DIRECT DEBIT SMART CONTRACT
#BIOTS16

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DIRECT DEBIT NOWADAYS

In our everyday life we use various services deriving from periodically contracts, like telephone abonnements, fitness abonnements, credit cards, etc...

Thanks to Direct Debits these transactions are automated!

What's a Direct Debit ?

> *"A **direct debit** or **direct withdrawal** is a financial transaction in which one person withdraws funds from another person's bank account."*
>
> Wikipedia

Clients conclude a contract that allows organizations to specify and collect payments directly from the client's bank account.

The payment beneficiary has full control on the period and amount of each payment.
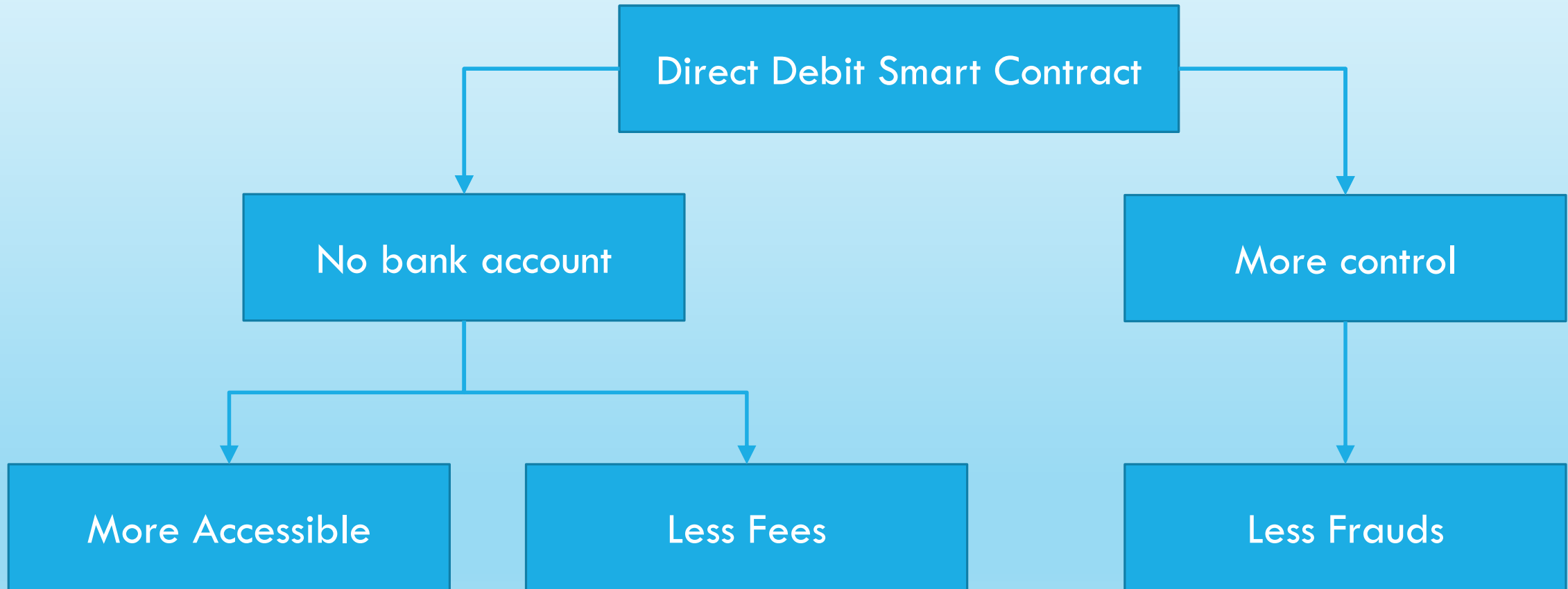
DIRECT DEBIT ISSUES

Direct Debit involves the **intervention of a Bank:**

➢ Need a bank account allowing this option

➢ Need to pay various banking fees

➢ The bank decides which organizations are allowed to use direct debit

Direct Debit involves **fraud problems:**

➢ Banks failing to control transactions

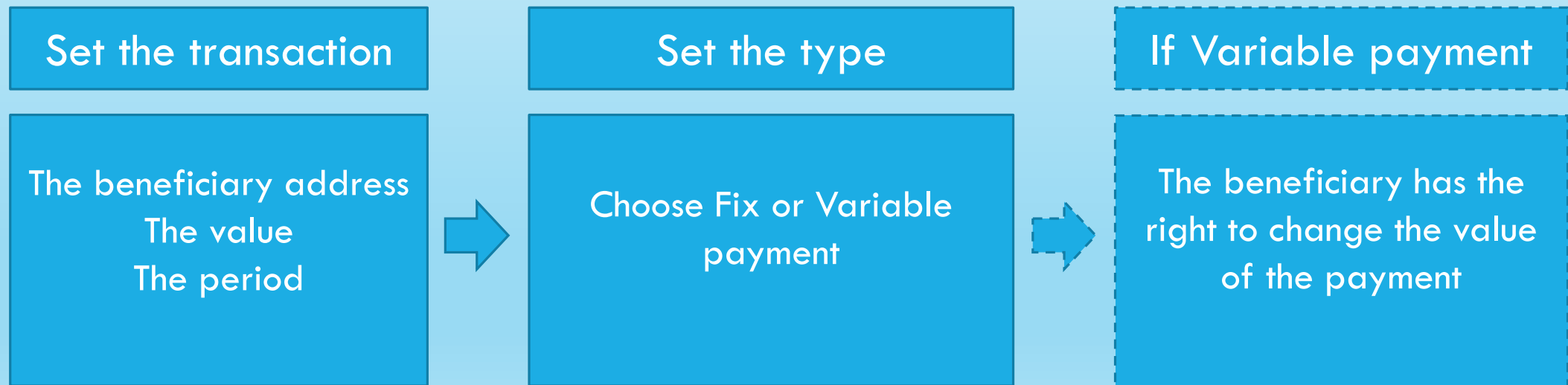➢ Client takes time to realize frauds

DIRECT DEBIT WITH BLOCKCHAIN

```
                    ┌─────────────────────────────┐
                    │ Direct Debit Smart Contract │
                    └─────────────────────────────┘
              ┌──────────────┴──────────────┐
              ▼                               ▼
     ┌─────────────────┐            ┌─────────────────┐
     │ No bank account │            │   More control  │
     └─────────────────┘            └─────────────────┘
       ┌──────┴──────┐                       │
       ▼             ▼                       ▼
┌──────────────┐ ┌──────────┐         ┌──────────────┐
│More Accessible│ │Less Fees │         │  Less Frauds │
└──────────────┘ └──────────┘         └──────────────┘
```

OUR DIRECT DEBIT SMART CONTRACT

We created a smart contract that enables a multiple of direct debit operations and Standing order operations.

The client can set up as many orders as he wants and delete orders at anytime.

Set the transaction	Set the type	If Variable payment
The beneficiary address The value The period	Choose Fix or Variable payment	The beneficiary has the right to change the value of the payment

CODING THE SMART CONTRACT

```
function pay() returns (uint count){
    uint successes = 0;
    for(uint i=0; i<accountAddresses.length; i++){
        Account account = accountsMapping[accountAddresses[i]];
        if(account.deadline < now){
            if(account.beneficiary.send(account.fee)) successes += 1;
            account.deadline = account.deadline + account.period;
        }
    }
    return successes;
}
```

CODING CHALLENGES

DIRECT DEBIT SMART CONTRACT DEMO

FURTHER DEVELOPMENTS

To avoid frauds when the beneficiary can change transaction's value:

Add an option to set a limit of value changes.

Add an option that enables creating an additional smart contract when payments details are changed by the beneficiary that lock the transaction for a certain period until validation of the client.