

RESEARCH ARTICLE

Formation of platform economy of necessary needs based on energy economic equivalent

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Abstract: Recently, many non-state money systems have appeared based on digital cryptocurrencies. The disadvantages of digital cryptocurrencies are the separation from real production, the inequality of participants, the lack of control by state bodies, and the security problem. Digital money becomes full-fledged only when it is connected with the real economy and financially secured. The author proposes the introduction of a material digital energy economic equivalent. Based on the digital energy of the economic equivalent, it is proposed to form a digital high-tech platform economy of healthy needs, like the economy of the future. Platform economy is an economic activity based on platforms, which are understood as online systems that provide comprehensive standard solutions for interaction between users, including commercial transactions and innovative solutions. It is proposed to measure the efficiency of the future economy by economic energy intensity. Energy intensity is represented by a certain amount of energy of economic equivalent, in accordance with the law of energy conservation. Reliance on a materially supported digital energy economic equivalent, as a new currency, makes a digital high-tech platform economy of healthy needs synergistic, efficient, sustainable, safe, ecological, open, controlled by society, without speculative operations, health supportive, accurately measured through digital energy intensity. Material digital energy intensity will avoid the speculative shortcomings of existing digital money systems. To this end, governments establish a procedure for regulating the energy economy with an economic equivalent, as an impact on public relations in order to streamline and stabilize them, in order to realize the necessary needs of society in accordance with the available resources. In an era of energy deficit, a transition to an economy with energy of economic equivalent will lead to the optimal use of energy. Market competition will help create less energy-intensive technologies and energy-efficient offerings to meet demand. An environmental economy based on energy of economic equivalent can acquire international status.

Keywords: energy economic equivalent, economic energy intensity, resource supply, platform economy

1 Introduction

The law of conservation of energy, and with it the law of synergy, apply regardless of our will. The universality of these laws is always and everywhere and allows them to be used in all spheres of life. Using the concept of energy and the law of its conservation, you can describe, investigate and resolve any situation in the economy. The life energy of a person determines his ability to do work in the economy, both independently and together with others (clients, colleagues, partners). The day-to-day practice of energy management is carried out in the business sphere. The economy is implemented by business relations effective between people. In the economic sphere, efficiency is expressed in relation to the useful final results of the system (profit, value) to the spent resources (time, energy). The principles can work here: the maximum result with minimal costs or the required result with optimal costs. Energy efficiency can be learned. It can be found as a skill, as a regular criterion and principle for action. All the results and economic effects of the company's actions in the external environment are determined by the energy reasons that arise in its internal environment, in the internal world of the organization. Who acts effectively and high-tech - he wins, and he is the leader in the digital economy.

In the understanding of E.Y. Yagelskaya, economic energy is an array of energies that determine the qualitative and quantitative state of the economic system and determine the transformation of its structure by changing the space-time arrangement of the elements of

the system [1, 2]. That is, the state of the economic system is due to the value of economic energy [3]. On the basis of energy theory “energy of progress” M. Rudenko is formed [4]. In addition, the concepts of energy efficiency coefficient and net useful energy introduced by scientists are of particular importance [5].

The use of platforms in the economy is becoming more common at the level of countries and regions. A significant part of platform creation activity is concentrated in the B2C segment (business for the consumer), as well as in the B2B segment (business for the business). The use of platforms allows corporations to focus on their core activities, and partnership with technology companies makes it possible to reduce the cost of creating their own data collection centers.

Given the growing trends in the corporate world, platform strategies are becoming more and more relevant at the level of countries and regions. According to Sangeet Paul Chowdary, founder of Platform Labs, “in a world where platform companies prevail and where customers and companies are offered ways of interconnecting, countries wishing to be global trade centers should think like platform nations.” In other words, in order to win the “platform race,” national economies need to show such platform features as openness, a favorable regulatory climate, a course towards innovation, and flexibility. And this implies sufficient opportunities to create startups, attract talent, access to data, retrain the workforce and benefit from cooperation with regional growth poles, including in the field of R&D. In many ways, this may require the transformation of national economies and surrounding regions into analogues of open platforms on a course of innovation.

The best conditions for building a platform economy are in Singapore, where a business-friendly environment is created: this country ranks first in the government’s platform index. Of the sixteen G20 countries listed in the Accenture Platform Transformation Readiness Index, the first five places are occupied by the United States, China, the United Kingdom, India and Germany. This index is based on factors that create an enabling environment for the formation of digital platforms, including “the maturity of the digital population and a market based on its size, culture and spirit of innovative cooperation,” as well as “the quality of technological infrastructure in each country... and the quality of market regulation.” Both the IMF and the World Bank argue that countries and industries that are the fastest to introduce new platform technologies deliver the fastest and most sustainable growth.

Outside national economies, platform strategies are adopted by alliances of countries based on regional integration associations and interregional partnerships. Examples of such alliances at the level of regional associations are the EU Digital Common Market (DSM) and the Digital Agenda of the Eurasian Economic Union. The use of platforms also progresses to the level of “integration of integrations,” which unites not only individual countries, but also regional integration blocks. The EU is particularly active in this regard, which is developing economic cooperation with ASEAN in the digital sphere. The EAEU, in turn, is exploring the possibility of creating digital alliances with key partners in order to create greater connectivity in the field of transport and infrastructure development.

The construction of platforms designed for a significant network effect and an increase in the total weight of the network ecosystem begins to take on a scale that can have a serious impact on the global governance system and its development. At this stage, all the main centers of the world economy are creating their own platforms, which are based on a certain vision of how the process of globalization will develop. In the case of the EU, this is the Alliance for Multilateralism (created in April 2019), in the case of the United States, except for the Trans-Pacific and Transatlantic projects, this is Quad/Quad +, which is gaining momentum in building the basis for cooperation in the Indo-Pacific region, in the case of China - this is the Belt and Road initiative, as well as the BRICS+ platform launched in 2017.

Global technology/depoliticized platforms can include a global platform for regional integration entities and bring together regional and national development institutions (e.g., development banks and regional financial institutions). There are possible platforms that will connect such heavyweights of the world economy as sovereign funds.

Building a global economic architecture from platforms can make the global economy more stable and less vulnerable to crises. This will be possible if platforms at different levels of global governance are compatible.

Digital platforms of all spheres of life of society will help to shape the digital economy of necessary needs based on the economic equivalent proposed by the authors [6, 7]. The digital energy economic equivalent allows you to work on its basis in all areas of life with the help of technological platforms. Calculations for performed works are carried out with energy intensity. Energy intensity consists of a certain amount of energy of economic equivalent. Mental work is paid for by the energy consumption of energy spent (necessary to restore operability). Mental energy intensity is determined by medical standards. Energy capacities are stored on digital

cards and in digital banks.

The energy intensity of the necessary needs is determined for all segments of the population over time. In accordance with the energy intensity, the necessary needs are realized. The necessary needs of the disabled population are produced through the automation of production processes on the basis of public-private partnership on the basis of public and private contracts.

Joint activity creates the total power capacitive value of a product, goods, service. The sum of the energy intensity of all activities is the energy intensity of the economy.

The first section of the article describes the economic model of life support for the healthy needs of all segments of the population. The digital economy of necessary needs with energy economic equivalent operates on the basis of public and private contracts. The authorities support the formation of human capital through public-private partnerships. Young persons with disabilities are involved in work through rehabilitation [7].

The second section discusses the approach to efficient resource management. The digital economy of necessary needs with energy economic equivalent efficiently consumes material resources and uses human resources with the help of strong artificial intelligence with optimal technological singularity [8].

The third section deals with the development of an economic technology platform. Demand and supply, hiring are realized through technological platforms based on competition in quality and price. Housing is acquired through social technology platforms by all segments of the population on the basis of public and private contracts.

2 Healthy needs economy model with energy economic equivalent

The economy of healthy needs with energy economic equivalent is formed on the basis of the creative potential of the individual and begins with the specific actions of each person. By combining human potentials, living spaces create the creative potential of territories. The economy of healthy needs with energy economic equivalent leads from a creative personality to the level of an entire planet. And this path lies through creative living spaces.

The creative potential of a person is a set of qualities, abilities, creative designs and aspirations that are potentially embedded in productive activities. The creative potential of living space is a set of capacities of its participants, which is manifested in activities aimed at the development of the community as a whole and for the benefit of each participant. Human development takes place through the acquisition of new knowledge, gaining new experience, purposeful formation of personal qualities and the search for personal meanings. Human development requires that a person accumulate his or her potential and realize it through a system of human support. Human potential is manifested through creation and active work. Activating a person's unique potential is an important part of development at different levels.

The use of human potential to solve collective problems in the development of organizations and territories is carried out through the capitalization of human potential, that is, through human capital. To do this, through energy, the economic equivalent determines the energy costs and energy intensity of various activities. The energy costs of the activities carried out are taken as their remuneration.

The monthly norm of healthy life products for various segments of the population is determined. A set of healthy life products, goods and services for different segments of the population is also defined. Family common and transient related properties are taken into account.

The economic model for meeting the healthy needs of society is as follows:

$$NLHS = \sum_{i=1}^n (NLHS_i \times K_i) \quad (1)$$

where, NLHS (normal life support of a healthy society) expressed in energy intensity as energy economic equivalent,

$(NLHS)_i$ is the standard of living of a healthy person of the i -th layer of the population,

K_i is the number of people of the i -th layer of the population;

$$K = \sum_{i=1}^n K_i \quad (2)$$

where, K is the total population;

$$NLHS + Pc. \leq \sum_{j=1}^m (NL_j \times K_j) \quad (3)$$

where, (NL) j : labour norm of j specialization;
 K_j : number of workers of j specialization;
 P_c : refundable resources.

$$K_0 = K - \sum_{j=1}^m K_j \tag{4}$$

where, K_0 : number of non-working population;
 $\sum_{j=1}^m K_j$: labor population.

$$TIS - TIW = BPD \tag{5}$$

where, TIS: total income of society (the realization of the necessary needs for the society);
 TIW: total income workers (realization of necessary needs for workers);
 BPD: basic provision for disabled.

The economy of healthy needs with energy economic equivalent creates socio-economic conditions and provides resources for the self-realization of the entire working population through the technological platform of the resource market and makes everyone the owner of their labor, regardless of the type of property. The developed full economy creates socio-economic conditions and provides resources for the self-realization of the entire working-age population through the resource market.

$$R_m - NLHS = R_p + R_d \tag{6}$$

where, R_m : market resources; R_p : production resources; R_d : resources of development.

The resource market is a system of using resources to coordinate economic activities. Distinguish between reproducible and non-reproducible resources. The feature of many natural resources lies in their irreparability. Natural resources with a genetic mechanism are reproduced.

The economic system of sustainable life support is adjusted through a socially oriented sectoral system for detailed resource-producing operations of individuals and entities carried out in a network of resource flows.

The scheme of the annual resource flow of the multisectoral economy is as follows:

$$BSMR_0 \rightarrow \sum_{\alpha=1}^l \sum_{j=1}^n \sum_{i=1}^m DRN_{\alpha,j,i} \rightarrow CSRM_t \tag{7}$$

where, $BSMR_0$: the state of the resource market at the beginning of the year;
 $CSRM_t$: current state of the resource market at time t , which determines the resource usage;
 $DRN_{\alpha,j,i}$: daily resource norm of the i worker, j specializations, α industry.

The annual resource flow is formed in accordance with the contracts of the multisectoral economy, so that for all t :

$$CSRM_t \geq \left(\sum_{\alpha=1}^l \sum_{j=1}^n \sum_{i=1}^m DRW_{\alpha,j,i} \right) + (DNHLP \times K) \tag{8}$$

$$RSRM_t \geq \left(\sum_{\alpha=1}^l \sum_{j=1}^n \sum_{i=1}^m DRN_{\alpha,j,i} \right) + (DNHLP \times K) + RD_t \tag{9}$$

where, $DRW_{\alpha,j,i}$: daily result of work of i -th worker, j -th specialization, α -th industry;
 $RSRM_t$: resulting state of resource market at time t that determines the resource receipt;
 DNHLP: a daily need for a healthy life of one person;
 RD_t : resource for the development of society at time t .
 $DRN_{\alpha,j,i}$ controlled by the i -th worker, j -th specialization, α -th industry in accordance with the contract.

The industry is responsible for the replenishment of the resource. Productivity growth addresses demographics by providing healthy living standards for the newly born younger generation. Balanced demand for the realization of true needs by proposals at the level of detailed use and replenishment of resources through the social form of vital development and climbing through technological platforms makes cost-effective use of the resource for sustainable development of collective organization of society.

Production of stable material goods is planned long-term for mass consumption. Planning of individual material goods is planned in the short term. The production of material goods of mass consumption is an unconditional part of the economy for the stable life support of each person. Production develops on the basis of competition for quality. Enterprises with poor quality are transferred to higher technologies.

The professional individual sector improves quality of life. If quality becomes demanded in the society, it is certified, and it is carried out at the local, regional and federal levels. Every able-bodied person during his or her working life works out the norms of the need for life and living, his or her provided minor, and elderly maintenance.

Mass production of material goods is determined by:

$$\sum_{j=1}^L PN_j \times K_j = \left(\sum_{i=1}^N K_i \times CN_i \right) + F \quad (10)$$

where, L: the number of groups of an item or household;

PN_j : professional norm for the group of the j -th commodity or household;

K_j : number of citizens performing professional norms;

N: the number of segments of the population;

K_i : the quantity of the i -th layer;

CN_i : consumer norm of the i -th layer;

F: necessary requirements funds.

The economic system of sustainable livelihoods plays an important role in the development of society. Production processes produce a material mass of products and goods according to the law of energy conservation. Produced material mass has energy intensity in amount of spent energy by produced process. The economy of meeting healthy needs based on energy of economic equivalent is focused on supporting healthy life activities with the effective use of material and human resources [9].

A socially oriented ecological market economy with a system of sustainable life support in terms of energy and economic equivalent forms a healthy civil society [10], contributes to the sustainable development of the collective organization of production and social activities of the society through technological platforms [11, 12].

3 Resource efficiency

Resource support is one of the most important functions that determines the level of development of any business entity and its effectiveness. The study of its laws is required for the rational, efficient and timely formation and distribution of resources necessary for the implementation of work on all cycles of production of products or services.

Resource efficiency refers to the relationship between the number of resources spent in the production process and the number of goods and services derived from the use of those resources. The increase in the number of goods and services produced by the national economy for this amount of resources means an increase in the efficiency of the use of resources. Conversely, the decrease in the volume of products that are derived from this amount of attracted resources indicates a decrease in the efficiency of using resources.

The effective use of resources requires the achievement of:

- (1) Full resource employment;
- (2) Full volume of production.

Full employment of resources means the use of all resources available for production. In the national economy there should be no enterprises or capital equipment that is idle, land that is not cultivated, workers who are left without work. Note that we are talking only about suitable resources for production. In every society, established practice determines which resources are suitable for use. For example, legislation and customs provide that the labour of young children should not be used; to preserve fertility, part of the arable land must be left under fallow and the like.

The use of all available resources does not guarantee their effective use. Full production should also be ensured. Full production means that resources are used in a way that best meets the needs of society. If the country's economy has not reached full output, it is said that resources are underutilized. The full volume of production is produced in the presence of two types of efficiency - distribution and production. Each society with its limited resources is faced with the problem of their distribution between the production of a wide variety of products. How much land to take for wheat, and how much for pasture? How much skilled labor costs to attract to the production of tractors, televisions, and how much in a hairdresser, *etc.*?

The energy assessment of the efficiency and optimization of the use of enterprise resources is the most objective according to the law of energy conservation and the proportionality of mass and energy of the theory of relativity. $E = m \cdot c^2$ can be considered as a measure of the total energy enclosed in a body with mass m . The value $E_0 = m_0 \cdot c^2$ can be considered resting

energy, this is the total energy that a resting body possesses. In this case, the kinetic energy will be equal to the ΔE change in the total energy:

$$\Delta E = E - E_0 = c^2 (m - m_0) = c^2 \Delta m \quad (11)$$

One kind of energy goes into another, so you can generalize one kind of relationship between kinetic energy and the change in body weight to all forms of energy. When the body energy changes by ΔE , the body weight changes by Δm . When the body weight changes by Δm , the total energy changes by ΔE .

A generalizing indicator determining the impact of rational use of enterprise resources on increasing their efficiency (E) will be the assessment of the impact of such parameters as energy intensity of labor resources (K_1), energy intensity of resources used in production (K_2), energy intensity of natural resources (K_3), energy intensity of intellectual resources (K_4), environmental energy intensity (K_5):

$$E = F \sum K_i^n \quad (12)$$

where, E : efficiency of rational use of resources;

K_N : indices characterizing factors and their impact on the economic development of enterprises and industrial territory ($n = 1, 2, 3, 4, 5$).

The energy intensity of intellectual resources is assessed on the basis of the principle of utility, to the extent possible to meet the healthy needs of society, depending on demand and supply, when used for a certain period of time. Their cost cannot exceed the energy consumption of intellectual resources of equivalent utility.

The resource unit of energy economic equivalent beg is calculated about the formula:

$$\text{beg} = \sum_{i=1}^N K_i : N \quad (13)$$

$$K_j = E_j d_j(m) : M_j d_j(e) \quad (14)$$

Where, E_j : energy intensity of the resource i ;

M_j : weight of the resource i ;

$d_j(m)$: mass density of the resource i ;

$d_j(e)$: energy density of the resource i .

The resource unit of energy of the economic equivalent beg can be used to use energy and mass. Distributive efficiency means that resources are attracted to the production of precisely those goods and services that are desirable and necessary for society [13]. The full volume of production implies the achievement of production efficiency, that is, the use of modern technology, which ensures the maximum return on attracted resources, the production of goods and the provision of services at the lowest cost. Indeed, wheat can be chewed with sickle, and the earth dug with a shovel, but can you achieve high resource efficiency?

Today, mechanisms have been worked out for the joint use of various resources, which allows you to use (and pay for) resources only in the necessary amount and only when it is really necessary (the development of ideologies of SaaS, PaaS and the like). Non-production losses from resource downtime are minimized.

Resources are rare, so the economy, with full employment and full production, cannot provide unlimited production of goods and services. That is why society must choose which products to produce and which to abandon.

4 Economic technology platforms

An economic digital platform is a system of algorithmization relationships of a significant number of market participants, united by a single information environment, leading to a decrease in transaction costs, due to the use of a package of digital technologies and a system of division of labor [14]. Each developed digital platform is built around any massive economic process, ensuring the interaction of consumers and suppliers. One of the most important properties of economic processes on the platform, distinguishing them from the usual forms of interactions, is algorithmization and artificial intelligence.

The technology platform naturally captures and remembers all transactions. Platform-based economic processes are transparent and analyzable. With complete traditimization, the entire economy of the country is naturally digitized and becomes transparent: a multilevel digital model of the state's economy is formed, detailed before each individual transaction.

As participants in a single information environment supported by a digital platform, various companies today could enter into contracts based on energy economic equivalent, which was previously impossible to track. Hourly remote outsourcing or outstaffing is a striking example of this new type of interaction. Thus, digital tools greatly expand our ideas about managing processes, people, companies and interactions in general.

New business models, based on new forms of interaction and organization of labor, find a wider range of applications. In some areas, new economic models supplant the old, but, as a rule, in most cases, the emergence of new models forces all participants to deepen their specialization and, ultimately, old and new models find a way of organic coexistence. It is in the areas of management and economics that it is necessary to look for the results of the influence of digitalization.

The widespread adoption of digital platforms is expected to intensify and automate existing business processes; optimization of management systems (including cost reduction); creating a technological basis for the formation of new types of economic interactions; accelerating economic cycles; efficient use and release of production and storage capacity due to reduced overproduction of illiquid goods.

A variant of a flexible organization that undergoes rapid reengineering in accordance with changing business requirements is a production virtual corporation. One of the principles of the functioning of a production virtual corporation, as well as the main driver of its economic efficiency, is the continuous optimization of the composition and structure of the virtual subject in accordance with changes in internal and external factors.

Each virtual corporation exists in two worlds - physical and digital. To maneuver its structure and resources, it uses digital copies of real (physical) resources. The use of modern digital technologies allows you to model the work of a virtual corporation in real time.

One of the qualitative factors associated with the introduction of platforms is a shift towards collective consciousness and cooperative forms of interaction. Modern tools allow you to transparently and correctly assess and take into account the contribution of each of the participants in the chain to the cost of the final product. In this case, the following model becomes possible: all participants in the chain become participants in a "smart contract" and, working in a single information system, give their semi-product to the next participant at cost (without laying either risks or margins) or for sale (free). At the same time, the system records the objective contribution of each participant. The store also takes final products from the collector (or winery) at cost/free of charge. At the time of sale, when the energy intensity of the product appears in the system, all participants in the chain will receive profit, which is automatically distributed among them, according to their contribution to the final product.

Correctly carried out digitalization and platformization will have a positive effect in any area of the economy. The cornerstone of the formation of technological platforms is territorial-geographical convergence, a geographically isolated association of industries of several different industries, between which synergy and mutually functional relations are possible and a number of new, scientifically sound technologies, solutions and achievements are brought to new systems of practical activity strategically important for the economy. The BRICS technology platform is being formed for international industrial cooperation [15]. Digital platforms implement the idea of a multilateral market on a planetary scale, stimulating the development of competition and deepening specialization.

A platform economy with an energy economic equivalent effectively expends material resources and uses human resources with the help of strong artificial intelligence with optimal technological singularity based on the accumulated experience of safe risks and criteria of benefit and preference of society and man [8].

5 Conclusion

Building a digital high-tech platform economy of healthy needs will require additional scientific and platform developments for all areas of production and social activity in order to bring together the international community for synergistic economic activities. It will be necessary to introduce the economic equivalent of energy into intellectual, environmental and other activities.

Peaceful economic platform and scientific synergistic fruitful cooperation will allow the world community to effectively and promptly cope with emerging difficulties in all spheres of life. States that account for 65 percent of all harmful emissions and represent 70 percent of global GDP, committed to reducing carbon emissions to zero, such as Japan, South Korea, China, and the European Union, will help achieve the result of a digital high-tech platform economy with energy economic equivalent.

The platform economy of healthy needs rationally, economically and efficiently uses resources, produces the necessary goods and products for the population in the required quantity. It will save from garbage food dumps, which will grow every year.

The platform economy uses external platforms and related ecosystems for the work of organizations that are not owned and controlled by the organization. International platform interaction is difficult to regulate. Governments expressed concern about elements such as security standards, taxes, compliance, crime, protection of rights and interests and fair competition. They propose the use of digital mechanisms of joint regulation, when government regulators and platform companies themselves jointly develop and ensure compliance at the international level. Regulation of the global platform economy is advisable through international ISO standards. Through an international technology platform, it will be possible to conclude contracts for international economic activities, carry out financial activities, take into account national, corporate and individual opportunities, accompany tourism activities and serve other activities.

The Creator of the Universe has made the natural resources of the earth available to all peoples of mankind for human life. All peoples can become involved in the creation of a digital high-tech platform economy of healthy needs. Leaders of various countries who fulfill public agreements for the implementation and distribution of necessary needs can direct the creation of a digital high-tech platform economy of healthy needs, conservation of nature and life of future generations.

The platform economy of the necessary needs based on the energy of the economic equivalent solve the problem of the emerging energy deficit by optimal use of energy resources, will bring humanity closer to the environment, contribute to the ecology of interaction with it, learn from it, become its natural continuation and preserve its restorative properties.

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