Blockchain in Insurance

An Overview and an Update on an Industrywide Initiative

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The Institutes
RiskStream Collaborative™

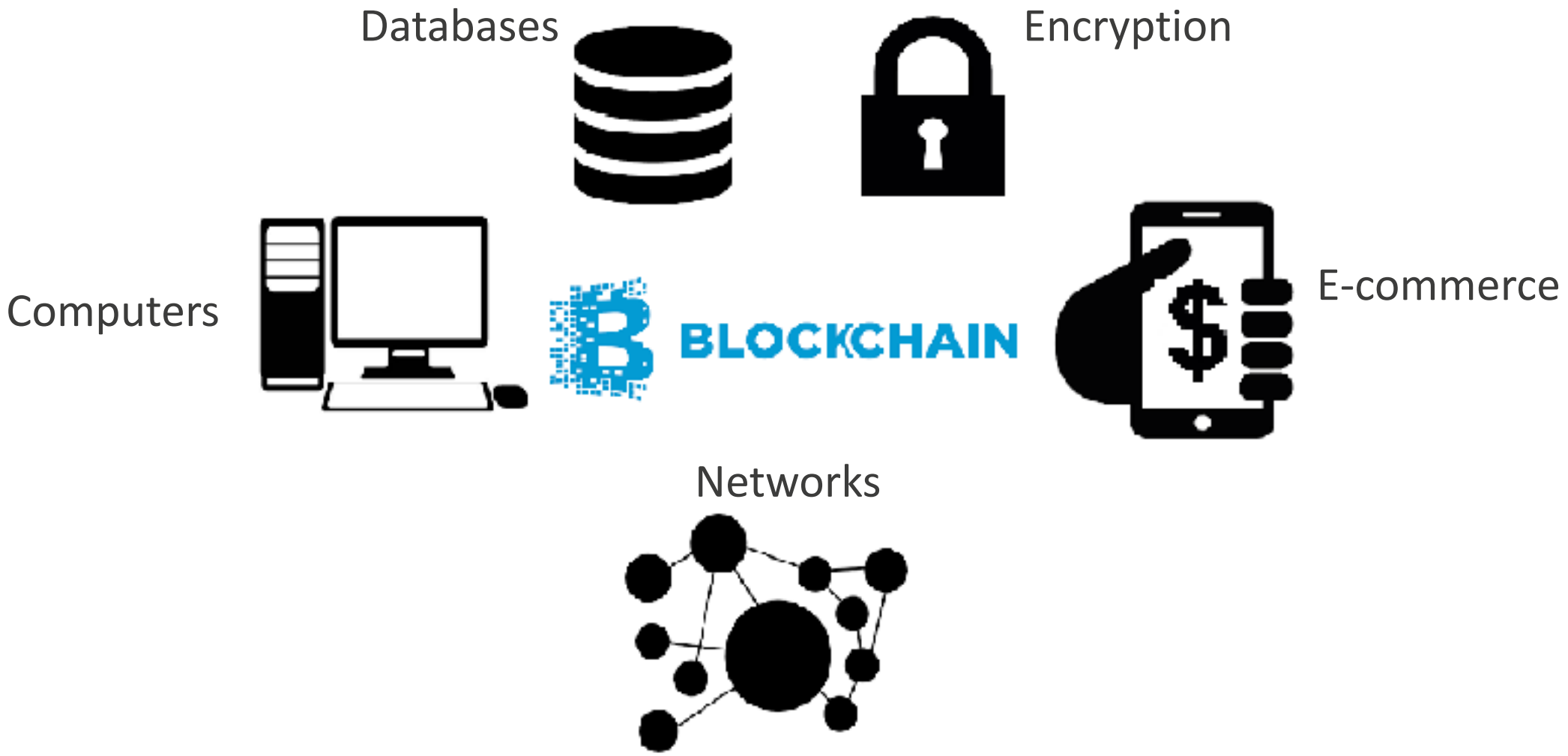
Outline for Today's Discussion

Part 1	Technological Advancement: The Building Blocks to the Blockchain	**Part 4**	Blockchain in Business
Part 2	Bitcoin – the First Blockchain	**Part 5**	Blockchain in Insurance
Part 3	What Exactly is a Blockchain? What does it do?	**Part 6**	Consortia Example

Part 1

The Building Blocks to the Blockchain

Blockchain Stems From Advances in Technology



Part 2

Birth of the Blockchain

Bitcoin: The Very First Blockchain

Originator:
Satoshi Nakamoto (pseudonym)

Bitcoin: A Peer-to-Peer Electronic Cash System

Satoshi Nakamoto
satoshin@gmx.com
www.bitcoin.org

Abstract. A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.

Watching True Transactions Come in

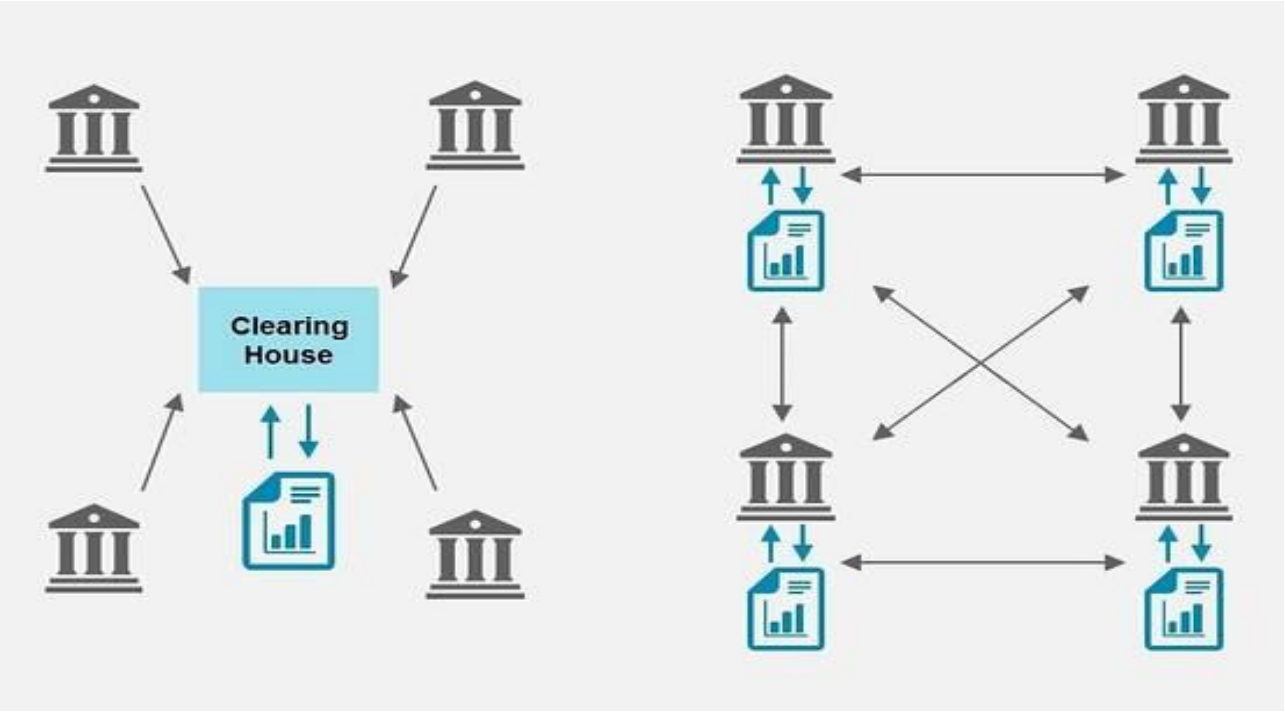
https://blockexplorer.com/

Part 3

What Exactly is Blockchain? What Does it Do?

Blockchain Fuses Database with Network and Establishes Trust

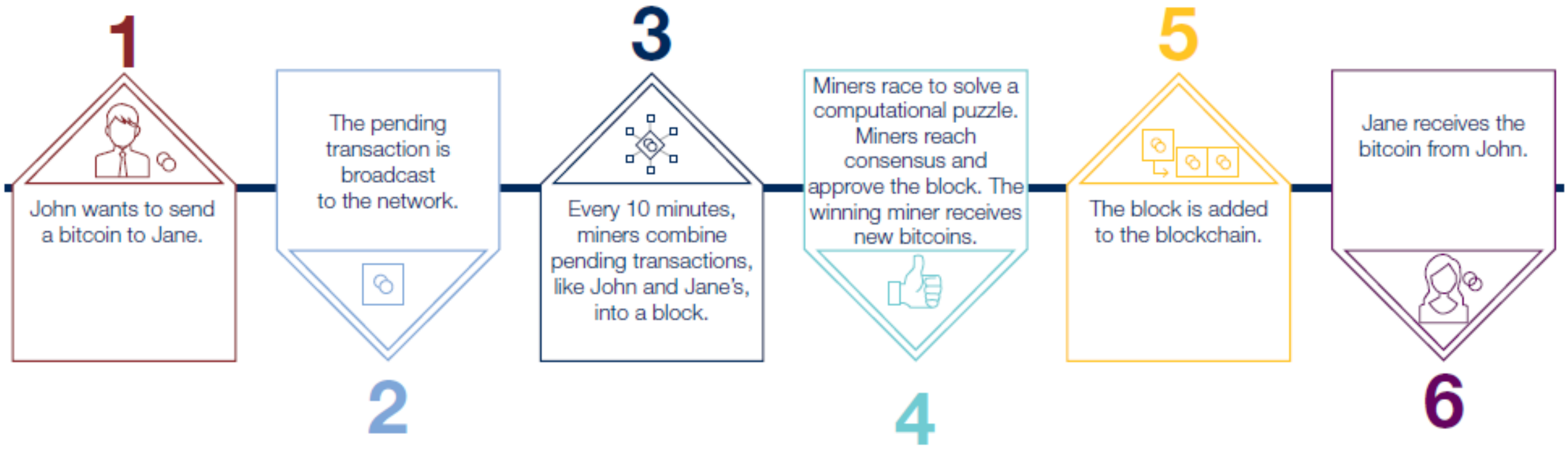
Blockchain is a distributed database and shared ledger that maintains a continuously growing list of chronologically added records called blocks. In most blockchains new blocks and the data within (transactions, smart contracts, and so forth) are confirmed and verified through a decentralized consensus process called mining. This verification process removes intermediary validation and establishes trust without the use of a centralized authority



Blockchain:

- Adding anything to ledger is permanent
- Solves double-spending problem
- Establishes trust and eliminates middlemen which:
  1) increases security
  2) tears down walls
  3) speeds up transactions
  4) improves privacy

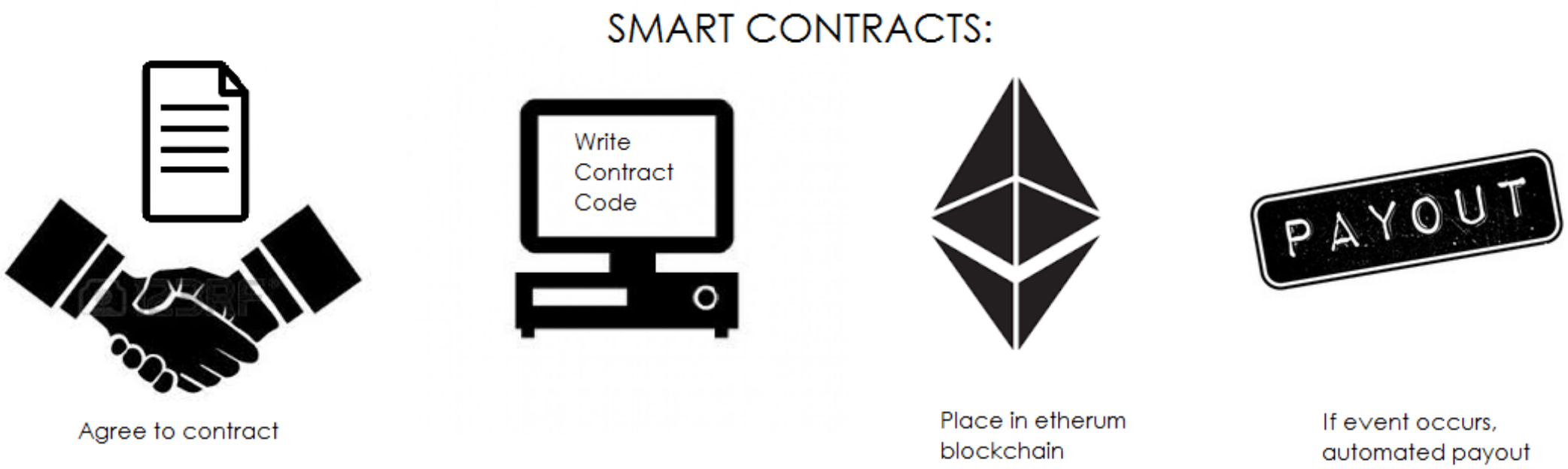
How the Blockchain Process Works



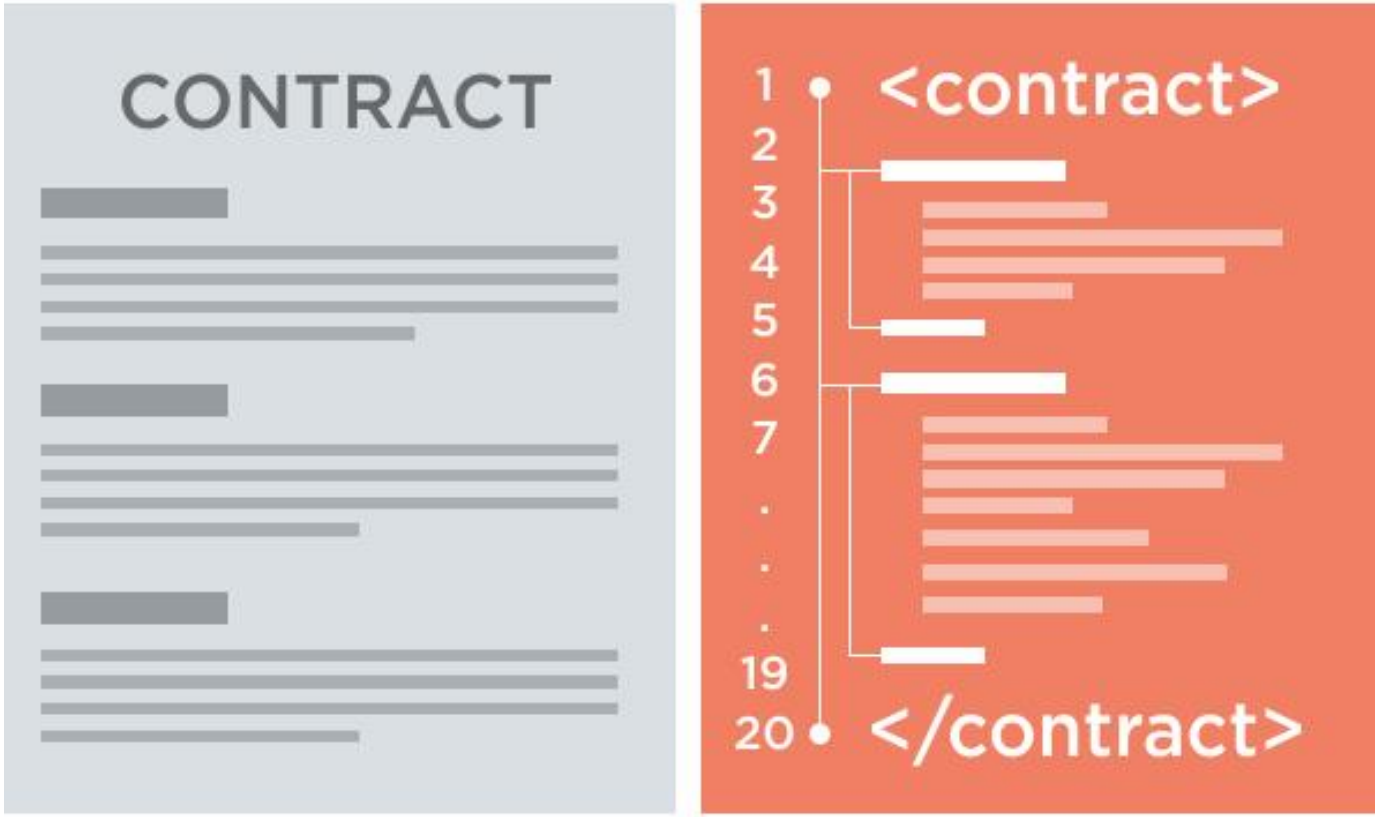
Other Public Blockchains: Ethereum

ethereum

Ethereum is a public blockchain-based distributed computing platform, featuring smart contract functionality. It provides a decentralized virtual machine, the Ethereum Virtual Machine (EVM), that can execute peer-to-peer contracts (smart contracts) using a cryptocurrency called Ether.



Smart Contracts



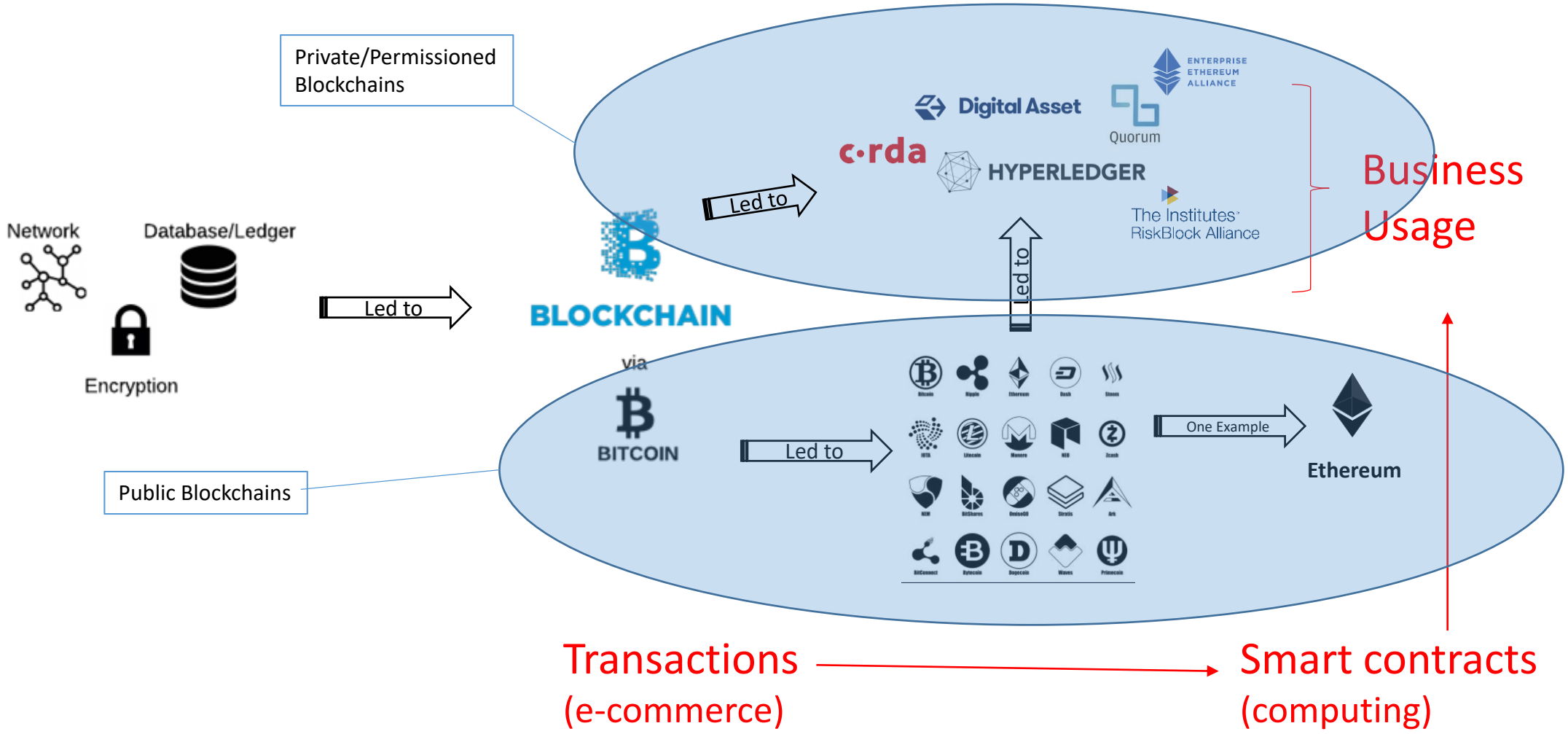
Smart contracts are just pieces of programmable code that can run in the blockchain.

The analogy of a series of “if then” statements works well to describe smart contracts.

Part 4

Overview of Blockchain for Business

Everything Started with Public Blockchains. They Can't Be Ignored.



Public, Private and Hybrid Chains

Public blockchain: A public blockchain is a platform where anyone on the platform would be able to read or write to the platform. This is a fully decentralized blockchain.

Private blockchain: A private blockchain allows only the owner to have the rights on any changes that have to be done. This could be seen as a similar version to the existing infrastructure wherein the owner (a centralized authority) would have the power to change the rules, revert transactions, etc. based on the need.

Hybrid (consortium or permissioned) blockchain: A consortium blockchain would be a mix of both the public and private. Wherein the ability to read and write could be extended to a certain number of people/nodes. This could be used by groups of organization/firms, who get together, work on developing different models by collaborating with each other. Hence, they could gain a blockchain with restricted access, work on their solutions and maintain the intellectual property rights within the consortium.

We are here

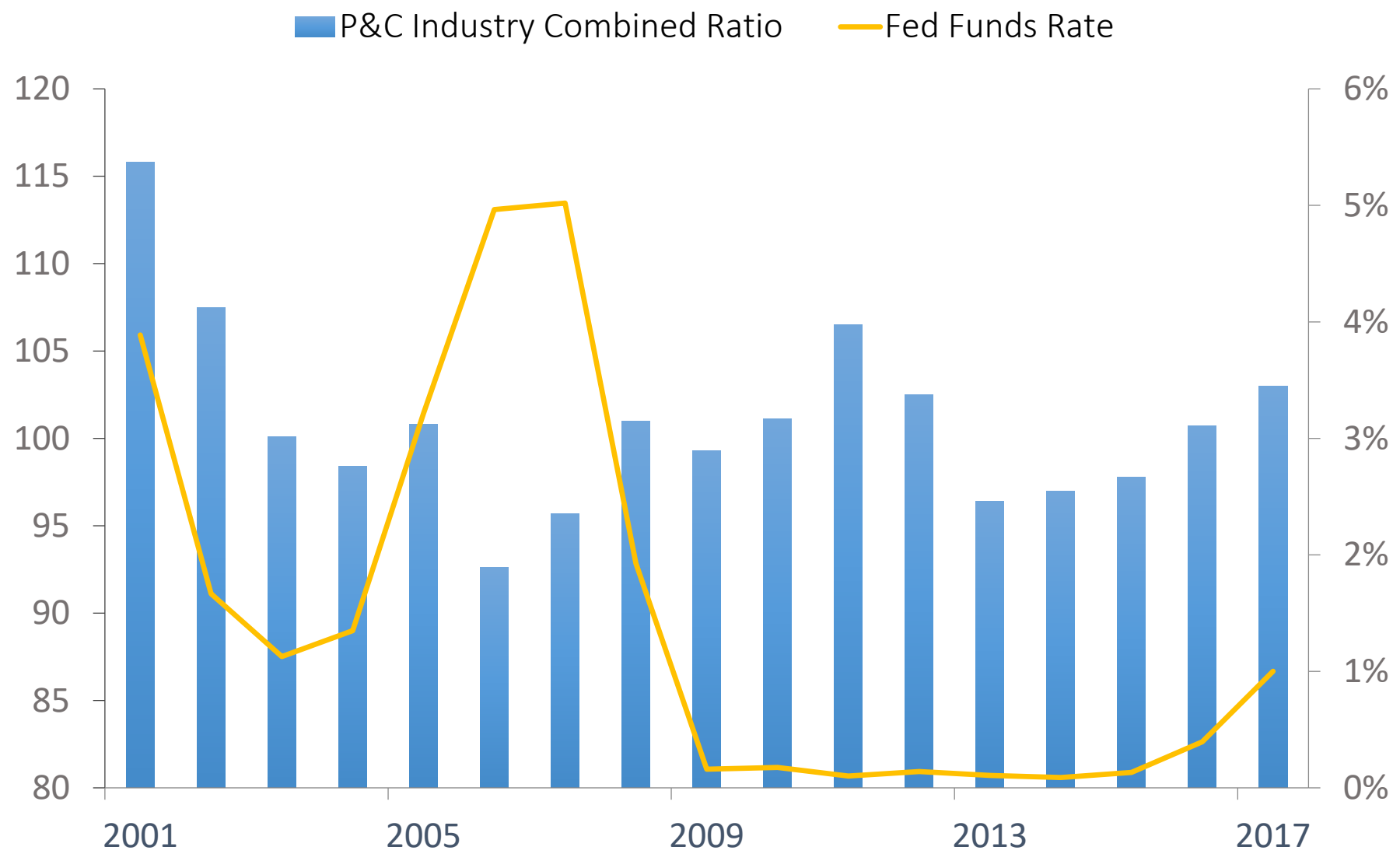
A Few Non-insurance Use Cases Under Development

1. Automobile Sales
2. Accounting
3. Banking
4. Education
5. Energy
6. Healthcare
7. Internet of Things
8. Mass Media Entertainme
9. Social Media
10. Supply Chain

Part 5

Blockchain in Insurance

Industry Focus is Shifting to Operational Efficiency



- Low interest rate environment
- Weak investment returns
- Constraining Insurer profitability
- FOCUS:
  - Operational Efficiency

Why Blockchain or DLT for Insurance

The Institutes RiskStream Collaborative:

Vision & Value Proposition

The Riskstream Collaborative

Vision

Our Vision of the Future

The Institutes RiskStream™ Collaborative aims to create an ecosystem within the risk management and insurance industry that leverages a scalable, enterprise-level blockchain/digital ledger technology framework to streamline the flow and verification of data in order to lower operating costs, drive efficiency from improved processes, and enhance the customer experience

Mission

Our Reason for Existence

- Lower member costs through automation and streamline member activities to drive efficiencies
- Enable risk management and insurance organizations to better serve their customers
- Develop first enterprise-level blockchain/DLT architecture framework flexible enough to support cross-industry use cases and data transactions
- Facilitate the creation and adoption of blockchain and distributed ledger applications for insurance
- Become the leading community of blockchain and insurance thought leadership

Pillars

Key Communication Concepts & Pillars

Industry's first, scalable Enterprise Blockchain/DLT Model	Accelerated adoption through real-world application	Supported by 100+ years of consensus-driven, unbiased TI knowledge and experience	The Blockchain Standard-Bearer in Risk & Insurance
Functional Value	*Important Philosophy*	*Emotional Value*	*Strength and Culture*

Value Proposition

First true industrywide risk and insurance consortium cutting across all insurance industry sectors

Multiple Use Case build approaches: Member Only, Collaborative, Solution Provider Focused, RiskStream Only or a Hybrid of any of these options

Backed by The Institutes and trusted by the Risk and P&C Insurance industries for over 100 years

No storage of members' important data on the Blockchain

Partnering with LIMRA to bring Blockchain To the Life, Annuity and Retirement space

Platform agnostic, supporting the building of and communication between various current and future flavors of Blockchain

Collaborating with multiple industry associations across the Insurance space

Build once, use many approach to architecture, use cases and reusable tool kit components

Non-biased, industry focused non-profit and member owned

No science experiments! Focused on creating real world production applications that bring value to members

Certified Blockchain Professional and Certified Blockchain Engineer programs

Certified RiskStream Ready Designations for Solution Providers

Why Blockchain or DLT for Insurance?

Pain Points

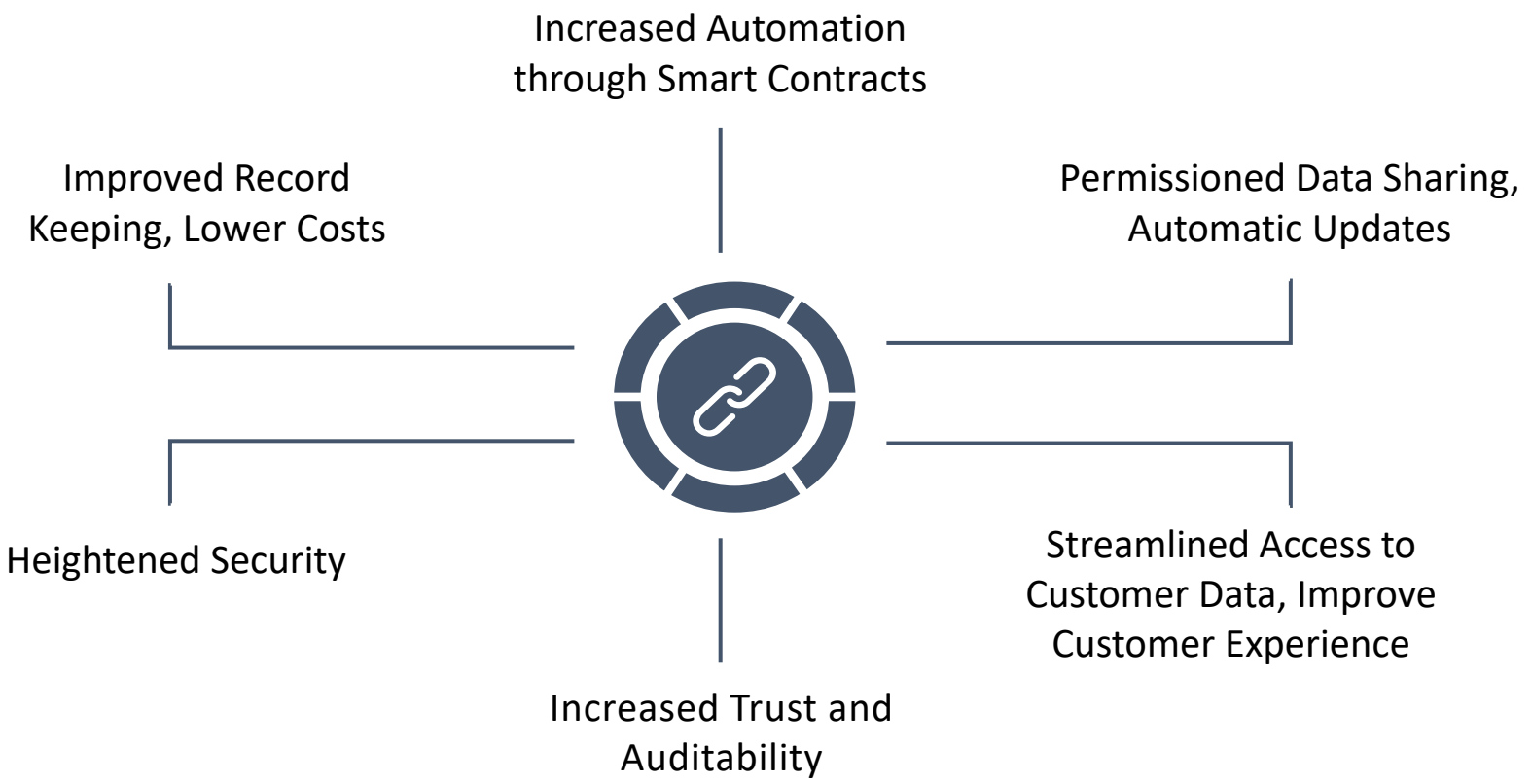
Insured

- Poor Customer Experience
- High Premiums
- Slow Entry into Emerging Markets
- Weak Product Innovation

Insurer

- High Administrative Costs
- Costly Intermediaries
- Fragmented Data Sources
- Manual Processes
- Fraud Prone
- Stringent Regulation

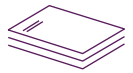
Benefits



Blockchain Use Cases Across Entire Insurance Value Chain





Products, Pricing & Distribution	Underwriting & Risk Management	Policyholder Acquisition & Servicing	Claims Management	Finance, Payments & Accounting	Regulatory & Compliance
Parametric Insurance	Provenance	Policyholder Acquisition	First Notice of Loss Data Sharing	Subrogation	Motor Vehicle Proof of Insurance
Oracle aggregation service	Data Sharing and Risk Registries	Document Reconciliation (Placement Documentation)	Asset Transfer (Certificate of Title–IoT)	Workers Comp Bill Review and Medical Claims Processing	Real-time Regulatory Reporting
Telematics or IoT-Based Use Cases	Self-sovereign IDs Linked to Insurance	Surety Bonds (verification/validation)	Worker's Compensation (EMR)	Reinsurance (Premium/Loss Cessions/Execution of Treaties)	Agent/Broker Licensing
Insurance for transactional purchases	Digital Twinning	Certificates of Insurance	Fraud Registry	Technical Accounting (maintaining/sharing of financial records)	Sovereign ID (KYC/AML)
Microinsurance Mobile Insurance for Developing Countries	Marine Use Cases	Policy Cancellation and Non-Payment (use of smart contract to trigger)	Multi-layer claims settlement	Surety	Auto Titles
Peer-to-Peer Insurance	Creation of a Repository of Truth for Underwriters	Onboarding and Policy Administration/Customer Service Requests	Marine Claims Management	Multiple Payees	Education Licensing

Blockchain Use Cases Across L&A Insurance Value Chain

Products, Pricing & Distribution	Underwriting & Risk Management	Policyholder Acquisition & Servicing	Claims Management	Finance, Payments & Accounting	Regulatory & Compliance
1035 Exchange	Creation of Repository of Truth for Underwriters	In-Good Order Validation	Mortality Monitor	Commission Schedules	Licensing & Appointment
Product Version & Associated Rider Data	Health Records	Document Administration, Servicing & Delivery	Fraud Registry	Commission Settlement & Process	Product Filing & Certification
Product Ledgers	Client On-boarding	In-Force Transaction Activity	Insurance “Smart Contracts”	Additional Policy Payments	Tax Reporting

RiskStream: What Was Accomplished Since Last June?

Accomplishments Through 2018

July 2016
Thought Leadership Begins

February 2017
TI Board Requests Launch of Four Working Groups Members Join

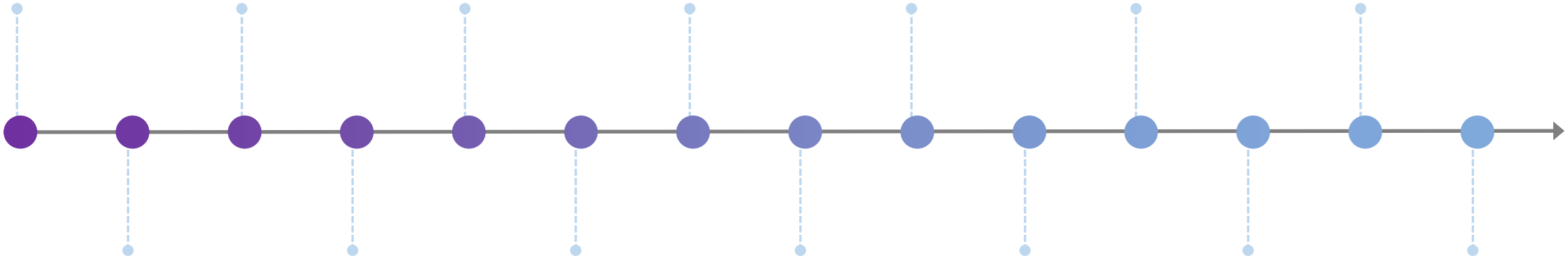
December 2017
POI Minimum Viable Product with Nationwide

April 2018
PSP's On-boarded

June 2018
Framework and Use Case Development Begins

September 2018
LIMRA and RiskStream announce formal relationship. LIMRA to become administrator for L&A sector

October 2018
Blockchain Initiative Conference in NYC



December 2016
Recommendations on Blockchain Consortium Circulated to TI Board

June 2017
40 Companies Involved. Four POC's completed. Consortium formation approved

January 2018
Use Case Committee and Working Groups kicked off Technical Partners selected

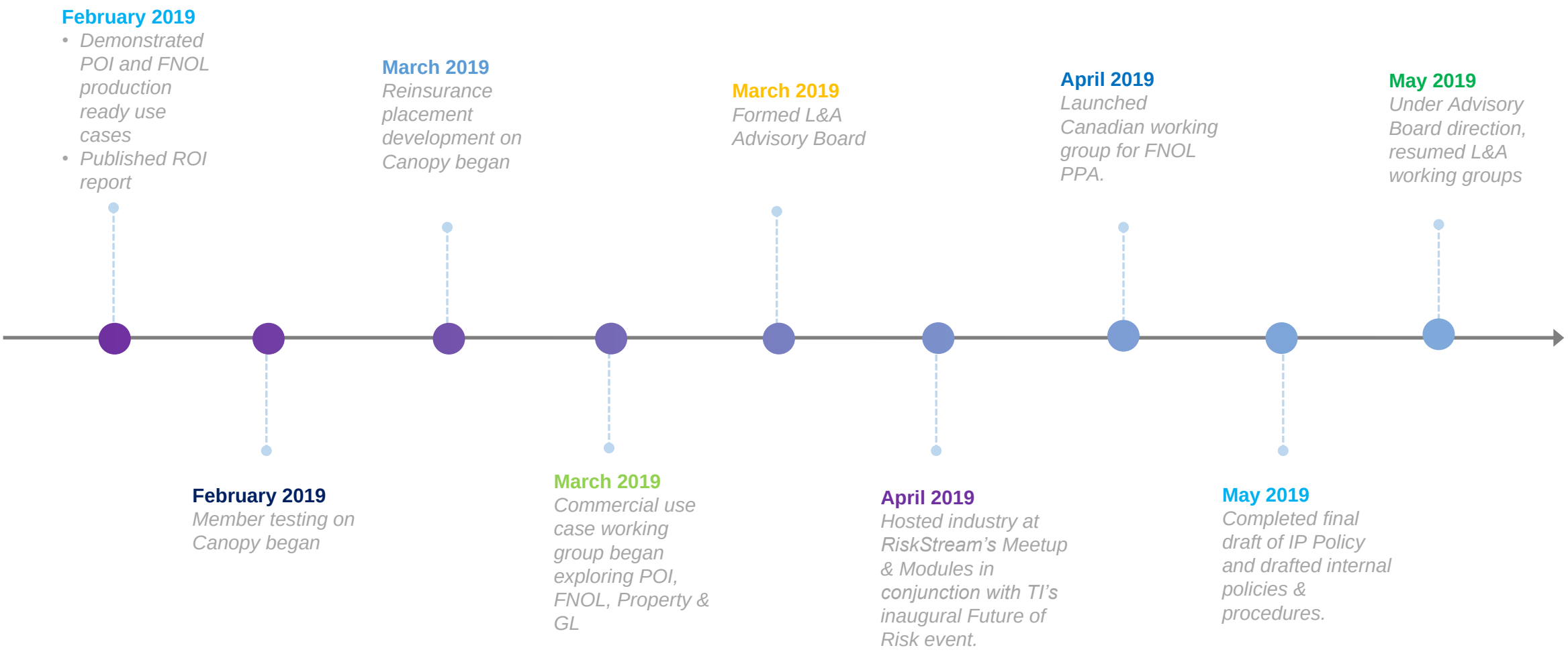
May 2018
PSP Contracting Complete DLT Platform Selected Use Cases Awarded to PSP's

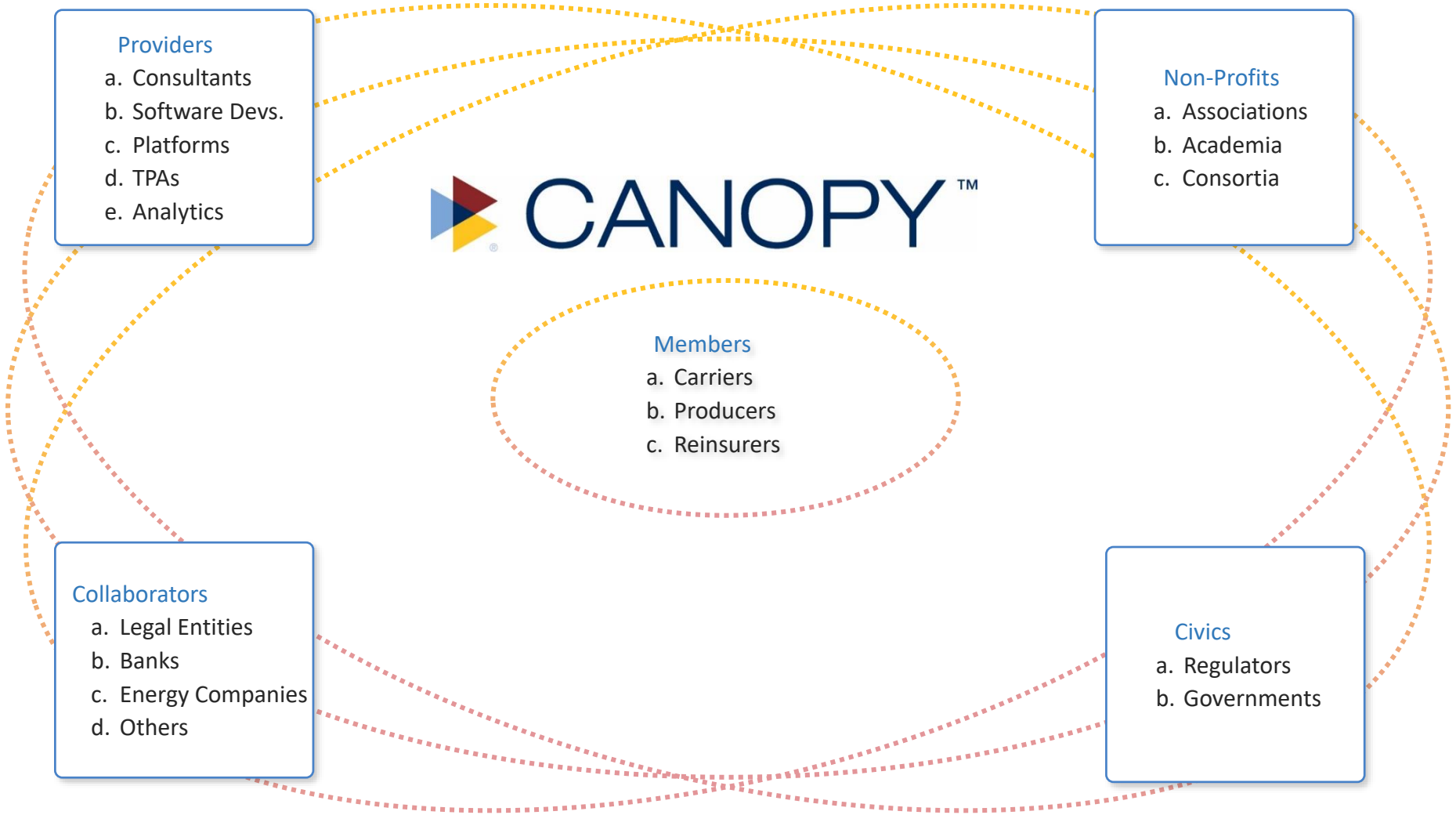
September 2018
Test version of MVP/MVN completed

October *2018*
Use Case Committee to select and prioritize the next use cases to present to the Advisory Board for approval

November 2018
1st Cohort established

Key Accomplishments in 2019





RiskStream Ecosystem

Providers

accenture

r3

EY

P&C Members

Munich RE

AMERISURE

StateFarm

FARMERS INSURANCE

AON

acuity INSURANCE

ASSURANT

SELECTIVE

EVEREST

BB&T

EMC INSURANCE

TRUE NORTH Insurance and Financial Strategies

MARSH & McLENNAN COMPANIES

Erie Insurance

GEICO

TRAVELERS

STATE AUTO Insurance Companies

The Hanover Insurance Group

United Educators

W. R. Berkley Corporation

Ohio Mutual Insurance Group

THE HARTFORD

RenaissanceRe

CHUBB

CNA

Liberty Mutual INSURANCE

!Re

PENN NATIONAL INSURANCE

L&A Members

USAA

John Hancock

AMERICAN FIDELITY a different opinion

AMERICAN FAMILY INSURANCE

Prudential

Nationwide

securian FINANCIAL

Horace Mann

Principal

Non-Profits

LIMRA

BITA

MOBI

AMERICAN INSURANCE ASSOCIATION

PCI

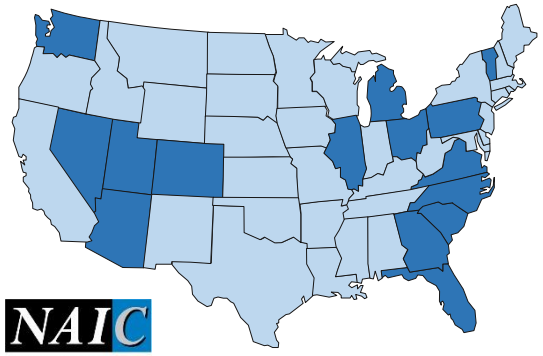
ACORD

RIMS

Collaborators

...to be announced soon

Civics



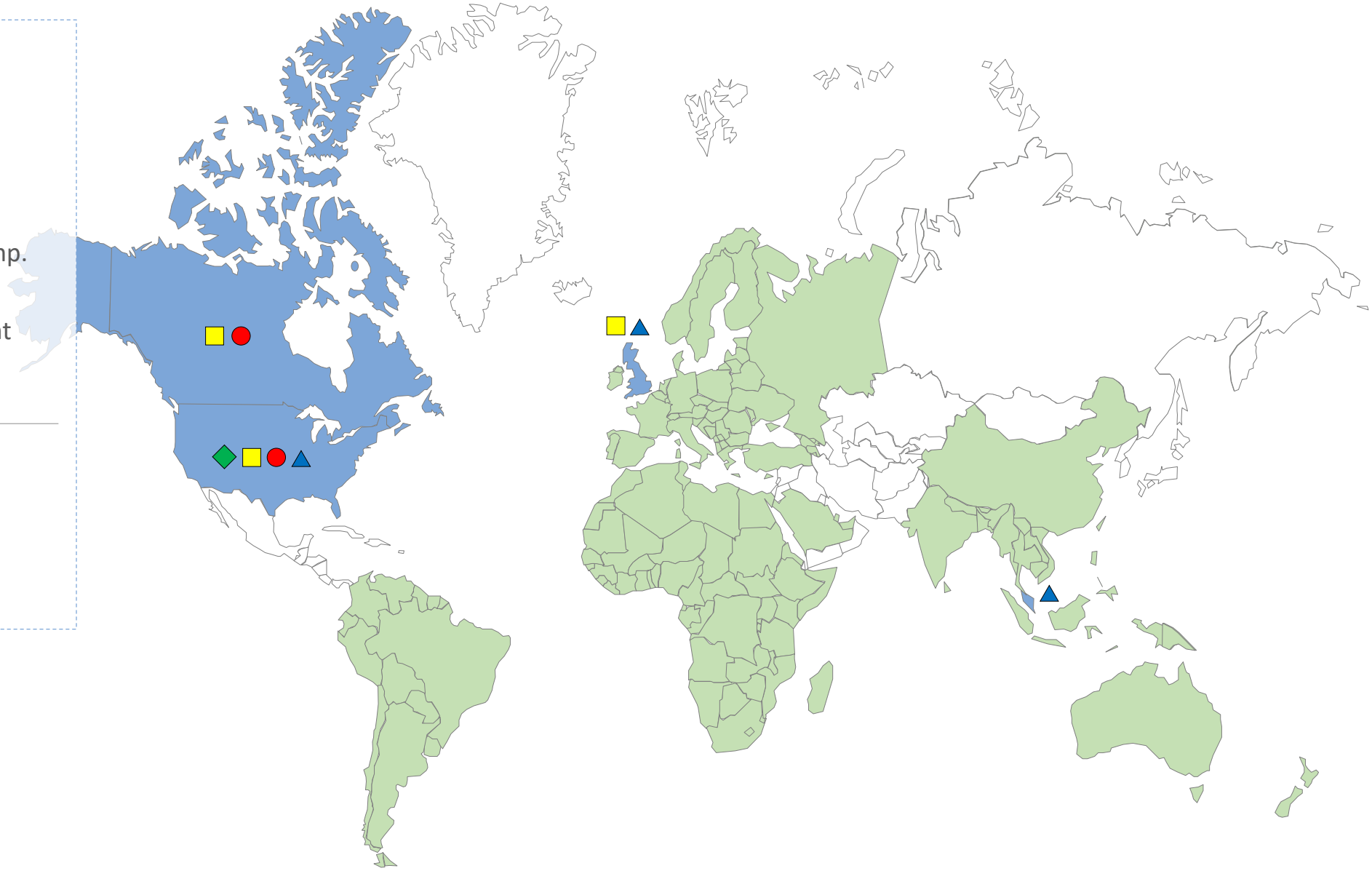
NAIC National Association of Insurance Commissioners

RiskStream Sectors & Geographies

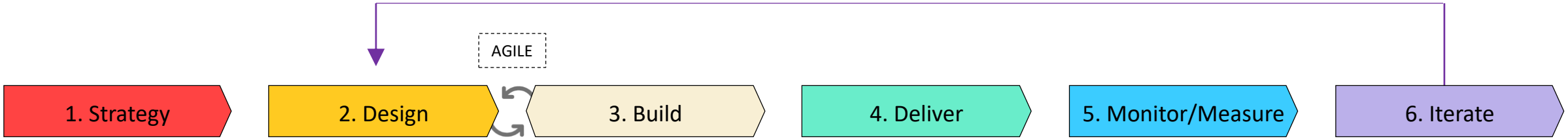
Sectors

- Property & Casualty
  - Personal Lines
    - Auto & Home
  - Commercial Lines
    - Surety & Workers Comp.
- Life & Annuities
  - Life, Health & Retirement
- Reinsurance

- RiskStream Presence
- Planned expansion
- Future expansion



Product Development Framework & Subcomponents



1. Idea intake
2. Directional ROI Analysis
3. UCSC Voting
4. Advisory Board Voting
5. Specifications doc
6. Estimate to build
7. Working Group Assembly
8. Charter
9. Lead Selection
10. WG Meeting cadence

- Product Description
- Value Proposition
- Proposed solution
- Define traditional process
- Personas
- User Journeys
- User Stories
- Use Requirements

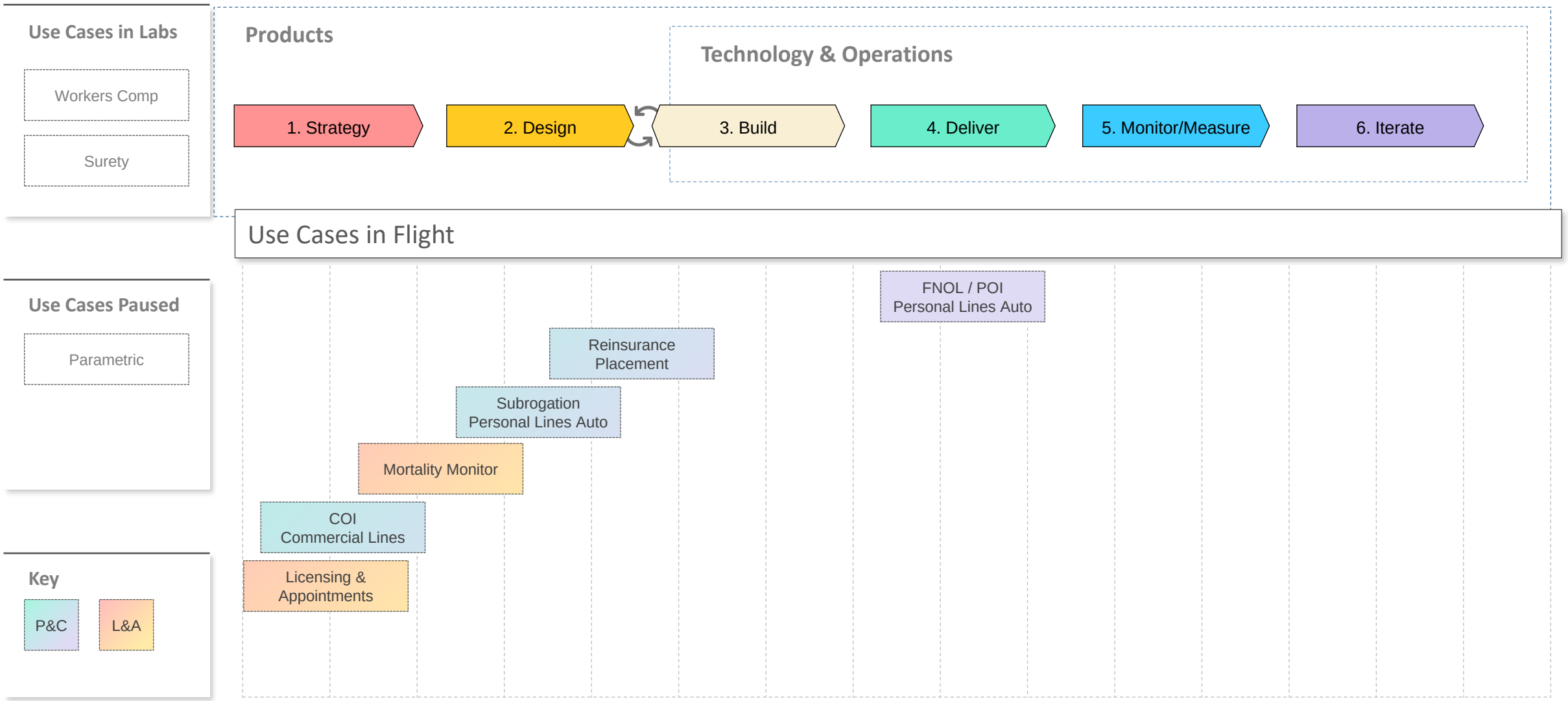
- Product Roadmap
- Plan Feature Sprints
- Feature Build Prioritization
- Technical Definition
- Member Testing
- Integrating Member Feedback
- Business Readiness
- Pre-production
- Next Version Planning

- Path to Production
- Business Readiness
- Training
- Marketing
- Launch
- Post go-live assessment

- Reporting
- Analytics
- Track & Capture Value
- Customer Feedback Loop

- Continuous Improvement
- Measure value
- Capture new potential features for next version
- Bring back to design

Product Framework & Current Use Case Phase (2019)



Demo Videos

Demo Video	https://vimeo.com/332049645
Reinsurance Marketing Video	https://vimeo.com/329153359
Proof of Insurance Marketing Video	https://vimeo.com/303354478
First Notice of Loss Marketing Video	https://vimeo.com/298630201

P&C: Use Cases

Personal Auto
Use Case Overviews

Personal Auto Proof of Insurance (POI) | Use Case Overview

Use Case Name: Proof of Insurance (POI) – *Insured-to-Insured Exchange*

Use Case Description

- Segment: P&C
- The objective is to arrange a way to provide proof of insurance electronically
- The most common way to do this today is providing paper cards provided by the insurer
- Blockchain can help this process by allowing for electronic safekeeping and updating of information across the board, potentially limiting the costs.
- 1 user persona (an insured) is involved but use case involves at least 2 insureds
- Policy owners have a single vehicle on their policy
- This use case will help the business because the printed cards incur costs and state-based insurance verification systems mandate submission of complex data, which is extremely costly.

Status of Use Case: Currently in testing phase

Insured-to-Insured POI Exchange Process Flow

POI Event

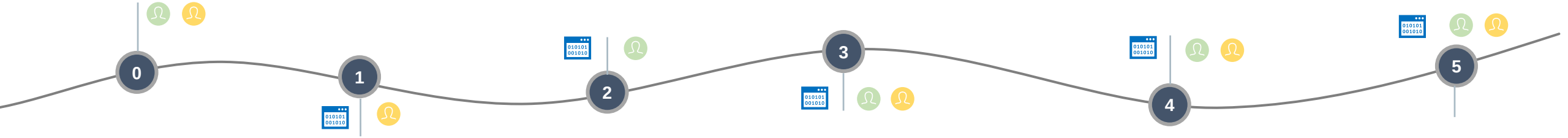
Evan and Amy are involved in a car accident and need to exchange insurance details.

Scan/Input Access Key

Amy enters/scans the access key of Evan on her insurer application.

View Other Party's POI Details

Evan and Amy receive notifications and can view exchanged POI details.

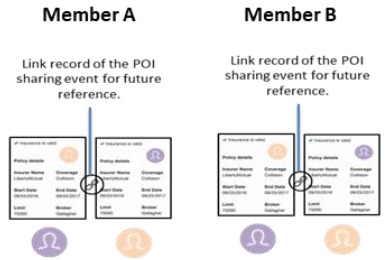


Generate Access Key/QR Code

In order to provide insurance details, Evan generates an access key/QR code through his insurer application.

POI Bi-Directional Linkage

Insurance details are automatically linked between both parties and the details are stored in respective members nodes (including producer node if applicable)



Retrieve POI

Evan and Amy can retrieve their exchanged POI at a later point using POI History.

Key: # Suggested MVP Scope # Future Functionality DLT Benefits

POI Personas: Policy Owner A - Evan Policy Owner B - Amy

Insured-to-Law Enforcement POI Exchange Overview | Personal Auto

Use Case Name: Proof of Insurance (POI) – *Policy Owner/Law Enforcement Exchange*

Use Case Description

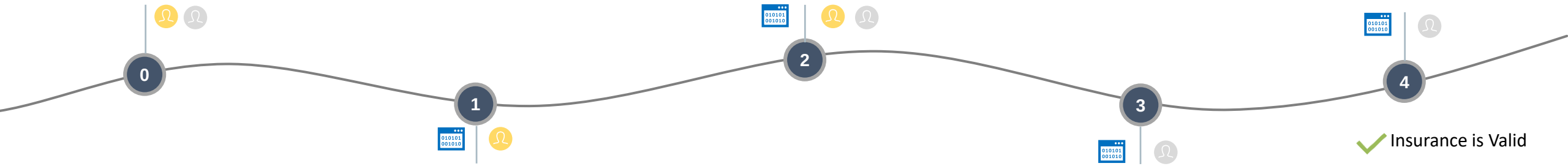
- Segment: P&C
- The objective is to arrange a way to provide proof of insurance electronically
- The most common way to do this is providing paper cards provided by the insurer
- Blockchain can help this process by allowing for electronic safekeeping and updating of information across the board, potentially limiting the costs.
- At least 2 user personas involved: Policy owner and Law Enforcement
- This use case will help our business because the printed cards incur costs and state-based insurance verification systems mandate submission of complex data, which is extremely costly.

Status of Use Case: Paused as testing currently focused on POI Insured-to-Insured Exchange

POI Insured-to-Law Enforcement Officer Process Flow

POI Event

Evan is pulled over by a Joe, which asks for proof of insurance of the car.



Policy Owner Generates Access Key

In order to provide proof of insurance, Evan generates an access key.

Policy Owner Presents Access Key

Evan provides the access key to Joe so he can enter it on his dashboard.

Law Enforcement Officer Inputs Access Key

Joe inputs the access key into its dashboard to check if the insurance policy is valid.

Officer Validates POI

Joe receives a message proving the insurance is valid.

Insurance is Valid

Key: # MVP Functionality DLT Involved

Personas: Policy Owner - Evan Law Enforcement Officer - Joe

Personal Auto First Notice of Loss (FNOL) | Use Case Overview

Use Case Name: First Notice of Loss (FNOL) – Personal Auto

Use Case Description

- Segment: P&C: Personal Lines: Auto
- Facilitate the first notice of loss processing on a claim.
- The most common way to currently do this is multiple parties manually coordinating between themselves.
- Distributed Ledger Technology (DLT) can help by optimizing processes related to data and information flow across the entire value chain. A consortium chain can allow insurance-related parties to share data, especially in areas such as first notice of loss.
- At least 3 user personas involved: Each policy owner has a corresponding insurer and producers are optional.
- No external data feeds (oracles, industry data sources, weather data, etc.) required.
- This use case will help our business through early and accurate notice of loss and data exchange between the relevant parties, reducing claim cycle time and handling costs.

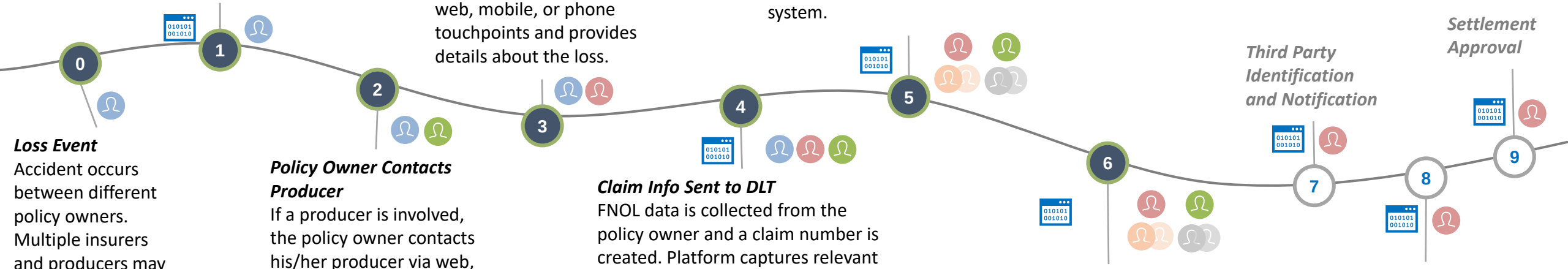
Status of Use Case: Currently in testing phase

Personal Auto FNOL Process Flow

POI Exchange (if applicable)
If policy owners have the app, QR codes are generated and each side captures the other's POI data variables. Transaction are written to platform. If both do not have app, POI data exchange done off-ledger.

Policy Owner Contacts Insurer (if Producer not contacted)
If no producer is involved, the policy owner interacts with his/her insurer via web, mobile, or phone touchpoints and provides details about the loss.

Stakeholders Notified of Claim Creation
If the other insurers are known, the Platform performs functions to write the FNOL data and notify the other insurers and/or producers involved. The data is written to the other insurers and/or producers' system.



Loss Event
Accident occurs between different policy owners. Multiple insurers and producers may be involved

Policy Owner Contacts Producer
If a producer is involved, the policy owner contacts his/her producer via web, mobile, or phone touchpoints and provides details about the loss. Step 3 is skipped.

Claim Info Sent to DLT
FNOL data is collected from the policy owner and a claim number is created. Platform captures relevant FNOL data variables and creates RBN ID.

Matching and the reconcile flow may be invoked in this step

Stakeholder Updates to FNOL Data
Stakeholders can update data variables and this information is reflected as an update to their side of the FNOL event on the Platform. Notifications are sent and the update is written in the stakeholders' systems.

Matching and the reconcile flow may be invoked in this step

Key: # Suggested MVP Scope # Future Functionality DLT Benefits

FNOL Personas: Policy Owner Insurer A Producer A Other Insurers Other Producers

ILLUSTRATIVE

Subrogation Net Settlement
Use Case Overview

Subrogation Net Settlement | Use Case Overview

Use Case Name: Subrogation: Net Settlement

Use Case Description

- Segment: P&C
- The objective is to facilitate the netting of payments via smart contracts
- The most common way to do this is parties manually coordinating processing and payment of claims
- Blockchain can help this process by utilizing a consortia shared ledger. The exchange of money between insurers to collect from the party legally responsible for a loss. Blockchain optimizes costs by streamlining the process and facilitating the netting of payments via smart contracts.
- 1 user persona involved: Claims Department
- This use case will help our business because a shared ledger, particularly a consortia shared ledger, could facilitate the netting of payments, eliminate manual processes, lower administrative costs, and speed up the entire process.

Status of Use Case: Working Group in progress working on design

Subrogation Net Settlement Process Flow

Insurer 1 Submits Payment Request

Lauren logs in the web portal dashboard and hits "New Request." After entering all relevant information, Lauren clicks "Submit Request".

Insurer 2 Answers Request

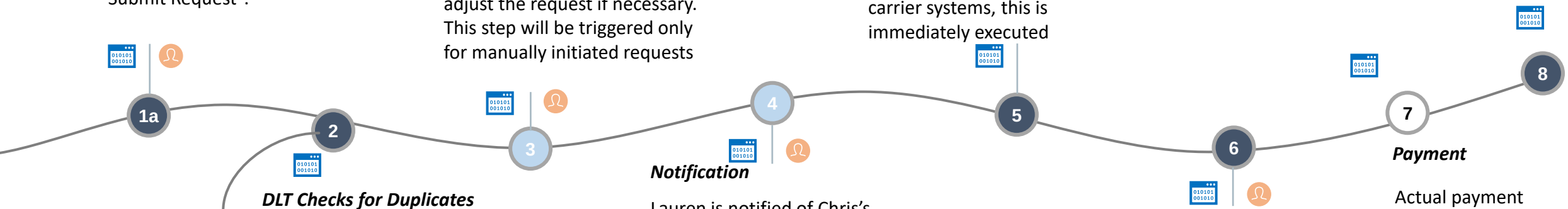
Chris, gets notified of Lauren's request immediately, accesses the newly generated settlement request, and approves the request or corrects errors to adjust the request if necessary. This step will be triggered only for manually initiated requests

Execute Debit/Credit

When Chris approves (or Lauren approves if Chris revised the request) the request, the debit/credit is immediately executed.
For requests integrated with carrier systems, this is immediately executed

Settlement Status

Once the payment is processed and applied in the insurer systems, the DLT settlement status is updated



Payment Request

Integrated with the claims systems

DLT Checks for Duplicates

The request from insurer 1 is immediately analyzed to determine if a duplicate request has already been made. Potential duplicates could be a result of either a pending request for the same claim already received

Notification

Lauren is notified of Chris's response: approved, rejected, or any modifications made.
This step will be triggered only for manually initiated requests

Net Settlement

The total debit/credit amount is netted down to zero by manually clicking "Net Settlement" or by an automated trigger (amount, date, frequency, etc.) that will be mutually agreed between insurers. Insurers must be notified

Payment

Actual payment happens outside the DLT and is not in scope for the MVP

Key: # MVP Functionality | DLT Involved | # Optional Step | Outside the DLT

Personas: Claims Adjuster

** Actual payment and tracking of the payment is outside the scope of the MVP*

Reinsurance Placement
Use Case Overview

Reinsurance Placement | Use Case Overview

Use Case Name: Reinsurance: Placement Process

Use Case Description

- Segment: P&C (future to expand to L&A)
- Facilitate the reinsurance placement process between the broker and reinsurer.
- Currently this is most common coordinated manually by ceding companies, broker and reinsurers, through phone calls, email and broker/client portals.
- Distributed Ledger Technology (DLT) can help by optimizing processes related to data and information flow among multiple parties. A DLT solution will allow reinsurance placement counter-parties to share placement data, quotes, authorizations and binding notifications to better streamline the placement process.
- At least 2 user personas involved: A reinsurance broker and reinsurer
- This use case will help our business through creating a DLT-based solution to streamline the reinsurance placement process through data exchange between the relevant parties that will create value for all stakeholders while building a foundation in which to address additional areas of reinsurance.

Status of Use Case: Working Group in Progress

Reinsurance Placement Use Case Overview

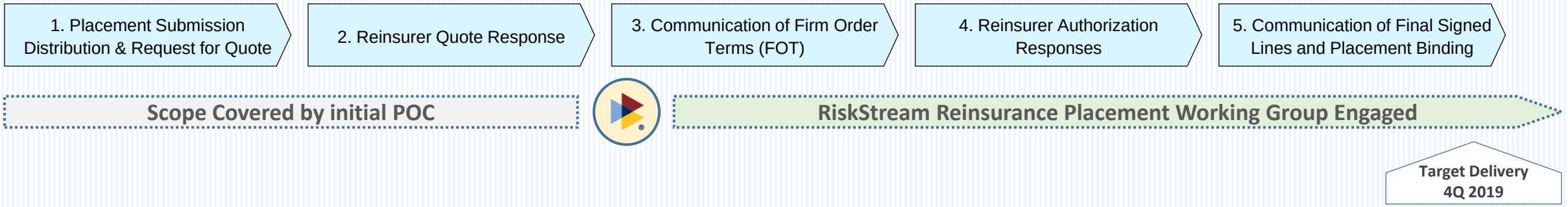
History

Early in 2019 two reinsurance brokers (AON and Guy Carpenter) and two reinsurers (Renaissance Re and Everest Re) approached RiskStream with a request to fund the creation of a Proof of Concept (POC) for the reinsurance placement process on the Canopy platform. With the POC complete, participants have agreed to transition ongoing work for this use case into a RiskStream working group with led by the initial four participants.

Reinsurance Placement Working Group Mission Statement:

Create a DLT-based solution to streamline the reinsurance placement process that will create value for all stakeholders while building a foundation in which to address additional areas of reinsurance.

Reinsurance Placement Use Case Scope



This use case has the potential to represent a number of firsts for RiskStream: our first entrance into the Reinsurance domain, the first use case that started with external participants "building on Canopy" via a POC, and the first use case that has the potential to eventually drive benefits for all RiskStream member types: insurers (ceding companies), brokers and reinsurers.

Commercial Lines
Use Case Overviews

Certificates of Insurance | Use Case Overview

Use Case Name: Certificates of Insurance (COI) – Commercial Property and Liability

Use Case Description

- Segment: P&C: Commercial Lines Property and Liability
- Distributed Ledger Technology (DLT) solution has the potential to securely decentralize information ownership while simultaneously allowing access by appropriate and authorized parties. This can create a single source of truth for COIs, and changes such as exclusions, endorsements and cancellations would update in real-time for all parties (insureds, brokers, agents, and hiring entities) reducing manual aspects of COI request, creation, and review.
- At least 2 user personas involved: A policy owner who has a corresponding insurer and a producer. Others actors to be identified through working group.
- Although digitization and automation have somewhat lessened the burden of fulfilling COI requests, this use case will help our business reduce the amount of human error in fulfilling COI requests; reduce fraud associated with cancelled or otherwise invalid certificates of insurance presented to hiring entities; decrease in E&O claims frequency related to incorrect COI; and reduce carriers' acquisition costs since a non-trivial portion of a producer's commission goes to fulfilling COI requests

Status of Use Case: Working Group in progress

Commercial Auto Proof of Insurance (POI) | Use Case Overview

Use Case Name: Proof of Insurance (POI) – *Commercial Auto Insured/Insured Exchange*

Use Case Description

- Segment: P&C: Commercial Lines Auto
- The objective is to arrange a way to provide proof of insurance electronically
- The most common way to do this today is providing paper cards provided by the insurer
- Blockchain can help this process by allowing for electronic safekeeping and updating of information across the board, potentially limiting the costs.
- At least 2 user personas is involved: Employee of the commercial auto policy owner and personal auto policy owner
- This use case will help the business because the benefits include reducing the costs associated with storing POI image files on carriers' servers, reducing the costs of providing paper POI cards, reducing costs associated with complying with state-run insurance verification systems, and reducing the costs of uninsured motorists—to the extent that uninsured motorists are an issue in the commercial auto space.

Status of Use Case: Working Group started but currently paused

Commercial Auto First Notice of Loss (FNOL) | Use Case Overview

Use Case Name: First Notice of Loss (FNOL) – Commercial Auto

Use Case Description

- Segment: P&C: Commercial Lines Auto
- Facilitate the first notice of loss processing on a commercial auto claim.
- The most common way to currently do this is multiple parties manually coordinating between themselves.
- Distributed Ledger Technology (DLT) can help by optimizing processes related to data and information flow across the entire value chain. A consortium chain can allow insurance-related parties to share data, especially in areas such as first notice of loss.
- At least 3 actors involved: Each insured (employee of the commercial auto policy owner and a personal auto policy owner) has a corresponding insurer and a producer (agent or broker)
- This use case will help our business through early and accurate notice of loss and data exchange between the relevant parties, reducing claim cycle time and handling costs.

Status of Use Case: Working Group started but currently paused

Commercial Property First Notice of Loss (FNOL) | Use Case Overview

Use Case Name: First Notice of Loss (FNOL) – Commercial Property

Use Case Description

- Segment: P&C: Commercial Lines Property
- Facilitate the first notice of loss processing on a commercial property claim.
- The most common way to currently do this is multiple parties manually coordinating between themselves. For commercial property, there is time associated with sharing FNOL data between other carriers in a layered program, the producer, and the reinsurer(s).
- Distributed Ledger Technology (DLT) can help by optimizing processes related to data and information flow across the entire value chain. A consortium chain can allow insurance-related parties to share data, especially in areas such as first notice of loss.
- At least 2 actors involved: A policy owner who has a corresponding insurer and a producer. Other carriers in a layered program and the reinsurer(s) are optional.
- This use case will help our business through early and accurate notice of loss and data exchange between the relevant parties, reducing claim cycle time and handling costs.

Status of Use Case: Working Group Started but currently paused

Commercial General Liability First Notice of Loss (FNOL) | Use Case Overview

Use Case Name: First Notice of Loss (FNOL) – Commercial General Liability

Use Case Description

- Segment: P&C: Commercial Lines General Liability
- Facilitate the first notice of loss processing on a commercial general liability claim.
- The most common way to currently do this is multiple parties manually coordinating between themselves. For commercial liability, there is time associated with sharing FNOL data between other carriers in a layered program, the producer, and the reinsurer(s).
- Distributed Ledger Technology (DLT) can help by optimizing processes related to data and information flow across the entire value chain. A consortium chain can allow insurance-related parties to share data, especially in areas such as first notice of loss.
- At least 2 actors involved: A policy owner who has a corresponding insurer and a producer. Other carriers in a layered program and the reinsurer(s) are optional.
- This use case will help our business through early and accurate notice of loss and data exchange between the relevant parties, reducing claim cycle time and handling costs.

Status of Use Case: Working Group Started but Use Case Paused

Parametric Insurance
Use Case Overview

Parametric Insurance | Use Case Overview

Use Case Name: Parametric Insurance

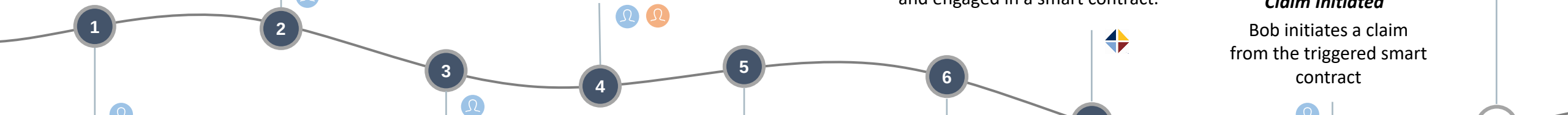
Use Case Description

- Segment: P&C
- The objective is that insurers could agree to pay a certain amount upon occurrence of triggers within present smart contracts.
- The most common way to do this is parties manually coordinating research, processing and payment of claims.
- Blockchain can help this process by automating the entire process by containing the program logic, checking the oracle and paying out when conditions are met.
- At least 2 users personas involved: Policy Owner and Insurer
- 2-3 weather oracle connections for rainfall are required
- Data will need to be brought in hourly.
- This use case will help our business because it could help to expand parametric application in insurance.

Status of Use Case: Working Group currently paused

Parametric Insurance Process Flow

Food truck owner buys a parametric insurance policy to protect against a game/festival getting rained out.



Potential Event Identified
Bob is worried the game could be cancelled due to rain. To offset the potential cost of lost supplies, Bob logs on to his insurance company's, Insure Co. application to purchase parametric insurance to cover his supplies.

Insurance Selection
Bob selects "rain" for the type of event. He provides basic details such as the date of coverage, the level of rainfall, zip code, and the dollar value

Proof of Purchase
Bob is prompted to provide proof of purchase. Bob takes a picture of his purchase receipt and uploads it to Insure Co.'s app. Once complete, Bob selects "Get Quote."

Purchase Policy
Bob receives a quote from Insure Co. Bob selects the Insure Co. policy, confirm all details and selects "Buy Policy".

Proof of Location
Bob submits images or location data on the day of the game using Insure Co.'s application.

Smart Contract Triggered
The aggregated rainfall data is compared to active parametric policies that use rainfall as a parameter. Bob's policy is triggered and engaged in a smart contract.

Average Oracle Data
On the day of the game it is pouring rain. RiskStream oracles pull real-time rainfall data from Oracle. The data is aggregated and averaged to remove outliers.

Notification
Insure Co.'s claims rep/system and the policyholder are notified that a smart contract has been triggered through RiskStream.

Claim Initiated
Bob initiates a claim from the triggered smart contract

Claim Approved
Claims adjuster reviews the claim information and approves it.

Settlement Approved
Bob checks his email and sees that Insure Co. has informed him that his policy has been triggered and payment has been initiated.

Key: # MVP Functionality | # Future Functionality | Potential DLT Involvement | **Parametric Personas:** Policy Owner | Claims Agent | RiskStream

Primary focus will be on the oracle data and smart contract triggers (steps 6 and 7)

Use Case Labs

Worker's Compensation | Potential Use Cases

Use Case Name: Specific use case related to Workers Compensation to be determined

Use Case Description

- Segment: P & C: Commercial Lines
- Further discussion and definition is needed on the below suggested use cases:
  1. Fraud and Tracking of Certificates of Insurance
     - Distributed Ledger Technology (DLT) could be used to enhance the process of creating and tracking certificates of insurance which can then be cross checked to expose potential fraudulent activity.
  2. Payroll Verification
     - DLT could provide for the sharing and tracking of payroll information, hereby reducing the opportunity for fraud.
  3. Insured Portfolio and History Verification
     - DLT could enable carriers to share historical information on insureds and eliminate discrepancies.

Status of Use Case: Lab in progress

Surety Bonds | Potential Use Cases

Use Case Name: Specific use case related to Surety to be determined

Use Case Description

- Segment: P&C
- The following potential use cases have been narrowed down by external participants in the Surety space. In-depth review and benefit evaluation of each use case is in progress:
  1. Power of Attorney Verification Process (Bond Agent)
     - Obtaining power of attorney is a necessary step in the process of issuing a bond. It provides legal protection and assurance to the oblige that the bond has been issued by the bond agent with full understanding of the backing Surety. Distributed Ledger Technology (DLT) could help with the issuing and verification processes removing the manual and informal information exchange channels.
  2. Policy Renewals
     - Bonds carry an expiration date and the renewal process and corresponding payment is expected in advance of the expiration date. DLT could help simplify the renewal process keeping all parties informed of the current bond status and enforce cancellation clause terms.
  3. Electronic Bonding Delivery
     - Allows for the electronic signature by all parties involved in the bond process via an electronic medium avoiding paper and manual process delays. DLT could help store the bond record and signatures from the different parties of the process in a trusted and secure manner.

Status of Use Case: Lab in progress

Life & Annuities Use Cases

Mortality Monitor | Use Case Overview

Use Case Name: Mortality Monitor

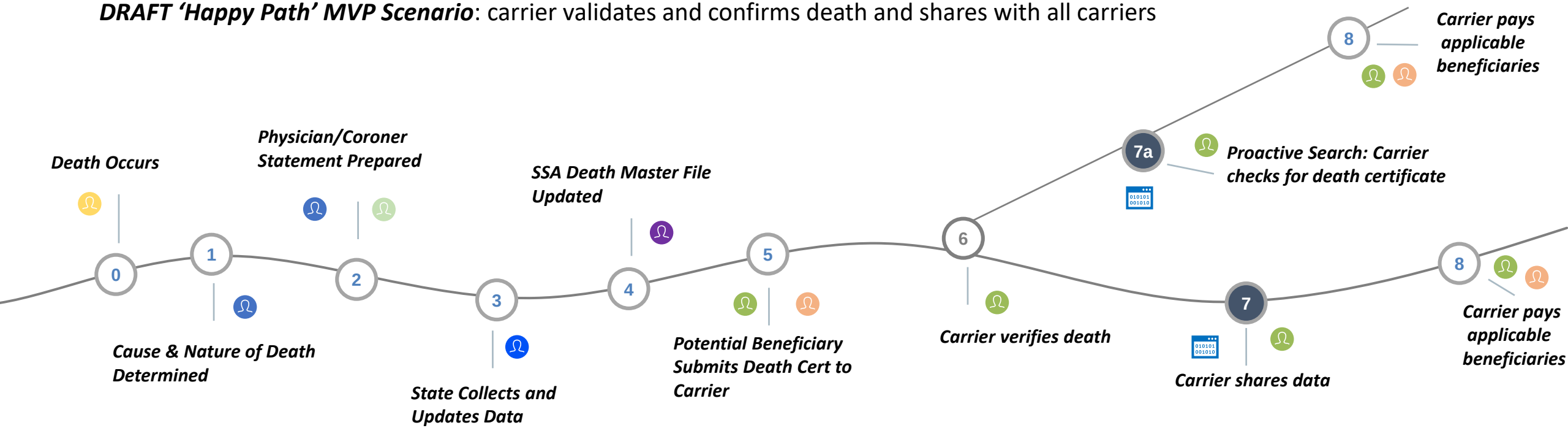
Use Case Description

- Segment: L&A:
- Facilitates the sharing of trusted data that was obtained to identify and determine an individual is deceased.
- The notification and verification of death requires the carrier to have comprehensive trusted data in order to process the claim. The challenge is the lack of a single source the insurance companies can rely on to determine when to pay out on a life insurance policy. As a result, the carriers have to triangulate data from multiple sources, while the carrier's data may not be complete, and attempt to fill in the gaps, which leaves a level of subjectivity in validating the death.
- Distributed Ledger Technology (DLT) can help by optimizing processes related to data and information flow across the entire value chain. A consortium chain can allow insurance-related parties to share data, especially in areas of public information.
- The MVP will allow carriers to collaborate and share data that was obtained to identify and determine an individual is deceased and can be leveraged as a source for Proactive Searches.

Status of Use Case: Working Group in progress

Potential Process Flow | Policyholder's Death is Registered & Claim Initiated

DRAFT 'Happy Path' MVP Scenario: carrier validates and confirms death and shares with all carriers



Key: Suggested MVP Scope | DLT Benefits | Member Functionality | Non-MVP event

Personas: Policy Holder | Physician/coroner | Funeral Home | Carrier | State | Social Security Admin - SSA | Potential beneficiary

Licensing & Appointments | Use Case Overview

Use Case Name: Licensing and Appointments

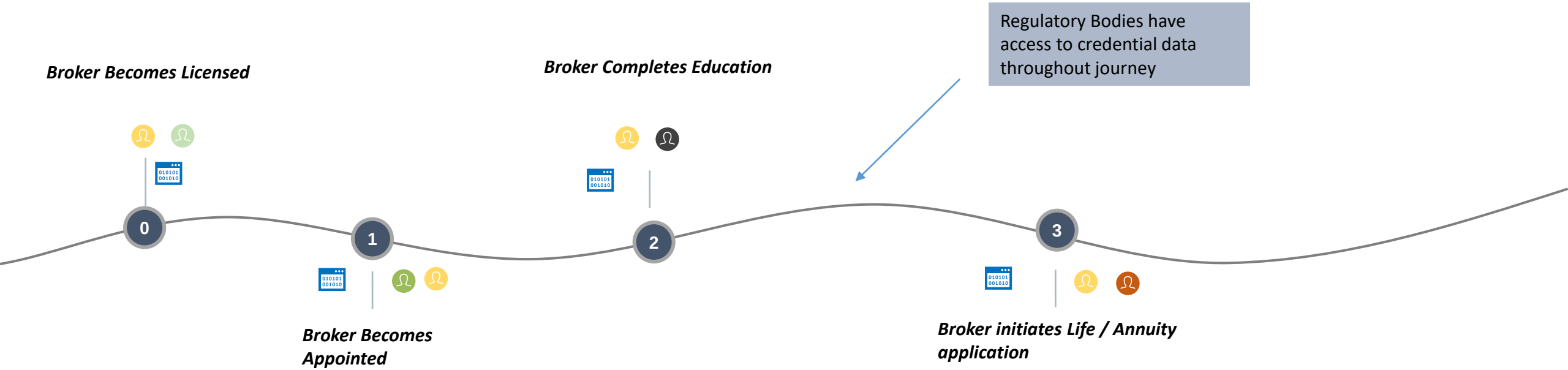
Use Case Description

- Segment: L&A
- Insurance regulation and compliance could be transformed, as regulators would be able to monitor all insurance variables in real time and help with verification of certain information, including education, certification, and licensing across states.
- Licensing & Appointment is critically important and there is no single system that exists today that tackles the problem in an efficient manner. There is a lack of common licensing requirements across states that imposes significant time and costs on producers, their affiliated agencies and each state insurance department.
- The lack of a single source of data results in inconsistent cycle times, lag times and out-of-sync databases, causing potential terminations and costly rework. Distributed Ledger Technology (DLT) eliminates out-of-date information, such as broker changes, terminations or appointments, renewals, course certification because the data is seamlessly accessible to all permissioned parties in a trusted secure environment.
- DLT technology's role in the licensing & appointment process is wide and deep, it can improve the appointment process, reduce turn-around time and help onboard agents faster by identifying correct agent information, perform license and agreement validation based on approved states more efficiently, and update changes to agent information near real-time—all of which in turn improve agent satisfaction that drive top line growth.

Status of Use Case: Working Group in progress

Appointments Potential Process Flow

DRAFT 'Happy Path' Scenario: Broker, carrier, & education provider update and maintain data on DLT real-time making accessible to other stakeholders.



Key: # MVP Functionality | Blockchain Involved | # Member Functionality | # Non-MVP event

Personas: Broker | State(s) | Carrier | L&A Solution Provider | Education Providers

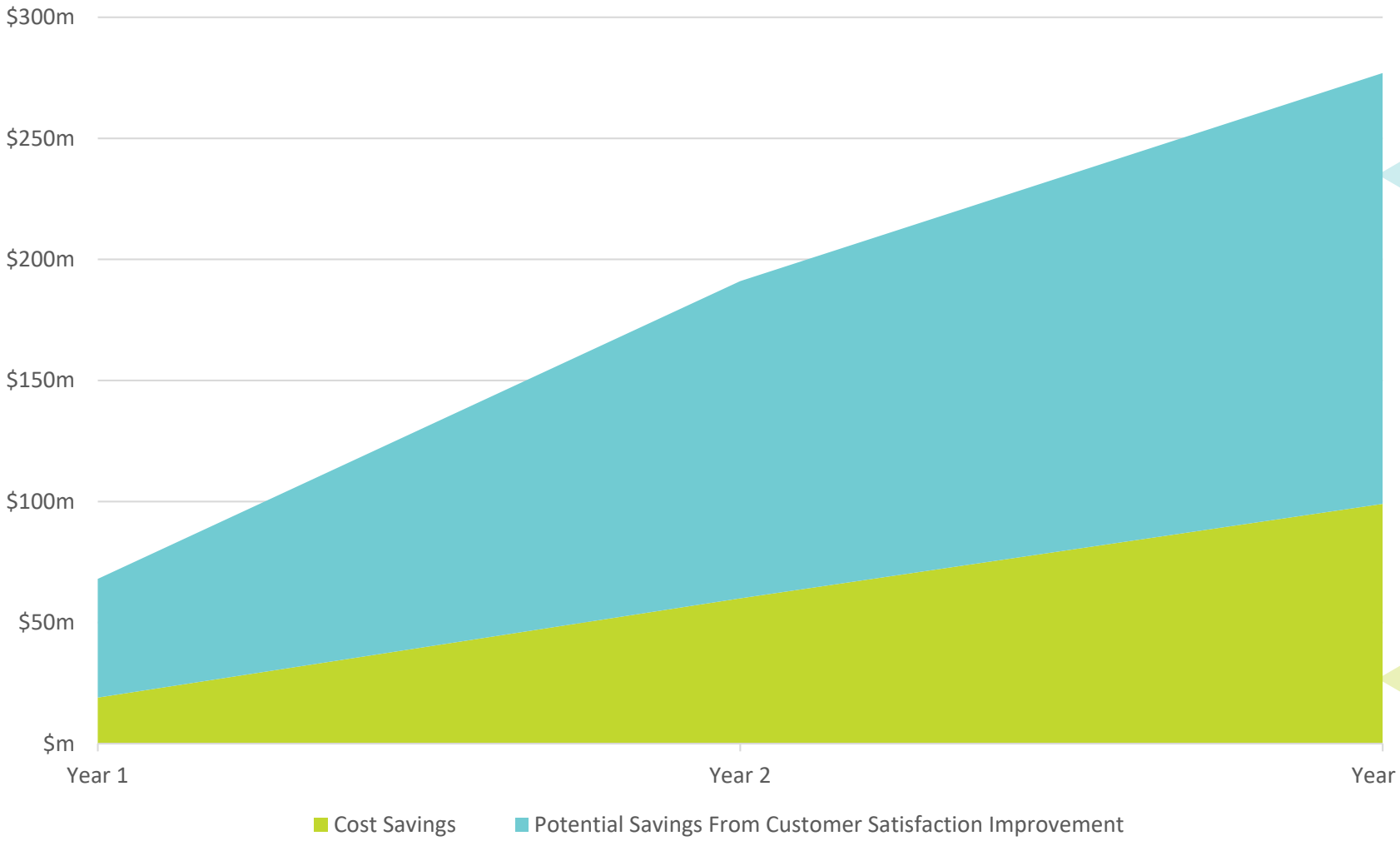
Regulatory Bodies

- FINRA – Financial Industry Regulatory Authority
- NIPR – National Insurance Producer Registry

P&C: Business Value Proposition for POI and FNOL

Proof of Insurance & First Notice of Loss Use Cases

RiskBlock Has Created a Research Report Estimating Total Savings for RBA Members from Leveraging Both (Proof of Insurance and FNOL) Applications



Customer satisfaction improvements through:

- Shorter claims cycle time
- Streamlined data transfer
- Reduction in customer's administrative burden

Cost savings through Proof of Insurance use case:

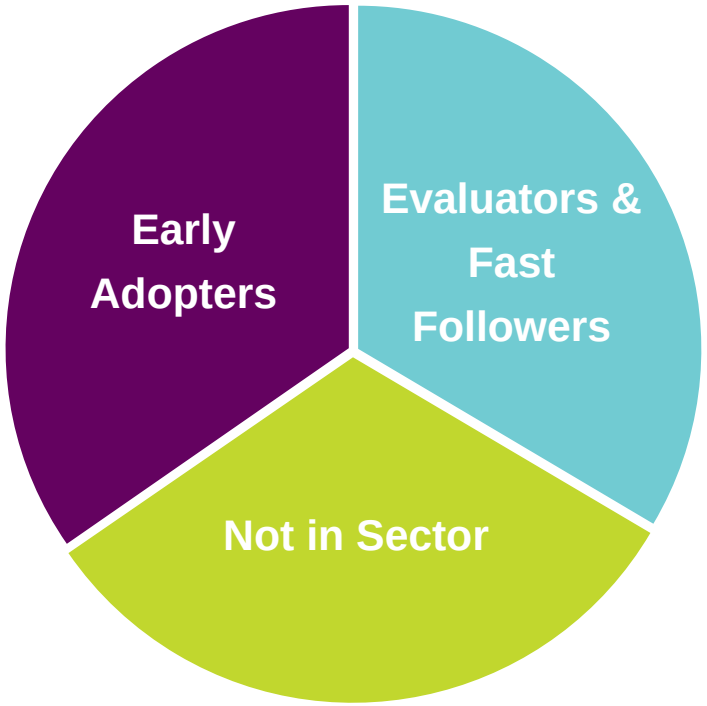
- File storage costs
- Paper card distribution costs
- Compliance costs with state insurance verification systems
- Uninsured motorist claim costs

Cost savings through First Notice of Loss use case:

- Data intake costs
- Data sharing costs

Business Value Proposition

Membership engagement expectations of each use case



Not every member will engage in every use case…
but there should be a use case for every member:

USE CASES		
Personal Lines	**Commercial Lines**	**Reinsurance**
POI Auto	POI Commercial Auto	Placement Process
FNOL Auto	FNOL Commercial Auto	Loss Bordereau
Subrogation (Net Settlement)	Certificates of Insurance Property	Parametric Insurance
Auto Titles	Certificates of Insurance Liability	Facility Schemes
Homeowners (i.e. IoT, certificates)	Workers Compensation (i.e. medical records)	Facultative & Treaty Programs
And more…		