

CRYPTONETWORKS

THROUGH THE PRIZM OF

INSTITUTIONAL ECONOMICS

by

ESPRYT

SUMMARY

*for the lazy ones

Cryptonetworks are an exciting phenomenon for institutional economics – it helps to forget (for a time) about math, models, monetary concepts.

All the hype around the crypto hides not the revolution in finance/business – we think it is a next step in the way people cooperate. First and foremost, it is a social phenomenon.

And cryptoassets (BTC, ETH, you should heard about them) are just a background of something more fundamental. We call on not to stuck on cryptoassets and their prices. We call on readers to enjoy the beauty of other new opportunities we got.

INTRO

Cryptonetworks are usually researched through the prism of economics. That makes sense, as their influence to the financial world is obvious – we see the rise of the new asset class and new economic relations.

Traditional economic schools are dominant in analyzing crypto. Especially researchers here love macroeconomics and its laws. Monetary ideas align with cryptonetworks, and analogies with the national economies work pretty well.

Let's try something different. Institutional economics. Have you heard about it? If not – it's the discipline in economics, that is even far from the economics. It's rather a stream in social philosophy, that tries to find explanations to some economic relations. We see its methods beautiful, because it avoids much formulas, math abstractions and discuss just people, their behavior and cooperation patterns.



Missed something or need basics?

No problem!
Check useful links:

[Cryptonetworks](#)
[Cryptoassets](#)
[Institutional economics](#)
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FOR THE FURTHER LOGIC: Participants

Cryptonetworks are a kind of digital networks. They consist of its participants with the different interests and functions. Participants are, in fact, machines running the code and exchanging the information. But it is still people behind.

In this definition we see no difference with other digital networks. Cryptonetworks just represent the relations between people and move this relation to the digital environment. Like other digital networks do.

Let's focus on people a bit longer.

What does institutional economics think about people?

Two things:

Their rationality is
limited

They tend to behave
opportunistically

or in other words:

- they are not robots
- they may behave irrationally
- they make decisions with the little information available

- they see no problem in breaking rules for achieving their goals

We will use this profile above further. For now let's just capture the vision of institutional economics on people.

We must add one more thing to the analysis – a protocol. And here we see the first difference from the other digital networks.

FOR THE FURTHER LOGIC: Protocols

Protocols are rules for machines. Machines follow these rules to communicate. If a machine does not follow these “rules” – one is not a part of the network. So, it is beneficial for machines (and people behind them) to follow the rules.

Most of the protocols lay on the technical level, and their functions are often linguistic. Protocols form the networks of machines around them. These networks exchange information and provide us (people) with services (like communication).

For example, your computer is running lots of protocols to be a part of the global Web.

Some of the protocols build up networks with more tangible services. Consider the torrent-protocol. When running these protocols, you are joining the network of the file sharing. And here you are equal with other participant. Other participants and you have a mutually beneficial interest in running the same protocol and maintain rules to be followed.

Cryptoprotocols

You may find lots of parallels with cryptonetworks. And yes, they have mutual grounds – they still are decentralized protocols, like Torrent, but with new services and new technologies applied.

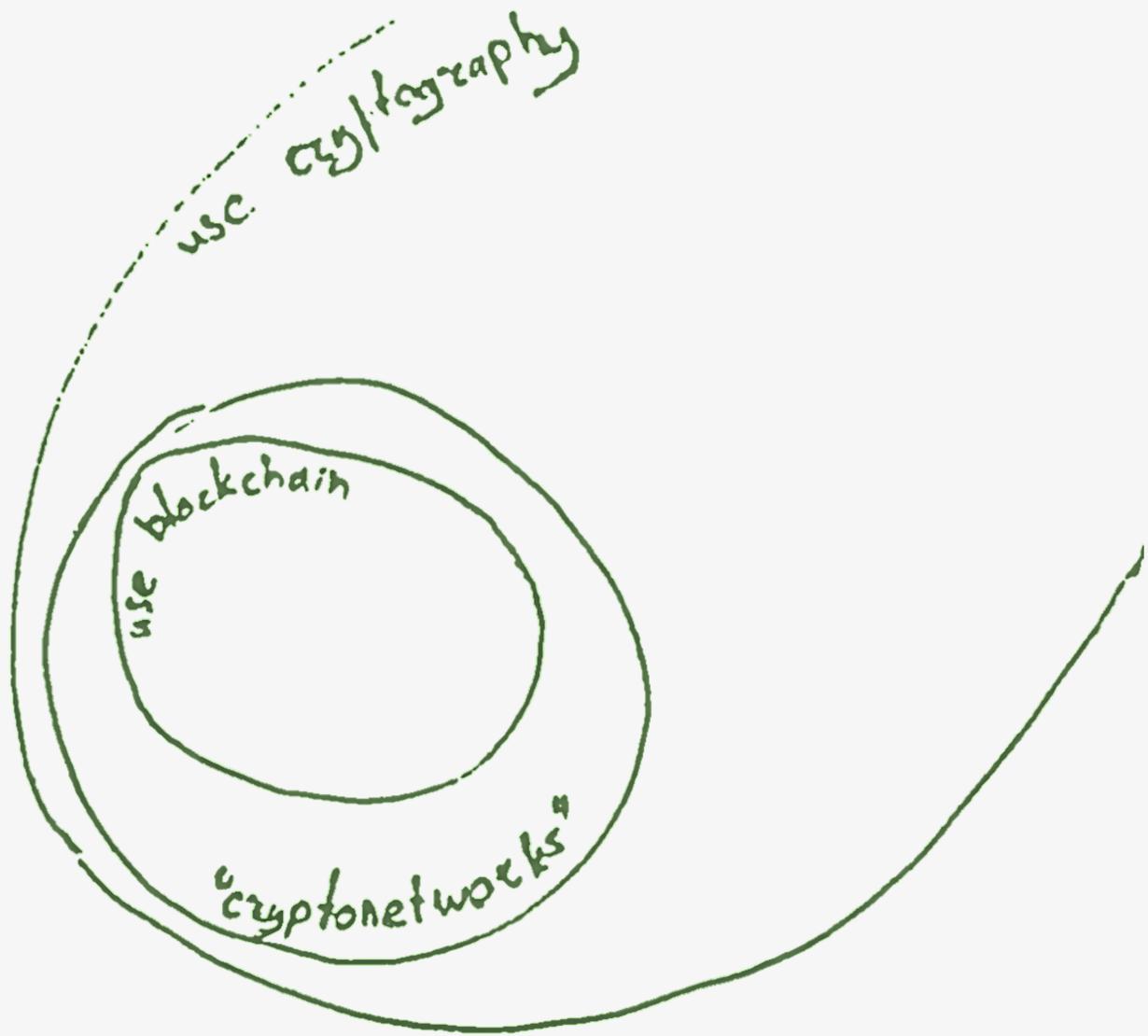
What technologies?

Cryptography? It may be a shock for some crypto enthusiasts, but cryptonetworks, that we see hyped now (Bitcoin, Ethereum and etc.) – are far from being the first protocols using cryptography.

Maybe blockchain? Seems to be closer to the truth. Blockchain granted unique features to networks. Joining these networks helps to get services, that are not available in other networks.

But some of these networks usually discussed... do not use blockchain. Like IOTA.

That is why we face the problem of the right naming. As it is not a focus of this paper, we will use the term “Cryptonetworks”.



What do we have

Cryptonetworks turn self-governing organisms. Technologies behind these networks and their design defend the networks' security and provide users with the unique services.

Also, in the majority of cases we see economic incentives implemented in protocols.

So users see beneficial to join a network: some want to receive services, some just want to earn money by supporting a network. But both motivations are designed initially and strengthen networks.

A cryptonetwork is a perfect subject for institutional economics.

We will view on the cryptonetworks from the points of institutional economics:

- trust
- transaction costs (note: not those cost in the networks! Not fees! Institutional economics see it wider)
- Institutions (note: not institutes! Not universities!)
- Maybe something else

CRYPTONETWORKS AS COMMUNITIES WITH NO TRUST

Trust is the key measure in institutional economics. It changes relations dramatically. People create formal and informal rules to achieve different levels of trust and make new goods/services available. Rules help to make others' behavior more predictable (if people follow them) – so some uncertainty fades away.

As we mentioned before, institutional economic believes, that people tend to behave “opportunisticly”. Is it the same as “egoistically” or “selfishly”? Not at all.

Egoism is about self-interest. Opportunism is about breaking rules to reach something – to solve a problem, to reach a goal, to help someone, to gain power or, of course, to earn money.

Protocols in the cryptonetworks make a wonder possible – they use people's egoism to prevent opportunism. They assume all participants to be selfish, and opportunism is either technically impossible or economically inefficient. This egoism is a basis for new services to emerge.

Thus, everyone should follow rules.

You have the right to remain egoistic

Your opportunism can be used against you



Protocol in a cryptonetwork is a new kind of law – the formal agreement in the digital environment of how participants should cooperate.

Protocols exclude opportunism.

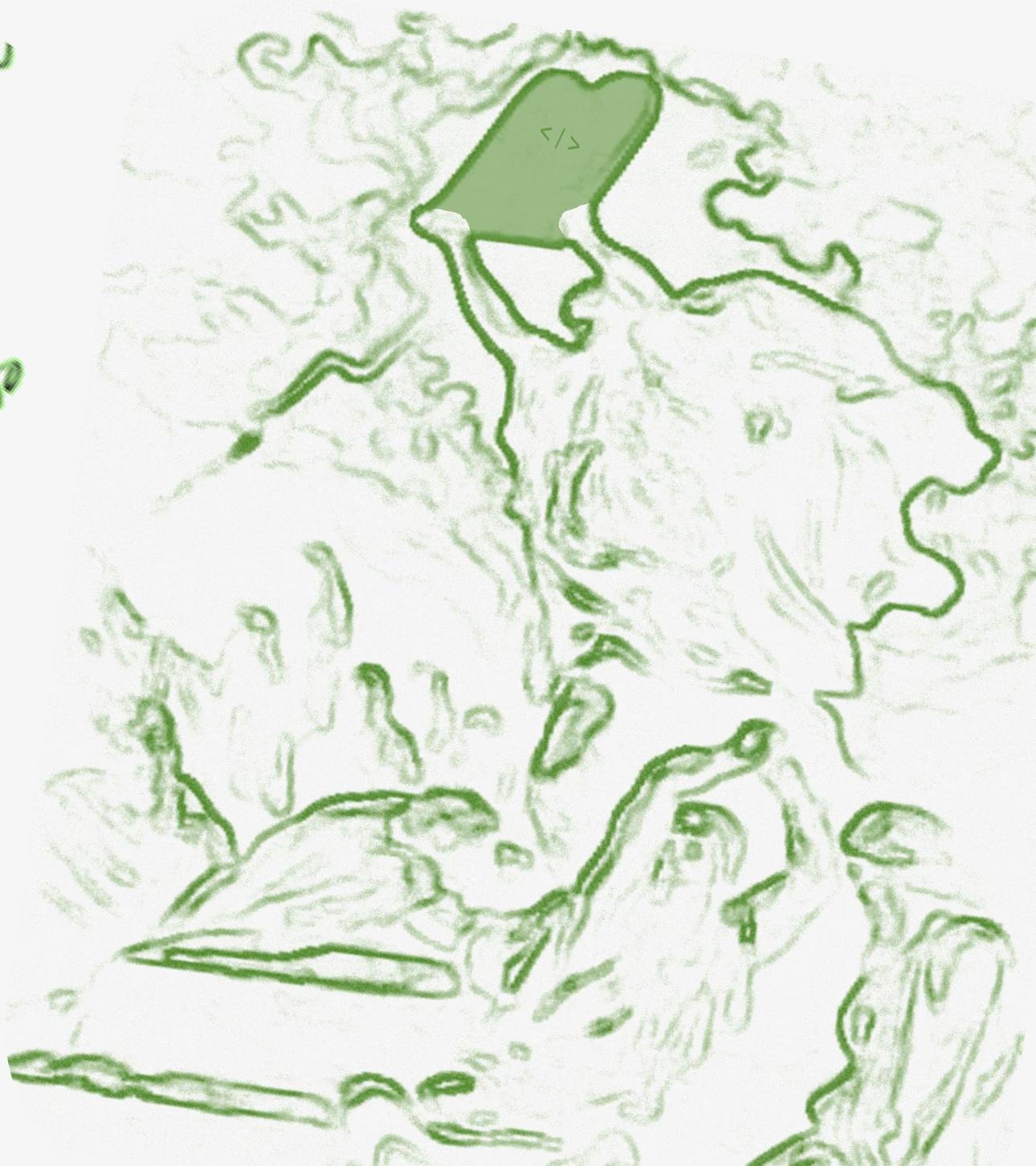
The crucial thing is that participants understand that! They see egoists in other participants, but believe that The Protocol will set the justice. And it does.

Moreover, protocols are usually open-sourced – everyone can check its code, sometimes even modify it.

Thus, there is no need to believe others – the only thing one need is to believe the protocol. To trust only the protocol.

Cryptonetworks are usually considered as a network with no trust. In fact, the trust puzzle for every single participant is just minimized and simplified.

*May The Holy Protocol
Judge Opportunists*



HOW CRYPTONETWORKS MINIMIZE TRANSACTION COST

Once again – here we observe transaction costs of institutional economics. Not commissions in the networks. Not fees.

Transaction costs – costs of gathering information, processing, making decision, defending rights or contracts and etc. Every decision in the economic activity requires transaction costs. They are hardly measured in money – usually it is time, alternative opportunities and etc.

The obvious observation widely mentioned is that digitalization decrease transaction cost. Examples are usually IT-giants (or startups).

What IT-giants have done? Their services meet supply and demand on markets. Both parties now have lower costs in finding a counterparty for the deal. IT-giants take transaction cost from the supply and demand sides, then optimize these transaction costs (thanks to technologies and information consolidation), and finally eliminate most of these transaction costs. The result – less transaction costs in the society at large, so IT-giants take their deserved reward.

Not to mention, that business models may differ, as well as services provided by IT-giants. It may be an engine to meet supply and demand in the traditional way (like AirBnB does, on the hospitality services market) or in not so obvious ways (like Instagram does, consolidating information about users for the marketing purposes).

Also, IT-giants upgrade the trust between people. IT-giants centralize the information and took responsibility for scoring parties. It is a new service for users – an IT-giant has already gathered all the information about a counterparty, rated him/her and did everything so that all the information presented on the IT-service would be enough for making a decision.

Users love it. Headache is mitigated.

The only thing users need...is to believe an IT-giant. Hope you catch parallels with the trust in cryptonetworks. Yes, the mechanism is the same in cryptonetworks with the only-one-trust-line-left.

But what's the problem? The problem is that the situation is not the same a bit.

As we mentioned a few times, people tend to behave opportunistically. IT-giants are people (surprise-surprise). To make it worse, they are people setting rules in their systems. Obviously, they do not avoid a possibility to set rules, that are beneficial for them. They use this chance, And use the trust of their users. They monetize it.

Is it fair? We will not discuss it here. But this situation looks like a kind of a social contact – people “sell” their private information and let IT-giant monetize their weakness points for receiving services and new possibilities.

Why cryptonetworks are a new step? Because IT-giants are replaced by the protocols – coordination process turns transparent and automated.

Here new services/goods arise. These new services may be in the competition with the IT-giants' services (be an upgraded duplicate of the similar services already available on markets) or be brand-new for users.

	What services cryptonetworks give us	Examples
1	Old services upgraded	Cloud computing...but decentralized !
2	Brand-new services	Anonymous and untraceable payments

We promise do discuss services in more detail in other essays. But, for now, let's go back to transaction costs.

In cryptonetworks we see no centralized owner, taking all the rent and abusing its monopolistic position. The rent is distributed among nodes, supporting the protocol and firming up a service in a network. These nodes still are people behind the machines – but their authority is so distributed that no one has enough power to “hack the system”. Their possible opportunistic cooperation is also under control and is considered by “the scenario”.

The group of all the users controls the protocol. And that is why the protocol serves all the users.

Transparent rules, followed by the machines, dramatically increase the trust. The code is unprejudiced. It can not be opportunistic, it has no self-interest. It is just code.

It is much easier to believe and control the code, than people (represented by governments or IT-giants).

This organizational trick together with some technological innovations – decrease transaction costs, increase trust, distribute the rent fairly with no abuse. And all this stuff combined together grant the beneficial terms attracting people to be a part of the network.

That is the mechanism, why cryptonetworks make a new step further in trust between people and a new step further in less transaction costs for the effective cooperation.



CRYPTONETWORKS AS INSTITUTIONS

Institutions – sets of formal and informal rules, that regulate our daily life. They appear as multiple layers around us determining the behavior of people. They help us to cooperate, manage risk, distribute responsibilities and just live in the world of limited information. They may be stand-alone rules or groups of people joint by these rules.

Some examples: government, family, constitution, religion, insurance, IT-giants, property rights, corruption, payment systems, fashion and so on.

Institutions set rules and shape our incentives. They can decrease transaction cost as well as increase them. They create benefits or eliminate them.

They are everywhere. And they are extremely complex! That is why it appears so difficult to simulate or model the society or a few groups of people. They are complex systems with multi-layer relations.

That is the vision of institutional economics on the world, and that is why it does not love formulas, laws. That is why institutional economics sometimes is criticized by other disciplines with more formalized methods.

If you become a citizen of a country (or just visit one) – you become a member of its “network”, you accept its formal and informal rules (from laws to cultural traditions). And you are expected to do so, and you expect others to follow rules. It is a mutually beneficial agreement between citizens (or residents). It decrease the uncertainty and contributes to the effective and less risky cooperation for everyone.

Cryptonetworks have all the features of institutions. They have formal laws inside (very formal, it is an inhuman and senseless code - protocol). Participants join these network and accept these rules, if they see it beneficial.

And, for now, it is beneficial. Cryptonetworks are innovative in terms of trust, new services and transaction costs. In previous pages we have seen how this evolution happen.

So, we may consider cryptonetworks as a highly positive institutions for the society with the great potential behind.

TRANSACTION COSTS OF CONFLICTS BETWEEN INSTITUTIONS

The benefits (or services), that cryptonetworks grant, are a good subject of structuring and analysis – we will dedicate an essay to explore the whole bunch of them.

But for this essay, let's take an example of anonymous payments (as a service of some cryptonetworks). Before the cryptonetworks...you was able to make payments without disclosing you personality. But. It was costly enough, transaction costs were high. And it is still costly and is going to be more and more costly to hide yourself from the Big Brother. Now, you can use some cryptonetworks not only to transfer value hiding your personality, but can also leave no traces and proof of this transfer. And it is very cheap.

The only transaction costs left high are costs of joining cryptonetworks. Why? Because it requires having some value in these networks. Cryptonetworks have their own flow of value, with their own assets. The institutions, that would help to exchange value equivalents between the crypto world and our "real" world, are weak. This two types of worlds are in conflict (on the institutional level) and institutions overcoming this conflict are only emerging.

But the conflicts between institutions are the general state of affairs and sometimes are the basis for the evolution.

FORMAL VS INFORMAL

The another exciting field of analysis is the relations between formal and informal institutions. As we can observe for now, cryptonetworks are regulated strongly by formal rules in protocols. And it is their power and the greatest advantage.

By the way, informal institutions exist on the level of *the crypto industry* at large – much wider community. Informal rules come from other institutions – from the business around, from people’s beliefs, from ethics, from ideologies.

The first example. The fundraising rules (in ICOs) that took the best practice and experience from the venture industry – quite informal rules.

The second example. Some developers that build up protocols and products just for people, just to support the idea and principles of the crypto industry excluding their egoistic financial interest. It is a beautiful motivation based on the personal ethics and ideology.

As we told, the structuring of all the institutes is hard. And the crypto industry is not an exception. It requires non-trivial approaches and we hope to introduce our vision in the following essays.

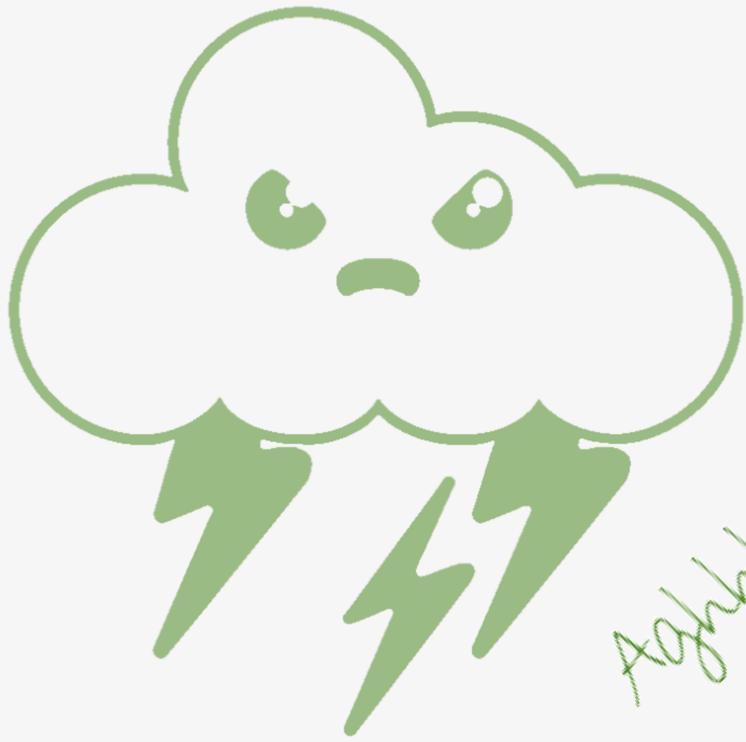
WHAT’S NEXT

Every “crypto enthusiast” believes that cryptonetworks grant us the revolution in some fields – usually in finance.

We think it is not the revolution – it is the evolution. The evolution of trust and cooperation. We evidence the penetration of digital innovations into the fabric of complex human relations. Digital innovations help us to upgrade our institutions and create the brand-new ones.

Cryptonetworks are just the one step further. They use our behavior patterns and egoistic incentives for the social benefit. It is a highly effective innovation in the world where the trust between people is fading away. Cryptonetworks prove that the mutual trust and confidence are not must - we use innovative technologies to reach win-win relations, overcome our weaknesses and produce social goods believing no one. Cryptonetworks grant us the ability to cooperate transparently and efficiently in the no-trust environment.

“WHERE ARE MY LOVELY COINS?”



Aghhh - Institutions, Justice, Trust
Just show me the COIN
I SHOULD BUY

And yes, cryptonetworks have cryptoassets. But we see it a bit sad, that their prices are the №1 topic when touching cryptonetworks.

We see it not surprising in the world, where everyone is looking for a chance to make money and gain the peace of the rent.

By the way, we are going to present our vision on them in the following essays.

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