Pharmachain

By
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www.sprytech.uk  www.pharmachain.net
Introduction

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Our Products and Services

- Blockchain and Cyber Security Technology Development
- Blockchain Application Development
- Blockchain Technology Services (Ethereum & Hyperledger)
- Advisory and Consultancy Services
Other use cases - IOT, Finance

IOT Device Firmware Upgrades
Over the Air (OTA) firmware upgrades are open to attacks and the time taken for data transfer is considerably higher.

To make the process more robust, the server side of the OTA update is replaced with a modular, distributed, and layered architecture that uses a DLT framework of S-Blox to validate and send firmware updates.

Loan Management System
A complete ecosystem for retail lending which simplify the entire lending process, reduces human/redundant touch points, provide increased efficiencies and ease of access to lenders.

Simplified & Automated Lending Solution

IOT Solution

Loan Management System

S-Blox Blockchain Platform

- Income Recognition
- Asset Management
- Provisioning
- Asset Classification
- Reports
- NPA Management
- Late Payment Handling
- Loan A/C Opening
- Disbursement
- Collections
- Recovery
- Module Incentivisation
- Decision Engine
- Bank Product Matching
- Intelligent Processing
  - Visibility Check
  - Risk Assessment
- Load - Warm Load
  - Internal Information Gathering
  - External gathering through channels

S-Blox Blockchain Platform

Cloud

Clusters
Other use cases based on tokenization

https://youtu.be/CNVPAGsSwdY

https://youtu.be/u9yQK_QGg2I
### COUNTERFEIT DRUGS – GLOBAL STATISTICS

*(According to WHO)*

<table>
<thead>
<tr>
<th>£420 BILLION / YEAR</th>
<th>10 – 15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Pharmaceutical marketplace</td>
<td>Global Pharmaceuticals are counterfeit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>£60 BILLION / YEAR</th>
<th>20 – 40%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global loss to Pharmaceuticals from counterfeit medicines</td>
<td>Counterfeit Drugs in some areas of Africa, Asia, Eastern Europe, and South America</td>
</tr>
</tbody>
</table>

- 50% of illicit online pharmacies in the USA are selling counterfeit medicines
PHARMACEUTICAL SUPPLY CHAIN CHALLENGES

- Visibility of entire supply chain data
- Traceability of drugs post manufacture

Pharmaceutical Company

- Theft or manipulation of shipment during delivery
- Multiple documents/paperwork.
- Visibility of entire supply chain data
- Traceability of the drugs post distribution

Distributor

- Confirm Authenticity of Pharmaceutical Drug

Hospital

- Traceability of legitimate drugs
- Fulfilment of orders by distributor
- Visibility of entire supply chain data
- Record of drugs dispensed to customer

Clinic

Customer
PHARMACHAIN

HOW BLOCKCHAIN TECHNOLOGY CAN COMBAT

THE COUNTERFEIT DRUGS TRADE
ROBUST SECURITY
COMPLIANT WITH STANDARDS
SUPPORT BLOCKCHAIN INTEROPERABILITY
CUSTOMISABLE & CONFIGURABLE
PERMISONED ARCHITECTURE
HIGH PERFORMANCE & THROUGHPUT
UNIQUE CRYPTOGRAPHY

BLOCKCHAIN TECHNOLOGY FEATURES
PHARMACHAIN – BLOCKCHAIN SOLUTION

- **MANUFACTURE**
  - Manufacturer License
  - Records of Raw Materials, Intermediates, API Labeling
  - Batch Production Record Review
  - Order details
  - Shipment details
  - Invoice

- **DISTRIBUTOR**
  - Distributor License
  - Order detail
  - Shipment details
  - Purchase Order
  - Goods receipt
  - Invoice

- **RETAILER**
  - Retailer license
  - Purchase Order
  - Goods receipt
  - Dispensing record

- **CONSUMER**

**BLOCKCHAIN**

**QR CODE**
<table>
<thead>
<tr>
<th>Location</th>
<th>Dispatched</th>
<th>Arrived</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxford-Manufacturer</td>
<td>20th April</td>
<td></td>
</tr>
<tr>
<td>Warehouse Address</td>
<td>27th April</td>
<td>30th April</td>
</tr>
<tr>
<td>Watford-Distributor</td>
<td>4th May</td>
<td></td>
</tr>
<tr>
<td>London Retailer</td>
<td>5th May</td>
<td></td>
</tr>
</tbody>
</table>

**Authentic Drug**
- Product id: 000129673
- Country of origin: UK
- Mfg date: 10th April 2019
- Exp date: 9th April 2021
- Batch Number: 296

**TODAY**
- Quality Checking Certificate available
- Purchase order
- Order confirmation email was sent to Dina (dina@gmail.com)
PHARMACHAIN – SCAN QR CODE FOR DATA

✓ Legitimate Drug
X Fake Drug
Pharmaceutical companies, Contract Manufacturers or repackaging companies face many difficulties when working to meet the traceability requirements from different countries, and they face significant challenges in order to comply with those regulations without spending too much time and resources.

**USA - Drug Supply Chain Security Act (DSCSA)**


The DSCSA mandates collection of the following data:
- Serial Number (no randomization required),
- the Lot Number where the product originated,
- the expiration date,
- and the National Drug Code (NDC) Number.

**EU - The Falsified Medicines Directive (FMD)**


The FMD requires the collection of the following data:
- Product Code,
- Drug Registration Number,
- Lot Number,
- Expiration Date,
- and the Randomized and Unique Serial Numbers.
PHARMACHAIN – BENEFITS OF BLOCKCHAIN TECHNOLOGY

- **Verify**: Authenticity of drugs can be verified by the consumer
- **Validate**: All data from manufacture to retailer can be validated
- **Secure**: Data is immutable
- **Transparency**: All data is visible to all actors
- **Traceability**: Legitimate drugs and associated transactions are traceable
- **Access control**: Access to supply chain data can be managed
PHARMACHAIN – Product screenshots