



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

COURSE NAME: 19CS622-Blockchain Technology


III YEAR /VI SEMESTER

Unit III- ETHEREUM

Topic : Smart contracts in Ethereum

Definition – Ethereum Smart Contracts

- Ethereum is a blockchain-based development platform known for its [cryptocurrency](#), ether (ETH).
- They are self-executing contracts with the terms of the agreement between buyer and seller being written into lines of code.
- These contracts run on the Ethereum blockchain, a decentralised and secure platform.
- The code in the smart contract is automatically executed when specific conditions are met, eliminating the need for intermediaries and increasing the efficiency and security of the transaction.

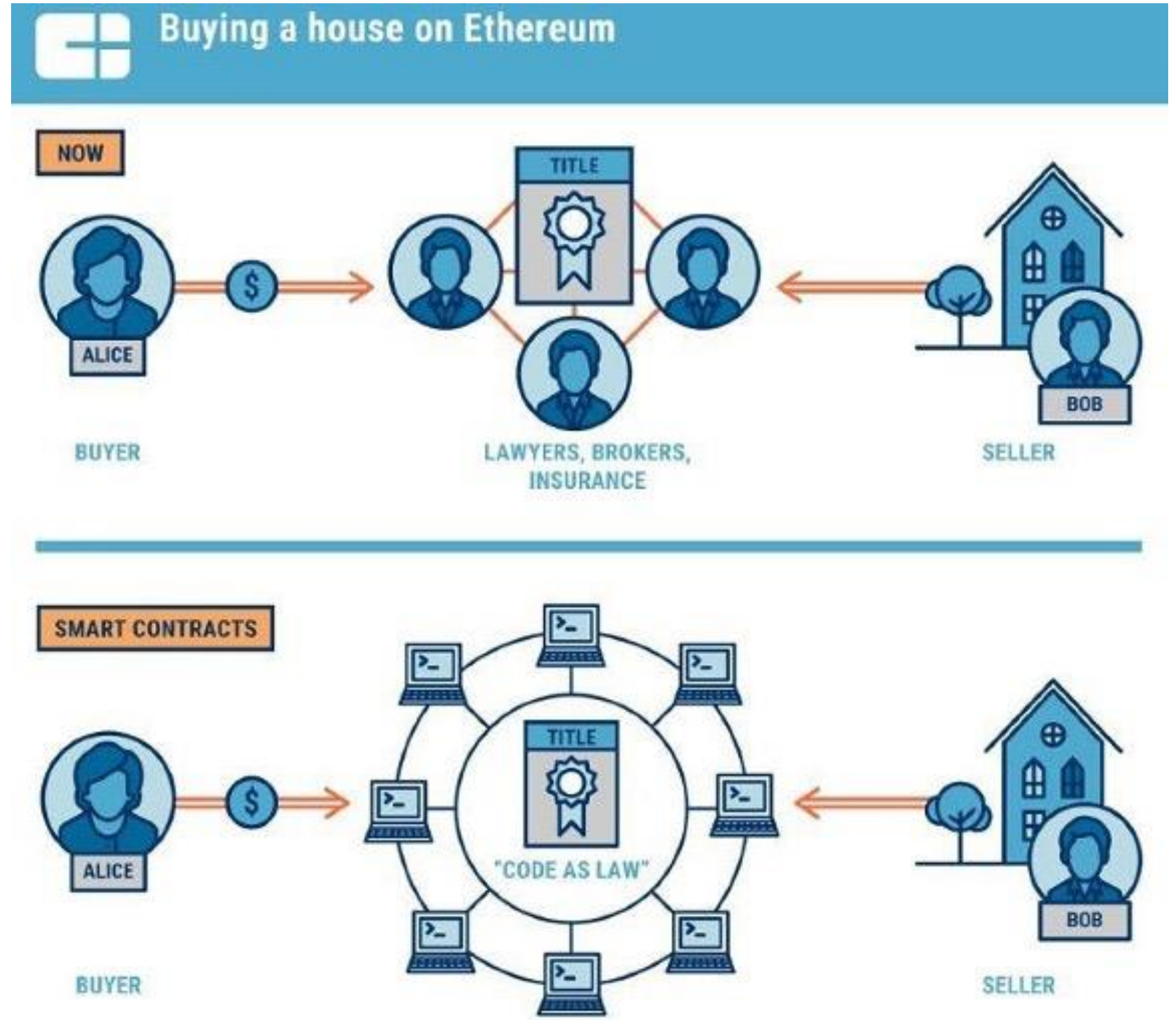


Ethereum

[i-'thir-ē-am]

An open-source blockchain that is known for its smart contracts functionality, and which serves as the basis for the cryptocurrency ether (ETH).

Ethereum Smart Contracts





How Do Ethereum Smart Contracts Work?

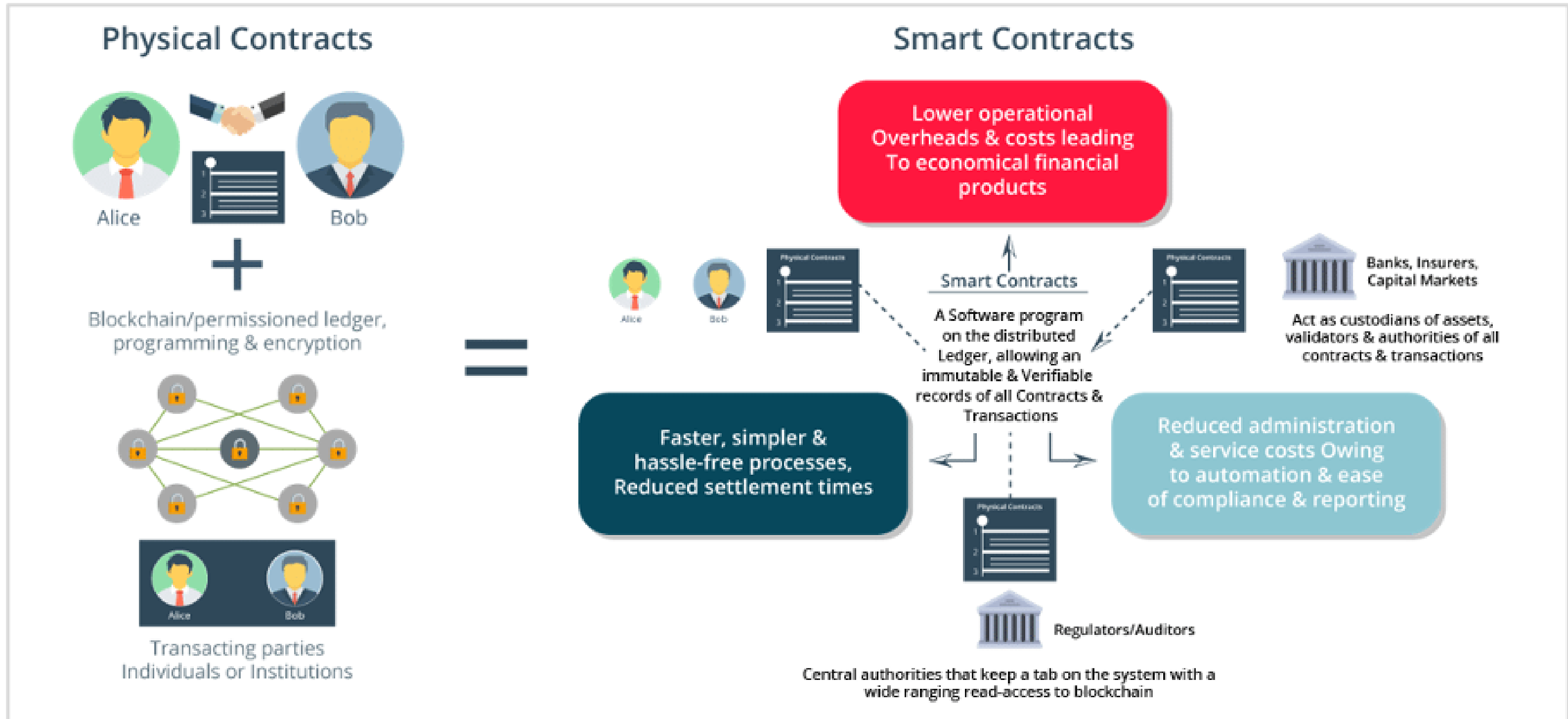
- Smart contracts automate the process of executing specific conditions when triggered by events, such as a transfer of funds.
- The requirements are pre-written in the code and enforced automatically once met.
- For instance, a smart contract can immediately release payment to a seller only after the buyer receives a product. In this way, smart contracts enforce the terms of an agreement automatically.



Buying and selling a product

- The buyer and the seller agree on the terms of the sale, including price and delivery date.
- The buyer sends the agreed-upon amount of cryptocurrency, typically Ether, to the smart contract's address.
- The smart contract code verifies if the conditions of the sale have been met, such as the receipt of the agreed-upon amount of cryptocurrency.
- If the conditions are met, the smart contract executes the terms of the agreement automatically. For example, it transfers ownership of the product to the buyer.
- The buyer now has access to the product and the seller has received payment. Both parties can trust that the smart contract has fulfilled and enforced the agreement.
- The Ethereum blockchain records the details of the transaction, including the product ownership transfer and payment. This provides a secure and permanent record of the transaction.

Smart contract process





Benefits of Ethereum Smart Contracts

- They reduce transaction costs and increase efficiency by eliminating the need for intermediaries.
- The self-executing nature of smart contracts ensures that the terms of an agreement are automatically enforced, increasing the security and transparency of transactions.



References



TEXT BOOKS

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2. Josh Thompson, ‘Blockchain: The Blockchain for Beginnings, Guild to Blockchain Technology and Blockchain Programming’, Create Space Independent Publishing Platform, 2017.
3. Arvind Narayanan, “Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction”, Princeton University Press, July 19, 2016.
4. Henning Diedrich, Ethereum: Block chains, Digital Assets, Smart Contracts, Decentralized Autonomous Organizations-2016

Thank You