Comparison Table

Description	Type-1:public	Type-2:private	Type-3:consoritum
Blockchain Name	Bitcoin	Hyperledger Fabric	R3 Corda
Type	Public	Private	Consortium
Consensus Mechanism Used	Proof of Work	Pluggable consensus	Notary-based consensus
Permission Model	Open	Permissioned	Permissioned
Speed / Throughput	Approximately 7 TPS	Up to several thousand TPS	Designed for high throughput , exact TPS varies based on implementation
Smart Contract Support	Limited support (Script language)	Yes (Chaincode in Go, Java, Node.js)	Yes (CorDapps in Java or Kotlin)
Token Support	Native	Not native	Not native
Typical Use Case	Cryptocurrency and store of value	Enterprise blockchain solutions, supply chain management, cross-border payments	Financial services, trade finance, and other industries requiring privacy and confidentiality
Notable Technical Feature	Decentralized, censorship-resistant, and secure due to PoW	Modular architecture, pluggable consensus, private channels for confidential transactions	Privacy through point-to-point communication, notary-based consensus for preventing double-spends, and support for complex financial contracts

Technical capabilities

Differences:

- Access Control:

- Public Blockchain: Open to anyone, promoting inclusivity and decentralization (e.g., Ethereum, Bitcoin).

- Private Blockchain: Restricted access, controlled by a single entity or organization (e.g., Hyperledger Fabric).

- Consortium Blockchain: Limited to a group of pre-approved organizations, fostering collaboration and controlled access (e.g., R3 Corda, Quorum).

- Consensus Mechanism:

- Public Blockchain: Often relies on proof-of-work (PoW) or proof-of-stake (PoS) for decentralized validation.

- Private Blockchain: Utilizes various consensus mechanisms like PBFT (Practical Byzantine Fault Tolerance) for efficiency.

- Consortium Blockchain: Adapts consensus based on consortium agreement, often adopting a hybrid model.

- Transparency and Privacy:

- Public Blockchain: Maximum transparency with minimal privacy considerations.

- Private Blockchain: High privacy but limited transparency.

- Consortium Blockchain: Balances transparency and privacy based on consortium rules and agreements.

Comparison of Technical Capabilities:

- Speed and Efficiency:

- Private Blockchain: Faster transaction validations due to fewer nodes and optimized consensus algorithms.

- Consortium Blockchain: May be slower than private blockchains due to collaborative nature, but typically faster than public blockchains.

- Security:

- Private Blockchain: Security rests with the controlling entity, ensuring protection from threats and vulnerabilities.

- Consortium Blockchain: Collective security approach, with measures emerging from collaborative discussions and agreed upon by consortium members.

- Scalability:

- Consortium Blockchain: May face scalability challenges as the consortium grows, requiring more complex consensus mechanisms.

- Governance Structure:

- Private Blockchain: Centralized, with a single entity responsible for decision-making.

- Consortium Blockchain: Democratic, with all participating organizations having an equal say.

Use Cases:

- Public Blockchain: Suitable for decentralized applications, cryptocurrencies, and open-source projects.

- Private Blockchain: Ideal for internal organizational use cases, such as supply chain management, where data privacy is crucial.

- Consortium Blockchain: Suitable for industries requiring collaboration and controlled access, such as finance, healthcare, or food safety

CHOOSING OF PLATFORMS:

1. Decentralized App

- Public Blockchain: Platforms like Ethereum or Bitcoin are ideal for decentralized apps (dApps) that require openness, transparency, and decentralization. They offer a wide range of tools and libraries for developers, and their open nature allows for community involvement and participation.

2. Supply Chain Network Among Known Partners

- Consortium Blockchain: A consortium blockchain is suitable for supply chain management among known partners. It offers restricted access, ensuring that only authorized participants can view and interact with the network. This model provides enhanced security, scalability, and efficiency, making it ideal for industries like supply chain management. Examples of consortium blockchains include R3 Corda and Quorum.

3. Inter-Bank Financial Application

- Consortium Blockchain: For inter-bank financial applications, a consortium blockchain can provide the necessary balance between decentralization and control. It enables multiple organizations to collaborate and govern the network jointly, ensuring secure, efficient, and transparent transactions. Consortium blockchains like R3 Corda and Hyperledger Fabric are popular choices for financial institutions due to their ability to handle complex transactions and maintain regulatory compliance

-> I choose Decentralized App(Ethereum) based on technical points.

Decentralized App (Ethereum)

- Decentralization: Ethereum's public blockchain offers a high level of decentralization, ensuring that no single entity controls the network.

- Smart Contract Support: Ethereum's smart contract functionality enables complex, self-executing contracts that can automate various processes.

- Turing-Complete Language: Ethereum's Solidity language is Turing-complete, allowing for sophisticated smart contracts.

Ethereum's Supportiveness and Activity:

1. Large Developer Community: Ethereum has a massive and active developer community, which contributes to its ecosystem through various projects, tools, and frameworks. This community support ensures that developers can find resources, documentation, and help when needed.

2. Extensive Documentation: Ethereum's documentation is comprehensive and well-maintained, providing developers with a clear understanding of the platform's features and capabilities.

3. Active Forums and Discussion Channels: Ethereum has active forums and discussion channels, such as Reddit's r/ethereum and Ethereum's official Discord server, where developers can ask questions, share knowledge, and collaborate with others.

4. Regular Updates and Improvements: Ethereum's development team is actively working on improving the platform, with regular updates and new features being added to the network.

5. Wide Adoption: Ethereum is one of the most widely adopted blockchain platforms, with a large ecosystem of users, developers, and applications. This widespread adoption ensures that Ethereum has a strong support network and a large community of users who can provide help and resources.

Supportive Ecosystem

Ethereum's supportive ecosystem is evident in its:

1. Developer Tools: Ethereum has a wide range of developer tools, such as Truffle Suite, Remix, and Web3.js, which make it easier for developers to build and deploy decentralized applications.

2. Tutorials and Guides: There are many tutorials and guides available for Ethereum development, covering topics from basic smart contract development to advanced topics like decentralized finance (DeFi) and non-fungible tokens (NFTs).

3. Community-driven Projects: Ethereum's community has developed many projects and initiatives that support the ecosystem, such as decentralized finance (DeFi) protocols, gaming platforms, and social networks.

Overall, Ethereum's supportive and active community, combined with its extensive documentation and wide adoption, make it an attractive platform for developers and users alike.