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Microsoft

Blockchain: The Force Multiplier for the Smart Economy

The world is filled with inefficiencies

3 DAYS

Amount of time to sell a share of stock

12 DAYS

Amount of time it takes for a bank to validate your identity and criminal history

6 MONTHS

Amount of time it can take for an organization open a new bank account

1,600 PEOPLE

Number of people employed by a major bank to deal with reconciliation

Sources:
3 days to sell a share of stock. https://www.sec.gov/reportspubs/investor-publications/investorpubstplus3htm.html
12 days - https://stratumn.com/use-cases/KYC-EN.pdf
Up to 6 months to open a bank account in certain countries – Microsoft Treasury

Every industry has an issue with fraud

$8.2 BILLION

Cost of fraud and flaws in digital ad industry

$21 BILLION

The cost of tax return fraud in the US (and that's just 1/3 of medicare fraud in the US!)

$64.8 BILLION

Cost of fraud from the Bernie Madoff scandal

300,000 PEOPLE

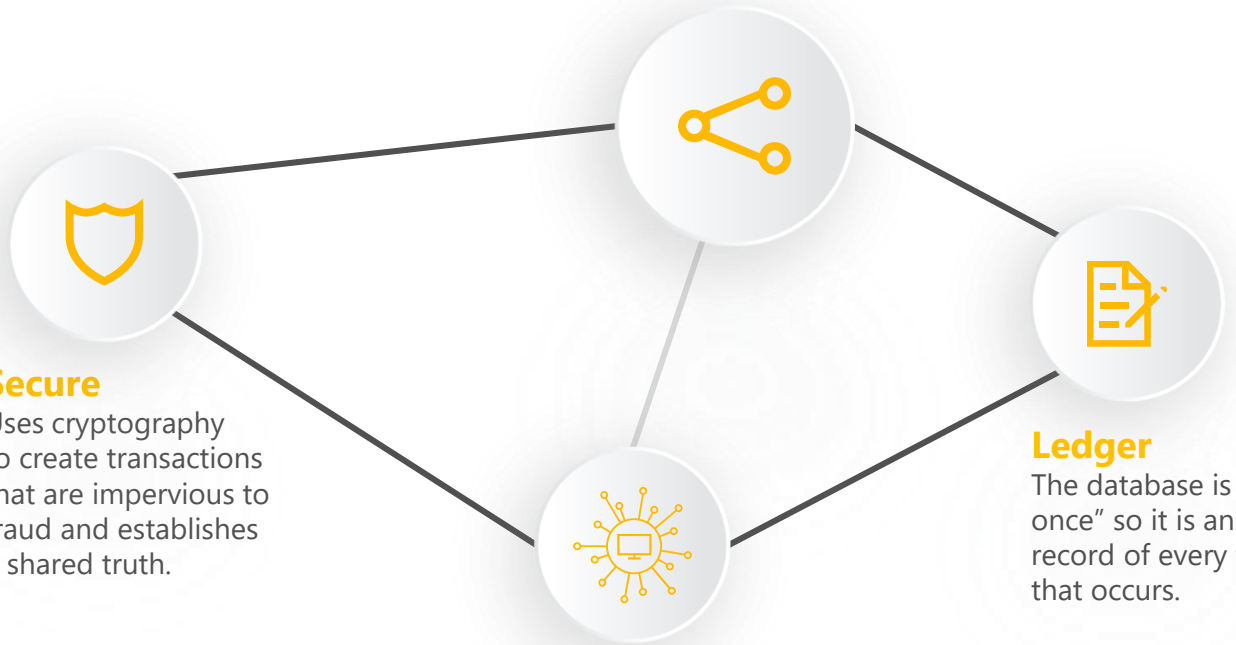
Number of victims in the 2008 Chinese Milk Scandal

Sources:
8.2 Billion Ad Fraud – http://adage.com/article/digital/iab-puts-8-2-billion-price-tag-ad-fraud-report/301545/
21 Billion Tax Fraud - https://www.cnbc.com/2015/02/11/tax-refund-fraud-to-hit-21-billion-and-theres-little-the-irs-can-do.html
64.8 Billion - https://www.cbsnews.com/news/medicare-fraud-a-60-billion-crime-23-10-2009/
300,000 Milk Scandal - http://news.bbc.co.uk/2/hi/7720404.stm

A lack of trust between multiple parties results in the introduction of intermediaries and associated inefficiencies. In more serious cases, people's identities are stolen, their food is tainted, and their safety is compromised. Blockchain has the potential to deliver trust as a foundational layer for society.

Secure, shared and distributed ledger

Shared
Value is directly linked to the number of organizations or companies that participate in them. There is huge value to even the fiercest of competitors to participate with each other in these shared database implementations.



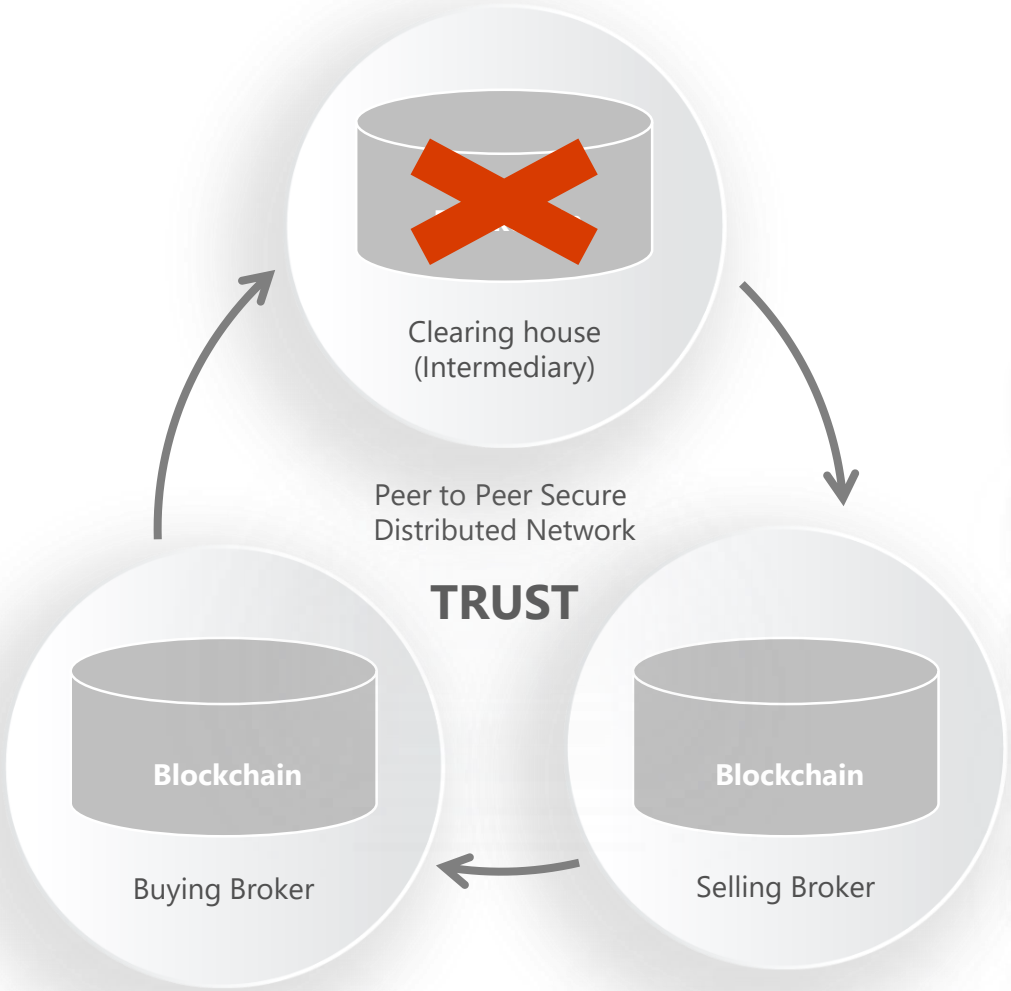
Secure
Uses cryptography to create transactions that are impervious to fraud and establishes a shared truth.

Ledger
The database is "write once" so it is an immutable record of every transaction that occurs.

Distributed
There are many replicas of the blockchain database. In fact, the more replicas there are the more authentic it becomes.

Blockchain is a cryptographically secure, shared data layer that enterprises can use to digitally track the ownership of assets across trust boundaries, open up new opportunities for cross-organizational collaboration and imaginative new business models. As a shared source of trust, it can extend the scope of digital transformation from a single company to the processes it shares with its suppliers, customers, and partners.

A force multiplier for enabling the smart economy by providing a single source of truth in multi-party interactions



Blockchain Attributes

- Trust
- Shared
- Tamper Proof
- Security
- Traceability

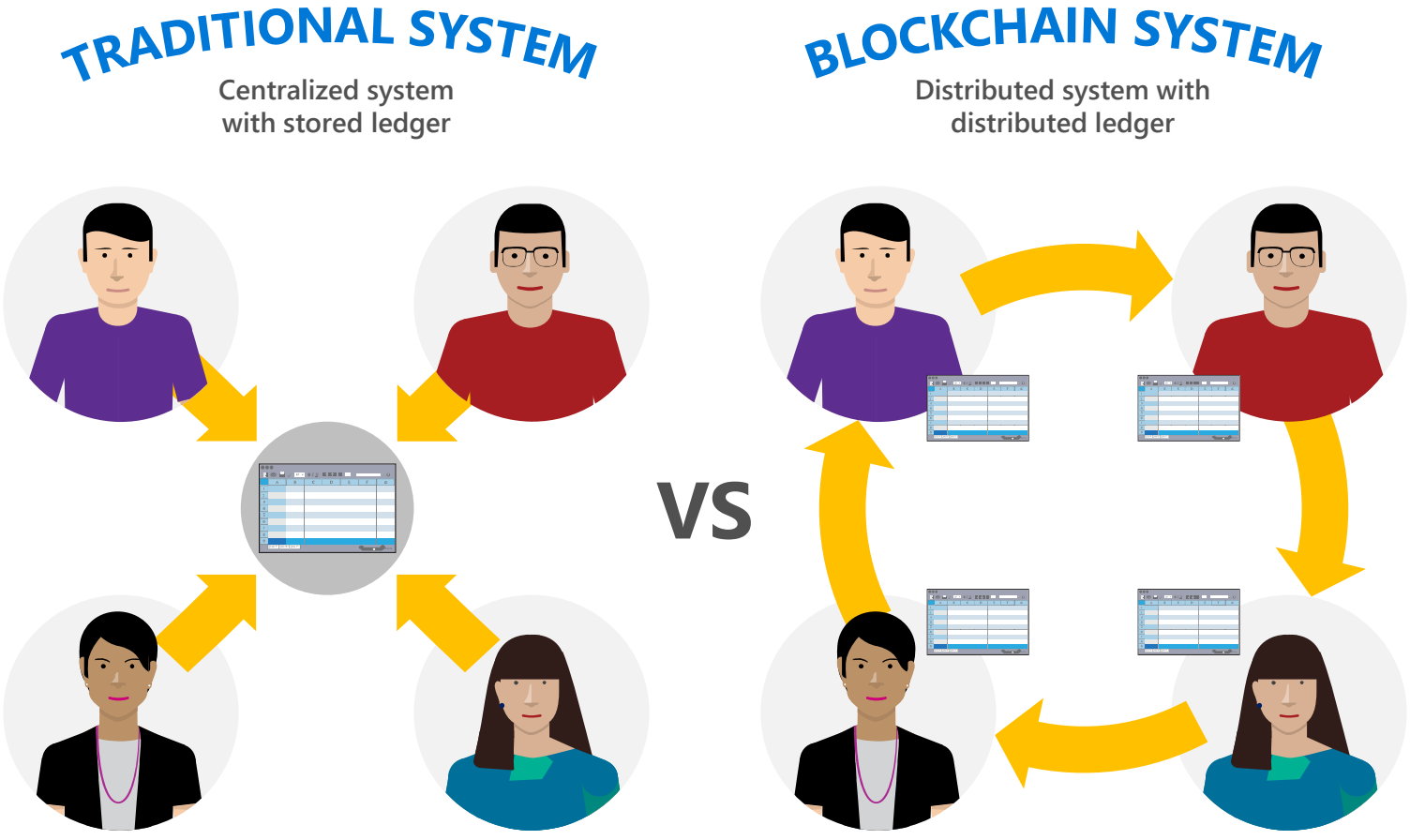
Using blockchain at the center of your digital strategy can help reduce the need for costly intermediaries, eliminate high reconciliation costs, and enable new business models.

Decentralize data in a trustless environment

Traditional ledgers are centralized and use 3rd parties and middlemen to approve and record transactions.

Blockchain safely distributes ledgers across the entire network and does not require any middleman.

The technology maintains multiple replicas like P2P torrent file sharing.



Increase revenue and savings while reducing risk

1. **Eliminates intermediaries**
   Enables industries to redefine or create new business models.

2. **Reduces fraud related to data integrity**
   Highly secure and transparent, making it nearly impossible to change historical records.

3. **Increases efficiency and speed**
   For transactions involving multiple parties in a trustless environment it enables T+Zero settlement time.

4. **Reduce counterparty risk**
   Smart contracts enable “trustless” transactions between multiple parties.

5. **Increases revenue and savings**
   Potential savings and new revenue opportunities through more efficient processes and reduced costs.

Blockchain is bringing more transparency, security, and efficiency in current business processes whilst eliminating inefficiencies.

Activating progressive industry disruption

FINANCIAL

Redesign costly legacy workflows, improve liquidity and free up capital. Help reduce infrastructure costs, increase transparency, reduce fraud and improve execution and settlement times.

HEALTHCARE

Put patients in control of their records, enabling sharing medical data to clinical, research, and financial stakeholders. Provides fast, secure, authenticated access to personal medical records across healthcare organizations and geographies.

RETAIL & MANUFACTURING

Better supply chain management, smart contract platforms, digital currencies, and tighter cybersecurity.

GOVERNMENT

Increase transparency and traceability of how money is spent. Track asset registration, such as vehicles. Reduce fraud and operational costs.

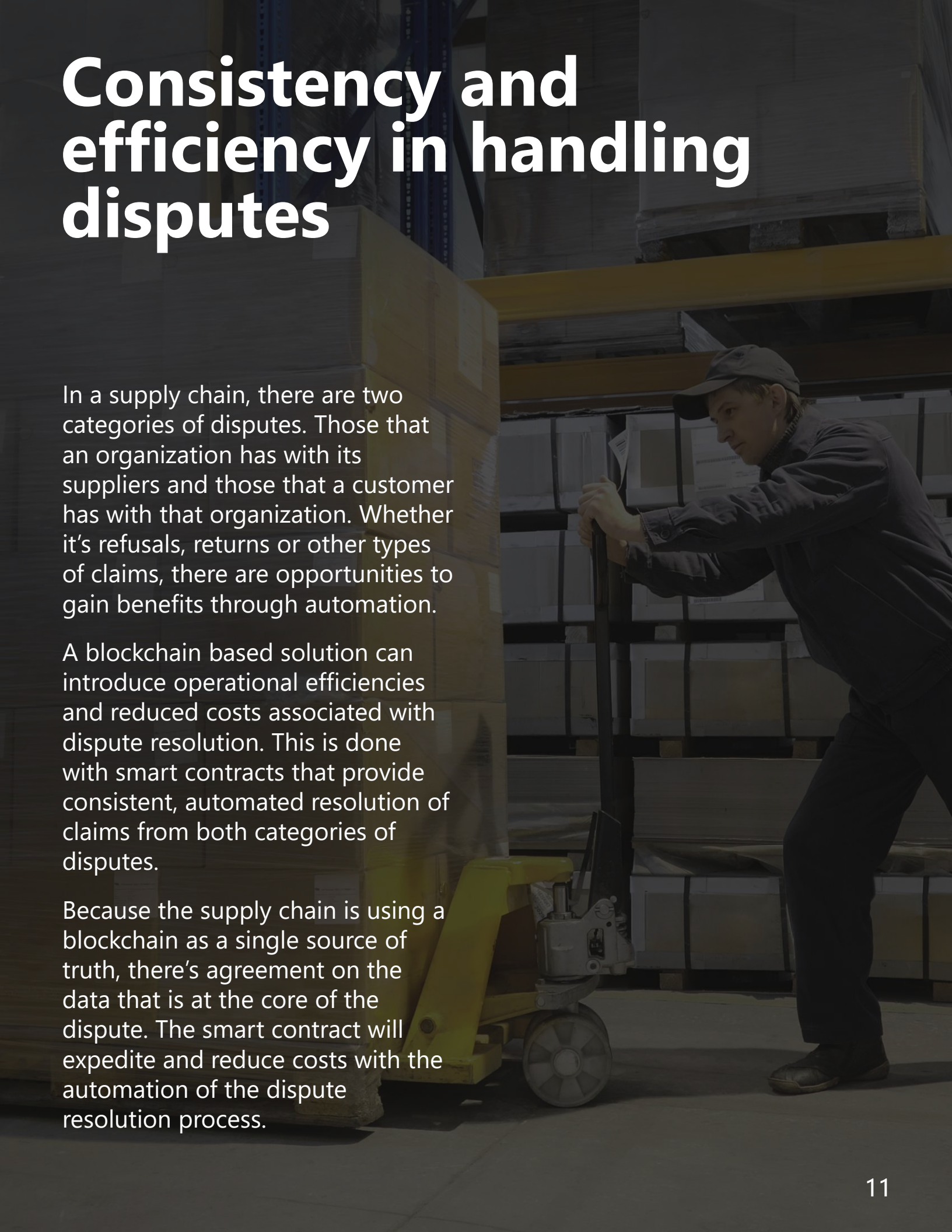
Greater visibility and confidence in purchased products

Consumers are increasingly concerned about where their products are coming from and how they are being produced. Specifically, who farmed the ingredients, where and how they were farmed, and their path from farm to table.

The combination of the blockchain and the internet of things can monitor the conditions in which the products were transported, ensuring what is delivered to retailers is both safe to eat and in a desired condition, such as ensuring chocolate hasn't melted.

The transparency provided by the blockchain can enable near real-time detection of issues. This provides the ability to detect and divert unsafe products and hold responsible parties accountable.

Consistency and efficiency in handling disputes



In a supply chain, there are two categories of disputes. Those that an organization has with its suppliers and those that a customer has with that organization. Whether it's refusals, returns or other types of claims, there are opportunities to gain benefits through automation.

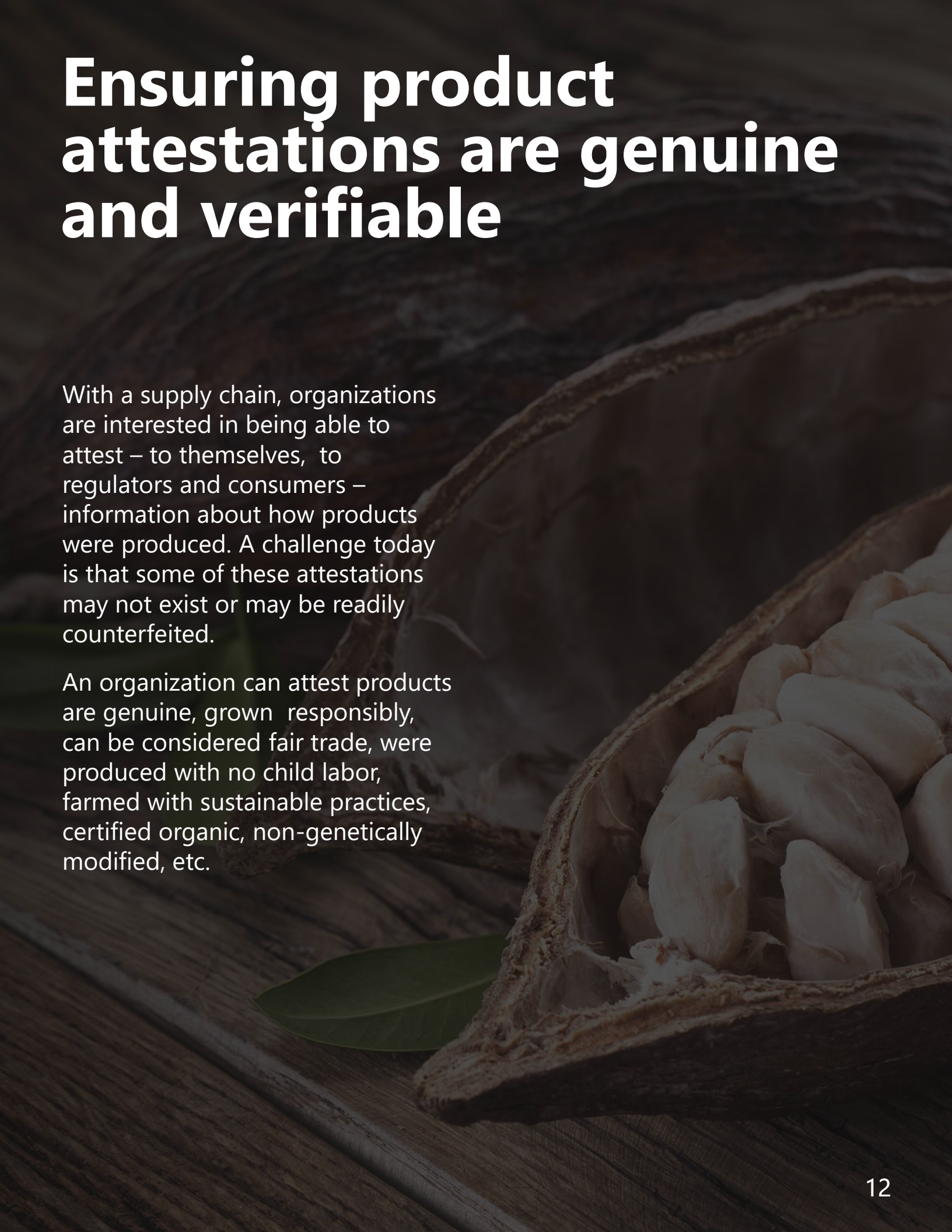
A blockchain based solution can introduce operational efficiencies and reduced costs associated with dispute resolution. This is done with smart contracts that provide consistent, automated resolution of claims from both categories of disputes.

Because the supply chain is using a blockchain as a single source of truth, there's agreement on the data that is at the core of the dispute. The smart contract will expedite and reduce costs with the automation of the dispute resolution process.

Ensuring product attestations are genuine and verifiable

With a supply chain, organizations are interested in being able to attest – to themselves, to regulators and consumers – information about how products were produced. A challenge today is that some of these attestations may not exist or may be readily counterfeited.

An organization can attest products are genuine, grown responsibly, can be considered fair trade, were produced with no child labor, farmed with sustainable practices, certified organic, non-genetically modified, etc.



Trust and efficiency in public registries

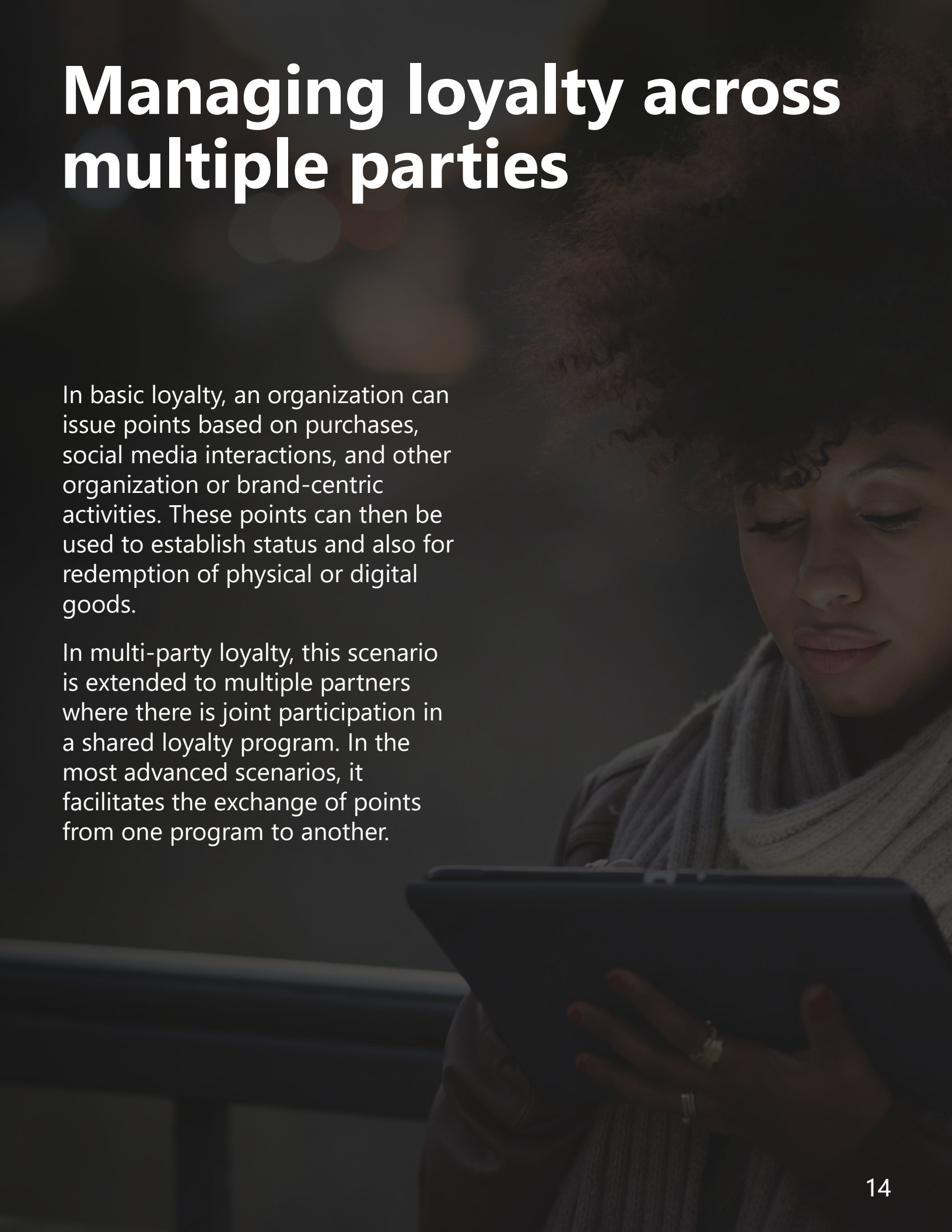
Governments need to provide a number of different types of registries – land registries, vehicle, professional licensing, etc. These maintain trusted records of ownership of a physical asset or professional accreditation. The attestable data can inspire confidence and gain efficiencies for interactions.

For example, a blockchain based registry can provide a government agency with a single source of truth that can expedite the initial sale and subsequent transfer of ownership of land. The data on the blockchain is attestable, and the registration process is automated using smart contracts. Improving business efficiencies and optimizing costs.

Managing loyalty across multiple parties

In basic loyalty, an organization can issue points based on purchases, social media interactions, and other organization or brand-centric activities. These points can then be used to establish status and also for redemption of physical or digital goods.

In multi-party loyalty, this scenario is extended to multiple partners where there is joint participation in a shared loyalty program. In the most advanced scenarios, it facilitates the exchange of points from one program to another.



Attestation and sharing of information stored in a digital locker

From product history, such as vehicle maintenance, to electronic medical records to scanned government documents – there is an opportunity for organizations to house data in a digital locker they provide to consumers. Consumers can then share (and revoke) access to this information by third parties.

An auto manufacturer can offer customers an auto locker where vehicle information – from the initial build of the car through to maintenance of the vehicle – is placed in a digital locker that consumers can share with insurance companies for custom quotes, to prospective buyers to help drive a higher sale price, and with the banks of the prospective buyers to help acquire a lower rate loan informed by car quality.

Ensuring authenticity and safety

There are many parties involved in the supply chain, which introduces opportunities for tampering with genuine products or introducing counterfeit products. Counterfeit products can have significant impacts to brand perception and the bottom line. Counterfeit and tampered products can also introduce risks to consumer safety.

In the pharmaceutical industry, counterfeit drugs are a $200 billion dollar problem and introduces a public safety risk.

With blockchain and additive technology such as 3M's DoubleTrust smart labels, organizations can gain validation from software and visual cues from labels that identify if a product has been tampered with. If tampering appears to have occurred, the solution identifies which supply chain participant was in possession and accountable for the tampering.

This will save lives and improve business performance.

Microsoft's value proposition

Microsoft co-creates with its customers, partners, and the developer community, to accelerate blockchain's enterprise readiness, by empowering organizations to achieve more through secure multi-party collaboration, delivering open, scalable platforms and services that any organization can use to improve shared business processes.

Blockchain on your terms

No one-size-fits-all approach – Microsoft makes it easy to get started and iterate quickly with the blockchain of your choice, both on premises and on the cloud.

Integrated with your business

Merge blockchain with the IT assets you already have – Azure lets you integrate blockchain with the cloud services your organization uses to power shared processes.

With enterprise assurance

With the Coco Framework, Microsoft enables ledgers to deliver the scalability and distributed governance enterprises need without sacrificing the security and immutability they expect.

How to get started

As you evaluate your opportunities for transformation, ask how your business can take advantage of this technology to provide attested data and trusted workflows, track provenance of goods, or provide audit capabilities.

	Ask yourself	Yes? Blockchain can
1	**Is this a business process that crosses trust boundaries?**	Enable real-time transparency by connecting business processes across organizations.
2	**Do multiple parties manipulate the same data?**	Enable real-time transparency and access to an attestable source of truth across organizational boundaries.
3	**Are there any intermediaries that control the single source of truth?**	Introduce trust amongst participants, reducing the need for intermediaries
4	**Does the process involve low-value, manual verification steps?**	Digitize and automate processes via smart contracts and have confidence those processes will execute consistently..

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