- **Public Blockchain**: A decentralized network open to everyone where anyone can participate, view transactions, and contribute to consensus without permission. **Use Cases:** Cryptocurrencies (Bitcoin, Ethereum), DeFi applications, NFTs, and transparent voting systems.
- **Private Blockchain**: A restricted network controlled by a single organization where access is limited to authorized participants only. **Use Cases:** Internal enterprise systems, healthcare records management, and government data handling.
- **Consortium Blockchain**: A semi-decentralized network controlled by a group of pre-selected organizations sharing governance and decision-making. **Use Cases:** Banking consortiums for interbank transactions, trade finance, and cross-industry partnerships.

Comparison between a chosen example of Public, Private, and Consortium Blockchain

Blockchain Name	Ethereum	Hyperledger Fabric	R3 Corda
Type	Public	Private	Consortium
Consensus Mechanism Used	Proof of Stake (PoS)	Practical Byzantine Fault Tolerance (PBFT)	Notary consensus (pluggable)
Permission Model	Open	Permissioned	Permissioned
Speed/Throughput (TPS)	15-30 TPS	3,500+ TPS	170+ TPS
Smart Contract Support	Y - Solidity, Vyper	Y - Go, Node.js, Java	Y - Kotlin, Java
Token Support	Native (ETH) + ERC tokens	No native token	No native token (asset agnostic)
Typical Use Case	DeFi, NFTs, dApps, ICOs	Enterprise supply chain, healthcare, finance	Financial services, trade finance, insurance
Notable Technical Feature	EVM compatibility & largest developer ecosystem	Modular architecture & pluggable consensus	Privacy by design & point-to-point transactions

Best choice of blockchain:

1. **Ethereum** operates as a global state machine with the Ethereum Virtual Machine (EVM) processing smart contracts. Its Proof of Stake consensus requires 32 ETH staking, ensuring network security through economic incentives. The platform supports gas-based transaction fees and has extensive tooling like Remix IDE and MetaMask integration.

2. **Hyperledger Fabric** uses a unique execute-order-validate transaction flow, separating smart contract execution from consensus. Its modular architecture supports pluggable consensus algorithms (PBFT, Raft) and membership service providers for identity management. Channels enable private data sharing between specific network members.

3. **R3 Corda** implements a UTXO-like model where states represent agreements between parties. Its notary services prevent double-spending without global consensus. The platform uses flows (point-to-point protocols) instead of broadcasting transactions network-wide, ensuring only relevant parties see transaction data. Legal prose integration bridges smart contracts with real-world legal agreements.

Platform Recommendations:

- **Decentralized app**: **Ethereum** as its open permission model and massive developer community is easy to grasp for beginners, plus users already have wallets and familiarity with the platform.
- **Supply chain network among known partners**: **Hyperledger Fabric** is permissioned in nature, ensuring only trusted partners participate. The high throughput handles complex supply chain transactions efficiently. The modular design allows custom business logic implementation.
- **Inter-bank financial applications**: **R3 Corda** due to its financial industry focus and privacy-by-design architecture. Banks only see transactions they're involved in, meeting regulatory requirements while the pluggable consensus supports various banking protocols.