Adjourn

Call to Order
Meeting called to order and welcome at 1:02 p.m. by Meredith Brock Stanfield

Roll Call
Roll was called at 1:04 p.m. by task force staff

Members present: All appointed members present
Ron Brisé
Charles Ghini
Director Ken Lawson
Woody Pollack
Director Terry Rhodes
Secretary Jonathan Satter (Arrived after roll call)
Mayor Francis Suarez (via telephone)
Robin Westcott (via telephone)

I. Comments from Chief Financial Officer Jimmy Patronis at 1:05 p.m.**:**

I'm proud of the task force that has been assembled. Governor DeSantis, President Galvano, and Speaker Oliva have tapped many talented stakeholders to serve our state.

I felt it was important to address this body at its first meeting so that I could share my hopes for what you can accomplish.

This is a great time for technology in this state. Florida's leaders, myself included, support technology growth and innovation, which ultimately grows our economy and increases our competitiveness. That's

why I worked to establish this task force within my agency. I want the next generation of entrepreneurs and technology leaders from around the world to come here, to study here, and to grow here.

Blockchain proponents say this technology will be as transformational as the internet. If this is true – we need to make sure Florida is ready.

It's up to you to study how we can foster and expand blockchain to make Florida a leader. As Florida's CFO, I am especially interested in how blockchain can help fight fraud and scams. How can we use blockchain and automation to solve the complications that come from a technology-driven economy? That is, how do we fight fraud and abuse by using technology? Blockchain can serve as an objective, trustworthy, third-party mediator in almost any transaction. I see such potential to use technology to minimize the risks and costs of data breaches and fraudulent technology. My hope for the future of blockchain is that we'll see personalized, secure digital IDs become a real thing.

It will take a great deal of collaboration, innovation, and initiative across industries and technology providers to make any of this a reality. But with the establishment of this task force, Florida takes the important first step toward the future.

II. Member Introductions at 1:08 p.m.:

Members were asked to introduce themselves, comment on their professional background, their interest in blockchain technology, and what they hope to gain from the work of the task force. The following provides summary comments from members.

Ronald Brisé: Mr. Brisé discussed interest in using technology to better lives, commerce and to manage threats.

Charles Ghini: Charles Ghini illustrated the importance of a partnership between the public and private sectors, the necessity for a competent workforce, and to focus on solving the right problems.

Director Lawson: Director Lawson has interest based on transparency and to develop strategies to fight fraud, while educating the workforce and creating opportunities for them to grow. Director Lawson was present when the Governor and CFO just announced their joint Finn-tech legislation, which could build on findings from this task force.

Woody Pollack: Mr. Pollack would like to continue growing innovation in the state of Florida and to attract businesses and individuals from other states.

Director Rhodes: Director Rhodes is looking to continuing her focus of modernizing the Department of Highway Safety and Motor Vehicles. The idea of blockchain technology is one that provide consumer ease of access as well as security.

Secretary Satter: Secretary Satter described a focus on innovation and how it may help Department of Management Services and its responsibilities, as well as the Division of State Technology to support other agencies.

Mayor Suarez: Mayor Suarez seeks to understand the opportunities these new technologies present. Some areas of interest are: transparency, data security, decentralization and what regulation may look like in the future.

Robin Westcott**:** This technology presents the opportunity to both create new processes while also speeding up processes and provide safeguards to consumers. It is one that needs both the public and private sector to be successful.

III. Presentation: Overview of Chapter 2019-140, Laws of Florida at 1:22p.m.

This was provided by Meredith Stanfield, Director of Legislative and Cabinet Affairs for CFO Patronis. Members received an overview of the legislation that established this task force, its mission, duties, and goals.

Note: Blockchain E-Mail established for member communication and to receive questions regarding the task force – blockchain@myfloridacfo.gov

IV. Consideration and Adoption of Task Force Bylaws at 1:29 p.m.

Members were provided the bylaws in advance of the meeting to allow time for review

Motion by Director Ken Lawson, Second by Ron Brisé
Vote: All in favor, 0 opposed, 0 abstained
Resolved: Motion carried

V. Election of Task Force Chair and Vice Chair at 1:30 p.m.

Director Ken Lawson nominates Mr. Ron Brisé as Chair, who consented to the nomination
Vote: All in favor, 0 opposed, 0 abstained
Resolved: Motion carried, Ron Brisé is elected Chair of the task force.

There were no nominations for Vice Chair, but Director Ken Lawson offered to serve as Vice Chair
Vote: All in favor, 0 opposed, 0 abstained
Resolved: Director Lawson is elected Vice Chair of the task force.

VI. Presentation: Government in the Sunshine Training at 1:32 p.m.

Peter Penrod, Department of Financial Services General Counsel, provided the task force with a presentation on public records and public meetings requirements.

VII. Review Proposed Schedule at 1:40 p.m.

The task force plans to have monthly meetings in the upcoming 180 days for a total of 6 meetings. We anticipate that the next meeting may be a half-day meeting to allow for input from stakeholders.

VIII. Open Discussion at 1:41 p.m.

The floor was opened for additional comments from members. No additional comments were provided.

IX. Other Business & Public Testimony at 1:42 p.m.

The floor was opened for other business and public testimony. The following members of the public provided comment, which is summarized below.

Ms. Rosa Shores, Co-Founder and CEO of Blockspaces

- Advocated on behalf of blockchain technology for startups, as well as the potential uses at the state level
- Teaches blockchain courses and offered their resources to the task force

Mr. Samuel Armes, Executive Director of Florida Blockchain Business Association

- Working with Seminole County to create a digital ID
- Eager to see where the regulatory landscape surrounding blockchain will move

Mr. Jim St. Clair

- Focus on health care, social services, social welfare – as well as decentralized identity and data management
- Suggested that using blockchain for data management can be revolutionary, while adhering to the same standards that state agencies are used to

Mr. Paul Godfrey, Attorney at the Law Office of David Dougherty

- Studies and works on distributed consensus technology, and recommends that the task force works with the Florida Courts Technology Commission

X. Adjourn at 1:49 p.m.

TAB 2

Presentation: Different types of blockchains, both public and private, and different consensus algorithms

Presenter: Robin S. Westcott, AAIS, Member, Florida Blockchain Task Force

FLORIDA BLOCKCHAIN TASK FORCE

Robin S. Westcott

AAIS

Florida Blockchain Task Force Member

Robin S. Westcott, J.D. is Vice President of Government Affairs, Legal & Compliance (GLC) at AAIS (American Association of Insurance Services), a national not-for-profit, Member-focused advisory organization.

Ms. Westcott is an attorney who spent more than 20 years in insurance-related regulatory positions in Florida, most recently as the state's appointed insurance consumer advocate.

She joined AAIS in 2013, where she oversees product compliance operations, consults with state insurance departments about the practical implications of regulatory initiatives and acts as the general counsel. The GLC team at AAIS monitors the broader regulatory environment for changes in the P&C marketplace on behalf of AAIS Members.

Recently Ms. Westcott has lead development of innovative insurance products like CannaBOP, the program solution for businesses in the emerging cannabis industry.

Ms. Westcott is also helping lead the charge in development of the insurance industry's first blockchain platform developed specifically for regulatory compliance, openIDL. openIDL supports regulatory reporting of statistical data and data calls, providing access to timely and accurate information so regulators and carriers receive more holistic and dynamic information, as well as valuable and relevant insights into exposures and market trends.

FLORIDA BLOCKCHAIN TASK FORCE

Florida Blockchain Task Force

Introduction to Blockchain

Robin S. Westcott

CHIEF FINANCIAL OFFICER Jimmy Patronis FLORIDA DEPARTMENT OF FINANCIAL SERVICES

WHAT IS BLOCKCHAIN

- *"Distributed Ledger Technology"*

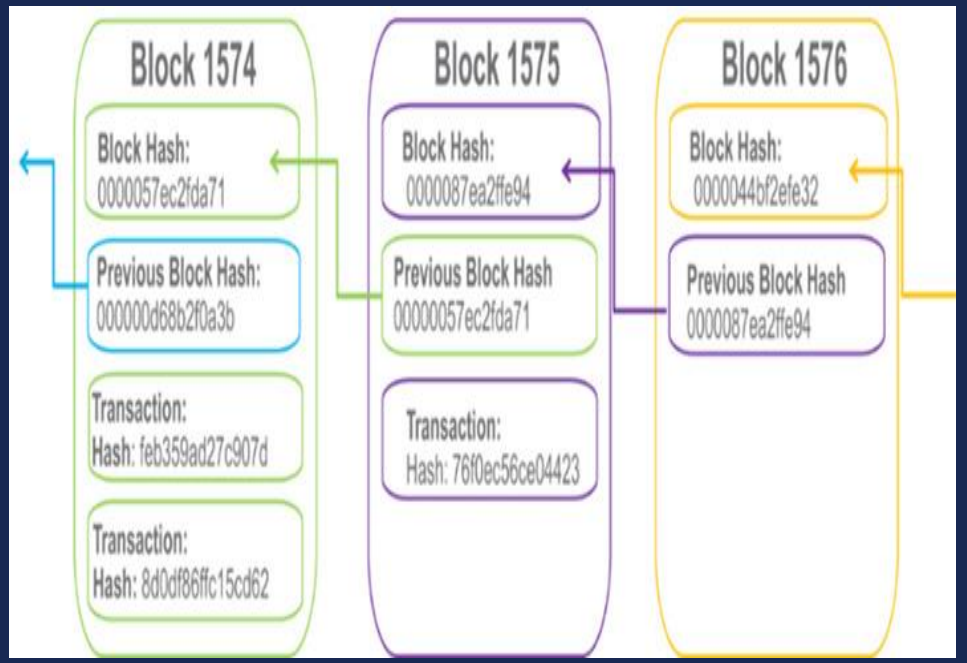
"A shared ledger for recording the history of transactions, that cannot be altered." – IBM

- *Common Definition:*

"A blockchain is a peer-to-peer distributed ledger forged by consensus, combined with a system for "smart contracts" and other assistive technologies." Hyperledger.org

Anatomy of a Blockchain

- **Public** or **Private** system
- Recording **Transaction** (activity) records to a **Ledger**
- Transactions grouped into **Blocks**
- Block includes **hash of prior Block** to immutably **Chain** the data
- Added to the ***Distributed*** **Ledger** by **Consensus** algorithm



Blockchain for Business

Transactions are complex.

A Each participant has his own, separate ledger — increasing the possibility of human error or fraud

B Reliance on intermediaries for validation creates inefficiencies

C Can be a paper-laden process, resulting in frequent delays and potential losses for all stakeholders

Blockchain makes it better.

A Single shared ledger that is tamper-evident. Once recorded, transactions cannot be altered

B All parties must give consensus before a new transaction is added to the network

C Eliminates or reduces paper processes, speeding up transaction times and increasing efficiencies

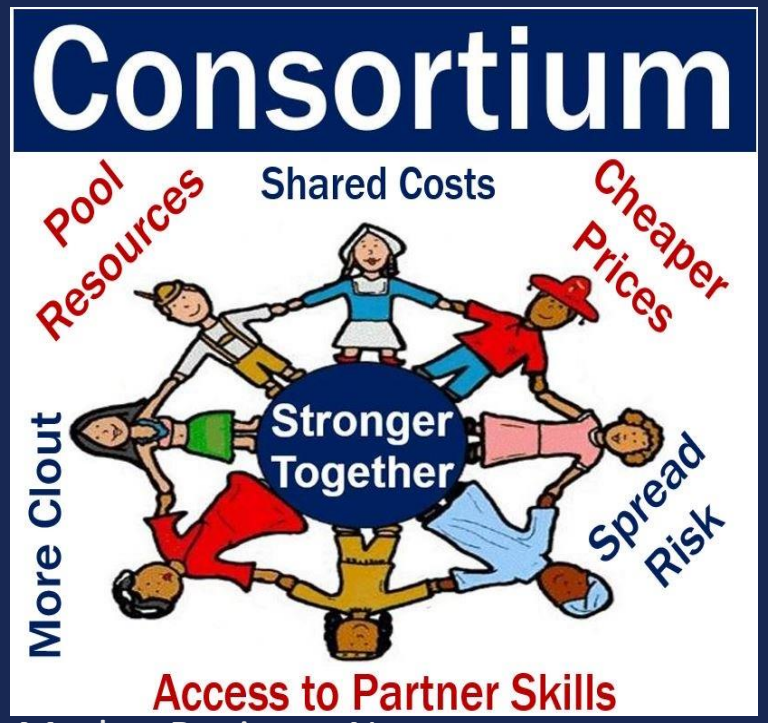
Disintermediation:
Threat or Opportunity

- Blockchain is designed to…

"…give explicit control of digital assets to end-users and remove the need to trust any third-party servers and infrastructure. "

Muneeb Ali, co-founder, Blockstack

What's Your Problem?



Market Business News

- SOCIAL RE-ENGINEERING FOR BUSINESS :

The greatest strength is bringing parties together to agree on standards for an industry.

MOBI

TRADELENS

Oil & Gas Blockchain Consortium

FLORIDA BLOCKCHAIN TASK FORCE

TAB 3

Presentation: Sector Presentations on Current Industry, Growth and Development Opportunities

Presenter: Dan Blaner, Amazon Web Services

FLORIDA BLOCKCHAIN TASK FORCE

Dan Blaner

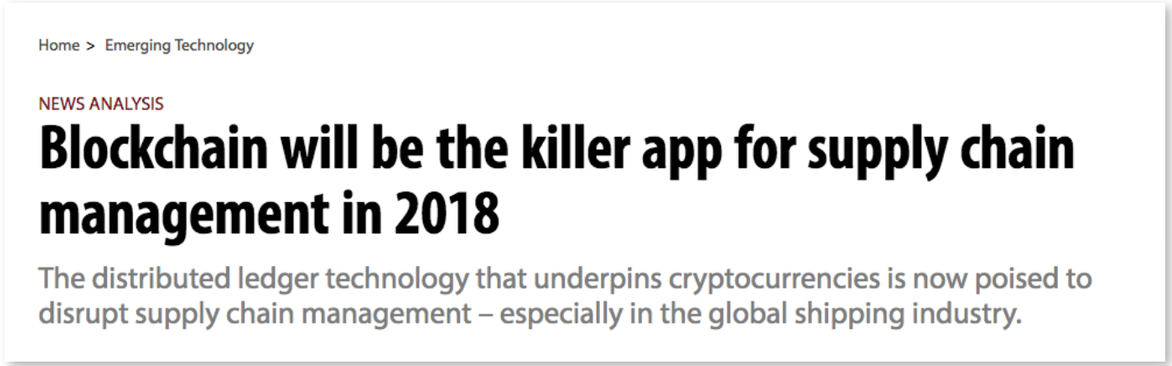
Amazon Web Services

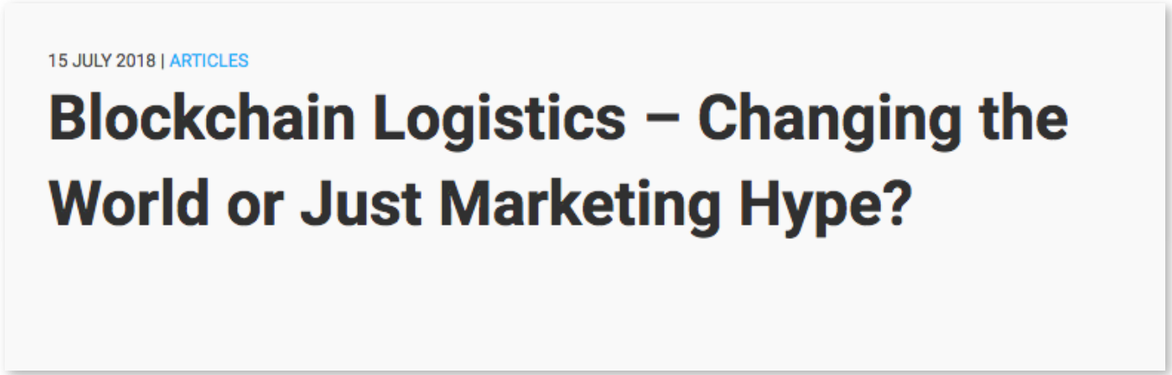
Dan is a Solutions Architect at AWS with over 20 years of experience designing and building technology solutions. He spends his days helping customers understand cloud computing, planning workload migrations, and designing well-architected systems in the cloud.

For the past 10 years, Dan has served public sector customers, delivering cloud-based solutions and guiding Federal agencies on their journey to the cloud. Lately, Dan focuses on AWS' purpose-built database and blockchain technologies. You can occasionally find Dan speaking at AWS events such as re: Invent and Public Sector Summit and at AWS' Pop-Up Lofts.

Blockchain on AWS

How do we think about blockchain?

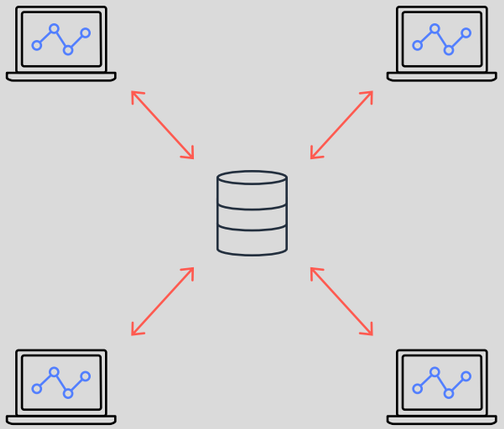




Need for a ledger with centralized trust

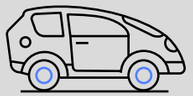
1 LEDGERS WITH CENTRALIZED TRUST

2 TRANSACTIONS WITH DECENTRALIZED TRUST



Healthcare

Verify and track hospital equipment inventory



DMV

Track vehicle title history

Manufacturers

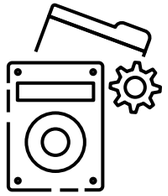
Track distribution of a recalled product

HR & Payroll

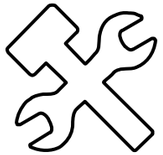
Track changes to an individual's profile

Challenges customers face

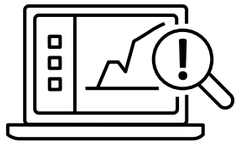
Building ledgers with traditional databases



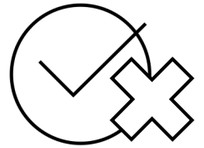
Resource intensive



Difficult to manage and scale

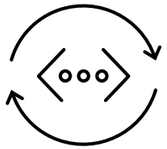


Error prone and incomplete

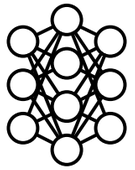


Impossible to verify

Blockchain approaches



Designed for a different purpose

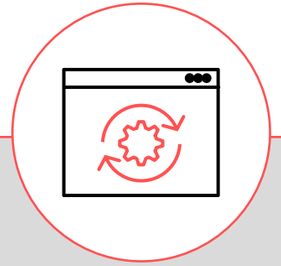


Adds unnecessary complexity

Amazon Quantum Ledger Database (QLDB)

Fully managed ledger database
Track and verify history of all changes made to your application's data

Immutable

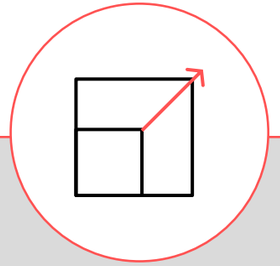


Maintains a sequenced record of all changes to your data, which cannot be deleted or modified; you have the ability to query and analyze the full history

Cryptographically verifiable

Uses cryptography to generate a secure output file of your data's history

Highly scalable

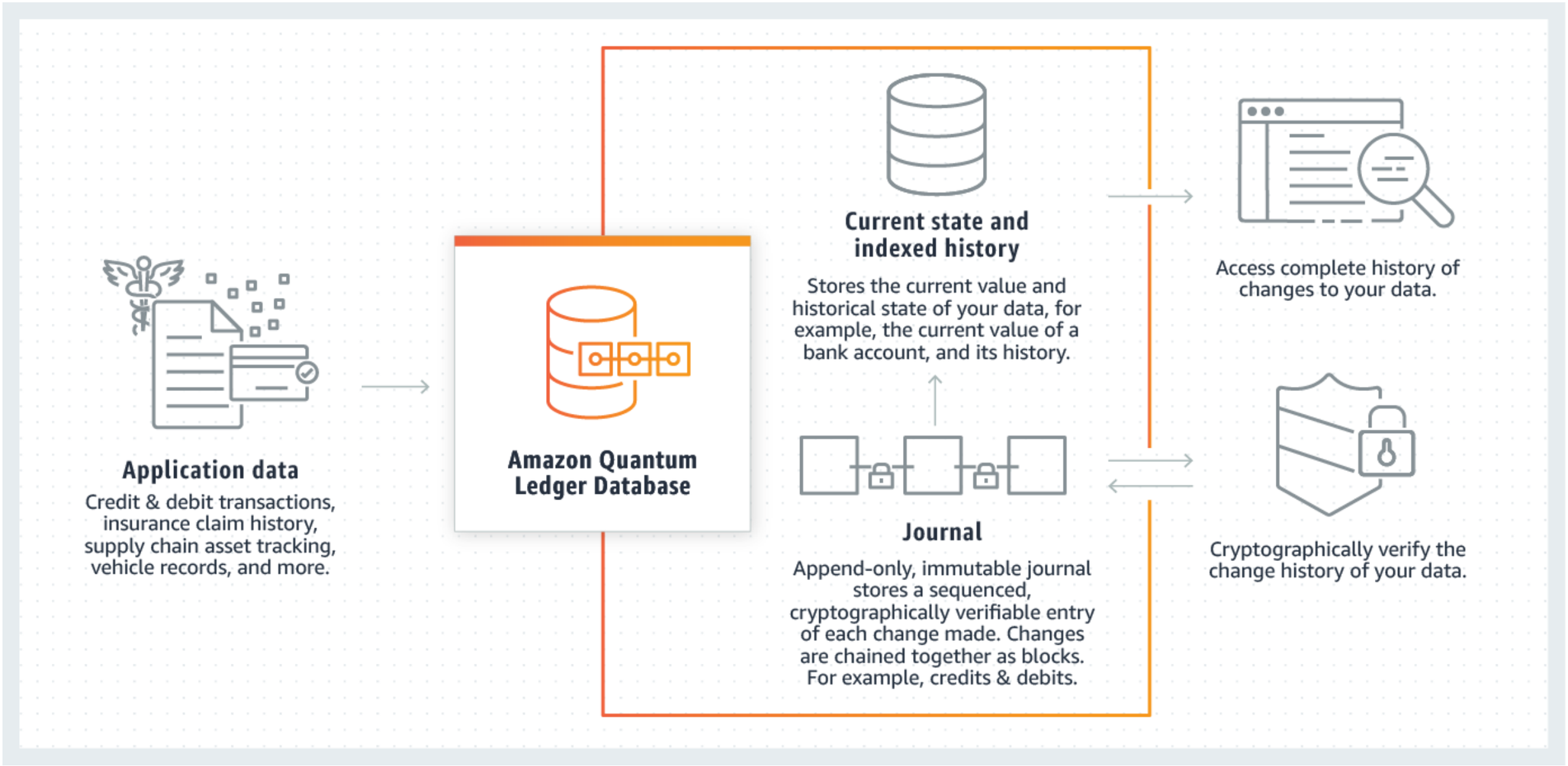


Executes 2–3X as many transactions as ledgers in common blockchain frameworks

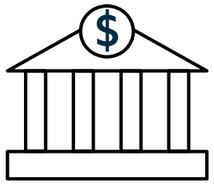
Easy to use

Easy to use, letting you use familiar database capabilities like SQL APIs for querying the data

How Amazon QLDB works



Common customer use cases

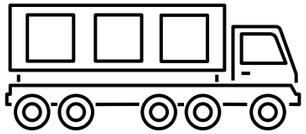


Banking & finance

Keeping track of transactions, trades and accounts

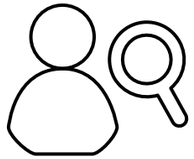
E-Commerce

Where's my stuff?



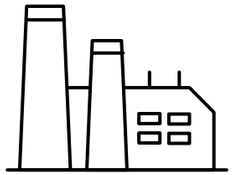
Transport & logistics

Tracking transportation of goods



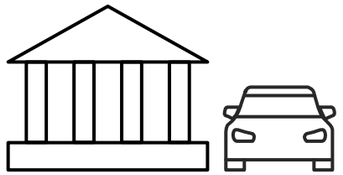
HR & payroll

Tracking changes to an individual's profile



Manufacturing

Recording components used in manufacturing

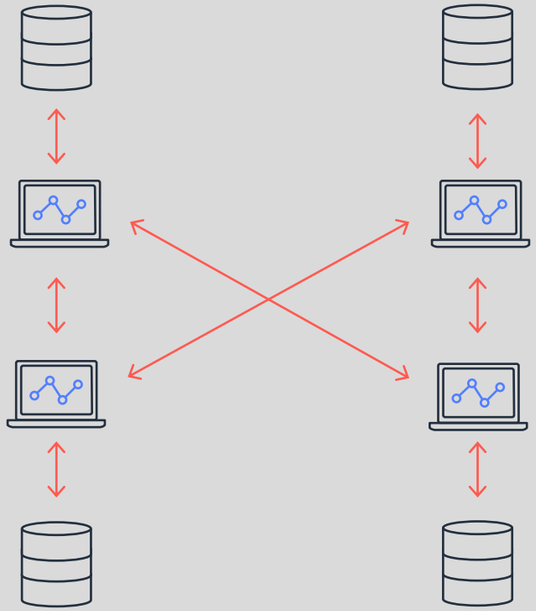


Government

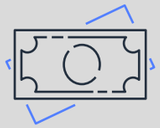
Tracking vehicle title history

Need for running transactions with decentralized trust

1 LEDGERS WITH CENTRALIZED TRUST



2 TRANSACTIONS WITH DECENTRALIZED TRUST



Financial institutions

Peer-to-peer payments

Mortgage lenders

Process syndicated loans

Supply Chain

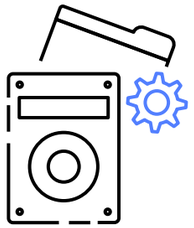
Transact with suppliers and distributers

Retail

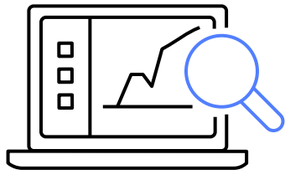
Streamline customer rewards

Complexity of multi-party businesses

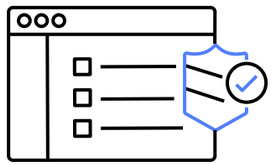
To share data business need



Way to independently verify transactions

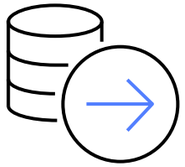


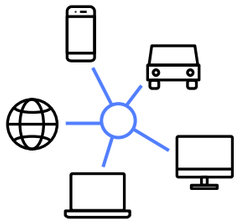
Single current view of data



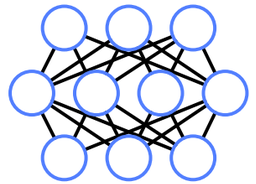
Tamper-proof history of transactions

Current approaches



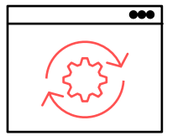


Central authorities to securely share data

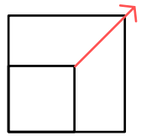


Employ costly escrow

Challenges with existing blockchain solutions

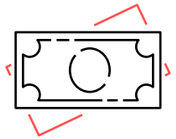


Setup is hard



Hard to scale

Complicated to manage

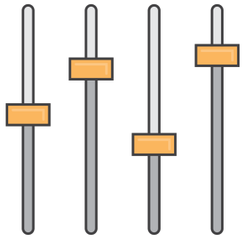


Expensive

What is Amazon Managed Blockchain?

Amazon Managed Blockchain is a fully managed service that makes it easy to create and manage scalable blockchain networks using popular open source frameworks:
Hyperledger Fabric and Ethereum

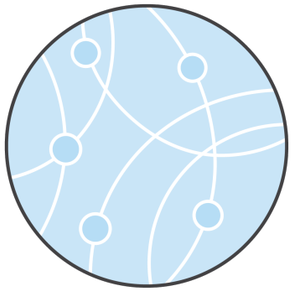
Amazon Managed Blockchain features



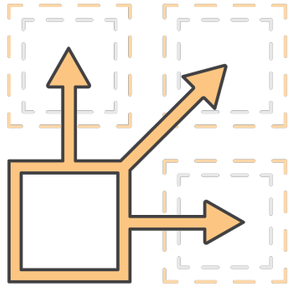
Fully managed
Create a blockchain network in minutes

HYPERLEDGER
FABRIC
ethereum

Open-source variety
Support for two frameworks

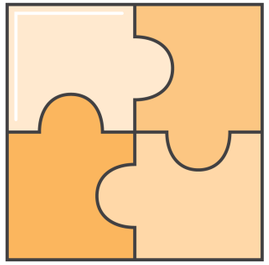


Decentralized
Democratically govern the network



Reliable & scalable
Backed with Amazon QLDB technology

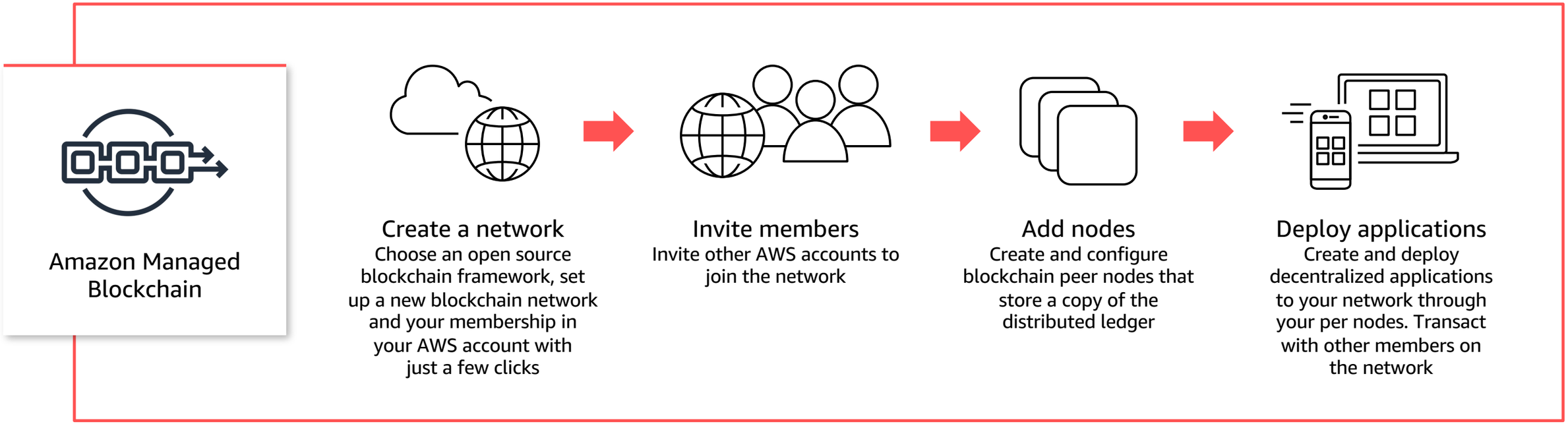
Low cost
Only pay for resources used



Integrated
Send data to Amazon QLDB
for secure analytics

aws

How Amazon Managed Blockchain works



Hyperledger Fabric and Ethereum benefits

Hyperledger Fabric

Useful for a finite set of known users.

Well-suited for applications that require stringent privacy and permission controls with a known set of members

For example, a financial application where certain trade-related data is only shared with select banks and other members in the network don’t have access to the data

Ethereum

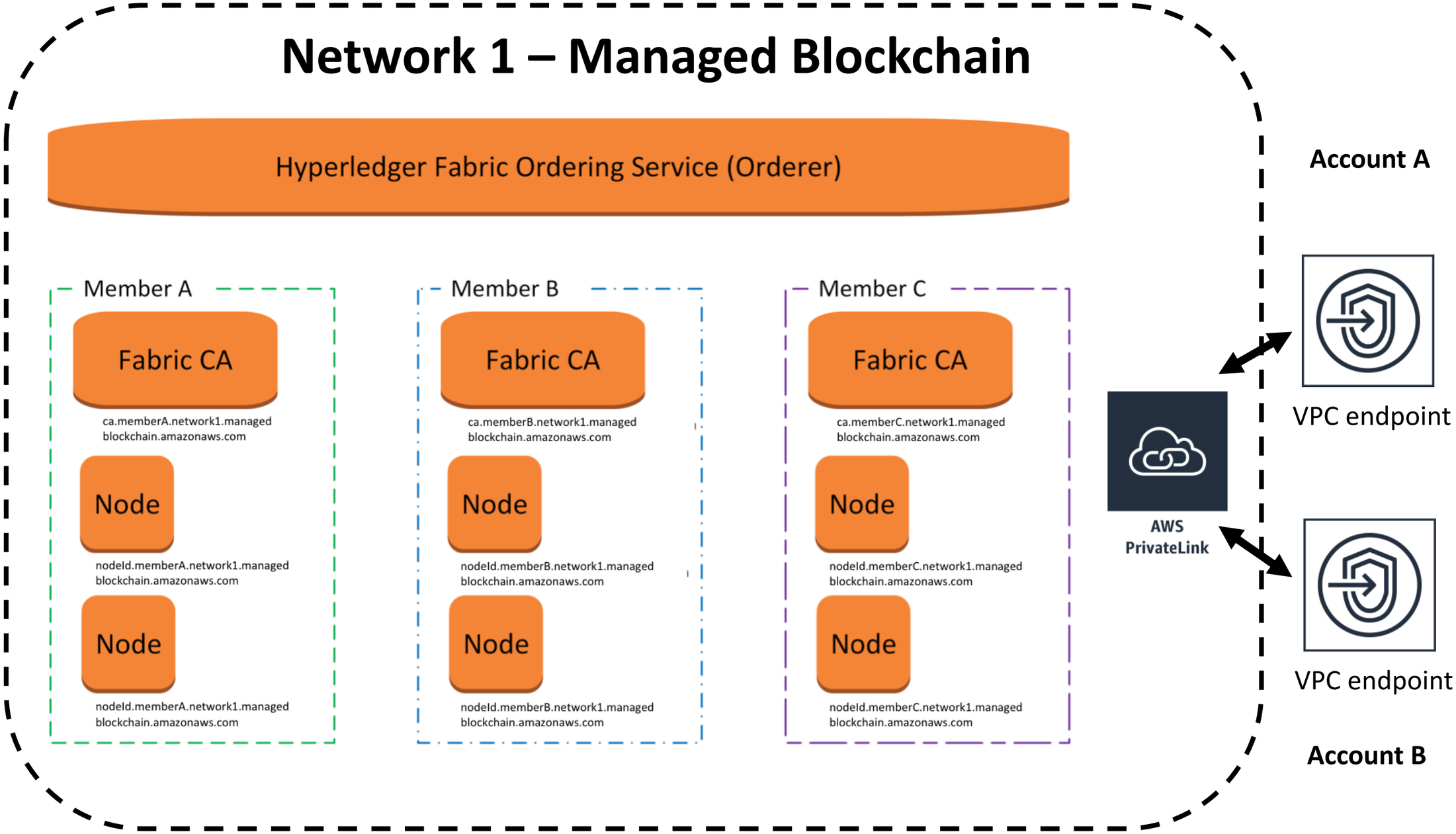
Useful for an infinite number of unknown users.

Well suited for highly distributed blockchain networks where transparency of data for all members is important

For example, a digital identity network comprising of farmers and government organization, where an infinite number of farmers can join the network and information regarding their land, crop yields etc. is shared across all members on the blockchain

Who "owns" the network?

- Networks are decentralized and can remain active even after the initial creator leaves
- Members vote on who to invite and remove
- Network-wide settings
  - Members can vote on network-wide settings and configure the actual voting rules (e.g., majority rules or one member decides)
- Each member pays for their resources
- Amazon Managed Blockchain manages shared components like the ordering service and networking settings


Network 1 – Managed Blockchain
Hyperledger Fabric Ordering Service (Orderer)
Member A
Fabric CA
ca.memberA.network1.managed blockchain.amazonaws.com
Node
nodeId.memberA.network1.managed blockchain.amazonaws.com
Node
nodeId.memberA.network1.managed blockchain.amazonaws.com
Member B
Fabric CA
ca.memberB.network1.managed blockchain.amazonaws.com
Node
nodeId.memberB.network1.managed blockchain.amazonaws.com
Node
nodeId.memberB.network1.managed blockchain.amazonaws.com
Member C
Fabric CA
ca.memberC.network1.managed blockchain.amazonaws.com
Node
nodeId.memberC.network1.managed blockchain.amazonaws.com
Node
nodeId.memberC.network1.managed blockchain.amazonaws.com
AWS PrivateLink
Account A
VPC endpoint
VPC endpoint
Account B

Customer use cases

Customers are experimenting in many industries

Proof of Ownership

Documents/Contracts

Digital Security Trading

Enterprise Platforms

Mortgage Loans

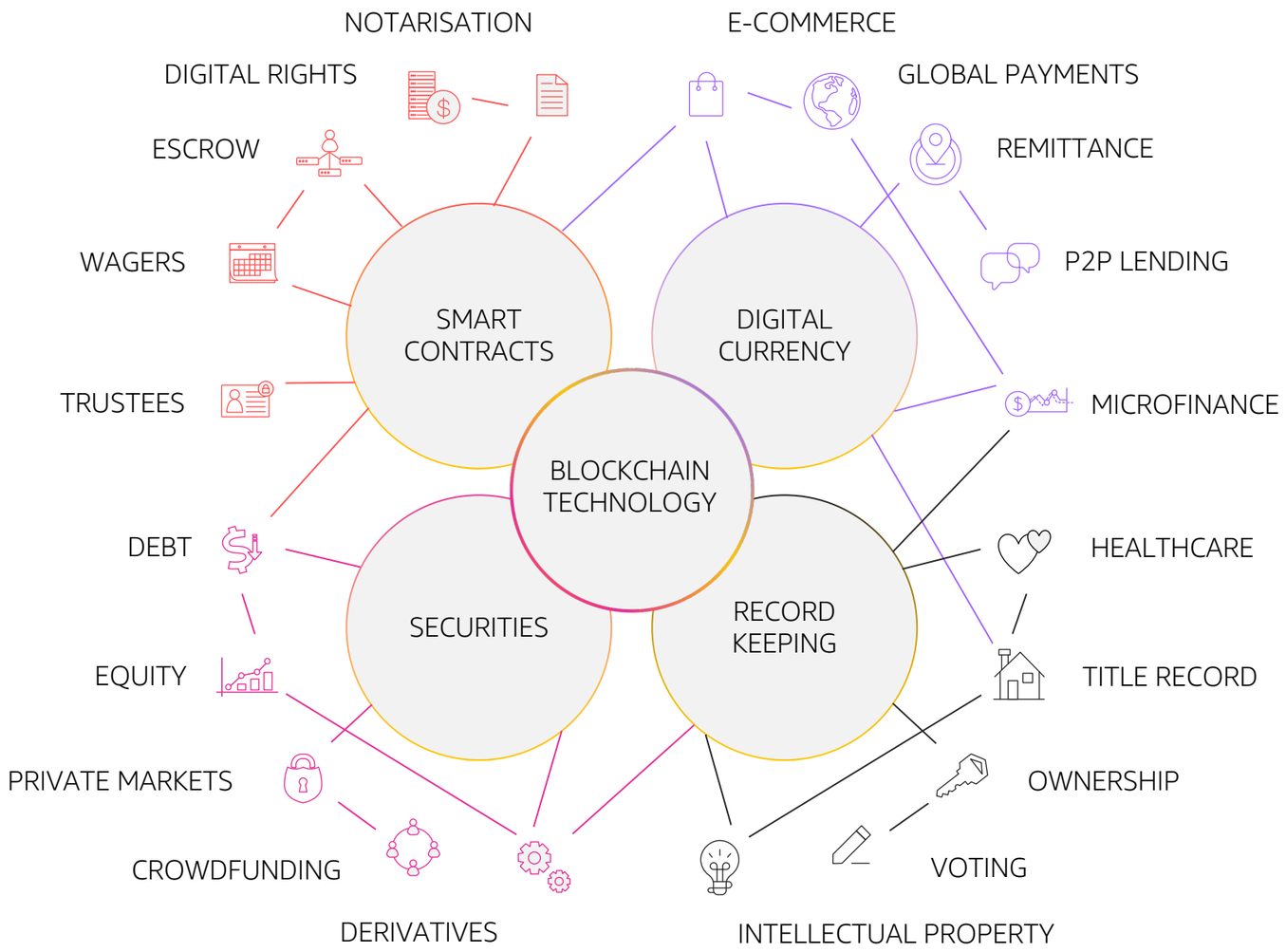
Voting Mechanisms

Patient Records

Corporate Governance

Financial

Insurance



Capital Markets

HCLS

Real Estate

Legal

Agriculture

Gaming

Transportation

M & E

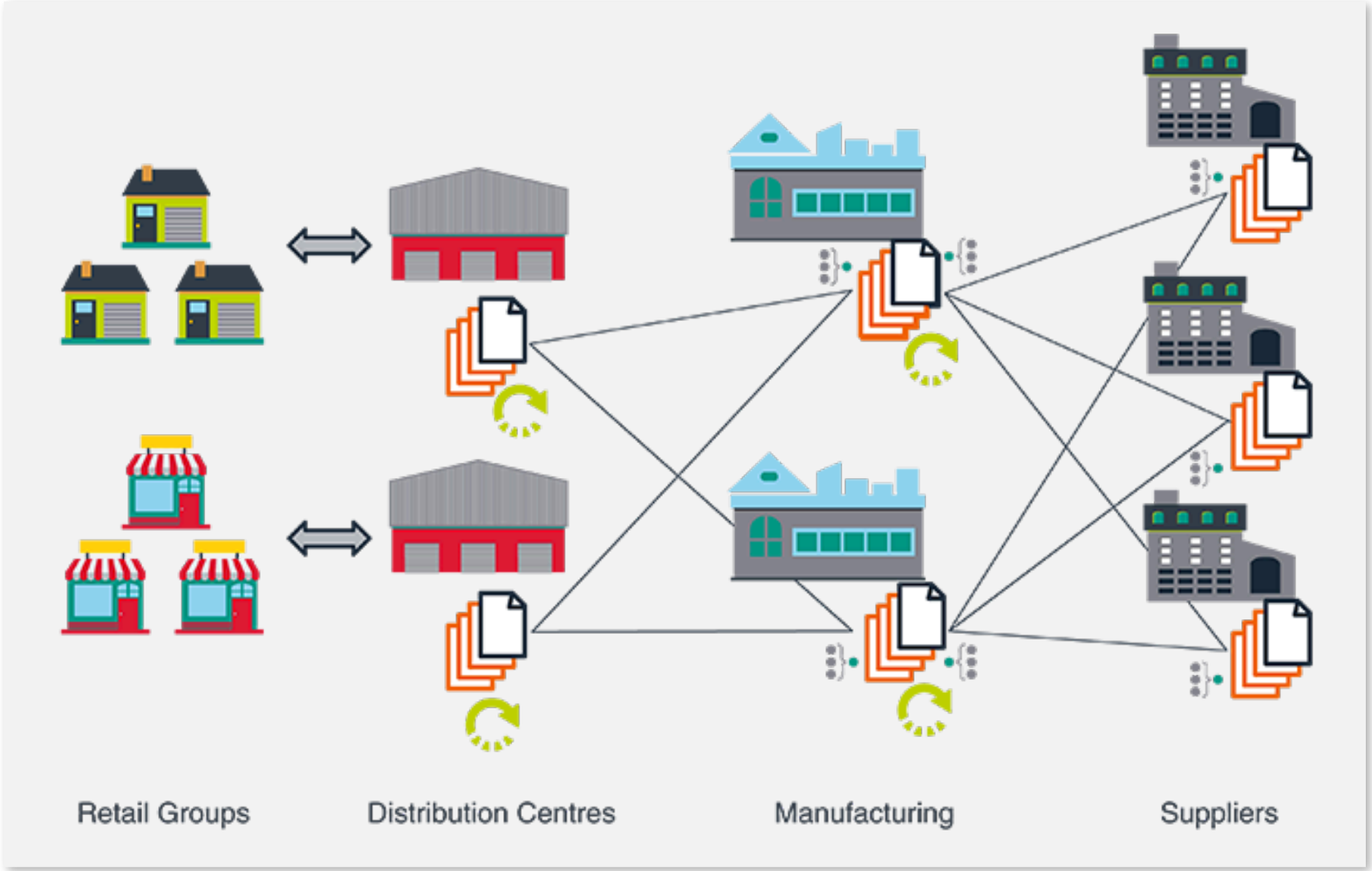
Digital Advertising

Power/Utilities

Retail

Cloud

Blockchain in Supply chain



- Each organization has a trusted copy of the supply chain data
- Payments can be automated through smart contracts
- Identity of components are immutably tracked as they move through the supply chain
- Quality of products can be monitored and immediately acted on

Nestle tracks Single Origin Coffee on Amazon Managed Blockchain

Nestlé is committed to bringing transparency into the origin and quality of the ingredients used in their products with end-to-end visibility into their supply chain for their single origin coffee.

Solution

Nestle built supply-chain asset-tracking smart contracts to track single origin coffee from farm to customer on Amazon Managed Blockchain network to capture events as the coffee moves through the supply chain.

Impact

Nestlé and their customers can now track the high quality single origin coffee from farmer, logistics, distribution center to customer. Nestlé now has a platform they can expand to and trace the provenance of other products from their brand portfolio.

Sony Music Entertainment Japan tracks Music Rights on Amazon Managed Blockchain

Sony is making it easy for musicians and artists to focus on producing music by removing undifferentiated work of filing and processing content rights.

Solution

Using SMEJ's system on AWS, participants will be able to share and verify information such as date and time of creation, and the author's details and automatically verify the rights generation of any piece of written work.

Outcomes

The system is expected to improve productivity while maintaining proper rights processing, creating an environment where new generations of creators can launch hit content.

Legal & General Reinsurance' Pension Risk Transfer platform on Amazon Managed Blockchain

Legal & General picked Amazon Managed Blockchain to drive transparency and security in the global Pension Risk Transfer (PRT) platform.

Solution

With Amazon Managed Blockchain, Legal and General is able to replaces multiple processes and systems traditionally used to support each function, with the added security of blockchain technology.

Impact

Legal & General' platform enables the Group to provide excellent service to customers in multiple markets at lower costs, redefining the way long term life reinsurance business is sold and managed. All Legal & General Reinsurance clients will be supported on this platform.

Singapore Exchange fulfils on Delivery vs Payments (DvP) on Amazon Managed Blockchain

SGX implemented DvP with Monetary Authority of Singapore (MAS) based on Amazon Managed Blockchain to bring transparency, security and reduce costs for the citizens of Singapore.

Solution

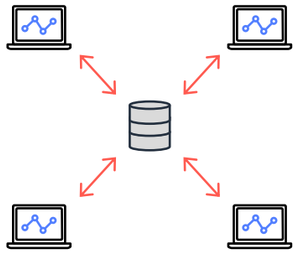
With Amazon Managed Blockchain, SGX and MAS is able to reliably add new participants and maintain rescilliancy of transactions without needing intermediaries.

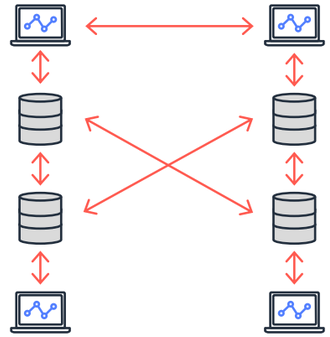
Impact

The citizenry now has reliable access to the untampered data to making trading decisions on bonds, securities and Exchange traded funds (ETFs) thereby bringing liquidity to the market.

Summary

Identifying the right AWS blockchain service

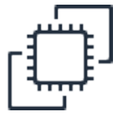




	Amazon QLDB	Amazon Managed Blockchain
Ownership	Owned by a single, trusted authority	No single owner of the ledger. Joint ownership by multiple parties
Addresses Need	Addresses core need of a immutable and verifiable transactional log	Addresses core need of enabling multiple parties to transact transparently and with trust with each other
Key Benefit	It's a database, so its fast, as it doesn't require consent from members	Removes intermediaries when a group of members needs to transact. So it makes business processes more efficient

Blockchain solution building blocks on AWS

AMAZON MANAGED BLOCKCHAIN



AMAZON EC2

AMAZON ECS

AMAZON EBS

Use AWS's managed blockchain service or other compute services as the foundation for your blockchain infrastructure

AMAZON API GATEWAY*

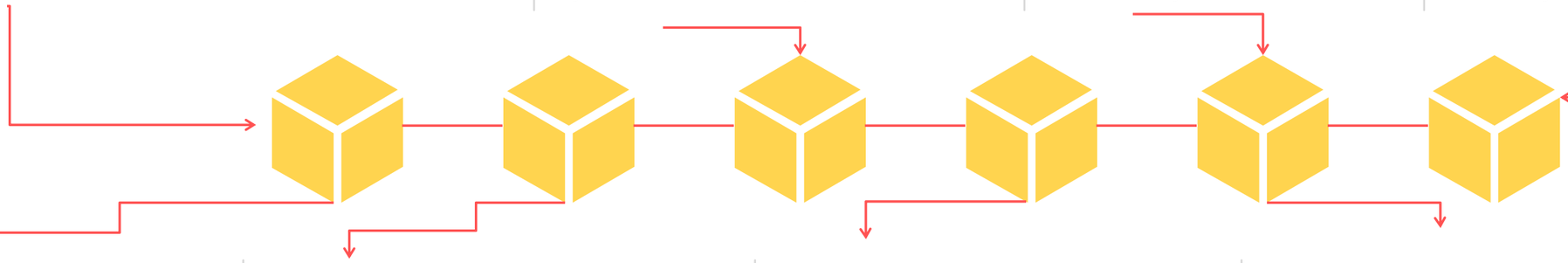
Amazon API Gateway lets you create custom REST API to power your blockchain apps

AWS CLOUDHSM

Use CloudHSM to manage blockchain participant's secret keys

AMAZON IOT

Connect IoT devices with unique identities to a common underlying data layer



AMAZON S3

Utilize S3 as your off-chain data storage for high availability

AMAZON QLDB

AMAZON DYNAMODB

Leverage off-chain database solutions to support blockchain applications and store metadata

AMAZON KINESIS

AMAZON REDSHIFT

Perform analytics and gain insights from your blockchain's data in near real time

AMAZON SQS

AMAZON SNS

AWS LAMBDA

Send notifications or leverage serverless compute to respond to events programmed into blockchain smart contracts

Amazon Managed Blockchain customers

QLDB Customers

Next steps

Learn more about our services

Amazon Managed Blockchain

- Amazon Managed Blockchain webpage: https://aws.amazon.com/managed-blockchain
- Deploying a sample application: https://aws.amazon.com/blogs/database/build-and-deploy-an-application-for-hyperledger-fabric-on-amazon-managed-blockchain/
- Documentation: https://docs.aws.amazon.com/managed-blockchain/latest/managementguide/what-is-managed-blockchain.html

Amazon QLDB

- Amazon QLDB webpage: https://aws.amazon.com/qldb

Thank you!

TAB 4

Presentation: Sector Presentations on Current Industry, Growth and Development Opportunities

Presenter: Elizabeth Escobar-Fernandes

FLORIDA BLOCKCHAIN TASK FORCE

Elizabeth Escobar-Fernandes

Duke Energy

Elizabeth Escobar-Fernandes received a degree in Computer Engineering from UNC Charlotte in December 2014 and graduated Summa cum laude from The William States Lee College of Engineering. Her Senior Design Project was awarded 1st place. Elizabeth joined Duke Energy in January 2015 as an IT Engineer in the IT Telecommunications Data Network Engineering Department supporting SCADA and corporate office network deployments. Then, Elizabeth transitioned to network security, mobile app development and software architecture.

In 2018, Elizabeth joined the Duke Energy Innovation team as an IT architect with a concentration in Cybersecurity. Elizabeth is a Certified Blockchain Hyperledger developer, Certified Ethical Hacker (CEH) and Certified Information Systems Security Professional (CISSP). Elizabeth played a key role in the release of the Duke Energy mobile app built in-house. Last year, Elizabeth led the R&D Blockchain prototype architecture and implementation for Duke Energy using Hyperledger Fabric for Peer 2 Peer (P2P) energy trading. During the R&D project, Elizabeth worked closely with different business units to determine the blockchain use case for Duke Energy, select the appropriate blockchain network, determine technical requirements, and implement a Proof of Concept (PoC). Currently, Elizabeth is a Software Engineering IT manager at Duke Energy over emerging digital technologies, which comprises of virtual reality, augmented reality, and blockchain, among other cutting-edge technologies.

Blockchain Use Cases in the Energy Industry

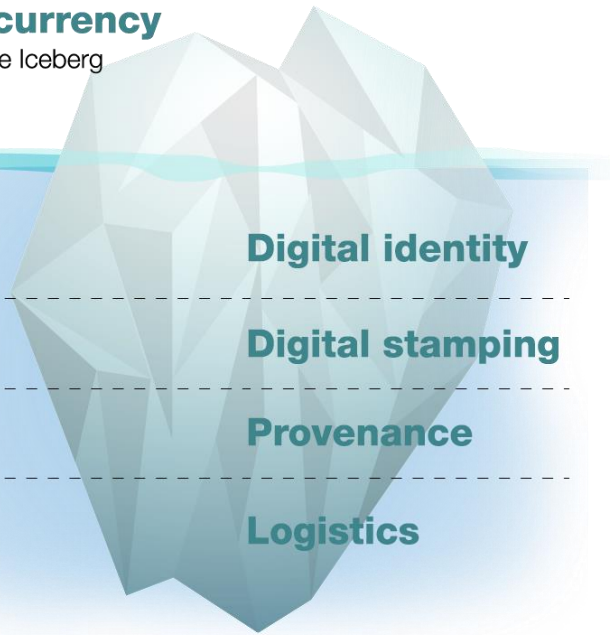
Elizabeth Escobar-Fernandes, CISSP

What is Blockchain?

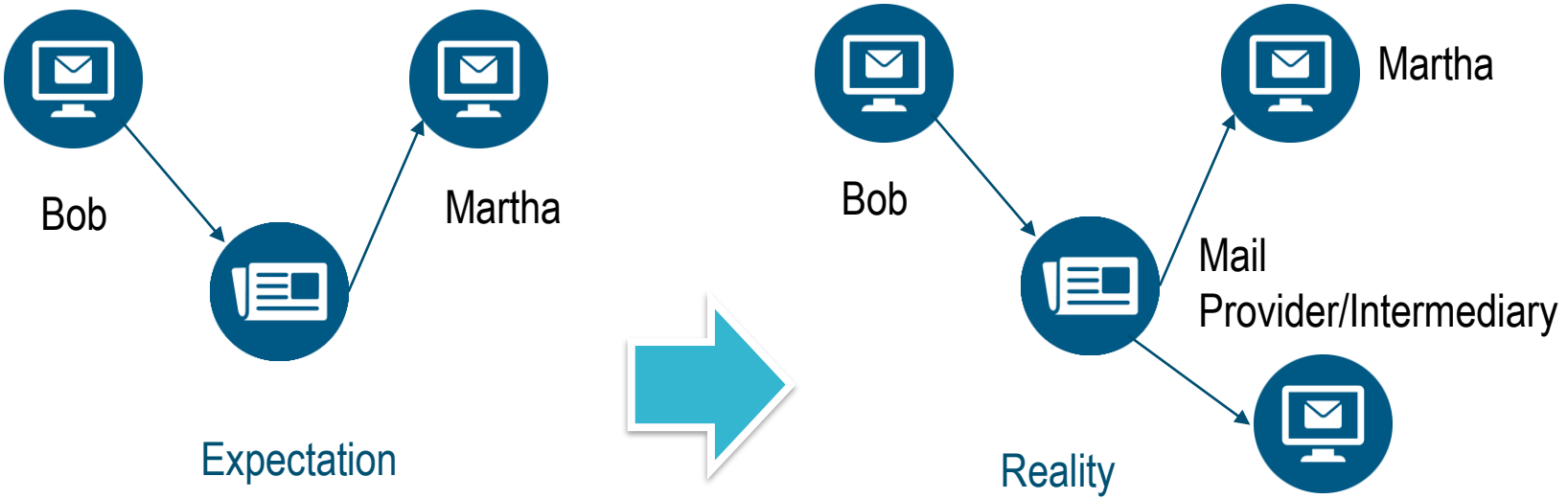
A distributed ledger technology in which value can be exchanged directly between participants. Every transaction is immutable and auditable.

Blockchain technology for enterprise

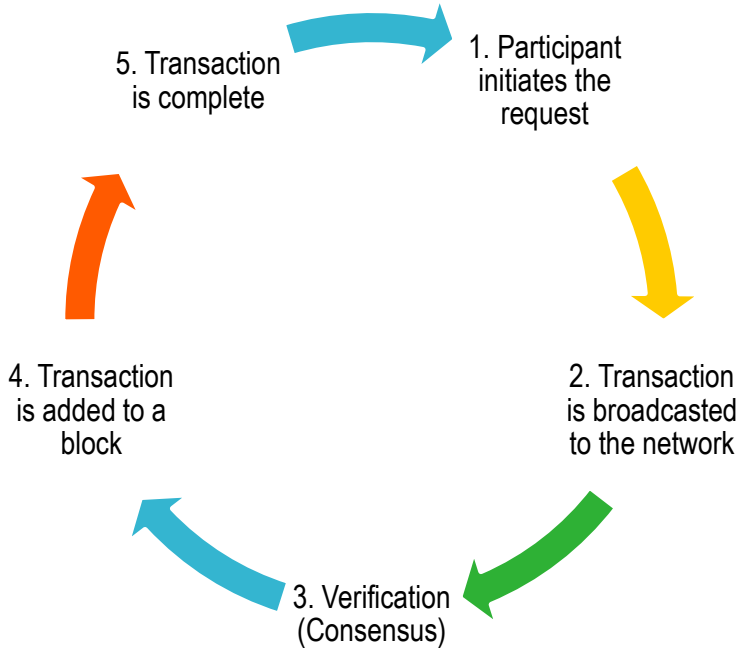
Blockchain is most known for being the technology behind cryptocurrencies like Bitcoin, but Blockchain brings more to the table for all industries.



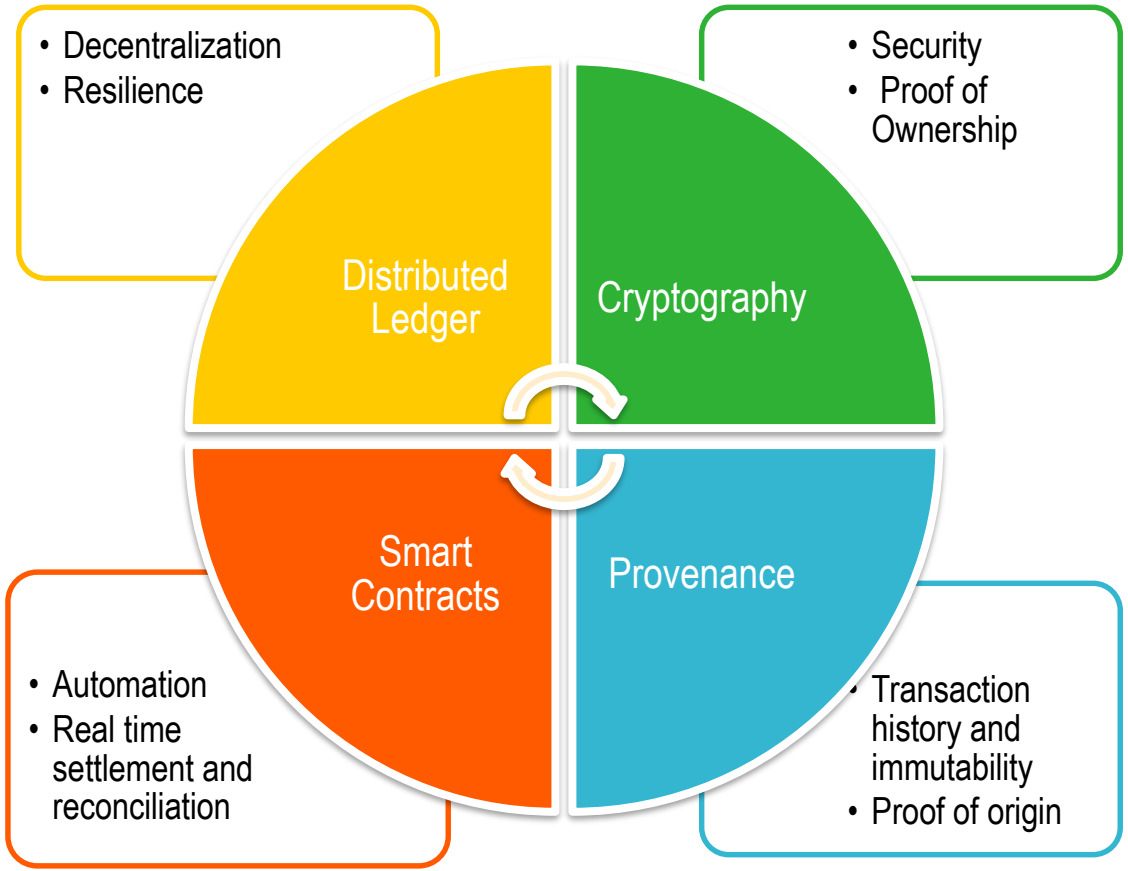
The Internet Today (Centralized)



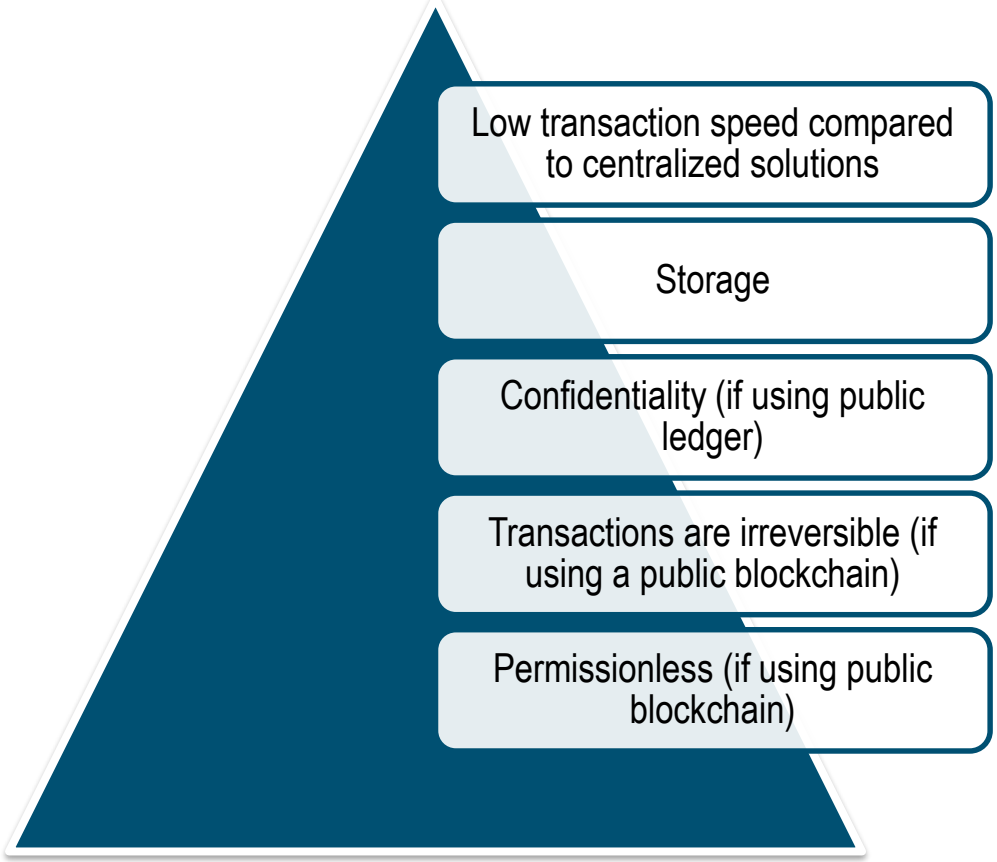
The Decentralized Internet (Blockchain)



Blockchain: Benefits



Blockchain: Cons



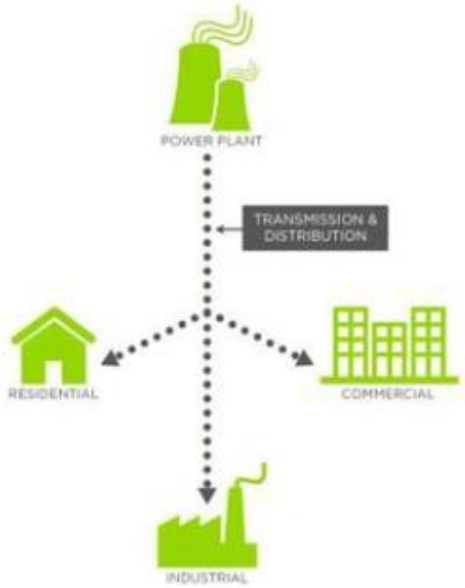
Blockchain Consensus Algorithms

- **Proof of Work** (Bitcoin and Ethereum)
  - Not recommended due to the high energy consumption

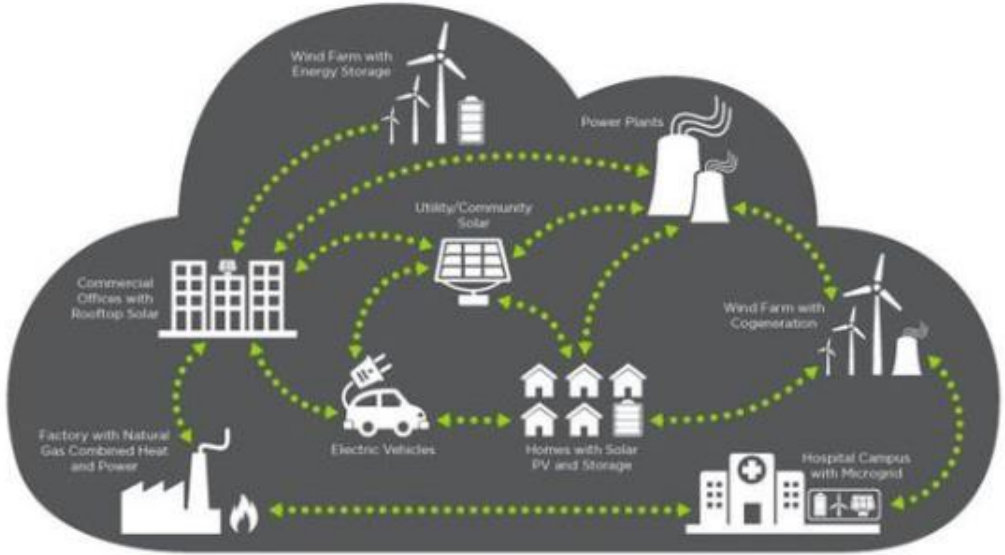
- **Proof of Stake** (Power Ledger EcoChain, QTUM, NXT)
- **Delegated Proof of Stake** (EOS)
- **Proof of Authority** (EW Chain)
- **PBFT, and custom**

The Emerging Energy Cloud

TODAY: ONE-WAY POWER SYSTEM



EMERGING: THE ENERGY CLOUD



(Source: Navigant Consulting)

Blockchain can be a vehicle for accelerating clean energy adoption

Blockchain Activity World Wide in the Energy Sector

https://www.indigoadvisorygroup.com/blockchain

Blockchain Technology Projects in the U.S.

- Silicon Valley: Using the Power Ledger platform, Silicon Valley Power tracks production and use of energy at the solar PV and battery-equipped six-story parking garage to help the utility earn credits under the California Air Resources Board's (CARB's) Low Carbon Fuel Standard (LCFS).
- Power Ledger is partnering with Clearway to develop a platform to trade Renewable Energy Certificates (RECs) in the US.
- Energy Web Foundation and PJM

Blockchain Regulation Landscape in the U.S.

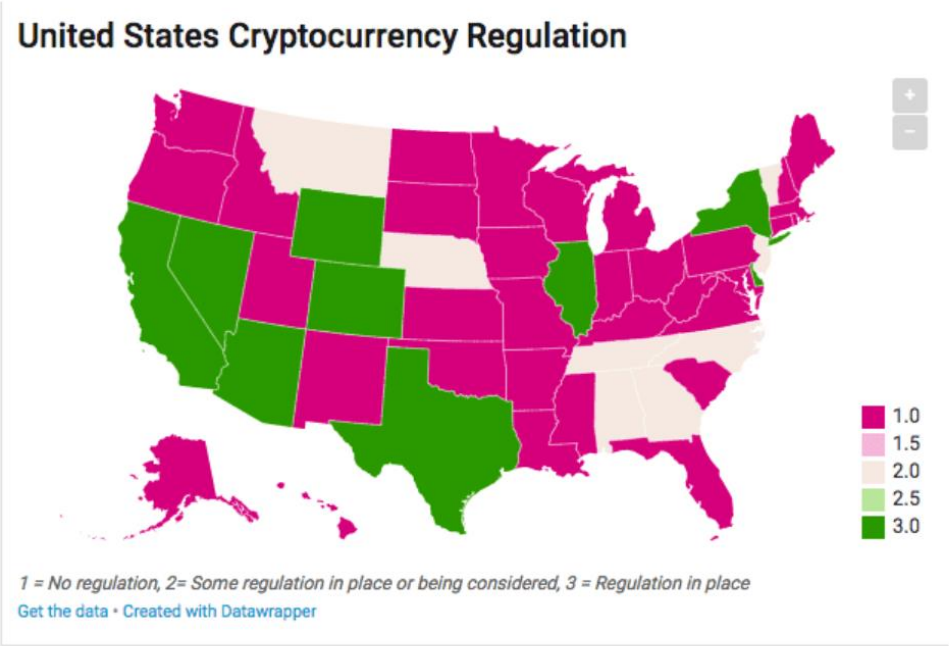


Image Source: investopedia.com – Updated as of 6-25-19. Current map of the US on regulation of cryptocurrencies. States in the green are leaders in blockchain regulation.

Wyoming: enacted 13 blockchain laws recognizing direct property rights for individual owners of digital assets of all types.
Arizona: recognition of smart contracts
Vermont: blockchain as evidence
Chicago: real estate records
Delaware: pending initiative authorizing registration of shares of Delaware companies in blockchain form.

How to Advance Blockchain Adoption

- Promote Blockchain education, initiatives and innovation:
  - Research and education
  - Incentives
  - Pilots in the private and public sector
  - Cross organizational collaboration

- Clear and reliable regulatory framework for all:
  - Data protection and Net metering
  - Trading and investment

- Define and promote Blockchain standards and interoperability
  - IEEE Blockchain Initiative
  - FERC and Security standards
  - Blockchain implementation best practices


DUKE
ENERGY®

TAB 5

Presentation: Sector Presentations on Current Industry, Growth and Development Opportunities

Presenter: Melanie Cutlan, Accenture Operations

FLORIDA BLOCKCHAIN TASK FORCE

Melanie Cutlan

Accenture Operations

Melanie leads the Blockchain Practice for Accenture Operations, which works with 94% of the Fortune 100. She and her team are at the epicenter of blockchain innovation, its application to business processes and the assessment of future implications as the technology takes hold. Melanie has designed an innovative process that uses design thinking to help clients not only visualize the art of the possible, but applies the technical expertise to provide clear, impactful steps towards realizing this reimagined future. She is a sought-after speaker and author including, the recently published, *Unlock Trapped Value with Blockchain.*

Prior to leading the Operations Blockchain Practice, she led the Accenture Tech Garage where Lean Startup Methods where used to disrupt the business from the inside out. Melanie has worked in many sectors with a focus on enterprise functions, procurement and supply chain.

Melanie has a passion to inspire people, foster innovation and deliver results and a continuous need to learn and explore new tech trends. She loves camping, spending time in the mountains and hosting dinner parties. But most importantly, spending time with family and finding ways to leave the world a little better place. Melanie received her BS, Computer Information Systems from Arizona State University with a semester abroad at Florida State University's London campus.

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UNLOCKING TRAPPED VALUE

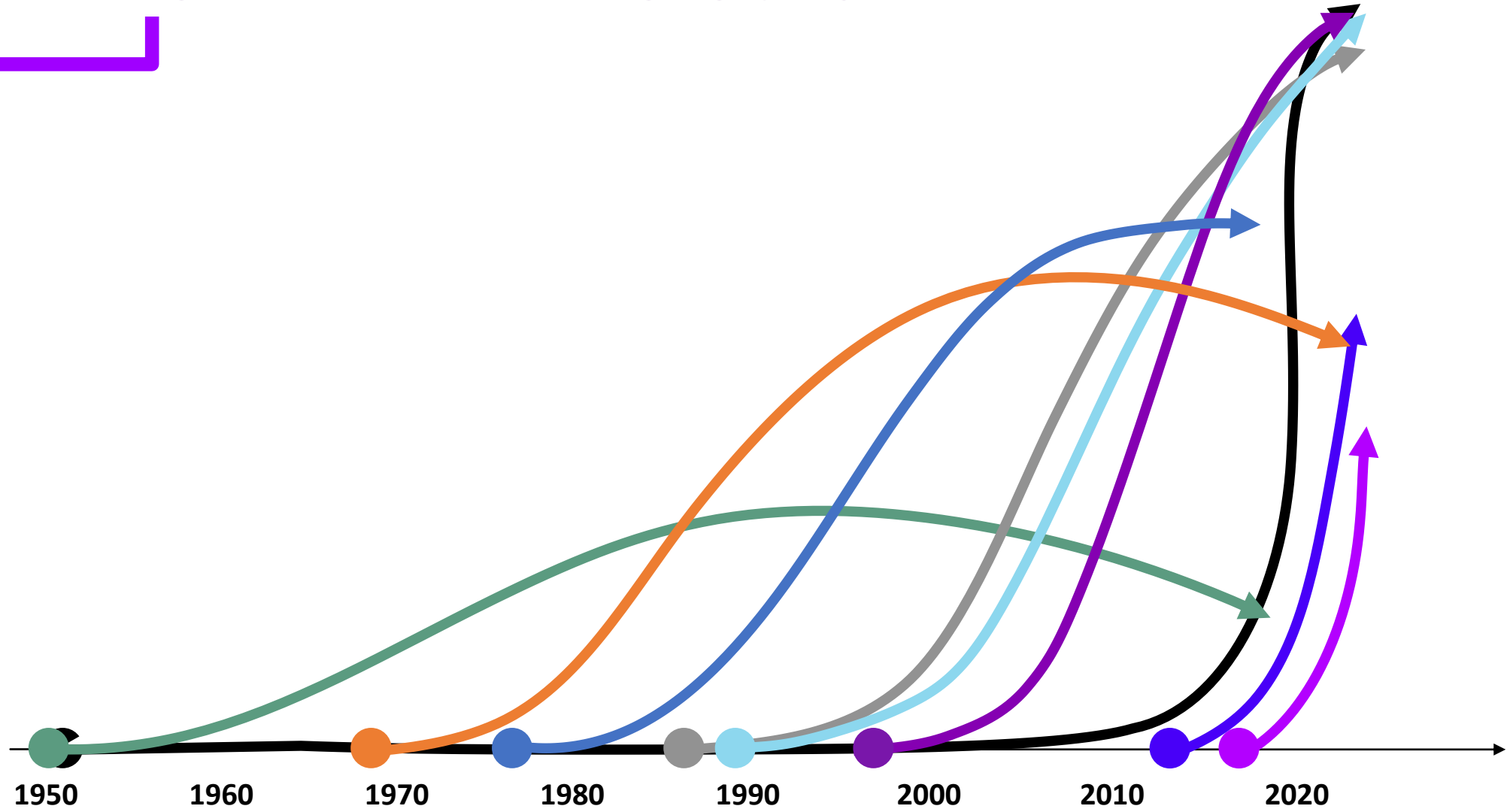
MELANIE CUTLAN

MANAGING DIRECTOR,
GLOBAL BLOCKCHAIN OPERATIONS LEAD

accenture

THE PACE OF CHANGE WILL NEVER BE SLOWER THAN IT IS TODAY.

EXPONENTIAL TECHNOLOGIES

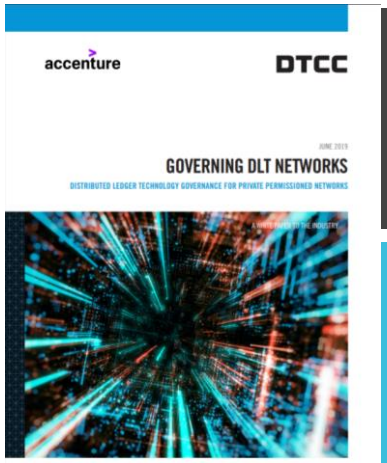


ACCENTURE BLOCKCHAIN OVERVIEW

Double Digit
Market share serviced by Accenture

3 Focal Areas
Financial Services Infrastructure, Supply Chain, and Identity

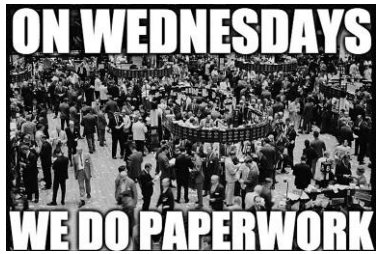
>20
Accenture supported consortia



>30
Accenture Innovation Centers/Labs

>2,500
People trained live on blockchain

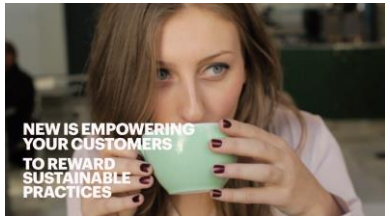
>160
Clients engaged globally on blockchain

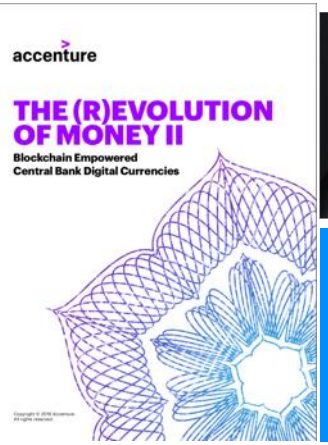


~340
credentials in the last two years

6
Industry organization board seats (EEA,GBBC, Hyperledger, ID2020,GAHI, MOBI)

Digital Asset · Microsoft · aws · IBM · R3 Corda · Enterprise Ethereum Alliance · **4 x Many** · Google · Hyperledger · intel · SAP · ORACLE





>60
Business-centric assets

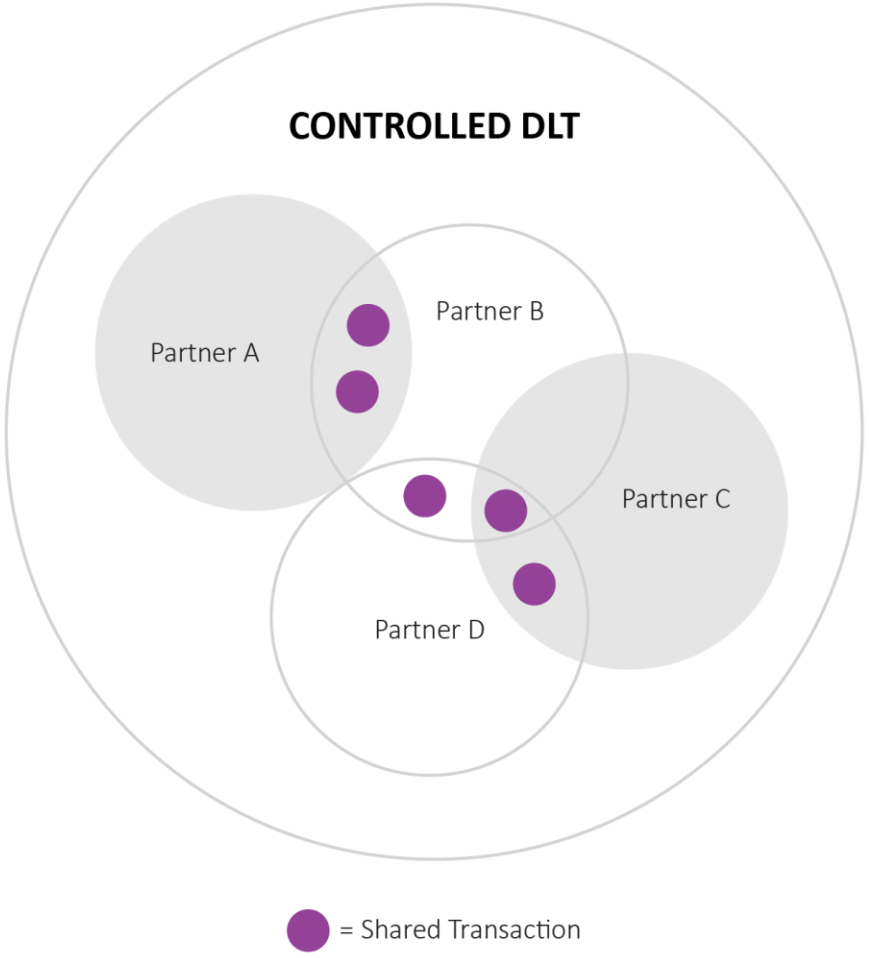
>150
129 Patent applications/ 29 granted patents

>15
Strategic alliances/ startup partnerships

accenture

Tomorrow’s new option: blockchain based business models

‘I see what you see’

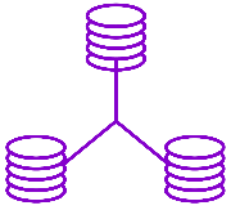


Organizations want to share more data with other parties, but not share all data with all parties

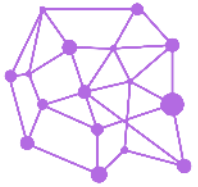
REQUIREMENTS

Operational Integrity

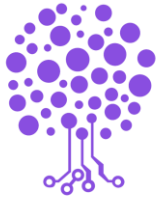
Operational Support



Data Segregation



Onboarding

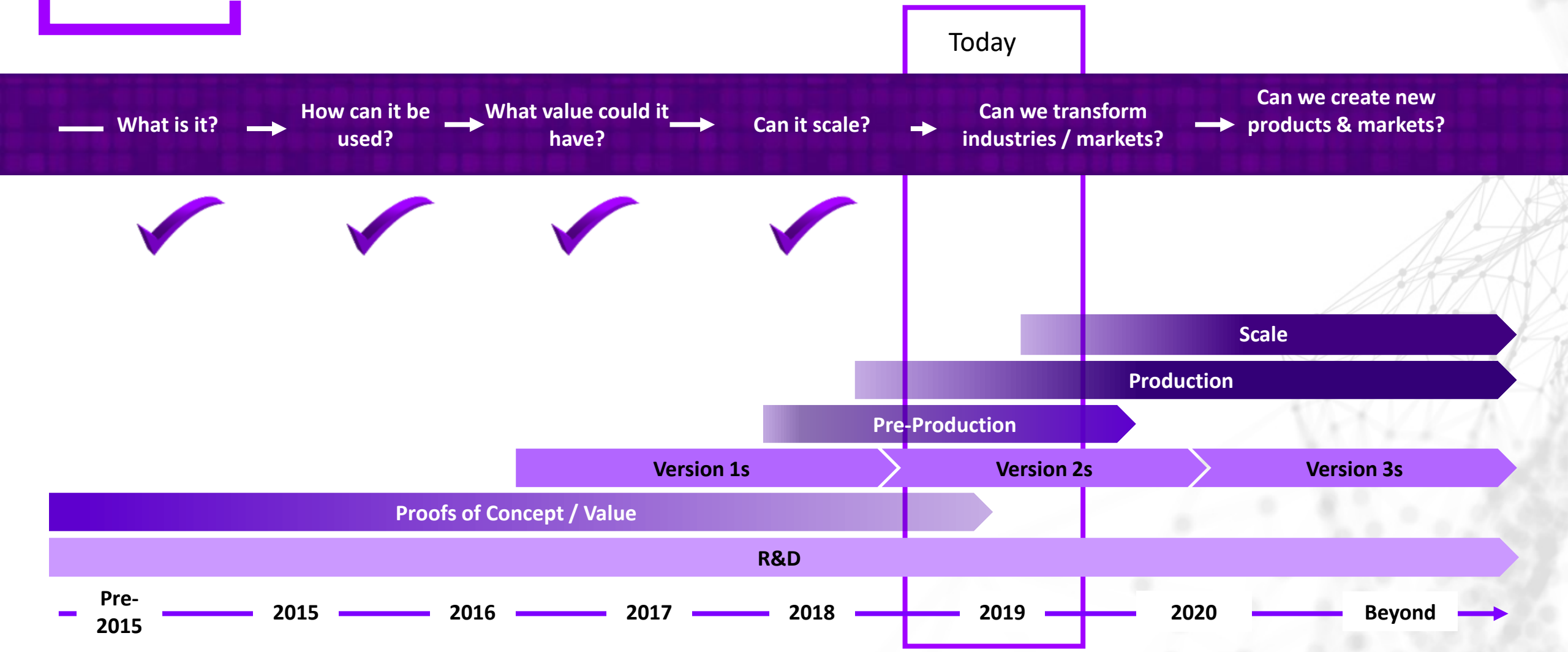


Scalability

accenture

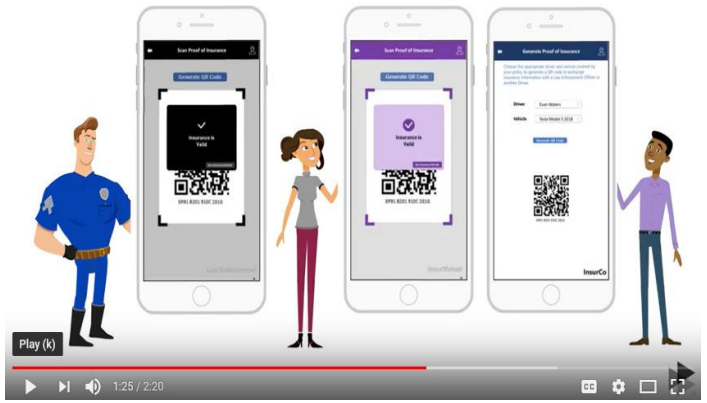
WHERE ARE WE …

Technical performance architecture projects have demonstrated that DLT technology can scale and is ready for the next phase of the journey to production

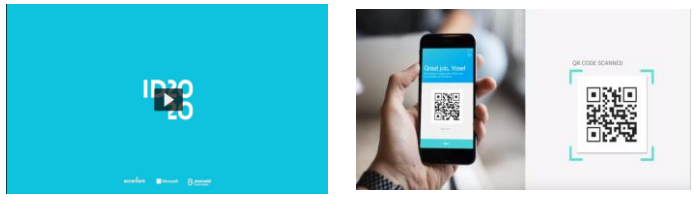


PRACTICAL APPLICATIONS

The Institutes®
RiskStream Collaborative



YouTube



https://www.accenture.com/us-en/insight-blockchain-id2020

AKSHAYA PATRA: MILLION MEALS PROGRAM

YouTube

OUR UNDERSTANDING

accenture

Developing a strategic point of view is critical; being passive is a mistake

BUSINESS TRANSFORMATION

Focus on business transformation enabled by technology

VALUE

Don’t get caught up in the hype; focus on real value

PRIORITIZATION

Prioritize investment decisions alongside other important needs

PARTNER SELECTION

Selecting the right partners in your ecosystem is key to success; it is a team sport!

LEARN MORE

Accenture Blockchain Website (external):
www.Accenture.com/blockchain
www.Accenture.com/blockchain-insights

TAB 6

Presentation: Sector Presentations on Current Industry, Growth and Development Opportunities

Presenters: Matthew S. Lahey and Paul Hasse, NGA Human Resources

FLORIDA BLOCKCHAIN TASK FORCE

Matthew S. Lahey

NGA Human Resources

Matthew has 25 years of experience in the outsourcing, business process and contact center industry.
He has served as the Account Leader for comprehensive HRO programs for two US State Government customers and three large global private sector customers.

Part of his knowledge and experience includes contact center support application system/portal/data warehousing support in the areas of HR administration, compensation and benefits, payroll, time and attendance management, performance management, training and recruiting.

Matthew is knowledgeable at bridging business needs with technical and process support to optimize the complete operational environment. He received a B.A. in Mathematics and a Minor in U.S. Government from the University of Virginia.

Paul Hasse

NGA Human Resources

Paul has 20 years of architect and implementing high performance systems and is experienced in a number of technologies and methodologies. Also, Paul was highly instrumental in the delivery of large complex projects. He has led in building multi-national technical teams globally for large enterprises.

Currently, Paul serves as the Director of Cloud Architecture NGA. Within this role, he works to define the cloud strategy within the NGA Organization, and design the Blockchain initiatives and POC's.

Paul attended The University of Hertfordshire, Hertfordshire, UK, and received his Bachelor of Science (Hons) Computer Science degree.

NGA HR: Distributed Ledger/Blockchain Overview

Matt Lahey, Account Director for State of Florida
Paul Hasse, Director of Cloud Architecture

October 28, 2019

Contents

Overview of Distributed Ledger/Blockchain Technology

Distributed Ledger vs Blockchain

- Distributed ledger is a database that is distributed across several computers or nodes. Each node maintains an identical copy of the ledger, and if any data changes occur, the ledger gets updated. The updating takes place independently at each node; there is no central authority for the ledger. Blockchain is a type of distributed ledger.

Why use the Distributed Ledger?

- Private, permissioned network
- Fast and resource-efficient
- Environmentally-friendly
- End-user contextual access
- Enterprise-grade security
- Automation features for cost reductions
- Enterprise integration to abstract the blockchain complexity
- Enterprise platform architecture (API driven)

NGA and Use of Blockchain

NGA HR is in the HR and Payroll business

- Data security and data privacy are fundamental to our business
- Blockchain and distributed ledger technology will be used to enhance our data security and privacy processes
- This technology will also support audit and compliance requirements

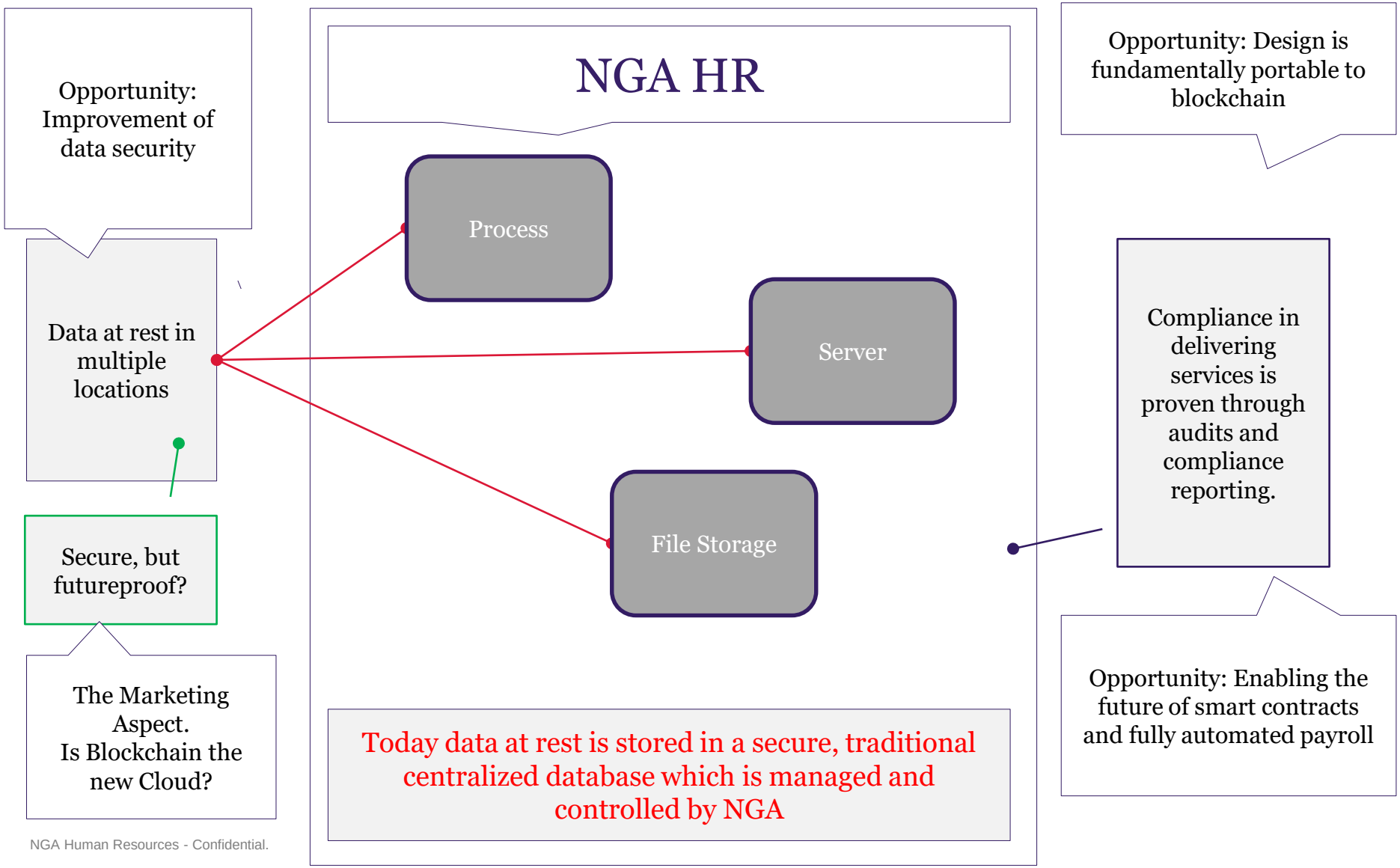
NGA is on the forefront of developing and applying technology innovation in HR and payoll

- Examples include machine learning and artificial intelligence
- Constantly exploring ways to enhance data privacy and data security

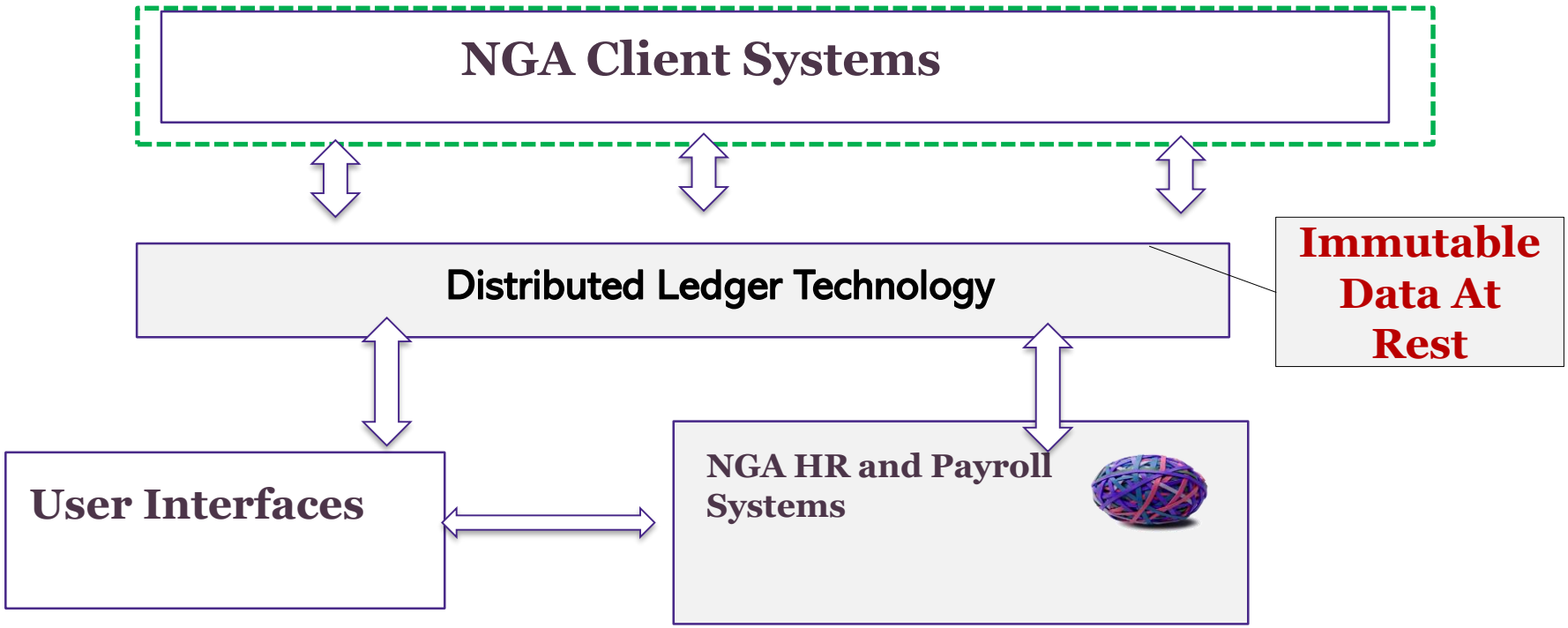
NGA is partnering with data security software companies that specialize in helping global organizations solve critical data security challenges

- By building our intellectual property on top of a distributed ledger architecture, NGA is able to accelerate data security projects

Our Architecture Today



Potential Architecture for Tomorrow



-All sensitive data at rest is stored in a secure, immutable blockchain
-The owner of the data controls who can access their data
- All interactions with the blockchain will be audited

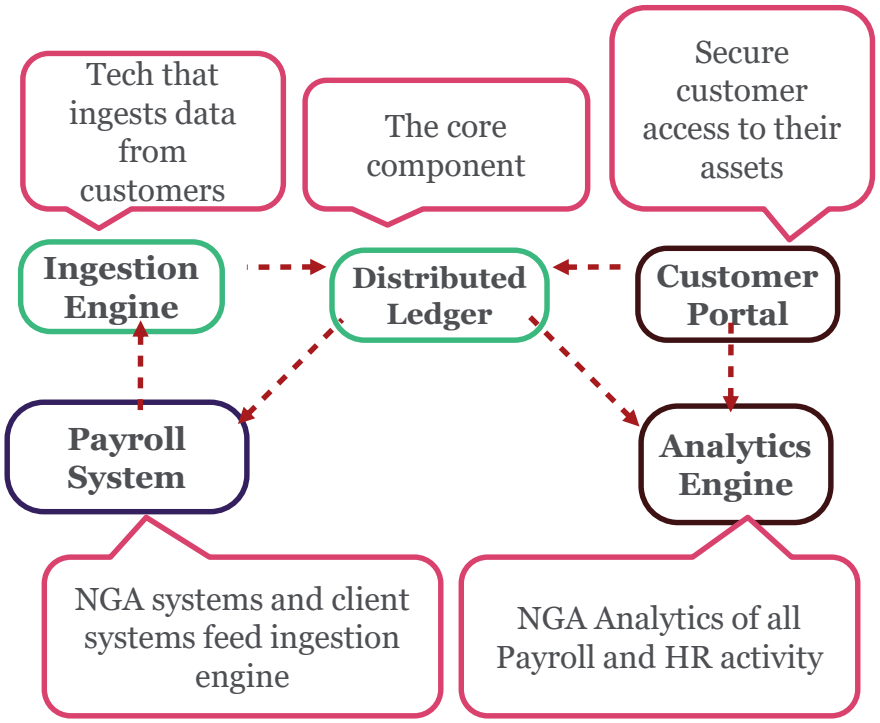
Distributed Ledger Technology in HR Operations

NGA HR Confidential

Goal – Enforce data security and controls

- Security and access controls for regulatory compliance
- Future-proof solution that can cost effectively handle large bursts in demand
- Solution that is capable of scaling <u>at known costs</u>

High Level Concept Architecture



What Distributed Ledger Solves

- Establish a secure perimeter around sensitive personal data
- Granular security and encryption to comply with data security regulations, such as GDPR
- Complete data security without spiraling costs
- Simplified architecture reduces costs across databases, middleware and identity management
- Scalable platform enables management of over 1 million employees with predictable costs and without large increases in infrastructure
- Cloud ready platform with autoscaling capability allowing real-time resource allocation to deal with peaks and reduce infrastructure costs
- Tamper-proof audit trails of all actions on critical business data
- Automation of processes with trusted layer of governance for total visibility

Lessons Learned So Far

1. It's a journey
    - Distributed ledger and blockchain technology is continuing to evolve
    - New opportunities and applications will arise

2. Collaboration
    - Working closely with distributed ledger/blockchain partners is fundamental in such a dynamic environment
    - Clear communication is key

3. Blockchain is not a silver bullet
    - Technology is often viewed in isolation and not reviewed in the wider context of ongoing digitilization
    - Each use case must be fully understood before undertaking any blockchain initiative

Questions and Discussion

TAB 7

Presentation: Sector Presentations on Current Industry, Growth and Development Opportunities

Presenters: Ken Thomas and Chris Estes, Ernst & Young

FLORIDA BLOCKCHAIN TASK FORCE

Ken Thomas

Ernst & Young

Ken is EY's Florida Government and Public Sector Leader and is responsible for all services delivered to Florida state and local government clients. He helped established EY's relationship with the State and led our efforts from 2001–2005 and rejoined the team after an extended international assignment in 2016.

Ken has over 30 years of experience managing large, complex corporate relationships in both the private and public sector, leading accounts and special project teams. In his 21 years with EY Ken has held several senior leadership roles at EY, both in the US and globally. In addition to the State of Florida, his clients have included UPS, The Home Depot, Unilever, HSBC, ING, ABInBev and Kimberly Clark; with experience in 30+ countries across 5 continents.

Ken is a 6th generation Floridian from Panama City and graduated from the University of Florida. He is married to fellow Gator Kelly and they have two daughters, both Gators as well, Kendall (29) and Kelcey (24).

Chris Estes

Ernst & Young

Chris is the Finance, Operations & Technology Leader for the US State, Local & Education Market. His responsibilities include US strategy development and building a leading national brand by orchestrating EY capabilities that accelerate growth and innovation including emerging technologies like Artificial Intelligence (AI), Robotics, Blockchain, and Virtual Reality.

In addition, he serves as the Carolinas Government & Public Sector Leader and a member of the Enterprise Architecture & Governance Committee for the National Association of State Chief Information Officers (NASCIO).

Chris served as North Carolina's State Chief Information Officer and Cabinet Secretary of the newly legislated Department of Information Technology as a member of the governor's cabinet. He chaired the NC 911 Board and is a past member of the NC Science, Technology & Innovation Board and an elected member of the Executive Committee for NASCIO as Chair of the National Innovation Forum. Chris has spent over 30 years in the high-tech, manufacturing and financial services industries advising on innovation and digital transformation in Fortune 100-sized organizations. He is a recipient of North Carolina's highest civilian award, the Order of the Long Leaf Pine and North Carolina Technology Association Public CIO of the Year.

Blockchain for Public Finance

A foundational blockchain solution for government and the public sector

Overview 2019

EY
Building a better working world

Foundations of better government

Enhancing public finance management (PFM) is focused on three foundational issues that very few jurisdictions have been able to address fully, presenting an opportunity for innovation and the delivery of better government and public sector outcomes

1 Transparent, accurate, continual information for financial reporting and accountability along the entire PFM chain: central budget authority, program authority, delivery agent

2 Administrative efficiency and capacity in core financial management business processes such as budgeting, expenditure management and performance management, without significant financial management information system investment and risk

3 A single source of integrated financial and nonfinancial performance information provided continually to support managerial and strategic decision-making and help promote allocative efficiency and effectiveness for public outcomes

A PFM Blockchain can answer 3 key questions governments consistently face

WHAT IS FUNDING BEING SPENT ON?
PFM acts as a conduit between data silos and provides a single view of the truth for all parties, eliminating the need for reconciliations and providing full clarity into public accounts.

Single source of truth to greatly reduce reporting and assurance costs

HOW AND WHEN IS IT BEING SPENT?
Real time tracking of funds distributed on the Blockchain creates the opportunity to predict inflow and outflow funding cycles while ensuring funding is proportionally spent throughout the fiscal year.

Integrated financial & non-financial reporting to support enhanced analytics and decision making

WHAT OUTCOMES ARE BEING ACHIEVED?
Transparency in financial reporting ensures governments are able to accurately gauge expected outcomes of programs and services.

Ability to manage across organizational and system boundaries with low risk and relatively low cost

Blockchain provides an innovative and efficient tool to managing the interface between CBA, program managers and delivery agents by integrating with existing ERP and financial performance management systems

What is the PFM Blockchain?

Permissioned Blockchain

As a variant of traditional public blockchains, PFM's permissioned blockchain adds an additional layer of security, with the ability to govern access rights to the network and the delegation of permissions for each user.

Tailored for any situation

Each instance of the PFM solution is tailored to requirements dictated according to the unique specifications of the client.

PFM is flexible and scalable to a wide scope of activities where public resources are being utilized.

Tokenization

PFM tokenizes the appropriations structure of public budgets, transforming real and virtual financial and non-financial assets into tokens on the blockchain.

As secure tokens, PFM integrates payment with delivery and radically reduces risk and complexity by keeping transactions and outcomes inside a single ecosystem.

How can blockchain revolutionize government operations?

A number of governance and operational challenges in the current state can be solved by blockchain

	Current State	Blockchain Enabled Future State
1	**Jurisdictional confusion** Managing transfers of funding and accountability across and between government actors is time intensive, often highly manual, and prone to confusion	**Multi-jurisdictional transparency** Seamless, transparent financial reporting, providing traceability into funding allocations and track expenditures between government actors
2	**Siloes within Government** The current siloed, Agency-specific program structure leads to accountability gaps, duplication of effort, and inefficient use of resources in areas of shared accountability	**Integrated horizontal accountability** Blockchain supports integrated reporting, breaking down siloes between program areas and increasing cooperation in the discharge of public programming
3	**Regulatory enforcement effort** Managing and enforcing regulatory compliance is time and resource intensive, and changes to enforcement regimes are challenging to implement	**Regulatory enhancement** Blockchain provides regulators with an immutable audit trail and simplified reporting processes. Smart contracts enable automatic compliance verification and validation
4	**Complex transaction regimes** Businesses face a complex tax and regulatory regime, with multiple public sector actors that they must respond to and engage in frequent transactions with	**Streamlined transaction platform** Blockchain can provide an integrated platform that simplifies taxation and fee payments, reducing transaction costs and increasing transparency
5	**Siloed service delivery** Siloed government operations and data sharing restrictions often require individuals to provide duplicative information to receive benefits and services	**Integrated service delivery** Allow for information to pass securely between delivery entities, increasing the speed at which individuals receive the benefits and services they are entitled to

PFM BLOCKCHAIN

What does this mean for government?

The core function of government is to collect and expend revenue in an efficient, effective manner to deliver public goods.

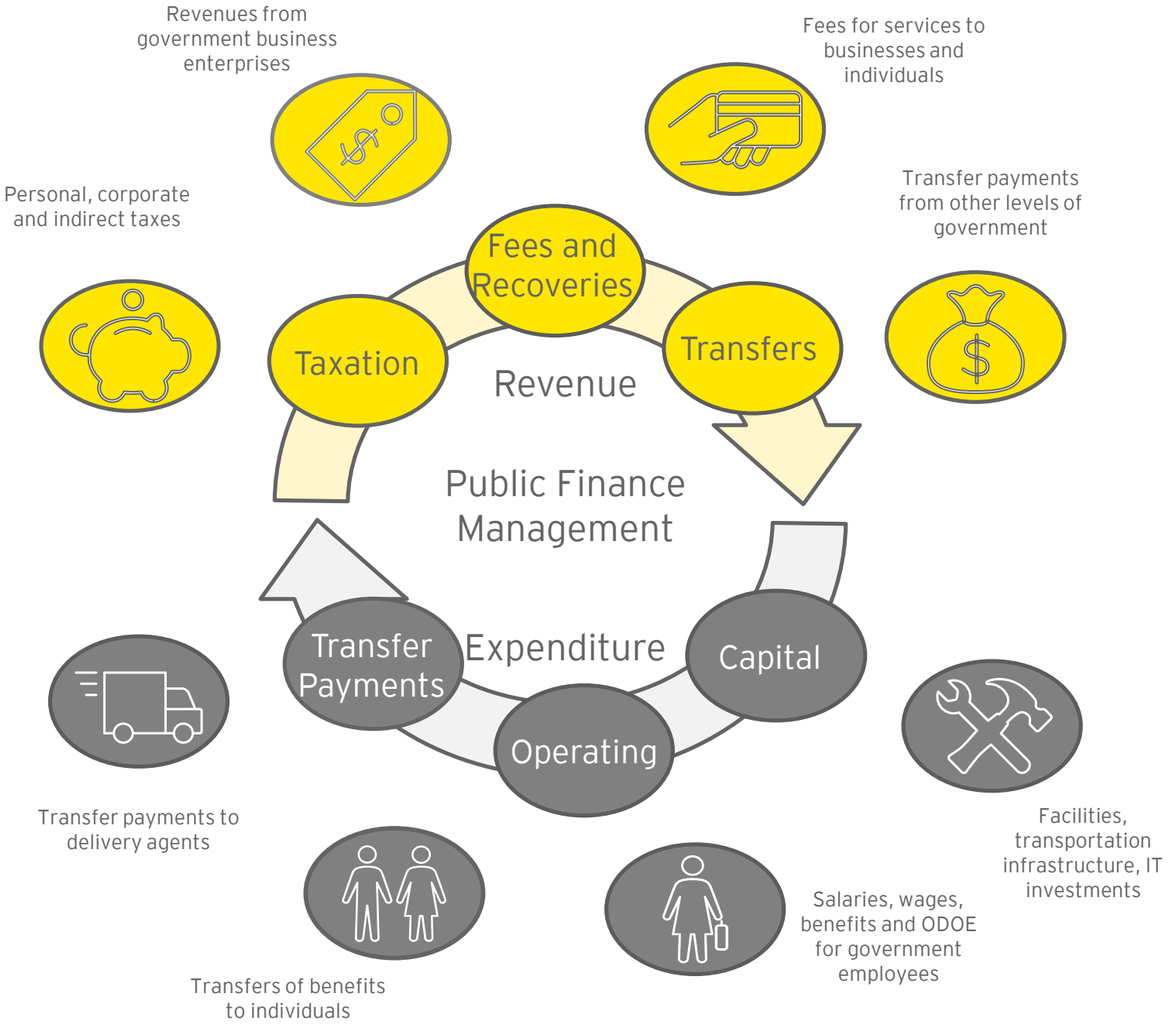
Blockchain can support four key elements of government's core mandate and function:

Expenditure: Granting authority for operating, capital and transfer payment expenditures.
Role of blockchain: Real-time transfer and expenditure of funds, with integrated outcome reporting.

Regulatory: Creating, implementing and enforcing compliance-focused regulation.
Role of blockchain: Automated compliance monitoring and enforcement through smart contracting.

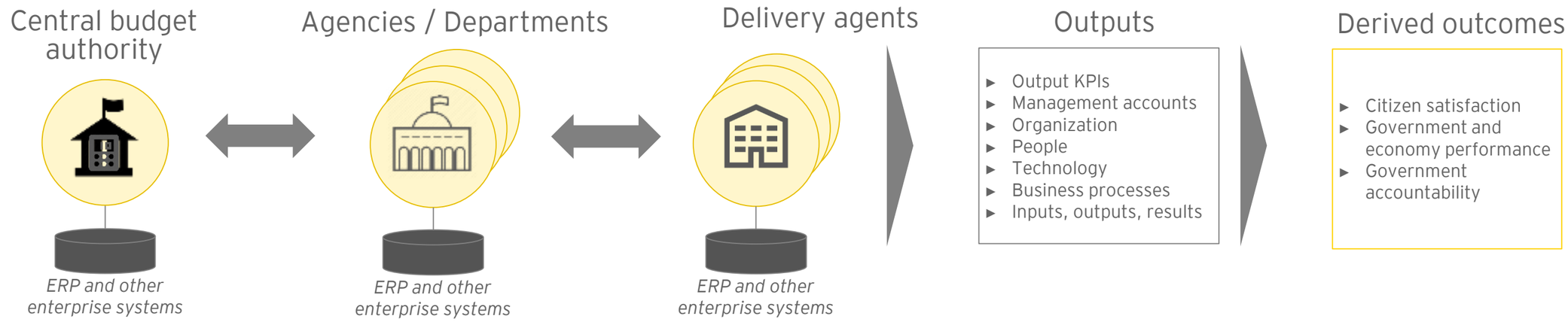
Revenue: Generating revenues through taxation, fees, other non-tax revenues, and transfers from other government entities.
Role of blockchain: Integrated, real-time collection and streamlined revenue administration.

Direct Delivery: Direct delivery of services or funding to individuals, businesses, NGOs, and NFPs.
Role of blockchain: Increased speed, accuracy, and lower compliance costs.



PFM sample use case

A PFM blockchain supports effective decision-making, reduces costs, and improves transparency and accountability …



Suboptimal decision-making

- Currently, there is lack of timely and accurate reporting of outputs and outcomes for effective decision-making
- Aggregated view of outcomes, clients, programs not available to prioritize
- Measure what you can, not what you should

Costly information exchange

- Significant overhead in reconciling and exchanging transactional and reporting information
- Disconnect between public reporting of program performance and management of program performance

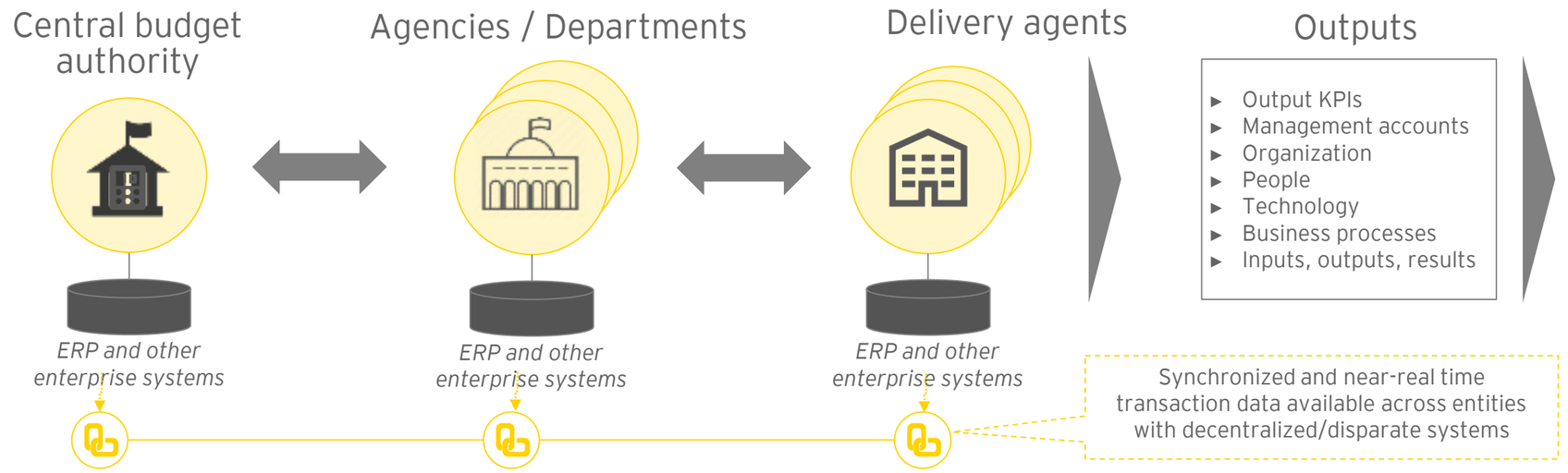
Lack of transparency

- Incomplete view of financial and nonfinancial information, of funds allocated against program outputs/outcomes
- Inability to jointly view and reconcile appropriation and management frameworks in near to real-time

The best path forward is one that can:

- Sustain an effective, efficient, secure, and cost-effective solution without the need for costly transformation of core FMIS
- Provide transparency via a single source of truth across the entire chain for real-time decision-making and effective allocation and prioritization of public resources
- Find a mechanism to synchronize and align disparate systems and business processes in driving transparency and accountability

… creating a single source of truth to support more effective day-to-day decisions and lead to better citizen results



Effective decision-making

- Timely and accurate availability of reporting measures for allocative and administrative decision-making
- Ability to integrate strategic budget-level program performance objectives with consumption-level management objectives

Efficient and near-real-time exchange of information

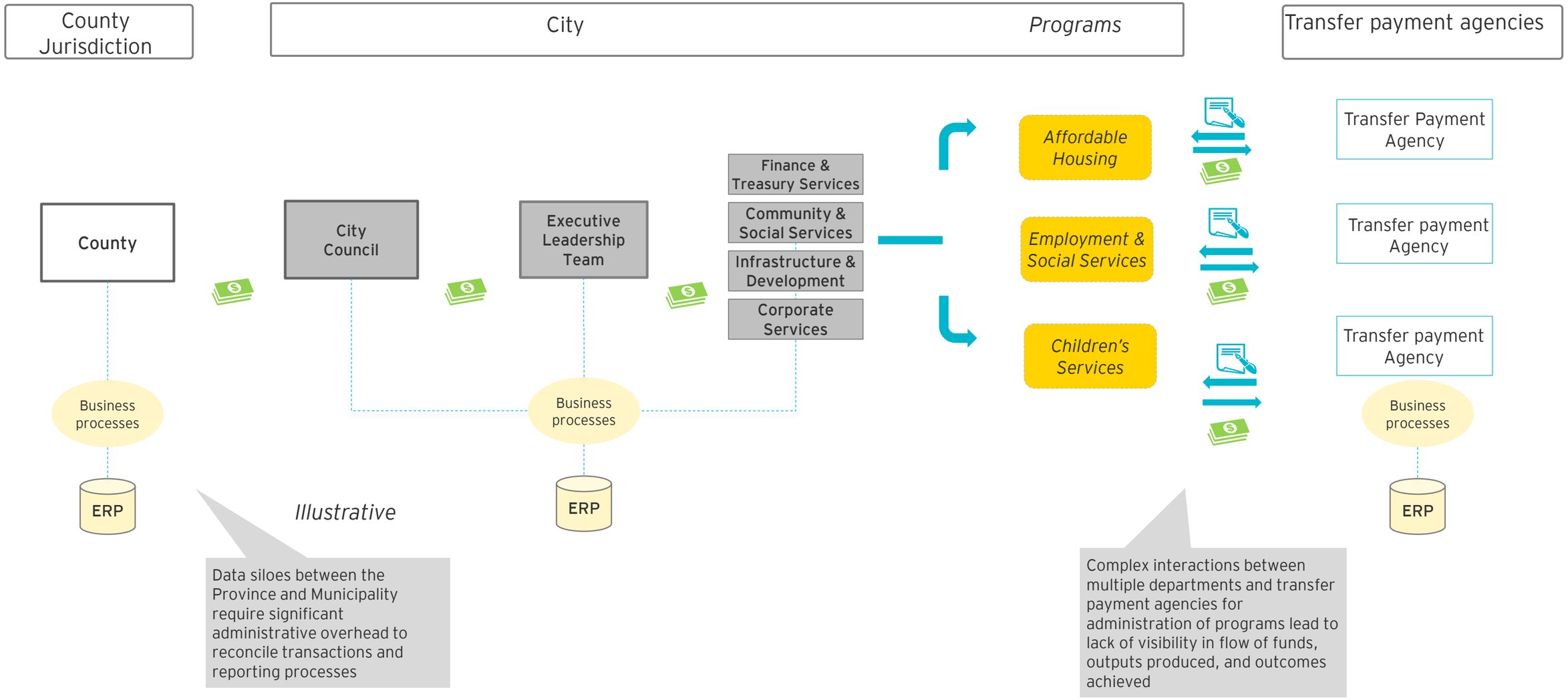
- Transactional and reporting data is synchronized across participants through the blockchain layer
- Reduces direct administrative costs and re-allocation to high-value-add activities

Integrated view of performance along the chain

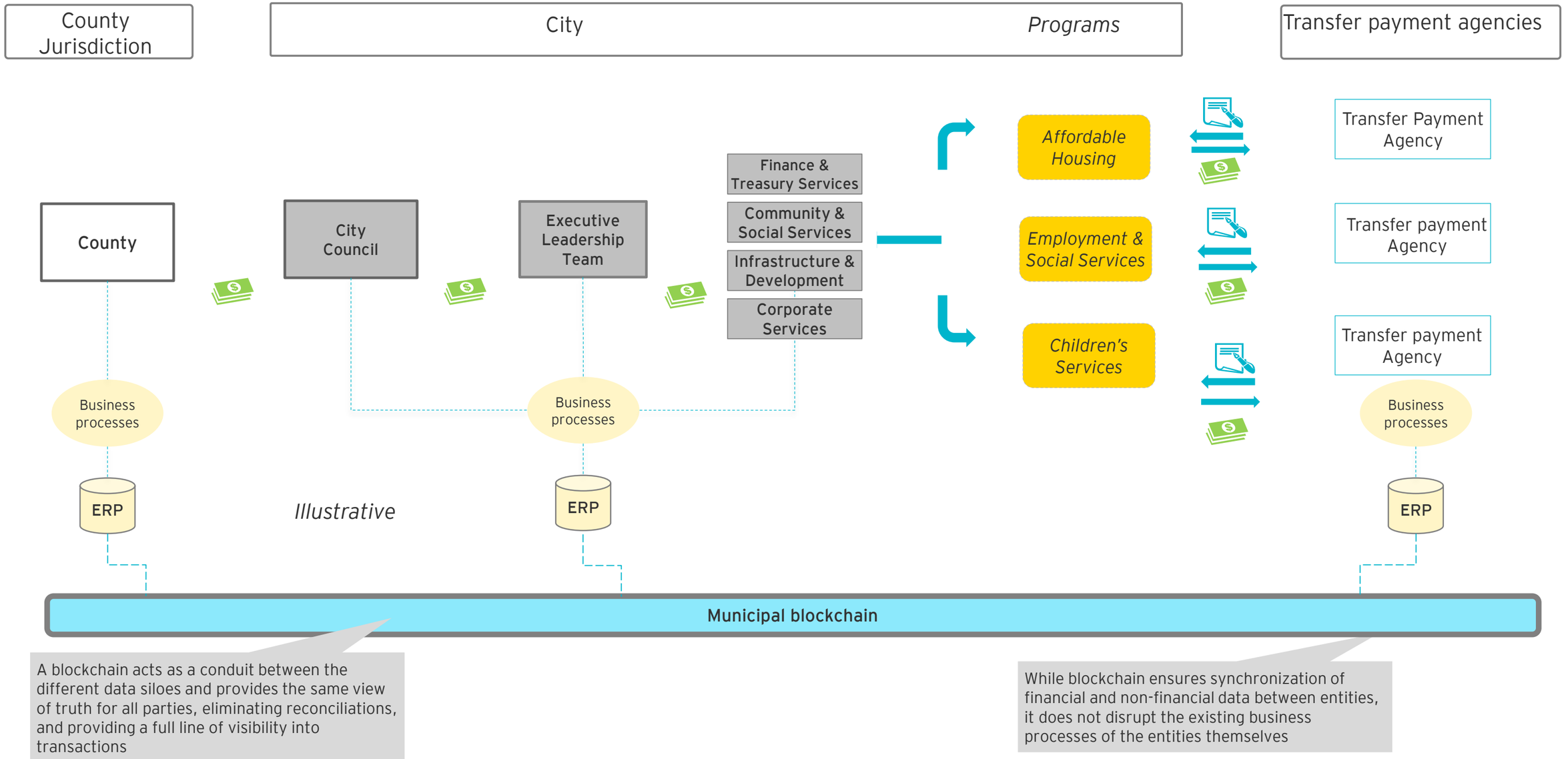
- Decision-making authority has aggregated view of funds allocated to outputs and outcomes across programs, departments and ministries in a single place and in near real-time

- Reconciliation and consolidation at various interface nodes (e.g., between program authorities and delivery agents)
- Integration of financial and non-financial reporting information
- Improved internal controls including potential use of "smart contracts"
- Opportunity to improve PFM architecture and performance without expensive and risky FMIS transformation

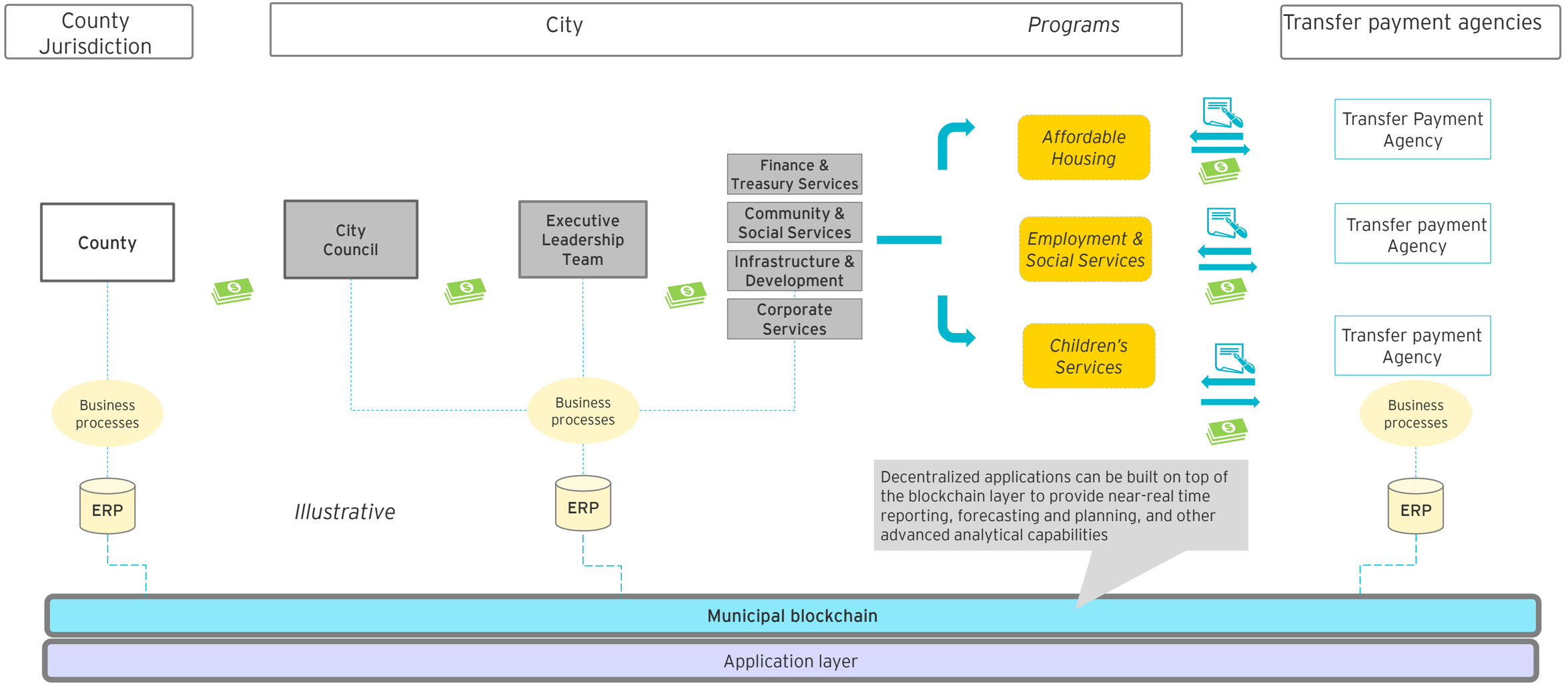
Use case: Streamlining fund administration and reporting for Municipalities



Use case: Streamlining fund administration and reporting for Municipalities

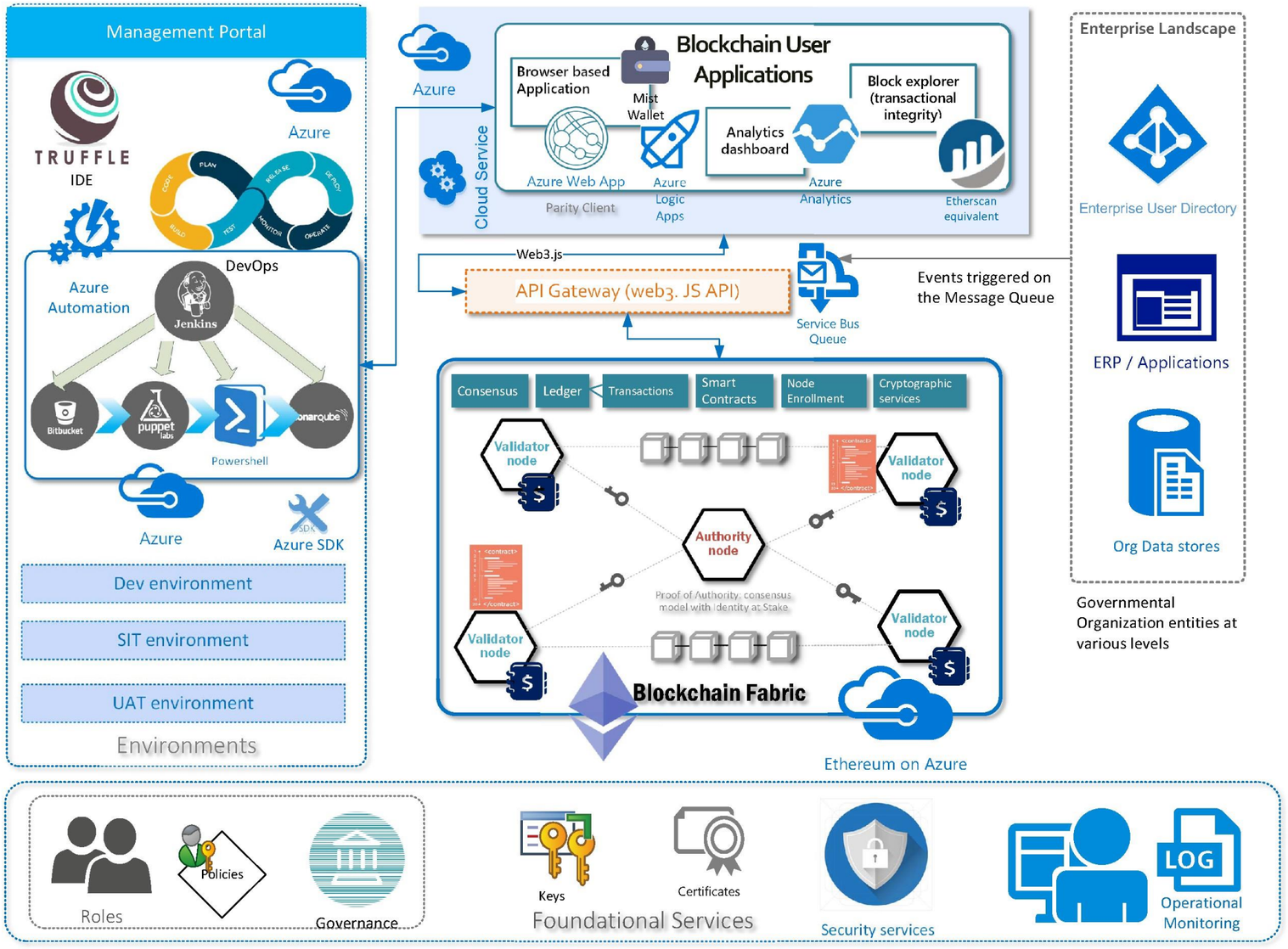


Use case: Streamlining fund administration and reporting for Municipalities



- EFFECTIVE DECISION MAKING WITH RELIABLE DATA
- EFFICIENT AND NEAR-REAL TIME EXCHANGE OF INFORMATION
- INTEGRATED VIEW OF PERFORMANCE ALONG THE CHAIN

Deployment architecture for PFM on cloud infrastructure



Potential approach and timeline

	Design Workshop (1-3 days)	Proof of Concept (8-10 weeks)	Pilot (3-6 months)	Production
Value	Design workshops will result in a prioritized set of use cases that can be developed into proofs of concept	A rapid proof of concept will demonstrate the viability of the chosen use case by producing a test solution	A dedicated pilot will expand the proof of concept solution, incorporating enhanced functionality and using real data and business users	Implementation of a live blockchain solution in your secure environment
Key Activities	▶ Evaluate the current state and identify challenges ▶ Design success criteria for each use case ▶ Articulate use cases and prioritize for proof of concept	▶ Solution architecture and design ▶ Application development using an agile methodology ▶ Iterating to meet success criteria identified during the design thinking session(s)	▶ Use code from PoC to scale and build pilot solution ▶ Demonstrate blockchain fidelity through real data provided by the client, and associated partners if needed ▶ Begin onboarding partners onto blockchain network and market testing of the application with the involved partners	▶ Use code from Pilot and build full solution ▶ Finalize technical architecture for production ▶ Creation of standard programming and business templates for future solution set-up on a cloud environment
Deliverables	▶ Current state business process mapping / summary ▶ Use case design	▶ Technology blueprint / architecture ▶ Build complete solution architecture document for the application including network configuration	▶ Fully operational blockchain solution ▶ Detailed testing plan and scenarios	▶ Production ready blockchain solution ▶ Enhance solution with capability to incorporate workflows and enable real time ingestion

EY | Assurance | Tax | Transactions | Advisory

About EY
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TAB 8

Presentation: Sector Presentations on Current Industry, Growth and Development Opportunities

Presenters: Michael Loubser, Ockert Loubser and Rastislav Vasicka, Core Group

FLORIDA BLOCKCHAIN TASK FORCE

Michael Loubser

Core Group

Michael is the Co-Founder and CEO of Core Group, with 30+ years in the digital, tokenised, Transaction and Data facilitation environment.

He serves as the Blockchain implementation advisor. In addition, Michael is the Industrial industry consultant, consulting the set-up of 76 factories worldwide.

One of his many roles also includes Strategic advisor to workflow and optimization processes.

Michael Loubser

Core Group

Ockert is the Co-Founder and COO of the Core Group. He has 15+ years in the digital, tokenised, Transaction and Data facilitation environment.

He has run a successful international advertising agency working on multiple projects and industries.

In addition, Ockert is the System Architect and Analyst to blockchain networks.

Rastislav Vasicka

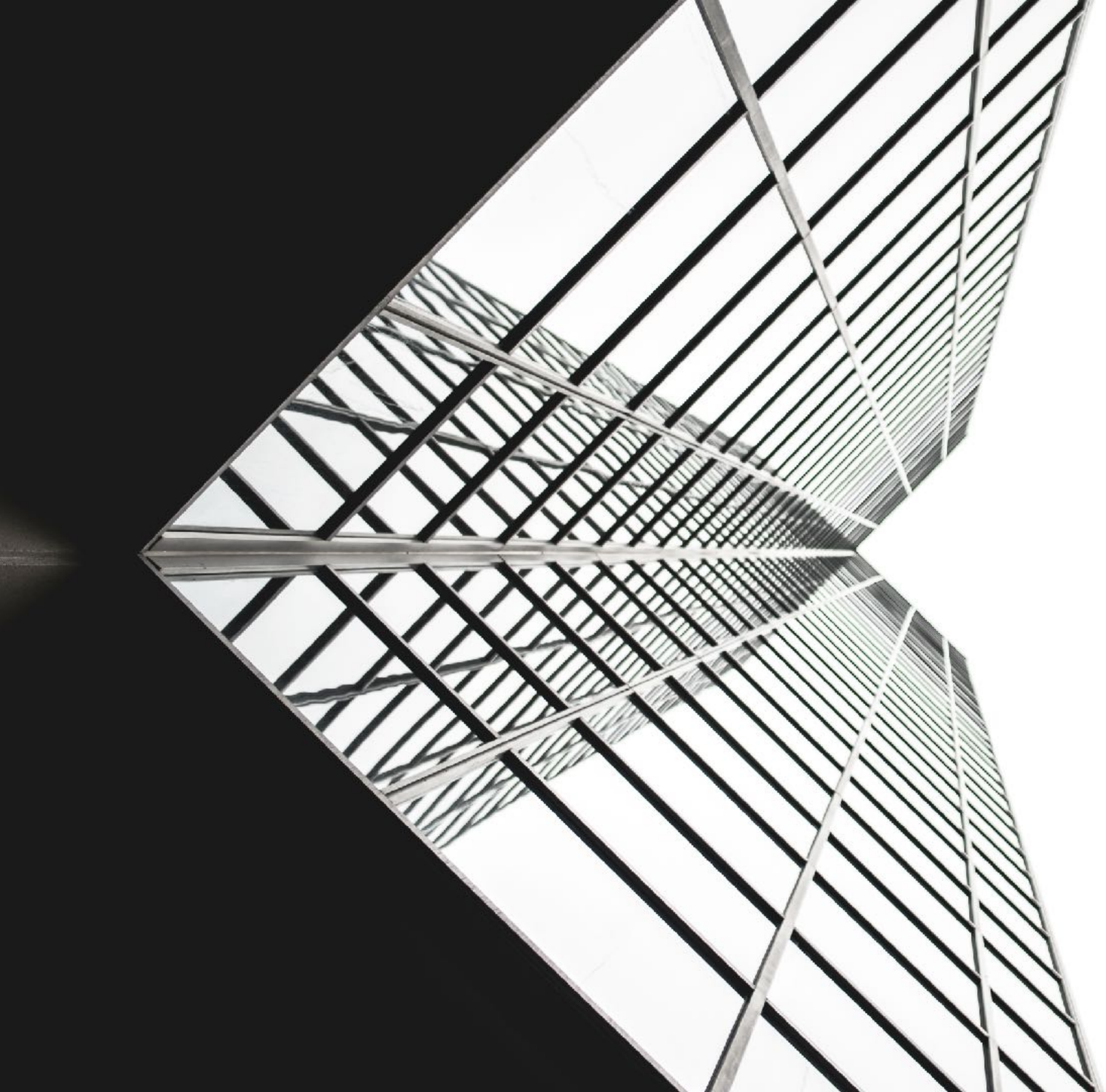
Core Group

Rastislav is the Co-Founder and CTO of the Core Group. With 15+ years in the digital, tokenised, Transaction and Data facilitation environment.

He has served as a Blockchain specialist and developer since 2009.

Rastilav is an expert in roll out of egovernment and blockchain services.

*Lifetime member of OWASP



CORE GROUP

FLORIDA BLOCKCHAIN TASKFORCE PRESENTATION

2019

INTRODUCTION: TEAM LEADERS

Michael Loubser

Co-Founder and CEO

With 30+ years in the digital, tokenised, Transaction and Data facilitation environment.

Blockchain implementation advisor

Industrial industry consultant and setting up of 76 factories worldwide.

Strategic advisor to workflow and optimisation processes

Ockert Loubser

Co-Founder and COO

With 15+ years in the digital, tokenised, Transaction and Data facilitation environment.

Ran a successful international advertising agency working on multiple projects and industries.

System Architect and Analyst to blockchain networks

Rastislav Vasicka

Co-Founder and CTO

With 15+ years in the digital, tokenised, Transaction and Data facilitation environment.

A Blockchain specialist and developer since 2009.

Expert in roll out of e-government and blockchain services

Life time member of OWASP

SERVING ON THE BLOCKCHAIN WORK GROUP ADVISING THE EUROPEAN COMMISSION ON REGULATION OF CRYPTOCURRENCY

CORE GROUP

03

A BRIEF OVERVIEW

CORE GROUP

INTRODUCTION: COMPANY

History:

- Built a closed loop banking system with full accountability and tracking of data in 2004 utilising GPRS and GSM connections in rural areas in South Africa.
- Focused on interoperable data and transaction facilitation
- Started working in the blockchain industry since 2014.

Mission:

- The Core Group has built a global decentralised ecosystem which provides a fully functional Blockchain platform touching all 17 SDGs that can cope with the current demands and needs as well as evolve the world to the world of the future.

Vision:

- Optimisation of resources with a seamless market place integration in a trusted and secured environment.
- Making a difference to society as a whole by including excluded communities

WHAT IS BLOCKCHAIN?

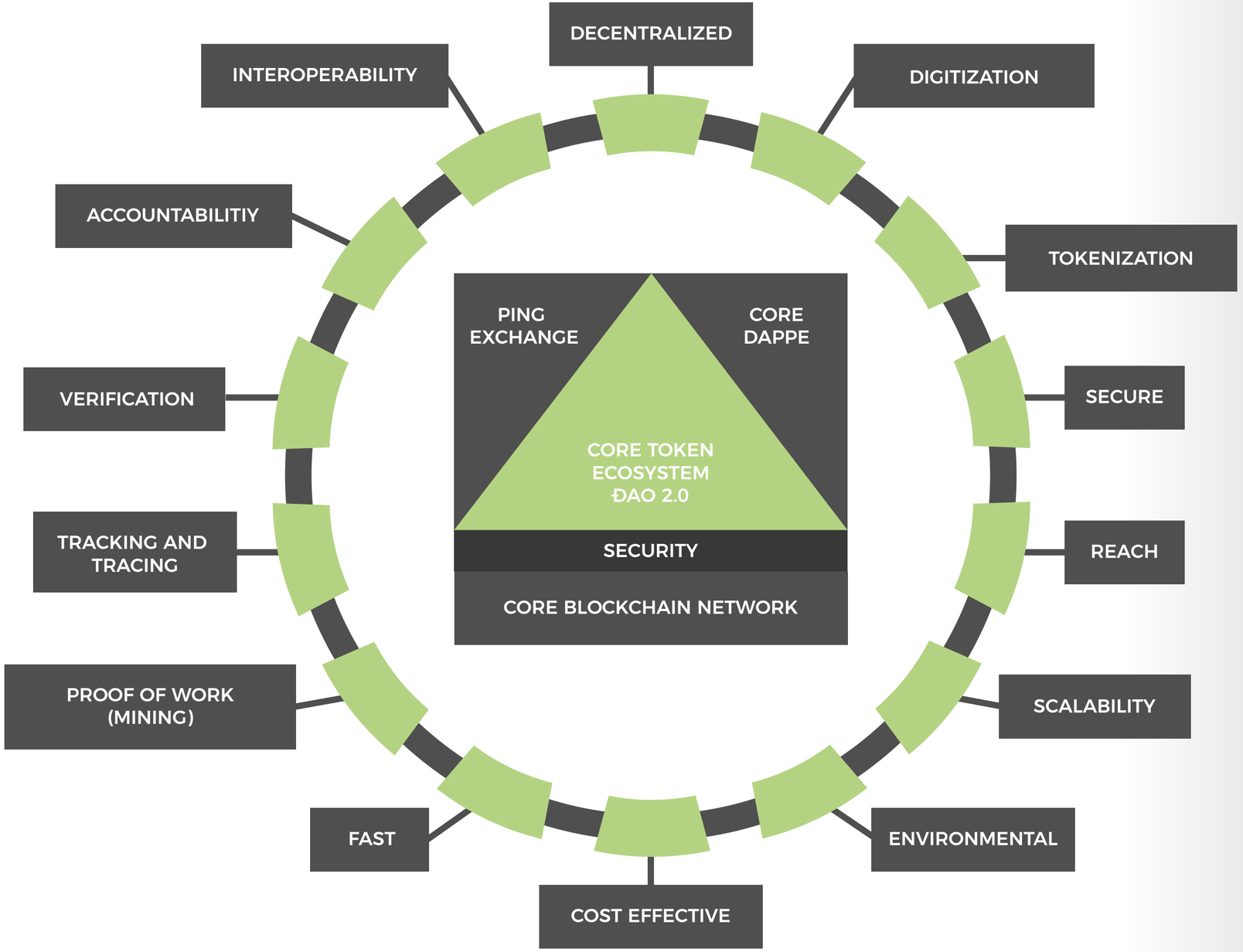
A BLOCKCHAIN IS A DECENTRALIZED, DISTRIBUTED, AND OFTENTIMES PUBLIC, DIGITAL LEDGER THAT IS USED TO RECORD TRANSACTIONS ACROSS MANY COMPUTERS

WHAT IS THE ADDED VALUE OF THE CORE BLOCKCHAIN NETWORK?

CBN IS ALL OF THE ABOVE INCLUDING A FAST, DECENTRALIZED AND SECURE WAY TO TRANSACT AND STREAM DATA GLOBALLY.

CORE
GROUP

CBN TECHNOLOGY



05

IMPLEMENTED GOLDILOCKS EDWARDS CURVE ED448

4 LEVELS OF COMMUNICATION AND DATA TRANSMITTANCE CAPABILITIES:

- INTERNET
- GPRS
- GSM
- MESH NETWORK

98% GLOBAL REACH

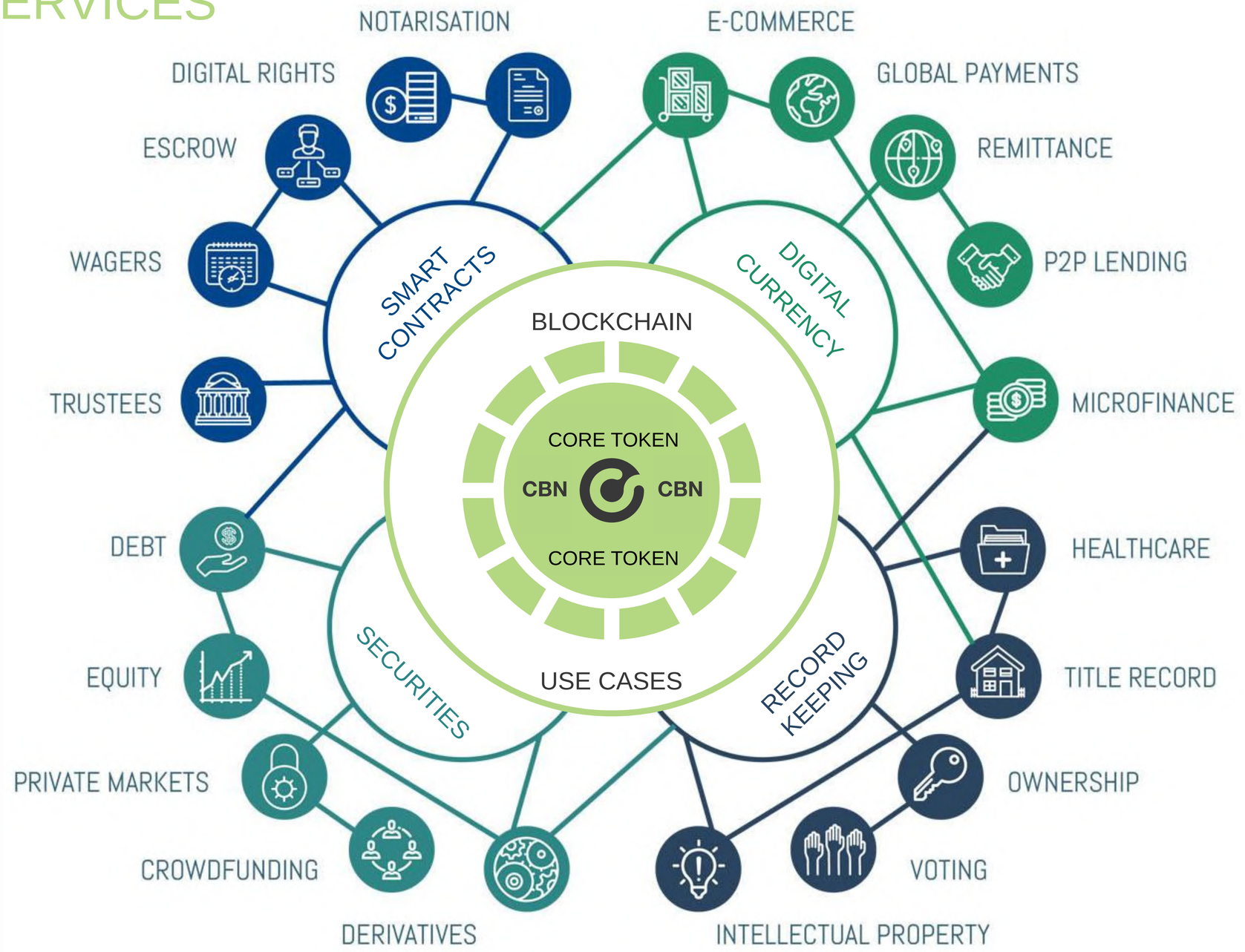
CORE GROUP

06

FULL ECOSYSTEM

CORE GROUP

SERVICES



CORE GROUP VALUE DRIVERS

- Digital Identity
- Digitization and Tokenization
  - Smart Contracts
  - Decentralized Autonomous Organization
- Government is a large source/origination of data
- It is the era of Big Data collection
  - Optimization/Filtration of Data
  - Sharing of data between Public, Businesses, Organizations and Governments
- Classification
  - Data/Financial Transactions
    - Private
    - Public
  - Each use case differs which is where smart contracts are applied for deployment
- Interoperability
  - Decentralized/Centralized systems
  - Sidechains
  - Data Exchange
  - Big Data/Wrapping
  - Oracles (APIs/Connectors) data drivers

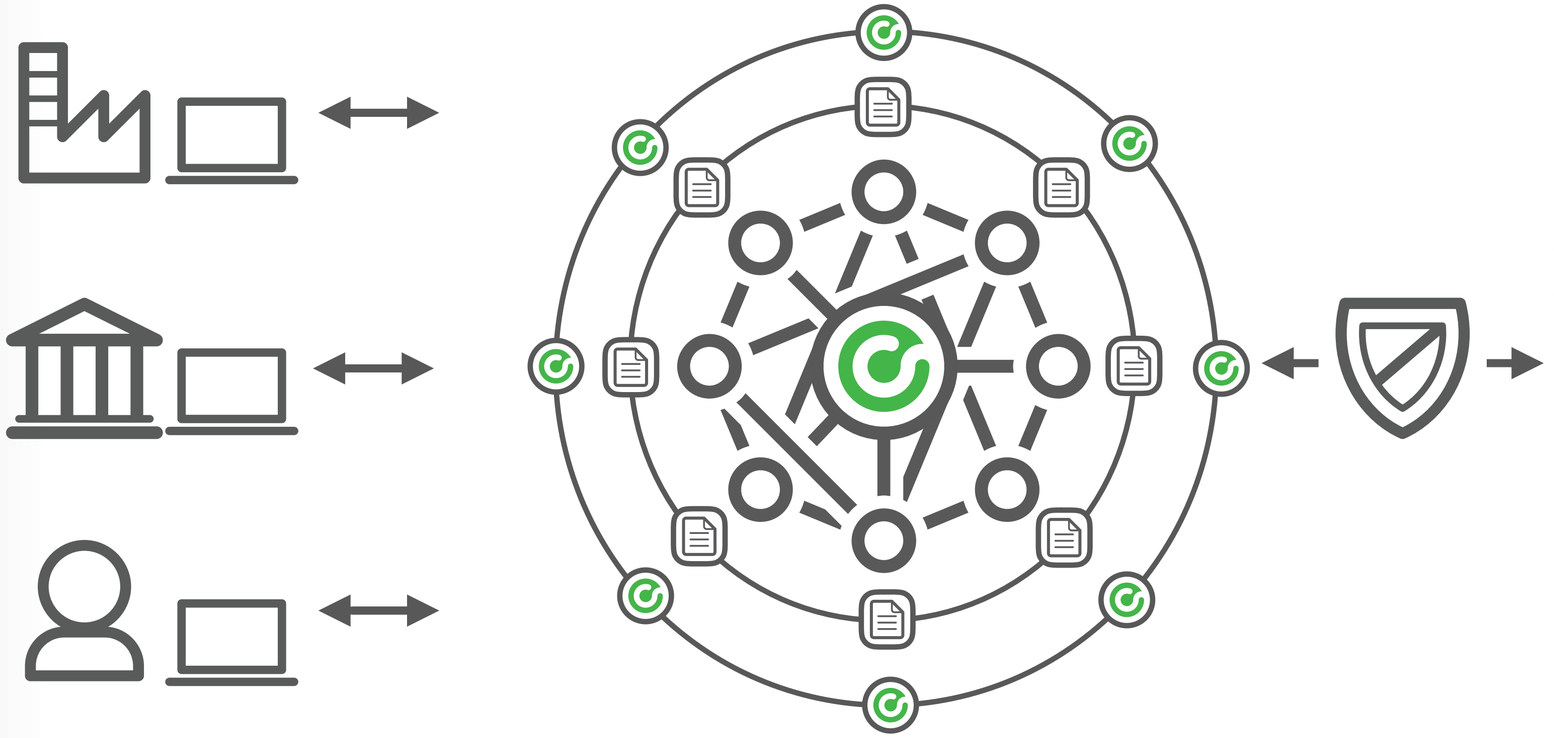
07

A SELF SUSTAINABLE ECOSYSTEM AND DATA MANAGEMENT TOOL

CORE GROUP

08

USE CASES IMPLEMENTATION



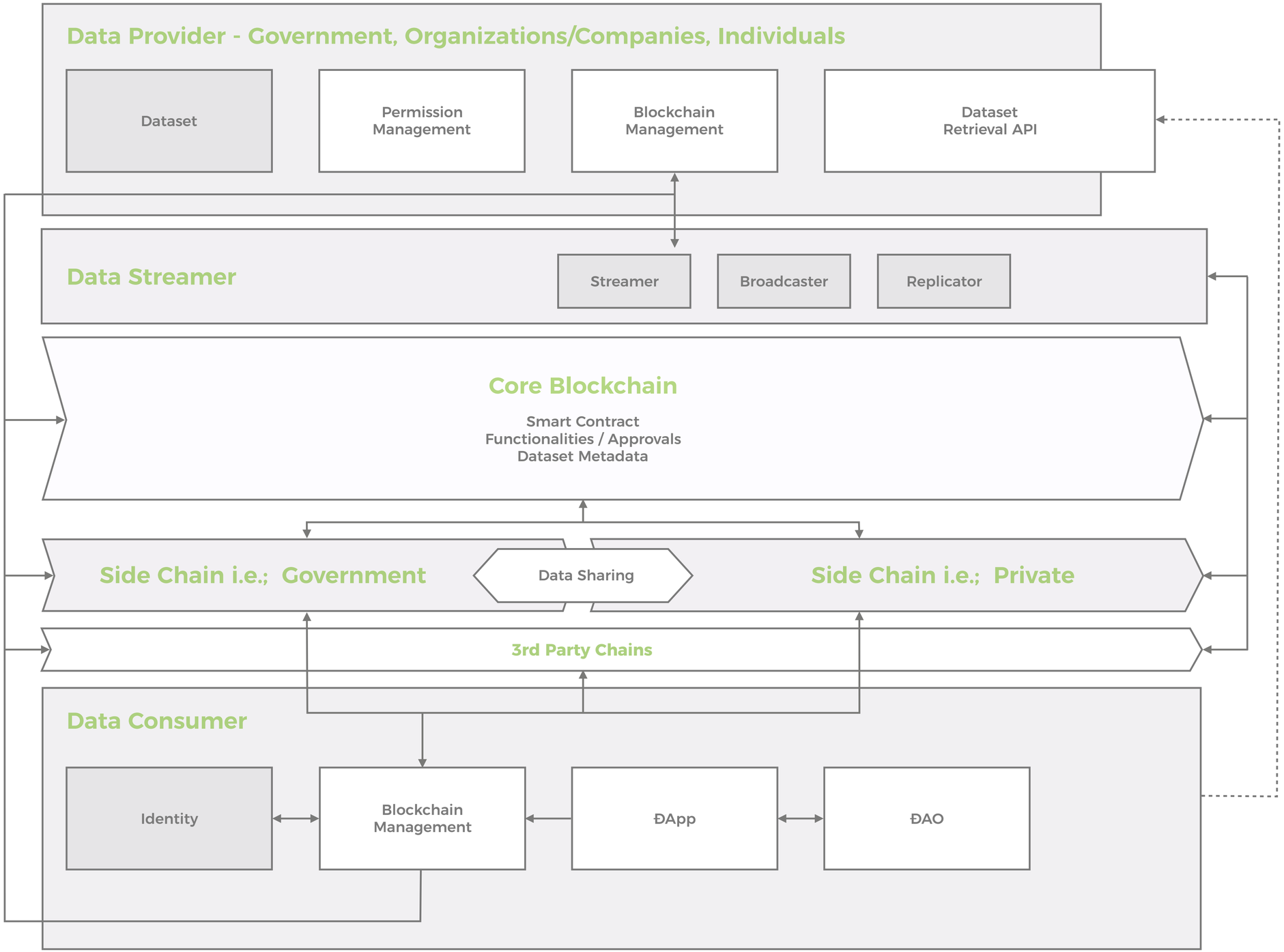
- Cryptography ED448
- Decentralization
- CPU based small devices
- Global coverage

Individuals, businesses and government share data securely for services (ie; tax remittance, license/permit fees/applications, etc.)

Blockchain Oracles handle information data that originates from centralized sources. The software oracle extracts the needed information and pushes it into the smart contract.

Data is protected and secured by the Edwards curve cryptography and distributed among multiple nodes in multiple replicas
NO SINGLE POINT OF FAILURE

CORE GROUP


Data Provider - Government, Organizations/Companies, Individuals
Dataset
Permission Management
Blockchain Management
Dataset Retrieval API
Data Streamer
Streamer
Broadcaster
Replicator
Core Blockchain
Smart Contract
Functionalities / Approvals
Dataset Metadata
Side Chain i.e.; Government
Data Sharing
Side Chain i.e.; Private
3rd Party Chains
Data Consumer
Identity
Blockchain Management
ĐApp
ĐAO

CORE GROUP

EVOLUTION OF TECHNOLOGY

Telex Machine	-	Fax Machine
Fax Machine	-	Email
Landlines	-	Mobiles
Yellow Pages	-	Google
Dial up	-	4G
Web 1	-	Web 3

It is inevitable in the near future the evolution of technology will take:

Centralized Platforms to Decentralized Platforms

CORE GROUP

THANK YOU

OCKERT
LOUBSER

COO OF CORE GROUP

+1 786 643 2833

OCKERT@COREGROUP.CC

TAB 9

Presentation: Sector Presentations on Current Industry, Growth and Development Opportunities

Presenters: Rosa Shores and Gabe Higgins, BlockSpaces

FLORIDA BLOCKCHAIN TASK FORCE

Rosa Shores

BlockSpaces

A seven-year veteran of the blockchain industry, Rosa Shores, along with Gabe Higgins, are the founders of BlockSpaces, a blockchain incubator and venture studio in Tampa that provides specialized development, education and support services to enterprise clients and connects them to a collaborative learning community of individuals and start-ups.

They are well-recognized in the blockchain community as passionate speakers and educators and are known for their ability to translate highly technical information to a variety of audiences. Their presentations have been requested by such organizations as the University of South Florida, University of Florida, Syracuse University, the Department of Homeland Security, the US Secret Service, Financial Executives International, and the Bay Area Manufacturers Association, as well as providing corporate consulting and blockchain development services to Fortune 500 companies across multiple industries. Their areas of expertise include emerging technology, specifically, enterprise blockchain, distributed p2p networks, cryptocurrencies, smart contracts, IoT, decentralized autonomous organizations, InfoSec, EdgeSec, and digital democracy.

Rosa is a former digital analyst with Qurate Retail Group (HSN/QVC) and currently serves as the Vice President of the Florida Blockchain Business Association, a group dedicated to allowing blockchain focused businesses to thrive in the state through industry focused legislative efforts and education.

Gabe Higgins

BlockSpaces

A seven-year veteran of the blockchain industry, Gabe Higgins, along with Rosa Shores, are the founders of BlockSpaces, a blockchain incubator and venture studio in Tampa that provides specialized development, education and support services to enterprise clients and connects them to a collaborative learning community of individuals and start-ups.

They are well-recognized in the blockchain community as passionate speakers and educators and are known for their ability to translate highly technical information to a variety of audiences. Their presentations have been requested by such organizations as the University of South Florida, University of Florida, Syracuse University, the Department of Homeland Security, the US Secret Service, Financial Executives International, and the Bay Area Manufacturers Association, as well as providing corporate consulting and blockchain development services to Fortune 500 companies across multiple industries. Their areas of expertise include emerging technology, specifically, enterprise blockchain, distributed p2p networks, cryptocurrencies, smart contracts, IoT, decentralized autonomous organizations, InfoSec, EdgeSec, and digital democracy.

Gabe is the lead organizer for some of the largest and longest blockchain meetup groups in the state that together have over 1500 members. In 2015, he became one of the country's first Certified Blockchain Professionals.

TAB 10

Presentation: Sector Presentations on Current Industry, Growth and Development Opportunities

Presenters: Samuel Armes, Florida Blockchain Business Association

FLORIDA BLOCKCHAIN TASK FORCE

Samuel Armes

Florida Blockchain Business Association

Samuel Armes has an extensive background in the blockchain and government spaces. Samuel did research for United States Special Operations Command and for the Department of State on cryptocurrencies and blockchain technology.

Samuel has worked in the Florida State legislature and is the President of the Florida Blockchain Business Association.

Samuel is also the Blockchain and Legislative Affairs Director for the Seminole County Tax Collector where he is also the project manager for a first in the nation POC for a Self-Sovereign Digital ID on a blockchain.

TAB 11

Presentation: Sector Presentations on Current Industry, Growth and Development Opportunities

Presenters: Rajesh Kandaswamy, Gartner

FLORIDA BLOCKCHAIN TASK FORCE

Rajesh Kandaswamy

Gartner

Rajesh Kandaswamy is a Chief of Research (CoR) and a Gartner Fellow in Gartner's Technology and Service Provider research practice. As a CoR, Mr. Kandaswamy's responsibilities include helping establish the direction of research for emerging technologies and industries. He also co-leads blockchain research enterprise wide at Gartner. His Gartner Fellows research is on how technology will radically transform the concept of an organization.

Prior to this role, he was the lead analyst for covering banking, securities and fintech for the Technology and Service practice at Gartner. He has been frequently quoted in leading publications on blockchain, fintech and banking.

In his earlier career, Mr. Kandaswamy has held senior leadership roles in managing financial services technology at Citigroup and Bearing Point.

Gartner
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SYMPOSIUM | Xpo

20 – 24 October 2019 / Orlando, FL

Moving Beyond the Blockchain Hype — Lessons From Early Adopters

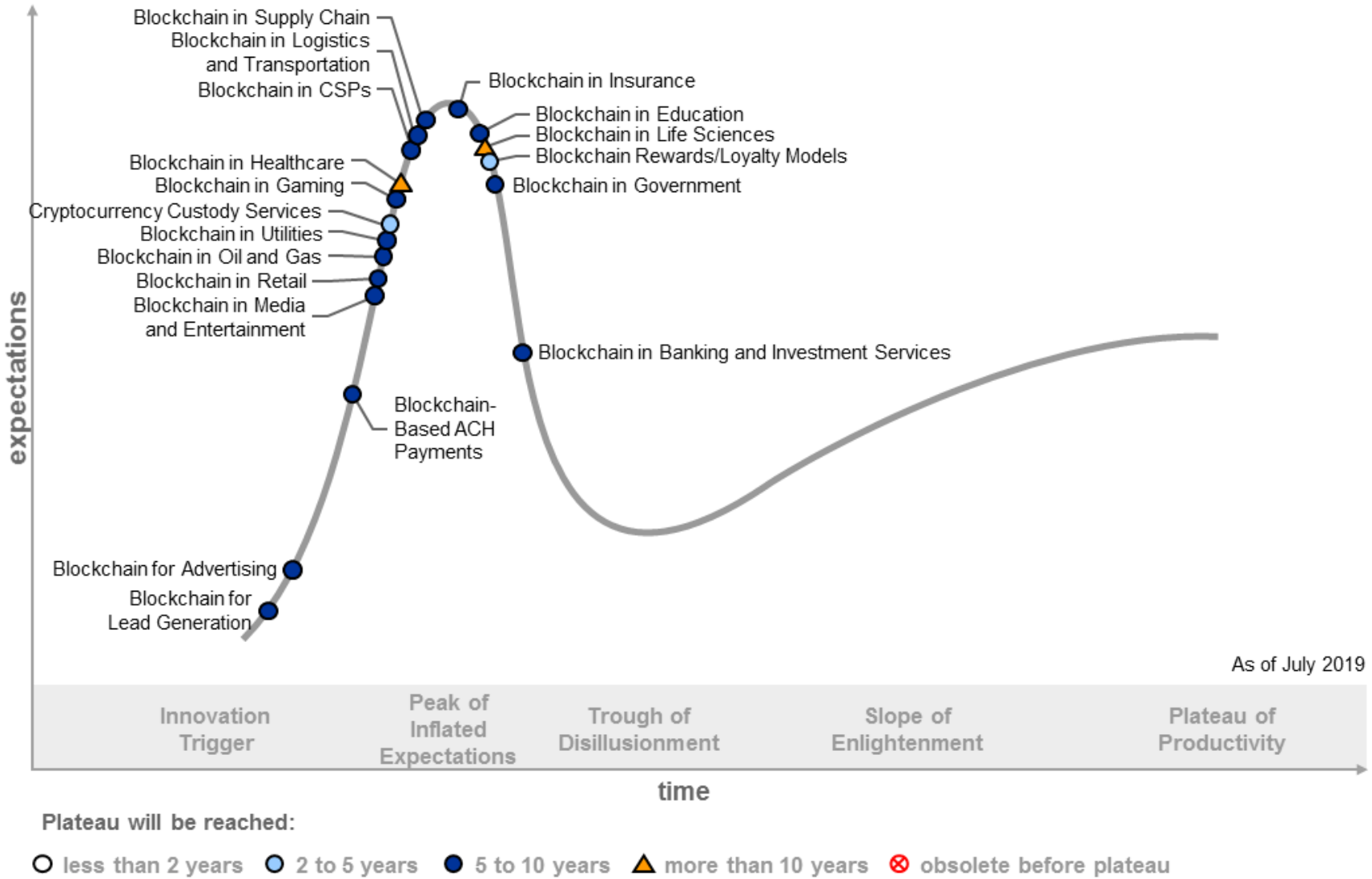
Rajesh Kandaswamy

Key Issues

1. What is the current state of blockchain use in enterprises?
2. What are the characteristics of the early projects?
3. What are the lessons from early adopters of blockchain?

Gartner

Hype Cycle for Blockchain Business, 2019



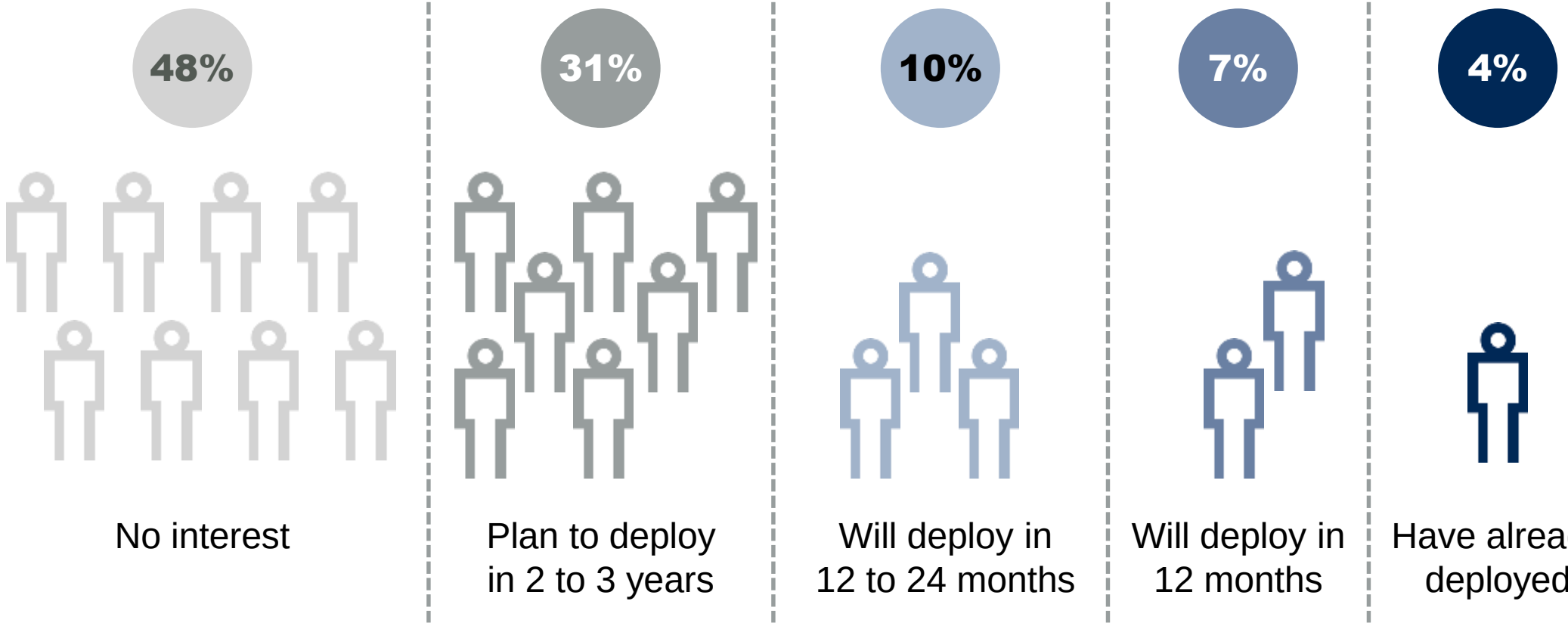
- Interest in Blockchain is across all industries
- Areas of use are specific to industry processes
- Blockchain's enterprise potential will take another decade to be fully realized

From "Hype Cycle for Blockchain Business, 2019," 30 July 2019 (G00390391)

Gartner

Blockchain Adoption Is Slow

Percentage of Respondents



Base: All Answering, n = 1,063
Q: What are your organization's plans in terms of blockchain/distributed ledger?
Source: 2020 Gartner CIO Survey

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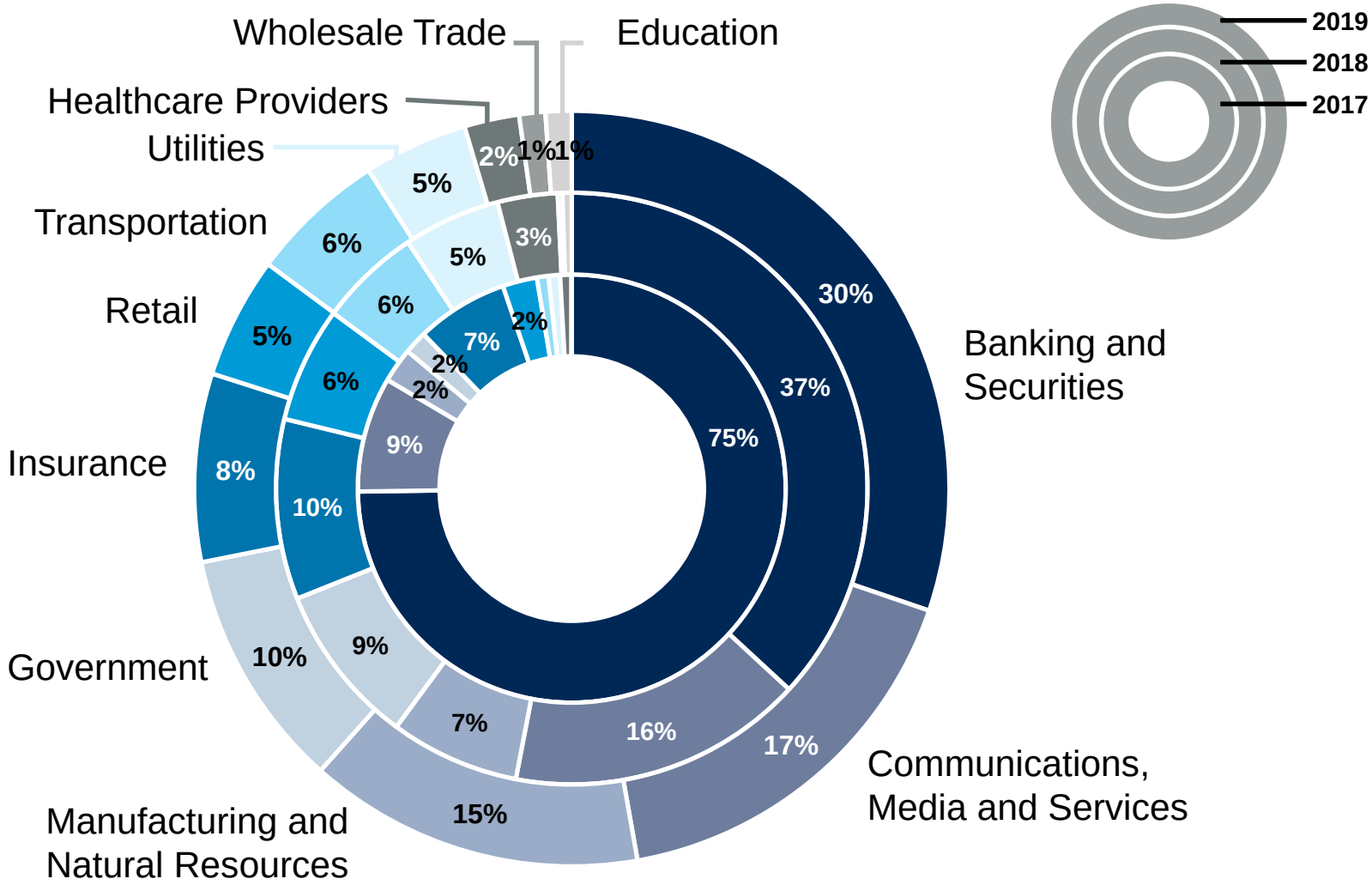
Enterprises across all industries are investing in proof of concepts and pilots



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Key Issues

1. What is the current state of blockchain use in enterprises?
2. What are the characteristics of the early projects?
3. What are the lessons from early adopters of blockchain?

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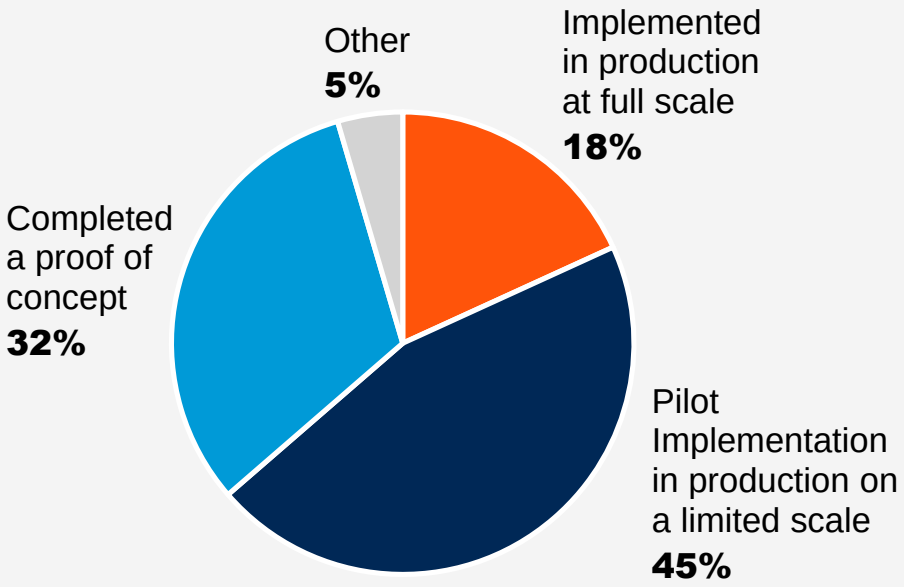
Key Aspects Of Early Blockchain Projects in Enterprises (1 of 2)

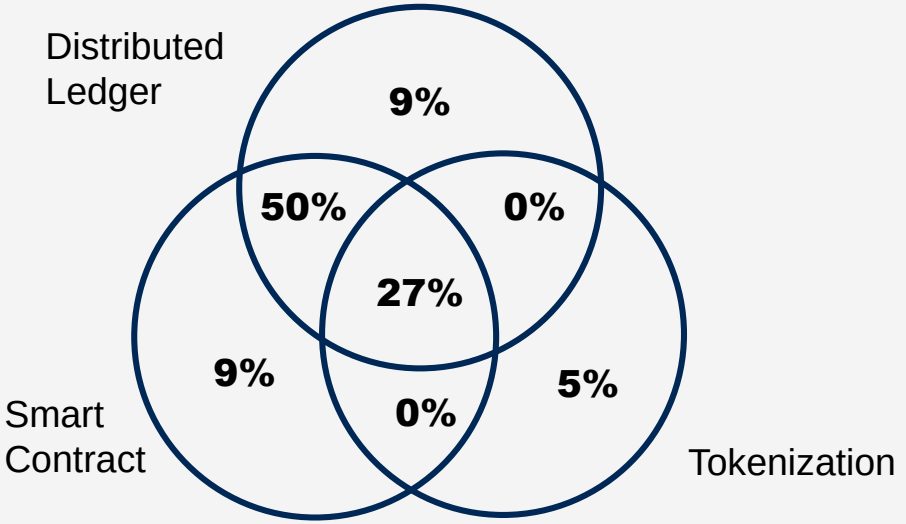
1 Many limited pilots in production and PoCs. Large scale production use is scarce.

Current State of Blockchain Projects



2 Most are blockchain “inspired” — limited use for limited benefit.

Use of Blockchain Technologies



Data from Gartner’s study of blockchain use in early enterprise adopters. (n = 22)

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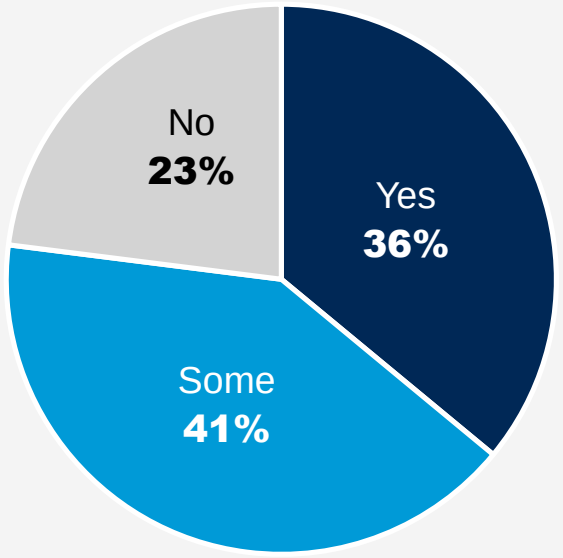
Key Aspects Of Early Blockchain Projects in Enterprises (2 of 2)

3 Early adopter projects focus on a few key objectives

Purpose of Projects

4 Early use is to both support current business models and improve it.

Impact on Business Models



Data from Gartner's study of blockchain use in early enterprise adopters. (n = 22)

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“The benefit of private blockchain/distributed ledger is primarily the efficient flow of information. It is important not to confuse this with features and benefits of a public blockchain.”

Faith Dempsey, Executive Director
TransCoal

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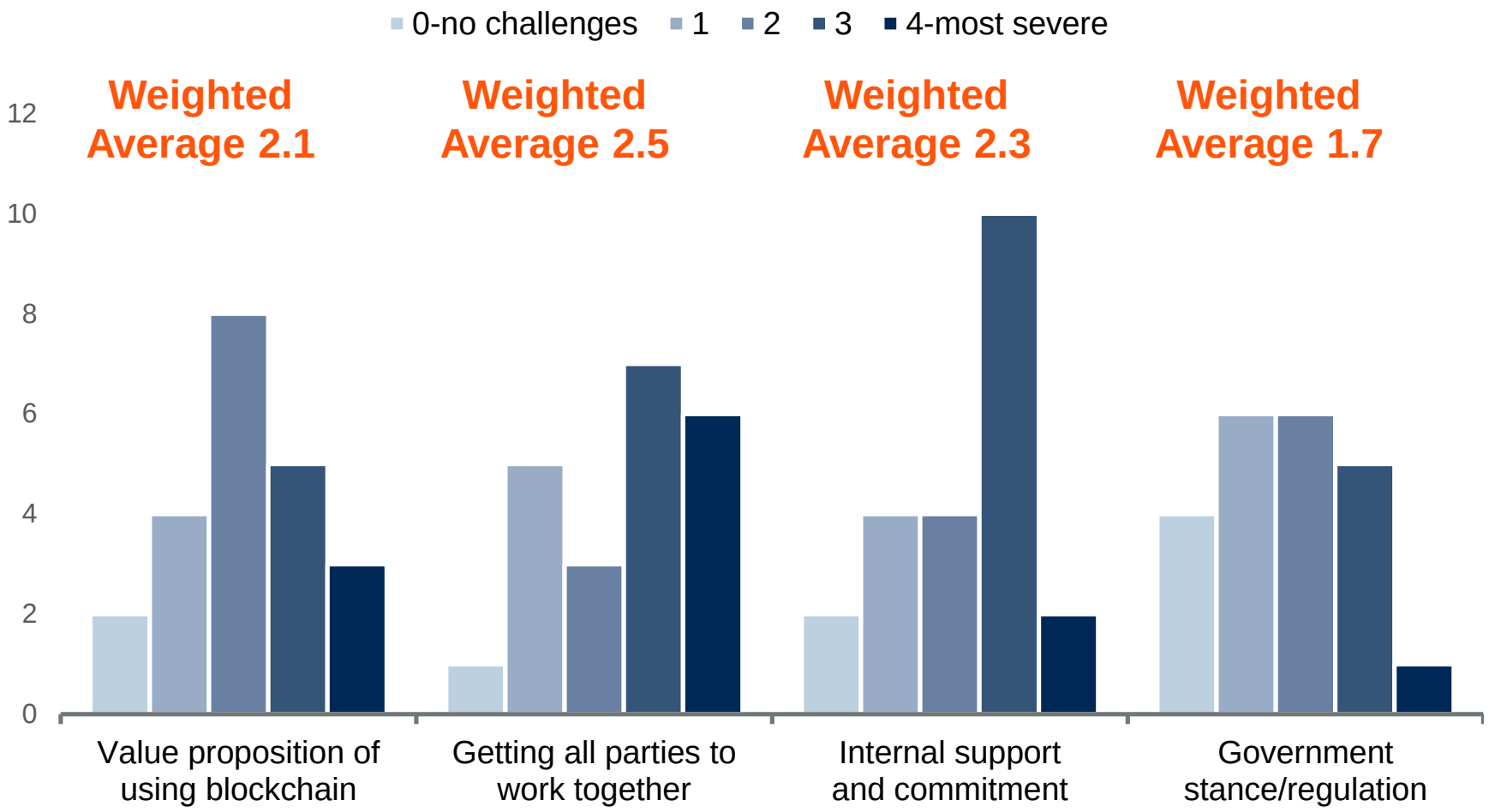
Non-technical Challenges Are Thornier Than Technical Ones



Data from Gartner's study of blockchain use in early enterprise adopters. (n = 22)

- Internal support and commitment cannot be assumed.
- Getting parties to work together and commit should start early
- Value proposition is not always obvious

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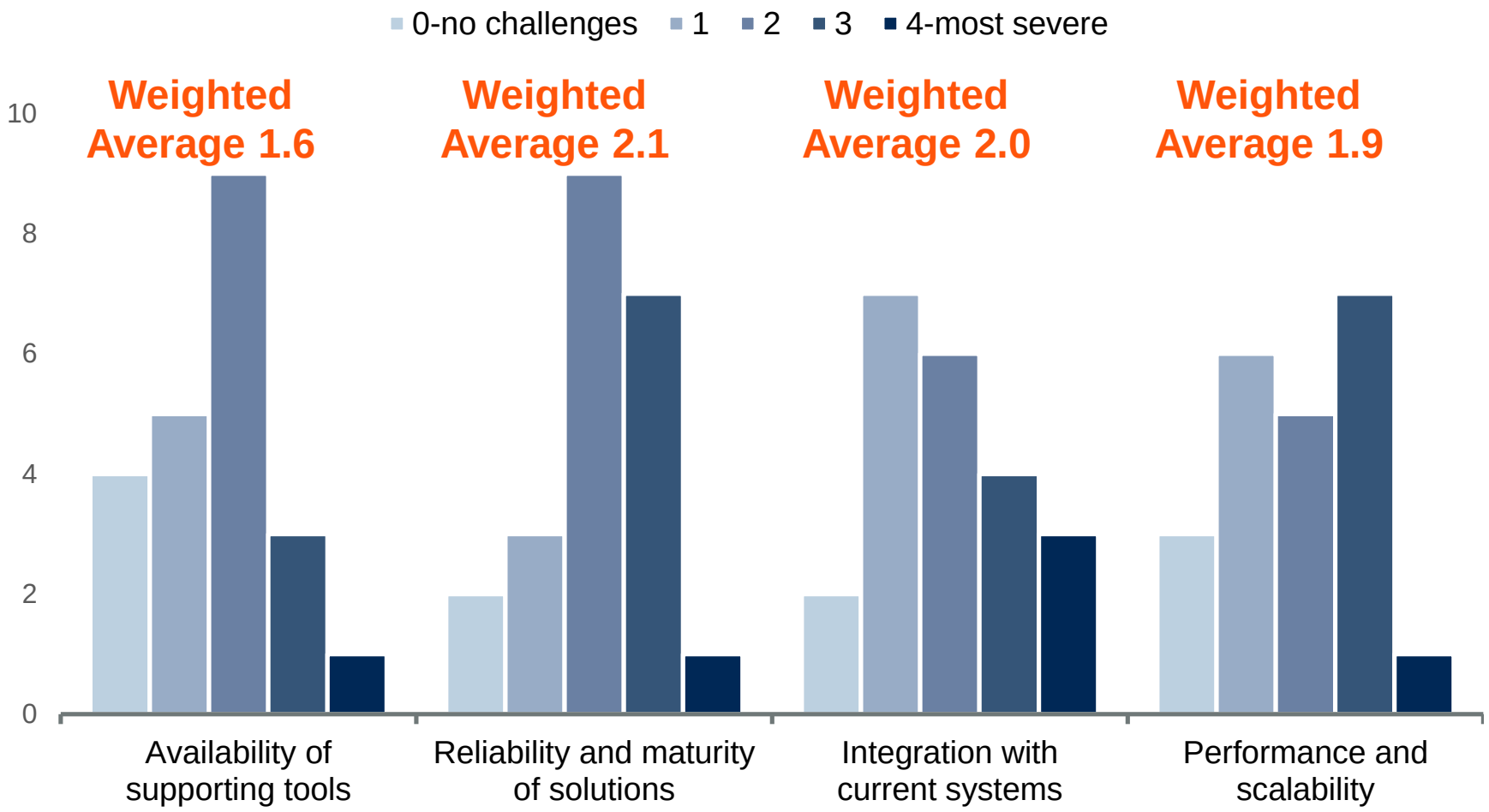
Early Adopters Indicate Moderate Technical Challenges Across Different Areas



Data from Gartner's study of blockchain use in early enterprise adopters. (n = 22)

- Technology is evolving and be open to changes
- Performance is not always the main issue

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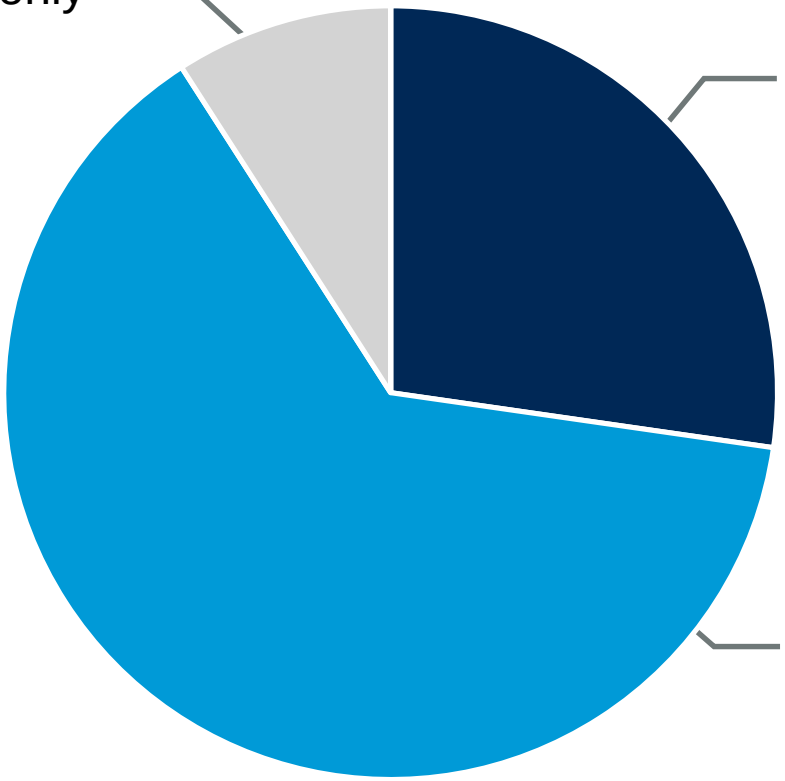
Key Issues

1. What is the current state of blockchain use in enterprises?
2. What are the characteristics of the early projects?
3. What are the lessons from early adopters of blockchain?

Most Early Adopters Consider Blockchain Ready for Limited Use

Are blockchain technology and vendor solutions ready for production use?



Data from Gartner's study of blockchain use in early enterprise adopters. (n = 22)

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“It is difficult to change business mindset for multiple companies at the same time.”

Nikolay Mukhanov, CEO
S7 Techlab

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Challenge No. 1: Getting All Parties to Work Together

Issues

- “Competition laws” are an inhibitor to discuss business models.
- Ensuring all parties are present at the table and getting their time.
- Openness, maturity and other differences in technical systems.
- Node administration and governance models are not readily available.
- Industry problems are being treated as individual company problems.

Solutions

- Develop strong relationships, facilitate workshops and involve legal departments.
- Start a smaller ecosystem with necessary parties first.
- Avoid competing projects in industry. Stop paying the same vendor twice!
- (Common solution) Form an independent company or leverage consortiums. This helps clarify the scope as well.
- Strong project management and communication.

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“Involve compliance, legal and risk from the beginning. You do not want to design a solution first and throw it all away because it is not compliant.”

Djuri Baars, Blockchain Team Lead
Coöperatieve Rabobank U.A.

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Challenge No. 2: Internal Issues In Securing Commitment and Proving Value

Issues

- Benefits are still very vague.
- Skepticism and lack of support are common across internal groups.
- Separating hype of blockchain from what it can really do (confusion with relational databases).
- Engaging all internal parties needed.
- Digitizing processes suitable for blockchain and where blockchain can provide value.

Solutions

- Invest in internal education of what blockchain can do, what is different, and maturity.
- Involve business in design and development early. An agile approach is critical.
- Right use case where blockchain provides value to multiple parties using a shared version of truth is vital. Start small.
- Blockchain might not be the only key technology actor in solution.
- Process changes are vital to make the best use of the technology.
- Plan for additional delays in project execution.
- Involve all parties (legal, compliance, security, etc.) early.

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“Time taken was longer due to technology issues, but they get solved over time.”

“Portable and open architecture is important.”

Sunil Sharma, Commissioner of Income Tax
Government of India

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Challenge No. 3: Maturity, Reliability, Performance and Scalability of Technology Solutions

Issues

- Immature technologies lead to problems being uncovered constantly.
- Legacy systems are not ready to share data in the required fashion and scale.
- Data quality and ownership are issues.
- New technologies warrant security design, approval and testing.
- Performance and scalability is still a work in progress.

Solutions

- Be prepared to iteratively fix issues since technology is evolving and fixes occur.
- Design for change, and be modular to adapt for rapidly changing technology.
- Ensure that systems are blockchain ready. Consider a multilevel integration architecture for different organizations.
- For performance:
  - Consider adding a caching layer.
  - Plan phased roll-out.
  - Validate which decisions need decentralization and not.
- Invest in data collection and data quality from different systems.
- Be platform and cloud-agnostic. Avoid off-chain services.

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Other Common Challenges That Need to Be Addressed Early

- Skills availability is an issue that needs to be identified and addressed.
- Regulatory impact must be assessed early and regulators may need to be involved where their input and guidance is critical.

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Recommendations

- Ensure that all key external parties are involved early in the project, committed, agree to the solution and abide by the governance approach.
- Invest in getting internal support from needed groups. It is necessary to educate on the potential and perils of blockchain deeply across technology and business.
- Plan ahead for immature technology. Modular architectures, agile approaches and ample time become vital.

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Recommended Gartner Research

- **Understanding the Gartner Blockchain Spectrum and the Evolution of Technology Solutions**
  David Furlonger and Rajesh Kandaswamy (G00373230)
- **Common Mistakes to Avoid in Enterprise Blockchain Projects**
  Adrian Leow (G00388270)
- **Blockchain Trials Show Pragmatism Emerging Across Industries**
  David Groombridge and Chrissy Healey (G00387725)
- **Assessing the Optimal Blockchain Technology for Your Use Case**
  Avivah Litan, David Groombridge and Andrew Stevens (G00383505)
- **5 Blockchain Realities for CIOs to Address in the Next 5 Years**
  David Furlonger, Rajesh Kandaswamy and Others (G00377304)

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We request your participation in the survey. If you would like to, please email rajesh.kandaswamy@gartner.com for the link.

Thank you!

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TAB 12

Presentation: Sector Presentations on Current Industry, Growth and Development Opportunities

Presenters: John Cooney, FIS

FLORIDA BLOCKCHAIN TASK FORCE

John Cooney

FIS

John Cooney (VP, Enterprise Architecture and Emerging Technology) manages the FIS Enterprise Architecture team within the Enterprise Technology Office (part of the CIO org) and is responsible for technology governance, policy, and emerging technology. He works closely with line of business managers to facilitate knowledge sharing and collaborative research and deliver solutions for a diverse set of business needs. Cooney has over 20 years of software development experience including expertise in web service integration and security.

He joined FIS in 2000, through the acquisition of Sanchez Computer Associates. Prior to joining FIS, John worked at Primavera Systems, Inc. (now part of Oracle) in the software development organization. John is a supporter of children's financial education and information sharing within the financial services industry. John is an active participant of OWASP (Open Web Application Security Project), FS-ISAC (Financial Services Information Sharing and Analysis Center) and the JumpStart Coalition for Personal Financial Literacy.

Cooney holds a Bachelor of Science in Electrical Engineering from Villanova University, where he graduated magna cum laude, and a Masters in Engineering Science (emphasis in Software Engineering) from the Pennsylvania State University.