



Decentralized supply and demand signalling for visibility and security in global medical supply

A global approach for addressing supply chain resiliency through trusted signalling

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Drug and device shortages are a public health problem caused by lack of visibility into the global ecosystem

The COVID-19 pandemic has showed us that there are vulnerabilities across multiple supply chains: finished drugs, APIs/excipients, medical countermeasures, PPE, etc.

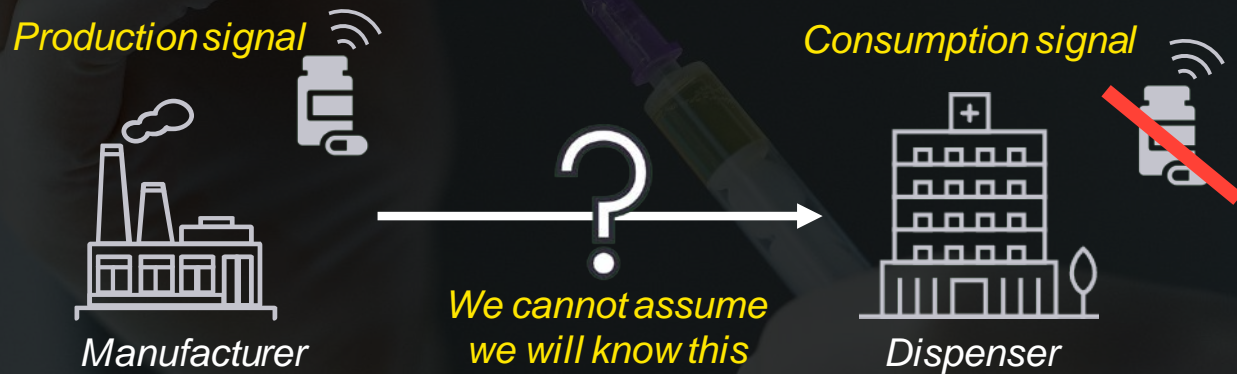
Today, efforts to improve the supply chain are disjointed — addressed differently by each manufacturer, distributor and dispenser. They are highly manual, inefficient and error prone.

Full Track and Trace aims to solve this by connecting every participant in the distribution chain to various digital traceability systems; this creates a complex centralized infrastructure and is dependent on all players participating ... It will take a *long* time for the US to get there.

Monitoring production and consumption through signalling

Short term: Capture the endpoints of when goods are produced and when goods are consumed. Calculate the circulating inventory for a given product and manage who has access to view that data.

Long Term: Traceability (i.e., tracking movements of a good), add the elements of ownership and location. This is important, but it is difficult to achieve as it requires a high level of participation.

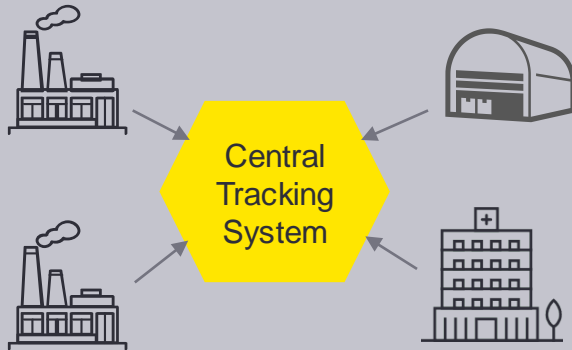


Design principles for a sustainable solution:

- Cover a wide array of goods (APIs, excipients, finished products)
- Capture and match production signals to consumption signals without requiring full traceability
- Establish foundation to evolve into a full traceability solution
- Allow everyone to participate and preserve privacy while maintaining trust

How can a blockchain help us secure the medical supply chain?

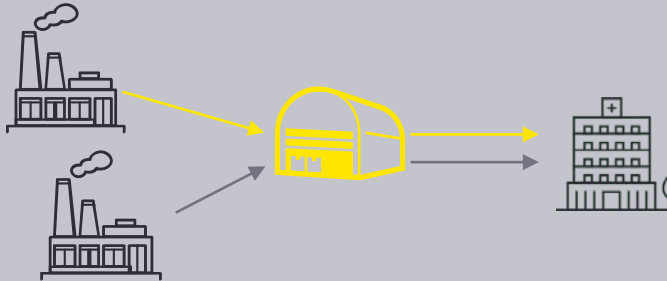
Traditional approaches often involve a centralized system and require members to trust in a central authority.



These systems are:

- Difficult to scale
- Cost a lot to maintain
- Consolidate risk in a single system
- Propagate vendor lock-in
- Difficult to derive additional benefits

A decentralized system connects business partners peer-to-peer. Blockchains can allow visibility to transactions through peers by tracing the transfer of assets.



These systems are:

- Scalable
- Distribute costs to participants based on use
- Spread risk to the edge systems that push/pull data
- Can serve as a backbone for other value-add applications

Blockchains allow us to create digital tokens. Tokens can represent physical assets and keep track of how many we have, where they are and who has access to see information about them.

But there are still risks ...

- There must be a balance between privacy and transparency
- Participants still need to “participate” — this will require incentives
- Existing systems (logistics, planning, etc.) are still needed

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