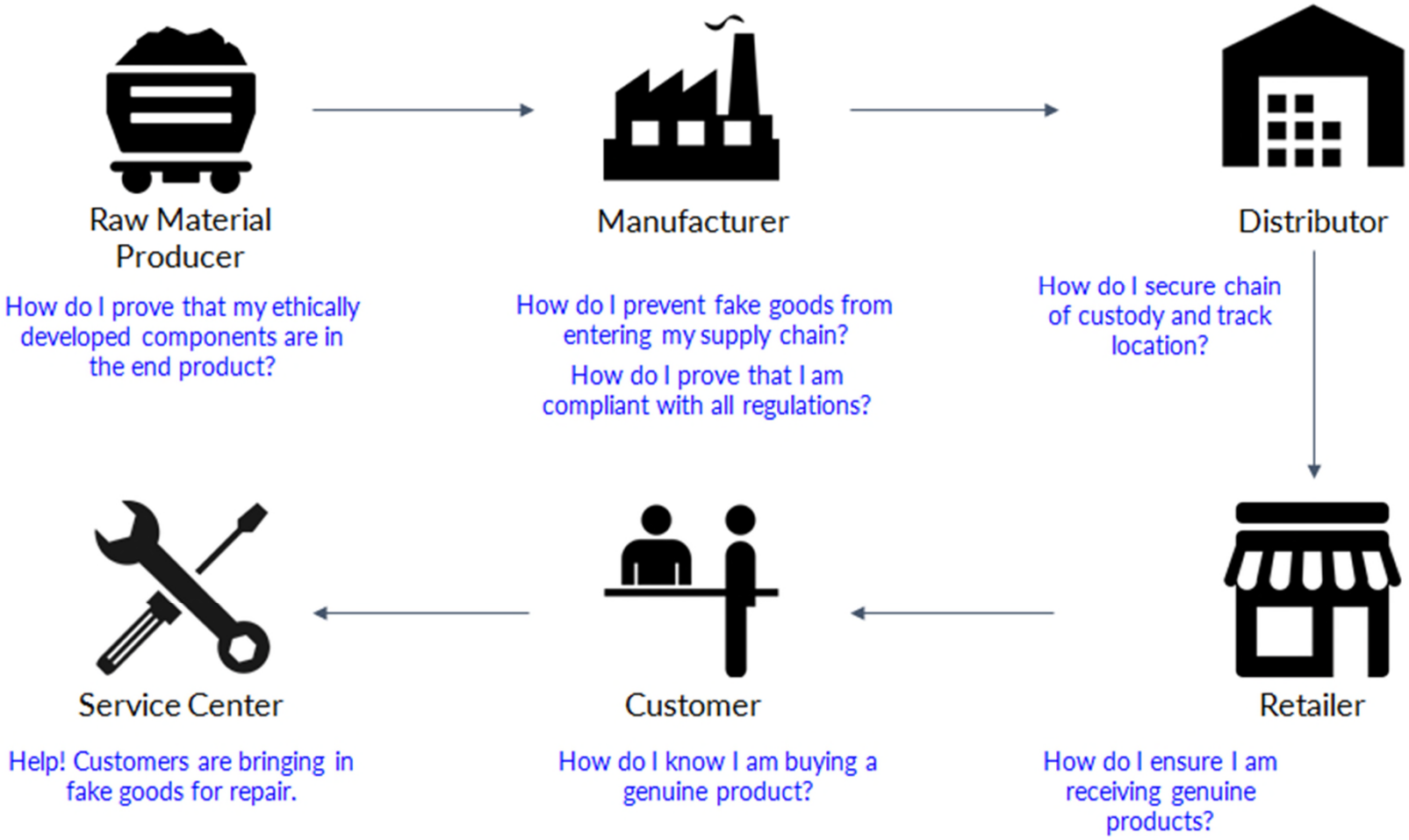
Integrity of Things: Exploring NFC and Blockchain

Ajit Kulkarni
VP of Product, Chronicled

Stephane Ardiley; Director
Product Management, Identiv

Global Supply Chains are inefficient and riddled with issues.



Counterfeiting alone is a global $2Tn problem.

Counterfeit industry is thriving:

- Easily duplicated Identities
- Unsecured custody transfers
- Unverified returns process
- Overburdened law enforcement agencies
- No shared information on flow of goods

→

Resulting in several issues:

- Warranty coverage on fake goods
- Brand dilution
- Loss of customer trust
- Safety issues
- Product diversion

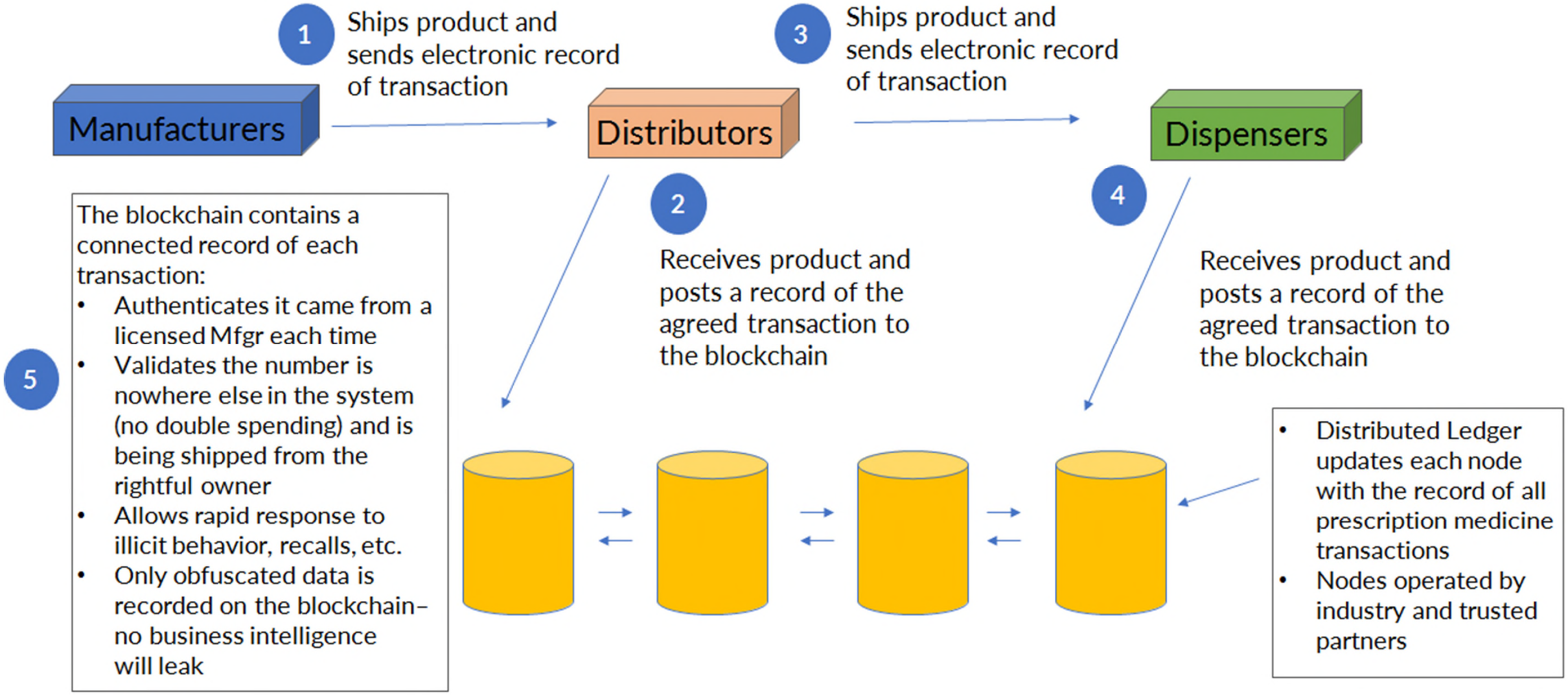
Solutions have been difficult to implement:

1. Secure identities were expensive to provision
2. No way to share business information while retaining privacy
3. No seamless mobile device authentication

What is Blockchain?

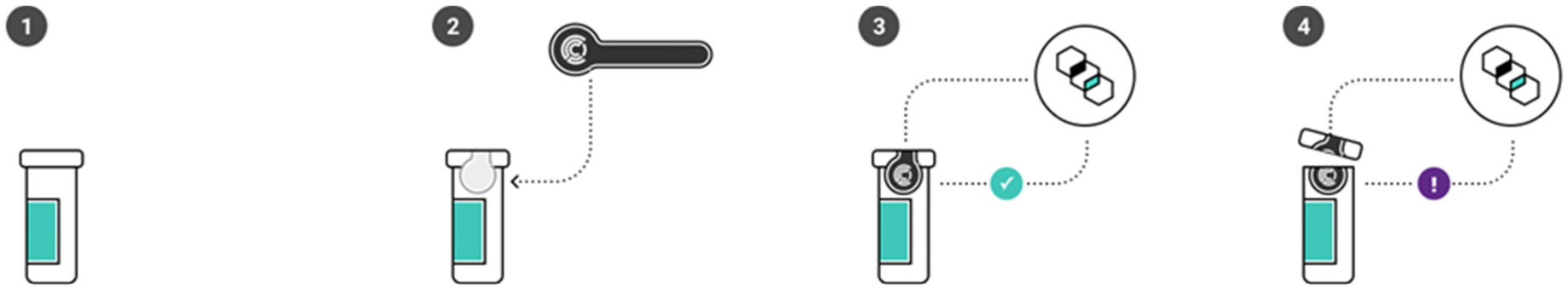
- **Blockchain**, which emerged as the underlying system running the cryptocurrency Bitcoin, is a digital shared record of transactions that is maintained by a network of computers on the internet, without the need of a centralized authority or third party.

Blockchain for Supply Chain: How it Works



High Value Products: Secure Sealing

Cryptoseal



PROBLEM

Today we lack the ability to verify if counterfeits have entered high-value supply chains, or if products arriving to end customers or trade partners downstream in the supply chain have been tampered with while en route.

SOLUTION

- Utilize a secure identity and sealing solution with customized form factor options by product
- Link permanent digital identities of packages moving through the supply chain to a platform that supports the highest level of data security, transparency and access at every point in the journey

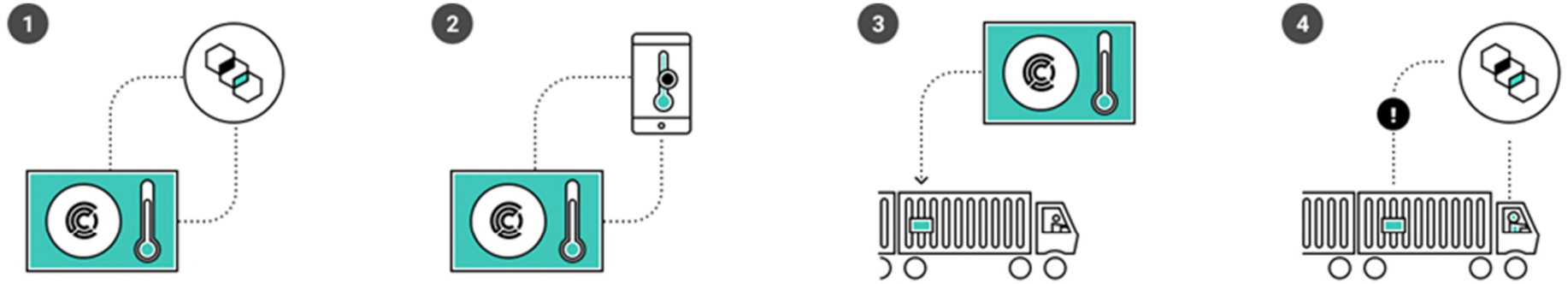
WORKFLOW

- Affix or embed the tamperproof, NFC-enabled Cryptoseal into packaging
- Securely register individual or groups of sealed units onto the blockchain
- Log proof of custody events on the blockchain

Temp Sensitive Products: Cold Chain Logistics

TempLogger

CONNECTIONS SUMMIT



PROBLEM

By 2018, it is forecasted that 26 out of the top 50 Pharmaceutical products will be in the cold chain. There are countless touch points between producer and consumer where temperature-sensitive products are at risk of being spoiled. Currently, supply chains lack instantaneous, continuous and transparent access to this data. This results in regulatory non-compliance, inability to take timely corrective actions, increased liability, loss of product, dollars and potentially, life.

SOLUTION

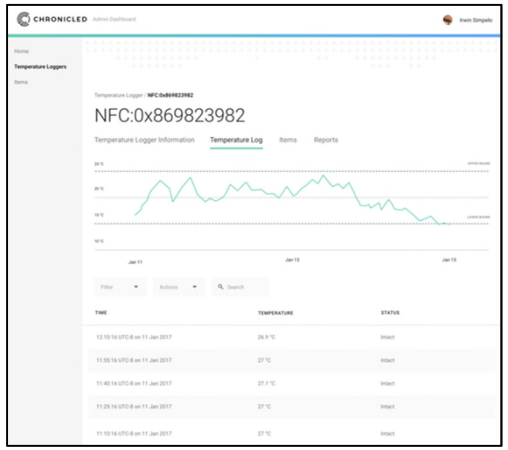
- Provide temperature and humidity monitoring via low cost, disposable and reusable sensors with real-time tracking and alerts
- Achieve regulatory compliance by design, including 21 CFR Part 11
- Easily deploy technology and products via Smartphone and NFC/BLE communication
- Implement interoperable, large scale data networks supported via IoT gateways
- Integrate with ERP and supply chain solutions

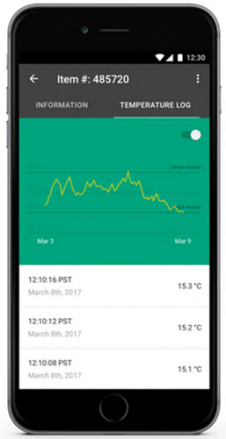
HOW IT WORKS

- Provision NFC/BLE TempTracker with Smartphone Application
- Affix TempTracker to packaged good(s) or include in cold box
- Transit or central operator to receive notifications if temperature goes out of required range

IDENTIV CHRONICLED

Introducing Temperature Logger





Cloud Service

- Label management, configuration, and temperature profiles
- Collects and stores records in database
- Cloud-based analytics and remediation Integrity check of temperature records

Mobile App

- Tag activation and setup
- Online/offline option
- Local analytics with graph
- Android-based app available via Google Play
- Compatible with Moto X, Nexus, LGE, Samsung (S5 and up), and Sony Ericsson Xperia

Label

- Low-cost, self-adhesive
- Precise temperature sensor
- Digital storage
- Flexible battery
- NFC-enabled

Smart Sensor Label

CONNECTIONS SUMMIT

A compact **smart sensor** for the IoT.

A dream come true for **pharmaceutical** and cold chain **monitoring**.

- Small credit card-sized NFC label for temperature data logging
- Thin, flexible battery
- Temperature: -30 to 50˚C (-22 to 122 ˚F)
- Battery life: Up to 8 months
- Log capacity: >10,000 (can exceed 30,000)
- Configurable logging interval
- NXP NHS3100 with embedded accurate temperature sensor
- Protected temperature records (target CFR21 part 11)
- ISO/IEC 17025 temperature calibration procedure
- Programmable software/firmware to support additional use cases, i.e. alarm setup, record only extreme temperatures, etc.

Developed by:

IDENTIV

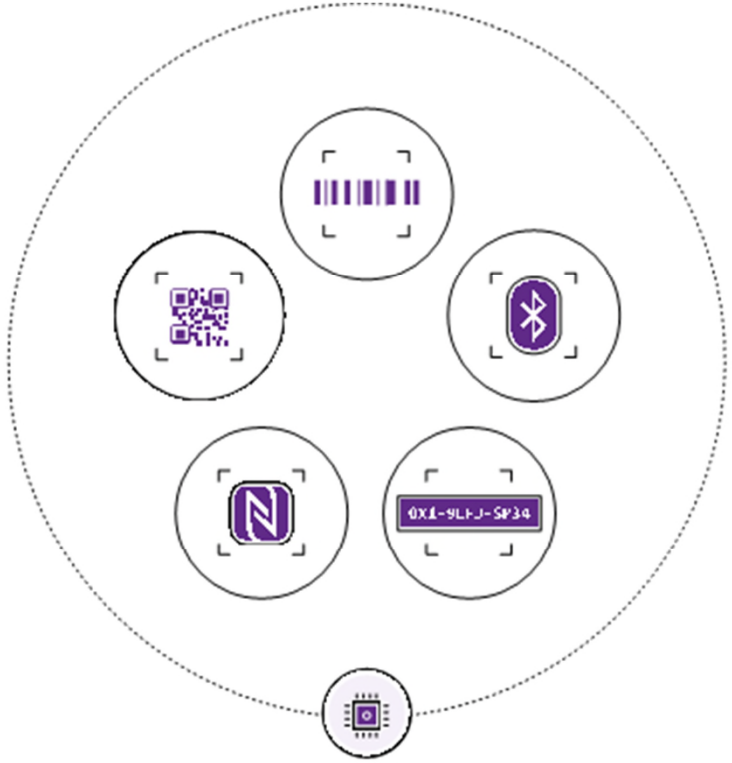
CHRONICLED

Trusted IoT & Smart Supply Chain Solutions

CONNECTIONS SUMMIT

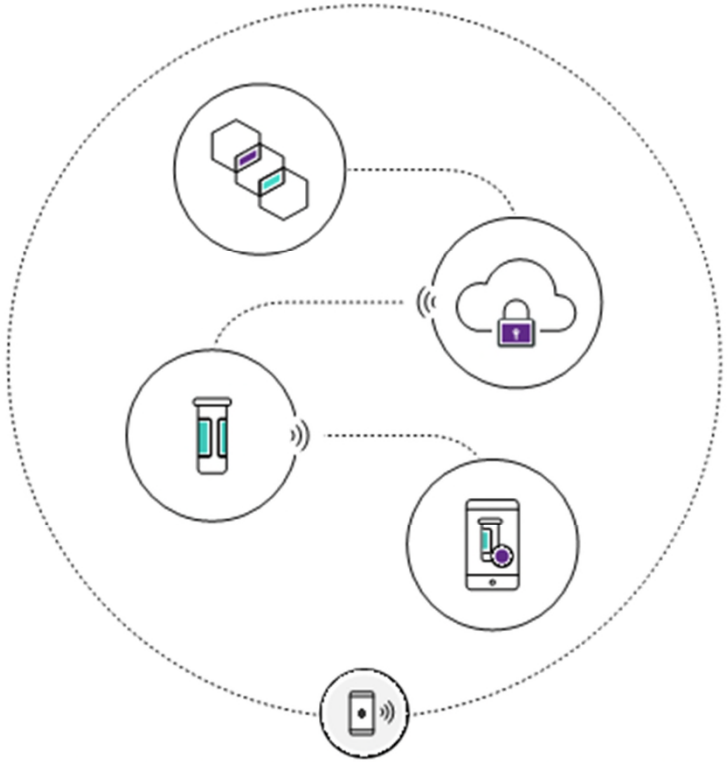
TRUST & AUTHENTICITY

- Secure your physical products with blockchain and unique digital identities across all channels



TRANSPARENCY & PROVENANCE

- Trace the history of your products and processes by embedding our versatile micro-technology



INTEROPERABILITY & INTERACTIVITY

- Seamlessly access, interact with, and manage your systems and processes utilizing our Smart Products & Applications

IDENTIV CHRONICLED