



BLOCKCHAINS

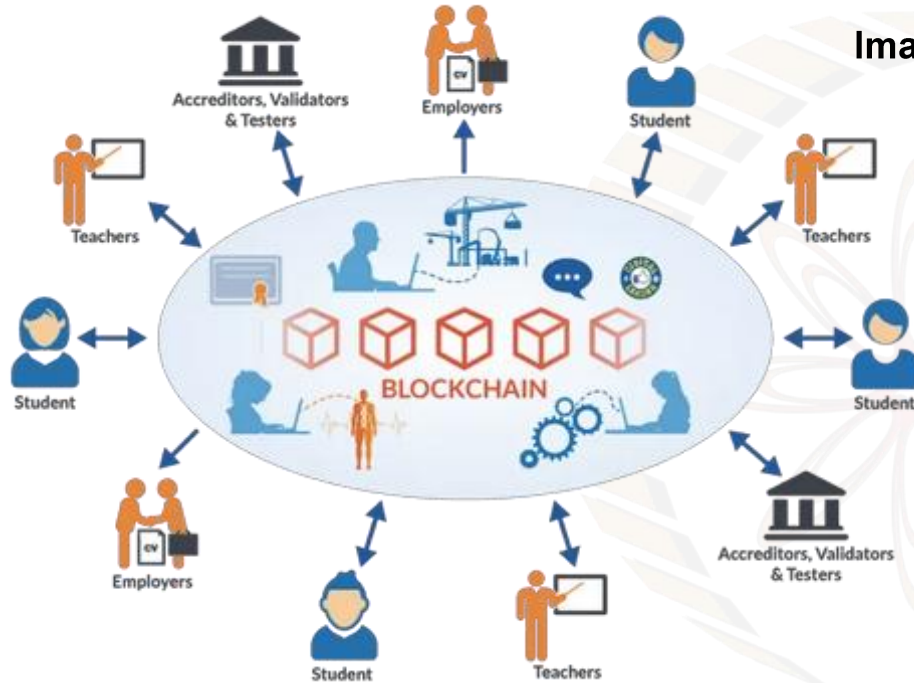
ARCHITECTURE, DESIGN AND USE CASES

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Image Source: <http://blockchain.open.ac.uk/>



Blockchain in Government - IV



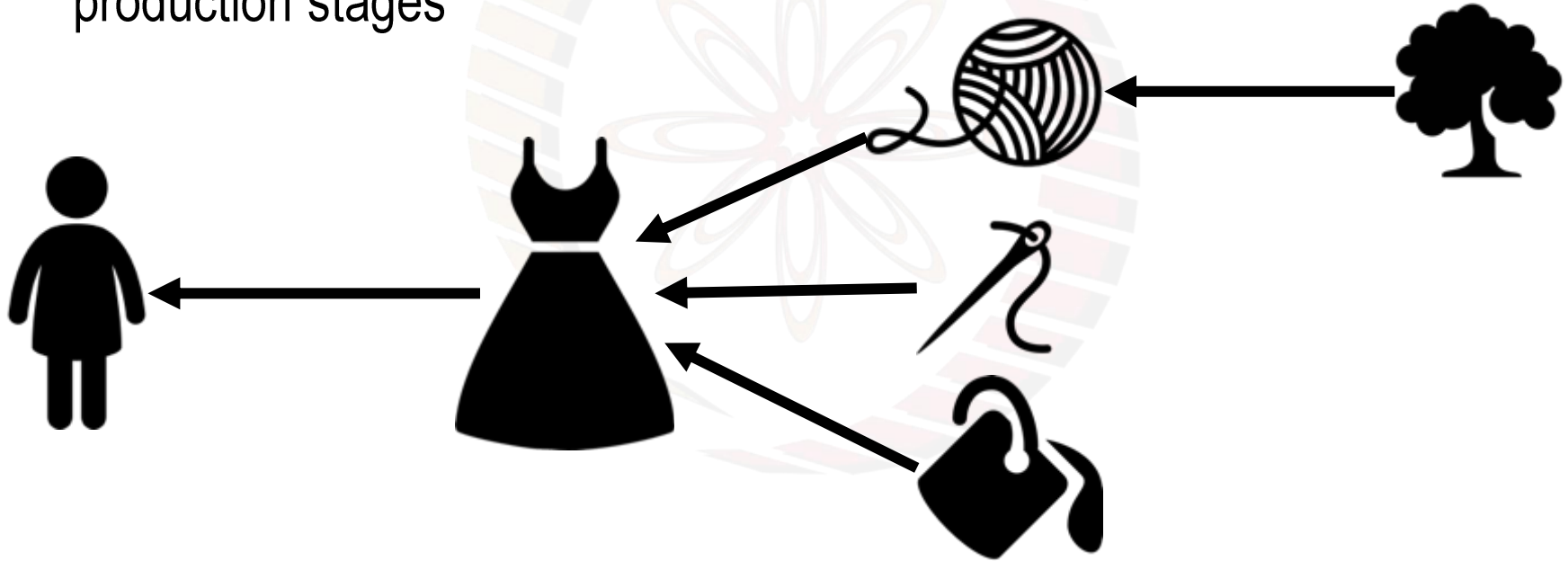
Case Study - Processing Tax Payments

- Goods and Services Tax (GST) - indirect tax covering various goods and services during the production and service stages
 - SGST
 - CGST
- The entire workflow is pretty complex -
Let's see how Blockchain can help!



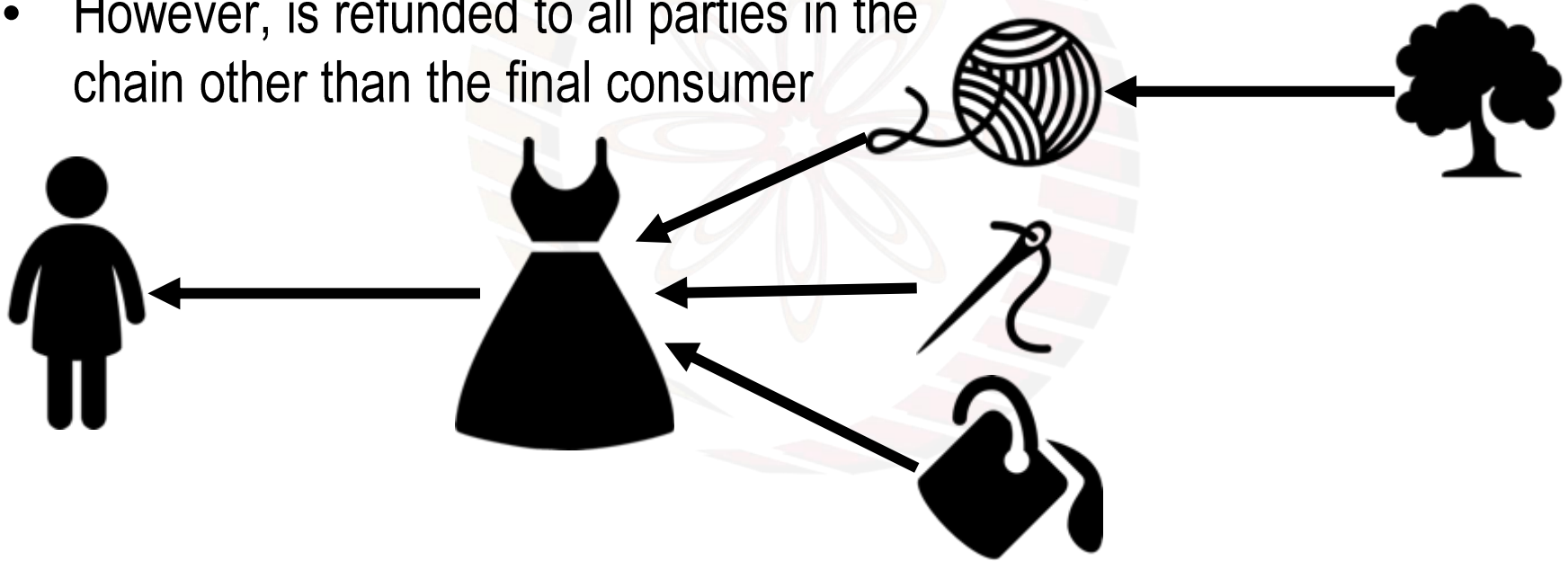
Case Study II - GST Without Blockchain

- Say, you want to purchase a dress - it has multiple workflows at the production stages



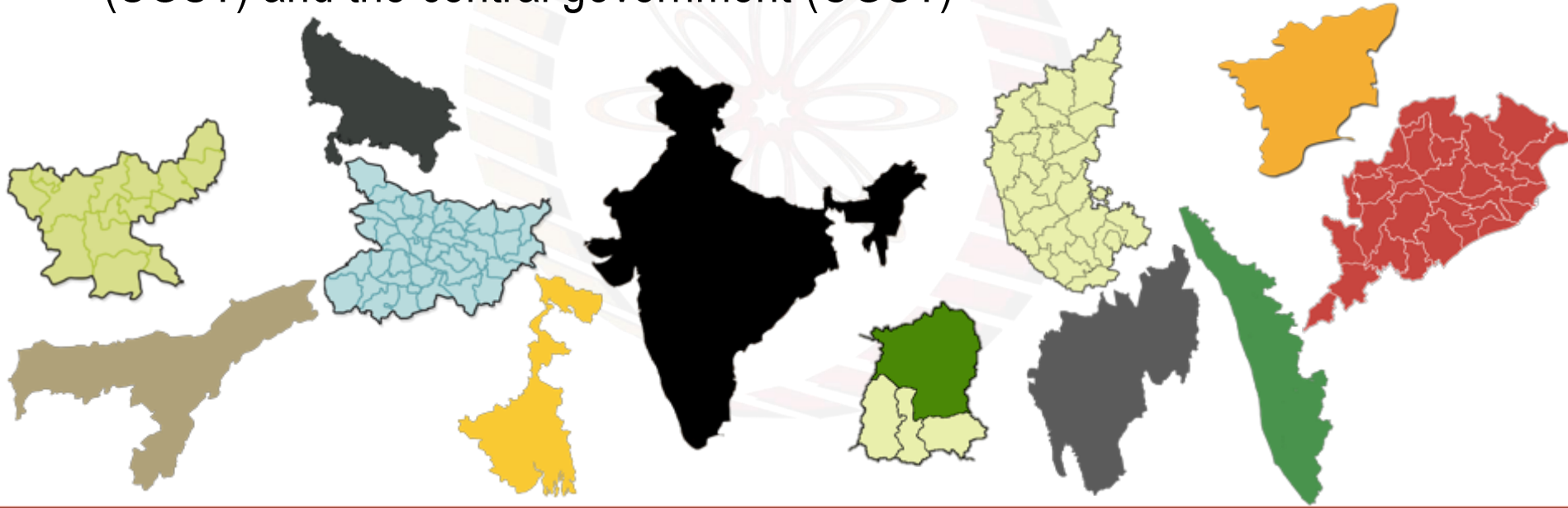
GST Without Blockchain

- GST is levied at every step in the production process
- However, is refunded to all parties in the chain other than the final consumer

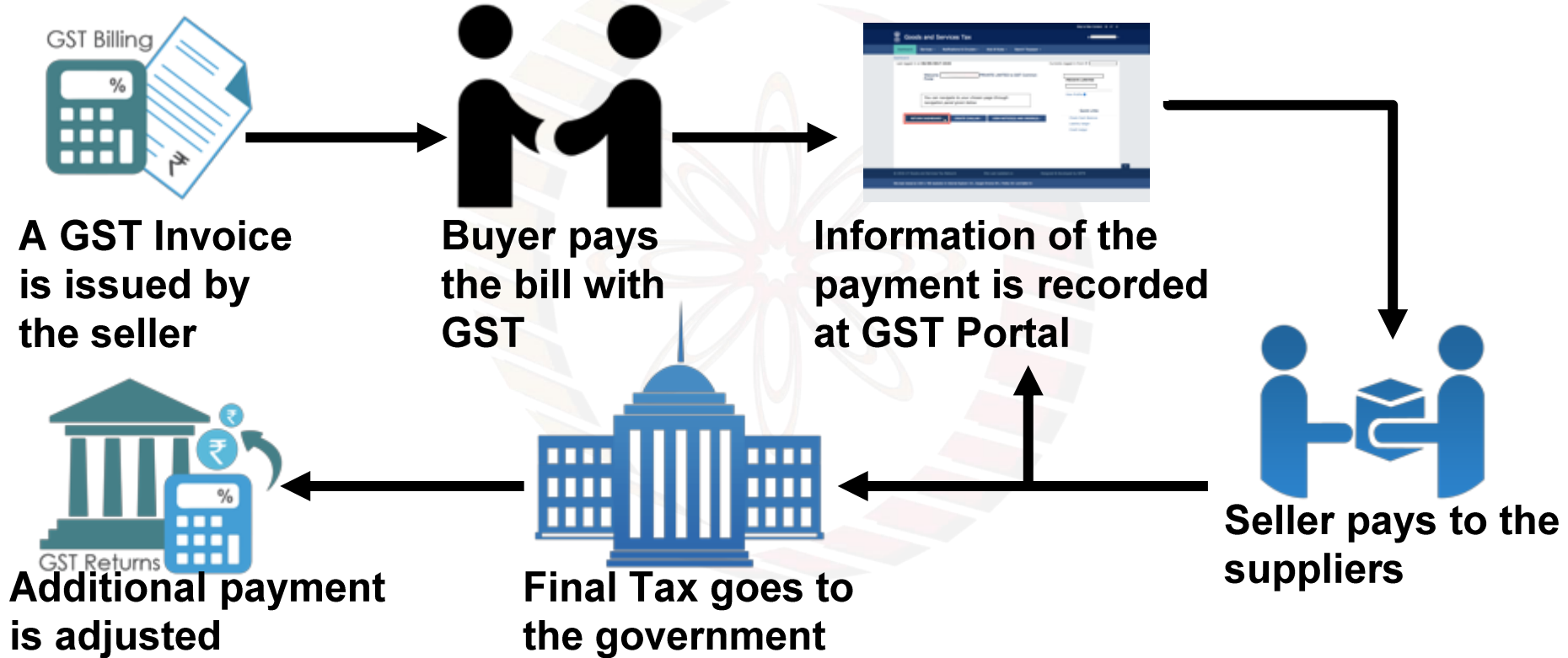


GST Without Blockchain

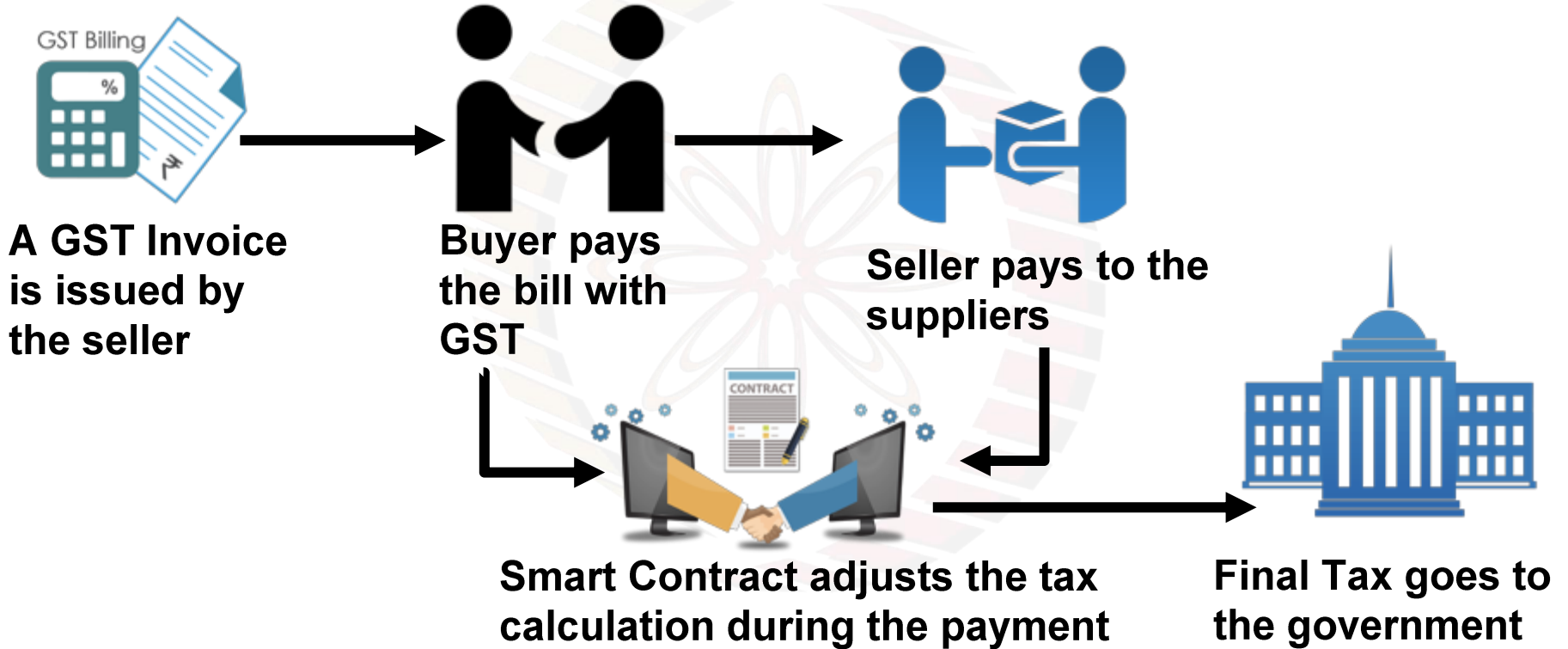
- The collected GST is also distributed among the state government (SGST) and the central government (CGST)



GST Without Blockchain



GST With Blockchain



GST With Blockchain

- During the payment for a good or a service
 - Blockchain smart contracts can calculate the invoice based on the tax amount that is already levied during the production process
 - Smart contract directly transfers the tax amount to tax authority (CGST or SGST)
 - The refund, if any, is directly paid to the customer's account



Advantage with a Blockchain

- The administrative burden for accounting services is drastically reduced
- All the transactions are done in real time, no “return filing” is required, or “return filing” can be avoided
- All the transactions are transparent and tamper-proof.
 - Reduces risk of fraud and mistakes
 - Immediate auditing from the transaction log



Case Study III - Blockchain for Land Registry Records

- Three units for land registers
 - **Object:** The spatial unit
 - **Right:** Right associated with a property (*rem right*) or right associated with a specific person (*personam right*)
 - **Subject:** The person or the title holder



Land Registry Records

- Property gets changed from one hand to another hand
- *Bundle of rights* - complexity of property ownership - more than one claim possession or control of an asset
 - *Legal records can always get tampered*



Real Estate Transaction Today



**Mrs. Holmes
wants to sell her
property**



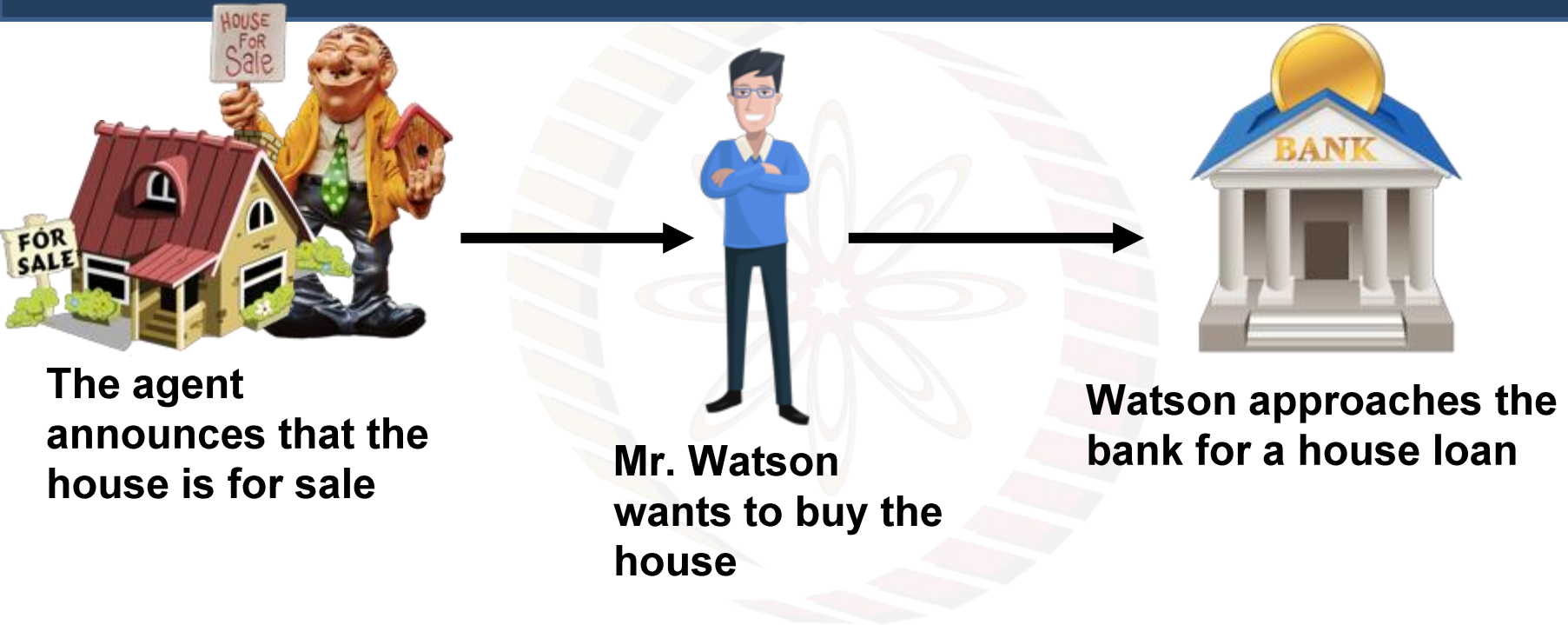
**Contacts a real
estate agent**



**The agent checks the
land registry office that
Mrs. Holmes is the legal
owner of the property**



Real Estate Transaction Today



Real Estate Transaction Today



Bank checks the land registry record for the ownership of Mrs. Holmes



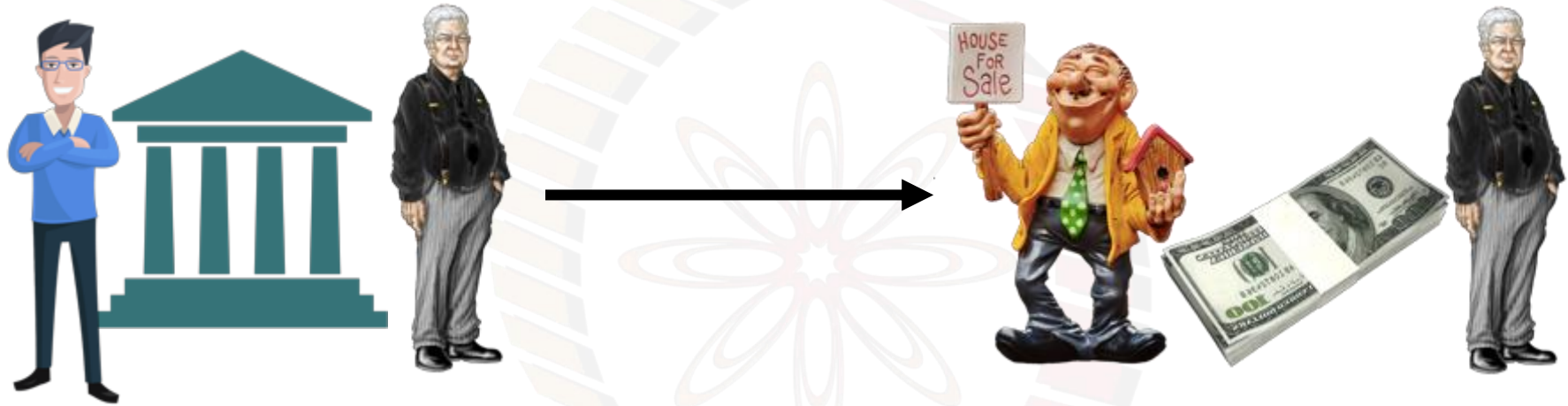
Loan is approved for Watson



Watson transfers the money to the agent



Real Estate Transaction Today



A legal contract is made between Watson and Holmes to transfer the house ownership

The agent transfer the money to Holmes after deducting his fees



Property Transaction over Blockchain

- The land registry is in blockchain - the property owner can automatically check their ownership and whether they are eligible to sell the property
- The buyer and seller can get connected over the blockchain platform
- The bank can also check the status of the ownership over the blockchain platform



Property Transaction over Blockchain

- The purchase is executed using a smart contract
 - The seller transfers the ownership to the buyer
 - Payment will be automatically transferred from buyer's bank to the seller's bank
- Everyone, buyer, seller and the bank can verify the status of the contract over the blockchain smart contract platform



Blockchain in India

- The AP Government makes a partnership with ChromaWay, a Sweden based startup, to use blockchain to maintain land registry records.



Startups in this direction ...



ChromaWay

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ChromaWay, blockchain pioneers.

ChromaWay is a blockchain technology company. Since 2014, we have been developing and refining our industry-defining blockchain technology platform. We work with public and private sector actors to build and support applications on our platform, mainly around real estate and finance.



IIT KHARAGPUR

Interesting Reads

- Whitepaper from ChromaWay - https://chromaway.com/papers/Blockchain_Landregistry_Report_2017.pdf



The Land Registry in the blockchain - testbed

A development project with Lantridatieriet, Landshypotek Bank, SBAB, Telia company, ChromaWay and Kairos Future

March 2017



A decorative background featuring a large, stylized wheel with a flower-like center. The wheel has a series of colored segments (yellow, orange, red, pink) around its perimeter. The text "thank you!" is written in a blue, cursive script across the center of the wheel.

thank you!

