

BLOCKCHAIN APPLICATION IN THE SUPPLY CHAIN INDUSTRY





CUP OF BLOCKCHAIN

Globally, about 500 million smallholder farming households earn less than \$2 daily. Can blockchain change this?

WORLD COFFEE CONSUMPTION



COFFEE MARKET SIZE

\$102,279.2 M
by 2023



4.32% CAGR
2018-2023

COFFEE SOURCING CHALLENGES



Ethical pay for
smallholder
farms



Bean freshness
and quality

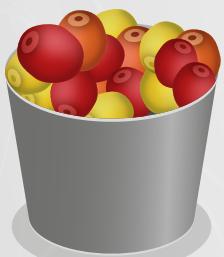


Animal abuse



THE FUTURE OF SUSTAINABLE SOURCING

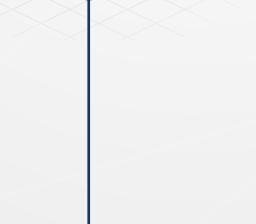
a simplified coffee
supply chain



data
capture

the Provenance
platform

the Blockchain



Customer

Source: Nasdaq

Blockchain
zoo



WINE AND CHAIN

Not only providing provenance, TATTOO also allows consumers and distributors to buy and sell wine, schedule and track shipments, monitor warehousing and delivery, and arrange for and track insurance coverage.

EY OPSCHAIN SOLUTION FT. BLOCKCHAIN WINE PTE. LTD.

THE PROJECT



Traceability
Authenticity
Transparency
Trade
Origin
Opinion

PAUL BRODY, EY GLOBAL BLOCKCHAIN LEADER

"We are thrilled that Blockchain Wine Pte. Ltd. and The House of Roosevelt have chosen EY teams to build the solution for their global commerce network. The future of doing business will be through tokens and smart contracts, and this network is at the forefront of this transformation."



QR CODE



- Vineyards' names and locations
- Types of fertilizers used to grow the crops
- Batch transportation and delivery details
- Batch processing
- Warehouse status

WINE PLATFORM



TIM TSE, PRESIDENT, THE HOUSE OF ROOSEVELT, AND CHAIRMAN, BLOCKCHAIN WINE PTE. LTD.

"By integrating blockchain to our platform, we will establish direct connections between wine producers, the distributors, and the companies involved in logistics, such as shipping and warehousing, with the possibility of payments to be managed electronically."



DIAMONDS ON THE BLOCKCHAIN

Every year, about 4% of natural diamonds are mined unethically. Blockchain can help not only fight the “blood diamonds” trade, it can bring more transparency to the industry.

THE GLOBAL DIAMOND MARKET

Total Production of Natural Diamonds (2018) **77.1** million carats



Diamond Jewelry Market Value (2017) **\$US 82**

Up to **4 million** people have lost their lives due to issues involving blood diamonds throughout history

The Largest Diamond Reserves (2018)



Russia

650

million carats



DR Congo

150

million carats

THE MARKET CHALLENGES



BLOCKCHAIN SOLUTION



Tracking each stone's history, from its extraction to the final purchase



Monitoring shipments of rough diamonds and certifying them as ‘conflict-free’



Eliminating the possibility of forging documents



Preventing the circulation of blood diamonds

REGISTRARS

CERTIFIERS AND AUDITORS

PRODUCERS



MANUFACTURERS



CONSUMERS



RETAILERS

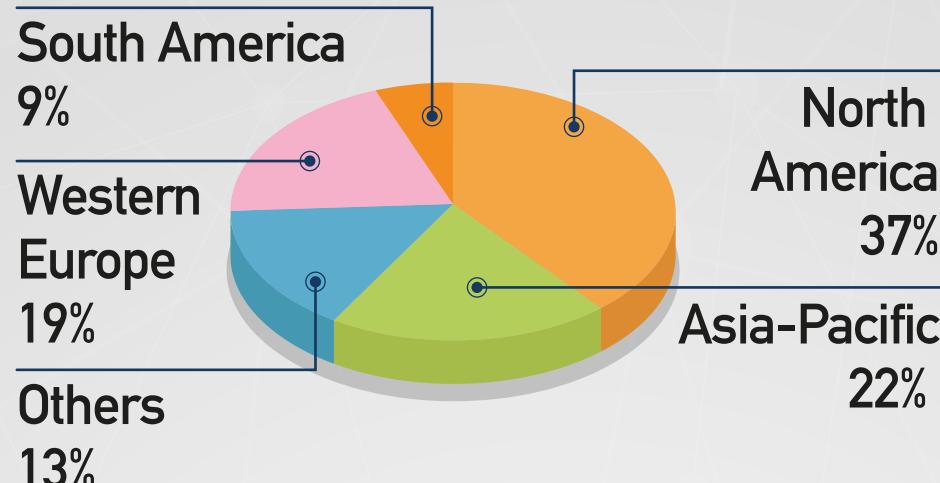
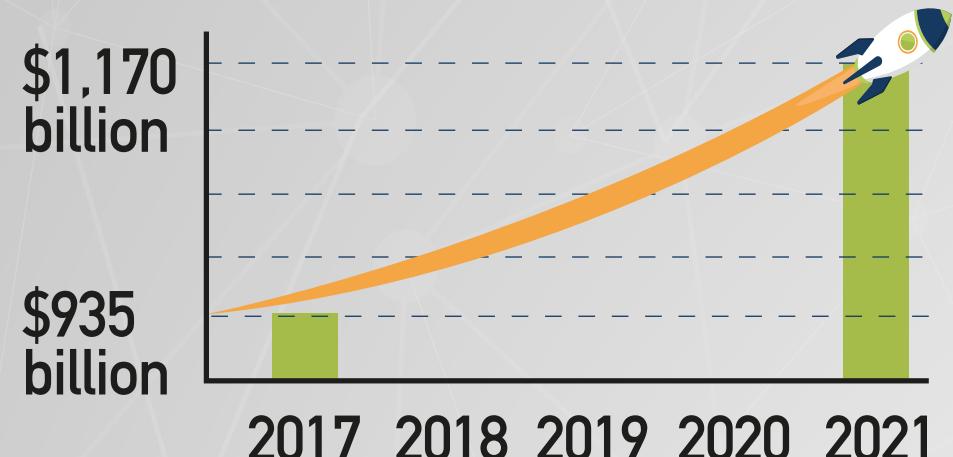


DRUGS ON THE BLOCKCHAIN

Tracking and tracing products is critical to industry's ability to detect and remove potentially dangerous drugs from the drug supply chain.

- Dr. Scott Gottlieb, 23rd FDA commissioner

THE GLOBAL PHARMACEUTICAL DRUGS MARKET



The value of the global counterfeit drug market
\$200 billion



More than 50%
of pharmaceutical
products purchased on
illegal websites are fake

DRUGS MARKET ISSUES



Artificial price inflation



Counterfeit medications



Traceability



Smuggling

BLOCKCHAIN SOLUTION

"A permissioned blockchain network has the potential to create greater transparency, reduce the time needed to track and trace inventory, help determine the integrity of products (such as whether they are kept at the correct temperature), prevent and remove counterfeit drugs, and more."

- Charlie McCurdy, Director of Global Communications at Merck





DAIRY ON THE BLOCKCHAIN

There are over 270 million cows producing milk across the world. Blockchain can help track and trace dairy products and their journey to supermarkets.

GLOBAL DAIRY MARKET



\$13.6 billion
sales of dairy
products in 2018



216 metric tons
dairy market
volume in 2017



\$703.5 billion
forecasted market
value by 2024

Produced in 2018



505.2 million metric
tons of cows milk



20.5 million tons
of cheese

Food Traceability



Milk source



Cow health



Antibiotic usage



Feed quality



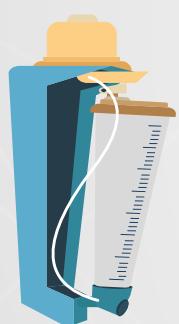
Farmers' margins

MARKET CHALLENGES

BLOCKCHAIN SOLUTION



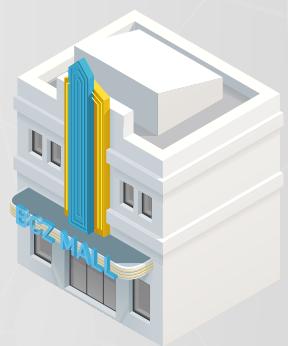
Health report



Milk meter



Milk distributor



Supermarket



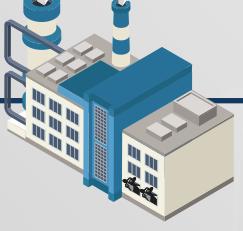
Cow 1



Cow 1 milk yield



Cow 2



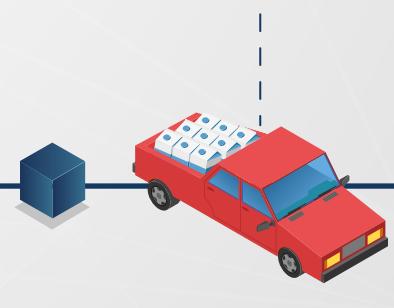
Cow 2 milk yield



Milk truck
pick-up



Milk
analysis



Milk
transportation



Milk bottle 1



Milk bottle 2



TACKLING COUNTERFEITS

Blockchain is here to tackle the alarming rise of counterfeit alcoholic drinks.

30%

of all alcohol consumed worldwide is counterfeit

£54M

2018 UK market value for alcoholic drinks

£218M

Yearly revenue lost due to counterfeit alcoholic drinks

COUNTERFEIT ALCOHOL DRINK INGREDIENTS



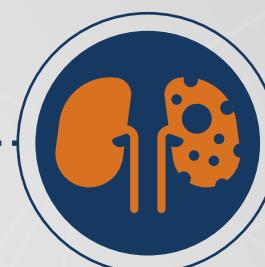
- ETHYLENE GLYCOL
- METHANOL
- ISOPROPYL ALCOHOL



Blindness



Heart Failure



Kidney Failure

BLOCKCHAIN TRACEABILITY SOLUTIONS



Farm



Malting



Roasting



Brewing



Stores



THE PLAYERS

THE WINTER QUEEN

Providing the provenance of its whisky, Fusion Whisky and Adelphi Distillery is blending European history and innovative blockchain technology



BOCK CHAIN

Beer that uses blockchain technology to trace the beer grain ingredients from field to can

APPELLATION EARTH

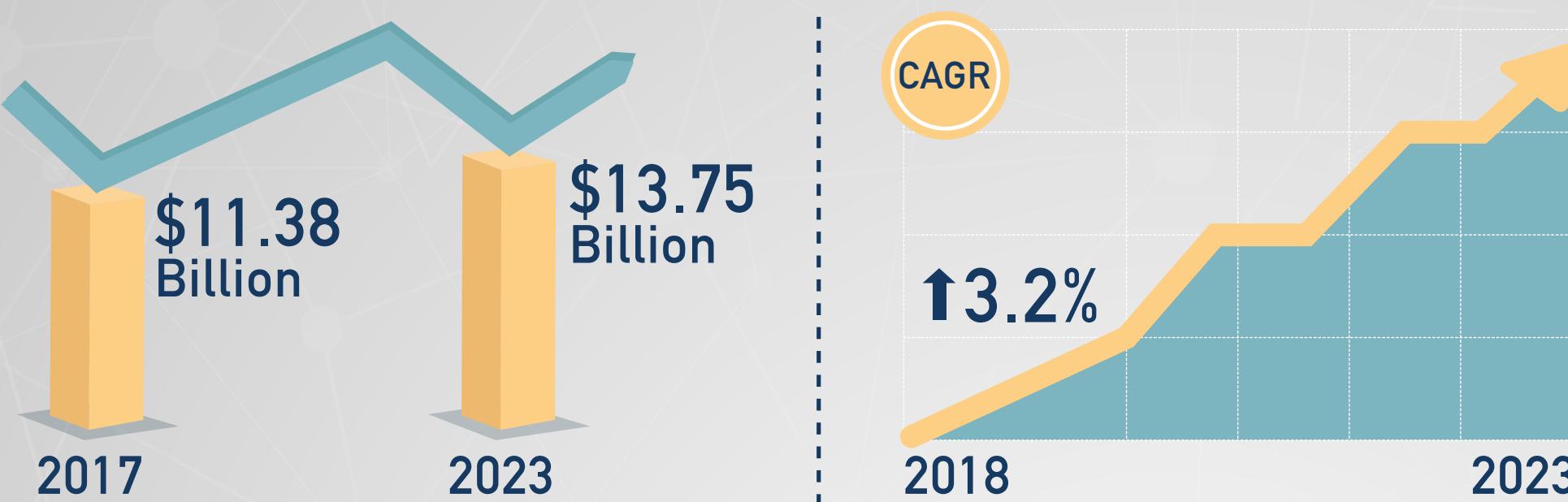
Using NFC to give an identity to each bottle that can be tracked via a blockchain tracing mechanism



TUNA-TRACKING ON BLOCKCHAIN

From the sea to your plate, the journey of tuna can be now traced on the blockchain to meet ethical business standards.

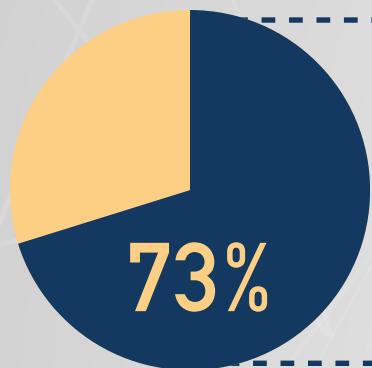
THE GLOBAL TUNA MARKET (2017–2023)



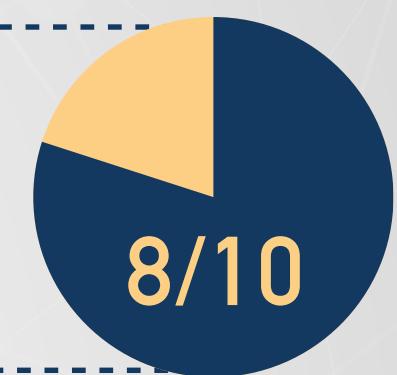
The year-over-year growth rate for 2018 was estimated at

3.74%

OPPORTUNITY

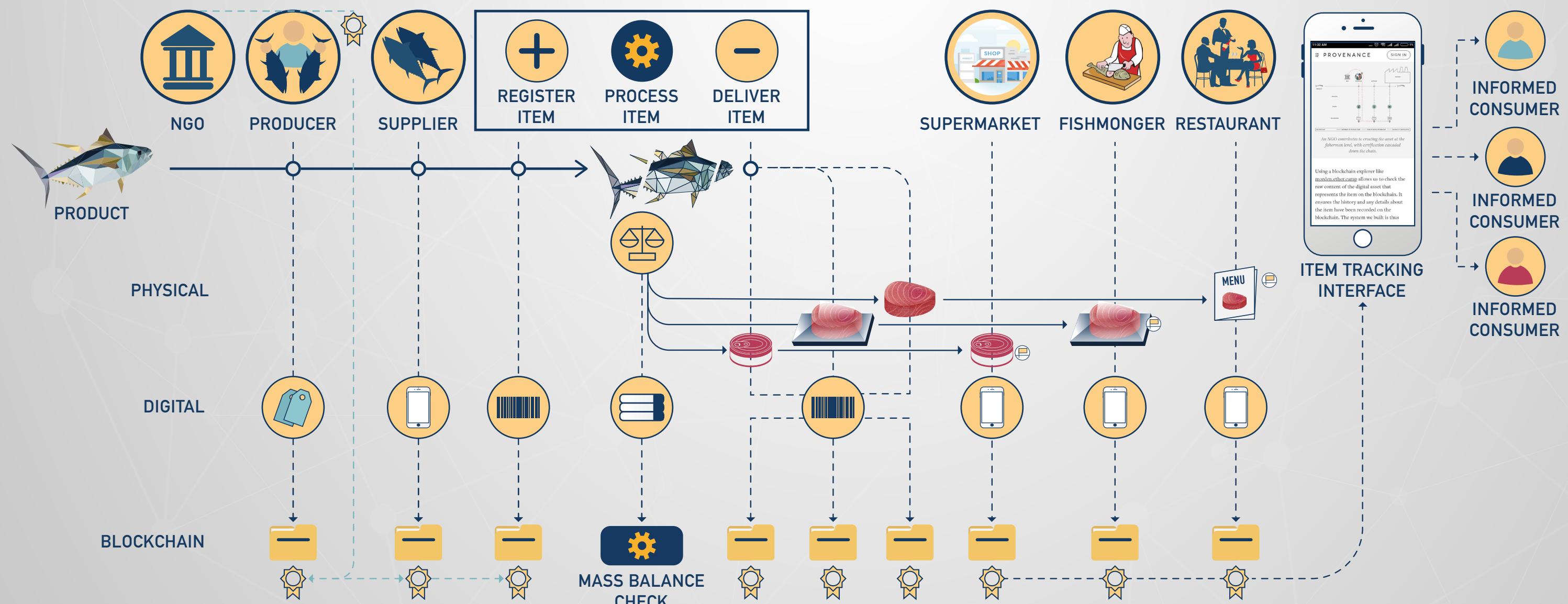


73% of millennials in the UK are willing to pay more for products from ethical businesses, and 8 in 10 consumers check the origin when purchasing products.



ILLEGAL FISHING OVERFISHING SLAVERY SEAFOOD FRAUD CURRENT ISSUES

BLOCKCHAIN SOLUTION



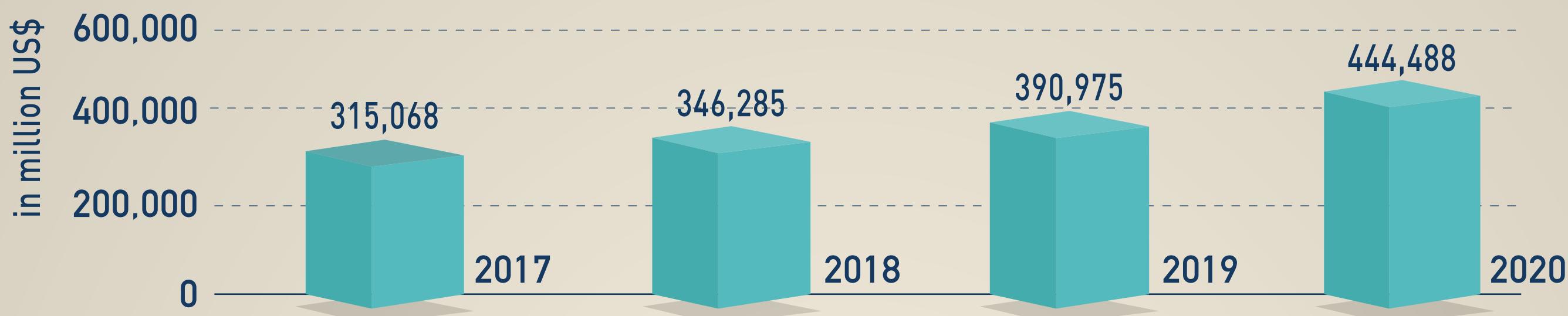
Source: Provenance



BLOCKCHAIN FOR ETHICAL FASHION

Blockchain technology can help the fashion industry trace and track apparel through the supply chain - helping the industry move toward more ethical sourcing and manufacturing practices.

APPAREL SALES



FAST FASHION ISSUES



ENVIRONMENTAL DAMAGE



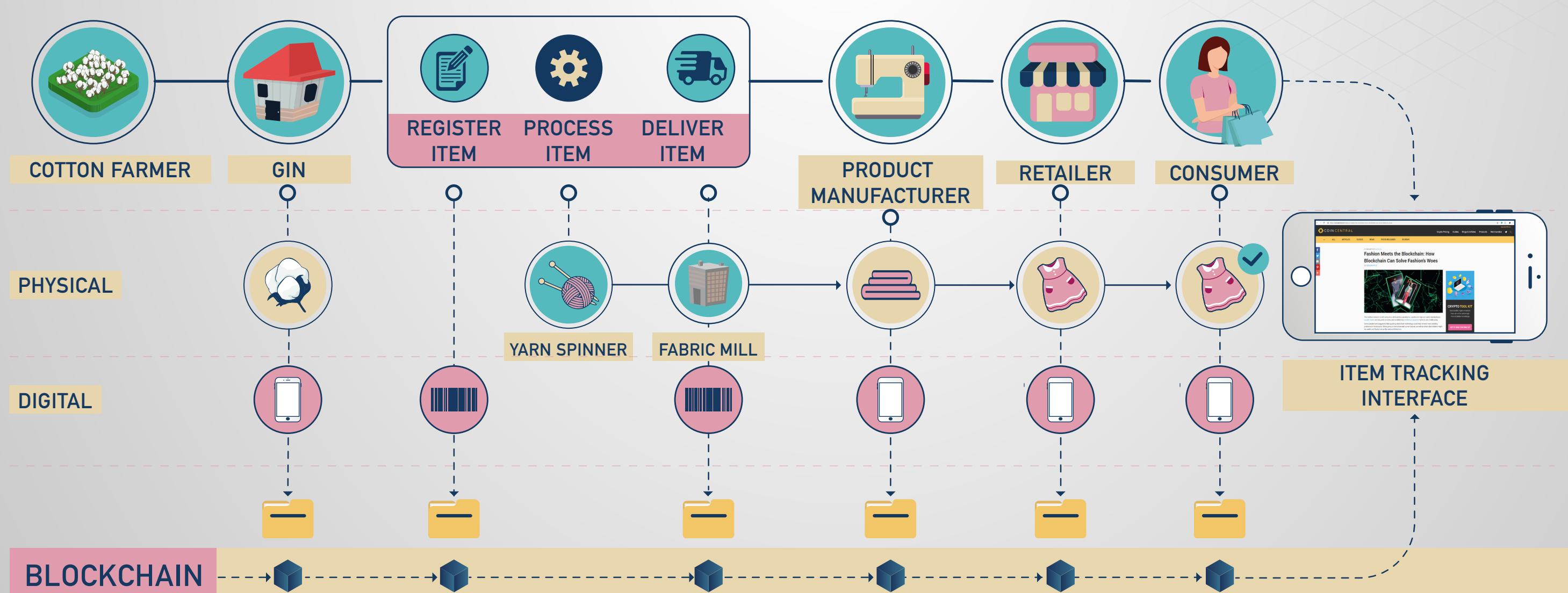
ANIMAL ABUSE



HUMAN RIGHTS ABUSE



BLOCKCHAIN SOLUTION

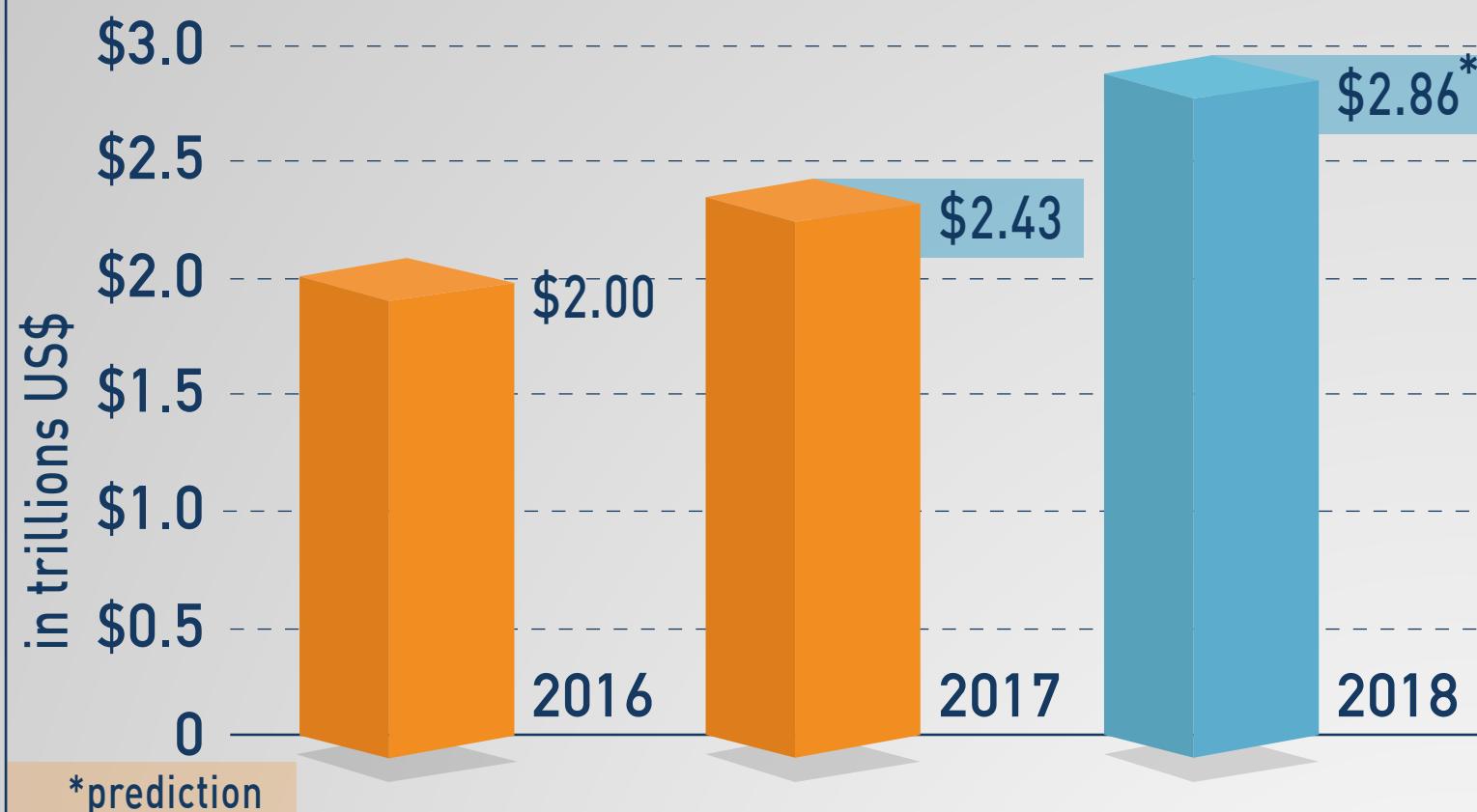




BLOCKCHAIN POWERED E-COMMERCE

The last decade has seen a boom in e-commerce. Following this growth, however, numerous concerns arise. Blockchain is here to address them.

GLOBAL E-COMMERCE SALES



E-COMMERCE CONCERN



Data Ownership



Payment Processing Speed



High Transaction Fees

BLOCKCHAIN CORE FEATURES

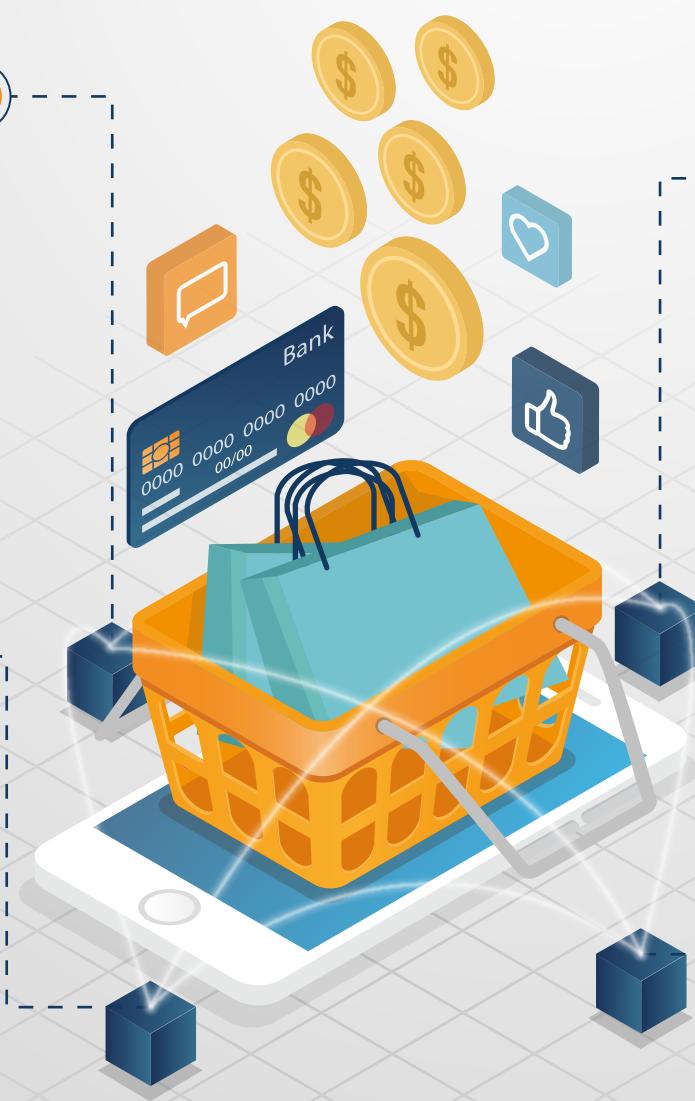


DECENTRALIZED CROSS-BORDER TRADE

Blockchain technology can mitigate transaction fees, provide fair exchange rates, and reduce fraud - all via a decentralized, largely-automated payment framework. That means fewer fees, stronger security, and more.

BORDERLESS P2P PAYMENTS

Blockchain is universal tender that is not subject to exchange rates, embargoes, fees, and other hurdles that hamper international payments, especially on the peer-to-peer level.



BLOCKCHAIN SOLUTIONS

B2B TRANSACTION ECOSYSTEMS

Blockchain allows for border-independent transactions between parties, eliminating middlemen and significantly lowering costs.

CONTROL OF PURCHASING DATA

By providing greater security and anonymity, blockchain places data control in the user's hands. They are in full control and can sell data to third parties or choose not to, should they have concerns about privacy.



THE JOURNEY OF COBALT

Cobalt demand is expected to multiply eightfold by 2026. Cobalt mining is often associated to human right abuses.

"Blockchain has been proven to be a very effective technology in raising the bar."

Manish Chawla, General Manager of IBM's mining and industrial sector business



Congo - produced 64,000 metric tons of cobalt in 2017



Lithium-ion Batteries



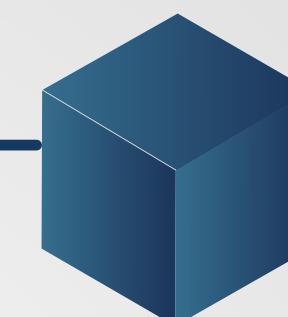
Laptops



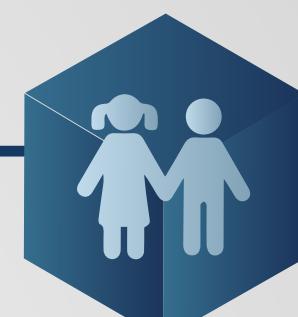
Mobile Devices



Electric Vehicles



Cobalt



35,000 - children were exploited



Ford



LG Chem

Joined Force

Overseen



Huayou Cobalt



IBM

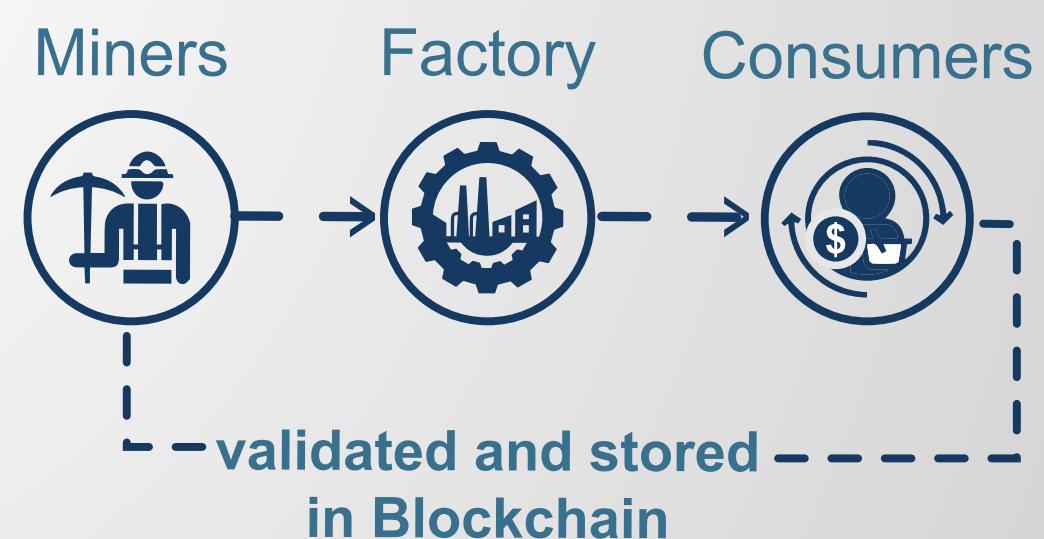


RCS GLOBAL
Making Sure.

THIS COOPERATION AIMS

To prove that minerals are sourced without human rights abuses, for example mined by children or used to fuel conflict.

Expected to be extended for Conflict Minerals (tantalum, tin, tungsten, and gold)



Other Blockchain-Based Mining Projects



Everledger



Lucara Diamond

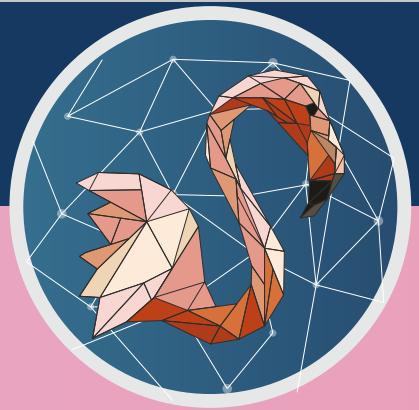


Tracr



Minespider

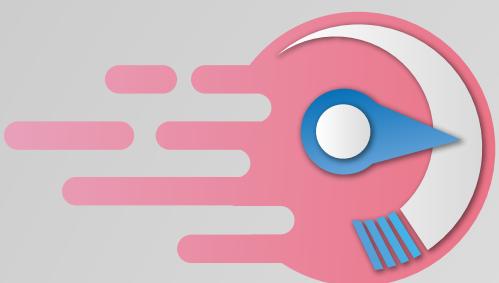
*source: reuters



BEAUTY AND THE BLOCKCHAIN

Blockchain brings transparency to cosmetics supply chains, providing truth about the journey of your cosmetic products.

THE GLOBAL COSMETIC SKIN CARE MARKET



The market will be **ACCELERATING** growing at **CAGR** of nearly **6%**

INCREMENTAL GROWTH

\$45.48Bn

2018

2023

TOP 3 BEAUTY AND PERSONAL CARE MARKETS WORLDWIDE



5% more women say they look for skincare products that are made from natural/organic ingredients



7% more women usually buy skincare products that are free of parabens, phthalates, sulfates, and/or gluten



MARKET CHALLENGES

Consumer health



Ethical sourcing and origin of ingredients



Organic and sustainable production methods



Green chemistry formulation

Energy sources & use

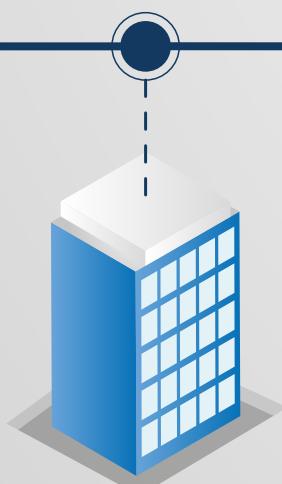
Fraud and brand protection

Carbon, water, and waste management

BLOCKCHAIN SOLUTION



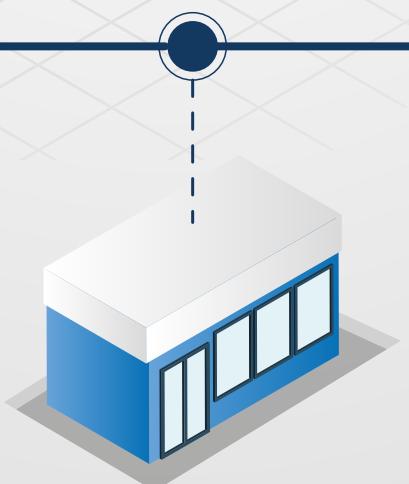
Sourcing raw materials



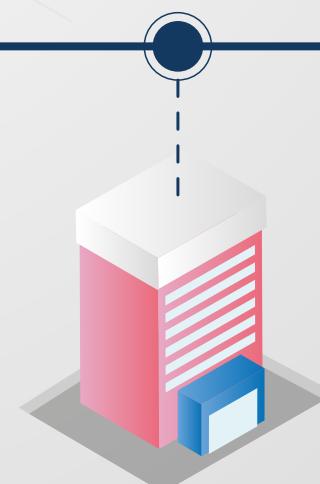
Production



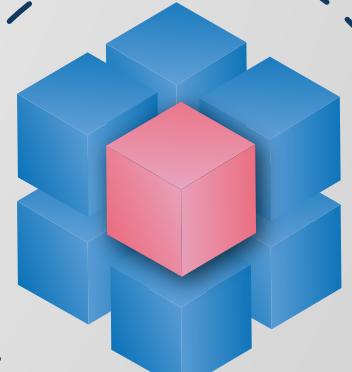
Shipment



Warehouse



Store



Recorded in blockchain



WHEELS ON THE BLOCKCHAIN

Mercedes-Benz is developing a blockchain platform to increase transparency and sustainability in complex automotive supply chains.

THE GLOBAL AUTOMOTIVE MARKET



Automotive industry is worth
\$2 trillion



86 million cars
were sold in the top 54 world markets in 2018

By 2021:



\$9.7 billion
expected blockchain market
54% auto pioneers
will have a first commercial blockchain



MARKET OPPORTUNITY

Blockchain is one of the top five strategic priorities for **53%** of global enterprises in 2019

60% of auto executives believe that blockchain will impact operational metrics in key functional areas

MARKET ISSUES



Spare part counterfeiting



Manual errors leading to outdated log information



Provenance tracking



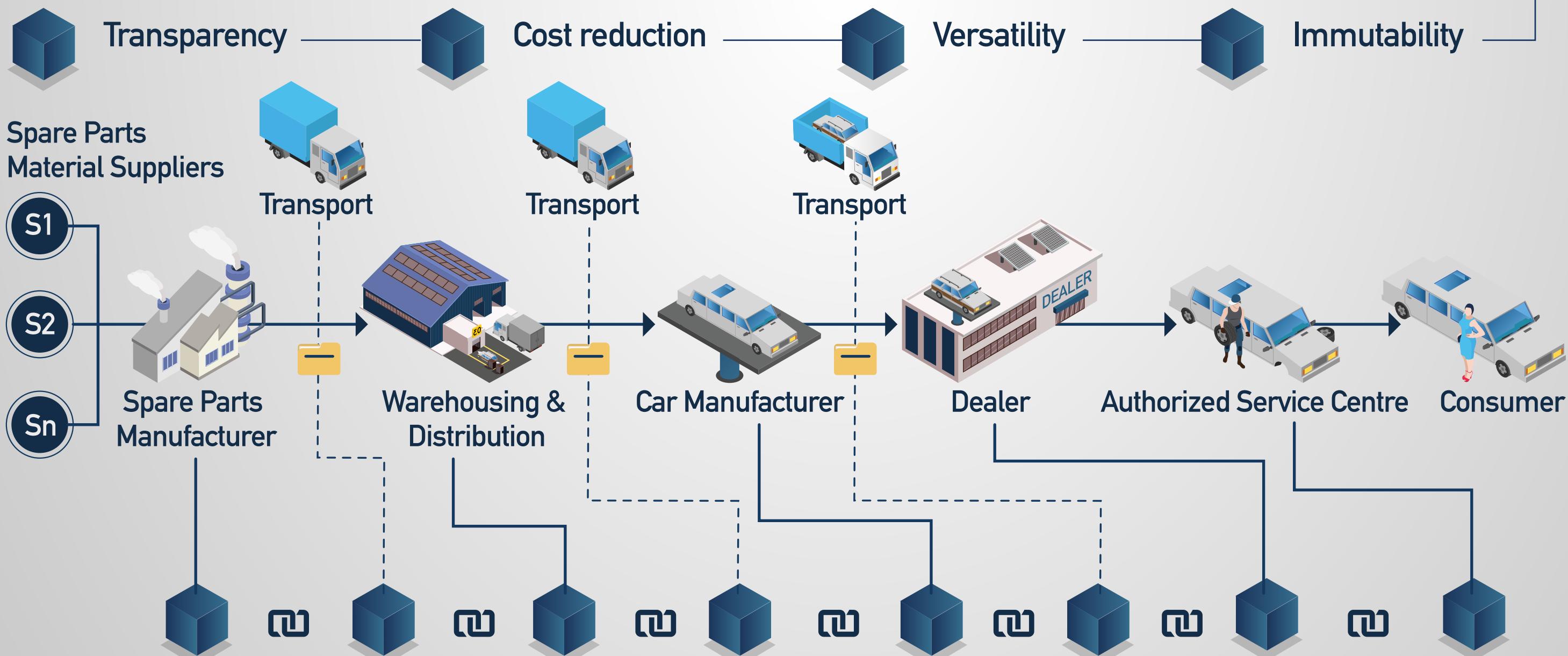
Regulation and competition



Complex and slow processes

BLOCKCHAIN SOLUTION

Blockchain solution in the automotive industry can be vital in tracking and tracing goods as they move from one point to another.



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Association

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Blog

 www.blogchainzoo.com

Technology

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