(iii) Consortium blockchains

A consortium blockchain is a type of private blockchain that operates under the leadership of a group rather than a single entity and in which participants are identified. It is a "partially decentralized" platform (Buterin, 2015).

Instead of allowing anyone with an internet connection to participate in the transaction verification process or letting a single entity having full control, a few selected nodes are predetermined. These nodes control the consensus process. They can read and/or write the data and can decide who has access to the blockchain ledger. The right to read the blockchain may be public, or restricted to the participants (Buterin, 2015).

For example, a consortium blockchain could be formed among 10 companies, each of which operates a device connected to the blockchain network. If Company 2 only trades and shares its invoices with Companies 3, 4 and 5, it could be decided that permissions to read the shared data be given only to these companies.

The use of such platforms is often motivated by incentives to leverage the specific features of the distributed ledger technology, enhance cooperation and improve processes among institutions – e.g. banks, corporations and government agencies. Hyperledger Fabric, for example, is a blockchain framework implementation developed by IBM and donated to the Hyperledger Project of the Linux Foundation, which has been designed to develop permissioned blockchains that cater to the requirements of the participating enterprises.[15]

Private and consortium blockchains are usually permissioned blockchains, i.e. access to the platform is limited to those with permission, which allows participating institutions to maintain a certain level of control and privacy. Consortium permissioned blockchains are widely used in the field of international trade, not without reason – many institutions are reluctant to put private business information on a public, permissionless blockchain accessible to anyone. Some private/consortium blockchains can, however, be open to anyone interested. A platform like FastTrackTrade,[16] for example, which leverages the blockchain technology to build a digital trade network for Singapore micro, small and medium-sized enterprises (MSMEs), is open to all interested companies – although one could argue that only companies can join. In addition, permissioned private or consortium blockchains can have a public interface, i.e. anyone can read the data.

While these classifications capture the main features of the principal types of blockchains, there are many variants of blockchains. The actual design of blockchains depends on the objectives being sought and on how much decentralization and privacy are desired.