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EFFECTIVENESS MANAGEMENT MECHANISM FOR RECREATIONAL COMPLEX ENTERPRISES UNDER TWIN TRANSITION

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The subject of the study is the conceptual principles of the performance management mechanism for enterprises of the recreational complex. The purpose of the article is to provide a theoretical justification of the updated principles of the performance management mechanism for recreational-sector enterprises under the conditions of the twin transition, which combines digital and green development vectors. The methodological basis of the study includes a systemic analysis of domestic and international publications from 2023-2026 in the fields of tourism management, enterprise management, and sustainable development; a comparative analysis of the author's 2009 concept and contemporary managerial paradigms; as well as methods of generalization and scientific verification of theoretical propositions. The results demonstrate that the traditional system of five principles (compliance with economic laws, conceptual integrity, systemic approach, goal orientation, and effectiveness) retains its methodological architecture but requires substantive expansion. An updated formula of enterprise recreational attractiveness is proposed: $RAE = f(RP, Q, P, ESG, CX, R)$, where the added indicators include *ESG* as environmental and social responsibility, *CX* as digital customer experience, and *R* as resilience. It is substantiated that the twin transition serves as a cross-cutting principle that transforms the content of all five components of the mechanism. The KPI system is expanded to include *ESG* metrics, *NPS/CSAT*, digital transformation indicators, and resilience measures. The results may be applied in strategic management of tourism and recreational enterprises, in the development of post-war recovery programs for the sector, in designing intelligent decision-support systems in the recreational sphere, as well as in educational programs in tourism management. The integration of the twin transition concept into the system of performance-management principles for recreational-sector enterprises generates a synergistic effect between digital and green directions, enhancing the resilience and competitiveness of recreational enterprises under conditions of European integration and martial law.

Keywords: *national economy, economic policy and EU standards, resource support for international activities, performance management, economic laws, twin transition, resilience, fundraising, agile-management*

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Introduction. An analysis of the current state of enterprises within Ukraine's recreational complex demonstrates a negative trend in their effectiveness both at the regional level and for the national economy as a whole, which directly contributes to a decline in the country's GDP [1]. This confirms the urgency of updating the conceptual principles of the effectiveness management mechanism for recreational complex enterprises (*EMERCE*), taking into account the realities of the 2020s, including the consequences of the pandemic, the legal regime of martial law, and the necessity of a twin transition.

Problem statement. Despite the growing demand for innovative recreational services, innovation activity within Ukraine's health resort sector is virtually non-existent, with the exception of modern wellness complexes [2]. This highlights the need to update the conceptual principles of the *EMERCE* mechanism, incorporating digital and green pathways, which constitutes the subject of this study. According to 2025 OECD data, micro, small, and medium enterprises are the dominant form of business organization in the tourism sector, accounting for at least 80% of all tourism enterprises globally [3], and exceeding 90% in many countries [4]. UNWTO identifies the support of small and medium-sized enterprises (SMEs) as "agents of transformation in tourism," leading to a more inclusive, resilient, and sustainable sector [4]. This confirms that the *EMERCE* mechanism—with these enterprises being predominantly represented by SME subjects—holds particular significance for the sustainable development of the industry and for the national economy as a whole.

Analysis of recent research and publications. The theoretical foundation of this study is built upon the conceptual principles of the *EMERCE* mechanism, which were substantiated by the author in a PhD dissertation in Economics and the subsequent publication of the findings [5]. At the same time, the rapid transformation of the global environment during 2010-2026 necessitates updating these provisions through the prism of technological changes currently taking place in societal development.

An analysis of recent works allows for the identification of the following significant directions in the scientific debate regarding the update of *EMERCE* principles:

1. Transformation of economic regulators, mechanisms, and laws. Ene-Dinu emphasizes the inevitable adaptation of economic law to the requirements of the green and circular economy, which validates the author's thesis regarding the expansion of the principle of compliance with economic laws [6]. This aligns with the findings in [7] and [8], which argue that adherence to ESG standards amid Ukraine's European integration is shifting from a matter of voluntary choice to an objective legal requirement.

2. Modeling of recreational attractiveness and effectiveness. Ivanov substantiates the use of the

multiplicative Cobb-Douglas function for modeling the recreational complex [1]. The role of digital customer experience as a demand driver is confirmed by studies [9] and [2], which focus on service automation and virtualization as essential innovations. Concurrently, a persistent intention-behavior gap exists between the declared environmental attitudes of recreationists and their actual behavior. A bibliometric and content analysis of the COM-B model applications in the field of responsible consumption demonstrates that 50% of studies focus exclusively on the micro-level of individual psychological determinants, while institutional and policy mechanisms remain under-researched [10].

3. The concept of the twin transition. Studies [11] and [3] point out the inherent synergy between digital and green innovations, noting that digitalization serves as the foundation for reducing environmental damage. In the context of the European vector, [12] emphasizes that such a transformation aligns with the EU Agenda for Tourism 2030.

4. Ecosystem approach and resilience. Study [13] highlights the importance of overcoming fragmented connections within tourism ecosystems. The issue of SME resilience in crisis conditions is examined in [4], while [14] proves that marketing agility is crucial for survival in the face of rapid technological changes. Ushenko and Kurochka complement this by emphasizing the need for the systemic development of human capital for post-war recovery [15].

5. Technological aspects and effectiveness paradoxes. Giri et al. view generative artificial intelligence (AI) as a tool for value co-creation [16], while Kim et al. warn of the IT paradox, where rising digitalization costs can diminish the value of the employees themselves [17]. The issues of digital authenticity and peer-to-peer (P2P) experiences are analyzed in study [18].

6. Operational management and social factors. Bollenbach et al. [19] and Bukhari [20] propose mathematical methods (algorithmic approaches, computer models, and queue distribution—XGBoost, stream partitioning) to enhance visitor experiences and increase service speed. On the other hand, Li et al. note that diversity within groups helps companies be more responsible (micro-tools for increasing ESG effectiveness), as it encourages tourists to behave mindfully, thereby stimulating sustainable behavior among recreationists [21].

Thus, the existing body of scientific research confirms the necessity of integrating the twin transition principles into the author's *EMERCE* system, which determines the logic of the subsequent presentation of the material.

The purpose of the article is to theoretically substantiate the updated conceptual principles of the mechanism for managing the effectiveness of recreational complex enterprises under the conditions of the twin transition.

Presentation of the main material. The conceptual principles of the *EMERCE* mechanism, proposed by the author in 2009 [5], formed the theoretical foundation of this study. At the same time, the transformation of the global and national environment during 2010-2026 necessitates their verification and update. These changes are organically integrated into the proposed author's system of principles:

1. *Compliance with economic laws.* Compliance of *EMERCE* with economic laws implies the adaptation of the effectiveness management system to the objective cause-and-effect relationships of economic phenomena and processes, as well as the transformational nature of economic systems. Under market and mixed economic systems, a business entity strives to maximize enterprise effectiveness ($E \rightarrow \max$) — this proposition was defined as the law of effectiveness management: a general objective economic law operating within market and mixed economic systems [5].

As of 2026, this principle takes on an expanded meaning: alongside classical laws (the alignment of economic relations with the productive forces of society, the economy of time, value, supply and demand, competition), the operations of a recreational enterprise are regulated by the network interaction effect (platform economy, service aggregators) and the theoretical and applied concept of information asymmetry, which has acquired the status of an objective market pattern (the role of digital reputation and ratings in demand formation). A separate regulatory and market imperative is the principle of sustainable development, embedded in ESG standards and EU directives.

Modern scientific thought confirms the necessity of revising the system of economic regulators governing enterprise activity. Thus, Ene-Dinu notes that economic trends such as the green economy, circular economy, and social economy significantly transform the legal and regulatory business environment, forcing enterprises to adapt to new regulatory requirements that extend beyond classical market laws. In particular, the author emphasizes that “the future of economic law must be marked by a continuous adaptation to new economic and social realities,” and legislation must integrate requirements of sustainability, social protection, and adaptability to new market conditions [6, p. 164]. This proposition aligns with the author's concept of the updated principle of compliance with economic laws, which entails accounting not only for classical market regulators but also for ESG standards and the twin transition principles as new system-forming factors.

Despite market stagnation due to martial law, the European integration vector will stimulate Ukrainian enterprises to adapt to sustainable development standards to maintain competitiveness in the European market [7, p. 280]. Under the conditions of European integration, Ukraine is obliged to fulfill a number of commitments regarding enhanced environmental

protection and the gradual reduction of polluting emissions in accordance with EU requirements [8]. For enterprises of the recreational complex (RC) of Ukraine, this means that compliance with the principles of the twin transition ceases to be a voluntary strategic choice and acquires the character of an objective market requirement, representing a new substance of the principle of compliance with economic laws within the author's *EMERCE* model.

2. *Conceptuality.* The conceptuality of the *EMERCE* mechanism consists in defining the core idea of enterprise effectiveness management, derived under the influence of assessing the specific nature of the industry in which the enterprise operates, alongside the totality of its exogenous and endogenous factors. The initial author's hypothesis assumed that the main forming factors of the recreational attractiveness of an enterprise (*RAE*) were the recreational potential of the enterprise (*RP*), the quality of recreational services, and their price [5]. The updated author's concept expands this triad into a six-factor model

$$RAE = f(RP, Q, P, ESG, CX, R), \quad (1)$$

where:

- *RAE* represents Recreational Attractiveness of Enterprise;
- *RP* is Recreational Potential;
- *Q* is Quality of services;
- *P* is Price of services;
- *ESG* represents Environmental, Social, and Governance indicators reflecting ecological and social responsibility;
- *CX* is Customer Experience (digital);
- *R* is Resilience of the enterprise, defined as the ability to adapt to external effects and restore operational sustainability.

The key conceptual addition is the integration of twin transition principles as a system-forming factor of a recreational enterprise's competitiveness.

The growing demand among Ukrainian tourists for ecologically oriented and culturally conscious forms of recreation [9] reinforces the role of *ESG* as a factor of *RAE*. Empirical studies also confirm the increasing role of digital customer experience: Ukrainian tourists actively utilize online platforms, and reviews have a greater impact on decision-making [9]. This validates the inclusion of the *CX* component in the *RAE* model.

The growth in demand for ecologically oriented forms of recreation is a global trend: a systematic review of theories on environmentally sustainable consumer behavior [22] confirms that green product value, environmental corporate social responsibility, and the consumer's connection to nature act as the primary determinants in choosing recreational services.

At the same time, as noted by the authors of a study on behavioral mechanisms of responsible consumption

[10], a persistent intention-behavior gap exists where positive environmental attitudes do not translate into actual service choices. The application of the COM-B (Capability, Opportunity, Motivation—Behavior) model explains this gap through the combination of capabilities, conditions, and motivation. Within the *RAE* model, this implies that the *ESG* and *CX* components must not merely be present, but must form a coherent behavioral trajectory that reduces consumer psychological dissonance.

For health resort enterprises as a component of the RC, the implementation of digital technologies becomes highly significant: service automation, development of mobile applications, online booking systems, and service virtualization form the digital customer experience of recreationists [2]. Empirical studies confirm that digitalization is positively linked to enterprise resilience: companies in more digitalized sectors demonstrate higher resistance to external shocks, particularly the COVID-19 pandemic [11]. For RC enterprises operating under conditions of extremely high demand volatility, resilience becomes a distinct indicator of *EMERCE*.

The twin transition is the coordinated implementation of the digital and green transformation of an enterprise. This concept was formed within the practice of the European Union under the European Green Deal and Digital Decade 2030 strategies [11]. For RC enterprises, this entails the digitalization of processes (automation of booking and service operations, utilization of Revenue Management Systems (RMS), Business Intelligence (BI), and Customer Relationship Management (CRM); the development of digital customer experience (*CX*); and a green pathway (compliance with ESG criteria, carbon footprint reduction, implementation of circular economy principles, and social responsibility in relations with personnel and communities). Additionally, the synergetic effect is highly indicative: the mutual reinforcement of the digital and green pathways, namely: digital tools ensure the measurement of ESG metrics, while ESG goals provide digital transformation with a strategic meaning.

The principles of the twin transition relevant to *EMERCE* include: simultaneity, synergy, measurability, resilience, and inclusiveness. Their urgency is confirmed by OECD data: the number of patented twin transition inventions grew by an average of 9.7% annually during 2005-2020, outpacing the growth rates of digital innovations (8.4%) and environmental technologies (3.2%) individually [3].

In Ukrainian scientific literature, the twin transition concept is defined as the «synchronous combination of digital transformation and environmental renewal of the economy based on sustainable development,» where information technologies act as a driver of sustainable development, and through process digitalization, companies gain the opportunity to reduce resource

consumption and strengthen their environmental orientation [7, p. 279].

In the international academic discourse, it describes the potential synergy between digital and green technologies in combating climate change and mitigating environmental damage as a component of a just and sustainable economic recovery [11]. This defines the substance of the updated conceptuality principle within the *EMERCE* mechanism.

The inclusiveness of tourism infrastructure is not only an element of social responsibility but also a strategic resource for expanding the tourism services market, enhancing the competitiveness of destinations, and integrating into international sustainable development standards [23]. Within the context of the author's *RAE* model, this confirms the role of ESG as a market factor rather than a merely regulatory one.

The tourism ecosystem became the first industrial ecosystem of the EU to initiate the twin transition process in accordance with the EU Agenda for Tourism 2030 [12]. This confirms that the integration of the twin transition concept into the author's system of *EMERCE* principles aligns with the official strategic agenda of the EU.

Modern studies of tourism entrepreneurial ecosystems highlight the importance of overcoming relational fragmentation between state institutions, businesses, and communities [13]. In the *RAE* model, this reinforces the significance of resilience (*R*) as the capacity of ecosystem participants for collective adaptation. According to studies of ecosystems in developing countries, up to 70% of small tourism enterprises rely exclusively on informal P2P networks due to distrust in state institutions [13].

The integration of generative artificial intelligence (GAI) into the operations of RC enterprises is becoming an essential condition for increasing brand effectiveness. As demonstrated by Giri et al., utilizing intelligent systems for travel planning and creating personalized recommendations allows not only for the automation of operational processes but also significantly strengthens the emotional connection with the recreationist [16]. Within the *RAE* model, this transforms the customer experience (*CX*): the customer ceases to be a mere consumer of a service and instead participates in value co-creation. An important aspect is the anthropomorphization of GAI interfaces: attributing human-like traits to systems during communication encourages the client to utilize the service more extensively and spend more on the brand. However, according to the authors, it is crucial to maintain a boundary so as not to trigger user discomfort caused by a robot that appears too human—the so-called «uncanny valley» effect [16]. Thus, GAI acts not merely as a technological tool, but as a critical advantage that ensures the long-term resilience of a tourism brand within the digital economy.

3. *Systemicity*. The systemicity of the *EMERCE* mechanism consists in a holistic vision of management decision-making processes regarding criteria, indicators, and elements of effectiveness [5]. The modern systemic approach acquires a digital and ecosystem character: an RC enterprise does not function in isolation, but as a node within an extended ecosystem consisting of tourism platforms, booking systems, loyalty programs, and smart destination infrastructure.

The systemicity of effectiveness management entails the integration of digital solutions and tools into a single management center where data is updated instantaneously. The twin transition concept organically fits into the principle of systemicity: the digital and green components function as interconnected subsystems of a single *EMERCE* mechanism.

However, an analysis of the COM-B model applications in the field of sustainable consumption indicates the danger of overfocusing solely on the micro-level (individual awareness) [10]. For an effective *EMERCE*, it is necessary to combine individual behavioral processes with macro-level mechanisms, namely institutional and policy levers. This validates the author's thesis that management systemicity must extend beyond an individual enterprise, encompassing the structural determinants of the entire recreational ecosystem.

The digital and green transitions are interdependent: digital transformation opens environmental opportunities by facilitating the transition to low-carbon energy systems, improving environmental monitoring, and supporting the circular economy [3]. At least a third of patented environmental inventions refer to digital technologies, which confirms the positive impact of digital innovations on environmental ones even beyond direct utilization [3]. For RC enterprises, this means that the digital component of *EMERCE* (RMS, BI, CRM) and the *ESG* component of the *RAE* model function as a single system.

The greatest value of the twin transition lies in the synergy between digital and green directions, which shapes new requirements for enterprise management [7]. For RC enterprises, this means that the implementation of intelligent monitoring systems and IoT sensors ensures real-time transparency of energy consumption and carbon emissions as a necessary condition for transitioning to a green economy, since it is impossible to effectively reduce environmental impact without accurate data on the current state of operational processes.

Studies on the twin transition demonstrate that investment in artificial intelligence is the only digital technology that exhibits the characteristics of a general-purpose technology (GPT) and significantly increases the propensity of enterprises toward eco-innovation; concurrently, combining different digital technologies into investment packages generates additional synergetic effects [11].

At the same time, empirical studies warn against perceiving digital investments as an automatic factor in increasing effectiveness: a panel data analysis of 11,215 US hotels (2007-2023) showed that excessive IT expenditures without attention to employees can even worsen results [17]. This is the so-called «double-edged sword» effect [17], also referred to as the «IT paradox» [17; 18], to overcome which one must remember that technology should not replace people, but rather liberate them from routine [18]. Then, personnel will be able to dedicate more time and attention to recreationists. Thus, the purposefulness of management lies in maintaining a balance between high technologies (High-Tech) and human warmth (High-Touch), which will positively affect the experience of the recreationist.

An analysis of the transformation of the P2P accommodation market indicates a difference in consumer experience depending on the digital platform's business model. As noted by Medina-Hernandez et al., for-profit platforms (such as Airbnb) are becoming similar to hotels, where priority is given to physical amenities analogous to hotel standards. Conversely, non-profit networks (Couchsurfing, HomeExchange) are better at creating a sense of authenticity through intense interaction between the guest and the host [18]. Within the context of the recreational attractiveness model, this means that the development of the *CX* component in the digital environment must account for the social dimension of interaction, which is a powerful driver of loyalty and sustainable consumption, transforming accommodation from a technical service into an act of cultural exchange.

Active visitor management is becoming an essential tool for ensuring RC effectiveness within the twin transition. As pointed out by Bollenbach et al., the implementation of localized occupancy forecasting systems allows not only for mitigating the negative impacts of overtourism but also for optimizing the customer experience indicator, *CX*, through intelligent stream redirection [19]. To maximize the effectiveness of recreational stream management, it is advisable to utilize a strategy of spatial segmentation and simulation modeling of the visitor journey. Research by Bukhari confirms that dividing a single visitor stream into independent subgroups (partitioning) allows for neutralizing the «straggler effect», where individual delays of certain subjects cause a disproportionate decline in the effectiveness of the entire system [20]. As noted by Bukhari, it is possible to accommodate up to 39% more guests without queues or dissatisfaction [20].

4. *Purposefulness*. The principles of purposefulness are traditionally considered to include: the principle of combining rights, duties, and responsibility; the principle of private autonomy and freedom; the principle of hierarchy and feedback; the principle of motivation; the principle of management democratization; the principle of state legality; and the principle of limited

integrity of the object and subject of management. The purposefulness of the *EMERCE* mechanism is embodied in the adjustment of *EMERCE* systemic elements depending on market fluctuations, while maintaining the invariance of the core idea of enterprise effectiveness management [5].

In today's environment, this principle acquires a new dimension within the context of agile management and scenario planning: the market fluctuations of the 2020s (the pandemic, martial law, inflationary waves) have demonstrated the necessity of iterative goal adjustment without losing the strategic vector. Purposefulness also implies alignment with the United Nations Sustainable Development Goals, specifically SDG 8 (Decent Work and Economic Growth), SDG 11 (Sustainable Cities and Communities), and SDG 17 (Partnerships for the Goals), which directly reflects the green pathway of the twin transition [24; 25].

The implementation of digital and green technologies requires substantial initial investments and presupposes a high level of technological competencies, which is a more challenging task for small and medium-sized enterprises compared to large corporations [11]. Since RC enterprises in Ukraine predominantly belong to SMEs, the principle of purposefulness must account for the real financial and technological capabilities of a specific enterprise.

Changes in the cultural attitudes of Ukrainian tourists, in particular, the differing approaches to destination choice between younger and more mature segments [9], serve as an example of those market fluctuations to which *EMERCE* provides a reaction by adjusting the systemic elements of the management mechanism while keeping its core idea unchanged.

State support for the digital economy and attracting investment in human capital is recognized as one of the priority directions for Ukraine's post-war recovery [15]. For RC enterprises, this means that the implementation of the *EMERCE* purposefulness principle under twin transition conditions requires not only technological investments but also the development of personnel capable of combining digital competencies with environmental responsibility.

A comparative analysis of regulatory priorities across different countries regarding tourism SMEs demonstrates that digital transformation and sustainable development are critical in all regions, including Ukraine [4]. This aligns with the integration of the twin transition concept into the author's system of *EMERCE* principles.

Empirical studies of the hotel industry show that an enterprise's marketing agility—defined as the ability to respond rapidly to market fluctuations, reallocate resources, and adapt service processes—is an essential condition for competitiveness, particularly in an environment of accelerated technological change [14]. This confirms that the agile adjustment of *EMERCE*

systemic elements, while maintaining the invariance of the core idea, is not merely a theoretical concept but an empirically validated management practice.

Purposefulness also implies alignment with the SDGs [24]. In 2026, the critical role of SDG 12 (Responsible Consumption and Production) is added to the previously defined priorities (SDG 8, 11, 17). As evidenced by bibliometric analysis results [10], it is the alignment of research and management priorities with the objectives of SDG 12 that enables the transition from isolated pro-environmental initiatives to holistic socio-ethical strategies. For RC enterprises, this implies a transformation of the management goal: from rendering services to fostering a culture of responsible consumption, where digital tools act as a means of motivation and opportunity creation for environmental action.

A systematic review of environmentally sustainable consumer behavior in the hospitality and tourism sector [22] proves that the formulation of pro-environmental intentions is insufficient for realizing sustainable choices: a complex framework of cognitive (green image, environmental knowledge), normative (descriptive social norm, personal norm), and affective (anticipated pride and guilt) factors plays a decisive role. For the *EMERCE* purposefulness principle, this signifies the necessity of designing the customer experience (*CX*) trajectory in a way that activates behavioral mechanisms to bridge the gap between environmental attitudes and actual sustainable choices.

5. *Effectiveness*. Increasing the market value of an enterprise holds immense significance within *EMERCE*. The matters of pricing and enterprise market value are an integral part of the effectiveness management mechanism. The effectiveness of *EMERCE* must be evaluated primarily as the dynamics of the enterprise's market value [5]. Currently, the system of effectiveness indicators has expanded substantially. Alongside traditional financial metrics (ROA, ROE, EBITDA, dynamics of enterprise market value), management practice has incorporated: non-financial reporting (ESG metrics), customer satisfaction indices (NPS, CSAT), digital transformation indicators (share of online bookings, automation level), as well as indicators of resilience to external shocks (continuity rate, recovery time). The effectiveness of the twin transition is measured by an integral index that combines digital KPIs and ESG metrics.

An analysis of the drivers of environmentally sustainable consumer behavior in the hospitality and tourism sector [22] indicates that an enterprise's environmental corporate social responsibility fosters a positive image of the enterprise, while green value increases consumers' willingness to pay a premium price. This substantiates the inclusion of environmental image and green brand value metrics into traditional KPIs as components of the effectiveness of the *ESG* factor within the *RAE* model.

Empirical studies confirm the impact of *EMERCE* on Ukraine's macroeconomic indicators: a 1% increase in tourism tax revenues leads to a 5.49% growth in GDP, and the GDP elasticity with respect to investments in the operations of RC enterprises stands at 0.99 [1]. These data validate the feasibility of evaluating *EMERCE* effectiveness also through its contribution to Ukraine's GDP as an aggregated indicator of the national economy's efficiency. To monitor the twin transition of the tourism ecosystem, EU researchers have developed an online tool, the EU Tourism Dashboard, which encompasses 19 indicators grouped into specific pillars: the green transition (greenhouse gas intensity, energy intensity, water quality), the digital transition (e-commerce sales, online presence of accommodation establishments, digital skills of personnel), and socio-economic indicators (tourism contribution to GDP, seasonality, employment) [12]. This system of indicators serves as a practical foundation for operationalizing the *EMERCE* effectiveness principle: the author's *RAE* model is complemented by measurable twin transition KPIs.

According to OECD data, twin transition innovations are concentrated within the manufacturing and ICT sectors, whereas public funding for these industries—for instance, within the framework of COVID recovery packages—constituted only 4% of the total volume of support for low-carbon technologies, indicating a systemic gap between the actual needs of the transition and resource provision [3]. For RC enterprises, this implies the necessity of independently generating investment resources for the twin transition as a component of *EMERCE* effectiveness.

The management of IT asset lifecycles within the twin transition is transformed from a purely financial discipline into a tool of environmental responsibility [7, p. 283]. Therefore, it is advisable to include digital transformation and ESG reporting metrics within the effectiveness indicator system alongside financial indicators.

Innovations in the operations of RC enterprises positively impact the competitiveness of the region and the national economy as a whole [1], which aligns with the approach to *EMERCE* effectiveness as a multi-level indicator encompassing enterprise market value, GDP contribution, and digital KPIs.

To evaluate the ESG component of enterprise effectiveness, it is advisable to utilize ecological-economic efficiency metrics. In particular, study [8] proposes the Green Natural Capital (GNC) efficiency coefficient as an instrument for the comprehensive assessment of green investment impacts on the economy, society, and the environment, which accounts for the level of net income generated from each monetary unit invested in environmental protection measures in combination with digitalization factors. For RC enterprises, an adapted version of this approach can serve as an operationalization of the *ESG* factor within the *RAE* model.

Existing studies of tourism SMEs almost completely overlook the issues of resilience and managerial difficulties under crisis conditions [4], even though SMEs generate approximately half of the industry's carbon emissions and bear disproportionate risks from external shocks. This validates the justification for including the resilience component (*R*) in the *RAE* model as a distinct indicator of *EMERCE* effectiveness.

Empirical studies confirm that the marketing agility of hotel enterprises positively impacts all three customer metrics (satisfaction, perceived service quality, and loyalty), with the strongest effect recorded for loyalty [14]. Conversely, IT investments positively affect hotel operational metrics but do not always translate into net profit growth (EBITDA), which aligns with the aforementioned IT paradox [17].

We should also note the enterprise's capability to attract external financing for ESG-oriented projects as a distinct factor of effectiveness. Research on the barriers to adopting environmental sustainability in SMEs [26] proves that the lack of access to targeted financing is one of the key structural constraints for the implementation of net-zero strategies by tourism enterprises. Within the context of the author's *RAE* model, the *ESG* component and the resilience of an RC enterprise are largely determined by its ability to attract capital through innovative financial mechanisms: crowdfunding facilitates the formation of a community of loyal stakeholders, impact investing ensures long-term ESG capital, while green bonds and EU programs provide resources for the digital pathway of transformation. Thus, the fundraising capacity of an enterprise acquires independent significance as a non-financial indicator of *EMERCE* effectiveness under the conditions of the twin transition.

Conclusions, Discussion, and Research Limitations. The article theoretically substantiates that the *EMERCE* mechanism must be based on five conceptual principles: compliance with economic laws, conceptuality, systemicity, purposefulness, and effectiveness, the substantive filling of which today, compared to the previous research period, is substantially enriched through the integration of the twin transition concept. The author's 2009 concept has stood the test of time in its architecture and logic, while simultaneously receiving development in terms of the *RAE* model. The twin transition acts as a cross-cutting principle that permeates all five components of the *EMERCE* mechanism and forms a condition for the competitiveness of a recreational enterprise in the medium term.

The twin transition, as a synchronous combination of digital transformation and environmental renewal based on sustainable development [7], is not only a strategic concept but also a measurable phenomenon: the number of patented twin transition innovations grew by 9.7% annually during 2005-2020 [3; 4]. The

greatest value of this process lies in the synergy of the two pathways, which shapes fundamentally new requirements for enterprise management [7] and directly affects the substance of all five principles of the *EMERCE* mechanism.

The scientific novelty of the updated principles lies in the shift from a linear evaluation of effectiveness to an ecosystemic architecture of *EMERCE*. It has been established that the twin transition is not an additional burden but rather acts as an effectiveness driver through: reducing transaction costs (thanks to the digital *CX* pathway); increasing capitalization (through the *ESG* component); and ensuring viability (through the *R* factor). The proposed six-factor *RAE* model creates a theoretical foundation for developing intelligent decision support systems in the recreational sphere, allowing for the simulation of enterprise development scenarios under the high uncertainty conditions of 2026-2030.

Despite the theoretical significance of the results obtained, the study has a number of limitations that define opportunities for further scientific inquiry. First, the work is conceptual-analytical in nature and is primarily based on the systematization of scientific sources and a comparative analysis of management approaches. The lack of empirical verification of the updated recreational attractiveness of enterprise model (*RAE*) limits the possibility of quantitatively confirming

the interrelations between its components, particularly *ESG* indicators, digital customer experience, and resilience. Further research can be aimed at constructing econometric models, experimental designs, or panel studies to estimate the weight coefficients of factors in the multiplicative function.

Second, the article does not account for the sectoral and territorial differentiation of recreational complex enterprises, which may influence the structure and intensity of *ESG* components, digital interaction with customers, and the adaptive capabilities of enterprises. It is advisable to orient further studies toward a comparative analysis of regional recreational clusters, health resort complexes, hotel chains, and small private enterprises.

Third, the study does not cover consumer behavioral aspects within the context of the intention-behavior gap, which is critically important for the formation of recreational attractiveness. Further works may focus on empirical testing of the COM-B model in the recreational sphere, as well as studying the impact of digital reputation, social norms, and environmental motivation on the choice of recreational services.

Finally, a promising direction is the integration of fundraising, crowdfunding, and social investing tools into the effectiveness management mechanism of recreational complex enterprises, especially under the conditions of post-war recovery and limited access to traditional financial resources.

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УПРАВЛІННЯ ЕФЕКТИВНІСТЮ ПІДПРИЄМСТВ РЕКРЕАЦІЙНОГО КОМПЛЕКСУ В УМОВАХ ПОДВІЙНОГО ПЕРЕХОДУ

Предметом дослідження є концептуальні принципи механізму управління ефективністю підприємств рекреаційного комплексу. Метою статті є теоретичне обґрунтування оновлених принципів механізму управління ефективністю підприємств рекреаційного комплексу в умовах подвійного переходу (twin transition), що поєднує цифровий та зелений вектори розвитку. Методологічним підґрунтям дослідження є системний аналіз вітчизняних та зарубіжних публікацій 2023-2026 рр. у напрямках менеджменту туризму, управління підприємствами та сталого розвитку; порівняльний аналіз авторської концепції 2009р. та сучасних управлінських парадигм; методи узагальнення та наукової верифікації теоретичних положень. В результаті встановлено, що традиційна система п'яти принципів УЕПРК (відповідність економічним законам, концептуальність, системність, цілеспрямованість, результативність) зберігає методологічну архітектуру, проте потребує змістовного розширення. Запропоновано оновлену модель рекреаційної привабливості підприємства: $RAE = f(RP, Q, P, ESG, CX, R)$, де доданими показниками є ESG як екологічна та соціальна відповідальність, CX як цифровий клієнтський досвід, R як резильєнтність. Обґрунтовано, що подвійний перехід є наскрізним принципом, який трансформує зміст усіх п'яти складових механізму. Розширено систему KPI за рахунок ESG-метрик, NPS/CSAT, показників цифрової трансформації та резильєнтності. Результати можуть бути застосовані в стратегічному управлінні підприємствами рекреаційного комплексу, при розробці програм повоєнного відновлення галузі, проектуванні інтелектуальних систем підтримки управлінських рішень у рекреаційній сфері, а також в освітніх програмах з менеджменту туризму. Інтеграція концепції подвійного переходу в систему принципів управління ефективністю підприємств рекреаційного комплексу забезпечує синергетичний ефект між цифровим і зеленим напрямками, підвищує стійкість і конкурентоспроможність підприємств рекреаційного комплексу в умовах євроінтеграції та воєнного стану.

Ключові слова: національна економіка, економічна політика та стандарти ЄС, управління ефективністю, економічні закони, подвійний перехід, резильєнтність, фандрейзинг, agile-менеджмент

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