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Expertise of Digital Reality as a Factor of Achieving Society Stability Under Stochastic Conditions (Uncertainty, Instability, Bifurcation)

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Abstract

Since we all live in a complex, interconnected, and interdependent world, where volumes of information grow exponentially, and many leaders recognize the challenges of operating under conditions of stochasticity and uncertainty, the relevance of the analyzed problem remains extremely significant. The purpose of the article is to conceptualize the study of digital reality concerning stochastic ambiguity based on system methodology and computer modeling. This conceptual and categorical apparatus aims to expose digital reality as both a social phenomenon and a dynamic process. The principal approach to the research problem is a synergetic methodology that includes methods of consistency, structuredness, reasoning, making it credible to unveil the essence of the analysis of digital reality as a factor in achieving societal stability in stochastic circumstances, which is an integral process.

The article demonstrates that, through the ability to predict, mistakes can be avoided, success achieved, and the prosperity of organizations multiplied. The article explains that the synergetic methodology, as a complexity methodology, meets the conditions of globalization 4.0, Industry 4.0, technological progress 4.0, digital society, Enlightenment 2.0, and Agile management. It is for these complex requirements that a synergistic complexity methodology can be applied.

The materials presented in the article hold practical value for experts, scientists, and leaders. The implementation of this expertise will benefit society, the state, international partners, and future generations by promoting sustainable growth. The practical significance of the article lies in solving the problems of acquiring a conceptual framework for analyzing digital reality as a factor in achieving the efficiency and sustainability of society in stochastic circumstances. This approach enables the formulation of national, regional, local, and other indicators of sustainability and contributes to overcoming crises. All mentioned indicators can manifest in absolute and relative dimensions, including indicators in the social sphere, such as health status, quality of life, social activity, demographics, and others.

Keywords

expertise, digital reality, synergetic methodology, stochasticity, exponential growth of information

Introduction

Navigating the Significance: Problem Statement, Research Status, and Linkages to Vital Scientific and Practical Objectives

The significance of expertise in the realm of digital reality, particularly within the framework of stochastic uncertainty, holds considerable weight in our current epoch dominated by the prevalence of Big Data (Gandomi & Haider, 2015; see also Al-Badi et al., 2018; Caesarius & Hohenthal, 2018; Secchi, 2018; Tabesh et al., 2019). Across all organizational domains, leaders find themselves grappling with an exponential surge in information, a growth trajectory that shows no signs of slowing down. This burgeoning influx of data thrusts executives into the realm of stochasticity, characterized by its inherent unpredictability and probabilistic nature. Navigating this intricate landscape necessitates an arsenal of skills wielded by managers and experts, buttressed by formidable computing capabilities and a cerebral framework rooted in systemic, structural, synergistic, analytical, and philosophical thinking—a combination that underpins the essence of digital reality expertise. Currently, numerous interdisciplinary studies are dedicated to this field (Chen & You, 2019; Lien, 2017; Tiwari et al., 2018; Torrecilla & Romo, 2018; Wilkin et al., 2020). The fundamental goal of this expertise lies in the identification of patterns, trends, and underlying principles intrinsic to the digital milieu.

This intellectual endeavor mandates the astute detection of incongruities and their manifold implications through the handling of voluminous datasets. Proficiency in mathematical thinking is paramount, enabling the manipulation of numbers within the realms of prediction, anticipation, and the stretching of numerical limits and their diverse sources (Von Weizsäcker & Wijkman, 2017). Digital reality experts must comprehend intricate mathematical models and formulas necessitates a firm grasp of the exact sciences. Additionally, quantitative thinking is essential, as is the adeptness to tackle challenges through computer simulations and construct models akin to the Monte Carlo methodology, a simulation technique for approximating real-world phenomena (Cai et al., 2015; Karagiannidis & Wilford, 2015; Khalaf & Saunders, 2017; Scandizzo & Ferrarese, 2015; Zheng et al., 2019). Furthermore, sourcing pertinent information and executing intricate calculations are crucial components for delivering autonomous assessments of complex organizational challenges. Leveraging ICT technologies, digital reality experts are tasked with devising solutions that not only elevate organizational performance but also empower decision-making processes (Duan et al., 2019; see also Jarrahi, 2018; Misuraca et al., 2012; Ranerup & Henriksen, 2019; Terziyan et al., 2018).

The research endeavors to formulate a conceptual framework for comprehending the expertise required in the realm of digital reality within the context of stochastic uncertainty. This framework is built upon the foundations of system methodology and modeling, with the overarching goal of constructing a conceptual and categorical structure. This structure, in turn, serves as a tool to unveil the intricate nature of digital reality—a phenomenon characterized by its social prominence and dynamic progression. This phenomenon is one that remains a constant focal point for experts, managers, and various other individuals engaged in its complexities (Mergel et al., 2019; see also Dufva & Dufva, 2019, Blevins, 2018; Holford, 2019; Sullivan, 2018).

Previously Unexplored Aspects of the Problem

Predicting and comprehending the intricate paths of contemporary societal evolution remains a formidable challenge. Even the foremost experts often engage in speculative contemplation of specific trends, meticulously scrutinizing the potentialities of their materialization, and dreaming of transformative global changes. While certain experts demonstrate the capability to formulate dependable prognostications, this ability necessitates shedding cognitive illusions that impede accurate foresight. A scant number of leaders possess the capacity to anticipate strategic investment opportunities, forecast the ascendancy of novel market offerings, or anticipate fluctuations within the intricate tapestry of the political landscape within a volatile milieu. Hence, our endeavor is framed by the ambition to probe the enigma of digital reality proficiency amid conditions of stochastic uncertainty—imbued with randomness, unpredictability, and caprice—underpinned by the tenets of systematic methodology and computational modeling, with the ultimate aim of fabricating a novel conceptual and categorical framework.

Unveiling Scientific Novelty

The scientific novelty of this inquiry lies in its incipient elucidation of the concept of digital reality expertise as a pivotal factor for enhancing societal efficiency and sustainability. The historical probabilities embedded in various pathways of future development engender heightened mutability, rendering the world considerably more dynamic. Experts navigate this landscape brimming with risks, necessitating the mitigation of critical errors. Moreover, the intricate interconnectedness of today's globalized world poses challenges to comprehensive study, as our interdependencies and mutual vulnerabilities within an environment teeming with emerging issues (Chopra & Khanna, 2015; Fang et al., 2019; Lechner et al., 2016; Ouyang, 2014; Roukny et al., 2018). The focal point of this study resides in the realm of digital reality expertise within the backdrop of stochastic uncertainty, explored through the vantage point of system methodology and modeling, elucidating it as a dynamic social phenomenon.

Methodology

The foundation of contemporary society's digital expertise lies in synergetic methodology, a paradigm of complexity encompassing an amalgam of theoretical and pragmatic tenets, methodologies, knowledge, skills, and proficiencies essential for the cultivation of modern managerial acumen. Often, it constitutes a constellation of diverse theories that occasionally synergize and at times diverge.

In the landscape of Globalization 4.0, Industry 4.0, Technological Progress, Digital Society, Enlightenment 2.0, and Agile management, the intricacies of synergetic methodology, rooted in complexity, find relevance (Voronkova, 2019). Within these intricate circumstances, the application of synergetic complexity methodology proves apt, incorporating the insights of chaos theory—a realm revolutionized during the 1970s and 1980s, notably through the contributions of luminaries like Edward Lorenz (1963) and Benoit Mandelbrot (Mandelbrot, 1983).

Chaos theory posits that even minute perturbations in the initial parameters of contemporary society's dynamic systems can engender profound repercussions within subsequent systems. The inherent unpredictability of dynamic systems reverberates across the spectrum of assessment, planning, and control. Another revelation stemming from chaos theory's role in shaping our comprehension of intricate systems is the unveiling of fractals and scale invariance. This phenomenon is observed when the graphical representation of a system's behavior seems the same irrespective of the scale.

Prominent thinkers including R. Aron (1968), D. Bell (1973), A. Giddens (1990), L. Von Bertalanffy (1950), Z. Brzezinski (1993/2010), I. Wallerstein (1998), M. Castells (2007), J. Lotman (2009), N. Luhmann (2013), H. Maturana (Dávila & Maturana, 2019), J. Naisbitt (2006), and F. Fukuyama (2003) have contributed to the discourse surrounding the information society. Their insights have facilitated the evolution toward a post-information and digital society, catalyzing the need for a novel model of adept governance. Crucially, the evolution of digital technologies engenders an environment conducive to the emergence of novel macro-social processes. This includes the transformation of labor relations between employees and employers, contextualized by the global sphere's influence (Kurt, 2019).

A notable aspect of contemporary progress under the umbrella of digital workforce technology is the adoption of novel high-tech methodologies for recruiting digital personnel. The digital economy in the era of the Internet establishes distinctive circumstances for the emergence of fresh dynamics, encompassing relationships not only between employers and employees but also among globally dispersed companies (Kyrychenko, 2019).

The epistemological foundation of formulating the concept of expert management, driven by the requisites of societal digitalization, underscores the necessity for its praxeological solution in favor of enhancing the efficacy of the creative digital economy. It is apparent that expert management must possess requisite and ample resources (personnel, leadership, infrastructure, financial means) to reinvent itself and realize substantial development. This pertains to the social sphere of augmenting the effectiveness of expert models through the integration of information technology within project endeavors.

From the mid-2000s onward, expert management has emerged as an applied science, intensifying its investigation into digital technologies to bolster the project undertakings of the digital economy. It is imperative to leverage international experiences in digital strategy implementation, surmounting impediments to digital transformation through investment attraction, and deepening collaboration with the European Union. Equally relevant is the creation of fresh avenues for realizing expert human capital, fostering innovation, digital and creative industries, and combating the COVID-19 pandemic. As articulated by M.A. Lepskiy (2020), "the media have become the main trigger of panic and madness, rather than a mechanism to incorporate rationality, logic and responsibility of citizens for their actions."

Research on digital reality frequently involves employing questionnaires and surveys to gather user or expert opinions, followed by processing and analyzing the acquired data through statistical methods or qualitative analysis. This process aims to underscore key trends, issues, and features of digital reality.

Regarding the methods employed in digital reality research, diverse approaches can be utilized based on the specific objectives and goals of the study. Here are several standard methods that can be utilized:

1. Expert interviews: Engaging in discussions with experts in the digital reality field to acquire their opinions, assessments, and analyses of prevailing trends.

2. Content analysis: Examining visual and audio effects, interfaces, and other content-related aspects within digital reality.
3. Neurophysiological methods: Employing technologies to measure physiological responses, such as electroencephalography (EEG) or functional magnetic resonance imaging (fMRI), to investigate the impact of digital reality on the user's brain.
4. Ethnographic research: Observing users of digital reality in their natural environment to comprehend their behavior and interactions with the technology.
5. Qualitative research: Employing focus groups, in-depth interviews, or other qualitative research methods to gain a more profound understanding of users' opinions and experiences.
6. Prototype and user testing: Administering tests with actual users to evaluate the usability, effectiveness, and satisfaction with digital reality.
7. Social Research: Investigating the influence of digital reality on socio-cultural aspects of society, encompassing alterations in lifestyle, communication, and the perception of reality.
8. Usage Data Analysis: Employing analytics and data collection on technology usage to recognize trends, challenges, and opportunities.
9. Performance Metrics: Assessing key performance metrics of digital reality, including response speed, latency, graphics quality, and other technical attributes.
10. Virtual experimentation method: Formulating virtual experiments to examine user behavior and responses to various scenarios in digital reality.
11. Content Analysis: Scrutinizing content generated by users in digital reality, such as virtual worlds crafted in social VR applications.
12. Comparative Research: Evaluating various digital reality platforms, technologies, or applications to delineate their respective advantages and limitations.
13. Technology Audit: Examining the technology stack utilized in digital reality to discern technology trends and potential enhancements.
14. Machine learning techniques.
15. Employing machine learning algorithms to scrutinize digital reality data and uncover patterns, trends, and predictions.
16. Network Analysis: Investigating the interconnections and influence of digital reality on social networks and virtual communities. Integrating various methods offers a holistic understanding of digital reality, its effects on users and society, and identifies avenues for future research and technological advancement. Each of these methods can be customized and amalgamated based on the specific requirements of digital reality research.

Results

In addressing the challenges posed by the expertise of digital reality as a catalyst for stability and sustainability within a stochastic environment, it is pertinent to discern the categories of "certainty" and "uncertainty". Certainty encapsulates the actual state of affairs devoid of any adverse repercussions. The most desirable scenario for organizational certainty is one where individuals are entirely confident in scientific theories and hypotheses promising certainty. However, in the digital age, the process of accumulating facts is becoming more intricate as uncertainty embeds itself and becomes more pronounced. While the ultimate aspiration of science is the eradication of uncertainty, the yearning for absolute certainty in the development of the modern world, associated with informatization and digitalization, remains, if not an illusion, then a utopia. If the resolution of contemporary development challenges linked to information technology and digitalization hinges on the lack of "certainty," this implies that "big data" falls short. The conclusion drawn by experts is one of "perhaps," disseminated through probabilities, ultimately leading to ambiguity. As such, experts gravitate towards unambiguous (intelligible) numerical representations, enabling managers, self-employed individuals, and professionals to navigate with clarity.

The conceptualization of digital reality expertise within the context of stochastic uncertainty can also be facilitated through the application of probabilistic reasoning and mental scales with substantial gradations, a mode more instinctive for experts due to the diverse assumptions that individuals harbor about reality and how to address novel and emerging challenges. Stochastic uncertainty encapsulates not only the realm of the unknown but also the realm of the unknowable. It signifies a state of independence from our desires and cognition, rendering the development of our world unpredictable, disorderly, and beyond our reach. We confront a predicament akin to an elusive cloud, one that defies manipulation. This cloud manifests itself within stochastic uncertainty in a manner that thwarts attempts to direct it toward conventional theorization.

The stochastic uncertainty characteristic of contemporary society underscores that surprises will invariably punctuate life, irrespective of how meticulous our prognostications are (even within the realm of "perhaps"). While probabilistic thinking thrives during periods of tranquility, expert resolutions in a "fifty-fifty" context, when confronted with the discourse of "foreseeing the unforeseeable," may be embroiled in turbulence. This becomes particularly pronounced when experts and their expertise become entangled in their own internal contradictions, rendering them unable to furnish adequate forecasts. For instance, the Club of Rome's representatives constructed the report based on the "World3" computer model, envisioning a future that surpassed the "limits to growth," with dire predictions of planetary overpopulation, climate upheaval, and economic bubbles. This culminated in a call for a new Enlightenment 2.0 philosophy and a new Anthropocene (Meadows et al., 2004).

Today, forecasts for the emergence of a quantum supercomputer are already taking shape within the realm of computer-based reality. This prediction envisages a point called the "technological singularity," where non-human (machine) intelligence eclipses human intelligence for the first time in history. Ray Kurzweil, recognizing the constant exponential augmentation of computer capabilities and the influence of stochastic processes, envisions such progress: a technological singularity surpassing humanity's grasp (expected around 2045). Concurrently, experts anticipate the trajectory of "new digital trends steered by artificial intelligence," encompassing nanotechnology, robotics, implanted technologies, pervasive computerization, smart cities, the Internet of Things, autonomous vehicles, 3D printing and manufacturing, and neuro-biotechnology—a realm already manifesting as computer-based reality for each individual (Nikitenko, 2019).

Prognostications put forth by executives and experts are deliberations founded on a voluminous repository of information, one that must adapt to exponential growth in line with Moore's Law. The purview of digital reality expertise underscores that technology is propelling us toward a heightened interdependence and vulnerability within our globalized world. Consequently, the necessity for digital reality expertise to foster efficacy and sustainability in a stochastic environment arises, as this predictive capacity can avert missteps and catalyze the triumph and prosperity of organizations.

Embedded within the conception of digital reality expertise as a catalyst for organizational efficiency and sustainability lie historical probabilities encompassing the myriad potential trajectories of future organizations. This evolution signifies an increasingly volatile world. Furthermore, experts are inherently inclined to embrace risk, often grappling with substantial miscalculations due to the intricate calculus of today's global landscape.

Experts construct logical cause-and-effect models that facilitate swift targeting of key evidence, albeit while contending with the flux of extraneous facts amidst rapid technological evolution. The impetus behind this transformation continues to be the swift digital advancements within the information technology sector, accompanied by the exponential proliferation of big data (Big Data). A case in point is the Club of Rome report that critiques ongoing research concerning the imperative, feasibility, and benefits of a worldwide transition toward sustainable development for both organizations and society at large The experts draw inspiration from the musings of numerous innovative thinkers: "... if necessity were to prompt immediate action"; "... if we were to embark upon the journey toward sustainable development in the foreseeable future, to coexist in equilibrium and prosperity."

The bedrock of sustainable societal development initiatives rests upon the tenets of Enlightenment 2.0, aimed at recalibrating the focus to address the root causes of our planet's current state while presenting viable avenues for their realization. These experts assert that the attainment of "complete harmony" necessitates the emergence of a new Enlightenment 2.0, transcending materialism, reductionism, and egocentrism, with the aspiration that their call to action finds resonance. The latest Club of Rome report emerges in the backdrop of expert pronouncements that advocate a fundamental transformation of key economic sectors to remain within planetary boundaries and actualize a sustainable society (Nikitenko, 2020). This demands a systemic approach and a reevaluation of priorities with an extended temporal outlook.

The expertise of digital reality, as a determinant in attaining efficiency and sustainability within a stochastic society, encompasses several key dimensions:

1. Analysis of prevailing sustainable development values and the ethos of the new Enlightenment 2.0, rooted in the ideals of "total peace";
2. The imperative of orchestrating an equitable transition through a systemic approach and the utilization of WORD3 computer modeling towards sustainable advancement for both organizations and the broader society.
3. Devising a program that underscores critical domains of transformation to shape a model of enduring peace.

Experts underscore the urgency to deviate from the trajectory of marginal growth, recognizing that the issue of "limits to growth" remains as pertinent today as it was in 1972. The 21st century presents a manifold augmentation of challenges, echoing those articulated in the 1970s: climate fluctuations, scarcity of arable land, mass biodiversity loss, depletion of natural resources, and the disruption of ecosystems and climate equilibrium (Nikitenko, 2020). It is evident that the paradigm of digital reality expertise, as a determinant in achieving efficiency and sustainability within organizations amid stochastic conditions, does not yield conventional solutions to these challenges, as they are intrinsically tied to an economic growth model heavily reliant on resource consumption. In tandem with population growth, this exacerbates the impermanence of contemporary trajectories, precipitating local and global ecological crises that compromise the attainment of the 17 Sustainable Development Goals (SDGs).

The current exigencies confronting humanity, as articulated by experts, demand transformative actions: novel human objectives must be defined, and the notion of a novel Social Enlightenment paradigm must be refined, if feasible. A tenet of Enlightenment 2.0 is the concept of a "balanced world," necessitating a pragmatic synthesis of ecological, economic, and social aims. Fundamentally, the bedrock of expertise lies in the systemic analysis and synthesis of rejuvenating depleted resources, restoring degraded lands to ameliorate wildlife habitats, and augmenting agricultural yields. The Club of Rome, as an embodiment of an innovative form of expertise, advocates an ideology rooted in equilibrium between humanity and nature, long-term consequences and tactical imperatives, swiftness and stability, equitable remuneration and social parity, and the interplay of market forces and legal frameworks. The prescription is for nations to devise sustainable development policies grounded in the principles of prudence, inclusivity, and equilibrium. This comprehensive paradigm has been shaped by global experts, a construct poised to benefit society, the nation, international collaborators, and posterity. As Academician O. Maltsev pointed out, the scientific endeavor of a scholar is characterized by assuming responsibility for delving into an abstract concept (phenomenon, issue, problem, etc.) and, through incremental stages, converting it into an applied construct. This mirrors our intent in shaping the construct of "digital expertise."

In the current landscape of diverse velocities, every facet of the contemporary milieu is undergoing transformation: the configuration, roles, mechanisms, and developmental trajectories of the modern world. This necessitates the formulation of a roadmap to actualize this ideology within an environment characterized by uncertainty, instability, and stochasticity. Such a roadmap is essential for adapting to contemporary managerial styles and methodologies. Consequently, in our perspective, chaos theory emerges as a direct precursor to complexity theory, as both these paradigms acknowledge uncertainty and variability as intrinsic attributes of systems under scrutiny within the digital society. Upon close examination, it becomes apparent that none of the concepts from complexity theory can be perfectly tailored to our circumstances. Nonetheless, it rests within the purview of experts to determine the suitability and specific applicability of these concepts to individual cases.

Presently, a critical realization is the propensity of linear thinking to lead researchers astray, underscoring the need for supple methodologies and approaches that resonate with the current state of management (that are founded on the complexity theory). It is within this context that complexity theory, a nonlinear conception, emerges as a paramount instrument for analyzing digital reality, serving as a conduit through which overarching objectives have been formulated and substantial progress attained (Nikitenko, 2019a).

Discussion

Within the sphere of sustainable development, many researchers are dedicated to investigating matters pertaining to adaptability, resilience, and societal advancement, utilizing diverse methodologies and theories. The theory of complex adaptive systems, in the context of cultivating a sustainable society, underscores the imperative for the ascent of dedicated, professionally inclined, and profoundly capable experts. These experts, who specialize in elucidating the impact of complex systems on team dynamics, should hold a profound grasp of systems thinking and possess expertise in navigating the intricacies of digital reality. Systems thinking functions as an integral facet of adaptive cognition, serving as a foundational component that directs attention to the cultivation of cyclical relationships among system constituents, as well as the delineation of nonlinear causal connections. The risk associated with the latter escalates when system components are examined in isolation.

The concept described, wherein the entire system is subordinated to an attractor guiding societal subsystems, reflects notions found in complex systems theory, chaos theory, and self-organization theory. These areas delve into the interaction of system components and their capacity to organize into structures without external control. In complex systems theory and self-organization, for instance, attractors can be viewed as stable equilibrium points or states of a system that possess the ability to attract other components. These concepts find application in diverse fields such as ecology, sociology, economics, and other sciences to elucidate how systems can autonomously organize and attain a stable state. An early contributor to this area was Niklas Luhmann (2013), a German sociologist who formulated the Autopoietic theory (systems that create and sustain themselves) and social systems theory. The Autopoietic theory originated in the 1970s through the collaboration of Chilean biologist and neurophysiologist Francisco Varela and mathematician-philosopher Humberto Maturana (Varela et al., 1974). This theory concentrates on self-organizing systems and their capacity to generate and perpetuate themselves. Specifically, Varela and Maturana perceived living organisms as systems with the capacity to generate and reproduce their structure. The core tenets of Autopoietic Theory encompass (Varela et al., 1974):

1. Autonomy: A system possesses autonomy, indicating it has internal mechanisms enabling it to function and regulate its activities.
2. Closure: The system is self-contained, creating and sustaining its structure without constant influence from the external environment.
3. Autopoiesis: The system possesses the capability to generate and replicate its own structure, ensuring stability and sustainability. When applied to social systems, these concepts aid in comprehending the organization and structure of social groups and institutions.

Social systems theory, associated with Maturana's work, delves into aspects of communication, interaction, and self-organization within social systems. Maturana perceived social systems as networks of interconnected communications among individuals, giving rise to structures and orders through interaction. Maturana, a distinguished Chilean biologist and philosopher, significantly contributed to systems theory, cybernetics, philosophy, and sociology. His research centered on comprehending living systems, including social systems, their self-organization, and interactions (Varela et al., 1974; Dávila & Maturana, 2019). A key concept developed by Maturana is "autopoiesis" (autocreation), as previously mentioned. In the biological context, autopoiesis characterizes the capability of living systems to independently create and uphold their organization. When applied to social systems, this concept elucidates how groups of people organize themselves and sustain their structures through interactions and communication. A significant focus in Maturana's research is on 'description,' which he deems a pivotal aspect of interaction and comprehension within social systems. He posits that communication goes beyond merely transmitting information; it involves the creation of meaning and understanding. Maturana's noteworthy contribution lies in his exploration of the concept of 'structural coupling.' This concept pertains to how organisms and social systems establish and uphold their structures through interactions and communications with the environment. Beyond Maturana, a multitude of researchers and philosophers have made significant contributions to the domains of systems theory, self-organization, and social systems. Notable figures include Niklas Luhmann (2013), Jean Bodin (2017), Edgar Morin (1992), and numerous others, each presenting distinctive ideas and perspectives on these subjects. Hence, the concepts of autopoiesis and social systems theory enhance comprehension of self-organization, sustainability, and evolution in both biological and social contexts.

In the face of uncertainty, complexity tends to escalate, thereby prompting the necessity for self-regulation within a system. The system's performance is contingent upon the thoroughness of examination. As posited by theory of complex systems, the introduction of specific processes reverberates throughout the entire system, and the enduring presence of uncertainty underscores the need for adaptation not solely to changes, but also to system optimization. The intricate quandaries that confront contemporary society are frequently intertwined with unpredictability, and their resolution hinges on comprehensive analysis of the overarching system rather than isolated process modifications. It is important to acknowledge that survival within an uncertain milieu and the capacity to adapt to fluctuations contribute to the escalation of entropy both within organizations and societies. Furthermore, as the environment grows more intricate, organizations inherently progress towards complexity (Oleksenko, 2013).

The equilibrium state of the system manifests as an attractor—a point of magnetic pull that influences all societal subsystems. Therefore, identifying and pinpointing these attractors is of paramount significance. Enforced "improvements" often yield desired outcomes only sparingly. We contend that solutions should be sought not only within the system itself but also within the external environment. Given that attractors are contingent upon the external environment in which the system operates, shifts in the environment precipitate changes within the system and its societal subsystems. Certain environmental alterations hold such significant sway over attractors that they may cease to exist, prompting the system to chart a fresh trajectory and potentially ushering forth the emergence of novel attractors.

Hence, it becomes more judicious to alter the parameters of the environment in which an organization or team functions until the current state loses stability and eventually becomes untenable. Consequently, cultivating an adaptive landscape in which the organization can effectively thrive surpassing the bounds of its adaptability is of paramount importance. Systems adept at scaling the highest peaks of the adaptive landscape possess the most favorable odds of survival.

Systems endowed with the capacity to reconfigure their internal makeup on a recurrent basis partake in an "adaptive walk" across the landscape. This entails transitioning from one configuration to another in order to preserve adaptability amidst changing circumstances, necessitated by shifting functional demands, personnel dynamics, and tools, and accompanied by alterations in process development. The contours of the adaptive landscape are contingent upon both the system itself and the surrounding environment (Afanasieva & Oleksenko, 2019).

Hence, it becomes apparent that strategies for survival within one system cannot be readily transposed to other systems due to the distinctiveness of their adaptive landscapes. The adaptive landscapes of various systems diverge, shaped by their unique contexts. Systems undergo adaptation both in response to their external environment and in mutual influence upon each other—effectively co-evolving in the face of the novel conditions presented by informatization, digitalization, and globalization. In light of this, several observations can be made:

1. Each system possesses an inherent internal structure characterized by its distinctive internal code, which necessitates continual infusion of novel informational content.
2. The strategy for survival within a system demands continual reevaluation, leading to the construction of an optimal configuration wherein the impact of each element is constructive. Such an optimal configuration strives to surmount the complexities that could trigger catastrophic events and erratic oscillations within the system.

Conclusions

The expertise of digital reality as a factor in achieving societal efficiency and sustainability within stochastic conditions involves discerning and comprehending the comprehensive mechanism of preserving constancy amid any alteration. This applies equally to intricate systems, structures, and overall integrity. To achieve this objective, it is imperative to pinpoint the fundamental agents of change that can encapsulate all facets of systematics, structural arrangement, hierarchy, dissipation, divergence, hierarchization, rejuvenation, rendering them genuinely viable throughout this process.

The sources of developmental impetus furnish the building blocks of evolution, serving as carriers of progress. Environmental factors undergo elimination and transformation within a designated material configuration. Non-eliminated carriers of development undergo successive rounds of elimination propelled by internal and external evolutionary forces, undergoing transformation, preservation, and so forth in an endless cycle. Humanity wields the potential to influence the nonlinear dynamics of our increasingly intricate global milieu, crafting self-organizing survival mechanisms to navigate the escalating complexity of the world.

Practical Recommendations

The application of digital reality expertise to bolster societal efficiency and sustainability within stochastic realms necessitates the formulation of a comprehensive management framework for sustainable socio-ecological-economic and social progress. The pivotal role is played by a suite of indicators that illuminate the state of the "nature-economy-population" system and enable its adjustments. This consideration must span multiple hierarchical strata, encompassing the global, national, regional, local, and sectoral levels.

Although a conclusive resolution to the quandaries surrounding the development of digital reality expertise as a catalyst for achieving efficiency and sustainability within stochastic domains remains distant, emphasis should be placed on global indicators. These foundational metrics can serve as the basis for crafting national, regional, local, and other indices. These measurements can be expressed both absolutely and relatively, with social domain indicators, such as health status, quality of life, social engagement, demographic metrics, standing out among them.

Prospects for Future Research

The findings of this research hold value for practitioners, organizational leaders, managers, and all individuals grappling with the intricacies of predicting the future amid uncertainty and unpredictability. For them, digital reality expertise transforms from a mere abstract concept (phenomenon, predicament, etc.) into a tangible and applied category, as well as an applied science.

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