

Digital BANK: Possibilities of Decentralization

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Abstract. Decentralization of BANK services would allow its users, *first*, to primarily earn money, *second*, to extremely reduce document routines, *third*, to make their activity more transparent and secure.

We propose a new concept of BANK, a digital BANK that never can be a bankrupt and has professional skills and degree of activity of its customers as a main capital.

1. Introduction

In 2017 crypto market showed a mighty growth that attracted millions of people around the world from different fields of science and business. The main cryptocurrency that established a basis of crypto market was Bitcoin. Underlying technology of Bitcoin is Blockchain that enables to store any transaction data into blocks, sequentially.

Currently, many startups around the world in the field of financial and banking services strive to raise money through ICO by copying traditional bank functionality. The main goal of these startups is to build one more traditional bank in traditional bank industry with inherited bureaucratic mechanisms coming from a number of licenses. Meantime, two of the most important and basic components of any successful bank are just ignored, *reserve system* and *program of client insurance*.

Digital BANK is decentralized peer-to-peer bank network that will:

1. eliminate a need for gathering a bulk of client documents.
2. greatly broaden list of bank services.
3. open an access to all clients regardless of their level of income.
4. give their clients a chance to earn money.
5. present a great choice of insurance programs.

6. present a flexible program of client savings.
7. realize a revolutionary approach to global credit system.

Digital BANK is a unique and sole in its nature solution that allows anyone worldwide to *earn money*.

2. Self-sufficiency of digital market

Creation of a bank on digital market does not have to come to a thoughtless copy of functionality of a traditional bank. There are *minimum three reasons of it*.

First reason – technological infrastructure of digital market is radically different from the technological infrastructure of traditional bank market.

Second reason – in traditional bank market there is a central authoritative organization that establishes, regulates and governs all the activity of any bank on it.

The technological infrastructure of digital market is unique and does not have any central authority. Its functioning determines exclusively by their participants.

3. Capital Structure of a BANK

A bank in traditional market and a bank in digital market are two different products, antipodes. However, they have one single similarity. Both banks earn money by accumulating client's capital.

At the basis of any bank in the world lies capital.

Designed complex system of capital management determines profitability of the bank.

Correctly formed structure of the bank capital and transparent and simple system of client collaboration lie at the basis of success of any bank.

The structure of the bank capital determines at least two important things in bank activity:

First thing – degree of risk of raised capital.

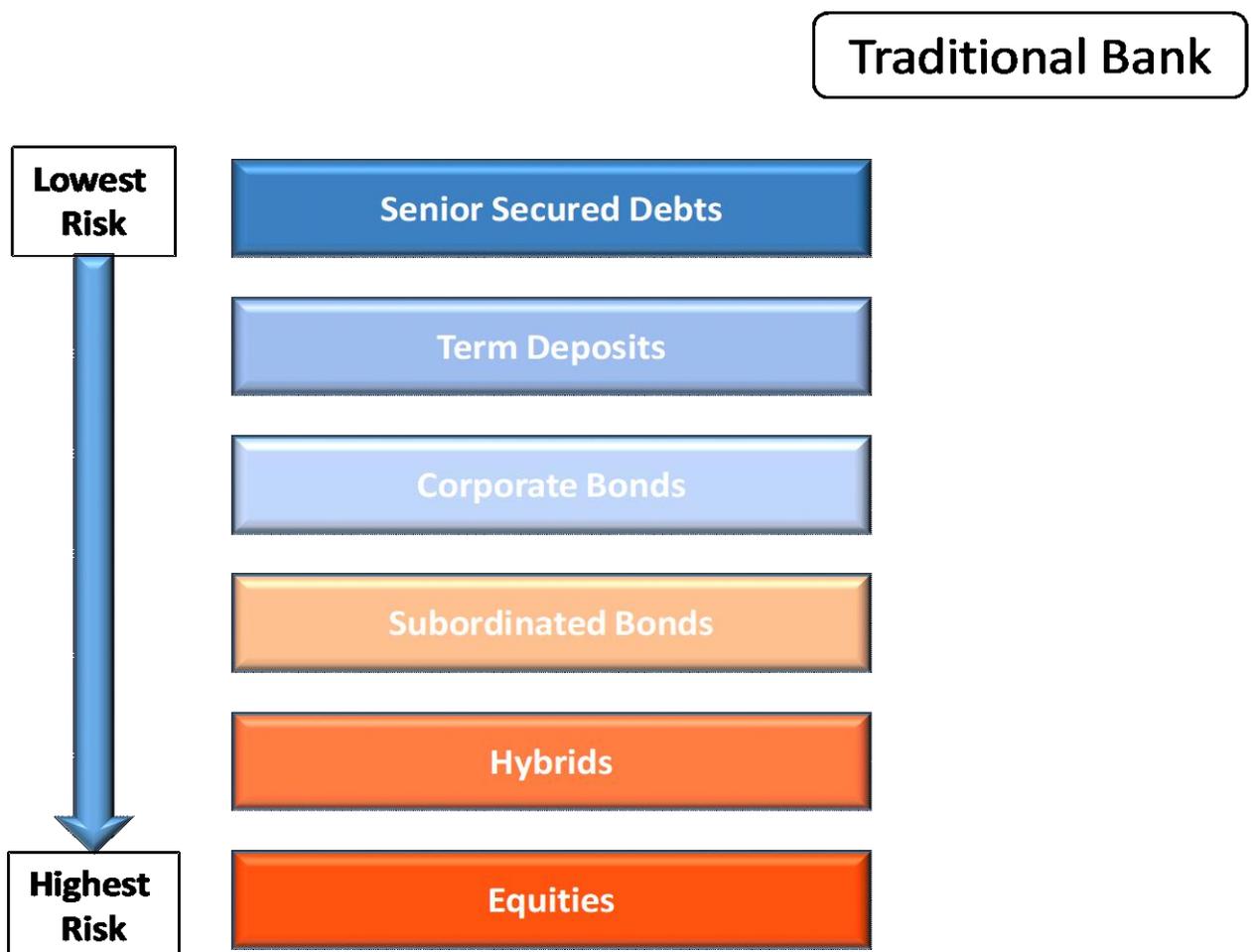
Second thing – system of priorities of client payments.

In order to clearly understand the difference between two types of banks, the capital structure of traditional and digital banks presented below.

4. Capital Structure of a Traditional BANK

The capital of the traditional bank, in many cases, is divided into several types. The reasons of that division are two. *First*, the banks try to attract as many different client types as possible. *Second*, the banks try to diversify its risks. In process of capital formation the banks focus on such capital type that will give them minimum of the risks.

Generally, in the traditional bank market there are three types of the capital with minimum risks: Senior Secured Debts, Term Deposits and Corporate Bonds.



Senior Secured Debts – debts that take priority over other unsecured or subordinated debts in case of the issuer goes bankrupt. Senior Secured Debts are often secured by collateral.

Term Deposits – deposits with a specified period of maturity and earns interest. It is a money deposit at a bank that cannot be withdrawn for a specific term or period of time (unless a penalty is paid).

Corporate Bonds – bonds issued by a company in order to raise financing for a variety of business operation reasons. Corporate Bonds are generally secured by future company profit but sometimes collateral.

Subordinated Debts – debts which ranks after other debts of the issuer (company) in case of liquidation or bankruptcy.

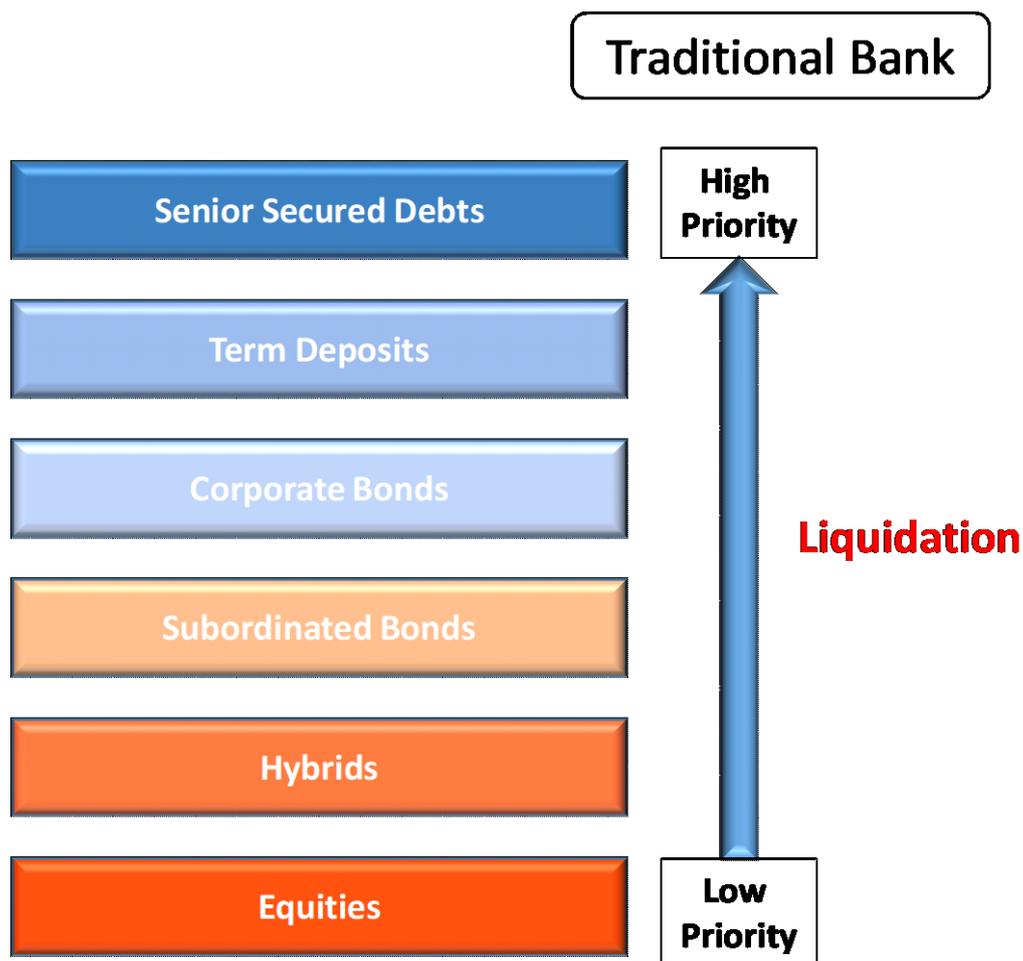
Hybrid Securities/Debts – a combination of various debts and securities.

Equities – in many cases it is an equity with no dividends.

First three capital types (Senior Secured Debts, Term Deposits, Corporate Bonds) forms the biggest share of capital in the traditional bank. It is obvious why traditional banks primarily put their focus on development of that three types – client assets as a guarantee of credit money back. ***In other words, the main target of the traditional bank is a wealthy client.***

The traditional banks *do not create infrastructure for earning money for people who do not have an initial finance capital.* However, the number of such people is the vast majority in the world.

In practice, in many cases the payments for clients with a maximum capital risk (Subordinated Debts, Hybrid Securities/Debts, Equities) are used to take no place at all. This circumstance lets the traditional banks equate to high-risks financial organizations.



5. Capital Structure of a Digital BANK

The structure of capital of a digital bank is monolithic and forms by all the participants of digital network. In other words, the capital of digital bank is *professional skills and degree of activity of the participants*. For example, all a borrower needs for getting money from a lender is time (in hours) that he or she spent for some job inside digital network. Anyone in digital network can be a lender or borrower.

Now, let us go to the details.

As compared with the traditional bank where the main capital assets are movable and immovable properties, at digital bank the main capital assets are **digital currency** (coins) that the participants of digital network have in their electronic wallets.

Monolithic capital of digital bank is divided into **six types**. Division into six types is induced by sense of how digital network works. *The sense is that*

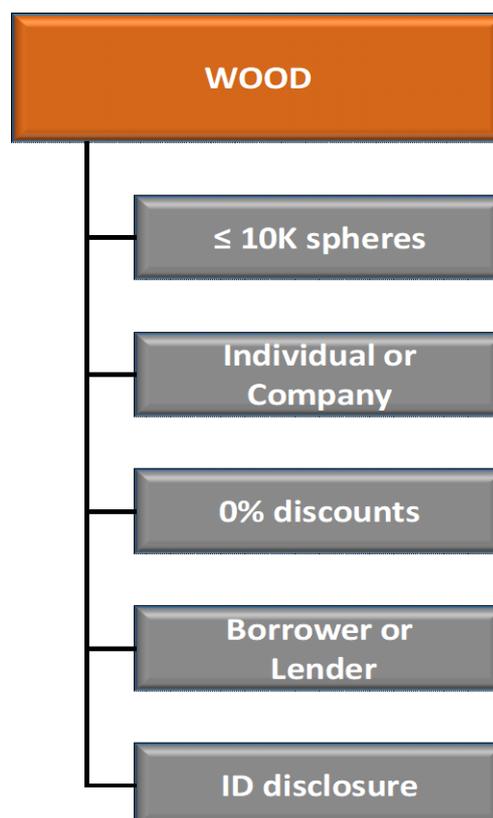
the amount of the currency a participant has is the degree of his or her activity in digital network. Consequently, the most active participant will be considered as a participant who makes more contributions in development of digital network. That type of participants will have more privileges to earn more money and get extra bonuses for purchases and payments of any kind.

As an example, here is the six types of digital bank capital:

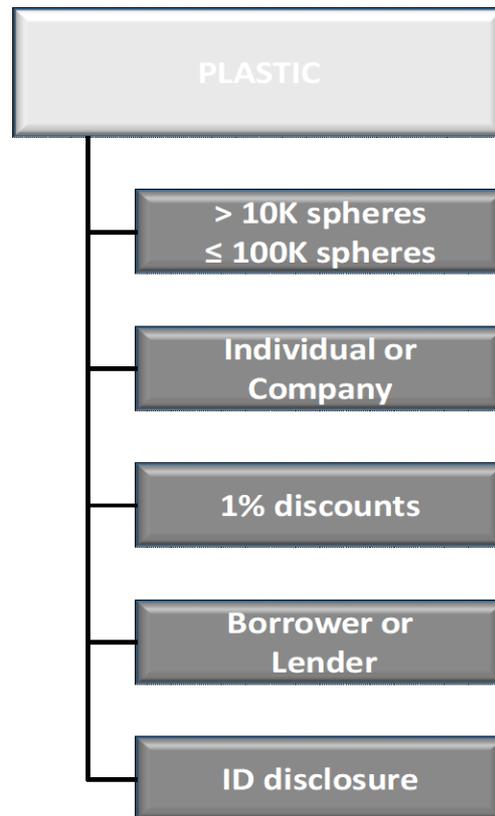
1. Wood Type.

This type implies that the participant of digital network have less than 10 thousand coins (“**sphere**” as a coin, further). At the same time, the participant can be an individual or a company. “0%” discounts means that the participant does not currently have any privileges (discounts) for obtaining any services inside digital network. Participant of this type of capital can be as borrower as lender.

In case if the participant of «Wood Type» decides to get a loan, he or she will likely need to disclose their personal information to a lender. It is up to lender whether the participant should show him ID or not. The lender determines what kind of documents the borrower should disclose. It can be a passport scan, a personal account in a social network, total amount of tokens in a personal wallet, etc.



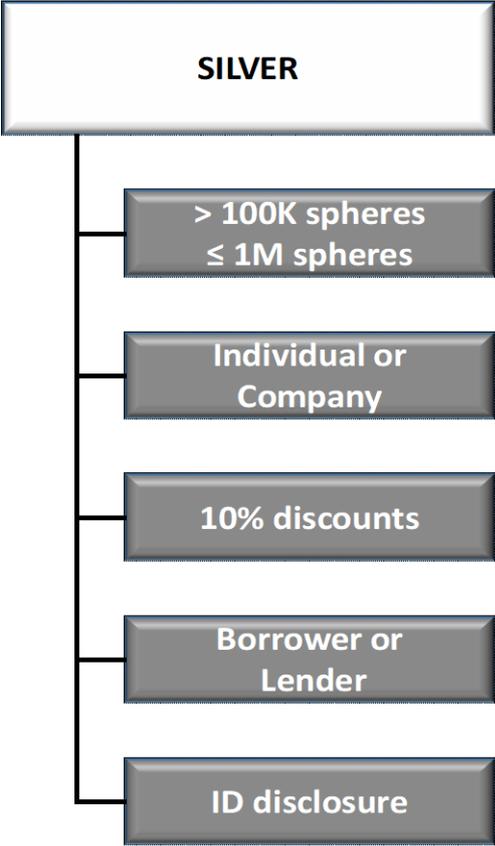
2. Plastic Type.



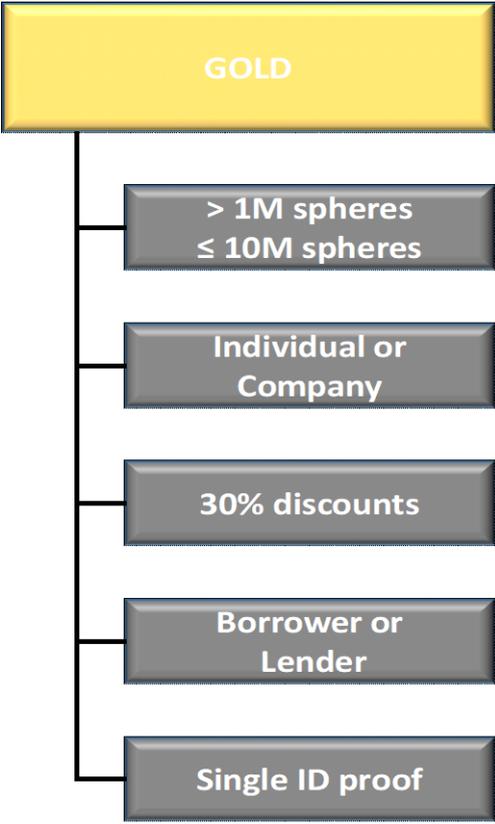
The main difference from «Wood Type» is, *first*, the participant must have more than 10K spheres and equal or less than 100K spheres in own wallet, *second*, the participant has 1% discount for all the services of digital network.

3. Silver Type.

The difference from «Plastic Type» is, *first*, the participant must have more than 100K spheres and equal or less than 1K spheres in own wallet, *second*, the participant has 10% (instead of 1%) discount for all the services of digital network. And ID disclosure may still be needed for some services.

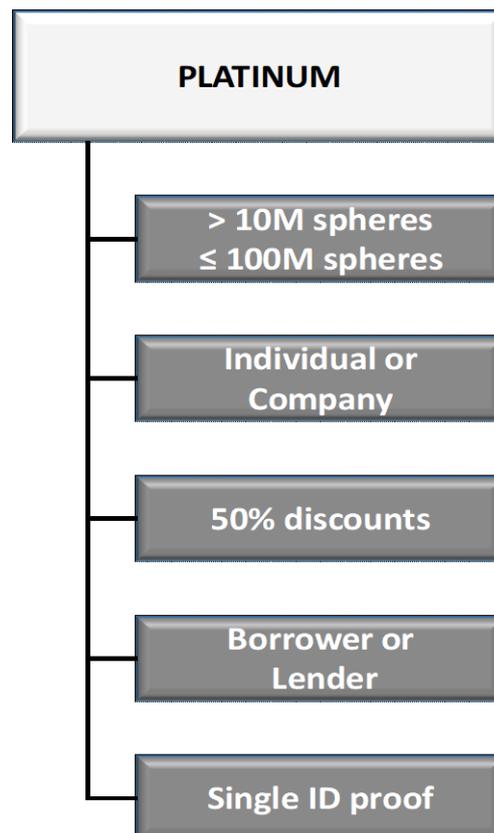


4. Gold Type.



The main difference from «Silver Type» is only one ID proof needed for obtaining an access to the services of digital network. That a single ID proof can be, say, an information about recently closed and paid off credit. There is also high level of discount, 30% for the services.

5. Platinum Type.



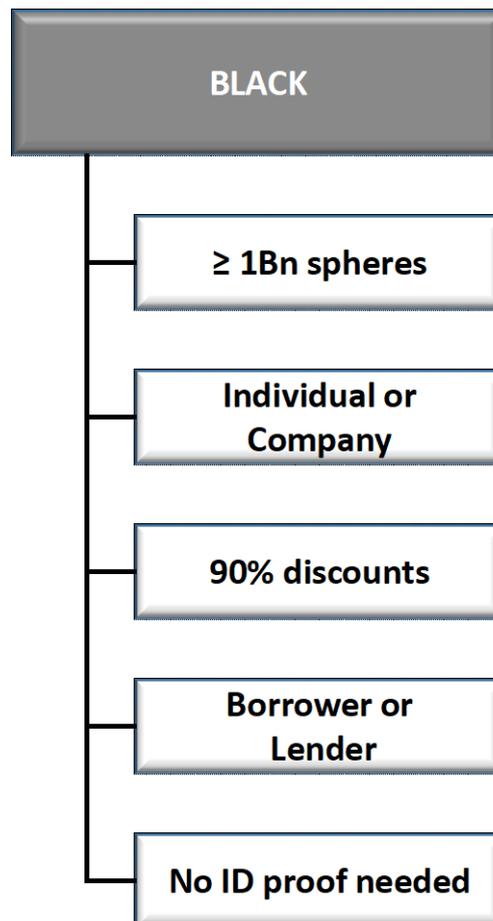
The participants of «Platinum Type» get an extremely high level of discount for all the services at digital network. In case of using some service of digital network, say, «**doing a job on trading coins on behalf of its owner**» the participant may still be required to identify himself or herself. But it is unlikely to be on a regular basis at this level of the capital.

6. Black Type.

The participants of this type of bank capital have a series of privileges at digital network. Among them:

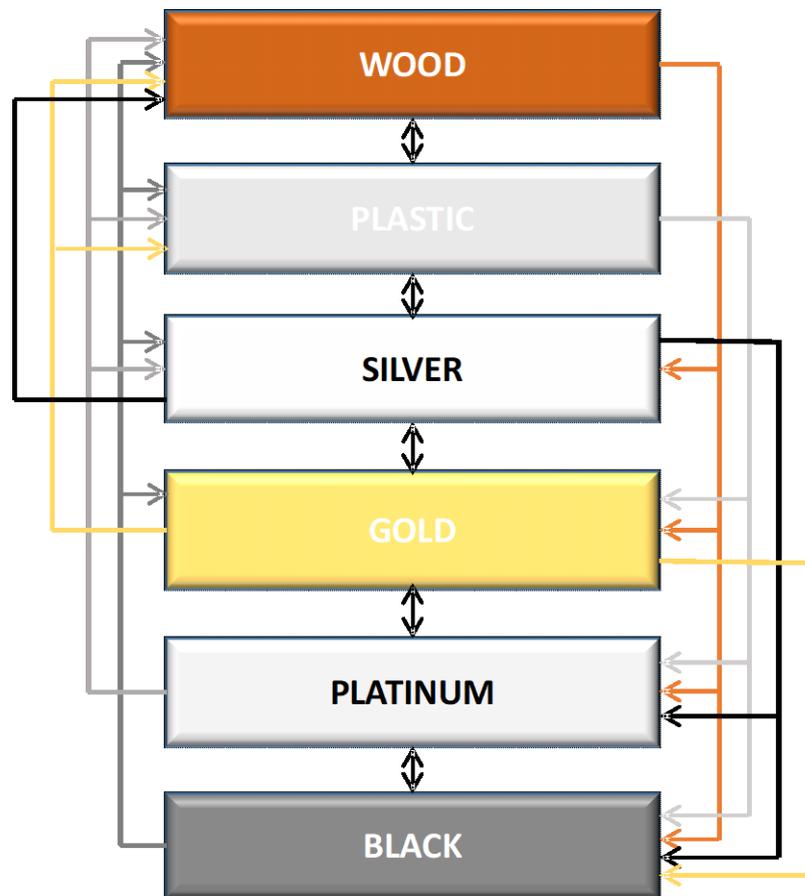
- a. increased payment rate for job implementation.

- b. super extremely high level of discount for many services.
- c. no need for ID verification.
- d. ability to influence on many processes at digital network.
- e. many other privileges.



Transition from one capital type status into another directly depends on total amount of digital coins in the participant's wallet. Thus, if a participant of the gold type status spends, say, 2M coins and falls below 1M coins of wallet balance, he or she will then be considered as a silver type participant. And vice versa. But there is **one important thing to always remember** regarding this possible transitions. Regardless of any transition type, «Gold-to-Silver», «Silver-to-Plastic» or even «Black-to-Wood», there will always be the priority to hours that a participant accumulated (spent) during his or her total activity at digital network.

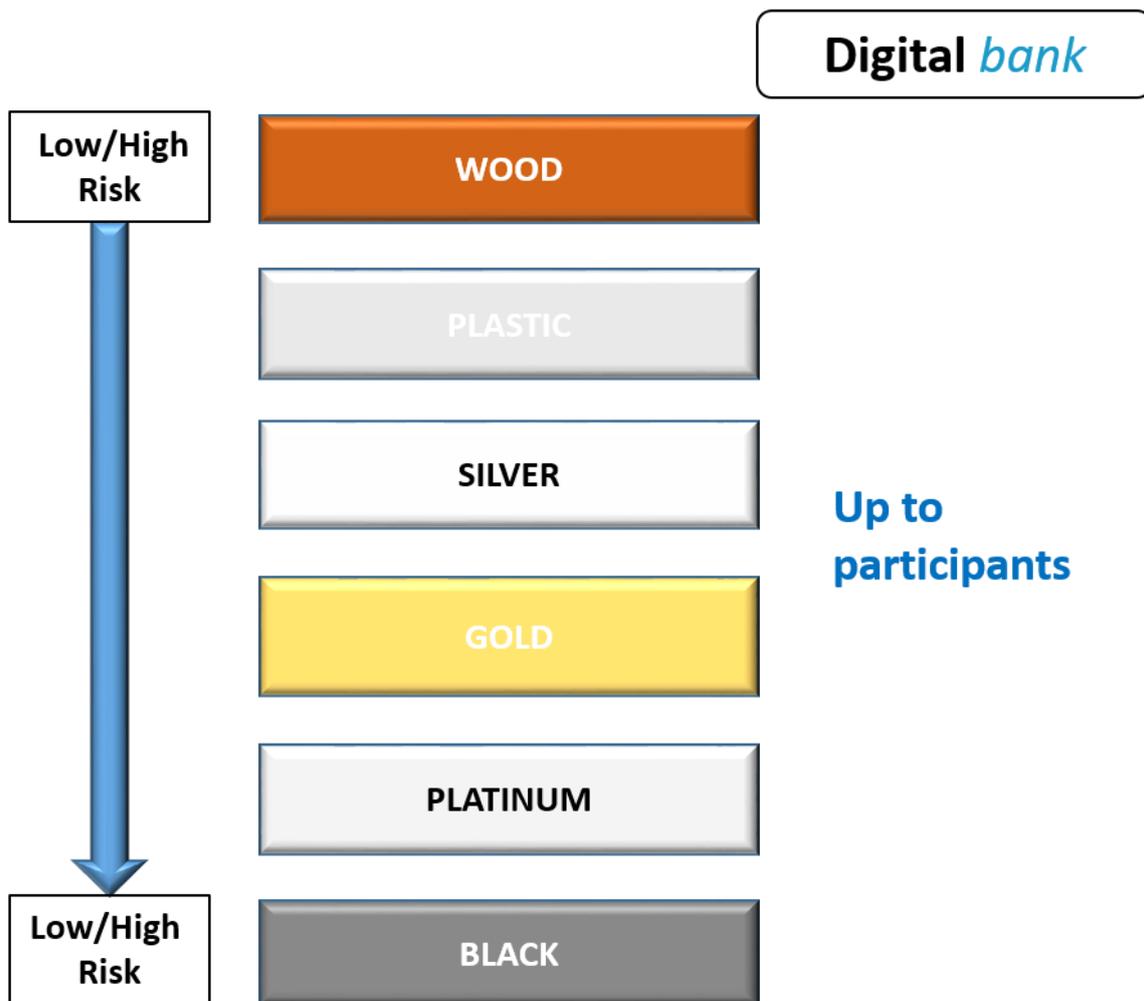
Thus, we come to general and monolithic structure of a digital bank capital:



*The existence of the transitions **motivates participants** to stay as much active as possible at digital network.*

6. Risks of Digital BANK Capital

In compared to the traditional capital types, each type of digital bank capital has equal level of risks. This equality is reached by mutually beneficial conditions that exist in the process of signing a business contract. In order words, each participant of digital network determines level of risks he or she is ready to go with further.



7. Bankruptcy of Digital BANK

In compared to the traditional bank, digital bank **cannot be bankrupted or liquidated at all**. The capital as well as digital bank itself belong to participants of digital network. In other words, digital bank is a private property of participants.

Digital bank appears at the same time when a bank service demand appears at digital network.

First example:

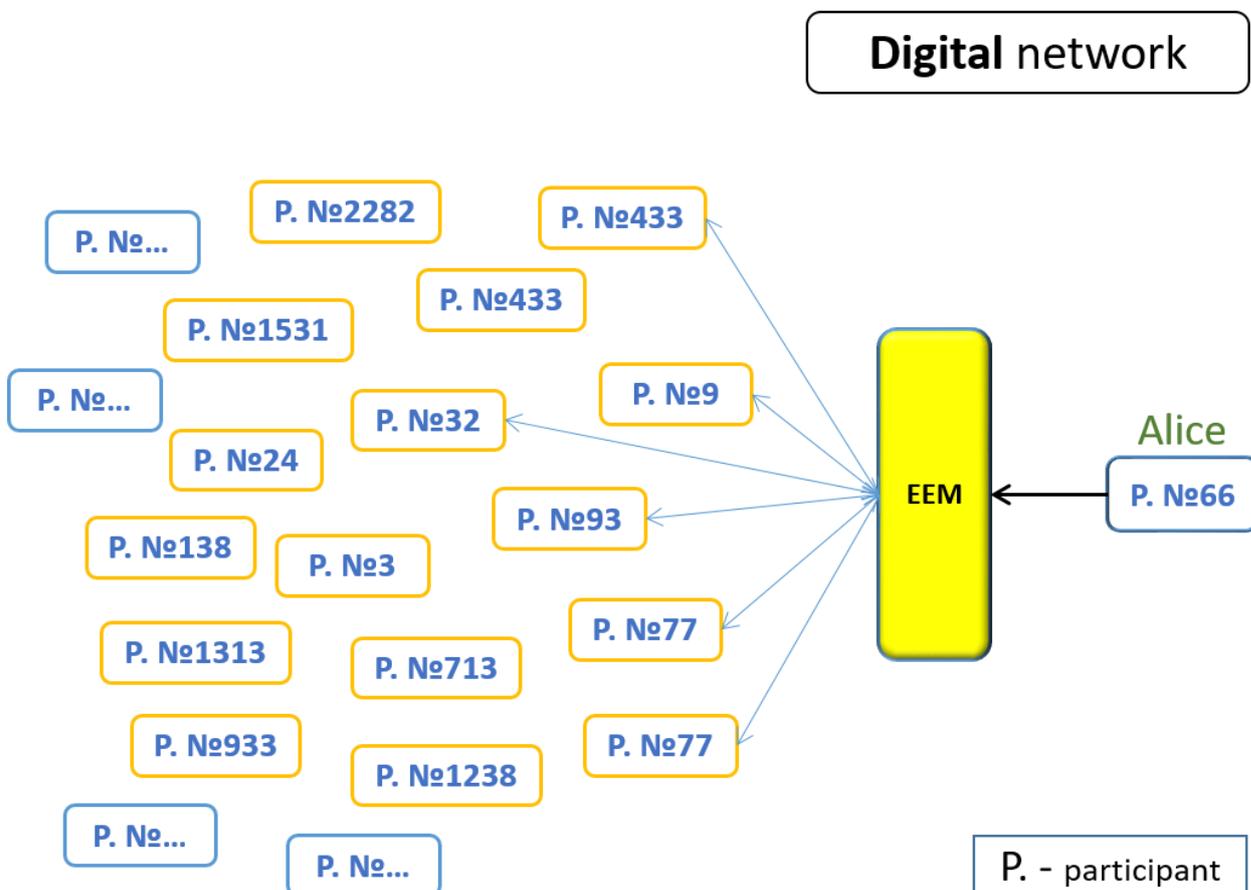
Alice has one hundred coins (fiat, etc.) and wants to earn extra ten ones through a loan program.

All Alice needs is to use **BLM** («Borrower-Lender Module») in digital network. Thus, Alice connects to BLM and BLM itself broadcasts a borrower request. That is it.

Second example:

Alice has ten coins (fiat, etc.) and wants to invest nine of them in liquid assets at IT industry.

All Alice needs to find a participant (group of participants) is to use **EEM** («Employee-Employer Module») in digital network.



The same action as with connecting to BLM.

Both, BLM and EEM can be programmable modules that allow the participants of digital network **themselves to tune** and determine conditions of their business contracts.

BLM allow anyone in digital network to become either a borrower or a lender. Cost of loan contract and conditions as well are up to the sides.

EEM allow anyone in digital network to become either an employee or an employer. Cost of employment contract and conditions as well are up to the sides.

Digital bank presents a lot of possibilities for doing job of any kind that is within a span of financial bank services.

10. Conclusion

We have proposed a concept for designing a client-oriented, manageable and intellectual digital bank of any kind. By the concept, such important systems as “Anti Money Laundering” and “Client-Guard” can be realized with minimum of technological expenses.

References

- [1] Bank for International Settlements., "Digital currencies", 2015, <https://www.bis.org/cpmi/publ/d137.pdf>
- [2] Bank for International Settlements., "Central bank digital currencies", 2018, <https://www.bis.org/cpmi/publ/d174.pdf>
- [3] J. Fernandez-Villaverde, D. Sanches, "On the Economics of Digital Currencies", 2018, <https://www.philadelphiafed.org/-/media/research-and-data/publications/working-papers/2018/wp18-07.pdf>
- [4] C. Pfister, "Monetary Policy and Digital Currencies: Much Ado about Nothing?", 2017, <https://publications.banque-france.fr/sites/default/files/medias/documents/dt-642.pdf>
- [5] M. Bordo, A. Levin, "Central Bank Digital Currency and the Future of Monetary Policy", 2017, <http://www.nber.org/papers/w23711.pdf>
- [6] HM Treasury, "Digital currencies: response to the call for information", 2015, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/414040/digital_currencies_response_to_call_for_information_final_changes.pdf
- [7] I. Gerstein, C. Hervieux-Payette, "Digital Currency: You Can't Flip This Coin!", 2015, <https://sencanada.ca/content/sen/Committee/412/banc/rep/rep12jun15-e.pdf>