**Introduction**

What is ecommerce?

What is decentralisation?

What will be decentralised e-commerce?

Why should we decentralise e-commerce(brief)?

As the world is advancing towards digitization, its impact has drastically changed the lifestyle of every individual. From ordering food to booking an appointment online, we all have incorporated this comfort into our lives. So, here is where the concept of Electronic Commerce or Ecommerce comes from, it is a process for conducting transactions online. Almost all business owners are taking their businesses online by having a personal website/app because it facilitates selling their products and services directly through their website and other ecommerce platforms. It provides numerous benefits to both the sellers and the buyers like scalability, flexibility, convenience, reduced cost, borderless transactions, and many more. But listing these countless advantages won’t necessarily (cover its defects) span over its liability. One of the major drawbacks is security or privacy issues which arise when a user enters his personal information and worries of being scammed by either the sellers or any third-party organization because they have complete access to a user’s data.

To overcome such a serious threat, a newly proposed concept known as decentralization can be integrated through the use of blockchain technology. In blockchain, decentralization denotes the assignment of control and decision-making from a centralized entity (whether it’s an individual, organization, or group) to a distributed network. Decentralized networks are made up of computers, also known as nodes, that interact on a direct, peer-to-peer basis, without the need for third parties. Within a decentralized network, information is distributed to every single “node” on the network. Each node has an updated copy of all recorded data. Decentralized networks can also distribute data so that certain private information can be validated without that information being transferred to a third party. Data is validated by using an agreed-upon consensus mechanism, which often involves the other computers on the network checking the validity of the data before it becomes permanently imprinted onto a blockchain.

Still a lot can be written…

<https://weteachblockchain.org/faq/what-is-decentralization/>

**Problem Description**

**Limitations of current e-commerce system**

* In most of the cases there is a difference in the description of the product and the actual product.
* Reviews on the products are not genuine. In several investigations it has been found that a large number of products have fraudulent practices to increase their reviews.
* Infringing on the products are also there.
* The current system has increased the number of intermediaries.
* Every step in the system has some kind of malpractice included.

Source: <https://businessreview.berkeley.edu/decentralized-e-commerce/>

**Solution**

Decentralised e-commerce

E-commerce would be decentralised, i.e. would be implemented using a blockchain. Implementing e-commerce using blockchain will decentralise the blockchain thereby eliminating the middle agents and directly making a connection between the buyer and the seller. This would establish trust between the parties and further make the whole system transparent. Directly connecting the buyer and the seller would fasten up the process and would even increase the profit margin as well as bring down the cost of the product as the money that used to go to the middle agents would be saved.

**Implementation**

E-commerce would be implemented using the blockchain. All the data would be stored on the blockchain itself. Now the whole system would be divided into several modules:-

1. **Seller-**

* Sellers would first have to register to the platform.
* After registering the seller will get a dashboard where the seller can check all details.
* For listing the products- the seller will have to fill a (general) form regarding the product like the name, description, features, image and the price of the product.
* Whenever there is an order the seller would get a notification regarding the orders, and could check all the orders and track them from the **Orders** section.
* On a successful delivery the particular item delivered will reflect the status and will be shifted to the **delivered products** section.
* In case of a query or feedback, the seller will have to answer them.

1. **Buyer-**

* Buyer will get all the features provided in a normal ecommerce site. Except for this time everything would be on a blockchain.

1. **Delivery guy-**

* Would be managed from the seller's end.

**How the Smart contract Plays here?**

All the data would be stored on the blockchain. Most of it would be visible to the users except for confidential ones, like user credentials and account details. As soon as the buyer places an order, the amount that needs to be paid would be deducted from his account and would be locked by the smart contract. As soon as the product gets successfully delivered this amount would be transferred to the sellers account. This would make the system transparent and more trustworthy. Thus, eliminating any chances of fraudulence.

**Tech Stack**

All technologies used along with a short description for each of them.

**Blockchain (Solidity)**

→ to create smart contract for transaction and storing products

→ an object-oriented, high-level language for implementing smart contracts.

→ It can be used for crowdfunding, voting, auctions etc.

**Web3.js**

→ web3.js is a collection of libraries that allow you to interact with a local or remote ethereum node using HTTP, IPC or WebSocket.

→ *Web3*.*js* allows us to make requests to an individual Ethereum node with JSON RPC in order to read and write data to the network.

**Ganache, Truffle**

(support)

→ Ganache is **a personal blockchain for rapid Ethereum and Corda distributed application development**.

→ Truffle: development environment for blockchain dapps (decentralized applications) and smart contracts.

**React JS**

(for e-commerce interface)

→ React. js is an open-source JavaScript library that is used for **building user interfaces specifically for single-page applications**.

**MetaMask chrome extension (to transfer eths)**

→ MetaMask is an **extension for accessing Ethereum enabled distributed applications**, or “Dapps” in your browser! The extension injects the Ethereum web3 API into every website's javascript context, so that DApps can read from the blockchain.

**Conclusion**

By using blockchain a decentralised ecommerce would be transparent and everything would be verified and further added in the blockchain. Therefore, there are extremely low chances of fraudulence. So, it would lead to a beneficial system for all the stakeholders namely Buyer, Seller and Delivery Agent.