Tailored Advisory Solutions
Modern Program Delivery
Speed to Market
Bottom-Line Growth
Superior Service

openIDL™

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Actuarial Society *of* Greater New York

AAIS
Member Focused Advisory Solutions

REV: 10/18

PRESENTED BY:

Truman Esmond

VP Solutions & Partnerships
AAIS
Chair, App Gov. Cmte. &
Technical Lead, **openIDL**

openIDL™

Understanding Blockchain for Trusted Products

ASNY Annual Meeting – November 25, 2019

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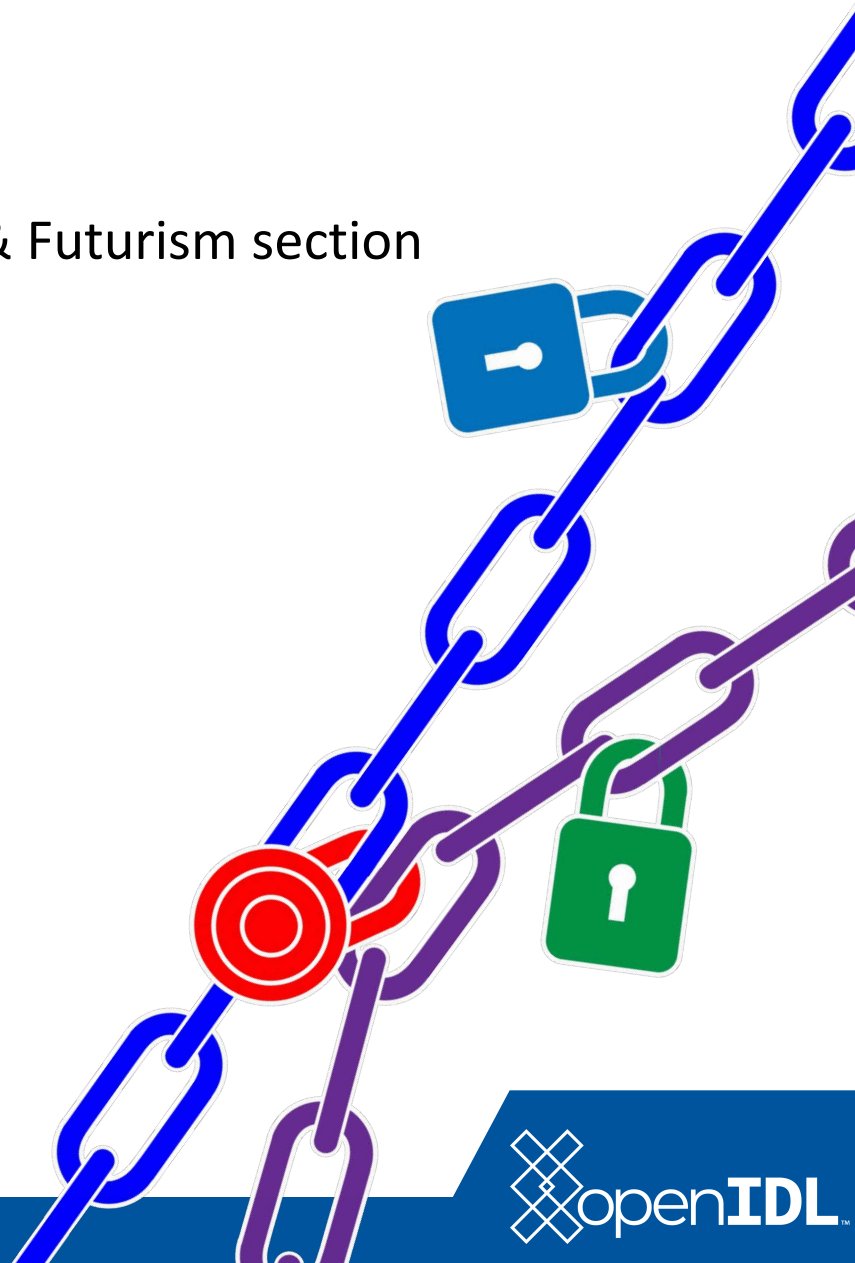
Welcome!

- …and Thank you
  - ASNY and the SOA Predictive Analytics & Futurism section
- …and Thank You for being here
  - Through the Hype
  - Patience and Perseverance
  - It's Challenging (for us to play nice)
- Journey from Analog Insurance Data
  - Distributed, immutable
  - Private, secure, timely
  - Standard and interoperable
- Actuaries+Blockchain
  = "Rules and Mechanisms of Trust"



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It's All About ~~Me.~~ Us.

- Truman Esmond – c'est moi.
  - VP Solutions & Partnerships @AAIS $$
  - Tech Lead & Chair Apps Gov. Cmte. @openIDL
  - Blockchain Platform Board Member @IBM
- Motive: Growing AAIS's openIDL Initiative
  - AAIS: Helping Insurance Change
  - Improve, Innovate – and Disrupt
  - Disrupted ourselves: openIDL
- Creating the Future - Need Actuaries

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WARNING: Your Perspective May Change

- Demands are Changing
- Automation is Coming
- Timing is Everything
- Focus on the Fun Part!

The Best Laid Plans…

- Introductions
- Blockchain Basics
  - Terms & Principles
  - Participating Peer
- Privacy, Security, Transparency = Trust
  - Alzheimer's Patient/IoT
- What if Data is Trusted?
  - Impact to Actuarial operations
- Next Things and Next Steps
  - Build/Join Communities

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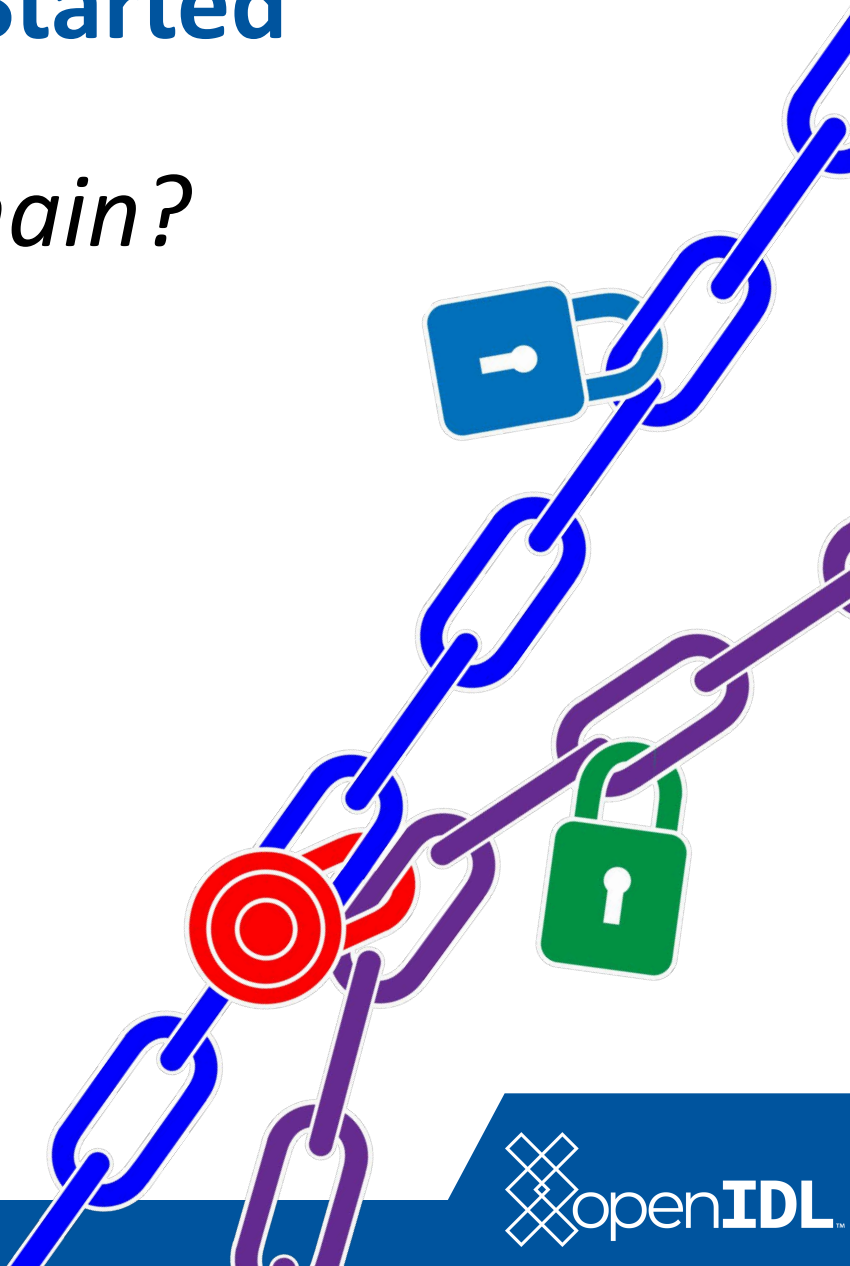
Baseline Before We Get Started

Could you explain Blockchain?

…to your manager/boss?

…to an intern?

…to an InsurTech CTO?



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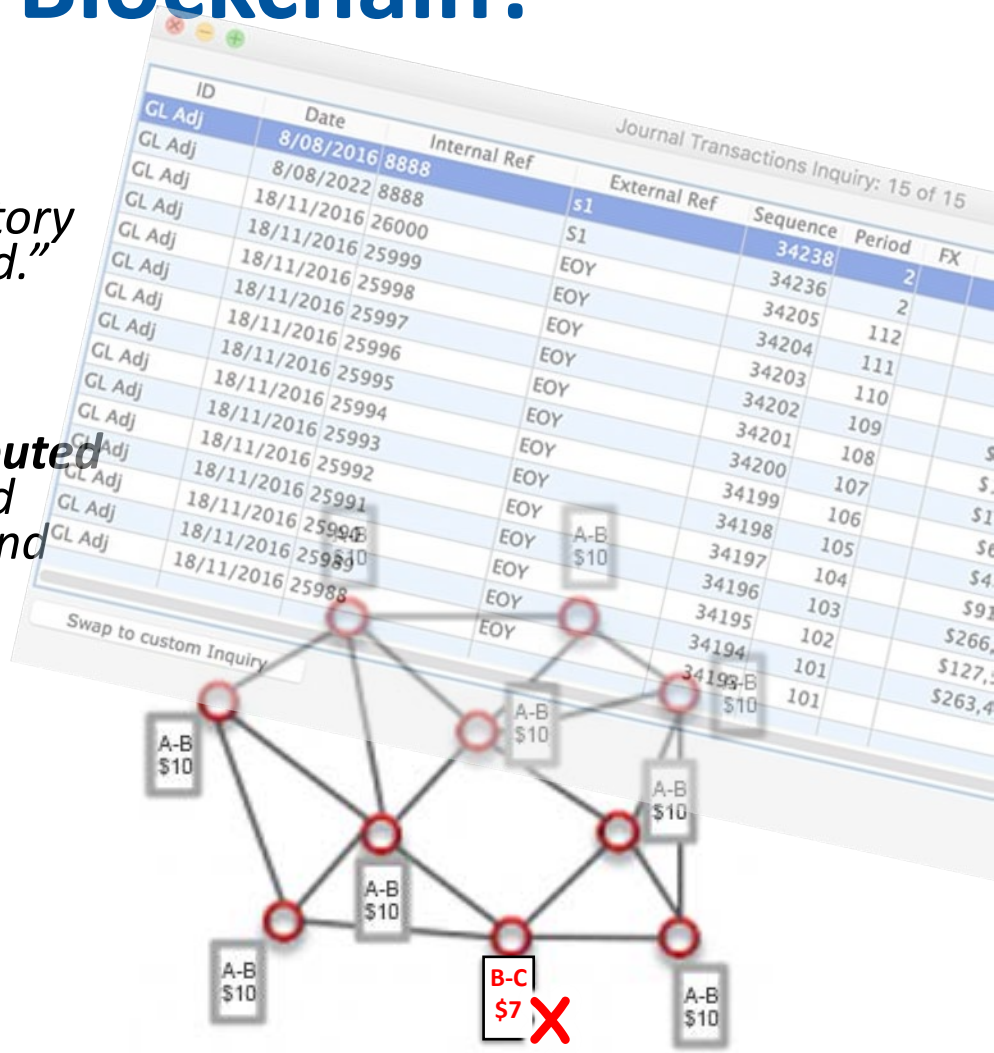
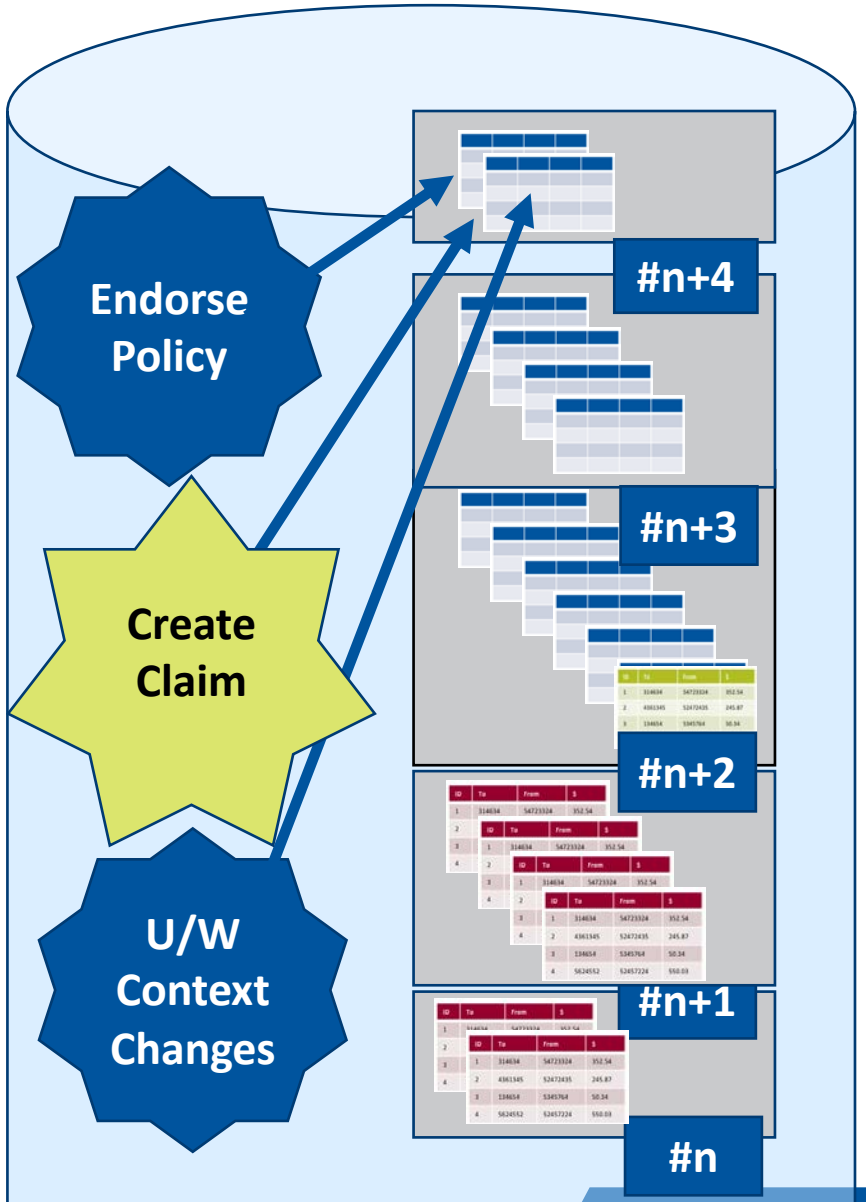
The Basics: So WTH is Blockchain?

- ***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
- *"Blockchains" today:*
  - *Interrelated Ledgers*
  - *support complex transactions*
  - *data security/isolation*
  - *enterprise use cases*
  - *private/permissioned networks*



Smart Contracts

- **Logical:** Automated, objective execution of “real world” contract terms, features or enforcement.
  - Parametric product feature
  - Triggered audit
  - Paid Commission
- **Technical:** Trusted computer code that defines and automates logic to add data to the Ledger and interact with trusted resources.
  - Stakeholder(s) create “chaincode”
  - Vetted by Community/Authority
  - Deployed by Governance
  - Executed by network Peer Nodes



Immutable Data and “Hashes”

- Immutable Ledgers and “on-chain” data issues
  - Weight members must bear
  - Enterprises don’t want data “shared”
  - Performance when ledgers are large
  - GDPR and “right to be forgotten”
- A “Hash” is a mathematical function to obscure the underlying data, and create a “fingerprint”
- “Hashes” of data (versus “raw” or “cleartext” data) are stored on-chain
  - to obscure/secure source data
  - create referential and data integrity evidence
  - with a lightweight and breakable pointer

Business Models on the 'Chain

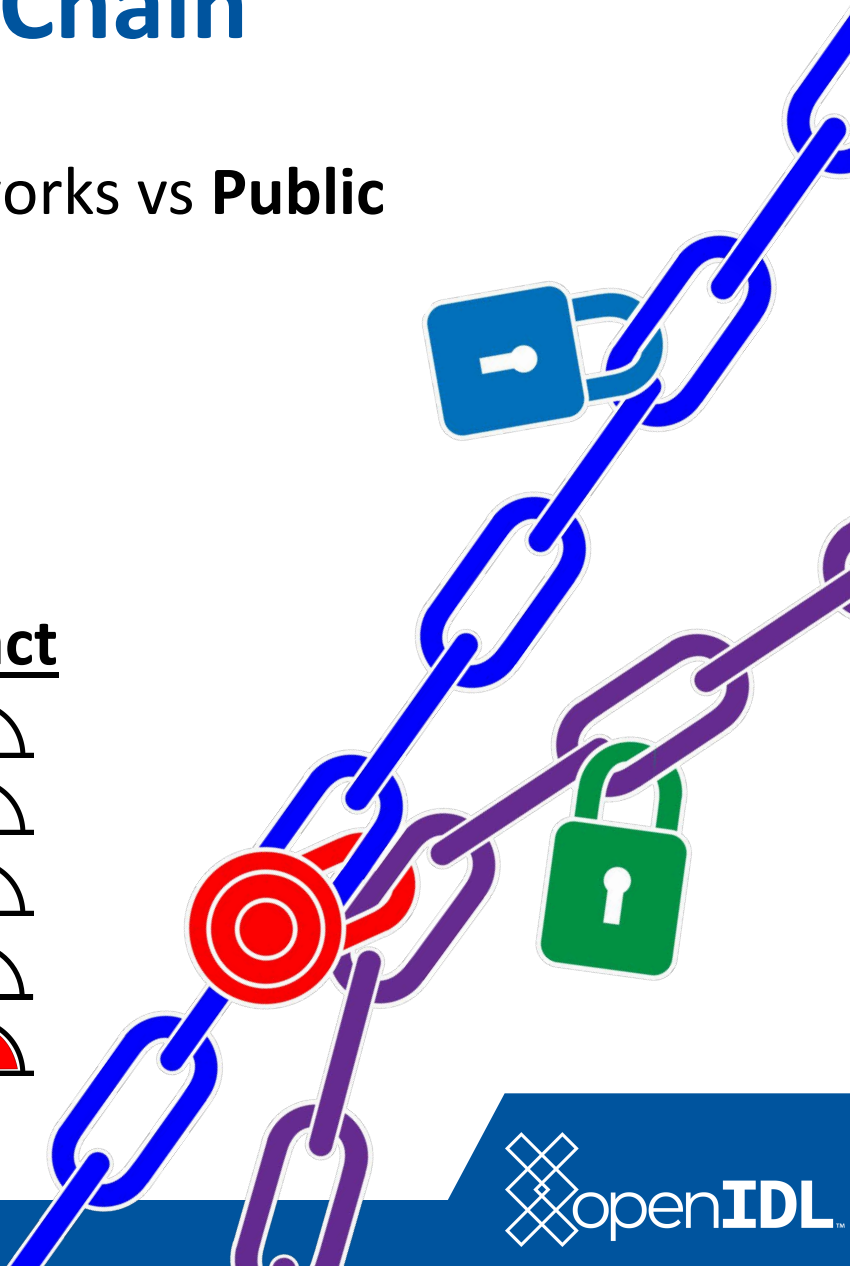
Private/Permissioned Blockchain Networks vs **Public**

- Known Organizations/Individuals
- Governance/Authority/Transparency
- Turn Network into ***Community***

Who's Committed?

Speed	**Impact**
Single Company/Pilot Model	
Founder Network (of **Partners**)	
Cross-Industry Network	
Competitor Network	
Policyholder Network	

EVOLUTION



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Blockchain in the Microverse

- Micro-nodes
- Smart Peers
- “Nested” Micro-Networks
- Dynamic Footprints

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A Robust Peer/Node Example

- Host Platform (Cloud)
- Deployment Architecture
- Ledger Technology
- Trusted Functions
  - UIs/APIs
  - Security
  - Datastore
  - ETL

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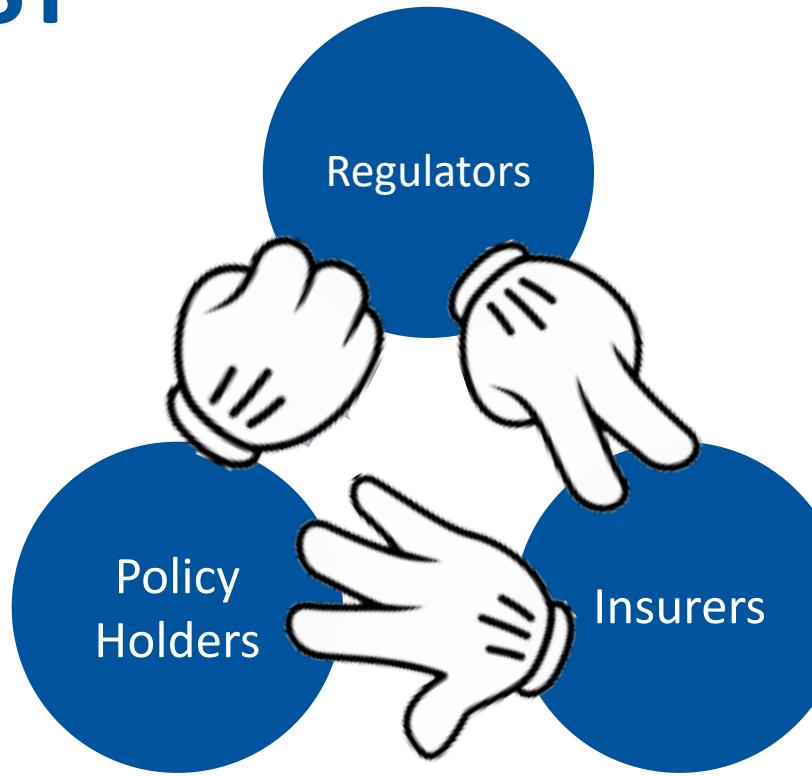
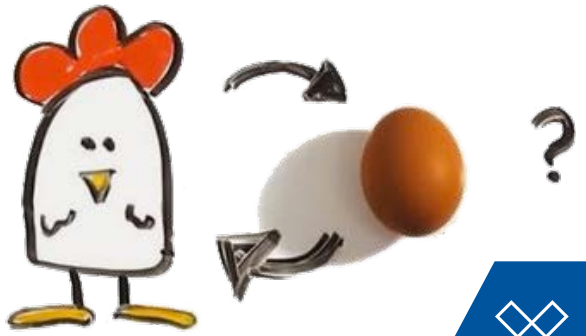
Business Model Key: TRUST*

- **Defining Protocols** of Value Exchange
  - Participating Organizations
  - Value Proposition(s): Clear *WHY*
  - Monetization Strategy
- **Governance**: Who Do You Trust?
  - Make & Change Rules
  - Transparency and Accountability
  - Trust is Earned: History of Success
- Industry **Adoption** Realities
  - Don't Trust Each Other
  - Don't Trust Others' Data (standard)
  - Don't Trust Blockchain (very far*)
    - Must define just ***how*** far





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Technology Maturity Update

- Blockchain in Production Today
  - Governed Networks
    - FoodTrust, openIDL, TradeLens
  - Founder-led Networks
    - TruTickets, Borsetta.io
  - International Examples
- Recent Highlights:
  - Technologies go Long-Term-Support
  - Physically settled BTC futures (Bakkt/ICE)
  - Cloud platforms offer DLT DBs & Enterprise BC
  - Facebook “Libra” Turns Up Pressure
  - Dozens of Pilots

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Example: IoT to Manage Alzheimer's

- Beginning to End
  - Diagnosis to Hospice
- Stakeholders
  - Patient, Provider, Payors
  - Platforms, Devices & Data
- Product Trust Points
  - Patient data privacy
    - Location, biometrics
  - Treatment Delivery
  - Objective Evaluation
  - Research and Development

AIz IoT Product - Trust Matrix

X Trusts Y to…	Patient	Provider	Platform	Payor
Patient		-Provide quality care -Track actions	-Data privacy -Data availability	-Authorize and pay for benefits. -Product support
Provider	-Follow MD orders -Report feedback -Prescription regimen -Environment support		-Data privacy -Support service provision	-Pay for services rendered -Transparency on payor rules.
Platform	-Use IoT devices right -Home support humans	-Treatment plan -Track actions Authorize/train		-Communicate and maintain parametric rules
Payor	-Pay premiums -Maintain UW criteria	-Provide care per terms and fee schedule	-Data privacy -Service Delivery -Data Quality	

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What If All the Data Was Available and…

- …You knew what all the data looked like
- …You knew where all the data came from
- …You knew it was updated in a timely fashion
- ….You could design a query “invitation” to meet a need
- …connected to multiple Trusted Data source
- How would it impact…
  - Product Development?
  - Product Maintenance?
  - Insurance Delivery?
  - Capital Reserving? Reinsurance?

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Preparing for What's Next…

- Microcurrencies for Macrosystems
  - Crypto for a purpose
  - Contextually Aware Tokens
  - Immutable vs Permanent
- Data Valuation & Exchange
  - Weights & measures
- Regulatory Adoption
  - Taxable Asset?

Communities Forming Near You…

- Consider points of trust across stakeholders today:
  - Marketing channels, underwriting
  - Compliance, finance, claims
  - Customers, partners, regulators, agents
- Consider opportunities
  - Value in timely access to that trusted, private data..
  - What would you ask of it and why?
  - What could you do if you only knew…?
- Engage others your community – the hard part
  - Even (especially) those that don't "look like" you.
  - Empathize with their concerns and objectives
    - Design Thinking techniques

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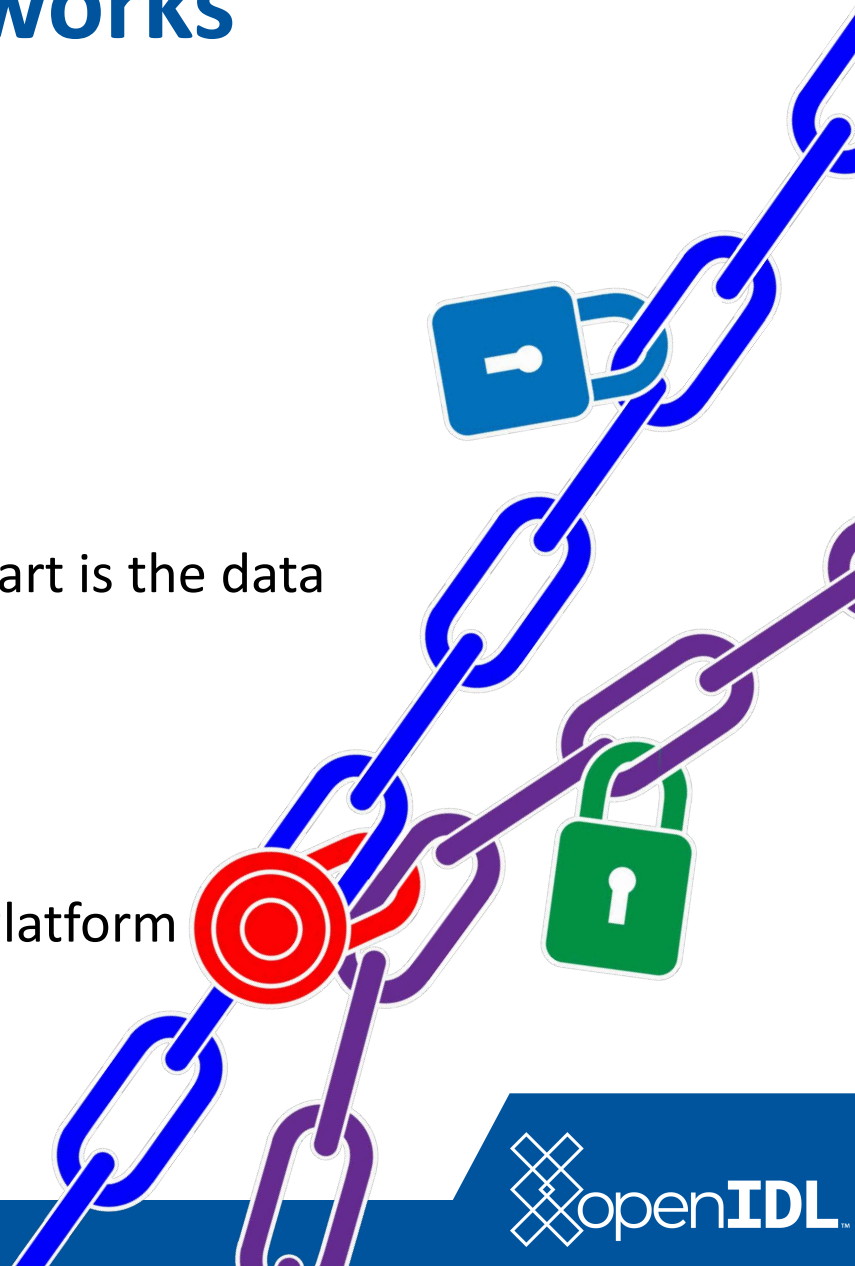
Engage Experienced Networks

- "New" Industry Consortia:
  - **R3** (Global Finance)
  - **B3i** (Reinsurance)
  - **RiskStream** (The Institutes; Carriers)
- Company efforts: **MetLife** – very active
  - Life/obit for opening claims
  - Diabetes pilot – learning that the hard part is the data
- Blockchain Companies:
  - **burstIQ**.com – medical data "Standard"
  - **Borsetta**.io – Trust at the edges
- **Hyperledger**.org
  - Free, Community-driven Enterprise BC Platform



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Industry Test Drive

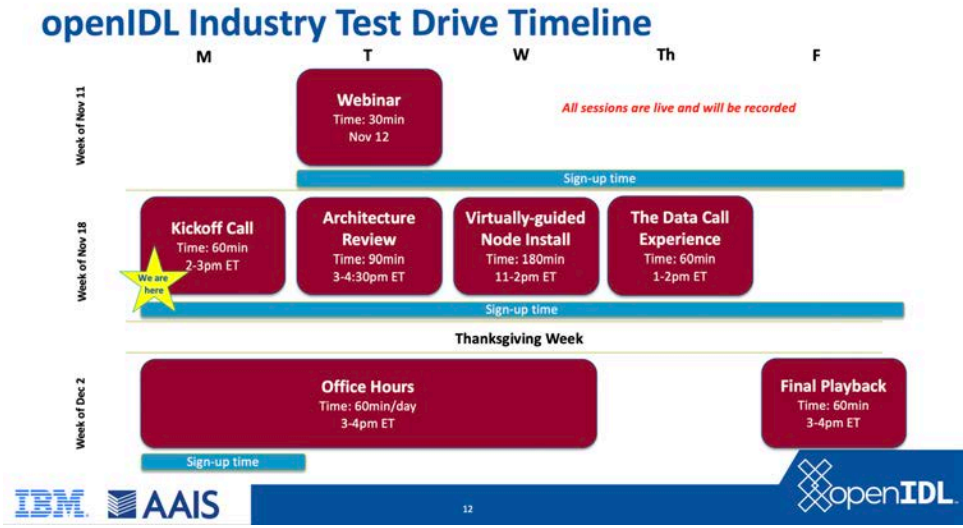
SUPPORTED BY: AAIS IBM

NOVEMBER 2019

Fast Track to Blockchain and openIDL

openIDL – Industry Test Drive

- http://www.openIDL.com
- Open “Ride Along” (Free, <4h)
- Easy “Test Drive” (<$2k, <8hrs)
- Get experience with:
  - Cloud/Kubernetes
  - Blockchain/Hyperledger
  - IBM Blockchain Platform
  - Experience as a Data Owner
- Supported by AAIS and IBM
- Iterative Quarterly (at least)
  - This Test Drive uses HO data
  - Visualizing Cause of Loss reporting



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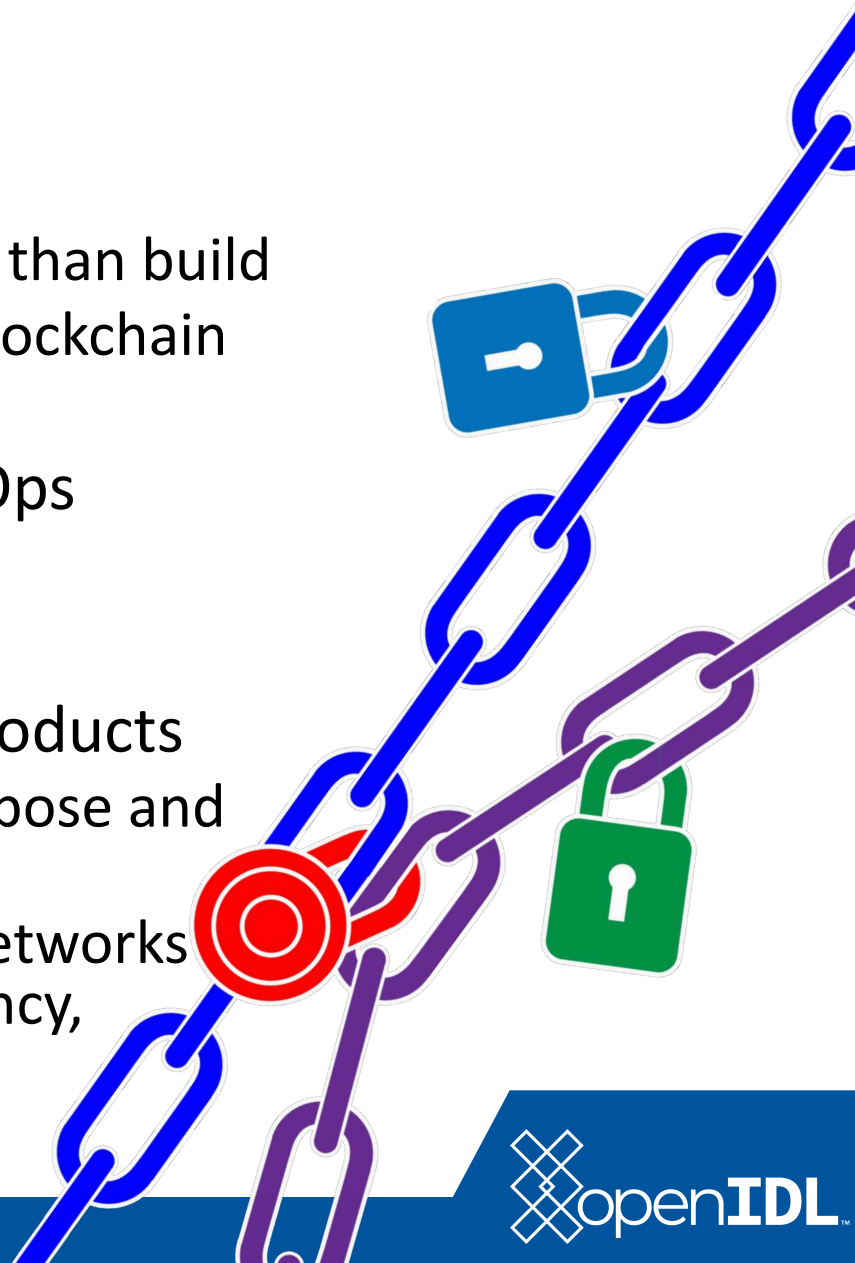
Recap & Wrap Up

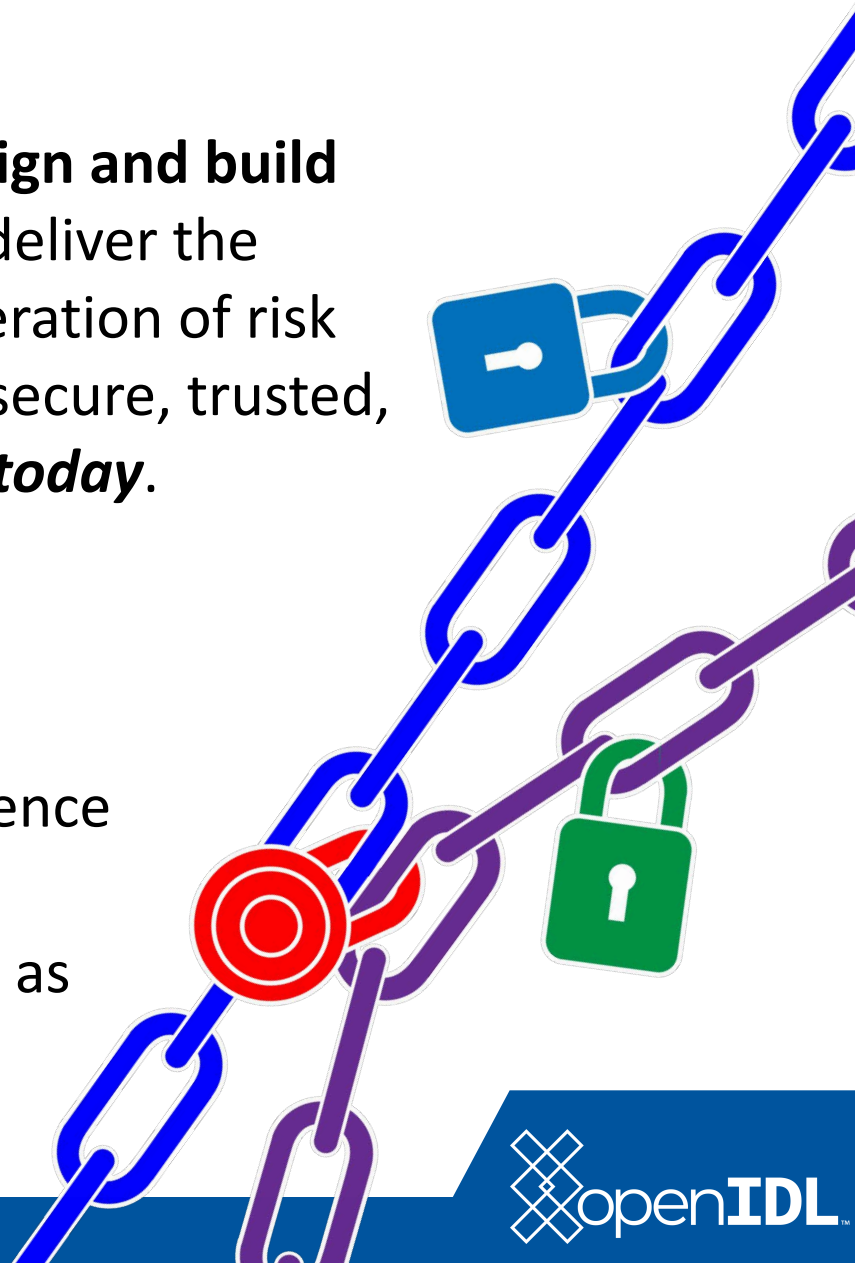
- Blockchain is ready for investment
  - more time than money, more design than build
  - multiple, master, micro and macro blockchain opportunities.
- Potential for blockchain in Actuarial Ops
  - Alzheimer's, leveraging IoT
  - Common Product/Actuarial Ops
- Putting it together for new trusted products
  - identifying those Points of Trust, purpose and value provided to each participant
  - Building empathy, and community networks with increasing openness, transparency, accountability and impact



Actuarial Opportunity

Opportunity for **actuarial scientists to design and build the rules of trust** for data and systems to deliver the products and experiences of the next generation of risk management products, based on private, secure, trusted, timely, standard and interoperable data – ***today***.

- Blockchain is mature enough to trust - a defined distance.
- It's important to Insurance, Actuarial Science and Trust in the future
- It's timely and easy to engage, especially as the books are being written.



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Thanks – See you at the Reception!

Learn more & Keep in the know:

- Visit: http://www.openIDL.com
- Email: openIDL@aaisonline.com

Truman Esmond
VP, Solutions & Partnerships
trumane@aaisonline.com

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