Transforming the Pharmaceutical Supply Chain

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The counterfeit drug problem

- Counterfeit drugs are manufactured by using inactive (ineffective) or toxic (harmful) ingredients and are packaged to resemble genuine (brand-name or generic) drugs.

- The WHO (World Health Organization) estimates counterfeit drug sales to range between $35 and 40 billion per year (8 and 10% of the worldwide drug supply)

- Financial Loss: The loss for the pharmaceutical industry due to counterfeit drugs is estimated to be $75 billion of sales per year.

- Loss in Trust: Counterfeit products damage consumer confidence in
- the drug brand and in the supply chain.

- Inefficiency: To counteract the counterfeit drug supply, manufacturers , pharmacies and hospitals are forced to increase their inventory stock by up to 10%.

The Objective

➢ Making the supply chain safer and more efficient

The pharmaceutical supply chain

- Complex and inefficient pharmaceutical supply chain, where drugs can change ownership up to 10 times before reaching the customer.
- Alternate distribution channels for drug products often ignore distribution rules
- No visibility for manufacturers to authenticate a product
- Leading to inefficient processes for conducting recalls and returns processing
- Collectively, these inefficiencies result in billions of lostvdollars per year and create the need for technology that provides visibility of product movement across the total supply chain.

1. Manufacturer
2. Dustribution Hub
3. Wholesaler
4. Repackager
5. Internet Pharmacies
6. Hospitals
7. Pharmacies
8. Manufacturer's Packaging
9. Authorities
10. Patients

The Solution

- An application, where manufacturers, wholesaler drug distributors, repackagers, pharmacies and customers are able to track pharmaceutical products throughout the supply chain
- E.g. the packaging of a drug could be scanned by an EAN code via the cell phone and the record is deluvered on the blockchain. The Geo code of the mobile phone could be used. A customer can scan the EAN code and then see the history. Also plausible would be temperature tracking of drugs

Features of the platform:

- **Product identification**

  Manufacturers and repackagers put a unique product identifier on packages, for example, using a bar code that can be easily read electronically.

- **Product tracing**

  Manufacturers, drug distributors, repackagers and pharmacies provide information about a drug (eg. who handled it)

- **Product verification**

  Manufacturers, drug distributors, repackagers and pharmacies establish systems and processes to be able to verify the product identifier on drug packages.

- **Detection and response**

  Manufacturers, drug distributors, repackagers and pharmacies are able to identify and recall drugs that have been identified as counterfeit.

- **Notification**

  Manufacturers, distributors, repackagers and pharmacies establish systems and processes to notify the regulatory body and other stakeholders if an illegitimate drug is found.