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Technological Transformations, Formation of GMS (Global Mental System) and GFS (Global Forecasting System) —"Right-Brain Technologies" Based on Biological Entities with Consciousness, Artificial Intelligence, Quantum Computing, and Blockchain: "Banchenko-Market" (Global Market of Lucid Dreams and Other Transcendental States of Consciousness)

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Abstract

This article is a logical continuation of our previous work [1]. In this article, we continue to explore the possibilities of the economy of states of consciousness. In this continuation, drawing on intuitive insights, we significantly develop the theme outlined in the previous article [1]. Modern research in the field of transmission and fixation of consciousness states opens up new possibilities for studying cognitive processes and their objectification. This article examines methodological approaches to

transmitting consciousness states from one subject to another using advanced neurointerface technologies and quantum-resistant blockchain systems. Special attention is paid to the objectification of consciousness states through stable patterns of neural activity, captured using technologies such as electroencephalography (EEG), magnetoencefalografi (MEG), and functional magnetic resonance imaging (fMRI). Algorithms of artificial intelligence (AI) are applied for processing and transmitting data, enabling classification and analysis of neural signals. The article also discusses the theoretical aspects of the quantum nature of consciousness, implying the use of quantum processes in the brain to explain cognitive states. The connection of these processes with quantum principles such as superposition and entanglement provides an opportunity for the application of quantum technologies in transmitting data about the state of consciousness. Within the study, quantum-resistant cryptographic systems are proposed, such as Quantum Resistant Ledger (QRL), which ensure data transmission security and protection against hacking by quantum computers. In this article, we use the term neurointerface as the closest to the goals of our research, which involve seeking technological solutions for transferring states from one biologically conditioned subject to another. As the term brain-computer interface implies interaction between the brain and a computer, which is not the focus of our research, we do not use this term in this article. In conclusion, ethical and philosophical aspects of transmitting consciousness states are discussed, as well as the prospects for further research in the integration of technologies and cognitive processes.

Keywords: Neurointerfaces, Brain-Computer Interface (BCI), Consciousness, Lucid Dreams, Quantum Consciousness, Blockchain, Tokenization, Cognitive States, Mental Objects, Artificial Intelligence (AI)

1. Introduction

Modern technological advancements, such as artificial intelligence (AI), machine learning, and robotics, have significantly accelerated processes of automation and algorithmization in various industrial and service sectors. These technologies are transformingthe labor market by replacing human labor with machines and intelligent systems. This process leads to a number of significant changes affecting both economic structures and social aspects of life. Automation enables enterprises to increase productivity and reduce costs. According to McKinsey & Company research, in the coming years, there is expected to be an increase in demand for skills related to advanced IT technologies, whereas the need for basic cognitive and physical skills is projected to decrease. Particularly in production sectors such as manufacturing and retail, automation is already transforming processes, enhancing analytical capabilities, and improving human-machine interaction efficiency [2].

Automation and AI have a significant impact on employment structure. In some sectors, such as healthcare, there remains a high demand for physical and manual skills due to specific job requirements, such as elderly care and medical procedures. However, in most other sectors, such as manufacturing and office support, there is a significant reduction in the need for such skills, resulting in changes in employment structure and an increase i n demand for social and emotional skills, as well as skills related to management and communication. These changes pose several social and economic challenges. According to Brookings
Institution research, automation creates new jobs while also threatening existing ones, especially those performed by less skilled workers. As a result, there is an increase in labor market inequality, with highly skilled professionals becoming more sought after, while low-skilled workers face the risk of job loss or wage reduction.

It is also important to note that automation alters income distribution, shifting economic benefits from workers to capital owners. This is because automation and AI implementation allow companies to reduce dependence on human labor while increasing profitability. This raises questions about the need for government and corporate policies aimed at mitigating negative consequences for workers, such as retraining and social support [3,4]. In the long term, further automation and AI implementation may lead to even more significant changes in the labor market and the economy overall. This includes a potential increase in the number of workers engaged in the "new economy," where skills such as creativity, critical thinking, and information management will be in demand. At the same time, attention must be paid to issues of education and workforce training to ensure equal opportunities for all participants in the labor market in a rapidly evolving technological environment. Therefore, automation and algorithmization not only increase productivity and efficiency but also fundamentally change the labor market, creating both opportunities and challenges for society.

In contemporary societies, there is a significant shift in values from the priority of material assets to an increased emphasis on cognitive and metacognitive states. This shift, known as the transition to postmaterialist values, has become a subject of active study. According to the theory of postmaterialism by Inglehart, developed societies demonstrate a growing interest in values related to self-expression, quality of life, and internal development, reflecting a decreased focus on material goods and economic security [5,6]. In this context, special attention is given to the internal aspects of human existence, including practices that promote self-awareness and personal development. In particular, meditation and lucid dreaming have become popular methods for achieving mindfulness and exploring the depths of consciousness. These practices not only contribute to mental and emotional well-being but are also considered means of developing cognitive and metacognitive skills, making them valuable in the context of the new knowledge- and creativity-based economy [7].

Furthermore, research on cognitive shifts in society emphasizes the importance of immaterial work related to knowledge production and cultural products. In the conditions of the modern economy, such assets are becoming increasingly significant as they contribute to innovation and the development of creative

abilities. This is confirmed by research showing that the transition to cognitive and social values is accompanied by a change in educational and professional priorities, with an emphasis on critical thinking, creativity, and self-development [5,6]. These changes underscore the need for an interdisciplinary approach to studying current trends, bringing together research in the fields of philosophy, sociology, economics, and psychology. Only such an approach will allow for a better understanding and adaptation to new conditions where cognitive and metacognitive aspects play a key role in shaping individual and societal values.

2. Cognitive and Physical Realities

Modern research in the field of cognitive science and philosophy of consciousness allows for a new perspective on the relationship between cognitive and physical aspects of reality. Cognitive reality encompasses internal subjective experiences, states of consciousness, and mental processes that may not always be directly observable or measurable by physical means. In contrast, physical reality is characterized by objective and measurable properties of the world, such as mass, energy, and space time. A key concept in this context is "consciousness state," defined as the subjective perception and experience encountered by an individual. These states can range from normal waking consciousness to various altered states, such as meditation, lucid dreaming, and other forms of transcendental experiences. The significance of consciousness states in the modern world is growing as they are increasingly viewed as a meaningful element of personal development and well-being [7].

One of the key questions revolves around how physical and cognitive aspects of reality are interconnected and interact with each other. In the philosophy of consciousness, this is often discussed within the framework of the "hard problem" of consciousness, which involves explaining how physical processes in the brain can give rise to subjective experiences. Modern neuroscience offers models that explain how various brain structures and neural networks are associated with specific states of consciousness. For example, the theory of integrated information (IIT) posits that consciousness emerges in systems capable of integrating information into complex and unified experiences. Other models, such as the global workspace theory, emphasize the role of global neural networks in supporting conscious processes. These models aid in understanding how cognitive processes can be influenced by physical structures and processes and vice versa, how changes in cognitive states can impact the physical state of the organism. Therefore, understanding the relationship between cognitive and physical aspects of reality is fundamental to the development of methods for objectifying consciousness states. Next, we will explore how modern technologies can contribute to achieving this goal.

3. Interplay between Physical and Cognitive Worlds

Turning to the question of exchange between cognitive and physical worlds, modern science and technology present intriguing possibilities. Technologies like blockchain and neurointerfaces can create platforms for capturing, transmitting, and exchanging states of consciousness. Blockchain, with its characteristics of immutability and transparency, can be utilized to create tokens representing unique states of consciousness that can be exchanged for tangible assets. On the other hand, neurointerfaces offer the potential for direct interaction between the brain and external devices, enabling the recording and transmission of data on neural activity corresponding to specific cognitive states. For instance, there are already systems that allow individuals to control prosthetics or computers through thoughts, showcasing the potential of such technologies for information exchange between cognitive and physical realms.

The main research question revolves around how to achieve an exchange between cognitive and physical realms using modern technologies. In particular, how blockchain technologies can be utilized to create a secure system for tokenizing states of consciousness and how neurointerfaces can contribute to capturing and transmitting these states. This research calls for an interdisciplinary approach, combining knowledge from cognitive science, neuroscience, technology, and philosophy. Having examined the technological capabilities of exchanging states of consciousness, it is logical to delve into specific examples where such methods can be applied. One such area is the market of lucid dreaming, which we will explore in the next section.

4. Market of Lucid Dreams

Dreaming, being intricate states of consciousness, represent a unique combination of biophysical and biochemical processes occurring in the human body, particularly in the brain. During dreams, various areas of the brain are activated, including the limbic system associated with emotions and the prefrontal cortex, which plays a key role in self-reflection and decision-making. These processes are supported by neurotransmitters and other chemical substances, such as dopamine, serotonin, and acetylcholine, which regulate not only the physiological but also the cognitive aspects of dreams. On the other hand, dreams can be influenced by external physical factors capable of altering the state of consciousness. One of such factors is xenon therapy [8]. Xenon, being a noble gas, significantly impacts consciousness by acting on NMDA receptors and the brain's dopaminergic systems, leading to a shift in reality perception and potentially facilitating the emergence of profound conscious dreams [9]. In this context, xenon is used not only as an anesthetic but also as a potential means of managing states of consciousness [10].

Furthermore, research shows that modulated electromagnetic fields (EMF) and sound therapy are also capable of influencing consciousness through the body [11-13]. Modulated EMF can induce altered states of consciousness by affecting brain electrical activity, as confirmed by studies in the field of neurophysiology [14]. Sound therapy, in turn, utilizes rhythmic and resonant sounds to induce various states of consciousness, including meditative and dreamlike states [12]. In addition to the impact of physical factors on dreams, understanding the fundamental nature of consciousness is an essential aspect. Some modern theories suggest that consciousness may possess quantum properties, which have

significant implicationsfor our research [15-17]. In this context, quantum mechanics is considered as a possible mechanism explaining complex cognitive processes and altered states of consciousness [18]. Theories such as the Penrose-Hameroff quantum consciousness theory propose that consciousness may result from quantum processes occurring in microtubules of neurons [19].

This allows for viewing the interaction between physical and quantum aspects of consciousness as a promising research direction. Thus, the potential for interaction between physical factors and quantum states of consciousness opens new horizons in understanding the nature of consciousness and ways to modulate it. Since both physical and quantum processes adhere to the laws of physics, it can be assumed that through physical factors, the reading and transmission of states of consciousness are possible. In this context, there is consideration of developing technologies that enable such exchange.

Currently, there are already systems for exchanging and selling dreams, where dreams are considered as products of individual consciousness [20]. Based on the development of the "Banchenko Algorithm," "Mnemonic Synchronization – Banchenko," "Global Event Forecasting System – Banchenko," and examples of the "Kapustin Markers Algorithm," an example is the dream exchange, where users can sell and buy dreams based on their predictive power [1,20-24]. Dream evaluation is done by comparing their content with real events such as economic crises, sociopolitical changes, or natural disasters [20].

The predictive power of a dream determines its market value, making these systems an example of assigning a material equivalent to states of consciousness. This market represents a unique attempt to give economic value to subjective experiences, opening up new opportunities for integrating non-material aspects of human experience into economic and social reality. Thus, understanding the market of lucid dreams and the quantum nature of consciousness emphasizes the need for technological solutions capable of facilitating the exchange of such states. In the next section, we will examine in detail the technological foundation and innovations that enable the realization of these possibilities.

5. Technological Foundation and Innovations

Considering the complexity of objectifying states of consciousness, modern technologies such as neurointerfaces and blockchain offer new possibilities for capturing and exchanging these states. Blockchain technologies were initially developed to provide a decentralized and immutable data registry, laying the foundation for modern cryptocurrencies like Bitcoin and Ethereum. At the core of blockchain lies the idea of a distributed ledger where each block of information is cryptographically secured and linked to the previous block, creating a sequential chain of data. This technology quickly extended beyond cryptocurrencies and is now used in various industries, from finance to healthcare, due to its ability to ensure transparency, security, and decentralization of information [25].

One of the most promising application areas of blockchain technologies is the creation of unique tokens representing various non-material assets, such as states of consciousness. Non-fungible tokens (NFTs), which have become popular in recent years, exemplify the use of blockchain to represent unique assets. These tokens confirm ownership of digital or virtual objects, with each record in the blockchain being unique and immutable.

Thus, blockchain technologies can be used to create tokens representing unique states of consciousness that can be exchanged, sold, or used for various purposes. In creating a system where states of consciousness can be tokenized, blockchain provides several key advantages:

I. Data Security and Immutability: Thanks to cryptographic protection, any data representing states of consciousness can be encrypted and recorded in the blockchain, ensuring their integrity and preventing tampering.

II. Decentralization: Unlike traditional systems where data is controlled by centralized structures, blockchain enables the creation of a decentralized system where each network participant has access to the information and can interact with it directly, without intermediaries.

III. Uniqueness and Ownership Confirmation: NFT tokens representing states of consciousness will be unique and irreplaceable, allowing for tracking their origin and confirming ownership rights. In considering the potential of blockchain technologies for tokenizing states of consciousness, it is also important to study the role of neurointerfaces and understand how they can be integrated into this system.

6. Neurointerfaces and the Quantum Nature of Consciousness: A Research Overview

Neurointerfaces are devices that allow interaction between the brain and external devices [26]. These technologies are rapidly advancing and finding applications in various fields, including medicine and consciousness research. Neurointerfaces can measure neural activity, decode brain signals, and transmit information to a computer or other devices, opening up prospects for sharing and exchanging information between consciousness states. One of the key objectives of developing neurointerfaces is to enhance human interaction with technology. For instance, neurointerfaces can assist paralyzed patients in controlling prosthetics through thoughts, or enable the exploration of altered states of consciousness, such as lucid dreaming [27]. Such technologies can be utilized to create a system that reads and transmits consciousness states, thereby enabling their further tokenization based on blockchain. Particular interest is deserved by the works of the prominent specialist in this field, Alexandra Bernadotte [28–32].

7. Quantum Nature of Consciousness

Among the theories explaining the nature of consciousness, the hypothesis of the quantum nature of consciousness proposed by Roger Penrose and Stuart Hameroff stands out. In their Orchestrated Objective Reduction (Orch-OR) Theory, they suggested that consciousness arises from quantum processes occurring in microtubules of neurons. According to this theory, cognitive

processes can be explained by quantum interactions, rather than solely by classical neurobiology [10,19]. If consciousness indeed possesses a quantum nature, it opens up the possibility for interaction between physical and quantum states, making it feasible to read and transmit consciousness states through physical and quantum channels. Blockchain technologies and neurointerfaces can serve as instruments to realize this process by providing a platform for storing and transmitting consciousness data that can be tokenized and exchanged for various assets.

The integration of blockchain technologies and neurointerfaces offers unique opportunities for exploring and exchanging consciousness states. Neurointerfaces can capture data on neural activity corresponding to specific consciousness states, such as lucid dreaming, meditation, or other altered states of consciousness. This data can be digitized and encrypted using blockchain, enabling its storage, transmission, and tokenization. Therefore, blockchain technologies provide a reliable and secure platform for transmitting consciousness data, creating possibilities for establishing new markets and systems for exchanging consciousness states. The combination of blockchain and neurointe=rfaces may lead to the emergence of new forms of interaction between humans and technologies, where consciousness becomes part of the digital economy.

Blockchain technologies and neurointerfaces are powerful tools for studying and transmitting information about consciousness states. Introducing tokens representing consciousness states will allow the creation of a new interaction system where cognitive and physical realities are exchanged through digital platforms. This approach opens up prospects for further research in the field of the quantum nature of consciousness and its interaction with physical processes, while also creating new opportunities for integrating consciousness into the digital economy. The integration of blockchain and neurointerfaces provides a solid foundation for developing a system for exchanging consciousness states. To implement this concept in practice, specific methods and approaches need to be defined. In the next section, we will describe the materials and methods used in our research.

8. Materials and Methods

The main topic of this section is the description of the general methodology of exchanging non-material states of consciousness for material assets. The tasks facing researchers, the existing scientific basis for conducting research, and specific technologies currently in existence will be examined and analyzed. In order to objectify the initially subjective state of consciousness, we see it necessary to connect it through scientifically grounded regularities to the subject's body and make the objectification of the state of consciousness possible through observation systems (scientific instruments). The recorded and objectified state of consciousness of one subject, in this way, can be transferred to another subject. The process of transmission implies the presence of special, scientifically grounded, methods for transmitting the initial state of consciousness. Between the reading and recording of the state of consciousness through complex interactions between the material bodies of the subjects and special technical solutions (scientific instruments), there is the possibility of fixing and materially evaluating states of consciousness. In other words, the technical ability of "reading-writing" — exchanging non-material states of consciousness between material bodies — generates material value from the originally non-material state of consciousness. Scientific knowledge and technologies objectify initially subjective states. By utilizing modern decentralized trading technologies, such as blockchain, we see the possibility of creating a dynamically evolving market that connects the non-material and subjective with the material and objective, using scientifically grounded regularities.

Not all methods of observing the human organism are suitable for the tasks of objectification and exchange of states of consciousness. Only non-invasive methods of detecting processes within the body are suitable for "reading" states of consciousness [33]. This is primarily because they introduce the least disturbance to the functioning of consciousness simply by observing. Consciousness is sensitive enough to observations of it, considering its quantum nature. The "reading" of consciousness states from a subject, or rather the possibility of such "reading," can be described as follows. Processes occurring in the human body, characteristic of both living and non-living nature, are compared to processes occurring in specially engineered technological devices. For example, this could involve recording electromagnetic and other physical processes occurring in various parts of the human body. Let us delve further into the well-known non-invasive methods of reading consciousness states. Modern research in the fields of neuroscience and cognitive technologies enables the application of various methods for reading human consciousness states without direct intervention in the body. These non-invasive methods make it possible to monitor brain activity, interpret neural signals, and obtain data on cognitive processes without causing harm or discomfort to the subject.

Electroencephalography (EEG) is one of the most common non-invasive methods for recording brain activity. EEG allows for the registration of electrical signals produced by neurons in the cerebral cortex using electrodes placed on the surface of the head. The electrical signals generated by the brain are recorded and can be used to analyze cognitive states, such as wakefulness, sleep, lucid dreaming, or meditative states [34]. EEG is widely used in clinical practice for diagnosing epilepsy, sleep disorders, and other neurological conditions. However, this technology is also utilized in consciousness studies and can help capture altered states of consciousness, such as meditation or trance states. The advantages of EEG include high temporal resolution, allowing for the tracking of changes in brain activity with high precision in real-time. However, EEG has limited spatial resolution, making it less effective for studying deep brain structures.

Functional magnetic resonance imaging (fMRI) is a method that enables the visualization of brain activity with high accuracy. fMRI is based on monitoring changes in blood flow in different brain areas, allowing the assessment of which brain regions are

active at any given time. This method relies on the so-called Blood Oxygen Level Dependent (BOLD) effect, which tracks changes in blood oxygen level associated with neuronal activity [35]. fMRI is used in both clinical and fundamental consciousness research. For instance, fMRI can capture changes in brain activity in response to external stimuli or internal cognitive processes, such as thinking, emotions, or conscious perception. This method is particularly useful for studying deep brain structures, such as the limbic system, responsible for emotional and cognitive processes. The advantages of fMRI lie in its high spatial resolution, enabling the visualization of activity even in deep brain regions. However, the temporal resolution of fMRI is considerably lower than EEG, making it less suitable for analyzing short-term changes in brain activity.

Magnetoencephalography (MEG) is a method that records magnetic fields generated by the electrical activity of neurons. Like EEG, MEG is a non-invasive method that allows for monitoring brain activity in real-time. However, unlike EEG, MEG measures magnetic fields that are less distorted by head tissues, providing more accurate data on the spatial distribution of neuronal activity. MEG is widely used to study temporal and spatial aspects of brain activity. This method is applied in neuropsychology and studies of cognitive processes, such as attention, memory, and perception. One of the advantages of MEG is its ability to capture both surface and deep brain activity with high precision [36]. Functional Near-Infrared Spectroscopy (fNIRS) is a non-invasive method that allows for measuring the level of oxygen in the blood in various areas of the brain, reflecting neuron activity. Similar to fMRI, this method is based on changes in blood flow associated with neuronal activity, but it uses infrared radiation instead of magnetic fields. fNIRS is less sensitive to head movements, making it convenient for use in mobile settings.

The technology of fNIRS is utilized in studies of consciousness, cognitive processes, and emotional reactions. It is widely used to investigate brain activity during the performance of complex cognitive tasks, as well as in studies of child development [37]. Non-invasive methods, such as EEG, fMRI, MEG, and fNIRS, provide unique opportunities for investigating states of human consciousness without the need for surgical intervention. At this stage of scientific knowledge and technology development, it is evident that the primary focus of studying states of consciousness is the human brain and nervous system. However, we perceive this situation as an intermediate stage with further developmental prospects.

Raw data collected from the human body alone cannot be considered equivalent to the state of consciousness. Just as an array of raw data will not reveal anything about the state of the target organ without algorithmic understanding of how this raw data can be interpreted. Thus, the question of objectifying the recorded states of consciousness is not only limited to mathematical data processing methods but also requires alignment with areas of scientific knowledge to present an adequate result. In the process of transforming raw data into objectified states of consciousness, we see great prospects for the use of AI systems [38]. States of consciousness, such as sleep, meditation, or conscious cognitive processes, are accompanied by changes in organism activity that can be recorded and interpreted as stable patterns. Mathematical methods and artificial intelligence (AI) play an important role in this field, allowing not only the objectification of data but also the identification of significant brain activity patterns.

Analysis of time series. The electrical brain activity recorded by EEG represents time series signals that require mathematical processing to uncover hidden regularities. Time series are analyzed using methods such as Fast Fourier Transform (FFT) or wavelet transforms, which allow for the identification of frequency components in the signals and the differentiation of typical neural oscillations, such as alpha, beta, and delta waves. These waves play a key role in characterizing different states of consciousness, such as wakefulness, deep sleep, or meditation [39,40]. Matrix decompositions. In multi-channel data (e.g., EEG), signals are recorded from multiple electrodes. To analyze multidimensional data, methods such as Principal Component Analysis (PCA) and Non-negative Matrix Factorization (NMF) are used, which allow for the extraction of most significant components and their interpretation as neural patterns. These methods are particularly useful for identifying common patterns associated with changes in cognitive activity, such as attention, perception, or lucid dreaming [41,42].

Correlation analysis. In order to understand how different brain regions interact during specific states of consciousness, correlation analysis is utilized. This method enables the detection of correlations between activities of different neural networks and the construction of functional brain connectivity maps. For example, in the analysis of fMRI and MEG data, correlation methods help map changes in neural networks, such as default mode networks, which are active during meditation or contemplation. Artificial intelligence, especially machine learning algorithms, provide powerful tools for automating the detection of stable patterns in large volumes of consciousness state data. Among the most commonly used technologies are the following.

Deep Learning Neural Networks (DNN). Neural networks are a crucial tool for automatically classifying states of consciousness based on data obtained from EEG, fMRI, or other methods. Deep learning networks can be trained on a multitude of examples to extract characteristic patterns of neural activity corresponding to different states, such as sleep or wakefulness. For instance, Convolutional Neural Networks (CNN) are successfully applied to analyze spatial-temporal patterns of brain activity, enabling the identification of conscious and unconscious states [43,44]. Machine learning algorithms, such as Support Vector Machines (SVM) or Random Forests, are utilized for automatic classification of states of consciousness. These methods can be trained on neural activity data to distinguish one state from another (e.g., active thinking from relaxation) based on quantitative signal characteristics. Machine learning also aids in detecting hidden connections and interactions between neural networks, contributing to more precise

data interpretation.

Autoencoders and generative models. AI algorithms such as autoencoders and Generative Adversarial Networks (GANs) not only classify data but also reconstruct states of consciousness. Autoencoders can identify latent variables associated with changes in cognitive processes and use them for prediction or simulation of new data. These methods offer a unique opportunity for modeling and reconstructing states of consciousness based on neural patterns [45]. Several successful studies have demonstrated the potential use of Artificial Intelligence (AI) for analyzing patterns of consciousness. For instance, researchers utilized deep recurrent neural networks (RNN) to analyze data on dreams recorded via EEG. This not only enabled the identification of distinct patterns of neural activity during lucid dreams but also led to the creation of models capable of predicting the onset of these states with high accuracy [46]. Other studies have employed machine learning methods to identify patterns of brain activity associated with meditation and attention. Using convolutional neural networks, distinctive features of alpha and theta activity, indicative of deep meditation, were discovered. These studies have shown that AI can effectively discern hidden patterns of neural activity that are challenging to detect using traditional data analysis methods.

Moving on to some questions at the boundary between objectively measurable processes in the body and consciousness. The state of consciousness is a rather elusive term. This is linked both to the rapid development of technologies used to study consciousness and the significant contribution of the subjective experiential component to the subject under study. Therefore, the very possibility of objectifying the subjective state of consciousness leads to the development of scientific views on consciousness.

Currently, there is no clearly formulated understanding of the nature of consciousness. There is also no clear understanding of the relationship between consciousness and the human body. The problem of understanding the nature of consciousness and its connection to the body remains one of the most complex and contradictory in philosophy and science. In the 17th century, René Descartes proposed a dualistic concept, according to which consciousness (or soul) and the body represent two different substances.

Descartes defined consciousness as something immaterial, thinking, and existing independently of the physical body, which, in turn, is material and subject to the laws of physics. This famous division into "res cogitans" (thinking substance) and "res extensa" (extended substance) remains an important philosophical foundation for many subsequent views on consciousness. However, dualism has been criticized for its inability to explain how an immaterial substance can interact with the physical body. Contemporary neurophilosophers point to the need for a deeper integration of consciousness and physical processes in the body to explain such a complex relationship. In contrast to dualism, John Searle, a contemporary American philosopher, proposed the theory of biological naturalism, according to which consciousness is a property of the brain arising from biological processes but not entirely reducible to them. Searle asserts that consciousness is a real subjective experience arising from neural activity but having its unique properties that cannot be solely explained by physical interactions in the brain.

His position straddles the border between monism and dualism, as it acknowledges the importance of biological processes in the emergence of consciousness but does not reduce it to a mere set of physical states. Supporters of materialism, such as Daniel Dennett, argue that consciousness is the result of exclusively physical processes in the brain, and its nature can be explained through neurobiology and cognitive science. Dennett proposed a model known as the multiple drafts model, according to which consciousness is not a fixed and singular perception, but rather a set of competing informational processes that create the illusion of a coherent subjective experience. Dennett also rejects the existence of the so-called "hard problem of consciousness," suggesting that consciousness can be fully explained through evolutionary and cognitive processes, without the need to introduce additional immaterial substances or qualities. An interesting and highly controversial theory is the theory of quantum consciousness proposed by Roger Penrose and Stuart Hameroff. According to their Orchestrated Objective Reduction (Orch-OR) theory, consciousness is the result of quantum processes occurring in microtubules of neurons. These quantum processes can explain phenomena of consciousness such as free will and subjectivity, which are difficult to explain with classical neurobiological models.

The theory of quantum consciousness, despite sparking significant debate, represents an attempt to integrate quantum physics and consciousness theory. Modern approaches to consciousness increasingly focus on the connections between consciousness and the body, as expressed in the theory of embodied cognition [47]. According to this theory, consciousness and thinking cannot be solely reduced to neural activity in the brain; they also depend on the body and its interactions with the external world. Theorists of embodied cognition, such as Francisco Varela, believe that cognitive processes are inseparably linked to the physical environment in which a person exists, and that perception and thinking are shaped through the interaction of the organism with the surrounding world. It is evident that some perspectives on the nature of consciousness offer greater potential for objectifying subjective states of consciousness than others.

However, how can one determine and precisely prove that behind objectively observable processes in the body lies a state of consciousness experienced as a specific subjective experience? On the one hand, it is currently impossible to precisely match any objective process to the workings of consciousness. Thus, each time researchers identify this connection, they are compelled to appeal to the subjective perception of the subject. On the other hand, can the subjective experience of a subject, objectified through changes in the body, have no influence on consciousness? Most likely not. Therefore, the answer to proving the connection between the

state of consciousness and objective changes in the body lies in establishing specific relationships. And in transitioning from a general understanding of the link between subjective experience and observable changes in the body to a more concrete and precise mapping of these relationships.

Thus, today, and taking into account the rapidly evolving technologies and scientific approaches to studying consciousness, it is possible to speak of the potential to extract from objectively observable changes-signals in the body the link of these signals to the workings of consciousness. It is probable that in the near future, more information about the specific role of consciousness can be extracted from observed signals in the organism. At the current stage of scientific and technological development, the activity of consciousness is generally associated with the brain and the nervous system. However, in the future, we anticipate the possibility of understanding the role of other systems in the body in the activity of consciousness. For example, systems of DNA molecules, soliton transmission along chains of biopolymers, the connection with traditional Eastern views on the organization of the human energy system.

Tokenization of objectified states of consciousness: using them on exchanges and other trading platforms Modern technologies, such as blockchain and neurointerfaces, provide unique opportunities for capturing and exchanging subjective states of consciousness in an objectified form. Tokenization of objectified states of consciousness is a process in which complex cognitive experiences, such as dreams, meditative states, or emotional reactions, are recorded, processed, and represented as digital assets based on blockchain technologies. These tokens, typically in the form of non-fungible tokens (NFTs), can be used to store data about states of consciousness, facilitate their exchange, and enable their utilization on various digital platforms. Tokenization of consciousness states is based on the use of neurointerfaces for capturing and analyzing brain activity, enabling the creation of a digital representation of unique cognitive states. Data collected using technologies such as electroencephalography (EEG) or functional magnetic resonance imaging (fMRI) can be interpreted and converted into digital information. This information can then be encrypted and recorded on the blockchain, creating a unique token representing the state of consciousness.

After tokenizing the state of consciousness, tokens can be used on various digital exchanges and trading platforms. NFT tokens provide the opportunity to exchange non-material assets, such as cognitive experiences, creating unique opportunities for the development of new markets. On specialized platforms, users can trade tokens of consciousness states that capture and transmit data about experiences such as dreams or meditative states. Similar to digital art or music markets, where NFTs represent unique works, tokens of consciousness states can be used for selling or trading unique cognitive states. One important aspect of using tokens of consciousness states is the ability to evaluate them based on various criteria, such as uniqueness, predictive power (e.g., in the case of dreams), or emotional value. Users can list their tokens on an exchange where other participants can assess and offer their price. Such tokens can have high value if they contain important information or represent unique cognitive states. In addition to exchange trading, tokens of consciousness states can be used on collaboration and sharing platforms. These could be research projects, educational platforms, or therapeutic programs where users can exchange their cognitive experiences for research or self-development purposes.

In this context, tokens can be used for the analysis and collaborative study of different consciousness states. For example, researchers can use tokens to capture and exchange data on the consciousness states of patients undergoing therapy, enabling more effective diagnosis and treatment based on objective data about cognitive states. Above, we presented the concept of “reading” and objectification of the state of consciousness from the subject's body. It is evident that the value of the subjective state of consciousness is created by the ability to transmit the state of consciousness to another subject. Thus, the general transfer scheme looks like this: **Subject – Reading Technology – Objectification – Transmission Technology – Another Subject.**

It is important to note that at this stage of human development, the subject possessing consciousness is bound to the body. Let us delve deeper into the methodology of transmitting states of consciousness from one subject to another. The final stage of consciousness state transfer is the acquisition of data about the consciousness state by another subject and its interpretation. The transfer of consciousness states from one subject to another poses a complex task that requires both technological solutions and a profound understanding of the nature of consciousness itself. In contemporary science, there are hypotheses asserting that consciousness may have a quantum nature. Within the framework of this theory, the transmission of consciousness states can be considered through the prism of quantum processes occurring in the brain, enabling the transmission of cognitive states through technologies based on quantum principles.

If consciousness indeed has a quantum nature, then the transmission of consciousness states may be associated with quantum mechanics. Quantum systems possess unique properties such as superposition and entanglement, which can explain how information about the consciousness state can be transmitted between subjects. In this context, the quantum theory of consciousness posits that cognitive states may exist in the form of quantum states that can be transmitted through quantum channels. This makes quantum technologies ideal for transferring consciousness states, as they can ensure the reliability and security of transmitting data about quantum processes in the brain. The use of quantum technologies for transmitting these states ensures reliability, security, and the ability to transmit complex cognitive processes. Understanding the generalized task of transferring objectified states of consciousness to an arbitrary subject using technologies is very important. That is, the creation of algorithms that allow coupling subjects' consciousness with minimal subjective constraints.

9. Lucid Dreaming as an Example of a State of Consciousness

Sleep, as a fundamental state of the human organism, has not undergone significant changes throughout the observable history. This is why sleep is the subject of various scientific investigations [48,49]. At this stage of scientific development, in the context of studying conscious dreaming, the brain activity is subjected to the most objectification [50,51]. The connection between the cortices of the large hemispheres of the brain and sleep is being studied [52,53]. Special attention is given to electroencephalographic (EEG) research in the realm of rapid eye movement (REM) sleep phase [54,55]. The impact of dreaming on the brain activity of mentally unhealthy individuals is being examined [56]. The influence of dreams on emotions is under investigation [57]. Research also exists on the correlation between stress correction and the occurrence of conscious dreaming [12].

Of particular interest in the context of conscious dreaming are studies on the presence of the body in dreams and its movements [58,59]. Research from the perspectives of neurophenomenology and neurobiology regarding sleep is also being conducted [60,61]. The contributions made by neuroscientists to the development of views on the state of sleep and dreams are being studied and the correlations between psychoanalysis and neuroscience in the context of dreams are being explored [62,63]. Lucid dreaming is a state in which a person becomes aware that they are dreaming and can to a certain degree control the plot and development of the dream [64]. One of the key aspects of studying lucid dreaming is its connection to the rapid eye movement (REM) phase, which is characterized by high brain activity [65]. The most vivid and emotionally rich dreams occur in this phase. Scientific studies have shown that lucid dreams most often occur during the REM phase [66].

The activation of the prefrontal cortex of the brain, responsible for self-reflection and consciousness, is essential for their occurrence. This has been confirmed through the use of functional magnetic resonance imaging (fMRI) and electroencephalography (EEG) technologies, which capture distinctive patterns of brain activity during lucid dreams [67]. Research indicates that lucid dreams can influence various aspects of cognitive activity [68]. Some scientists believe that practicing lucid dreaming can enhance creativity and thinking. In studies conducted at universities, such dreams have also been considered as a potential tool for exploring the nature of consciousness, as they allow for controlling the transition between conscious and unconscious states [69]. Additionally, lucid dreams can be used to develop metacognitive skills — the ability to be aware of and control one's cognitive processes. Metacognitive abilities, in turn, can improve self-control and increase mindfulness in everyday life.

Lucid dreams can have significant psychological applications. Stephen LaBerge, one of the pioneers in researching this phenomenon, has developed techniques for inducing lucid dreams that can be used for therapeutic Neurobiological studies of lucid dreaming focus on investigating the brain structures involved in this process [70]. Activation of the prefrontal cortex and its interaction with the limbic system are considered key factors that enable a person to become aware of their presence in a dream. This interaction also influences the emotional coloring of dreams, allowing individuals to consciously control their emotional reactions. Researchers also study the influence of acetylcholine and other neurotransmitters on the emergence of lucid dreaming. It is known that acetylcholine plays an important role in regulating REM sleep, which may explain the connection between dream awareness and the activity of this chemical substance in the brain. Despite the spontaneous nature of lucid dreams, various techniques have been developed to induce this state. One of the most well-known methods is reality testing, where a person trains themselves in a waking state to be aware of their surroundings, and then transfers this skill into the dream state. Another technique, the Mnemonic Induction of Lucid Dreams (MILD) method proposed by LaBerge, involves repeating the intention to become aware in a dream directly before falling asleep [71].

Our research is based on the “Banchenko Algorithm”, “Mnemonic Synchronization – Banchenko”, “Concept of Global Event Prediction System – Banchenko” as well as the “Kapustin Markers Algorithm” [1,20-22]. Modern devices, such as sleep masks with sensors that track brain activity and send signals during the REM phase to remind the individual they are dreaming, also exist [22-24]. Lucid dreaming allows subjects to modulate states that are impossible to achieve in a waking state, even during deep meditation, and to break free from physical, temporal, and spatial limitations. In the state of lucid dreaming, one can generate the states that are unattainable in wakefulness or even through meditation. For example, the state of flying in a dream; hence, the market is called the “market of lucid dreaming and other transcendent states of consciousness.” Lucid dreaming remains a subject of active scientific research due to its ability to provide a unique window into the study of consciousness and its functioning [72].

As demonstrated above, lucid dreaming is a state of consciousness and can therefore be objectified, evaluated, and transmitted to another subject. At this stage of economic development, the exchange of states of consciousness already allows for the transfer of the content of lucid dreams. Events that occur in dreams may have a prophetic force; lucid dreams often influence creativity and contribute to the emergence of art objects — musical, pictorial, and others. To what extent can the data extracted from lucid dreams be attributed to the state of consciousness in which the dreamer finds themselves? From our point of view, all dream results extracted from lucid dreams. Therefore, we consider it necessary to emphasize once again the importance of researching systems for transmitting states of consciousness from one subject to another in an extremely pure and minimally material form. For example, when a state of consciousness arising from contact with a work of art can be transmitted to another subject without the need for direct contact with the physically manifested work of art.

Understanding the adaptation of one subject's state of consciousness in relation to another will not only increase the possibilities for the development of consciousness but also answer a number of scientific and philosophical questions such as the similarities and differences between individuals, the concept of a universal language, the structure of consciousness, and so on. Let's elaborate further on the transition of consciousness states using the example of an existing dream exchange platform. The process of fixation and transmission of consciousness states becomes particularly intriguing in the context of interaction with dreams. Dreams represent a unique cognitive state that can be objectified and utilized for various purposes, including commercial evaluation and exchange.

An important aspect of the process of transmitting consciousness states is the transmission of mental objects. A mental object is a form-stable and content-stable creation that can be perceived by other subjects. Analogous to mental objects in the material world are completed works of art, such as a painting or a musical composition. In the case of dreams, a mental object refers to an object created in the subject's consciousness and induced into the dreams of other subjects. Thus, two or more subjects can see and interact in a dream with the same mental object, which can be verified by conducting independent content checks of the dreams. It is likely that the nature of mental objects created by consciousness is holographic. Consciousness states can be viewed as the primary point of a subject's existence, determining their interaction with the phenomenological field of perception of the external world and internal cognitive processes. This state, at the intersection of experience and reflection, encompasses both standard wakefulness and varied forms of altered consciousness (meditation, hypnotic, or transcendental states).

Neurointerfaces enable the reading of these states, providing a deep understanding of how humans perceive and interpret both external and internal signals. Sleep, as one of the most transformative states of consciousness, represents a qualitative change in cognitive and perceptual functions. During sleep, mental images, thought constructs, symbols, and emotional experiences are created, forming an autonomous subjective reality. In the state of lucid dreaming, the subject gains the ability to control the genesis process of these images, creating an internal “labyrinth” of meaning where un-conscious ideas penetrate, inaccessible in everyday conscious activity. This allows the subject to modulate states that are impossible to achieve in the waking state, even during deep meditation, and to free oneself from physical, temporal, and spatial constraints. In these conditions, the dream reality becomes a unique experimental ground for developing intuitive or intellectual solutions that arise outside direct control of rational consciousness. The ideas and images obtained in the dream experience undergo careful deconstruction and interpretation, allowing them to be embodied in material or conceptual forms of reality.

Evaluation of productive manifestations of consciousness occurs on multiple levels: at the individual level, where the subject reflects on the significance of what was created, and at the social level, where the public reaction reflects the cultural and cognitive value of the production. In this context, subjective discoveries acquire the status of socially significant phenomena capable of altering the perception of the surrounding reality by other individuals. Thus, dream production is not just subjective experience but objectified information about the state of consciousness that can be recorded, evaluated, and transmitted to another subject. Evaluation of objectified dreams can be based on several criteria, including their uniqueness, predictive power, and symbolic content. For example, dreams with potentially high predictive power (e.g., predicting specific economic or social events) may be valued more than dreams that lack clear practical utility. Within this model, the value of a dream can be seen as a form of consciousness experience that becomes accessible to others through objectified data.

As soon as data on consciousness states, such as dreams, are recorded and evaluated, they can be tokenized. Tokenization transforms subjective experiences into unique digital assets that can be used for exchange on digital platforms. Utilizing blockchain and quantum-resistant technologies such as Quantum Resistant Ledger (QRL), dream tokens can be sold, traded, or used within research projects. Thus, even indirect contact with consciousness states through dreams can be considered a form of experience transmission. The transmission of consciousness states in the form of dreams, their objectification, evaluation, and subsequent exchange for tokens create a new approach to the fixation and commercialization of cognitive states. This not only allows for the transmission of unique experiences but also integrates them into the digital economy. Market capitalization of cryptocurrencies has become one of the key metrics for assessing their economic significance and success. This indicator, representing the total value of all circulating coins of a cryptocurrency, is determined by multiplying the current market price of one coin by the total number of coins in circulation.

Market capitalization allows for evaluating not only the size of the cryptocurrency but also its position in the market. Higher capitalization usually indicates asset stability and popularity, while low-capitalized cryptocurrencies are more prone to fluctuations and associated risks. At the time of this research, the aggregate market capitalization of cryptocurrencies exceeds 1 trillion U.S. dollars, with over 40% attributed to Bitcoin. The significance of market capitalization lies in its ability to reflect trends and the resilience of digital assets. With increasing global interest in blockchain technologies, cryptocurrency capitalization becomes a crucial indicator for evaluating their long-term investment prospects. Additionally, the dynamics of capitalization changes are closely linked to macroeconomic factors such as global market fluctuations, regulatory policy changes, and the emergence of new technological solutions. Market capitalization also plays a key role in assessing the liquidity of crypto-assets, which is important for the effective functioning of cryptocurrency exchanges. Assets with high capitalization, such as Bitcoin and Ethereum, have a larger trading volume, reducing manipulation risks and contributing to increased liquidity.

Figure 1: The Overall Market Value of the Circulating Supply of all Cryptocurrencies, Including Stablecoins and Tokens

Looking at the graph of the total market value of the turnover of all cryptocurrencies, including stablecoins and tokens, we see a noticeable growth in 2024. This trend highlights not only the sustained interest of investors but also the importance of crypto assets as an integral part of the modern financial landscape. In a time when traditional markets experience volatility, cryptocurrencies are becoming an increasingly attractive tool for diversifying investment portfolios. This confirms that the adaptation and implementation of crypto assets in everyday transactions continue to grow, opening new horizons for both individual users and large investors. An example of the impact of tokenization on capitalization can be the platform Lofty, which integrates blockchain technologies with the traditional real estate market. Lofty allows investors to acquire shares in real estate through asset tokenization using the cryptocurrency USDC. This process involves registering real estate, conducting its evaluation, and subsequently selling tokens, each of which represents a share of ownership. Investors

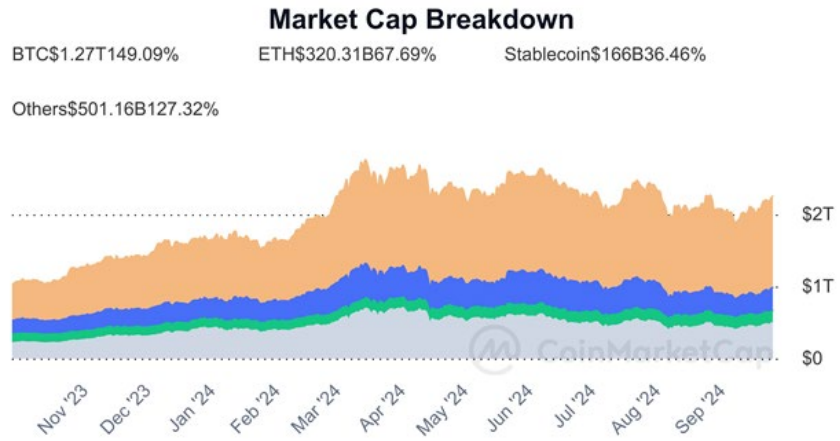

Figure 2: The Total Market Value of the Circulating Supply of Bitcoin, Ethereum, Stablecoins, and all Other Coins and Tokens.

can earn income from rentals and withdraw funds at any time, providing flexibility and accessibility compared to traditional investment models. Real estate tokenization, such as Lofty, creates a new way to assess capitalization. The market capitalization of a real estate object is calculated as the product of the price of one token by the total number of tokens issued. For example, if an object is valued at $500,000 and 10,000 tokens are issued for $50 each, the market capitalization of this object will be $500,000. This approach is similar to the capitalization of cryptocurrencies and demonstrates how tokenization can expand access to investment instruments. Lofty has already successfully tokenized 148 real estate objects, allowing thousands of investors to participate in real estate management.

Research in the field of tokenization of intangible assets, such as cognitive states, can use analogies with real estate tokenization. For example, tokenization of dreams can create a new market where dreams become digital assets. These assets, possessing predictive or cultural value, can be traded on specialized platforms, similar to physical objects on Lofty. This extension of tokenization demonstrates that blockchain technologies can change not only material but also intangible aspects of our reality, transforming subjective experiences into economically significant assets.

10. Quantum Resistant Ledger (QRL): Technology of the Future in the Context of the Quantum Nature of Consciousness

With the advancement of quantum computing, significant

challenges arise for existing cryptographic methods used in blockchain technologies. Standard cryptocurrencies like Bitcoin and Ethereum rely on encryption algorithms that are vulnerable to attacks by quantum computers. This creates the need for developing quantum-resistant blockchain systems, one of which is Quantum Resistant Ledger (QRL). QRL is designed to provide maximum protection against quantum computer attacks. It employs unique algorithms to secure data, making it especially crucial in the context of safeguarding consciousness states that may have a quantum nature. Quantum Resistant Ledger (QRL) is a decentralized blockchain network specifically developed to counter threats posed by quantum computing. Unlike conventional blockchain systems such as Bitcoin, QRL utilizes XMSS (eXtended Merkle Signature Scheme), a quantum-resistant cryptographic algorithm that ensures security even in the presence of quantum computational capabilities. XMSS is based on Merkle tree, enabling messages to be signed in a way that keeps them immutable and protected from attacks.

10.1 Advantages of QRL over Other Blockchain Systems

I. Quantum-Resistant Encryption: One of the primary advantages of QRL is the use of algorithms that can withstand threats from quantum computers. This sets QRL apart from other cryptocurrencies like Bitcoin and Ethereum, whose encryption algorithms (e.g., ECDSA) are susceptible to hacking by quantum algorithms such as Shor's algorithm.

II. Long-Term Security: While other blockchain technologies may be compromised as quantum computing advances, QRL ensures data protection in the long run. This makes it more suitable for applications requiring high data security, such as tokenization of consciousness states and other applications involving storage of personal and confidential information.

III. Decentralization and Transparency: Like other blockchain systems, QRL upholds the core principles of decentralization and transparency. Users retain control over their data, ensuring the immutability of records in the network. However, QRL surpasses other systems with its resilience against quantum threats.

11. Utilizing QRL for Safeguarding Consciousness States

There are hypotheses regarding the quantum nature of consciousness, suggesting that cognitive processes may be linked to quantum phenomena. If these assumptions prove true, consciousness states will be subjected to the same quantum laws as other quantum systems. Tokenization of consciousness states involves their digitized capturing and storage, rendering them vulnerable to new threats like hacking using quantum computers. In this context, the use of quantum-resistant blockchain technology such as QRL becomes particularly essential. Employing QRL for storing and transmitting tokenized consciousness states will ensure long-term security of such data.

12. Key Aspects of Using QRL for Tokenizing Consciousness States

I. Data security of consciousness states: If the quantum nature of consciousness is confirmed, any data related to cognitive processes will be prone to quantum attacks. QRL provides a reliable platform for storing this data, safeguarding it from hacking in the long run.

II. Capture of Unique Consciousness States: The blockchain technology powered by QRL allows for creating non-fungible tokens representing unique cognitive states. These tokens can be used for exchange, trading, or scientific research while ensuring data security.

III. Long-Term Data Preservation: Unlike traditional blockchain systems that may be vulnerable to quantum computers in the future, QRL ensures that consciousness data will remain unchanged and secure for many years, which is particularly important for preserving the privacy of such data.

Parallels Between Quantum-Resistant Cryptocurrencies and the Quantum Nature of Consciousness The development of quantum-resistant cryptocurrencies like QRL is directly related to the future threats that may arise with the emergence of quantum computers. At the same time, if consciousness indeed possesses a quantum nature, it may also be vulnerable to similar quantum attacks. Thus, the use of quantum-resistant technologies to protect consciousness data becomes a necessary condition for safeguarding the security of this data.

Technologies such as QRL offer a unique solution for the long-term protection of data with quantum properties. In the future, when quantum computers become widespread, traditional methods of data protection may prove insufficient. This is particularly important in the context of tokenizing consciousness, where data can represent extremely confidential and personal cognitive states. Therefore, utilizing QRL for storing and transmitting consciousness states not only ensures security but also supports further research into the quantum nature of consciousness. This makes QRL one of the most promising technologies for data protection in the era of quantum computing. The Quantum Resistant Ledger (QRL) represents an important step in the evolution of blockchain technologies aimed at protecting data from threats posed by the emergence of quantum computers. Its application in the context of tokenizing consciousness states, which may possess a quantum nature, opens up new perspectives for the preservation and security of cognitive process data. QRL surpasses traditional blockchain technologies due to its quantum resistance, making it a preferred solution for future applications related to storing and transmitting consciousness state data.

13. Results

Our conducted research has demonstrated and justified the possibilities for developing a system of exchanging states of consciousness among individuals. Approaches to assessing the material value of non-material states of consciousness have been defined. All premises and justifications are within the framework of the modern scientific paradigm, thus integrating into the body of knowledge of human consciousness. By interdisciplinarily combining scientific concepts on reading and transmitting states of consciousness, the quantum nature of consciousness, and blockchain technologies, a coherent strategy for further research needed to develop the market of exchanging states of consciousness has been formed. At present and already partially implemented

is a system based on the "Banchenko Algorithm", "Mnemonic synchronization – Banchenko", "Global event forecasting system concept – Banchenko", as well as the "Kapustin markers algorithm" [1,20-22]. The following modules of the system have been developed and tested: Firstly, an algorithm for matching dreams and objective events and identifying common patterns, that is, for forecasting, has been created.

A dream exchange, for transcendental and metacognitive states of consciousness, is being formed. On this exchange, it will be possible to exchange, buy, and sell states of consciousness. A media platform has been established where we cover the progress of our scientific research, showcase achieved results, and engage in public outreach. Soon, ASRP Science, a website, and a scientific journal will be launched. A telegram bot, which collects dreams and produces images based on these dreams, has been refined and is operational. Video and audio content related to dreams is currently in the debugging process. Soon, a function for photographing handwritten dreams and their recognition will be added. A school that teaches lucid dreaming and transcendental states of consciousness has been established. Collaborations with neurointerface manufacturers such as Neiry, Dream cube and Hermes interface. Cryptocurrency emission specifically for the project of transferring states of consciousness and lucid dreaming has been prepared and will be launched soon. The emission of cryptocurrency will be linked to the consciousness states of participants in the global network Global Mental System, with specific cases or subprojects of which include the Global Forecasting System and others.

The main idea is to create unique tokens generated based on participants' achievements in the field of transcendental states of consciousness. These states will be recorded using neurointerfaces and artificial intelligence technologies, ensuring their transparency and authenticity. The cryptocurrency is being created to facilitate the functioning of the consciousness states market. Participants will be able to exchange their achievements in the cognitive and transcendental states for values within the blockchain network. Unique consciousness states obtained, for example, through lucid dreaming or meditation, will be evaluated as assets that can be traded on this market. This will contribute to the development of neurophysiology research and stimulate their commercial applications. The cryptocurrency name "Kapusta" was proposed by Denis Yurievich Banchenko in honor of the chief IT specialist of ASRP (Advanced Scientific Research Projects & Association of Sleep Research Projects), Mykhailo Mykhailovich Kapustin, and has a dual meaning.

On one hand, it is an incredibly popular informal slang term for money in the Russian-speaking community, from which the project authors originate (Kazakhstan, Russia, Ukraine, Belarus). This gives the cryptocurrency an element of accessibility and playfulness. On the other hand, "kapusta" symbolizes the layered structures of information and consciousness states that can be "unpacked" for study, like the leaves of a cabbage. This analogy reflects the philosophical concept of the project, emphasizing the complexity and multilayered nature of working with human consciousness. We assume that in the near future, quantum computers will be significantly cheaper and widely adopted. In the face of unstable geopolitical situations, these computers could be used to breach existing classical cryptographic systems, leading to the devaluation of most current cryptocurrencies.

Our cryptocurrency, based on the Quantum Resistant Ledger (QRL), provides a high level of protection against potential quantum attacks. This makes the system resistant to hacking, keeping the data of network participants on consciousness states secure. Therefore, in this new technological era, our cryptocurrency will have significant value, both due to its resilience to quantum breaches and in the context of the growing importance and value of consciousness states in the global economic system.

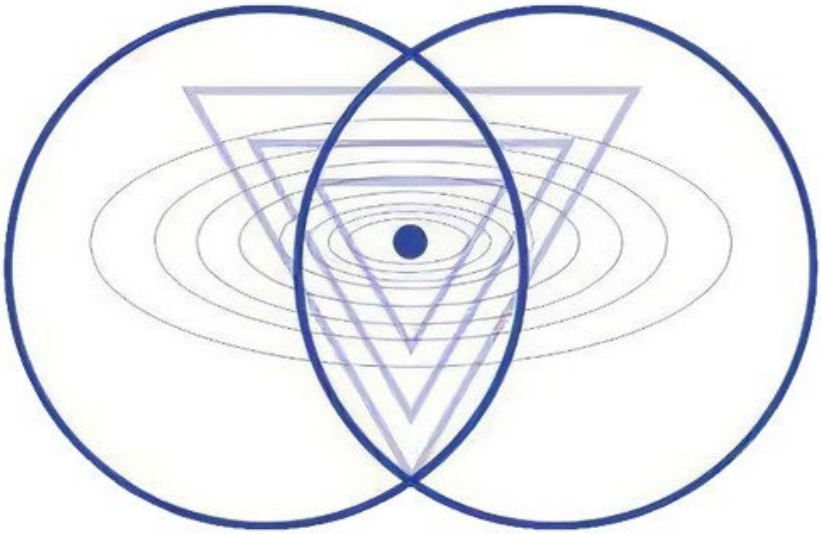

Figure 3: Symbol.

This symbol can be interpreted as a profound metaphor of human consciousness, its multi-layered nature, transcendent levels of existence, and reflection of the philosophy of a project related to cryptocurrency and states of consciousness.

14. Symbol Description

I. Two intersecting circles: These two circles represent the left and right hemispheres of the brain. The point of their intersection, which can be associated with the Corpus Callosum, symbolizes the connection between these hemispheres, their unity in perceiving the world, and integrating information. Mathematically, this intersection is known as a Mobius strip (in more complex geometry), indicating an infinite interaction between two opposing forces or poles.

II. Point at the Center: The point at the center of the circle intersection represents the pineal gland, which is often linked to the center of a person's spiritual consciousness, as well as the third eye, intuition, and higher levels of awareness.

III. Triangles Pointing Downwards: These triangles symbolize the subtle bodies and chakras. Each level of triangles, starting from Vishuddha (throat chakra), ascends upwards through Ajna (third eye chakra) and reaches Sahasrara (crown chakra). They depict the human subtle bodies: mental body, supermental body, and divine body, reflecting different levels of consciousness — from human mind to the unified cosmic mind.

IV. Circles Radiating from the Center: These concentric circles emanating from the center of the pineal gland represent waves of consciousness spreading outward, altering reality around. They symbolize the influence of human consciousness on the surrounding world — inner states reflected in the external world through the interaction of consciousness with matter.

Now, let's add an additional layer of interpretation using the "cabbage" metaphor. In this symbol, the concentric circles can be regarded as layers of cabbage, where each layer represents a new level of awareness or understanding of reality. Similar to how cabbage can be "unrolled", layers of consciousness unfold one by one, revealing new depths of existence and experience.

V. Circles as Layers of Cabbage: Each circle is a layer of consciousness or energy surrounding the core (pineal gland, center of consciousness). These layers, like cabbage leaves, can be "unfolded" to grasp the essence of a person and their connection with the surrounding world.

VI. Color Palette (Shades of Blue and Cyan): These colors symbolize various levels of con-sciousness, starting from the mental level and ascending to the spiritual and transcendent. Blue and cyan are often associated with wisdom, intuition, and serenity of consciousness, reflecting the development and disclosure of higher layers of existence.

Overall, this symbol represents the monad of a human — their consciousness integrated with physical, mental, and spiritual aspects. The concentric circles, as a cabbage symbol, underscore the multi-layered nature of consciousness, where each new level of understanding unveils deeper meanings and possibilities of changing reality through waves of consciousness emanating from the pineal gland.

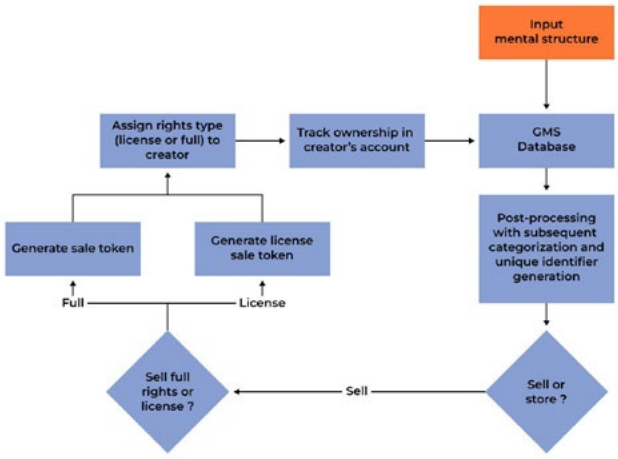

Figure 4: Block Diagram of the Operation of the State Exchange System and Explanations for it.

In this diagram, the process of managing mental structures (e.g., dreams) in the GMS database with the option of storing or selling them is depicted. Here is the description of the process:

I. Input (Mental Structure): The input of a mental structure (e.g., a dream) into the system, where it enters the GMS database.

II. GMS Database: The mental structure is stored in the GMS database.

III. Post-Processing: The structure undergoes post-processing, including categorization and the generation of a unique identifier.

IV. Sell or Store?: After post-processing, the user decides whether they want to store the mental structure in the database or sell it. If the user chooses to store the structure, the process is completed.

V. Sell Full Rights or License?: If the user opts for selling, the system offers two options: to sell full rights to the structure or to sell a license for its use.

VI. Branching Based on the Choice: If full rights are selected, a

token is generated for the full sale of rights (Generate sale token). If a license is chosen, a token is created for the sale of a license for the use of the mental structure (Generate license sale token).

VII. Assign Rights type (License or Full) to Creator: Assigning the selected type of rights (license or full rights) to the creator of the mental structure.

VIII. Track Ownership in Creator's Account: The rights to the structure are tracked in the creator's account to enable them to manage these rights.

IX. Conclusion: The diagram illustrates the complete process of managing a mental structure from its input into the system to the decision-making on selling (full rights or license) or storing the structure.

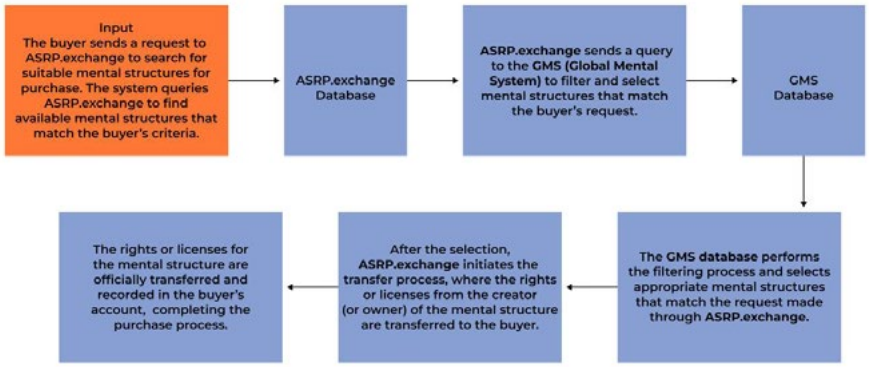

Figure 5: The Diagram Demonstrates the Process of Searching, Filtering, Purchasing, and Transferring Rights to Mental Structures Involving ASRP. Exchange and GMS (Global Mental System).

Process Description

I. Input (Buyer's Request): The buyer sends a request to ASRP. exchange to search for suitable mental structures that meet their criteria. ASRP. exchange performs a search for available mental structures.

II. ASRP. Exchange Contacts GMS: ASRP. exchange sends a request to GMS (Global Mental System) to filter and select mental structures that match the buyer's request.

III. GMS Carries out the Filtering: The GMS database filters and selects mental structures that meet the criteria of the buyer's request. The filtering results are transmitted to ASRP. exchange.

IV. Transfer and Contract Allocation Process: After selecting suitable structures, ASRP. exchange initiates the process of transferring rights or licenses to the mental structures from the creator or owner to the buyer.

V. Allocation of Rights or Licenses to the Buyer: Rights or licenses to the mental structures are officially transferred and allocated in the buyer's account, completing the purchase process.

VI. Conclusion: The diagram illustrates the complete cycle from the buyer's request, through the search and filtering of mental structures in the GMS system, to the transfer of rights or licenses to the selected structures from the creator to the buyer through ASRP. exchange.

The developed modules of the system not only demonstrate the technical feasibility of the concept but also open up new possibilities for the practical application of the technology.

15. Discussion

15.1 Hypothetical Role of Quantum Intelligence

Many observations show that images and scenes during dreams of any person could be controlled by other creatures; animals and humans or even their related electromagnetic fields. Even; some persons could induce special images in dreams of other persons. The question arises what is the scientific reason behind these effects. Most scientists focus on brain activities. They believe that the radiated electromagnetic field of a brain could have an effect on the brain cells of a sleeping person. From this point of view; by controlling or coding these fields; one can induce special images in the dream of one person. However; some other scientists work on effects of electromagnetic fields themselves on dreams. From this point of view; we can design special antennas and send some special frequencies that change dream images. Some other scientists investigate medium effects on dream images. For example; dream images in wet weather are different with respect to hot and cold ones. In this method; we deceive neurons that analyze a medium such as a human seeing himself in a special scene [73–76].

All of these techniques are helpful; however none of them have a critical role. The key role is played by a particle called quantum intelligence. The origin of quantum intelligence returns to knowing the origin of nature. According to the physics of general relativity; world has at least four regions; one region is white hole [77–80]. It seems that all quantum intelligences live there before the birth of creatures. Two regions are normal ones and we live in one of them. Quantum intelligence is the identity of any creature that comes to our region from a white hole region coincident with the birth

of the initial cell. Quantum intelligence has a relation with DNA and maybe DNA is its antenna. During life; quantum intelligence controls the growth of cells. After death; quantum intelligence flies to the fourth region called black hole region in general relativity.

During sleeping; quantum intelligences move along electromagnetic fields of human's body and analyze medium. If other quantum intelligence becomes close to the quantum intelligence of a sleeping person; some waves could be exchanged between them. Second quantum intelligence could send coding information through waves toward the quantum intelligence of sleeping person. This causes that quantum intelligence of sleeping person decode information and reproduce images that second quantum intelligence see or try to induce. In fact; second quantum intelligence can send some signals and put quantum intelligence of sleeping person such as it sees especial scenes and human think that he is really in those scenes. External magnetic fields like earth magnetic fields could help to exchange signals between two quantum intelligences or like mobile fields could be harmful and prevent exchanged signals between quantum intelligence to reach their aims. Also; properties of medium like weather; wet and temperature could accelerate or decelerate exchanged signals between quantum intelligences.

15.2 Nonlocality of Consciousness

We have already mentioned the fuzzy understanding of the relationship between consciousness and the body. Continuing this theme, let us consider the question of the belonging of states of consciousness to consciousness itself, without a necessary linear and local indivisible attachment to a biological or other carrier (physical body, any object or subject, or the brain). An association game is in progress, consciousness is associated with the body, through which consciousness manifests itself (according to one of the hypotheses). If we suppose the existence of stable patterns in consciousness without attachment to a local carrier of

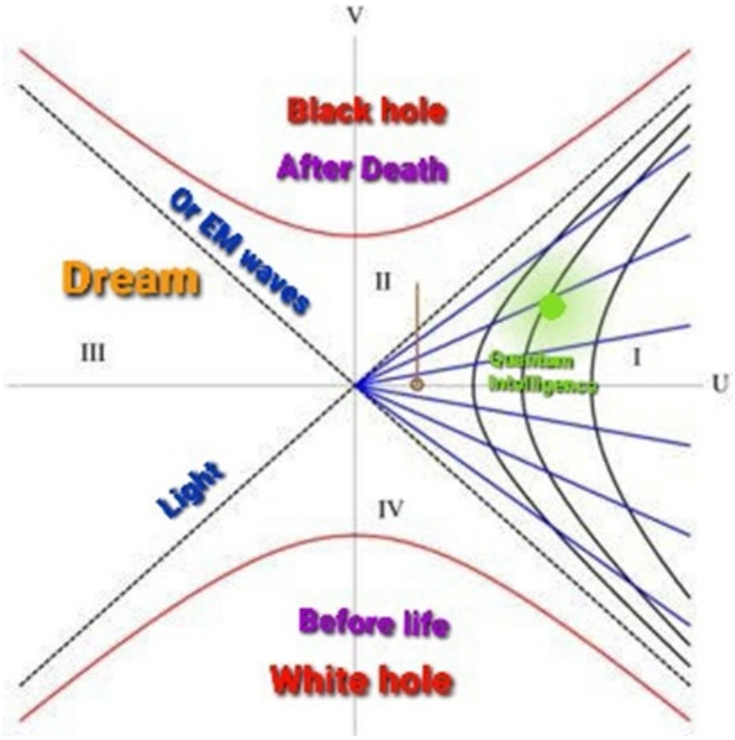

Figure 6: Four Regions. Including White Hole and Black Hole Regions.

consciousness (physical body or other), then from this theoretical assumption a hypothetical possibility may follow to attribute states of consciousness in such a way that they become part of consciousness, with the potential to be manifested in the most diverse material and non-material attachments. Of particular note is the statement of Alexander Kaplan, where he describes additional interpretations of the nature of consciousness [80]. In other words, the acquisition of states of consciousness — an experience parameterized through the body, can be retained in consciousness itself without identification with the body (hypothetically).

And conversely, similar to how we can obtain unique states of consciousness from sleep or from states of lucid dreaming, if we assume that consciousness has a nature distinct from the physical biological carrier, for example quantum or otherwise, then upon identification with a biological or other carrier, consciousness may bring along unique states of consciousness, just as dreams do, for example when we dream of flying states. In both cases, depending on the situation, states can be obtained from consciousness or transmitted to consciousness, based on existing technologies, and therefore can become the subject of the described market with value, cost, and capitalization.

15.3 Ethical Issues

Monetizing immaterial states, such as consciousness and spiritual experiences, raises a number of ethical issues, especially in the

context of commercializing what has traditionally been considered personal and internal experience. Introducing a system where states of consciousness or dreaming can be exchanged for material resources raises questions about the limits of permissibility in commercial activities. One key aspect here is the potential exploitation of personal and subjective experiences for financial gain, which may lead to a loss of their authenticity. Another important issue is the preservation of privacy regarding data on consciousness states. When using technologies such as blockchain and neurointerfaces for tokenizing and trading consciousness states, risks of data leakage or unauthorized use may arise.

While blockchain offers a high level of security, the question of privacy and personal data protection remains open, especially when it comes to deeply personal aspects such as consciousness and dreaming. Furthermore, the commercialization of consciousness states may lead to the emergence of new forms of inequality. Those who possess financial resources may gain access to exclusive or "enhanced" states of consciousness, while others may be limited in their opportunities. This raises questions about fairness and access to such new technologies, and how they may impact social equality.

Philosophical reflections on the monetization of spiritual states touch upon the boundaries between the material and immaterial, as well as the role of economics in defining the value of subjective experience. In traditional philosophy of consciousness, states such as meditation, lucid dreaming, and transcendental experiences are considered unique and invaluable aspects of human existence. When these states acquire economic value, the question arises as to whether their internal meaning is lost. In a philosophical context, one can also discuss what happens when subjective experience is turned into a commodity. According to Jean Baudrillard, the transition from immaterial experience to an object that can be exchanged and traded leads to "simulacra" — copies of reality that lose their authenticity. In this context, one can consider how the commercialization of consciousness may contribute to the creation of such simulacra, where the uniqueness of experiences is lost, reducing them to mere commodities. Moreover, the philosophy of phenomenology, such as the works of Edmund Husserl, emphasizes the uniqueness and inexpressibility of individual experience. Attempting to "objectify" and monetize these experiences may conflict with how consciousness and experience have traditionally been understood in philosophy.

The tokenization and monetization of consciousness states open up new possibilities for science and economics, but they also raise serious ethical and philosophical questions. It is important not only to consider commercial benefits but also to critically examine the impact of such technologies on humanity as a whole to avoid unintended consequences. Introducing the tokenization of consciousness states on exchanges and other platforms brings numerous new opportunities but also poses a series of questions and challenges. One key challenge is ensuring data privacy. Data on consciousness states is extremely personal and confidential, and tokenizing them may lead to information leaks or misuse. However, blockchain technologies, with their transparency and cryptographic protection, can provide reliable means to prevent such risks. Another challenge is the philosophical reflection on the monetization and exchange of such personal and subjective experiences. Tokenizing consciousness raises questions about the boundaries between personal and public, as well as how to assess and exchange such unique states.

In the future, tokens representing states of consciousness can become a crucial element of the digital economy, opening up new markets and opportunities for interaction between individuals, technologies, and cognitive states. This will enable the creation of a unique ecosystem where subjective experiences become assets that are tradable and usable in various contexts. The tokenization of objectified states of consciousness represents an innovative approach to recording, storing, and exchanging cognitive experiences. The use of tokens on exchanges and other trading platforms introduces new possibilities for engaging with consciousness, establishing a market for unique cognitive states. However, despite the numerous prospects, there are ethical and philosophical considerations that need to be taken into account when developing such systems.

16. Conclusions

In this article, we examined contemporary approaches to the fixation, objectification, and transmission of consciousness states, with a focus on using dreams as an example of cognitive production. The advancement of neurointerface technologies and artificial intelligence algorithms enables the transformation of subjective states of consciousness into stable patterns of neural activity that can be recorded, analyzed, and objectified. Tokenization technologies, such as Quantum Resistant Ledger (QRL), provide the ability to convert this data into unique digital assets that can be utilized across various domains — from science and research to the digital economy. One of the central concepts of the article was the understanding that even indirect contact with a state of consciousness, such as dreaming, can be viewed as a form of experiential transmission. The ability to record dreams, objectify them, evaluate, and subsequently tokenize them opens new horizons for integrating cognitive processes into the digital sphere.

However, despite significant technological advancements, unresolved issues remain concerning ethics, data privacy, and the accuracy of interpreting subjective states. The future of research in this field necessitates an interdisciplinary approach that combines achievements in neuroscience, cognitive technologies, blockchain, and quantum physics. Only through a comprehensive approach will it be possible to fully explore and harness the potential of transmitting consciousness states in a digital format. Data on consciousness states and emotional experiences may be collected and used by corporations for behavioral control, leading to new levels of intrusion into an individual's personal space. We consider it essential to conduct research on the impact of consciousness on physical processes in biological and non-biological systems [81].

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