



# Blockchains for Business: Hype vs. Reality

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*Disclaimer: The views represented in this presentation are my own and may not represent the views of my employer, Microsoft.*

# Agenda

Me: Do you take bitcoin?

Xbox: Yes

Me: \*bites a coin\* Ok, this should be worth about ~~fifteen~~ four thousand dollars.

## Blockchains for Business: Hype vs. Reality

- An example to set context
- Benefits Analysis
- The Basics of Blockchain
- When It Makes Strategic Sense to Use Blockchains
- Bringing it back together – more real-world examples
- Appendix

# Blockchain in Action

An example to set context

Textbook  
example of  
why blockchain

Oct. 2018 recall  
of 4 MILLION  
pounds of food  
in US.

## THE WALL STREET JOURNAL.



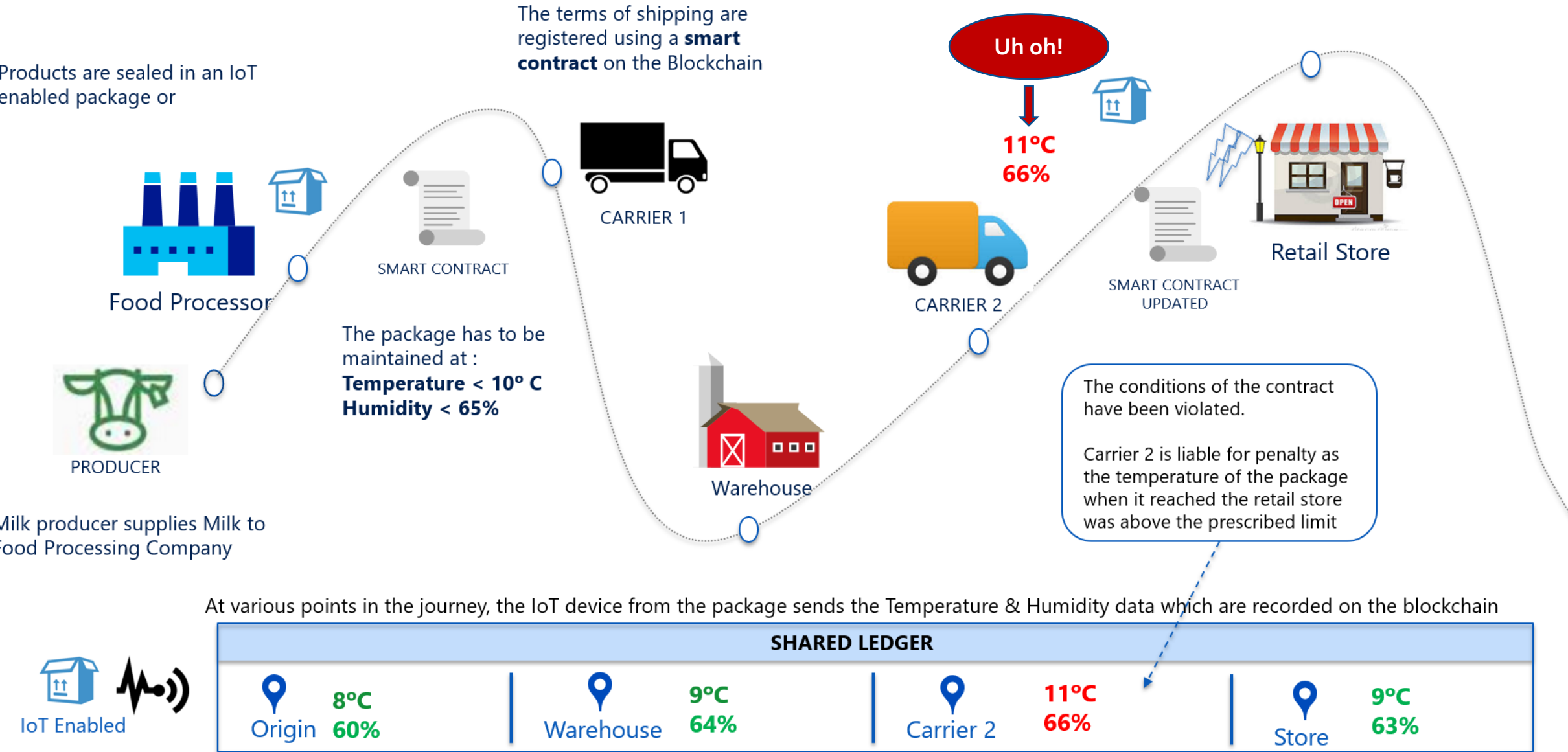
**Food producers are recalling nearly 4 million pounds of goods shipped to grocery stores and distributors nationwide because of contamination concerns**

*Jesse Newman*

Whole Foods, Walmart, Trader Joe's among retailers affected by salmonella and listeria worry









# Environmental Monitoring – IoT in Action combined with Smart Contracts



# Blockchain Benefits Analysis

High Level

# Blockchain Benefits – High Level

	Value Driver	Business Outcome
	<b>Simplify Operations</b>	Reduce / eliminate manual efforts required to perform reconciliation and resolve disputes
	<b>Improve Regulatory Efficiency</b>	Activate near real-time monitoring of activity between regulators and regulated entities
	<b>Reduce Counterparty Risk</b>	Eliminates counterparties req'd to fulfill obligations. Agreements are instead codified & performed in a shared, immutable environment.
	<b>Reduce Cycle Times</b>	Eliminates need for 3rd parties to conduct transaction verification / validation while accelerating cycle time reductions
	<b>Improve Capital &amp; Liquidity</b>	Reduces locked-in capital & provides transparency into sourcing liquidity for assets
	<b>Minimize Fraud</b>	Implements asset provenance & full transaction history to be established with a single source of truth

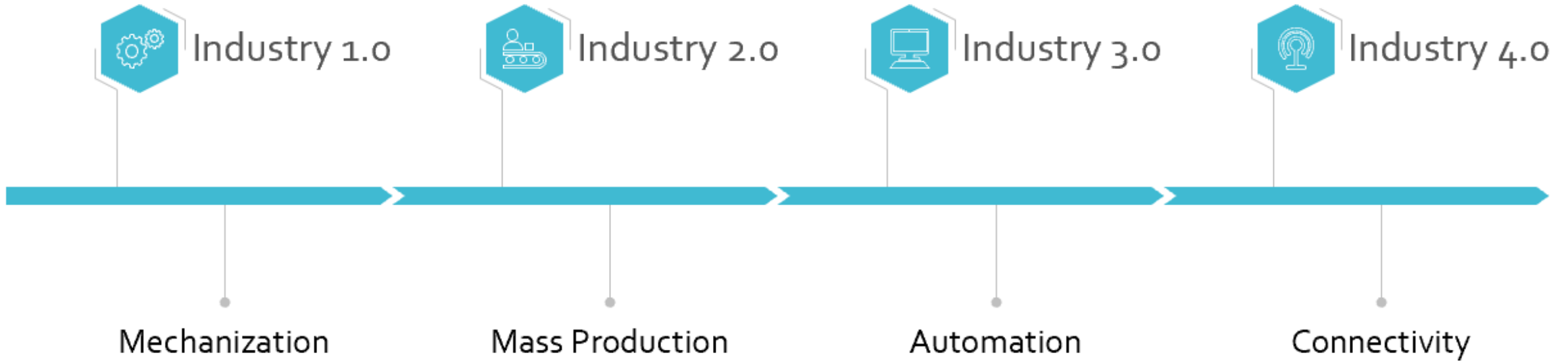
\* There are more detailed benefit slides in the Appendix.

# The Basics of Blockchain

Blockchain Transfers Trust from Teams to Tech

[Wikipedia defines a blockchain](#) as  
“a distributed database that maintains a continuously growing list of data records secured from tampering and revision. Each block contains a timestamp and a link to a previous block.”

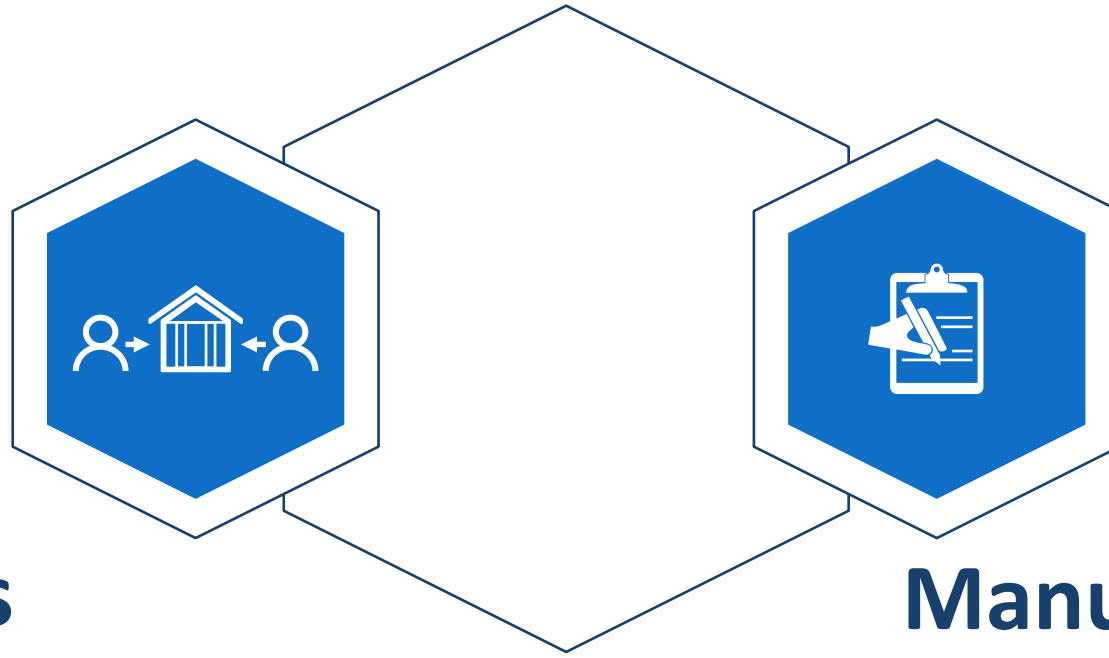
The greatest leaps of civilization occur when we find new ways to trust one another.\*



Blockchain is strategically important because  
Technology has always affected how we do business...  
and the Trust models our businesses are built upon.

\*Record-keeping via ledger, double entry accounting, digital data storage/calculations, internet, cloud storage, mobile...

# Traditional methods of establishing trust across organizations are inefficient and expensive.



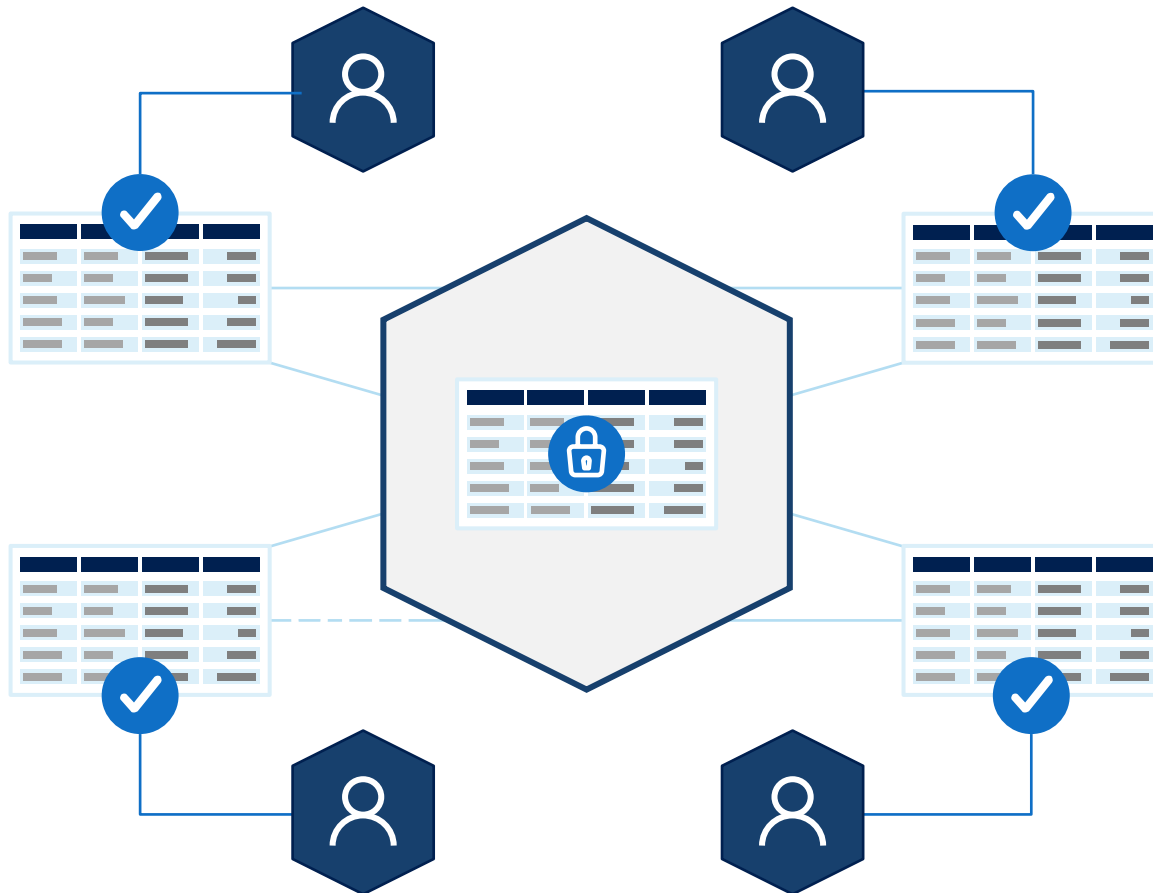
## Intermediaries

- Increase cost
- Reduce direct contact with customers
- Create bottlenecks

## Manual verification

- Time-consuming
- Expensive
- Error-prone

# Blockchain establishes a secure, scalable, shared source of truth



- Data is stored in a ledger and every transaction recorded

- Everyone in the network has an individual, identical copy

- The ledger can only be updated by consensus, and information can't be altered or deleted without everyone knowing.

# Applications have similar patterns across industries. Just like cloud, Blockchain applies across all industries.

## Manufacturing



Asset tracking  
Real-time auction  
for supplier  
contracts  
Supply chain  
transparency  
Dynamic  
commodities  
pricing

## Retail



Loyalty tracking  
Product  
provenance  
Logistics  
management  
Digital rewards  
P2P selling  
Ticket purchases

## Insurance



Claims  
management  
MBS/Property  
payments  
Fraud detection  
Automated  
underwriting  
Risk visualizations

## Banking and Capital Markets



Audit compliance  
Bond issuance  
Trade finance  
Loan syndication  
Post trade  
settlement  
Global payments  
Derivatives  
trading  
KYC/AML

## Government



Licensing and ID  
Benefits  
distribution  
Aid tracking  
Military security  
Voting  
Copyrights

## Health



Personalized  
medicine  
Records sharing  
Compliance  
Agricultural  
authentication  
Pharmaceutical  
purity



Asset Transfer



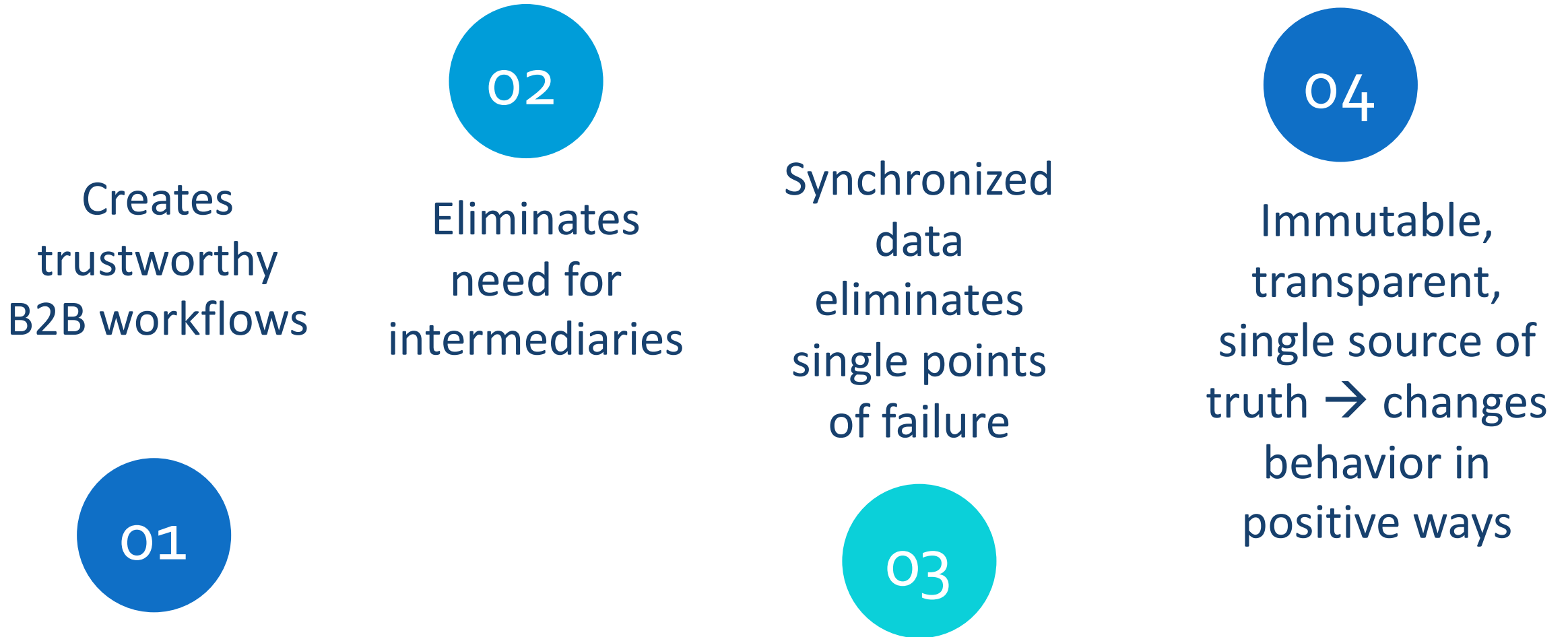
Cross-Organizational Workflow



High Assurance Audit



# Blockchain enables trusted transactions by injecting “digital trust” into the system:



# When To Use Blockchain? Where Hype Meets Reality...

It isn't the best solution for all situations, maybe not even most.

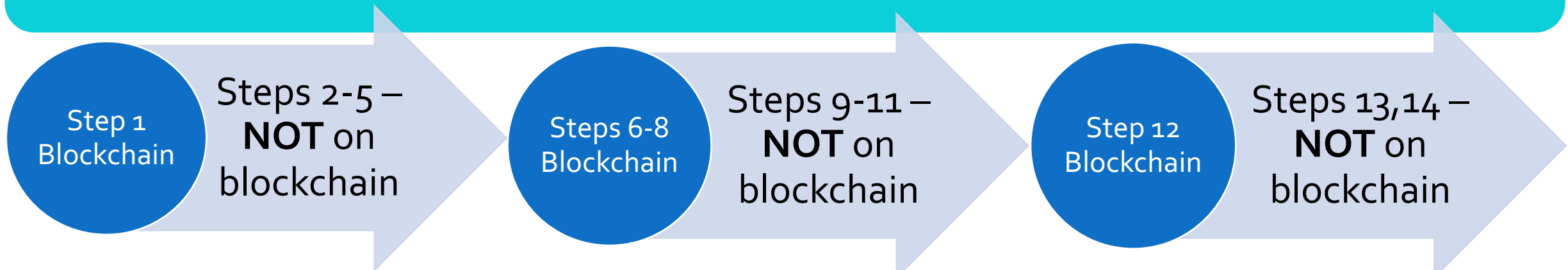
# Decision Considerations

“Blockchain is not a panacea. It’s just a tool.”

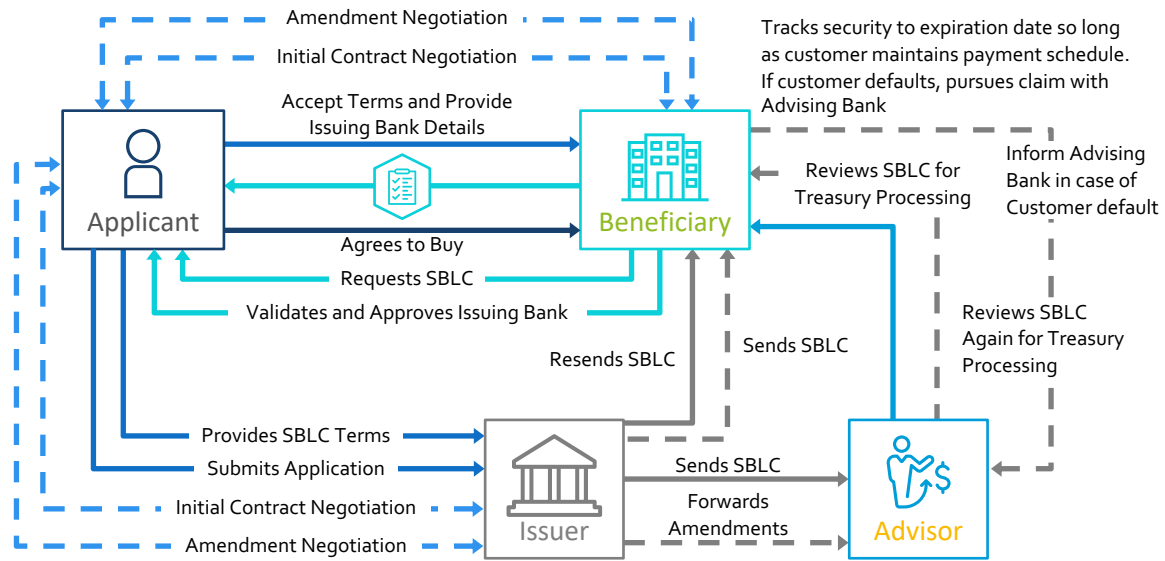
~ *Samantha’s favorite saying*

There are broader considerations than just technical ones – this is a disruptive technology.

For major processes, you may not need or benefit from using blockchain E2E (end to end).



# Consider blockchain's impacts to underlying org structures and the behavior of the teams involved.



1. Applicant agrees to transact with Beneficiary via SBLC



2. Applicant submits SBLC request to the ledger



3. Applicant bank issues SBLC



4. Beneficiary bank reviews and advises SBLC



5. SBLC activated with expiration date; transaction complete



Issuing a Letter of Credit:  
Old process: 3-5 weeks

New process with blockchain:  
3-5 Days

## These organizational and behavioral changes could require additional changes, such as:

- Launch Processes/Standards
- GDPR and Privacy management
- Approval Touchpoints
- Legal and Records Retention requirements
- Security and Access models
- Compliance and audit requirements
- Reporting changes
- Partner or Customer Experience / Education
- Data Hygiene impacts
- AI, ML and different data analytics opportunities – or challenges

# When does Blockchain makes sense?

Ask yourself:

Is this a business process that crosses trust boundaries?

Do multiple parties manipulate the same data?

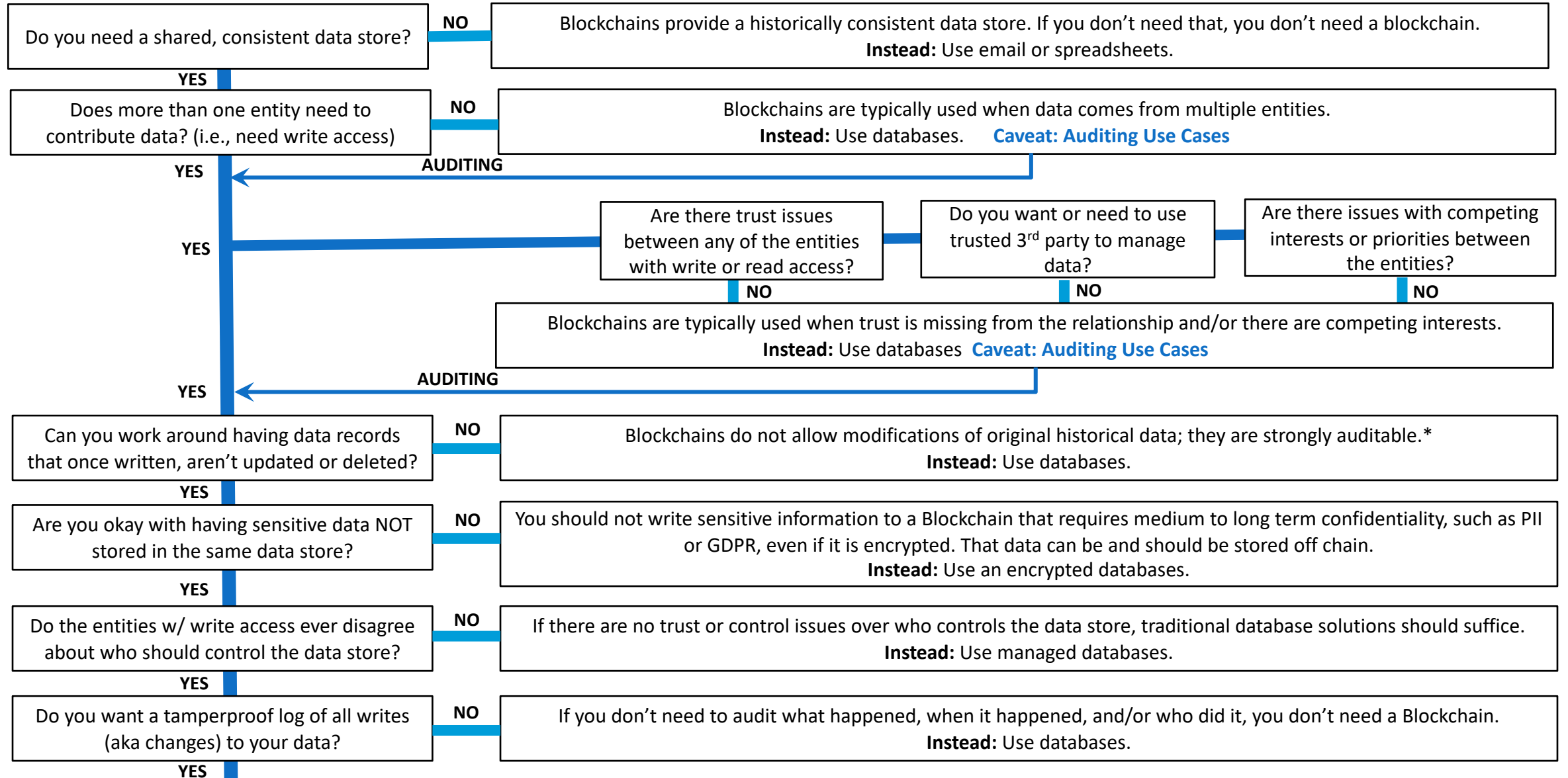
Are there any intermediaries that control the single source of truth?

Does the process involve low-value, manual verification steps?

Yes? Blockchain can:

- Track asset provenance, recording full transaction history on a shared source of the truth
- Enable real-time monitoring and an immutable record of each party's activities
- Accelerate transaction verification and settlement, reducing the need for intermediaries
- Simplify operations by eliminating the manual efforts required to resolve disputes

# Detailed Blockchain Decision Tree:



\* There are ways to:

- 1) remove access to blockchain block data through the deletion of asymmetric keys, or
- 2) archive blockchains and delete them at set intervals, allowing historical data to be deleted by deleting the archived blockchains.

# Blockchain in Action

Bringing it back together – more real world examples of blockchain.



# Bühler | Ensuring food safety

## Challenge

- A lack of connectivity, transparency, and traceability in the food supply chain causes food waste and inefficiencies.
- 25% of all harvested grain is contaminated with mycotoxins and nearly half a billion people are at risk of consuming aflatoxin contaminated crops.

## Strategy

- Augmented physical machines with an AI-enabled insights platform to ensure all grains processed are toxin-free.
- Bühler and Microsoft developed a blockchain strategy to track grain and ensure it's handled according to regulations.

## Results

- Digitally verify that all grains are handled compliantly as they move through the supply chain, providing transparency to each counterparty through a shared ledger.
- Assess any contamination and alert all parties in real-time to avoid a public safety issue.
- Create a shared food-safety utility for the agricultural industry that could guarantee crop safety from farm to fork.

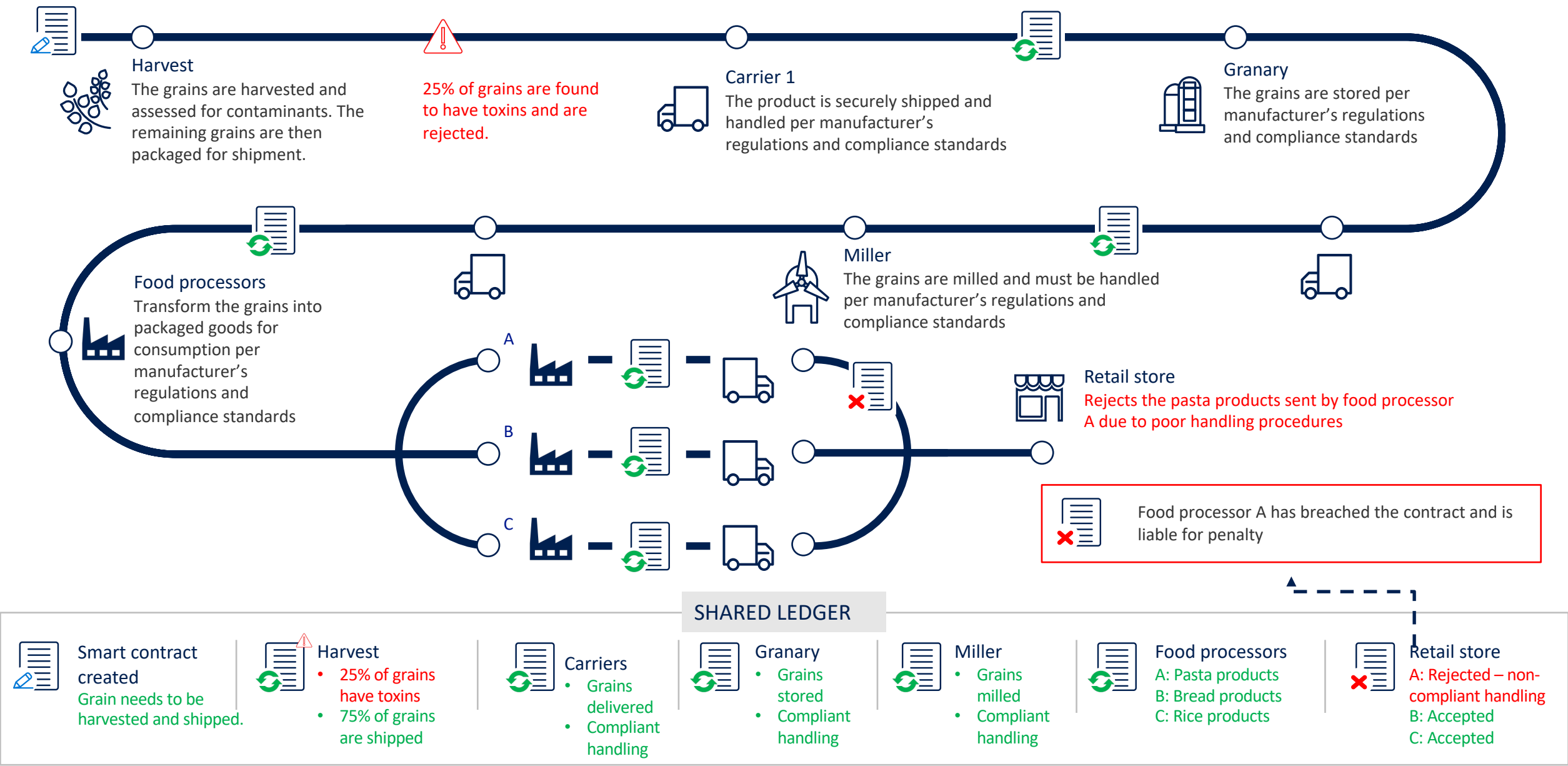


We're not only going to get economic results, but hopefully we can transform and save lives at the same time. It's the most exciting and valuable project I've worked on in my 40 years with the company. It's a really big thing.

— Ben Deefholts: Senior Research Engineer



# Blockchain in action | Real-time grain tracking





# XBOX | Blockchain for royalty payments

## Challenge

- Microsoft used a complicated, manual method to calculate royalties for XBOX publishers.
- Microsoft's royalty process took 45 days, which delayed payments to publishers.

## Strategy

- Microsoft developed a blockchain-based solution that offers XBOX royalty information in near real time.

## Results

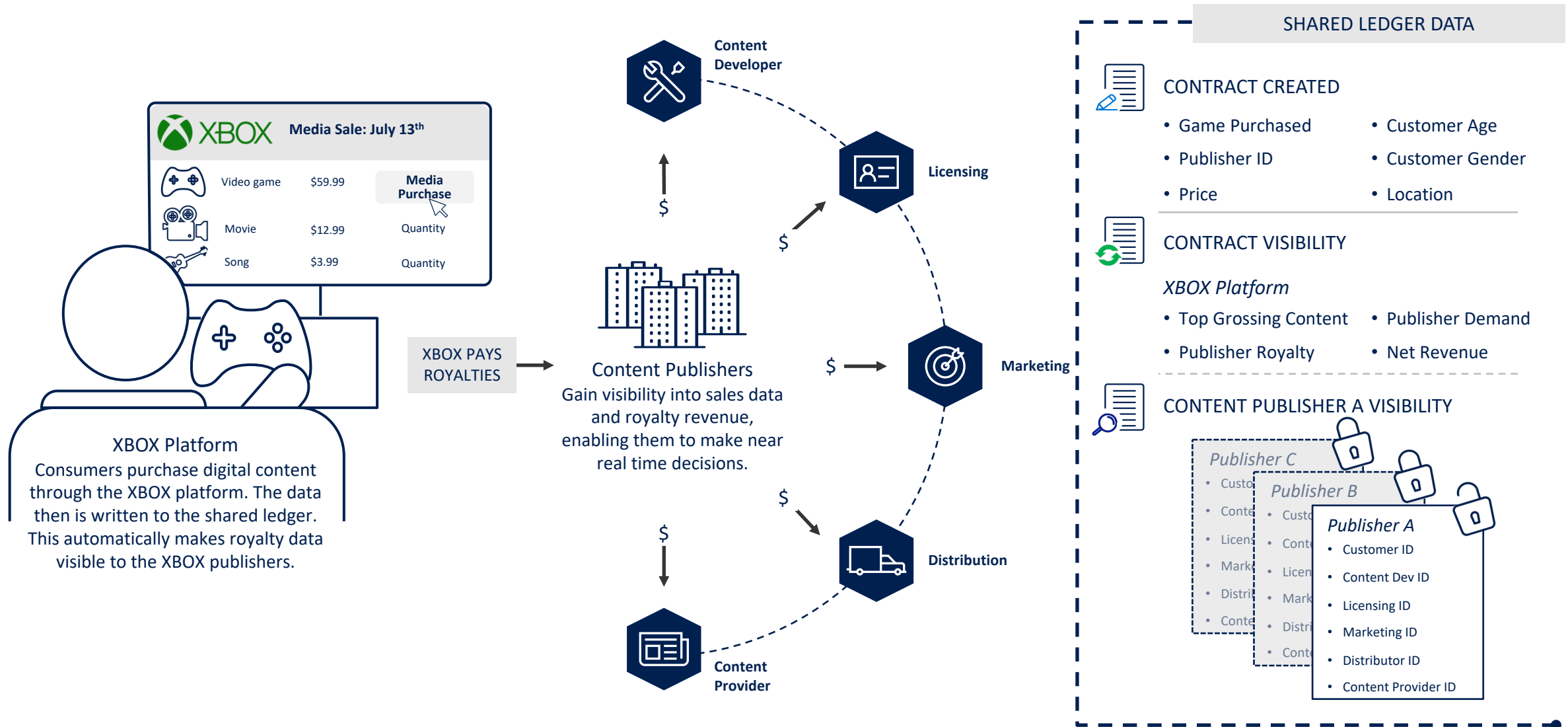
- Blockchain technology improved trust by making the royalty payment calculation process more transparent for publishers.
- Publishers gained actionable business insights, enabling them to proactively respond to customer demand.
- Blockchain technology reduced XBOX process efforts by two thirds and saved publishers time by eliminating the need for manual audits.



“We are developing an ecosystem within the gaming industry that connects developers and publishers to game performance. Providing near real-time access to data greatly improves the process’ effectiveness and insights that lead to a more enriching experience for the partners.”

— Tim Stuart, Chief Financial Officer of Xbox

# Blockchain in action | Manage royalty payments





# 3M | Validate your product's authenticity

## Challenge

- 3M sought a solution to reduce tampering and prevent the introduction of counterfeit drugs into the pharmaceutical supply chain – which is a \$200 billion criminal industry
- Counterfeit drugs negatively impact brand reputation and overall revenue but, ultimately, they hurt unsuspecting customers

## Strategy

- 3M and Microsoft leveraged Azure Blockchain to build an innovative service to track specially labeled packages through any supply chain
- Multilayer QR code labels were used to expose tampering and facilitate easy tracking

## Results

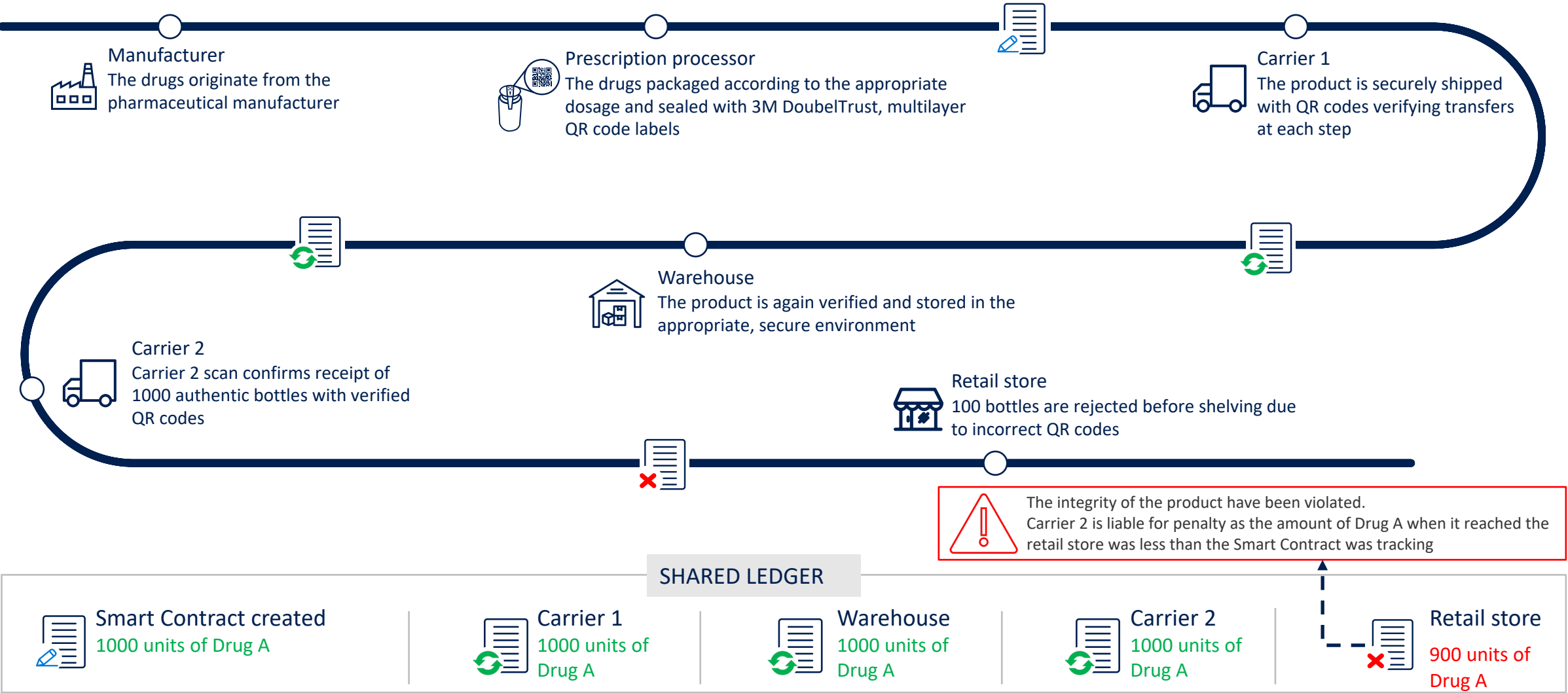
- Blockchain technology improved visibility and security at each transfer to ensure products are authentic and free of tampering
- Real-time registry, validation, and custodial recordings combated counterfeits and eliminated the risk of fraudulent double selling through secure, attestable data



“We combined 3M DoubleTrust tamper-evident labels with Azure Blockchain to create a label-as-a-service supply chain solution that can help identify counterfeits, protect business performance, and save lives.”

— Oscar Naim, PhD, Lead Software Architecture Specialist, 3M

# Blockchain in Action | Pharmaceutical authenticity



At various points in the journey, the IoT device scans the QR codes and records the unique serial numbers which are updated on the blockchain



# Webjet | Reduce booking errors

## Challenge

- Because of the high volume of hotel bookings that pass through Webjet every day, they often experienced booking discrepancies between their systems and those of hotels
- Booking errors negatively affect customers' experiences, undermine trust between Webjet and its partners, and can have serious financial consequences

## Strategy

- Webjet and Microsoft developed a first-of-a-kind blockchain solution to create secure, independent transaction records that all parties can see – known as Smart Contracts, they streamlined the booking and payment process, and reduced errors

## Results

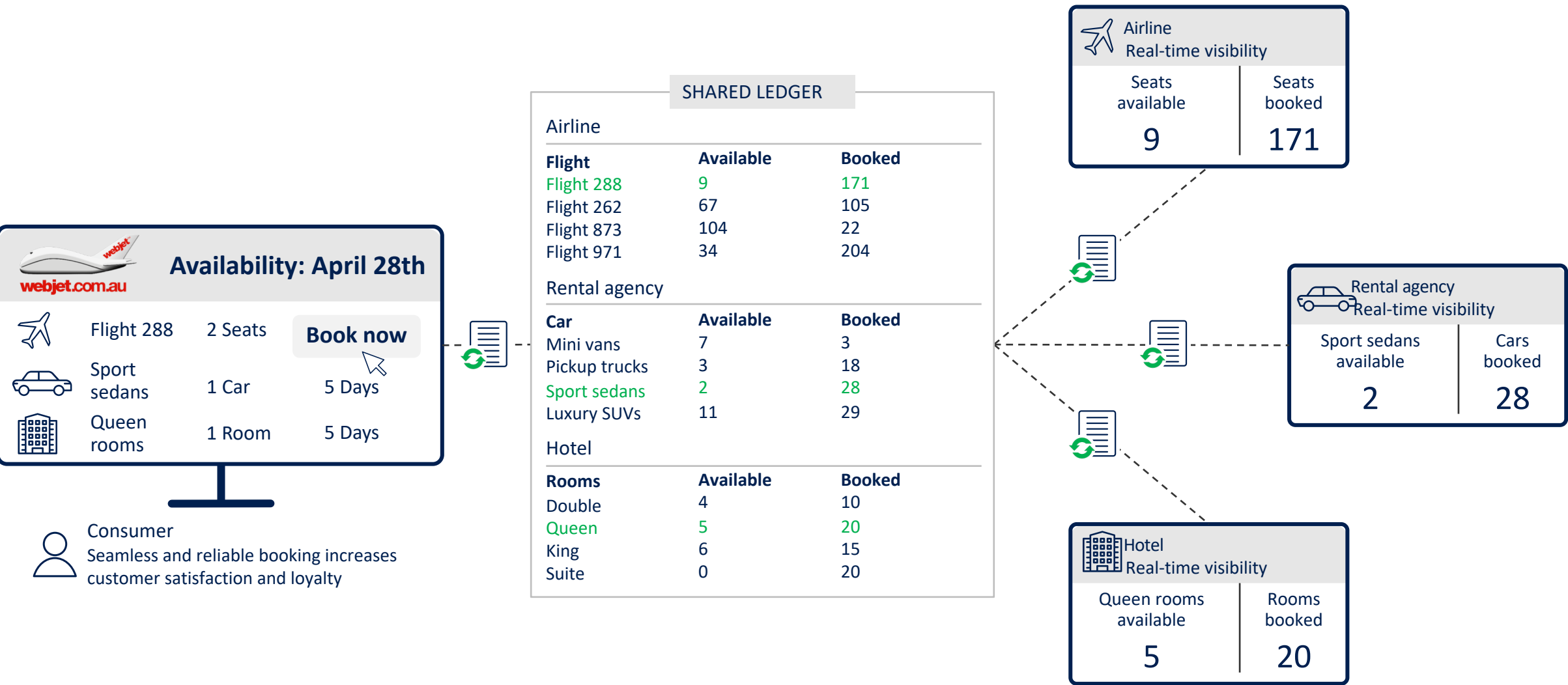
- Blockchain reduced the risk of data inaccuracy, boosted security and efficiency, and enhanced trust and accountability between Webjet and its partners
- The solution gave Webjet a competitive edge and set a new industry standard
- Webjet is now capable of facilitating transactions across the travel industry and selling its solution into other sectors



“Microsoft’s ongoing investments in building the industry’s most trusted cloud platform around the principles of security, privacy and control, compliance and transparency, along with its deep heritage in guiding businesses, including Webjet, through periods of significant IT transformation made the decision to go on this journey with Microsoft a no-brainer”

— John Guscic, Managing Director, Webjet

# Blockchain in Action | Manage complex bookings





# Interswitch | Seamless supply chain financing

## Challenge

- To bridge the gap between the existing corporate-based financing infrastructure in Nigeria and a growing number of small to mid-size enterprises in need of capital.
- Supply chain financing involves multiple counter-parties who lack end-to-end visibility, exposing lenders to risk, delaying financing, and jeopardizing projects.

## Strategy

- Interswitch partnered with Microsoft to develop a blockchain-based supply chain financing service that brings together major financial institutions from different countries to seamlessly manage trade finance.

## Results

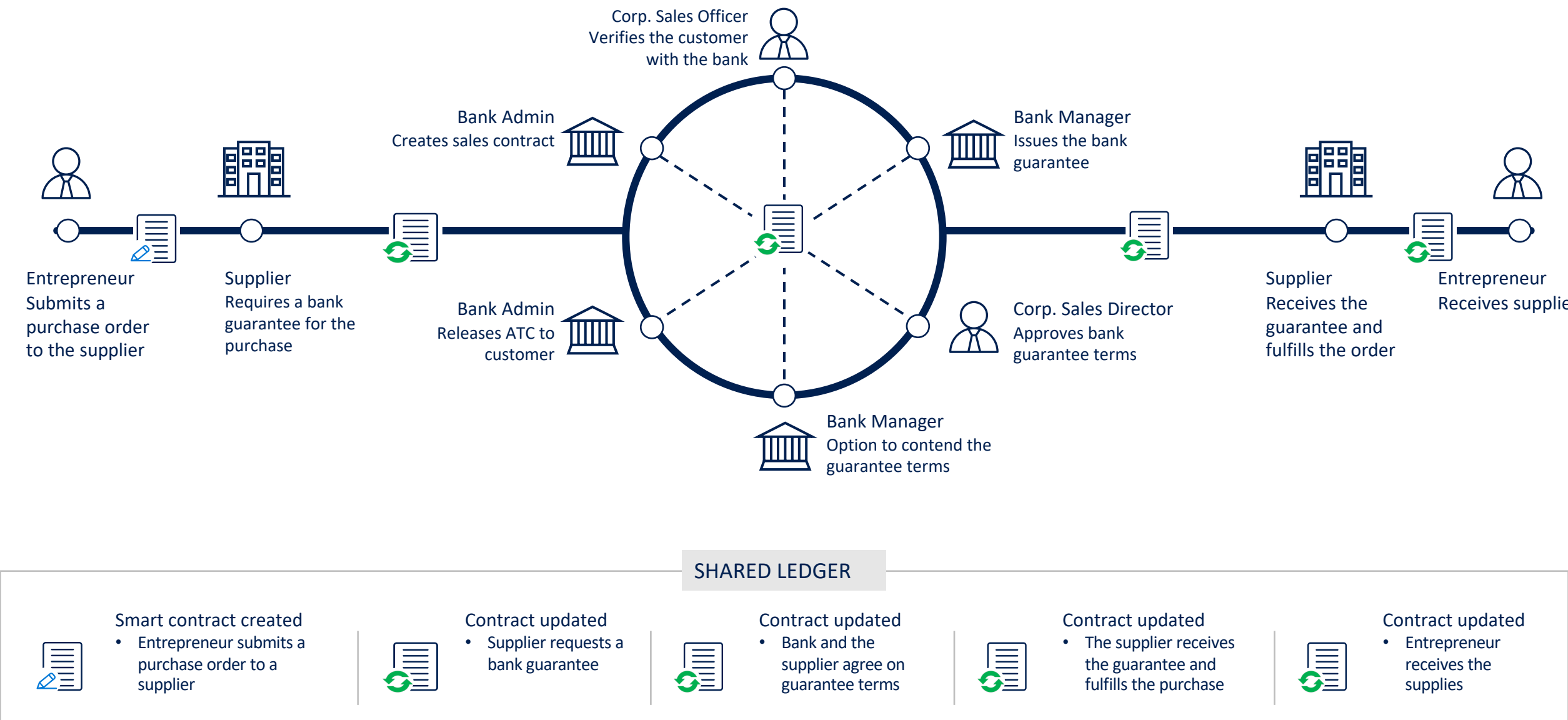
- Banks reduce their exposure to loss or fraud and streamline financing decisions, giving more people access to more funding, while lenders can deliver more value.
- Borrowers now secure financing in three weeks or less, so they can take on more work in less time.
- Project contractors and suppliers can better predict requirements, accelerate turnaround, and increase sales cycles and volumes.



Armed with a single version of the truth across the supply chain, Nigerian lenders and suppliers can identify and build relationships with high performing entrepreneurs. That will help empower people to create more jobs, more wealth, and a more prosperous Africa.

— Eghosa Ojo: Designer Thinker and Head of Innovation at Interswitch

# Interswitch | Seamless supply chain financing



# Appendix

Curious? – Links to more blockchain resources  
Blockchain Glossary



Curious @  
Blockchain?

Links to cool  
articles and  
other  
resources...

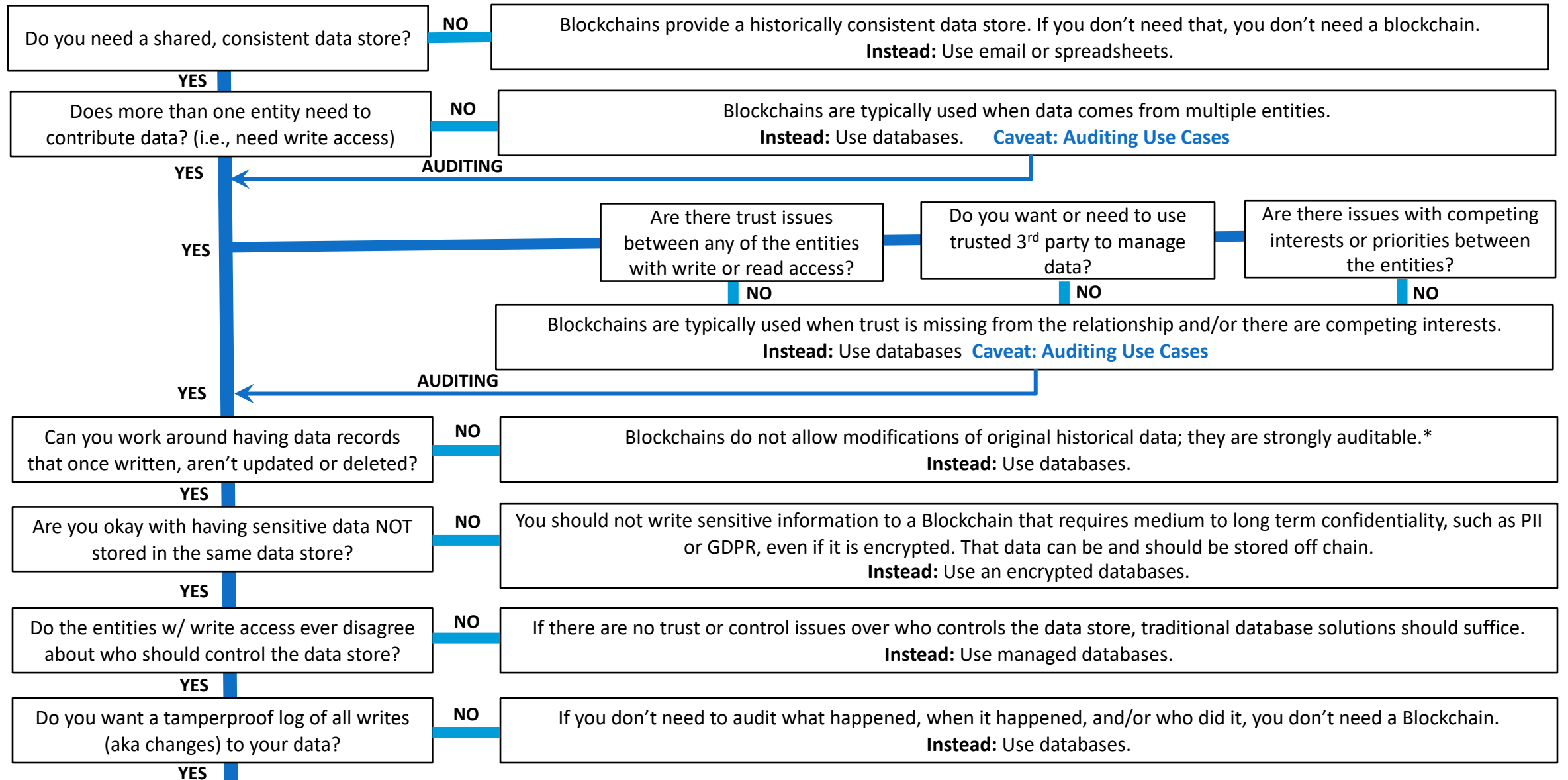
MS specific resources:

- [Microsoft Story Labs – Explanimators, Ch: 5 Blockchains](#)
- [Microsoft.com/blockchain](#)
- [Full Sample Code for Azure Blockchain Development Kit on GitHub](#)
- [BlockTalk Video Series](#) by Azure Blockchain team

Misc. Articles/Documentaries:

- Netflix documentary: [Banking on Bitcoin](#), 2017, includes solid high level blockchain explanation/animated demo
- [Last Week with John Oliver on Cryptocurrencies](#), 3/11/18, blockchain info starts at 6:47 (please don't listen if you can't handle swearing!)
- [Top 10 Ways Internet Of Things And Blockchain Strengthen Supply Chains](#), Forbes, 1/13/19

# Detailed Blockchain Decision Tree:



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# Disruptive Technology – can have broad impacts

- Blockchain and decentralized organizations: Blockchain has the **potential to significantly impact both business processes as well as the fabric of the organization.**
- **The usual linear value chain**, where value is added in strict sequential order, is being **replaced by networked value chain where entities and the entire environment are networked together with automated code** (e.g. smart contracts).
- In a networked value chain enabled by blockchain, there is a more efficient use of resources and process execution, which **leads to cost savings and reductions in cycle times.**
- In terms of the organizational structure, **classical hierarchical layers may be replaced by a new model** emerging from implementations of blockchain and other digital transformation technologies – **decentralized organization.**
- These decentralized organization leverages intelligent and distributed nodes that **are empowered to execute various processes without human intervention or central oversight.**

From the [Blockchain Playbook](#), American Council for Technology-Industry Advisory Council

Key Priority	Blockchain Value Add (data store shareable by trusted and non-trusted partners w/o central admins.)	Centralized DB Shortfall (database controlled by a single entity)
<b>Build Trust</b>	Transactions can be verified and processed independently by multiple nodes with the blockchain acting as a consensus or Proof of Authority mechanism to ensure all nodes agree and are in sync.	Central system, actor or intermediary approves transactions, requiring dependency on the org in which that db resides. Also requires our business partners to trust that org's data is correct, when we have already proven to them in the past that our data can and often does have issues that can take us months to sort out.
<b>Data Confidentiality /Security</b>	Full transparency into transactions for willing parties with private transaction support to address data privacy.	Data secured at db level with perimeter security; security breaches are not uncommon.
<b>Ease of Data Exchange</b>	Shared data layer enables multiple parties to track and share information in a secure and transparent way	No unified & immutable database. Company and partners spend heavily to prevent db tampering and to link db's together.
<b>Ease of Data Exchange</b>	Attestable audits of activity that can be used to inform sales, billing, contract fulfillment, licensing, fines, etc, for speedy resolution and lower audit complexity and cost. E2E visibility for org.	Requires costly data reconciliation. Stakeholders have different records, so conflict resolution is time-consuming, adversarial and costly.

# Blockchains vs. Centralized Databases

Key Priority	Blockchain Value Add (data store shareable by trusted and non-trusted partners w/o central admins.)	Centralized DB Shortfall (database controlled by a single entity)
<b>Platform Availability</b>	Built in redundancy at every node with a complete copy of the blockchain and fault tolerance (i.e., nodes out of sync are evident).	Redundancy facilitated through expensive infrastructure; requires disaster recovery program.
<b>Digital Provenance</b>	Immutable and transparent record of “channel data” for example, from a supply chain perspective enables org to provide proof of timely, accurate data to both its sales force and partners, resolve disputes and data hygiene issues quickly, and creates a single version of the truth the business can rely on.	Scattered data and inconsistent data schemas make it difficult to distinguish good data from bad, genuine from non-genuine, and to provide partners and customers the assurance they seek. Blockchain isn’t a panacea, but using the chain can help us accurately and much more quickly identify the sources of bad data, so we can correct and remedy them.
<b>Real-time Pipeline Data, ensuring compliance and reducing issues</b>	Visibility into the full supply chain of the associated processes and data, and a high assurance audit log helps org ensure the supply chain pipeline is operating efficiently, that contract conditions have been met, and enables us to better measure the state of our pipeline in real-time without relying on partner cooperation.	Limited visibility within the end to end supply chain, means fraud, unintended data errors and non-compliance are only detected after the fact, and are often very costly and difficult to track back to root cause. This also makes it almost impossible for us to measure the real-time state of our pipeline, meaning that we are often weeks out of alignment with the needs of our channel from a supply perspective, hindering our ability to effectively scale to hit aggressive growth targets.

## Blockchains vs. Centralized Databases, cont.