Meeting Agenda
Florida Blockchain Task Force
December 13, 2019
1:00 p.m. – 3:00 p.m.

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

I. Introduction
II. New Member Introductions
III. Adoption of Minutes
IV. Presentation: Industry application of blockchain technology
V. Presentations: Education State of the State
VI. Education Panels: Opportunities for new academic programs, identifying the technical skills necessary to develop blockchain technology, and ensuring instruction in such skills is available at secondary and postsecondary educational institutions in Florida
VII. Presentation: Opportunities and risks associated with using blockchain technology for state and local governments
VIII. Open Discussion
IX. Other Business & Public Testimony
X. 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: October 28, 2019
110 Senate Office Building
404 South Monroe Street
Tallahassee, Florida

Agenda

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

Call to Order
Meeting called to order and welcome at 1:02 p.m. by Chair Ron Brisé

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

Members present:
Ron Brisé
Charles Ghini
Director Ken Lawson
Woody Pollack
Director Terry Rhodes
Secretary Jonathan Satter
Robin Westcott

I. Introduction at 1:01 p.m.

The Chair speaks to his excitement for the full agenda and for the great presenters from around the world.

II. Adoption of Minutes at 1:03 p.m.

Members were provided the bylaws in advance of the meeting to allow time for review. There is a motion from Secretary Satter to adopt the minutes, and a second by Woody Pollack. The minutes are adopted.

Motion to adopt minutes by Secretary Jonathan Satter, Second by Woody Pollack
Vote: All in favor, 0 opposed, 0 abstained

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Resolved: Motion carried

III. Presentation: Different types of blockchains, both public and private, and different consensus algorithms at 1:06 p.m.

Task force member **Robin Westcott** provides a presentation on the different types of blockchain and different consensus algorithms. The presentation is focused on providing basic information on blockchain technology, and how it can be used by consumers across the country.

IV. Sector Presentations

Dan Blaner – Amazon Web Services at 1:28 p.m.

- Dan delivered a presentation that focused on the importance of trust, different uses of blockchain, challenges with blockchain solutions, and the importance of education in this area.
- Dan discusses different use cases across various industries, such as banking, logistics, payroll and government uses. He also describes the challenges with blockchain solutions, including: setup, scalability, managing the data, and costs of using the technology. Many of these challenges are alleviated by educating

Elizabeth Escobar-Fernandes – Duke Energy at 1:45 p.m.

- Elizabeth presented the pros and cons of blockchain technology and how it is being used in the energy industry. The presentation also focused on how the industry is focusing on consumption levels of energy and how blockchain is utilized in this endeavor. Elizabeth related blockchains capabilities in this area to the energy industry's focus on renewable energy and electric solutions.

Questions after the presentation:
Q1: Robin Westcott asks how the use cases include regulators perspective and how the energy industry is working with the regulators.
Answer: Elizabeth discusses the importance of education and how that will help regulators – who will be more familiar with the technology.

Q2: Chair Ron Brisé discusses the storage potential of blockchain and the tracking capabilities as it relates to solar power and electricity and asks if Elizabeth has seen state commissions studying this.
Answer: Elizabeth mentions the Silicon Valley Power use case – a pilot, that is planning to release a production of scale that other utilities would be able to utilize.

Melanie Cutlan – Accenture Operations at 1:59 p.m.

- Melanie presents on how blockchain technology is being used, governed, and the focus of Accenture: Financial Services Infrastructure, Supply Chain, Digital ID
- Melanie highlights the data sharing goal of corporations, and how blockchain enables data sharing to the extent that both parties are comfortable with. Another highlight is the ability to fight fraud with blockchain by empowering individuals, who are able to consent to use of their data.
- Charles Ghini asks if Melanie sees a future of blockchain connectivity for validation purposes.

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- Melanie says that if the information and service provided by the blockchain is quality, others will want to connect.
- Chair Brisé says that CFO spoke about digital identity and asks how close we are to a digital identity.
- Melanie suggests that it is already being used. Melanie says that the waiting is in order to develop and decide what the appropriate uses are.

Matthew Lahey and Paul Hasse – NGA Human Resources at 2:25 p.m.

- Unfortunately, there were connectivity issues to Paul – who was in London at the time. The presentation was difficult to understand because of this, and the Chair moved to attempt this at another time.

Ken Thomas and Chris Estes – Ernst & Young at 2:33 p.m.

- Ken Thomas discusses how blockchain for public finance will positively change how public resources are managed and how services are delivered. Ken introduces Chris, who has a unique perspective as a former CIO for a state government.
- Chris discusses the "ABC's" of blockchain – accelerate outcomes by focusing on old technology, balance security with risk, and to collaborate across the ecosystem within a chain.
- Ken goes on to suggest applications for blockchain such as: education, allocation of dollars – particularly for disaster response, and for communication between government agencies and entities.

Ockert and Michael Loubser – Core Group at 2:51 p.m.

- Ockert gave a presentation on blockchain technology, its potential, as well as the added value of the Core blockchain network. Accessibility to the network, and the ability to communicate with other networks are keys to the Core blockchain network.
- Ockert discussed the interest of governments and businesses to share data, and how blockchain networks enable this in the safest manner possible.

Rosa Shores and Gabe Higgins – BlockSpaces at 3:12 p.m.

- Rosa gave a presentation that illustrated the history of blockchain in Florida, which began with a focus on bitcoin and has expanded to a sector filled with collaboration. Rosa explained that the technology is growing rapidly and described some of the blockchain startups.
- At 3:19 p.m., Director Lawson asked Rosa what her recommendations would be to help enable blockchain growth.
- Rosa suggested that each industry is at a different technological stage, and that blockchain is entering their markets at different times. Rosa suggested that the best thing that Florida can do to help grow in this space is to educate developers to keep the talent here in the state. In Rosa's slide, she mentions that "there are now 14 job openings for every 1 blockchain developer" (Source: TechCrunch).
- At 3:22 p.m., Chair Brisé asked what our education system can do to facilitate this effort.
- Rosa suggested that universities across the state, such as University of Florida and Syracuse University have begun to offer classes for blockchain. Rosa also mentioned that because the technology is growing so rapidly, it is difficult to develop a curriculum that will be relevant for the coming years.

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* At 3:29 p.m., Chair Brisé pauses the presentation to move to a time specific presentation from Rajesh Kandaswamy, a Chief of Research for Gartner.

Rajesh Kandaswamy – Gartner at 3:31 p.m.

- Rajesh discusses the current state of blockchain use in enterprises, the characteristics of early projects and the lessons from early adopters of blockchain.
- Rajesh shows data that illustrates enterprises from all industries investing in proof of concepts and pilots. He also describes what the purpose of the investments are – such as customer experience and cost efficiency projects.
- The final focus is on the lessons learned from early adopters of blockchain, with findings of blockchain being ready for production, but only for limited use. Rajesh said that some challenges are:
    - getting all parties to work together,
    - securing commitment and providing value, and
    - maturity, reliability, performance and scalability of technology solutions, as well as
    - skills availability, and
    - regulators working with innovators in this space to guide them in the right direction.

At 3:56 p.m., Chair Brisé reverts to Rosa Shores, Gabe Higgins and Samuel Armes – who were presenting prior to the Gartner presentation. Chair Brisé asks if the task force is amenable to having Samuel Armes present and then moving to a panel from the Florida based groups.

Samuel Armes – Florida Blockchain Business Association at 3:57 p.m.

- Samuel discusses who is taking the lead in the regulatory space (local, state, or federal governments) as well as the regulatory environment in Florida and other states.
- Sam suggests that there are mixed definitions of blockchain technology and currency, making it difficult for new businesses to move forward in this space. Sam describes other states that have created regulation around blockchain – and the pros and cons of this. He suggests that early regulators, such as New York, have created a landscape that makes it extremely expensive to enter the blockchain technology market and that many companies have fled to other states because of this.

John Cooney – FIS at 4:11 p.m.

- John described FIS' experience with use cases, how FIS was able to take in the vast amount of information on blockchain technology, and how to bring that education to the community. John also discussed FIS' experience with choosing use cases. He suggested to look at sectors that are being invested in already as well as areas with higher amounts of friction to progress. John said that these areas are ones that typically are held back by data exchange and may be good candidates for blockchain innovation. For agencies, John suggested that data sharing between agencies and transparency for consumers may be a good place to start.

Panel begins at 4:18 p.m. – The panel is intended to answer questions from the task force and includes Rosa Shores and Gabe Higgins from BlockSpaces, Samuel Armes from Florida Blockchain Business Association and John Cooney from FIS.

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- Q1: Charles Ghini asks what the incentive is for a public blockchain network.
- Gabe Higgins responds, suggesting that parties that are incentivized by the same thing – data, transactions, information – are helped by a collaborative effort that blockchain networks offer.
- Samuel Armes responds offering up the idea that there are contrasting perspectives on whether the blockchain networks need currency to be decentralized.
- Task Force member Robin Westcott offers up an answer to Charles' question, suggesting that once a problem is identified, groups should gather together to collaborate and find a solution that benefits all of them.

- Q2: Charles Ghini follows up with another question – How can we ensure that the benefit of the blockchain network is enough to ensure that funding and maintenance of the network is available?
- John Cooney responds suggesting that the distinction between public and private blockchains is important, and that if a service or information is provided from the blockchain network, a subscription fee is used to fund the network.

- Q3: Woody Pollack asks what the worst thing Florida could do to stifle the innovation? Woody also asks what the best thing for the state to do to enable growth?
- Samuel Armes suggests that the market is growing without any intervention from government. However, clarity would improve the ability to navigate the obstacles that businesses may face.
- Rosa suggests that a statement from the regulators would be helpful and give confidence to investors in the state.

- Q4: Director Rhodes said that she is interested in what is being done in Seminole County regarding digital ID and credentials.
- Samuel Armes is working with Seminole County on this project of creating a digital ID and says that ease of use is the biggest benefit and focus of the project.

- Q5: Chair Brisé brings up the previously discussed potential barriers to entry and to growth that blockchain faces, such as banking, investing and education. He goes on to ask what other barriers may be in place that could be addressed from a regulatory or legislative change.
- John Cooney says that merchant acceptance is a current barrier.

- Q6: Chair Brisé asks for ideas to address the obstacles mentioned above.
- Samuel Armes says that collaboration is important, as well as rhetoric from regulators speaking to blockchain users' concerns.
- Rosa Shores suggests that supporting early blockchain adopters is important and would incentivize as well as give support to the future innovators.

- Q7: Woody Pollack brings up concerns that the industry has not come to an agreement on various definitions in the blockchain space. He asks what the panel thinks about legislators weighing in before the industry has come to a consensus.
- Gabe Higgins suggests that definitions are rapidly changing, and that the industry needs to come together to agree on structures, definitions, and industry standards.

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- Samuel Armes says that blockchain's definitions should be broad and should not limit the technology as it progresses.

At 4:38 p.m., Chair Brisé concludes the presentation segment of the meeting by discussing interest in future recommendations, thanking the presenters, and leading to open discussion.

V. Open Discussion at 4:38 p.m.
There are no comments from the task force members

VI. Other Business and Public Testimony at 4:39 p.m.
Michael Loubser, from the Core Group, suggests that compliance from the banking industry is difficult, and has been in Europe. He discusses examples of regulation being put into place, without having commercial banks accepting of crypto currency. He also says that blockchain is meant to improve the world's systems, rather than create competition – asserting that many of the technological leaders that are already in place have value to bring to this emerging technology.

VII. Adjournment at 4:42 p.m.

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TAB 2

Presentation: Industry application of blockchain technology

FLORIDA BLOCKCHAIN TASK FORCE

Pete Teigen

IBM Services

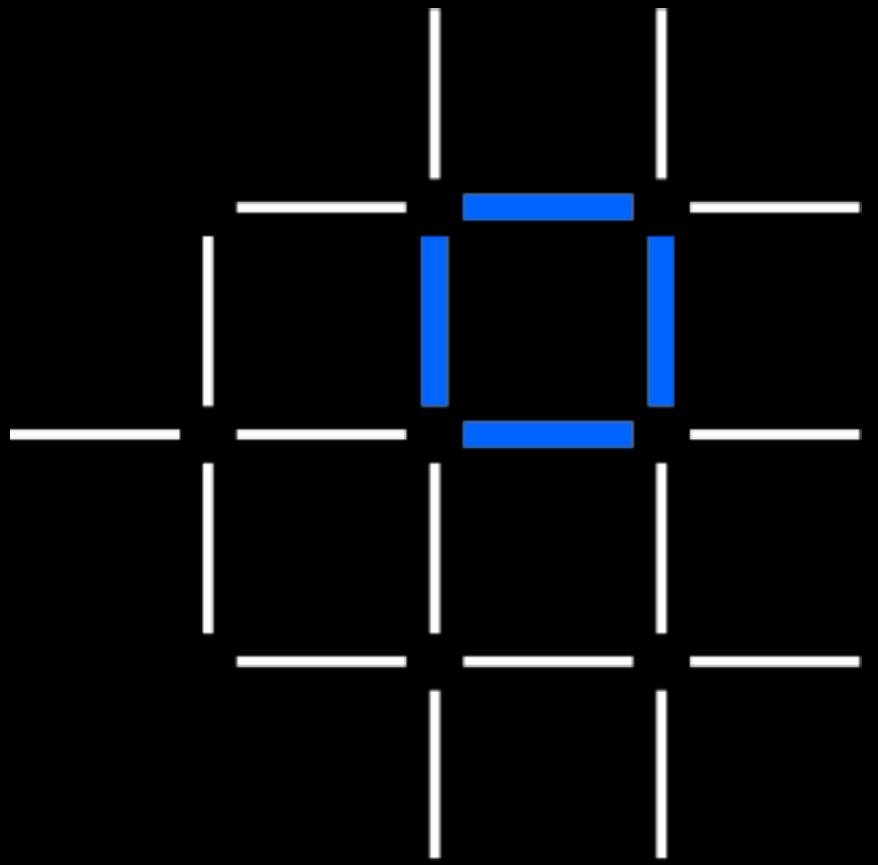
Pete is one of IBM's lead market SMEs for Blockchain focused on advising public sector clients on emerging technologies.

As a member of this global team, Pete provides thought leadership, education and practical insights for government leaders on when to use and how to benefit from blockchain solutions. Pete also supports government leadership teams with emerging tech solutions as they fit into their larger digital transformation initiatives.

Florida Blockchain Task Force

Cutting edge technologies and innovations
to shape an extraordinary future

Friday, December 13, 2019



Pete Teigen | Global Government | IBM Services | @teigenp

Imagine a world where government services are co-created in a
open, trusted and transparent ecosystem

What is blockchain?

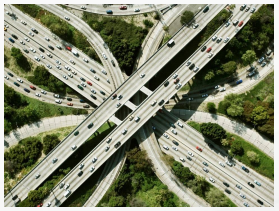
A trusted, distributed, shared ledger

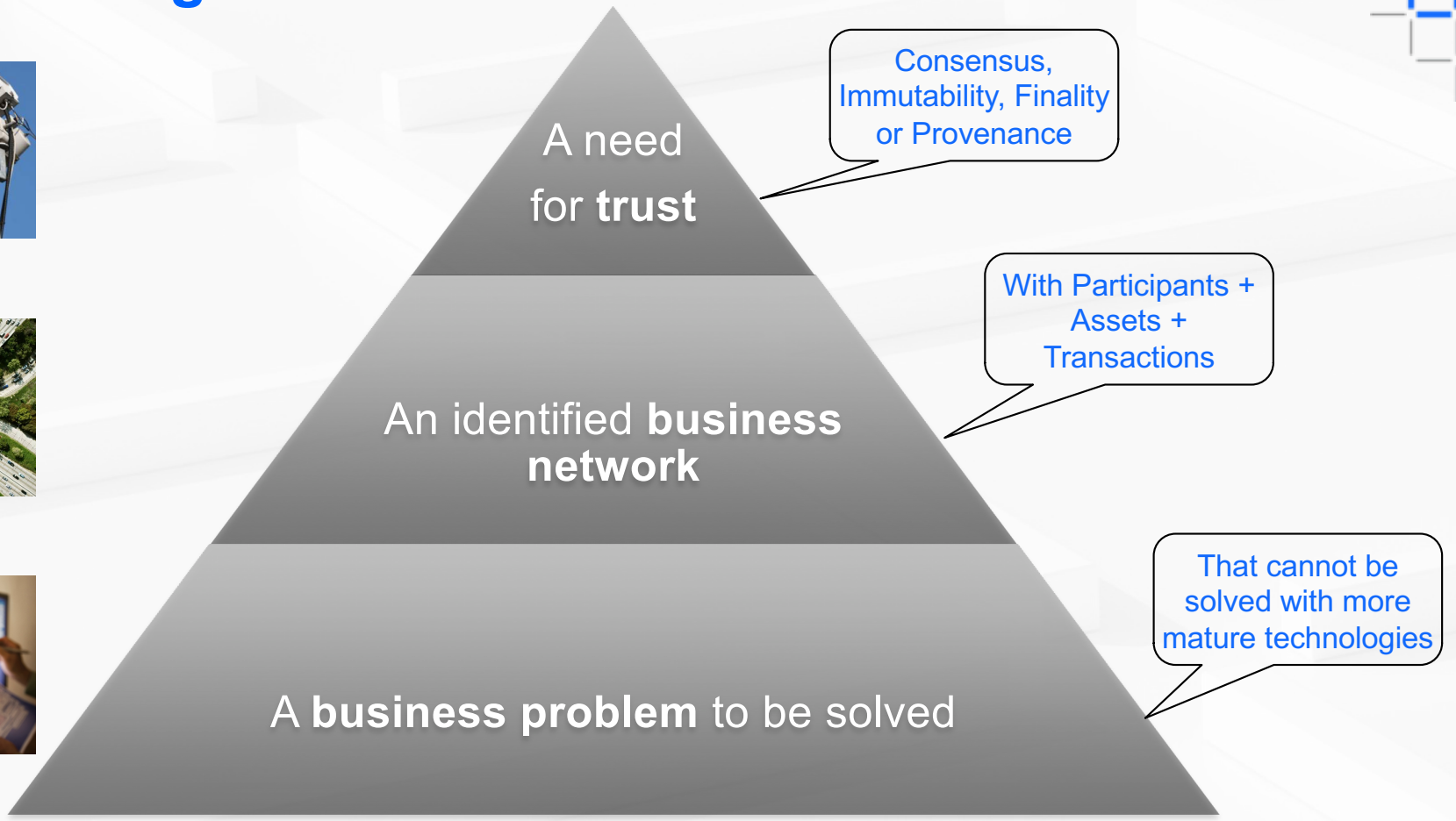
Blockchain

with shared business processes

What blockchain is *not*

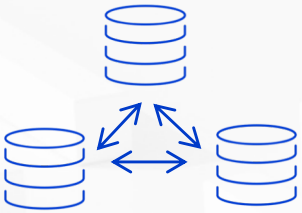
What makes a good blockchain use case?



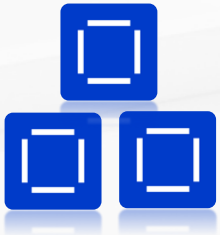


Traditional databases cannot be used in untrusted networks

- A **traditional** database is **centralized**
- Everyone needs to **trust** the administrator managing the database
- There's typically **no immutability or provenance**



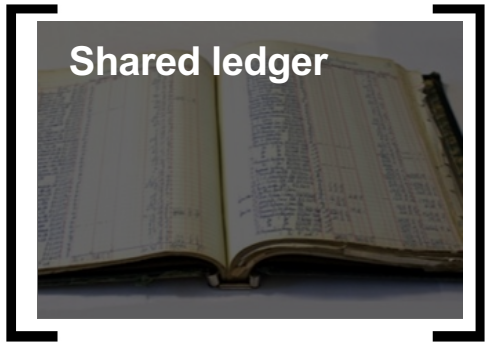
- **Distributed** databases do not alleviate the **trust** issue
- There are now **more copies** to worry about and **more administrators**

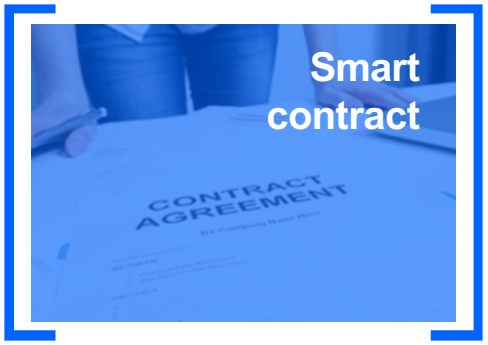


- **Blockchain** allows the concept of a distributed database to be deployed across an **untrusted network**
- Something a traditional database cannot handle

Enterprise blockchain attributes

Append-only distributed system of record shared across business network





Business terms embedded in transaction database & executed with transactions

Ensuring appropriate visibility; transactions are secure, authenticated & verifiable

Transactions are endorsed by relevant participants

Public sector use cases

Financial

- Trade Finance
- Cross Currency Payments
- Mortgages

Public Sector

- **Asset Verification**
- **Land, precious resource track+trace**
- **Corp Registry**
- **Licensing**
- **Benefits Payment**
- **Vital Records**
- **Citizen Identity**
- **IoT Registries**
- **Voter Registries**

Retail

- Supply Chain
- Loyalty Programs
- Information Sharing (supplier – retailer)

Insurance

- Claims Processing
- Claims File
- Risk Provenance
- Asset Usage History

Manufacturing

- Supply Chain
- Product Parts
- Maintenance Tracking

IBM is making blockchain real for enterprise with cross-industry solutions and over 100 active networks

Production blockchain examples on Hyperledger Fabric

Track, trace, recall, and more, across a global food safety network

IBM Food Trust creates an ecosystem of food producers, manufacturers, suppliers, and distributors to facilitate broader data sharing and to create a complete view of food's lifecycle. This helps with sustainability, food safety, processing time, and analytics for companies in the ecosystem. Using permissioned blockchain, competitors can share data within a distributed network with confidence only appropriate parties gain access, and an audit trail to provide transparency and aid in compliance.

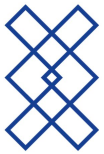
TRADE LENS

Global digitized trade, providing events, analytics, and more to over 50% of the world's ocean freight

TradeLens creates a global network within the trade ecosystem of players like ocean carriers, freight forwarders, customs authorities and more. This ecosystem uses blockchain smart contracts to ease paperwork, reduce errors and disputes, and to increase speed of processing in a complex global freight process with differing rules and regulations in each port. This network also uses the ledger to publish and subscribe to key freight events, ensuring that all containers are either on time or there is a clear understanding of delays.

Distributed services for the under-banked through shared services on the blockchain

We.Trade is a network of banks around the world that utilized permissioned blockchain to provide banking services from a pool of providers. As consumers make requests, banks on the network that can most easily, accurately, and cheaply provide the requested services may do so, and log each transaction on the blockchain for regulations, audit, and compliance.



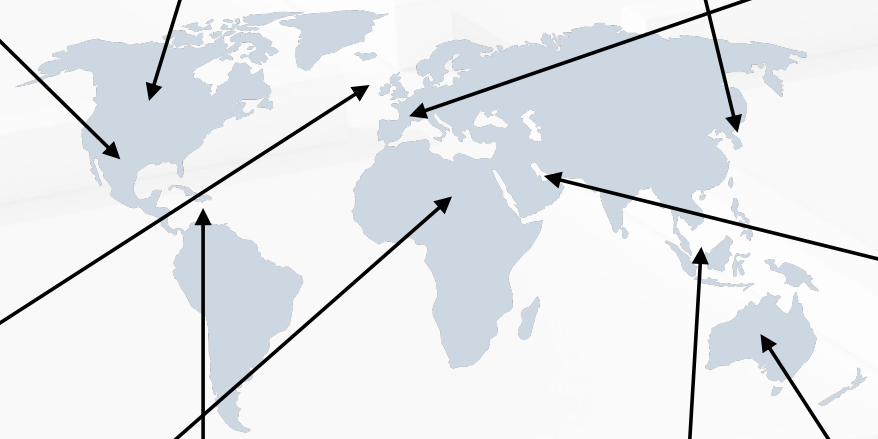
Streamlining regulatory reporting, providing new insight for insurers, enhancing timeliness and accuracy for regulators

OpenIDL eases the burdensome statistical reporting process that provides little value to insurance carriers and insufficient information for insurance regulators. It offers carriers a secure and reliable blockchain environment for the storage and selective sharing of statistical data (policy, premium, claims and loss experience data) with AAIS as an authorized agent and advisory organization.

Verifiable, shared supplier credentials, with trust and security ensured by blockchain

Trust Your Supplier is a network of various vendors interacting with procurement agencies. With supplier identity as the shared asset in the blockchain ecosystem, each supplier will distribute changes to their profile across the network to those permissioned to see it and do business with them. Provenance of changes provides the network with history of changes to ensure supplier integrity.

Blockchain helping government spans the globe



USA
- Register of Births
- Vehicle licensing
- ***HR records***
- Data use agreements
- ***Parcel tracking***
- Prescription drugs tracking
- ***Corporate registrations***
- Student locker
- Credentials register

Canada
- ***Corporate Registry***
- ***Importation of Goods***
- ***Patient Consent***

Japan
- ***Registration of address change***

Europe
- Invoicing and payments
- Tax compliance and fraud
- Grants management
- Trade supply chain
- Defense logistics supply chain
- ***Registry of electric bikes***
- ***Immigration – document verification***

UK
- ***Livestock information***
- ***Inspection in the abattoir***
- ***Authorized Economic Operator***
- Firearms register
- Immunization record
- ***Doctor credentials and identity***
- ***Payment of social benefits***
- Blood supply chain
- Benefits status and identity
- Defense Logistics supply chain
- ***Property Exchange***

MEA
- Blockchain Strategy
- Municipal Blockchain Strategy (UAE)
- ***Student Records*** (UAE)
- ***No Objection Certificates*** (UAE)
- ***Business Register*** (UAE)
- ***Credentials for Medical Staff*** (UAE)
- ***Blockchain Platform*** (UAE)
- ***Vehicle lifecycle*** (UAE)

Africa
- Identity and payment
- Tax compliance and VAT

Caribbean
- Business Register

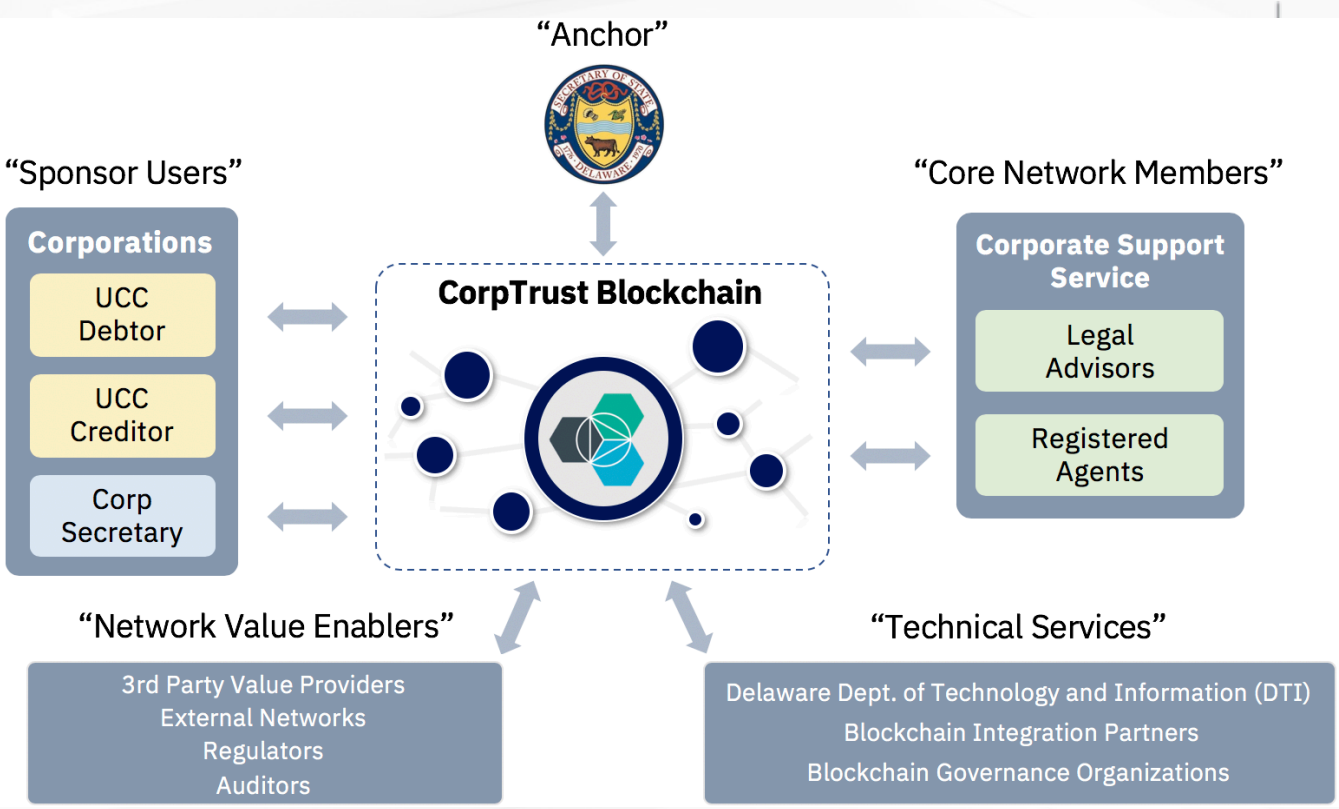
ASEAN
- Register of beneficiaries
- Transmission of payment files
- ***Property transfer***

ANZ
- Vehicle lifecycle
- Payment of social benefits
- Defense logistics supply chain
- Tax payments on land title transfer
- e-invoicing
- Corporate registry

State of Delaware
"DoCTrust"

Blockchain Proof of Concept

Top-level goal: ***One source of truth*** *for UCC and Stock Ledger information*



Delaware Project Overview

1 | Why we embarked on this journey?
- Background & Need
- Timeline
- Pain points

2 | Value to network participants
- Hills/value points
- Use cases summary
- Demo scenarios by persona
- Recommendation

3 | Progression to pilot
- WHY: Business case & value assessment
- WHAT: Roadshows & identification of sponsor users
- HOW: Technical considerations
- Next steps

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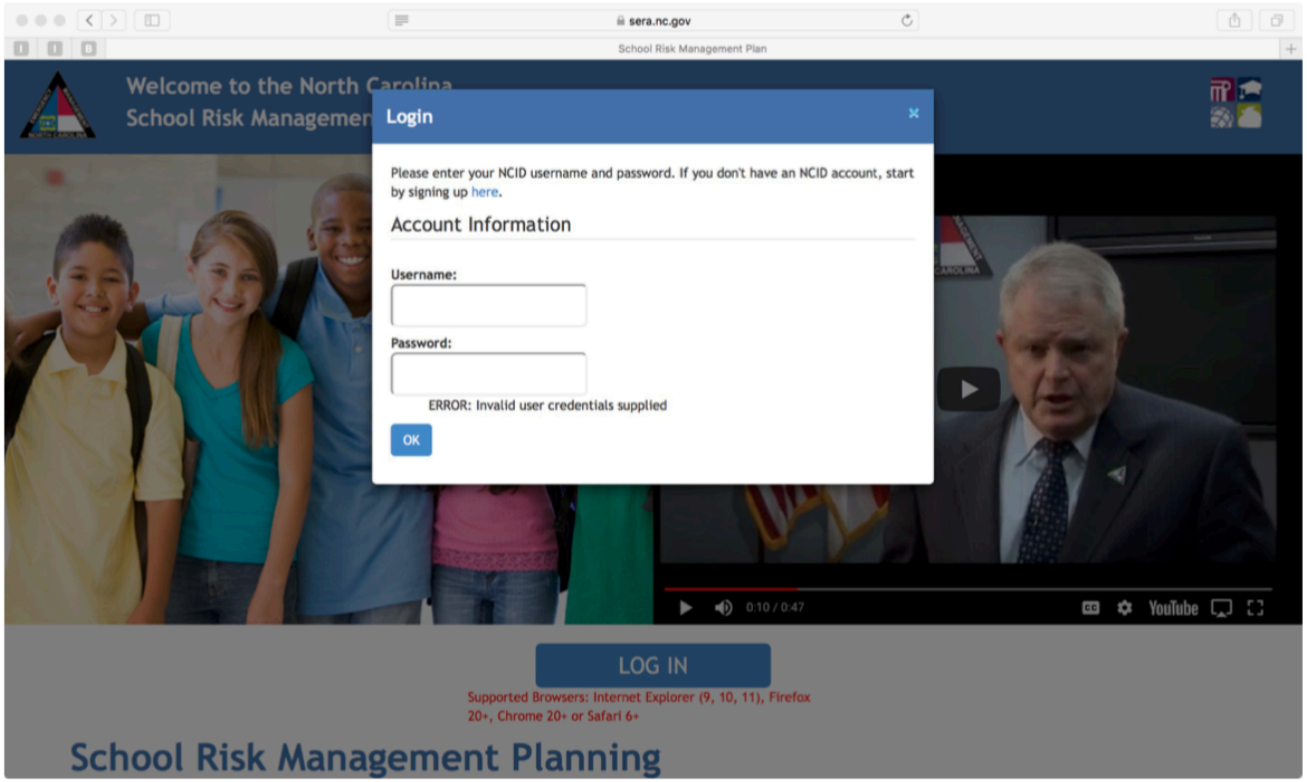
North Carolina Digital Identity

Tracy Doaks
Chief Deputy State CIO
and Chief Services Officer



The demo video for the NC identity blockchain project can be viewed at https://ibm.box.com/s/jwssv5kuphtq6qpd9j1ulxpvjyjngnwj

Government Blockchain Projects: On Path to Production

Streamline the Ecosystem for doing Business in the State of Delaware	**Simplifying Resource Hiring Actions with Visibility, Smart Contracts, and a Blockchain-enabled Business Process**
State of Delaware – The Delaware Secretary of State is building out a Pilot prototype from their base Proof of Concept application addressing Delaware's UCC filing process between secured party and debtor companies, registered agents, and legal representatives while using blockchain to aggregate a shared Stock Ledger and capitalization table for registered corporations registered to track share ownership.	**USINDOPACOM** - IBM is working to create a blockchain-enabled process for hiring under the IPA Act. This system will enable USINDOPACOM to more accurately, easily and accountably procure high-value resources at low cost. It addresses the current inefficient, error-prone IPA process to keep IPAs paid and focused on their mission tasks while facilitating procurement of new IPAs.
International Mail tracking, Analytics, Alerts, and Error resolution	**Exploring Plans for Blockchain as a Service**
USPS is continuing to scale their Pilot blockchain solution to help better track and understand international mail between itself, air carriers, and foreign post offices. By leveraging the trusted, immutable, blockchain ledger, the network can create an actionable data source to feed analytics engines, operational alerts, and reporting on a per-member basis for USPS, carriers, and foreign posts.	**DISA** is working to create Blockchain as a Service (BaaS) capability on a secure, scalable, and fully-accredited DoD blockchain environment using permissioned Hyperledger Fabric to offer a managed service. Having the environment on a certified infrastructure will enable resource management, network administration, and Cloud support services as well as enhance network monitoring and security.

Note: demo video links embedded in logos

Government Blockchain Projects: Completed POCs

Blockchain, Artificial Intelligence, and Robotic Process Automation	**Selective Data Sharing around the Federal Employee HR Record**
HHS has received Authority to Operate (ATO) for a blockchain based application, Accelerate, to facilitate the Federal Acquisition Lifecycle and standardize taxonomy of their acquisition data. Accelerate also addresses acquisition workforce process challenges, strengthen industry interactions, improve IT security, and increase the savings and quality for procurement activities across the Department leveraging machine learning and AI.	**OPM** wants to accomplish selective data sharing for the Federal Employee Human Capital Lifecycle to ensure the security, privacy, and consistency of their employees' data. OPM and IBM created a prototype that addressed the challenges around employee transfer including single field entry and record access changes, both of which were accomplished through the implementation of smart contracts.
Disaster Response	**EHR Reference Data Chain of Custody and Consent**
FEMA's Blockchain will enable an immutable, trusted ledger tracking projects, providing FEMA and its PA applicants veracity of metadata and spends while automating manual processes through smart contracts while sharing of data among recipients.	**CDC** and IBM implemented a robust consent management process within CDC's data surveying processes and captured data governance events like consent to access, change in ownership, and access to EHR data on a blockchain ledger to be shared with relevant stakeholders.

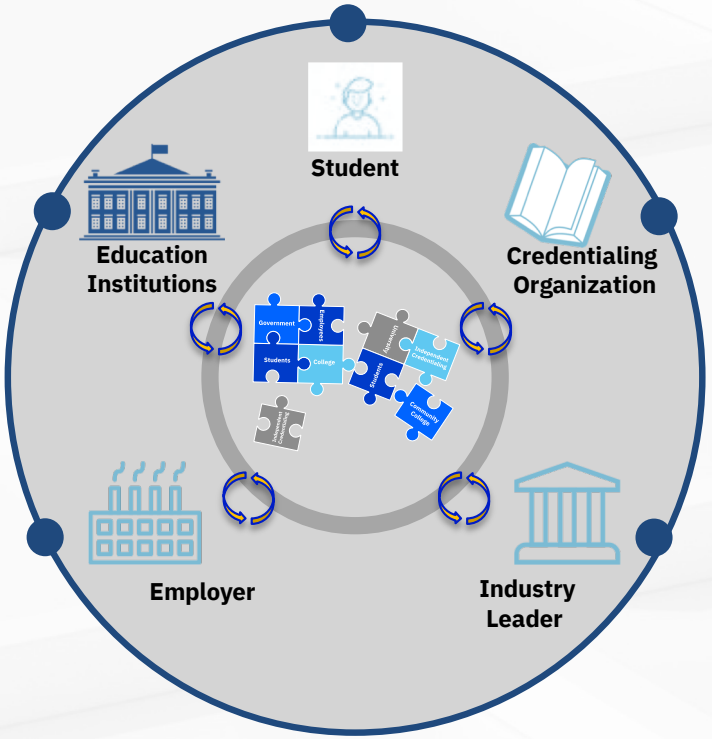
Note: demo video links embedded in logos

A learning credential blockchain is the transformative technology to unlock the future

" A shared, replicated, permissioned ledger with consensus, provenance, immutability and finality for credentials*"

- Built on existing education industry and technical standards
- Founded by key education institutions and leaders of the education industry
- Supporting all credential use cases
- Available to all stakeholders working with credentials

* "Blockchain: What It Is, What It Does, and Why You Probably Don't Need One" David Andolfatto, Economic Research Federal Reserve Bank of St Louis, Vol. 100, No. 2 Posted 2018-04-16



Recap of Key Points:

Collaborate with the network to solve a problem statement

Bridging silos unlocks deeper insights

Consent & permissions management enhances privacy & confidentiality

Efficiency, timeliness and transparency improves service delivery & outcomes

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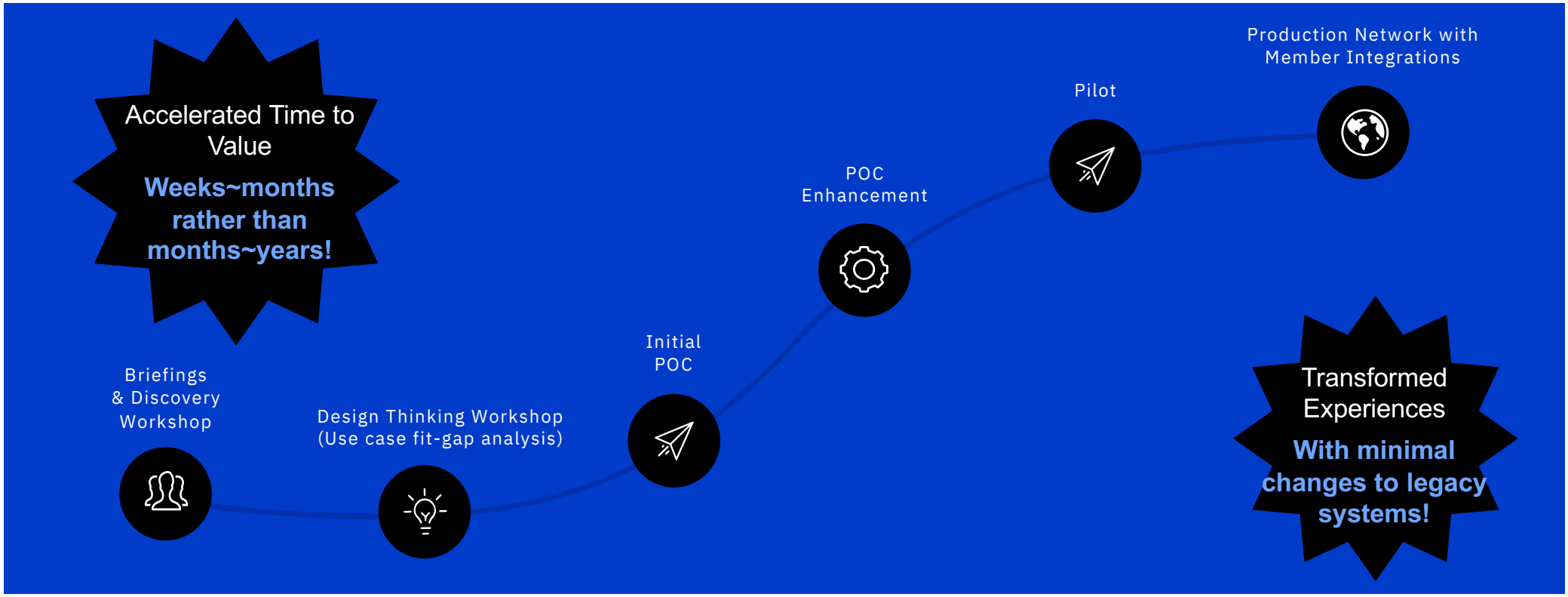
The Blockchain Journey from Idea to Delivery is easier than you think…



Design Thinking Workshop

In this workshop, your line of business and technical teams join the IBM team in a very **interactive experience** to identify and understand the end-user, obtain alignment on the business outcome, and identify the smallest application – the minimum viable product (MVP) – required to test your wanted business outcomes.

The workshop consists of two days of collaborative activities to define the MVP, followed by 2-3 days of high-level architecture and conceptual design definition.

Deliverables: Workshop outcomes deck and blockchain MVP project definition

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Client Participants

- Executive sponsor
- Line-of-business representative
- IT or development team
- Product owner
- Sponsor user
- Business network members

Avg. 1.5 - 2 days

Sample Activities

- Goals and Non-goals
- As-is process
- Business network exploration
- Empathy mapping
- Solution Ideation
- To-be process
- Hill Statements
- Storyboarding
- MVP Hypothesis
- MVP Business Network

Initial POC / MVP Build-up

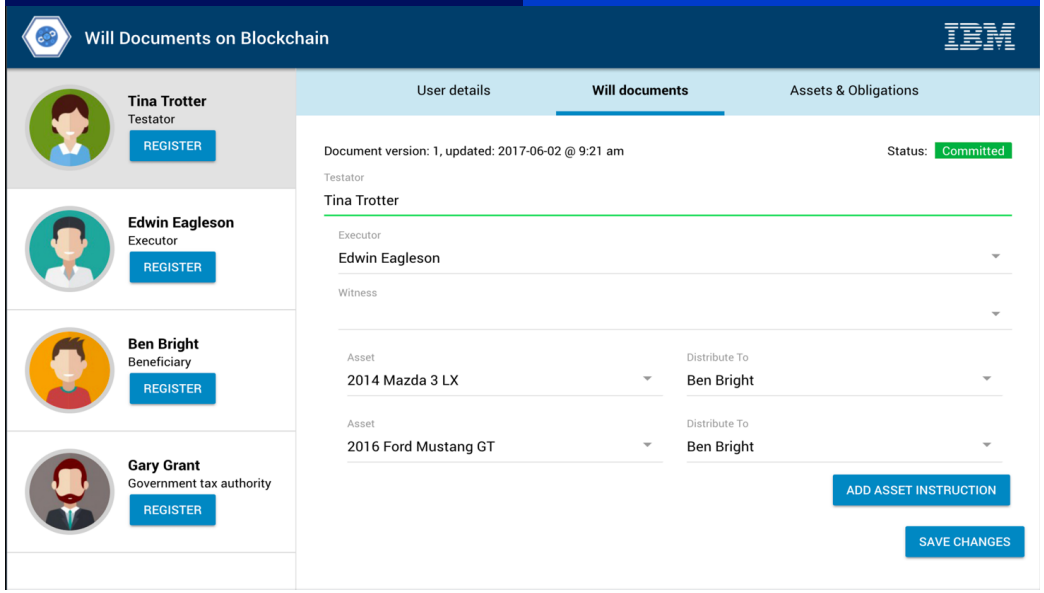
The MVP Build-Up offering is designed to help your team **learn fast**, **test hypotheses**, and **iterate quickly** – as they build and deploy a blockchain minimum viable product (MVP).

The objective is to quickly develop a production-quality blockchain MVP application using the **IBM Garage Method** and to obtain rapid and iterative end-user feedback to test a business hypothesis. Teams use pair programming, test-driven development, continuous integration and delivery and other agile and DevOps practices.

Deliverable(s)

MVP application, including source code, deployed on the IBM Blockchain Platform on IBM Cloud or your infrastructure of choice.

Avg.
6-10
weeks



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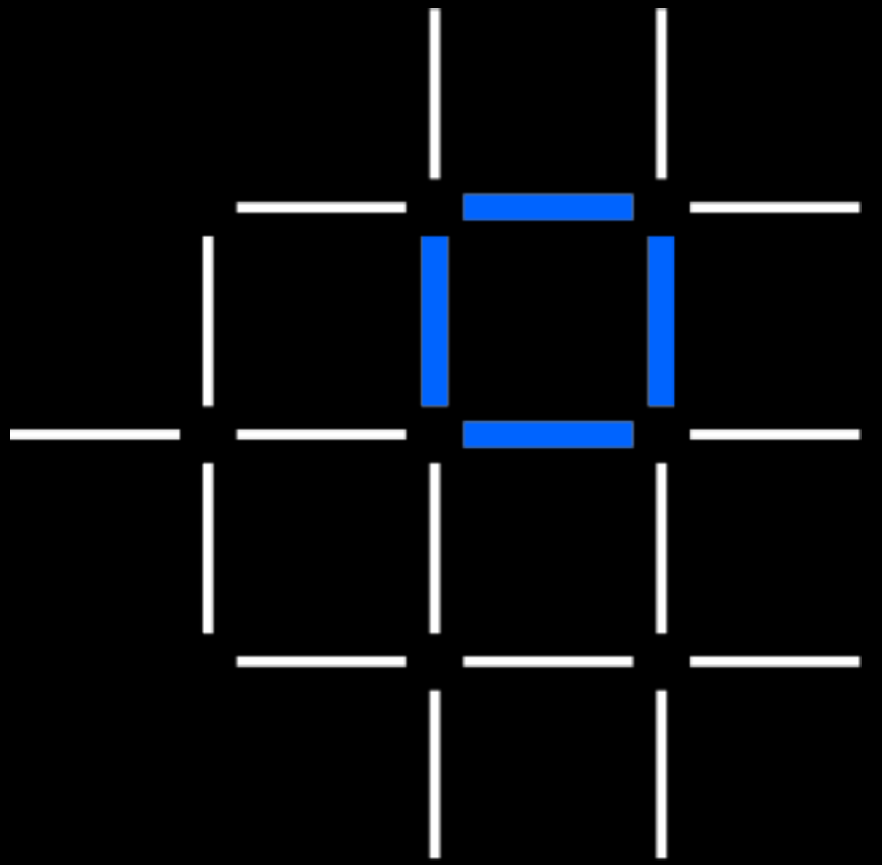
Thank you

Let’s get started

The thing about a revolutionary technology is that it changes everything – that’s why we call it revolutionary. And changing everything takes time, and imagination and courage – and sometimes just a lot of hard work.

“50 Things That Made the Modern Economy”, Tim Harford



Pete Teigen | Global Government | IBM Services | @teigenp

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Appendix

IBM Solutions

- Food Trust
- TradeLens
- World Wire
- Trust Your Supplier
- Digital Identity

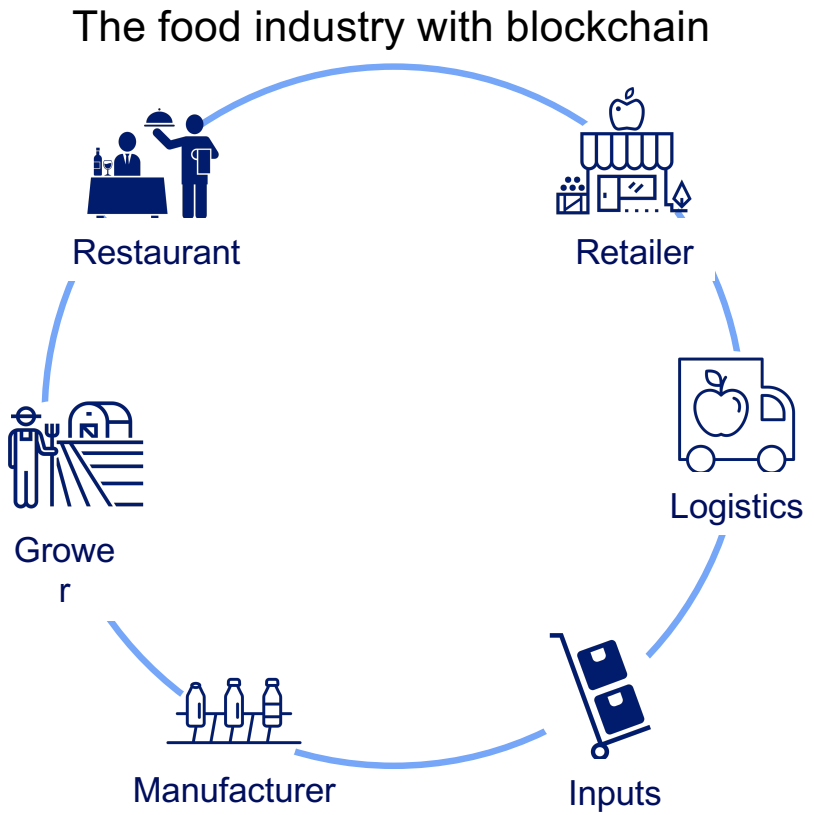
IBM Food Trust

Overview

Blockchain transforms systems with trust and transparency

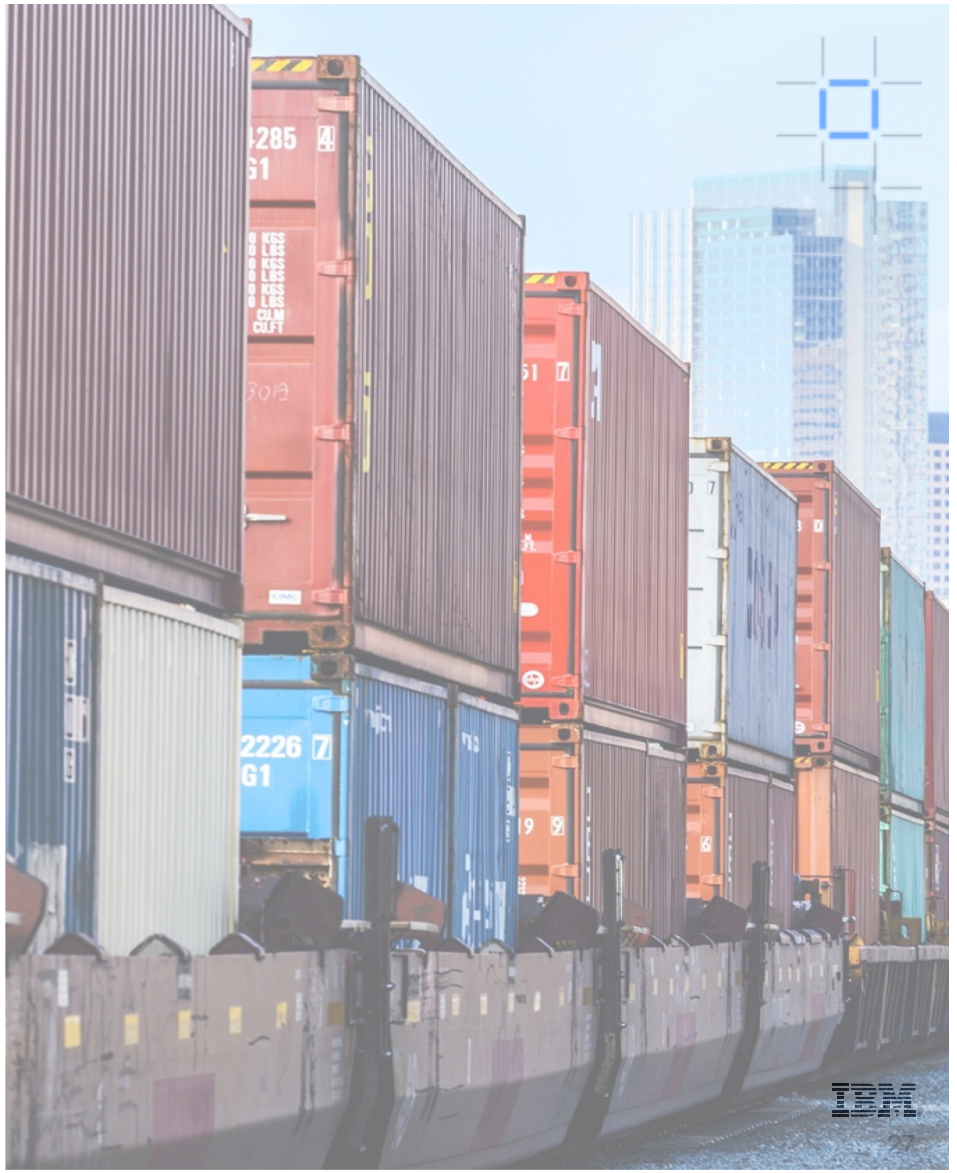
The Solution:

- Because blockchain provides an independent data-sharing platform, participants trust it
- Once data is shared in a single data-sharing platform, everyone has instant transparency into the transactions they are authorized to view; no intermediation required
- Data immutability creates an auditable record of all transactions, disincentivizing fraudulent behavior
- Dispute resolution from the shared ledger can be automated saving time and resources



TRADELENS

IBM **Blockchain**



OUR MISSION

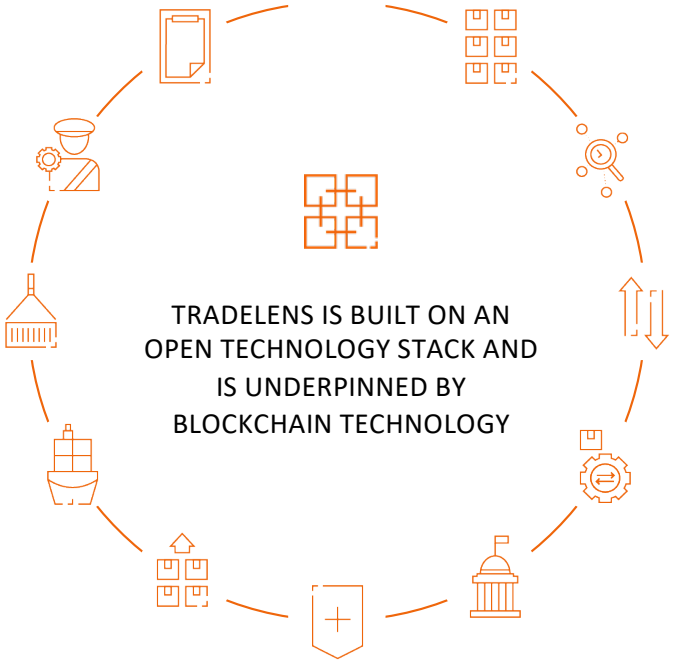
DIGITIZE THE GLOBAL SUPPLY CHAIN

+ **Connect the ecosystem**
  Bring together all parties in the supply chain - including shippers, freight forwarders, intermodal operators, ports and terminals, ocean carriers, customs and other government authorities, and others - onto a blockchain-based platform with a secure permission and identity framework.

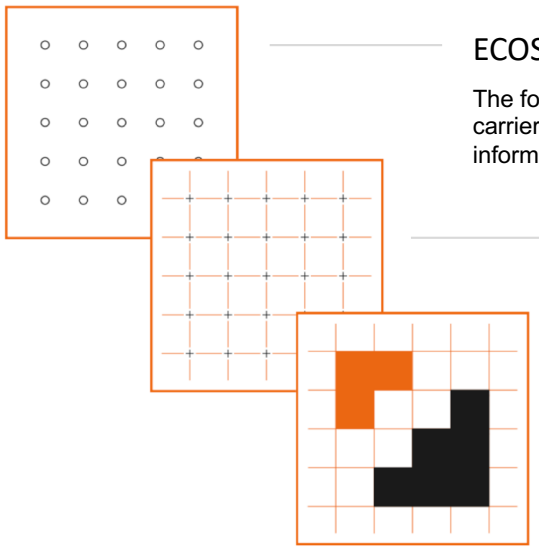
+ **Drive true information sharing**
  Provide for the seamless, secure sharing of near real-time, actionable supply chain information across all parties to a trade - encompassing shipping milestones, cargo details, trade documents, the structured data embedded in trade documents, customs filings, sensor readings, and more.

+ **Foster collaboration and trust**
  Enable the digitization and automation of the cross-organization business processes integral to global trade, including import and export clearance, with blockchain ensuring secure, auditable, and non-repudiable transactions.

+ **Spur innovation**
  Lay the foundation for ongoing improvement and innovation through an open, publicly -available API, the use of standards and promotion of interoperability, and the launch of an Application Marketplace that parties can use to build and deploy TradeLens-powered applications for themselves, their partners, and their customers



THE TRADELENS SOLUTION



ECOSYSTEM

The foundation of TradeLens is its business network — shippers, freight forwarders, ports and terminals, ocean carriers, intermodal operators, government authorities, customs brokers and more. Each entity shares information that can be tracked, stored and actioned across the platform throughout a shipment's journey.

PLATFORM

The TradeLens Platform is accessible via an open API and brings together the ecosystem through a set of open standards. Powered by Hyperledger Fabric blockchain technology and IBM Cloud, the platform enables the industry to share information and collaborate securely.

MARKETPLACE

An open Applications and Services Marketplace allows both TradeLens and third parties to publish fit-for-purpose services atop the TradeLens platform, fostering supply chain innovation and value creation.

World Wire
Introduction
2019
The new normal in global payments
IBM

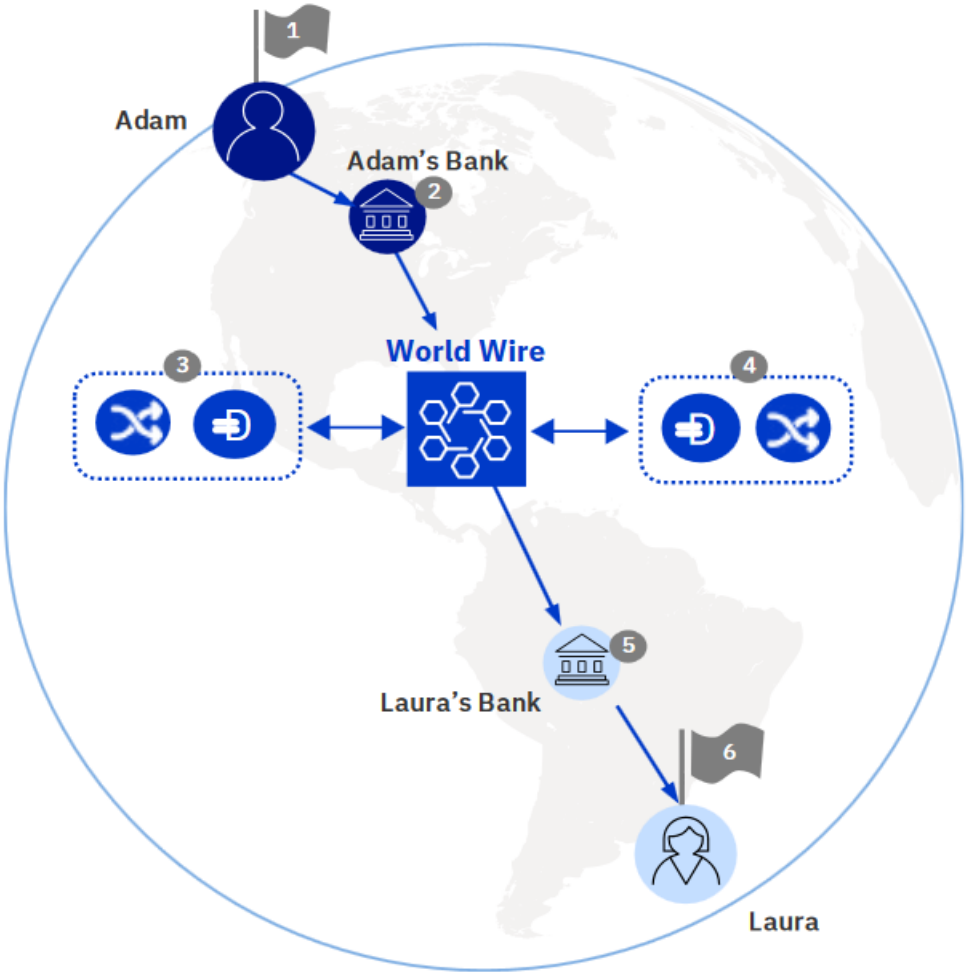
World Wire simplifies clearing & settlement to streamline cross-border payments

Faster, Cheaper & More efficient

World Wire targets industry pain points

- Clear & Settle Faster: Near **real-time clearing and settlement** reduces a process that traditionally takes 2-10 days, to mere **seconds**.
- Reduce Costs: Costs per transaction are reduced – this includes the removal and reduction of correspondent banking fees, capital requirements, regulatory costs, and reconciliation costs – allowing for **improved capital efficiency**.
- Increase Transparency: Financial institutions receive unprecedented **end-to-end transparency** of a payment from initiation through receipt by the receiving financial institution – **reducing the occurrence of disputes** and need for reconciliation.
- Build Trust: The use of distributed ledger technology creates the irrevocable and irrefutable audit trail of transactions, **enhancing regulatory reporting** capabilities and easing compliance concerns, while also **removing barriers of entry** for Financial Institutions entering **new markets**.

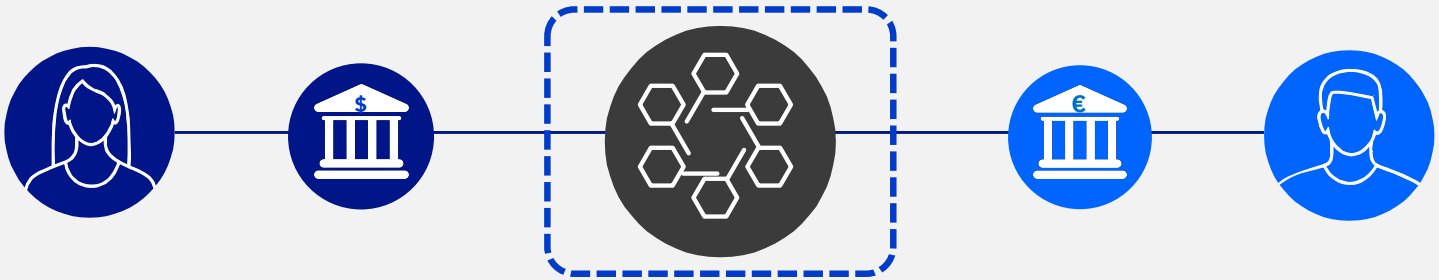
International Payments with World Wire



Clearing and settlement flow

IBM World Wire – a new global financial rail – allows financial institutions to clear and settle payments with finality in a matter of seconds

- ✓ Innovative Technology | Integrated clearing and settlement with access to real-time FX liquidity – all on one network
- ✓ Business Value | Simple API connection supports immediate payments, regardless of size, origination, destination or currency
- ✓ Ecosystem | Network comprised of geographically-diverse, regulated financial institutions
- ✓ Governance Model | Robust access control mechanisms and eligibility criteria
- ✓ Standards | Underpinned by shared services, standards & governance
- ✓ Interoperability | Protocol-agnostic, built to interoperate with any blockchain platform



IBM World Wire

Global Payment Network

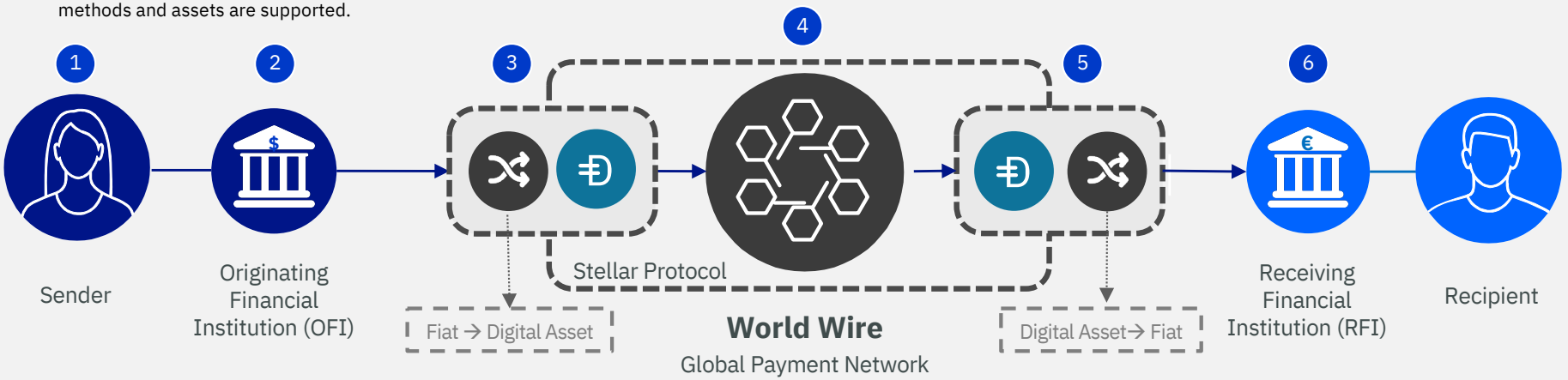
Transaction Amount: Any **Transaction Throughput**: High **Transaction Cost**: Low **Settlement Time**: Immediate **Cross Currency**: Yes

How it Works

1. Sender from Canada (CAD) wants to send a payment to a recipient in Brazil, who is expecting Brazilian Real ($R).
2. Sender's Financial Institution (OFI) calculates the FX fees to send a payment using World Wire and debits the sender's account the total amount in CAD **plus** fees. The fee total will be a sum of both the OFI and RFI's fees.
3. Using World Wire's messaging capabilities, the OFI **clears** the payment with the RFI and the CAD (plus fees) is converted to the *chosen* digital asset (e.g., XLM) equivalent.

* World Wire allows Participants access to real-time FX liquidity to fulfill payments on the network. Market Makers on the network facilitate the exchange of fiat to digital assets and conversely, digital assets to fiat. Multiple settlement methods and assets are supported.

4. The digital asset (e.g., XLM) equivalent is then sent to the RFI accepting the payment on behalf of their client, the Recipient. The transaction details are recorded to the ledger and the payment is **settled**.
5. The Receiving FI is able to then convert the digital asset to the Brazilian Real ($R) equivalent and deduct their portion of the FX fee calculated in Step 2.
6. Transaction balance ($R) is transferred to Recipient's account for immediate use.



Support for Multiple Settlement Methods and Asset Types

Two Operating Modes and Multiple Asset Types supported by World Wire

- Real-time Settlement = Exchange of Digital Assets (“DA” Mode)
- Deferred Settlement = Exchange of Digital Obligations (“DO” Mode)

	Digital Obligation (DO)	Digital Asset (DA): Cryptocurrency	Digital Asset (DA): Stable Coin	Digital Asset (DA): CBDC
Description	A Digital Token representing a promise to pay (IOU)	XLM Supported	Digital Token representing a claim on fiat deposits issued by bank or commercial entity	Digital Token representing a claim on fiat deposits held in reserve by central bank
Funds Availability	Immediate	Immediate	Immediate	Immediate
Settlement Speed	Varies	Less than 30 seconds	Less than 30 seconds	Less than 30 seconds
Settlement Complexity	High: Outside of Network	Low: Immediate, on-network	Low: Immediate, on-network	Low: Immediate, on-network
Liquidity	Can be high; may be supported by pre-funded nostro accounts or credit / netting agreements	Varies, often low	High; might be redeemed for cash; can be supported	Extremely high; legal tender; likely never requires redemption for cash
Risk	Counterparty risk; mitigated with pre-funding	Price volatility Lack of liquidity on the market	Issuing entity solvency	None

Learn more about Stable coins & IBM’s Partnership with Stronghold | Here

TRUST YOUR SUPPLIER
TRUST YOUR SUPPLIER
Procurement Expertise
Convene Blockchain Ecosystem & Partners
Open, Secure, & Scalable Blockchain Platform on IBM Cloud
IBM
CHAINYARD
an IT People Company
Blockchain Solution Development
Operate and support Blockchain network
60+ Blockchain Specialists
Services ✦ Solutions ✦ Ecosystem ✦ Platforms ✦ Hyperledger
Consulting ✦ Engineering ✦ Operations ✦ support✦ Accelerators
CHAINYARD

Create a

Trusted Source of Supplier Information and Digital Identity

that simplifies and accelerates

Supplier Qualification , Validation and Lifecycle Management

TRUST YOUR SUPPLIER – WHY BLOCKCHAIN

TRUST YOUR SUPPLIER

Conventional Systems are open to error, fraud and inefficiency

- In conventional systems each participant has his own, separate database, or ledger — increasing the possibility of human error or fraud
- Shared databases cannot prevent malicious activity. Hacked entities can corrupt or destroy data in the shared database, making it invalid for everyone involved.
- Reliance on intermediaries for validation creates inefficiencies
- Often laden with manual processes, resulting in frequent delays and inefficiencies

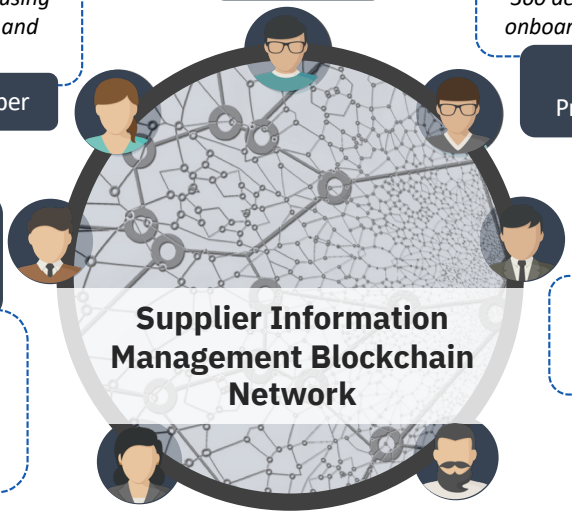
Blockchain is designed for trust and secure trading

- Single, shared, tamper-evident ledger — once recorded, transactions cannot be altered
- Provides levels of error checking and transaction validity not obtainable in regular shared databases.
- Data is guaranteed to be valid and reconciled against the data held by the others participating on the Blockchain.
- Immutably records all details of a transaction end-to-end, reducing vulnerabilities.

Blockchain Provides a Trusted, Common, Single Version of the Truth

TRUST YOUR SUPPLIER BLOCKCHAIN ECOSYSTEM

TRUST YOUR SUPPLIER



IBM sterling commerce | OMX | SAP Ariba | project44 | dun & bradstreet | RAPIDRATINGS | ecovadis

TYS provides a trusted source of digital identity for suppliers to transact with multiple buyers and business networks

- EDI-based networks (Ex. IBM Sterling)
- PO and invoice networks (Ex. SAP Ariba)
- Vertical industry networks (Ex. Ivalua, OMX)

Decentralized Original Information Sources provide data directly onto the blockchain

- Verifiers such as D&B, T&R (financials, credit, adverse media, etc)
- Certificate Issuers such as ISO, diversity agencies (quality, insurance, compliance, etc)
- Auditors (factory, financial, quality, etc)
- Government (OFAC, business registration, etc)

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CHAINYARD™

Identity

IBM **Blockchain**

How do you prove that you are you?

In the real world?

On the internet?

Companies have responded by providing you an account and storing personal information

Fraud, data breaches and **password management** cost billions annually

Individuals' records are bought, sold and **misused** without their knowledge

Data silos lead to **costly processes** and **poor customer experiences**

Centralized

Identity provided by and affiliated with organizations

Website
SSL certificate

ORGANIZATION

Federated

Re-use identify across cooperative organizations

Microsoft Passport
Sun Liberty Alliance

User-centric

Users consent to sharing across organizations

OAuth
OpenID Connect

Blockchain Self-sovereign

Users consent and own identifiable information

Decentralized ID
Verifiable Credentials

INDIVIDUAL

Shifting to an identity YOU control

Blockchain making it possible

Self sovereign identity is a win-win-win scenario

ISSUERS

PROVIDE DIGITAL SERVICES

MONETIZE LATENT DATA

CREATE OR REUSE TRUST FRAMEWORKS

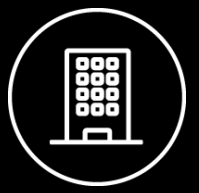
HOLDERS

NO MORE PASSWORDS

IDENTITY OWNERSHIP

DATA CONTROL AND TRANSPARENCY

VERIFIERS



BUSINESS PROCESS AND CUSTOMER EXPERIENCE

REDUCED RISK AND COMPLIANCE COSTS

LEVERAGE INFORMATION ECONOMY

Self sovereign identity use cases

Government

National Identity Management Systems

Registries - Land Registry

Healthcare

Voting

Government Funding

Tax and Internal Revenue Monitoring

Education

Digital transcript

Taking a test

Transferring schools

Online classes

Healthcare

Prescribing

Online pharmacy

Insurance claim

Travel illness

Finance

Reuse KYC

Money transfer

Closing account

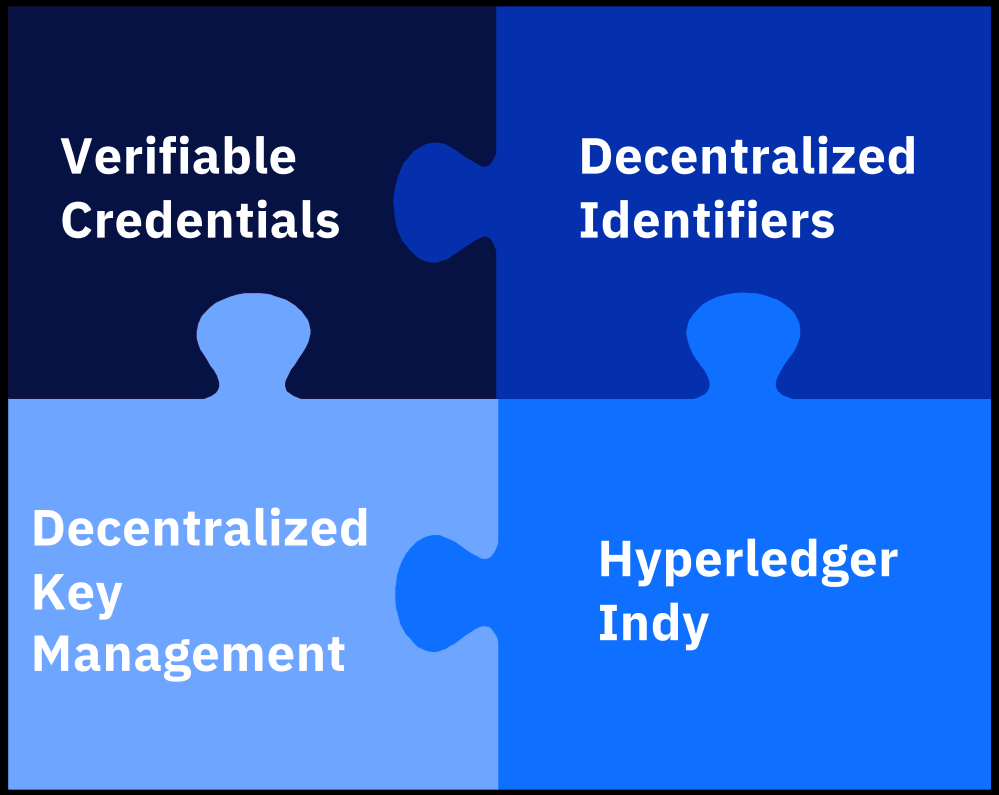
Trying new service

New bank account from home

Blockchain-enabled Decentralized Identity is a universal need

Use cases taken from https://w3c.github.io/vc-use-cases

The final pieces of the puzzle based on standards and open source



TAB 3

Presentation: Education State of the State

Dr. Buvaneshwaran (Eshwar) Venugopal

University of Central Florida

FLORIDA BLOCKCHAIN TASK FORCE

Buvaneshwaran (Eshwar) Venugopal

University of Central Florida

Buvaneshwaran (Eshwar) Venugopal is an Assistant Professor of Finance in the College of Business at the University of Central Florida. He received his Ph.D. degree from the University of Houston. He obtained his Masters in Banking and Finance and Master of Applied Econometrics degrees from Monash University, and his undergraduate in Computer Engineering from the National Institute of Technology, Jaipur. He has been a member of the UCF faculty since May 2018.

Eshwar's research interests are in the areas of corporate finance, entrepreneurial finance and FinTech. His entrepreneurial finance research focuses on the contribution of Angel investors to the startup ecosystem and the impact network connections among different players has on financing and performance. One of his works was featured in the Harvard Law School Forum on Corporate Governance and Financial Regulation. Eshwar's research has been presented at prestigious conferences such as Society of Financial Studies Cavalcade, ISB CAF Summer Research Conference, American Economic Association Annual Meeting, etc.

Before undertaking his graduate education, Eshwar worked as a systems developer in India and has developed Business Intelligence and Data warehouse applications for clients such as AOL and Chase.

Blockchain & FinTech @UCF

Eshwar Venugopal, Department of Finance
University of Central Florida

About UCF

- The University of Central Florida is an emerging preeminent research university located in metropolitan Orlando, Florida–founded in 1963.

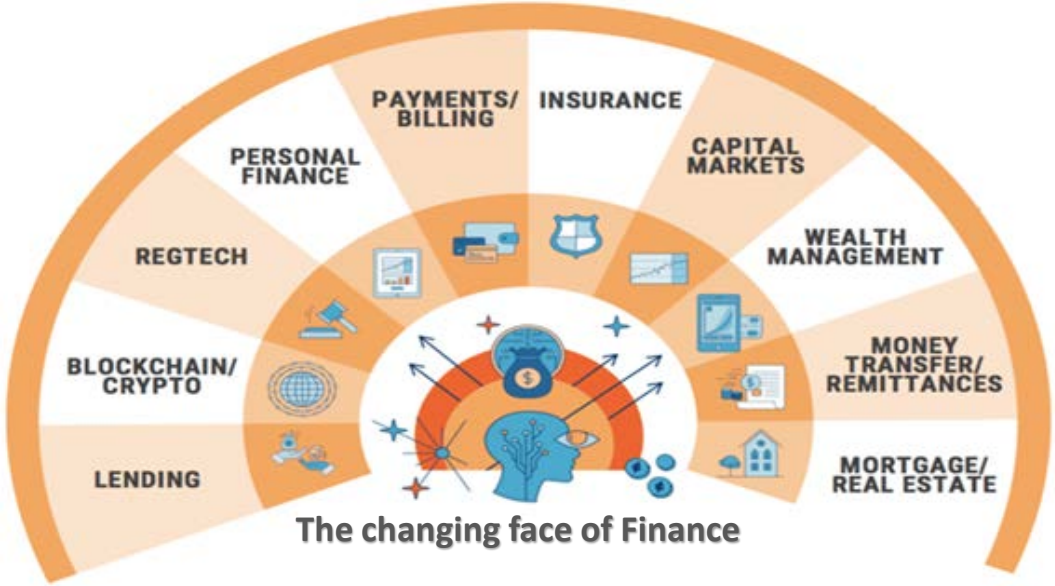
- With *more than 68,000 students*, UCF is one of the largest universities in the U.S.

- Among nation's *"Most Innovative Universities"* alongside Harvard, MIT, Stanford, Duke and Georgia Tech. — *U.S. News & World Report Best Colleges 2019*

Blockchain & FinTech @UCF

- Blockchain efforts at UCF revolve around our FinTech initiative.

- One of the *first FinTech program* in the U.S.
- Unique joint-venture between:
  - College of Business Administration
  - College of Engineering and Computer Science



About UCF College of Business

- A next generation business school that emphasizes a *culture of engagement with the business community*.
- Established in 1968, the college offers degrees to over *9,000* students at the bachelor's, master's, doctoral, and executive levels.
- Houses the Kenneth G. Dixon School of Accounting, Departments of Economics, Finance and Dr. P. Phillips School of Real Estate, Integrated Business, Management, and Marketing and the DeVos Sport Business Management Program.
- All programs are accredited by the Association to Advance Collegiate Schools of Business (AACSB).
- Named *one of Best Business Programs in the U.S.*— *U.S. News & World Report 2018*

About UCF College of Engineering & Computer Science

- Ranked in the *top 50 public graduate engineering colleges nationwide*—*U.S. News & World Report 2019*
- Offers programs to *over 11,000* students in civil, computer, electrical, environmental, industrial, materials, and mechanical engineering—all seven ranking in the Top 100—*U.S. News & World Report's Best Graduate Schools of 2018*
- Home to the *four-time national champion* UCF Collegiate Cyber Defense Competition Team.
- UCF produces more graduates who get jobs in aerospace and defense companies than any other U.S. university—*2016 Aviation Week magazine workforce study*

Master of Science in FinTech

The 1st Master's Degree program of its kind in the U.S.

UCF

M.S. in FinTech @UCF

- 2-year interdisciplinary masters program.
  - 30 credits in lockstep sequence.
  - 5 Finance course and 5 Computer Science courses.

YEAR	FALL	SPRING
Year 1	Computational Methods in FinTech I	Artificial Intelligence for FinTech
	Full Stack Development for FinTech	Computational Methods in FinTech II
	Strategic Financial Management	Foundations in FinTech
Year 2	Blockchains and Smart Distributed Contracts	FinTech Entrepreneurship (Capstone)
	Analysis of Investment Opportunities	
	FinTech in Decision Making	

- *Currently awaiting approval from the Board of Governors.*

What Industry is Saying

- *"...I do believe it will better prepare them to hit the ground running at financial services firms. There definitely is significant need for these skills in the financial services industry."*
  —Amol S. Naik, Former Partner, Goldman Sachs

- *"I believe every business school in the country will have to create a FinTech program within the next several years, due to the profound changes that are occurring in the finance industry..."*
  —Dr. David Yermack, Chair, Finance Department, NYU Stern School of Business

- *"…I am particularly impressed by the fact that your future graduates will have backgrounds and training in both engineering and finance. This program will be an asset not only to UCF but will also be a magnet for Central Florida for start-up activity in the FinTech space."*
  ***—Raj Trikha,* Head, Industrial, Energy and M&A Groups, KeyBanc Capital Markets, Inc.**

FinTech @Undergraduate

Minor and Certificate

FinTech @Undergraduate

- College of Business launched a Certificate and Minor in FinTech for in *Business* and *Computer Science* students Spring 2019.
- *Courses to earn a certificate*
  - Introduction to Business Analytics
  - Foundations of FinTech
  - FinTech for Decision Makers
- *Additional courses to earn a minor*
  - Introduction to Programming with C
  - Computer Science I

- Next step: Extend certificate to College of Engineering and Computer Science students

Blockchain @UCF

Students & Faculty Activities

Blockchain @UCF: Research

- Our faculty members at the *College of Business* and *College of Engineering and Computer Science* is actively conducting research on Blockchain and its applications.
  - Prof. Mainak Chatterjee was funded by *Florida Center for Cybersecurity* to study blockchain.
  - Prof. David Metcalf is the co-editor/author of the book *Blockchain Enabled Applications (2018)*.
  - *Sample research papers:*
    - Towards Characterizing Blockchain-based Cryptocurrencies for Highly-Accurate Predictions (Saad et al. (2018, IEEE Systems Journal))
    - Fighting Fake News Propagation with Blockchains (Saad et al. (2019, IEEE CNS)).
    - Towards blockchain-driven, secure and transparent audit logs (Ahmad et al (2018, ACM))
    - Economics of Blockchain-based Solutions (Venugopal (2019, WP))

- Partnered with Tel Aviv University to fuel Blockchain research and education.

Blockchain @UCF: Teaching

- Undergraduate Level:
  - 2-week introduction to building a Blockchain as part of *Foundations of FinTech* class.
  - We built a “toy” blockchain that can record transactions, reach consensus and mine blocks.

- Graduate Level:
  - A semester long end-to-end course on *Blockchains and Smart Distributed Contracts.*
  - Part of our proposed M.S. in FinTech program

- Doctoral Level:
  - Students conducting research on Blockchain (e.g., Dr. Ashar Ahmad)

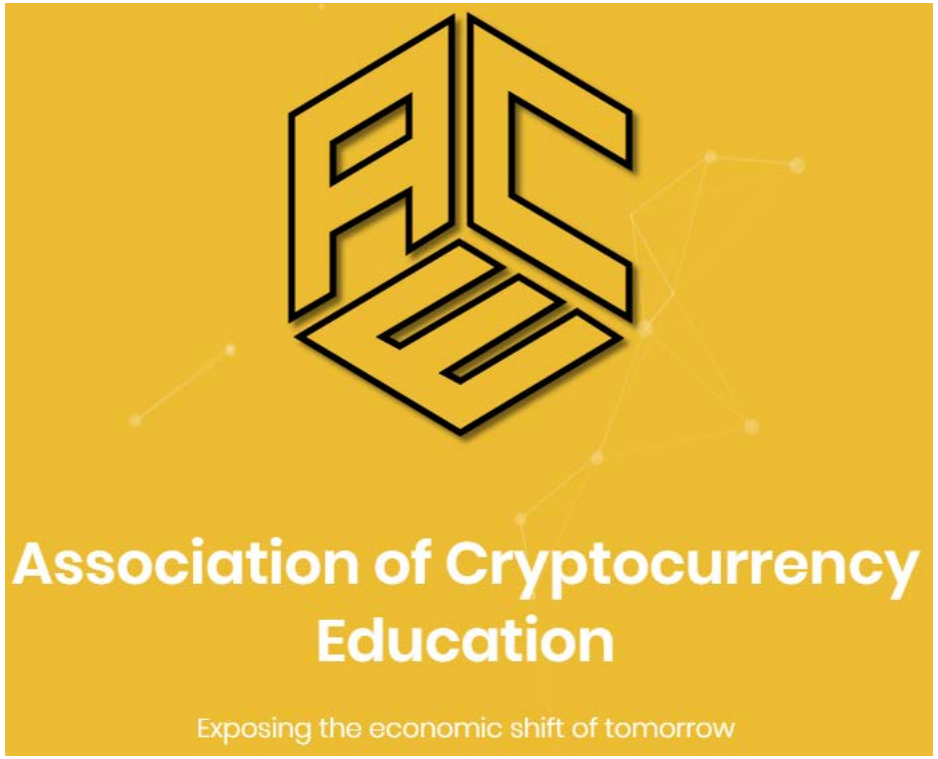
Industry Engagement @UCF

- The Finance and Computer Science departments are actively engaging the industry to form partnerships.
  - *Financial Institutions*: Goldman Sachs, Bank of America, Chase, Fairwinds, Addition Financial, etc.
  - *Startups*: FattMerchant, Betterment, TRON, etc.

- *Industry is at the forefront* of developing this fast-paced technology.
  - Industry involvement is necessary for promoting education and creating jobs in Florida.
  - *Bottleneck:* Industry experts without a doctoral degree cannot teach at our Universities.
  - More academia-industry collaboration is required to keep pace with labor market demand.

Blockchain @UCF: Student Engagement

- Cryptocurrency hype has led to an active student community studying Blockchain.
  - ACE, a student club, operating since 2017 helps to connect students with experts in the blockchain, smart contracts and cryptocurrencies.
  - Bi-weekly meeting/presentations by academic/industry practitioners and experts.



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UCF

Image Sources

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- UCF FinTech: http://business.ucf.edu/fintech
- Key Bank: https://www.key.com/
- DemeTree Global: https://www.demetreeglobal.com/
- ACE: http://ucfcrypto.com/
- FinTech Report: https://www.cbinsights.com/

TAB 4

Presentation: Education State of the State

Dr. Kaushik Dutta
Dr. Shivendu Shivendu
University of South Florida

FLORIDA BLOCKCHAIN TASK FORCE

Kaushik Dutta

University of South Florida

Kaushik Dutta has 22 years of professional and research experience in the field of enterprise IT infrastructure, data analytics and big data systems. He is professor in the Information Systems and Decision Sciences Department and his current research interest is big data analytics. Dutta's primary expertise combines operations research and data mining techniques with computer science systems knowledge to efficiently handle big data and manage large IT infrastructure. He has been the mentor of two startups out of USF in the NSF-iCorps program.

Prior to joining USF, Dutta was a tenured associate professor at National University of Singapore and Florida International University. Before starting out on his academic path, he pursued a career in engineering, most recently as the chief technology officer and vice president of engineering of Mobilewalla, a NUS-incubated and Madrona-funded company that developed big-data-based mobile advertisement platforms.

Dutta earned a PhD in management information systems from the Georgia Institute of Technology and a master's degree in computer science from the Indian Statistical Institute. He received a bachelor's degree in electrical engineering from Jadavpur University.

Shivendu Shivendu

University of South Florida

Shivendu Shivendu is an associate professor of information systems and PhD program coordinator in the Information Systems and Decision Sciences Department. He has created and taught undergraduate, MBA/MS and doctoral courses in areas related to economics of information systems, blockchain technology, FinTech, IT strategy and the design of information systems. He is the principal investigator on the prestigious White House initiated Federal TechHire grant of $600,000. He is the co-organizer of the "2018 State of the Region" conference held Tampa.

Shivendu's research focuses on the emerging business and policy issues at the intersection of technology, economics and public policy. He employs analytical, empirical and experimental methods to study technology mediated business models, economics of digitization of information, pricing of digital goods including content pricing in dual mediums, sourcing of IT services, security and privacy in big data, business challenges of cloud adoption, health IT and technology policy. His work has been published in information systems journals including Management Science, Information Systems Research, the Journal of Management Information Systems, and Information Technology Management. His research papers have won many best-paper awards in conferences.

He earned a PhD and a master's degree in economics from University of Southern California, Los Angeles, an MBA from the Indian Institute of Management, Ahmedabad; and a bachelor's degree in electrical engineering from the Indian Institute of Technology, Kanpur.

USF MUMA
COLLEGE OF BUSINESS
UNIVERSITY OF SOUTH FLORIDA

FLORIDA BLOCKCHAIN TASKFORCE: USF PRESENTATION

INTRODUCTIONS

Presenters

- **Prof. Kaushik Dutta**
  - Professor and Department Chair
  - Information Systems and Decision Science Department
  - Muma College of Business
  - University of South Florida
  - 20 years of experience in academics and Information Technology industry
- **Prof. Shivendu Shivendu**
  - Associate Professor and Ph.D. Program Coordinator
  - Information Systems and Decision Science Department
  - Principal Investigator, White House Techhire Federal Grant
  - Academic Advisor to Govt. of India on National Blockchain Strategy
  - USF NEXUS Grant 2019-20 Recipient

Team Members

- Dr. Kiran Garimella
  - Ph. D. in AI/Machine Learning (UF)
  - 30 years in IT & management; Chief Scientist & CTO, KoreConX; Global CIO (GE); VP for BPM (Software AG)
  - Author of 2 books on BPM and “AI+Blockchain: A Brief Guide for Game Changers” (foreword by Vint Cerf, co-founder of the Internet)
- Dr Priya Dozier, DBA
  - Faculty at USFSP
- Dr Bhuvan Unhelker, Ph.D.
  - Faculty at USFSM

USF MUMA
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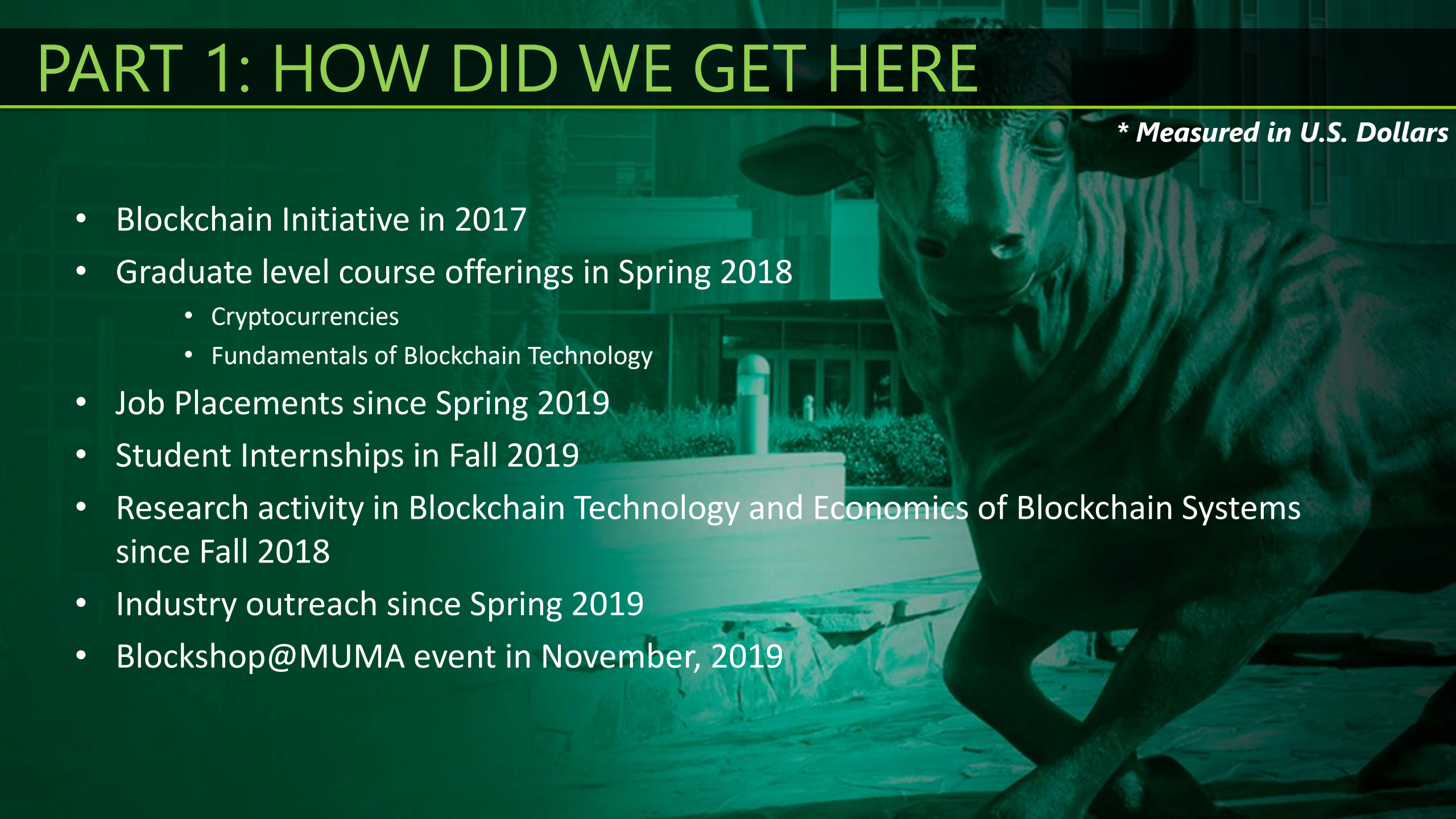
USF PERSPECTIVE: EDUCATION STATE OF THE STATE

OUTLINE

- **Part 1:** How did we get here?
  - A Little Bit of History of Blockchain@USF
- **Part 2:** Current Initiatives
  - Graduate Courses
  - Research Activities
  - Industry Outreach
- **Part 3: Future Plans: Work-in-Progress**
  - **Undergraduate Teaching**
  - **Specialization in Blockchain at Graduate and Undergraduate Level**

PART 1: HOW DID WE GET HERE

**** Measured in U.S. Dollars***



- Blockchain Initiative in 2017
- Graduate level course offerings in Spring 2018
    - Cryptocurrencies
    - Fundamentals of Blockchain Technology
- Job Placements since Spring 2019
- Student Internships in Fall 2019
- Research activity in Blockchain Technology and Economics of Blockchain Systems since Fall 2018
- Industry outreach since Spring 2019
- Blockshop@MUMA event in November, 2019

CURRENT INITIATIVES: GRADUATE COURSES

- Blockchain Fundamentals: Graduate Level Course
- Blockchain: A New Paradigm: Graduate Level Course
- Bitcoin, Cryptocurrencies and Blockchain

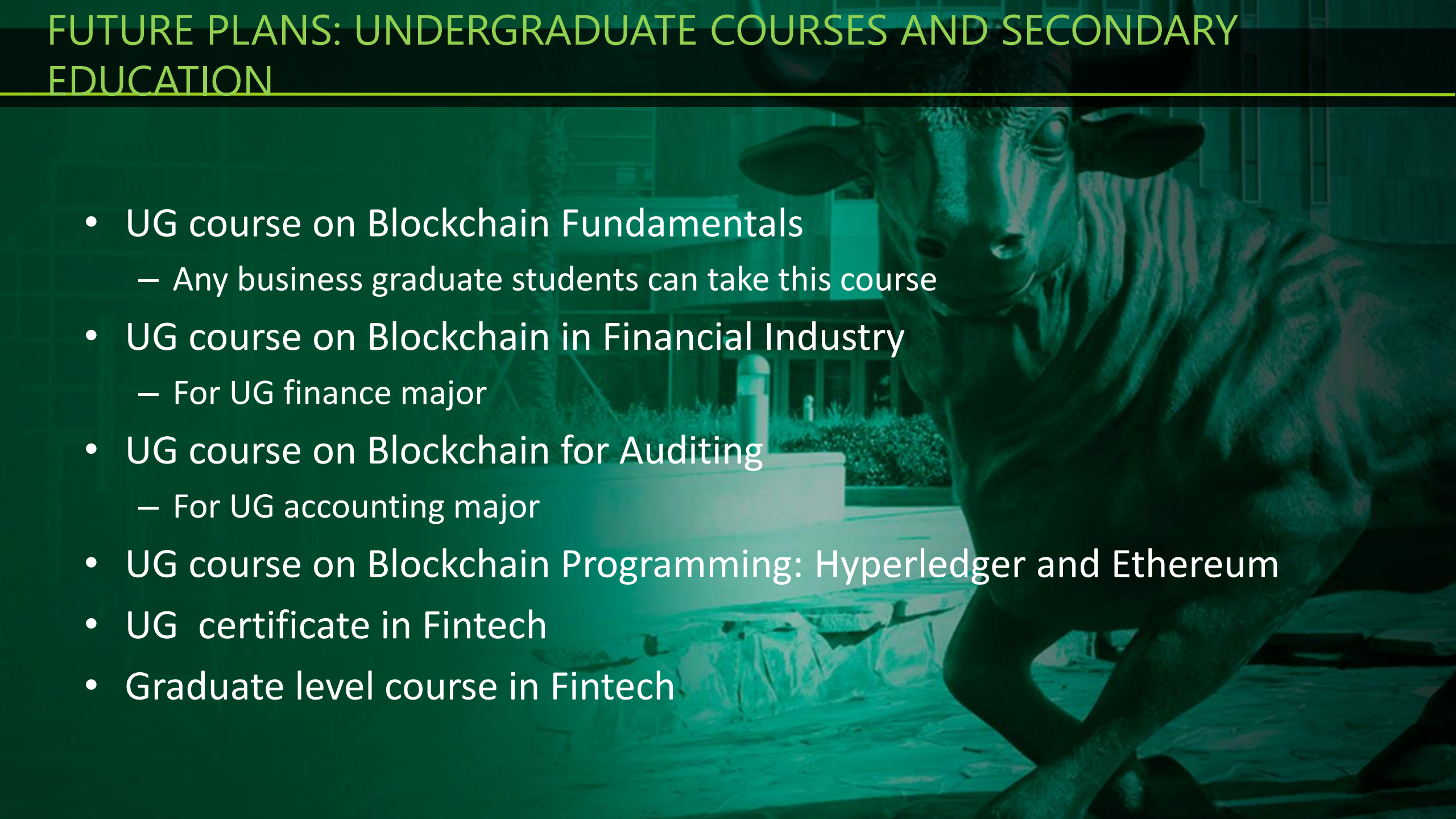
CURRENT INITIATIVES: RESEARCH

- Blockchain Based Resource Management System
  - Student Independent Project 2017
- Shared Goals and Resources: A Blockchain Model for Patient Care Delivery outside the Hospital
  - Collaboration with University of British Columbia, Vancouver
- A Better Categorization in Cryptocurrency Market: Clustering via Weighted Heterogeneous Information Network Embedding
  - Collaboration with South China Technological University
- Functional Safety of Blockchain Applications in Capital Markets
- Economic Modeling of Distributed Blockchain System as a Two-sided Platform
  - Jointly with a blockchain startup in Tampa
- Blockchain Based Integrated System for Land Registry
  - Collaboration with National Institute for Smart Governance, India
- Fair Sharing of Genetic Resources of Amazonia: A Conceptual Design of Blockchain System

CURRENT INITIATIVES: OUTREACH

- International Industry Collaboration
  - Canada
  - India
  - China
  - Hong Kong
- International Academic Collaboration
  - India
  - Hong Kong
  - Estonia
- Blockshop@MUMA forum

FUTURE PLANS: UNDERGRADUATE COURSES AND SECONDARY EDUCATION



- UG course on Blockchain Fundamentals
  - Any business graduate students can take this course
- UG course on Blockchain in Financial Industry
  - For UG finance major
- UG course on Blockchain for Auditing
  - For UG accounting major
- UG course on Blockchain Programming: Hyperledger and Ethereum
- UG certificate in Fintech
- Graduate level course in Fintech

FUTURE PLANS: MAKING BUSINESS CONNECTIONS

- Professional workshops and training on Blockchain
  - Healthcare
  - Financial Industry
  - Supply Chain
  - Auditing
  - Government agencies
- Setting up Blockchain Incubator for startups
- Focus & Perspectives
  - Enterprise Business Ecosystems
  - Economics
  - Legal and Regulation
  - Interoperatibility

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EDUCATION PANEL

USF PERSPECTIVE: OPPORTUNITIES AND ACTION AREAS

OUTLINE

- **Part 1:** Key technology pillars of blockchain
  - What problem does this technology solve and how
  - Network technology and Interface with legacy technology
  - Foundational nature of technology
- **Part 2: Opportunities**
  - New Academic Programs: Required technical and business skills
  - Knowledge transfer to educators
- **Part 3: Need for Coordinated Collaborative Efforts**
  - **Within and across universities**
  - **Within and across governmental agencies**
  - **With industry consortia**
  - **To nurture blockchain based products, services and business models**

PART 1:: TECHNOLOGY PILLAR: WHAT PROBLEM DOES IT SOLVE

- Consistency of data
- Validation of data
- Data sharing among multiple parties
  - that do not trust each other
  - do not require third party interventions

➢ Lowers the cost of data security

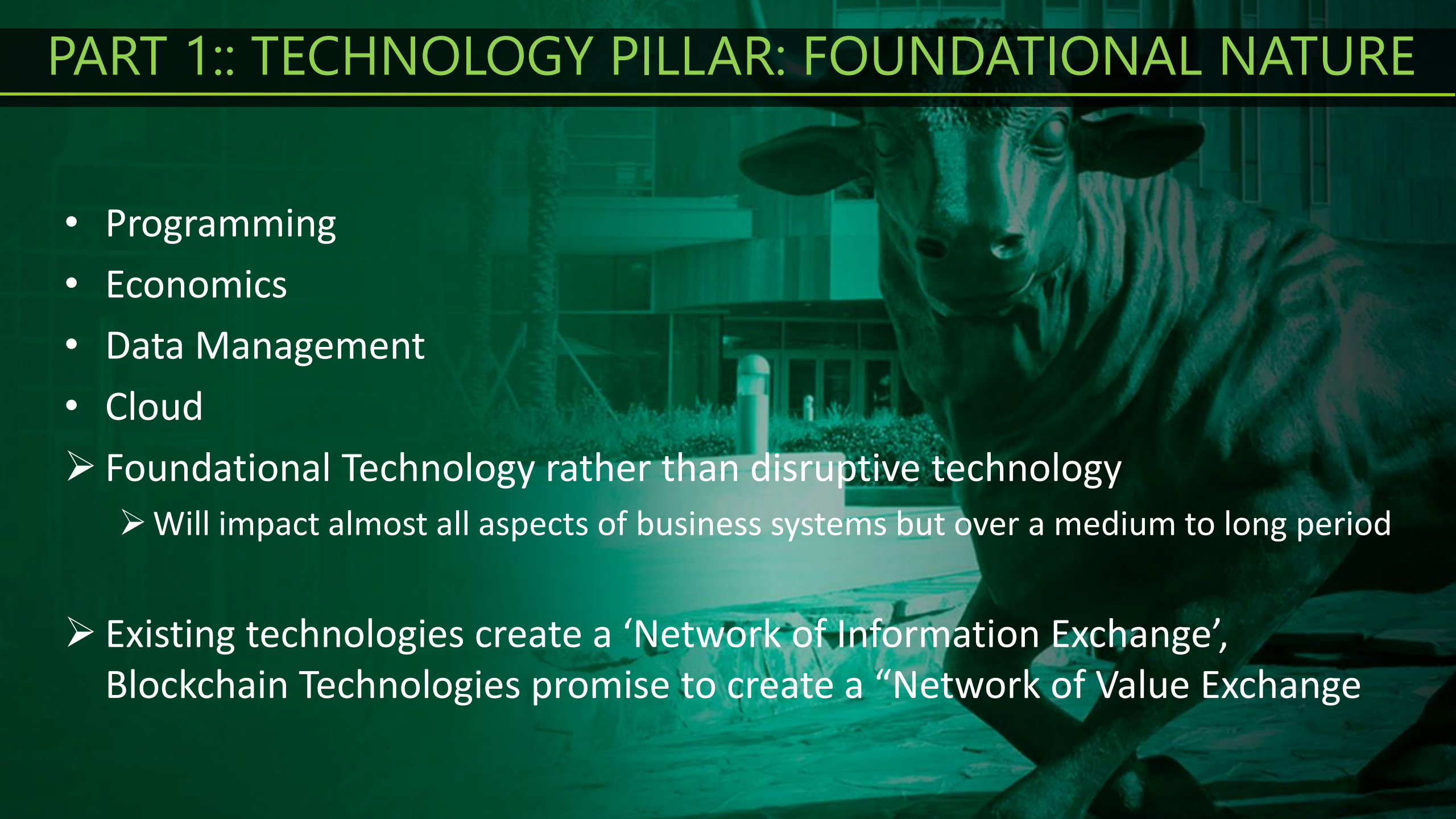
➢ Improves data privacy

➢ Lowers the cost and inefficiency of establishing and maintaining trust

PART 1:: TECHNOLOGY PILLAR: NETWORK AND INTERFACE

- Distributed in nature
- Cloud friendly
- Built-in security in place
- Signature and authentication management
- Management of ownership
- Modular architectures for flexibility

PART 1:: TECHNOLOGY PILLAR: FOUNDATIONAL NATURE



- Programming
- Economics
- Data Management
- Cloud

➢ Foundational Technology rather than disruptive technology

  ➢ Will impact almost all aspects of business systems but over a medium to long period

➢ Existing technologies create a ‘Network of Information Exchange’, Blockchain Technologies promise to create a “Network of Value Exchange

PART 2:: OPPORTUNITIES: NEW ACADEMIC PROGRAMS

- Existing workforce
  - Graduate Certificate Programs
  - Workshops and training
- Next generation workforce
  - Blockchain-related UG business classes
  - UG certificate / minor on Blockchain

PART 2:: OPPORTUNITIES: KNOWLEDGE TRANSFER

- Florida Conference on Blockchain
  - Academics and industry meets
- Business presentations and MasterClasses
- Research and insights publications

PART 3:: COORDINATED EFFORT: UNIVERSITIES

- Center for Blockchain
  - USF
  - Seed money
    - 100,000 USD Strategic Investment Pool Grant from USF
  - State fund
    - To support blockchain workforce training
    - Undergraduate academic programs

PART 3:: COORDINATED EFFORT: GOVERNMENT AGENCIES

- Workshops, training, certifications
- Maturity models for strategy, assessment, and value monitoring
- Creating better understanding about what this technology can do and not do
- Proof of concept solutions for state agencies
- Scaling up a few solutions to the state level

PART 3:: COORDINATED EFFORT: TO NURTURE INNOVATION

- Blockchain Center as key focal point for
  - Innovation in blockchain-based solutions
  - Innovation in blockchain business models
  - Plug-and-play incubator

TAB 5

Presentation: Education State of the State

Ken Baldauf
Florida State University

FLORIDA BLOCKCHAIN TASK FORCE

Ken Baldauf

Florida State University

Ken Baldauf is the Founding Director of Florida State University's Innovation Hub, where students from all disciplines work together, utilizing Design Thinking with emerging technologies, to confront the demanding and complex problems of our day. After over 25 years as an FSU faculty member with a background in music and computer science, Ken has pivoted from machine to human, now fostering curiosity, creativity, compassion, and innovation across the disciplines.

Through his Innovation by Design class, and through a wide variety of workshops, design sprints, and boot camps, Ken and his team teach and facilitate Design Thinking sessions that win hundreds of new enthusiasts each year.

Ken has authored several textbooks and has presented at educational conferences across the country. In addition to his work in academe, Ken serves on the Boards of Moonshot Florida, The Sharing Tree, and Cornerstone Learning Community, three organizations that exemplify the values that Ken holds dear.

TAB 6

Presentation: Education State of the State

Dr. Mark Jamison
University of Florida

FLORIDA BLOCKCHAIN TASK FORCE

Mark Jamison

University of Florida

Dr. Mark Jamison is the director and Gerald Gunter Professor of the Public Utility Research Center (PURC) at the University of Florida and also serves as the director of UF's Digital Markets Initiative. He conducts research on regulation and competition in telecommunications and information technology industries. He also provides international training and research on business and government policy, focusing primarily on utilities and network industries, having conducted education programs in numerous countries in Asia, Africa, Europe, the Caribbean, and North, South, and Central America. Dr. Jamison is also a research associate with the UF Center for Public Policy Research. He writes for the American Enterprise Institute and for The World Bank. He co-founded the Florida Blockchain Think Tank.

Dr. Jamison served on the US Presidential Transition Team in 2015-2016, focusing on the Federal Communications Commission. He is the former associate director of Business and Economic Studies for the UF Center for International Business Education and Research and has served as special academic adviser to the chair of the Florida Governor's Internet task force and as president of the Transportation and Public Utilities Group.

Previously, Dr. Jamison was manager of regulatory policy at Sprint, head of research for the Iowa Utilities Board, and communications economist for the Kansas Corporation Commission. He has served as chairperson of the National Association of Regulatory Utility Commissioners (NARUC) Staff Subcommittee on Communications, chairperson of the State Staff for the Federal/State Joint Conference on Open Network Architecture, and member of the State Staff for the Federal/State Joint Board on Separations. He serves on the editorial board of Utilities Policy. He is also a referee/reviewer for the International Journal of Industrial Organization, The Information Society, Telecommunications Policy, and Utilities Policy.

Blockchain and Universities in Florida

Mark Jamison
Director, PURC
mark.jamison@warrington.ufl.edu

What technology will be the most disruptive over the next five years?

a. Blockchain
b. Artificial intelligence
c. Quantum computing
d. The human mind

Outline

- What is Florida's competitive advantage?
- What helps new and established businesses leverage this advantage?
- What are the roles of Florida's universities?

Florida's Advantages

- NOT algorithms
- Making algorithms valuable in…
  - Tourism
  - Real estate
  - Agriculture, specialty crops and horses
  - Niche finance (e.g., Midsize banking)
  - Other: Government, Transportation

Leveraging the advantages

- Legal framework
  - Adapt existing laws
- Government applications
  - Technological leadership
- Entrepreneurial climate
  - Draw attention; Limit regulations

World Leaders

- Estonia: Government major user
  - E-Estonia initiative https://e-estonia.com/
  - Regulations https://www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/estonia
- Bahamas: Electronic ID program
  - https://www.coindesk.com/bermuda-starts-development-of-a-blockchain-based-national-identity-system

World Leaders (2)

- Catalonia: Electronic ID program
  - https://www.coindesk.com/catalonia-government-to-build-dlt-based-identity-platform-for-citizens
- Liechtenstein: Laws for token registration
  - http://www.loc.gov/law/foreign-news/article/liechtenstein-parliament-adopts-blockchain-act/

World Leaders (3)

- Switzerland: Incorporated blockchain issues into existing laws
  - https://medium.com/the-relevance-house/which-countries-have-the-most-blockchain-friendly-regulations-5a75b20e7f74
- Malta: Whitepaper-technology alignment
  - Same website

World Leaders (4)

- China
  - Centralized control
  - Same website

University Roles

- Education and research in the advantages' spaces
  - Blockchain in curriculum
  - Research on economics, practices, and impacts
  - Business collaborations
- Universities compete to attract students, business relationships, and funding

Final thoughts

- Disruptive breakthroughs always surprise us
- Occur every 10-15 years
  - iPhone was last one (2007)
- Next will combine blockchain, 5G, AI, and a human interface

Thank you!

TAB 7

Presentation: Opportunities and risks associated with using blockchain technology for state and local governments

Charles Ghini

Florida Blockchain Task Force Member

FLORIDA BLOCKCHAIN TASK FORCE

Charles Ghini

Florida Blockchain Task Force Member

With over 33 years of service to the state, Charles Ghini worked his way up from a COBOL/database programmer to his current role as Chief Information Officer (CIO)/Director of the Office of Information Technology (OIT) at the Florida Department of Financial Services in 2013. Charles oversees network and computer operations; application development; product development; and IT support to the Department, as well as the Office of Financial Regulation and Office of Insurance Regulation. He leads at DFS the development and implementation of policies and procedures for IT security, quality control, application development/maintenance and system availability.

Charles brings extensive technical and leadership experience from his previous roles as Director of the Division of Telecommunications at the Department of Management Services, Chief Operating Officer of the State Technology Office, and Network Director at Florida A&M University. Charles has had direct involvement in several critical enterprise IT projects, including SUNCOM, MyFloridaNet, and ERP implementation. He has focused his career on leveraging technology to maximize the efficiency and effectiveness of State of Florida agencies.

Charles holds a degree in Mechanical Engineering from University of Grenoble in France, and a Bachelor's degree in Computer Science from Florida State University.

"I am honored to have been selected by CFO Patronis to be a part of the Blockchain Task Force. l am excited at the prospect of working with CFO Jimmy Patronis and the members of this task force to help bring this innovative and life changing technology to the State of Florida and its Citizens."

-Charles Ghini

FLORIDA BLOCKCHAIN TASK FORCE

Florida Blockchain Task Force

Charles Ghini – CIO

Department of Financial Services

Why is Blockchain significant?

- Ingenious combination of technologies
- Technology behind a major worldwide IT system (cryptocurrency)
- Social relevance, people become passionate about this technology

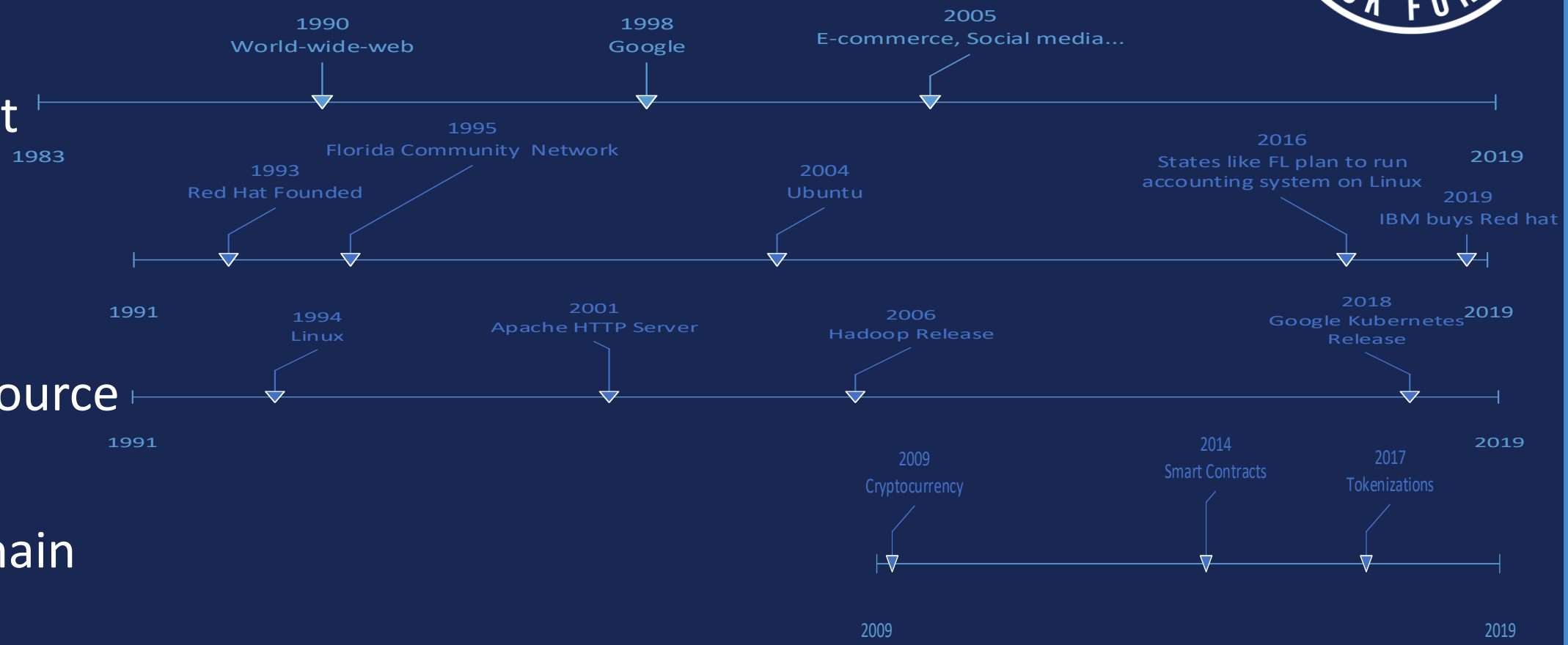
Déjà vu
What has history shown us?

- Blockchain is not unique; there have been similar Technology Movements in time…
    - Internet
    - Linux
    - Open source

History

The evolution of technology over time

- Internet
- Linux
- Open source
- Blockchain



Introspection

What we learned from our historical journey

State should:

- Be a good customer and active participant
- Be a consumer and provider
- Participate in Private Blockchain
- Determine what will be helpful for citizens
- Strive for homogenous governance

Considerations
What to keep in mind moving forward?

- Opportunities
  - Open to new technology potential
  - Consolidate & Co-ordinate as a State
  - Participate in the development
- Risks
  - Acting individually
  - Failing to take risks
  - Don’t forget who we are

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OPPORTUNITIES AND RISKS FOR GOVERNMENT
USF PERSPECTIVE: POLICY INITIATIVES

OUTLINE

- **Part 1: Government as an investor**
- **Part 2: Government as a facilitator**
- **Part 3: Government as a regulator**

PART 1:: GOVERNMENT AS AN INVESTOR

- Capital investment in talent and skill development
    - Undergraduate academic programs
    - Create programs for pre-college students
- Invest in supporting startups
- Invest in blockchain applications in government agencies
    - Demonstrate the benefits by making high risk investment
- Invest in Higher education in research, in knowledge leadership, and in assimilating global best practices

PART 2:: GOVERNMENT AS A FACILITATOR

- Play the role of coordinator
    - Very critical as blockchain is network technology
- Role as facilitator of sharing of knowledge and best practices
- Setup Blockchain Business Incubators

PART 3:: GOVERNMENT AS A REGULATOR

- Create blockchain strategy to align all stakeholders
- Create appropriate legal framework which balances risks and benefits
- Clarify policy framework to reduce business uncertainty

WHAT IS THE BEST WAY TO MAKE FLORIDA A LEADER IN BLOCKCHAIN?

- ❑ INVESTMENT IN HUMAN CAPITAL
- ❑ LEADERSHIP IN RESEARCH AND INNOVATION
- ❑ APPROPRIATE LEGAL AND POLICY FRAMEWORK
- ❑ SIMULATE, PROMOTE AND NURTURE BLOCKCHAIN STARTUPS
- ❑ TAKE THE LEADERSHIP BY ADOPTION IN GOVT.