

# PHASE 3

Build or reuse?



**begin  
blockchain**



enabling new growth for sme's

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*In this phase, the students need to evaluate the decision of building a new piece of technology (not a new blockchain but maybe a new protocol or DApp), or reuse or build on top of existing ones. If the solution is simple and the resources or initial funding small, reusing can be the right option.*

### Further:

- In the case of a public DApp, the incentives model need to be defined and tested here.
- In the case of private/consortium, the rights and obligations and roles of the participants in the business network need to be clearly specified.



*This step intends to determine the components of the blockchain and the specific type, version and technology of blockchain to use. In this phase, there are several critical elements to be considered, and the following are especially important:*

01

Is the solution based on open, permissionless blockchains or private/consortium?

- A. In the case of a public one, the incentives model need to be defined at a high level and tested here.
- B. In the case of private/consortium, the rights and obligations and roles of the participants in the business network need to be specified.

02

Finally, it is essential to identify further elements of the solution. Notably, the use of decentralised file systems (as IPFS) or the need for decentralised Oracles should be considered here.

03

The mechanisms for governance need to be defined at least at a high level.

*In the case of more decentralised options being taken, the last question becomes very important. For example, how will the governance of the solution be implemented? On-chain or off-chain? Will there be a need for a DAO?*

This step is fundamental to **understand and critically think on the interplay of the idea of decentralisation** and how that in some cases collide or is in conflict with the traditional view of entrepreneurs in building digital businesses in which the company retains full control on the data and the evolution of the application, having that as the essential competitive advantage.

That model is actually the one that is criticized and, in some cases, actively opposed by blockchain entrepreneurs. It should be stressed that this can be pretty shocking to some students, especially if they have previously engaged in entrepreneurial activity with traditional digital models, and that “dissonance” needs to be tackled by the trainer.

**The end of this stage should be a clear account of the type of blockchain to be used and eventually additional components needed, but not fundamentally from a technical perspective but instead from the perspective of the business. The trainer may problematise the decision with two extremes of the spectrum from the beginning:**

- A blockchain that is private and permissioned, which in most respects is similar to a conventional centralised solution. This is an extreme case since using that deployment makes blockchain technology just a “fancy” technology element with no real decentralisation, which is in some sense the opposite of the idea of blockchain and should be avoided.
- A solution using a public permissionless network like Ethereum, in which the smart contracts used, once they are deployed in the network, cannot be modified by the startup itself. This is the typical ideal scenario of blockchain applications, but it is difficult to achieve from the beginning, so some applications start from a level of control at inception and then a roadmap to decentralisation to build trust in the community of users.

The decision point to move to the next step is having a clear picture of the type of blockchain technology and additional components. This is not entailing the selection of a particular implementation technology but the selection of the kind of blockchain technology and, more fundamentally, the degree of decentralisation to be adopted.

It is very likely that some BMCs will heavily pivot in this phase, which is completely expectable. However, the trainer must assess if the assumptions of the previous phase concerning serving users of the system still hold if there is a radical pivot or shift of focus. This may eventually require revisiting or doing some additional user research at this point, but that is left to the tutors' discretion.



**The first important element to consider is the level of decentralisation adopted for the solution or application**

*In what follows, indications are given to raise the discussion in the PBL meetings. As it is common in PBL, the trainer should not be the leader of the discussion, but it might participate either at some points during the session (avoiding monopolising the flow of the discussion) or as comments to the minutes of the PBL session.*

## PARTICULARLY, CONSIDER AND DISCUSS:

- The kind of blockchain to be used in the spectrum from public and permissionless to private, and reflect it in the section "Solution".
- If it is there, it is an answer to the problems in the "Problem" section.
- Check and change if needed.

## If the solution is based on public, **PERMISSIONLESS BLOCKCHAINS**, review the following:

- How would the company release control of the smart contracts? Will that be done since inception or gradually? If gradually, how users will trust that the roadmap to decentralisation is credible?
- Which are the overall ideas on the value capture of the project by the founders, if they have to release control? NOTE: the details of that strategy are to be refined in later stages, but there should be options considered.
- Will there be tokens supporting value capture by the founders and the user?
- How will the governance be set up?

## If the **SOLUTION IS A CONSORTIUM, PERMISSIONLESS NETWORK** or similar, consider the following:

- Which are the network participants, how do they enter the network, and what are their incentives.
- How do they interact with each other, which are the potential barriers or problems they may perceive in joining, and how these barriers are balanced with the benefits?

## Then, move to consider the **"UNIQUE VALUE PROPOSITION"** section:

- Is the UVP (or, in its case, the value provided by the blockchain) still the same with the degree of centralisation chosen? Is there a conflict between how users or participants in the network view the UVP for them and how the company sees it?

*After the discussion, it should be apparent if the solution proposed requires blockchain technologies to differentiate from a NBS, and that such BS will be valued by users, partners and/or stakeholders.*

**RESOURCE 1:****Types of  
Blockchains**

*When the Bitcoin cryptocurrency introduced blockchain technology to the world, this technology was a public blockchain type for a particular cryptocurrency use-case*



However, not everyone can use a public blockchain. There are different types of blockchain technology, each one serving a different purpose and solving a particular or a set of problems.

You can find different classifications, taxonomies, and guides online to help you decide which is the best type of blockchain for you. This guide focuses

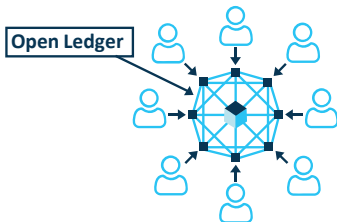
on each type and helps you realise which one is best suited for your blockchain project.

You can find online [different discussions and flowcharts](#) that attempt to guide in the blockchain YES/NO assessment.



# 4 TYPES OF BLOCKCHAIN TECHNOLOGY

## PUBLIC BLOCKCHAIN



Anyone is allowed to join and participate in the consensus

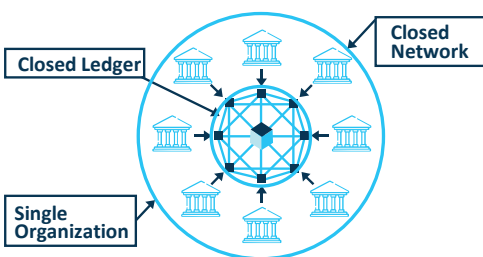


Fully decentralized, secured and immutable ledger system



Transactions are anonymous but transparent to everyone

## PRIVATE BLOCKCHAIN



A single organization will have authority over the network

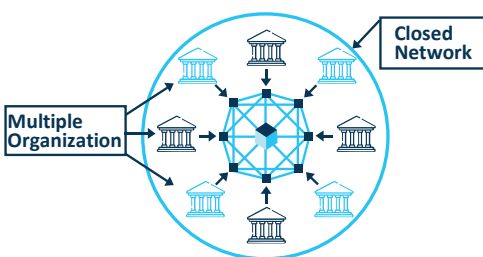


Faster output, power efficient, and offers privacy



Simplified data handling process but not open to everyone

## FEDERATED BLOCKCHAIN



Multiple organizations influences the blockchain network

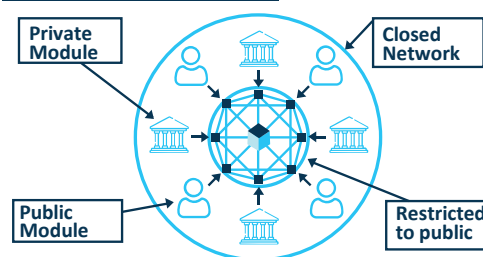


Decentralized, extremely fast, and scalable system



Network regulations preserve security and privacy

## HYBRID BLOCKCHAIN



Authoritative access, only certain elements are private



Flexible control over what data is kept public and private



Decentralized, regulated and highly scalable system

[RESOURCE LINK](#)

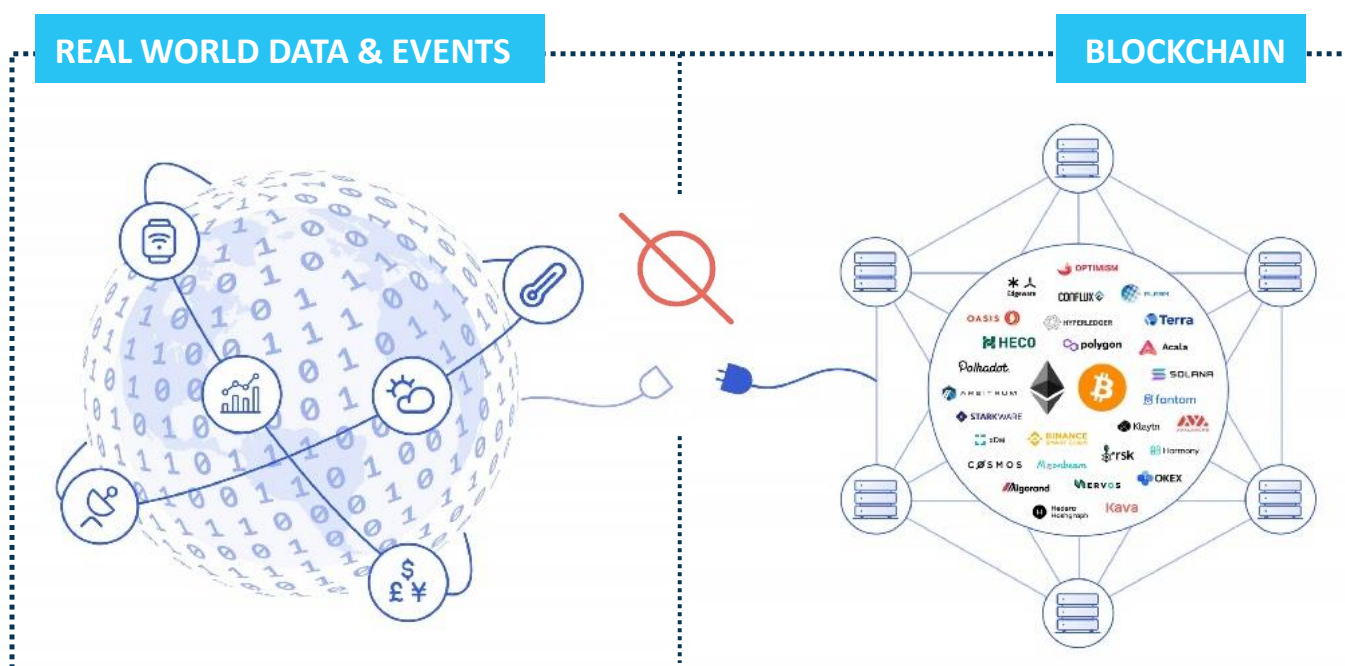
The guide will describe the different types of blockchains and provide a discussion on each type's advantages and disadvantages, together with a good number of example use cases. It can be an excellent exercise to ask the audience to consider new use cases for each type.

## RESOURCE 2:

### The role of Oracles

*Blockchain oracles connect blockchains to external systems, thereby enabling smart contracts to execute based upon inputs and outputs from the real world.*

This resource shows how oracles solve an important limitation of blockchain-based systems: the lack of access to external data. Using thorough explanations, videos and good pictures, this resource will start by defining what a blockchain oracle is to provide later details on the types of problems that oracles can solve, the types of oracles available, and finally, describe several potential use cases.



A shorter and not so comprehensive resource, but still helpful and informative that can be used as an alternative to the previous one, is the following: [RESOURCE LINK](#)

The concept of blockchain oracle is significantly linked to the concept of smart contract, so make sure your audience understands what a smart contract is before entering into deep analysis of oracle use cases, or some will not fully understand the benefits and role of oracles.

## RESOURCE 3:

### The Role of Decentralized File Systems

*Decentralised files systems make it possible to download a file from many locations that aren't managed by one organisation*

Supporting a more resilient Internet, making it harder to censor content and speeding up the web when you're far away or disconnected, among other benefits. IPFS is a distributed file system for storing and accessing files, websites, applications, and data. It is a versatile technology and can be used in many

use-cases. This resource offers a long and exciting list of projects built on IPFS. [RESOURCE LINK](#)

Perhaps too detailed or too technical, but still good as a reference, the full [IPFS 101 resource](#) is an excellent resource to have at hand

## RESOURCE 4:

### FFF Business network design in permissioned or consortium blockchains

*If the chosen solution is permissioned, there will be recognisable actors that may be companies, institutions or other forms of organisations. In that case, this is the right moment to sketch the different types of participants, their roles in the network, and their interactions.*

Note that in the case of a consortium or permissioned blockchain solution, the design of the business network is the core of the proposals. If all the actors in the network are competitors, that will raise some problems, that will not arise if they are cooperative actors. Also, the composition of the network is important for the credibility of their participants.

If a single actor politically controls the network, or one actor has a significant influence over the rest, then maybe the solution is still completely centralised in the sense of the control. These are subtle aspects that need to be considered by answering critically the question: why some participants may trust others?

Another important element of permissioned blockchain technologies is that they allow for some form of private transactions. That means that it is possible to have regular transactions to be seen and transparent to all the actors, but restrict that some of them are only visible to pairs of participants or groups of them under some pre-defined criteria. Why is this important?

Typically in those business networks, some transactions may be a source of data relevant to competitive intelligence, and thus companies would not be willing to share them with all the participants. For example, in a network of traceability of a supply chain, some aspects as the criteria for selecting providers would be sensible to companies if they are other potential competitors in the network.

## RESOURCE 5:

### To Build DAOs

*BanklessDAO core contributor Lucas Campbell published a paper on December 22, 2021, introducing how to use some tools to build a DAO in 5 steps*

The link below guides all interested in starting a new DAO organisation through the different aspects that must be considered (Mission, Community, Treasury, Governance and Ownership) to increase the chance to reach their goal successfully. [RESOURCE LINK](#)

Another good resource shows how to create a DAO with Moralis in 10 minutes. This can be an excellent alternative to the previous, more generic, resource, as this one is more specific on the use of tools and provides a detailed [step by step guide on how to build a DAO](#)

*The governance of a blockchain network application, be it private, consortium, or in public, permissionless networks, is the set of mechanisms by which the incumbents may decide on the evolution and change of the application.*

Governance may be simple or complex, depending on the kind of blockchain. If your blockchain is permissioned and you have clear roles of the participants, the governance may be simple to identify from the roles of those participants.

For example, if you have a consortium blockchain that operates in conformance to some regulation under the same or compatible jurisdiction, part of the governance is external, since the regulation just mandates it, and the rest of the decisions can be carried out easily off-chain, by regular voting in some form of association, be it an independent legal entity or an ad-hoc consortium agreement of the participants. These are common patterns that arise in consortium blockchains.

Blockchain is designed to be decentralized in its nature, and not be under the control of any person or group, so it is necessary to make decisions regarding the blockchain's roadmap. Some of the most effective and widespread governance strategies are "Benevolent Dictator for Life", "Core Development Team", "Open Governance" and "On-Chain Governance". The pros and cons of all of these should be considered before taking a final decision.



You will need to have a **clear idea of the type of blockchain that you will use** and its **degree of decentralisation**.

This requires a decision to go through a new cycle or finalise this and progress to Stage 2 in the group's next meeting.

The trainer should not bias the decision on iterate or progress, but any missing elements not discussed that may affect that decision should be raised.

Here it is crucial to provide some technical feedback on the decision of the kinds of components (not on particular ones, but on types) from the viewpoint of technical feasibility. The trainer could, if required, point to particular capabilities of blockchains or additional components if the group is in doubt about if something is possible or not with the current state of the technology.



## THE TYPE OF BLOCKCHAIN IS CLEAR

- You should not proceed to Stage 3 without proper validation with external stakeholders. As in the previous stage, these would typically be potential users of your solution, in the different “customer segments”, but in this case, you should also get some technical advice since some of the decisions require an understanding of the functional capabilities of the underlying technology.
- The learning goal for the next session is to get that feedback



## THE TYPE OF BLOCKCHAIN IS UNCLEAR

- Time to pivot the business model!
- Prepare your list of learning goals for the next round of this stage.

www.[beginblockchain.eu](http://beginblockchain.eu)



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