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МЕТОДИЧНІ ПІДХОДИ ДО АНАЛІЗУ КОНЦЕНТРАЦІЇ ГАЛУЗЕВОГО РИНКУ

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Анотація. У статті досліджено методичні засади оцінювання концентрації ринку курортно-рекреаційних послуг в умовах трансформації конкурентного середовища, цифровізації економіки та поширення принципів сталого розвитку. Обґрунтовано, що традиційні підходи до аналізу концентрації, які ґрунтуються переважно на оцінюванні ринкових часток суб'єктів господарювання, не забезпечують комплексного врахування галузевої специфіки функціонування курортно-рекреаційного ринку, оскільки не відображають вплив просторової локалізації підприємств, сезонної нерівномірності попиту, функціональної спеціалізації, рівня цифрової трансформації та реалізації практик сталого розвитку на формування конкурентного середовища. Метою статті є розвиток методичних підходів до оцінювання концентрації ринку курортно-рекреаційних послуг на основі розроблення комплексної системи авторських індикаторів. Методологічною основою дослідження є загальнонаукові та спеціальні методи наукового пізнання, зокрема методи теоретичного узагальнення, системного аналізу, структурно-логічного й економіко-математичного моделювання, статистичного аналізу, інтегрального оцінювання, нормування показників методом min–max та ентропійний метод визначення вагових коефіцієнтів інтегральних індексів. У результаті дослідження розроблено комплексний методичний підхід до оцінювання концентрації ринку курортно-рекреаційних послуг, який доповнює існуючий інструментарій аналізу конкурентного середовища системою спеціалізованих індикаторів. Запропоновано індикатор концентрації сезонного попиту, індикатор просторової концентрації ринку, індикатор концентрації функціональної спеціалізації підприємств, індикатор концентрації переваг сталого розвитку, індикатор концентрації цифрової трансформації. Для окремих індикаторів розроблено інтегральні індекси, сформовано системи показників їх розрахунку, обґрунтовано методичні підходи до визначення вагових коефіцієнтів, запропоновано економічну інтерпретацію результатів оцінювання. Наукова новизна дослідження полягає у розробленні комплексної системи авторських індикаторів оцінювання концентрації ринку курортно-рекреаційних послуг, яка, на відміну від існуючих підходів, забезпечує інтегроване врахування структурних, просторових, функціональних, цифрових та пов'язаних зі сталим розвитком

характеристик конкурентного середовища, що підвищує об'єктивність оцінювання процесів концентрації та розширює аналітичні можливості дослідження галузевих ринків. Практичне значення отриманих результатів полягає у можливості використання запропонованого методичного підходу органами державної влади, Антимонопольним комітетом України, органами місцевого самоврядування, адміністраціями курортних територій та суб'єктами господарювання для моніторингу концентрації ринку, оцінювання стану конкурентного середовища, обґрунтування управлінських рішень, розроблення заходів конкурентної політики та формування стратегій розвитку курортно-рекреаційної сфери в умовах цифрової трансформації та реалізації принципів сталого розвитку.

Ключові слова: антимонопольне регулювання, економічна концентрація, галузевий ринок, конкуренція, конкурентоспроможність, курортно-рекреаційна індустрія.

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METHODOLOGICAL APPROACHES TO THE ANALYSIS OF INDUSTRY MARKET CONCENTRATION

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Abstract. The article examines the methodological foundations for assessing concentration in the resort and recreational services market under the transformation of the competitive environment, the digitalization of the economy, and the diffusion of sustainable development principles. It is substantiated that traditional approaches to concentration analysis, which rest primarily on the assessment of market shares, do not adequately capture the industry-specific features of the resort and recreational services market: they fail to reflect the effects of the spatial localization of enterprises, seasonal demand fluctuations, functional specialization, the level of digital transformation, and the implementation of sustainable development practices on the formation of the competitive environment. The purpose of the study is to advance methodological approaches to assessing concentration in the resort and recreational services market through the development of a comprehensive system of original indicators. The methodological framework of the research comprises general scientific and specialized methods, including theoretical generalization, systems analysis, structural-logical and economic-mathematical modelling, statistical analysis, integrated assessment, min–max normalization of indicators, and the entropy method for determining the weighting coefficients of composite indices. The study develops a comprehensive methodological approach to assessing concentration in the resort and recreational services market that extends the existing analytical toolkit with a system of specialized indicators: the Seasonal Demand Concentration Indicator, the Market Spatial Concentration Indicator, the Functional Profile Concentration Indicator, the Sustainability Advantage Concentration Indicator, and the Digital Transformation Concentration Indicator. For selected indicators, composite indices were developed, systems of measurable variables were proposed, methodological approaches to determining weighting coefficients were substantiated, and an economic interpretation of the assessment results was provided. The scientific novelty of the research lies in the development of a comprehensive system of original indicators for assessing

concentration in the resort and recreational services market which, unlike existing approaches, provides an integrated account of the structural, spatial, functional, digital, and sustainability-related characteristics of the competitive environment, thereby improving the objectivity of concentration assessment and expanding the analytical capabilities of sectoral market research. The practical significance of the results lies in the applicability of the proposed methodological approach by public authorities, the Antimonopoly Committee of Ukraine, local governments, administrations of resort territories, and business entities for monitoring market concentration, assessing the competitive environment, supporting managerial decision-making, developing competition policy measures, and formulating strategies for the development of the resort and recreational sector under digital transformation and the implementation of sustainable development principles.

Key words: antitrust regulation, economic concentration, industry market, competition, competitiveness, resort and recreation industry.

Introduction. Ensuring the sustainable development of the national economy and enhancing the competitiveness of its regional systems depend directly on the effectiveness of the institutional environment of industry markets. Among these, the market for resort and recreational services holds particular strategic importance, as it relies on the limited and often unique natural resource potential of territories. The specificity of this market lies in the pronounced spatial localization of economic entities, high capital intensity, and considerable dependence on rent-generating factors. At the current stage of development of Ukraine's recreational sector, a systemic contradiction has emerged: the declared orientation toward building an open competitive environment collides with actual processes of latent asset consolidation, the monopolization of access to therapeutic and health-improving resources, and the formation of local oligopolistic structures.

Under these conditions, there is an acute scientific and practical need for the continuous monitoring and objective assessment of the market's structural parameters, above all its level of concentration. A high concentration of market power in the hands of a limited number of sanatorium, resort, and health-improving enterprises distorts pricing, reduces service quality, blocks innovation, and restricts the access of small and medium-sized operators to the region's recreational potential. However, the existing toolkit of antitrust regulation and the methodological approaches to delineating the boundaries and shares of industry markets are excessively uniform: they do not account for the seasonal elasticity of demand, the specific features of the resort and recreational product, or the spatial asymmetry in the location of health-improving facilities. Accordingly, the development and refinement of methodological approaches to the analysis of concentration in the industry market for resort and recreational services is a priority task in designing effective competition policy and regional development strategies for socio-economic systems.

The methodological foundations of industry market concentration analysis were laid in the studies of J. Bain and E. Mason, which established the structure–conduct–performance (SCP) paradigm [4, pp. 182–204; 17, pp. 61–74]. Their further development is associated with the empirical approach of J. Tirole, in which market structure is treated as an endogenous outcome of the strategic interaction of economic agents [26]. The assessment of market power under incomplete information rests on the concept of the New Empirical Industrial Organization (NEIO) [6, pp. 1011–1057; 25, pp. 951–1009].

The analysis of industry market concentration remains one of the central strands of modern industrial organization theory and competition policy. Whereas classical studies focused primarily on measuring the level of concentration through structural indicators, contemporary research is increasingly oriented toward a comprehensive analysis of market power, the boundaries of the relevant market, the spatial dimensions of competition, and the dynamics of business groups. A significant contribution to the modern methodology of concentration analysis has been made by S. Calligaris, C. Criscuolo, J. De Lyon, A. Greppi,

O. Pallanch, and M. Chaves, who substantiated the need to refine traditional approaches to measuring concentration by applying more disaggregated industry classifications, accounting for the geographic level of competition (local, national, European, or global), and integrating information on corporate linkages between enterprises within national and multinational business groups [7].

An important contribution to the development of empirical approaches to industry market analysis belongs to S. Berry, M. Gaynor, and F. Scott Morton, who emphasize that structural concentration indicators cannot, on their own, characterize the intensity of competition without an analysis of firm conduct, market power, marginal costs, and pricing mechanisms. In their view, modern research should combine aggregate concentration indicators with industry-specific empirical models built on microeconomic data [5].

Despite the substantial progress of recent research, most studies focus on industrial or high-technology markets. By contrast, methodological approaches to assessing the concentration of local service markets, and of resort and recreational services in particular, remain underdeveloped. This calls for improving the methodological toolkit of industry market concentration analysis to reflect the spatial localization of demand, the specific natural resource base of resort destinations, and the operational features of regional service markets.

Task statement. The purpose of the article is to improve the methodological toolkit for assessing concentration in the resort and recreational services market through the development of a system of original indicators.

The methodological basis of the study comprises general scientific and specialized research methods, including theoretical generalization, systems analysis, structural-logical modelling, economic-mathematical modelling, statistical analysis, indicator normalization, and integrated assessment. In preparing the article, the generative artificial intelligence tool Claude (Sonnet 4.6, Anthropic) was used for information retrieval and the verification of selected bibliographic sources; access to the service was provided with the financial support of the NGO “Transformation Hub”. All scientific propositions, methodological developments, analysis, interpretation of results, and conclusions are the authors’ own.

Results. An objective assessment of the structural parameters of the resort and recreational services market requires a careful systematization of the available methodological toolkit and its adaptation to the specific features of the sector. The study of the evolution of the Structure–Conduct–Performance paradigm shows that the level of concentration has traditionally served as the central indicator shaping the competitive conduct of economic entities and the performance of their activity [27].

Geospatial attachment to unique natural factors, the high capital intensity of resorts, and the rigid capacity constraints of balneological and climatic resort destinations substantially distort classical market signals, creating specific barriers to the entry of new market participants. In current conditions, the methodological discourse on competitive environment analysis and market power assessment is shifting from the mere statement of market shares toward the study of structural asymmetry and institutional traps in the regulation of competitive relations in the resort and recreational services market [13].

According to the Methodology for Determining the Product Market and the Monopoly (Dominant) Position of Economic Entities in It, approved by the Antimonopoly Committee of Ukraine on 11 June 2026 [2, pp. 14–17], the assessment of market structure is based on a system of interrelated indicators characterizing market volume, the market shares of economic entities, and the level of concentration.

The volume of the market in which a monopoly (dominant) position is determined is defined as the total volume of goods circulating in the market, Eq. (1):

$$Q_{PT} = \sum_{j=1}^n Q_j \quad (1)$$

where n is the number of economic entities selling or purchasing the goods (product groups) that fall within the product boundaries of the market; Q_j is the volume of goods (product groups) sold or purchased by the j -th economic entity during the period constituting the temporal boundaries of the market; Q_{PT} is the market volume.

The market share of an economic entity is calculated according to Eq. (2):

$$P_j = \frac{Q_j}{Q_{PT}} \cdot 100 \quad (2)$$

where P_j is the market share of the j -th economic entity ($j = 1, 2, \dots, n$), %.

The combined market share of several economic entities – in particular, of the five, four, three, or two largest – is calculated according to Eq. (3):

$$SP_n = \sum_{j=1}^m P_{n_j} \quad (3)$$

where $m = 2, 3, 4, 5$ is the number of economic entities whose shares are included in the calculation – in particular, the entities holding the five, four, three, or two largest market shares; P_{n_j} is the market share of the j -th economic entity; SP_n is the combined market share of, respectively, the five, four, three, or two entities with the largest market shares.

The principal indicators for assessing the level of market concentration are the concentration ratio (CR $_n$) and the Herfindahl-Hirschman Index (HHI) [2, p. 16].

In Ukraine, the procedure for identifying the dominant position of economic entities is regulated by Article 12 of the Law of Ukraine “On the Protection of Economic Competition” on the basis of institutional conditions (the absence or weakness of competition) and quantitative criteria (threshold values of CR1, CR3, and CR5) [21]. Table 1 summarizes the normative principles for determining the dominant position of economic entities in the national economy.

Table 1

Criteria for determining the dominant position of economic entities in Ukraine

Threshold values	Institutional conditions	Identification criteria
CR1 > 35%	Unless it is proven that competition is significant	The position of an economic entity whose share ... exceeds 35% is deemed to be a monopoly ... unless it proves that it faces significant competition” (Art. 12(2))
CR1 ≤ 35%	Competition is practically absent or insignificant	“... may be recognized ... if ... the share ... is 35% or less, but the entity does not face significant competition” (Art. 12(3))
CR3 > 50%	It has not been proven that competition exists	“the combined share of no more than three economic entities ... exceeds 50%” (Art. 12(5))
CR5 > 70%	There is no evidence of competition	“the combined share of no more than five economic entities ... exceeds 70%” (Art. 12(5))

Source: compiled by the authors on the basis of Article 12 of the Law of Ukraine “On the Protection of Economic Competition” of 11 January 2001, No. 2210-III [21].

For the resort and recreational services market, the concentration ratio is of particular practical importance, as it makes it possible to assess the degree of dominance of the largest economic entities within individual resorts, including those holding state or local resort status. High values of the indicator may point to the concentration of the bulk of demand and supply

among a small number of entities, which creates preconditions for the strengthening of their market power, the raising of entry barriers, and the constraining of the competitive environment.

The HHI is a widely recognized measure of concentration that reflects the market shares of economic entities relative to the industry market in which they operate [10].

The methodological guidance of the Antimonopoly Committee of Ukraine notes that the HHI “measures the concentration and symmetry of the market” and is calculated according to Eq. (4):

$$HHI = S^2_1 + S^2_2 + \dots + S^2_i \quad (4)$$

where S_i is the market share of an economic entity.

The Herfindahl–Hirschman Index is applied as one of the principal tools for analyzing the competitive environment and assessing the level of market concentration. The HHI thresholds established in the Merger Guidelines of the U.S. Department of Justice and the Federal Trade Commission of 18 December 2023 define the criteria for assessing market concentration and serve as a basis for identifying potential risks of reduced competition (Table 2) [29].

Table 2

**Herfindahl-hirschman index thresholds
in the United States**

Indicator	Threshold value
Post-merger HHI	Market HHI above 1,800
	Change in HHI above 100
Market share of the merged firm	Above 30%
	Change in HHI above 100

Source: compiled by the authors on the basis of the Merger Guidelines of the U.S. Department of Justice and the Federal Trade Commission of 18 December 2023 [29].

A comparative analysis of HHI values serves as an important criterion for identifying types of market structures: a high level of concentration corresponds to monopoly, a strong level of concentration to oligopoly, and a low level of concentration to a competitive market.

In the Guidelines on the Assessment of Horizontal Mergers under the Council Regulation on the control of concentrations between undertakings (2004/C 31/03), the HHI is used as a tool for identifying potential risks to the competitive environment arising from horizontal mergers and acquisitions. Under these guidelines, a market with an HHI below 1,000 is considered unconcentrated, indicating a sufficient level of competition and the absence of significant barriers for new entrants. HHI values between 1,000 and 2,000 characterize the market as moderately concentrated and call for heightened regulatory attention in the assessment of merger transactions. An HHI above 2,000 indicates a high level of concentration, which may lead to the emergence or strengthening of a dominant position of individual economic entities. The provisions on the merger-induced increment in the HHI are also noteworthy: a delta exceeding 250 points in a moderately concentrated market, or exceeding 150 points in a market with an HHI above 2,000, warrants particular attention from competition authorities, as such changes may materially affect the state of competition by restricting it and strengthening the market power of the merged company [14].

Thus, in EU regulatory practice the HHI serves not only as an indicator of the current state of the market but also as an important criterion for forecasting the possible adverse effects of concentration, which is essential for protecting the competitive environment and the stable development of the economy.

The recommendation clarifications of the Antimonopoly Committee of Ukraine formulate approaches to assessing the level of concentration using the HHI. In particular, a market is considered unconcentrated if the HHI does not exceed 1,000 points, moderately concentrated within the range of 1,000 – 2,000 points, and highly concentrated if the HHI exceeds 2,000 points [20]. At the same time, the AMCU emphasizes that the calculation of the HHI is only one component of a comprehensive analysis of the state of competition: in each specific case, the index value is assessed in combination with other indicators and factors that may affect the competitive environment. The AMCU has also developed a draft Methodology for Calculating the Competitive Environment Monitoring Index, which reflects the regulator's shift toward the systematic monitoring of the state of competition in industry markets [1].

According to the Methodology approved by the Antimonopoly Committee of Ukraine on 11 June 2026 [2, p. 17], the HHI is used as one of the basic tools for assessing the level of market concentration. The analysis of its dynamics makes it possible to evaluate structural changes in the competitive environment: an increase in the HHI signals intensifying market concentration and a potential restriction of competition, whereas its decline points to the development of competitive relations and a rising intensity of competition.

The problem of the adequacy of market concentration measures is highlighted by T. Kvålseth, who draws attention to the fact that widely used indicators, including the concentration ratio and the HHI, do not always possess the value-validity property [16].

One of the characteristic features of the resort and recreational services market is the pronounced seasonal unevenness of demand. Unlike most product markets, where the structure of market shares is relatively stable throughout the year, in the resort and recreational sector the concentration of demand changes substantially with seasonal fluctuations in tourist flows, so that the competitive structure is significantly transformed over the course of the year. In periods of peak demand, large enterprises and chain resort hotels tend, as a rule, to expand their sales volumes faster than small entities, thereby strengthening their market power. Classical structural indicators of concentration (CR_n, HHI) capture the distribution of market shares at a given point in time or over a reporting period, but they do not reflect changes in the competitive structure driven by seasonal demand fluctuations.

To complement the traditional toolkit of concentration analysis in the resort and recreational services market, we propose the Seasonal Demand Concentration Indicator (SDCI), which characterizes the degree of concentration of additional seasonal demand among economic entities and is calculated according to Eq. (5):

$$SDCI = \sum_{i=1}^n \left(\frac{\Delta Q_i}{\sum_{i=1}^n \Delta Q_i} \right)^2 \quad (5)$$

where *SDCI* is the seasonal demand concentration indicator; ΔQ_i is the seasonal increment in the volume of resort and recreational services sold by the *i*-th economic entity; *n* is the number of economic entities in the market under study.

The seasonal increment in sales volume is defined as the difference between the volumes of resort and recreational services sold in the high and low seasons, Eq. (6):

$$\Delta Q_i = Q_i^H - Q_i^L \quad (6)$$

where Q_i^H is the volume of services sold by the *i*-th economic entity in the high season; Q_i^L is the volume of services sold by the *i*-th economic entity in the low season.

The economic meaning of the proposed indicator lies in measuring the degree of concentration of the seasonal increment in demand. If additional demand is distributed

relatively evenly among all enterprises, the value of the index approaches its minimum. Conversely, the concentration of the greater part of the seasonal increment in one or a few enterprises drives the indicator upward, signalling the strengthening of their competitive advantages in the period of peak demand. The value of the SDCI varies within $1/n \leq SDCI \leq 1$: the minimum corresponds to a uniform distribution of the seasonal increment among all market participants, and the maximum to a situation in which the entire additional demand is concentrated in a single economic entity.

A further specific feature of the resort and recreational services market is the spatial localization of demand according to the attractiveness of resort destinations. Proximity to the central mineral water pump room, the beach zone, therapeutic complexes, or the tourist core significantly influences consumer choice and the occupancy levels of resort and recreational enterprises. Accordingly, the competitive advantages of enterprises are determined not only by their market share or scale of operations but also by their location relative to the key natural, recreational, therapeutic, infrastructural, cultural, or other landmark facilities of the resort destination.

To account for the spatial factor, we propose using the Market Spatial Concentration Indicator (MSCI), which characterizes the spatial concentration of firms' market shares, taking into account their distance from the central core of the resort destination and the spatial value of the area in which they are located, Eq. (7):

$$MSCI = \sum_{i=1}^n \frac{P_i V_i}{D_i} \quad (7)$$

where *MSCI* is the market spatial concentration indicator; P_i is the market share of the *i*-th firm, expressed as a fraction of one; V_i is the spatial value coefficient of the location of the *i*-th firm; D_i is the distance from the firm to the core of the resort destination, in meters; *n* is the number of firms.

The value of V_i is determined in accordance with the regulatory classification of resort areas based on sanitary protection zone regimes, as set forth in Articles 30 – 33 of the Law of Ukraine “On Resorts” [22], and reflects the spatial value of the territory where the enterprise is located. Its value reflects the relative spatial value of the territory where the enterprise is located, taking into account the established regime for its use. A higher level of spatial value corresponds to areas where the concentration of resort and recreational activities has greater functional and competitive significance. The central core of the resort destination is used as the reference point for determining D_i . Since enterprises are not located directly within the central core (strict-regime zone), $D_i > 0$ for all objects under analysis.

In market conditions, resort and recreational enterprises operate either as multi-profile treatment and rehabilitation complexes or as narrowly specialized establishments focused on particular nosologically groups or areas of medical rehabilitation [24]. With identical market shares, the degree of functional specialization of resort and recreational enterprises may differ substantially, which directly affects the structure of competition. Accordingly, the competitive advantages of enterprises are determined not only by their market share but also by the range of therapeutic and health-improving services they provide. Even under a relatively competitive market structure, individual functional areas may be represented by a limited number of economic entities, giving rise to latent functional concentration. To assess this dimension, we propose the Functional Profile Concentration Indicator (FPCI), which simultaneously accounts for the market power of enterprises and the degree of dominance across the functional profiles of resort and recreational services, Eq. (8):

$$FPCI = 1 - \sum_{i=1}^n P_i \frac{V_i}{V_{max}} \quad (8)$$

where $FPCI$ is the indicator of the concentration of functional profiles of resort and recreational activity in the relevant market; P_i is the market share of the i -th enterprise (in fractions of unity); V_i is the number of functional profiles of therapeutic and health-improving services actually provided by the i -th enterprise; V_{max} is the maximum number of functional profiles according to the adopted classification; n is the number of enterprises in the market under study.

The proposed indicator characterizes the degree of concentration of the functional specialization of enterprises with due regard to their market weight. The results are interpreted as follows: $0 \leq FPCI \leq 1$; $FPCI \rightarrow 0$ indicates a low concentration of functional profiles and a high level of their diversification; $FPCI \rightarrow 1$ indicates a high concentration of functional profiles, pointing to the dominance of a limited number of enterprises in specialized segments of the resort and recreational services market.

In defining the functional profiles of the resort and recreation industry, it is advisable to rely on the official classification approaches enshrined in the regulatory framework [18; 19; 22] and in the institutional support of medical rehabilitation and sanatorium-resort treatment in the form of standards [3].

In the transition to a sustainable development model, the competitiveness of resort and recreational enterprises is increasingly determined by the extent to which environmental, social, and governance practices are implemented. The uneven diffusion of such practices creates additional competitive advantages that may substantially affect market structure and strengthen the market positions of individual economic entities. To assess the degree of concentration of these advantages, we propose the Sustainability Advantage Concentration Indicator (SACI), the model of which is given in Eq. (9):

$$SACI = \sum_{i=1}^n P_i \cdot IV_{sd,i} \quad (9)$$

where $SACI$ is the sustainability advantage concentration indicator; P_i is the market share of the i -th enterprise (in fractions of unity); $IV_{sd,i}$ is the integral sustainable development vector of the i -th enterprise; n is the number of enterprises.

To ensure the objectivity of the assessment, the integral sustainable development vector IV_{sd} is formed on the basis of a system of standardized indicators characterizing the environmental, social, and governance components of enterprise activity, in line with international approaches to sustainability assessment. The list of indicators recommended for calculating IV_{sd} is given in Table 3.

All indicators are subject to preliminary min–max normalization, which brings them to a common dimensionless [0; 1] scale. The weighting coefficients are determined by the entropy weight method [8], which ensures the objective consideration of the informational significance of each indicator and minimizes the subjectivity of expert judgement.

Since the value of the $SACI$ depends directly on the level of sustainable development of each enterprise, the next step is to determine the integral sustainable development vector, whose conceptual model is given in Eq. (10):

$$IV_{sd,i} = \sum_{j=1}^m w_j x_{ij} \quad (10)$$

where $IV_{sd,i}$ is the integral sustainable development vector of the i -th enterprise; x_{ij} is the normalized value of the j -th sustainable development indicator of the i -th enterprise; w_j is the weighting coefficient of the j -th indicator, determined by the entropy weight method under the condition $\sum w_j = 1$; m is the number of sustainable development indicators included in the calculation.

For the SACI, the condition $0 \leq \text{SACI} \leq 1$ holds. $\text{SACI} \rightarrow 0$ means that competitive advantages in the field of sustainable development are distributed evenly among economic entities; $\text{SACI} \rightarrow 1$ means that sustainability advantages are concentrated in a limited number of enterprises, indicating the strengthening of their long-term competitive positions and the concentration of sustainable development potential in the resort and recreational services market.

Table 3

**Set of indicators for calculating
the integral sustainable development vector**

Indicator	Notation	Normalization	Institutional basis
Environmental component			
Share of renewable energy sources in energy use	x1	min–max	SDG 7; GRI 302
Specific energy consumption	x2	min–max	GRI 302
Specific water consumption	x3	min–max	GRI 303
Share of recycled (recovered) waste	x4	min–max	GRI 306
Social component			
Share of employees who completed professional training	x5	min–max	GRI 404
Accessibility of services for persons with reduced mobility	x6	min–max	GSTC D2
Governance component			
Environmental certification (ISO 14001, Green Key, etc.)	x7	0/1	GSTC A9
Share of investment in environmental protection measures	x8	min–max	SDG 12

Source: developed by the authors on the basis of *Transforming Our World: The 2030 Agenda for Sustainable Development* [28], the *GRI Universal Standards (GRI 1, GRI 2, GRI 3)* [11], the *GSTC Criteria and the SDGs* [12], and *ISO 14001:2026 Environmental Management Systems* [15].

The proposed SACI thus characterizes the degree of concentration of competitive advantages in the field of sustainable development with due regard to the market weight of enterprises. Unlike integral sustainability assessments of individual economic entities, the SACI makes it possible to evaluate the concentration of sustainable development potential across the resort and recreational services market as a whole.

Digital transformation is one of the key drivers of the competitiveness of resort and recreational enterprises. The use of digital technologies changes the mechanisms of interaction with consumers, improves managerial efficiency, expands sales channels, and creates new sources of competitive advantage. However, the level of digital maturity varies considerably across enterprises, leading to the concentration of digital capabilities among a subset of market participants.

To assess the degree of concentration of digital competitive advantages in the resort and recreational services market, we propose the Digital Transformation Potential Indicator (DTPI), whose mathematical model is presented in Eq. (11):

$$DTPI = \sum_{i=1}^n P_i \cdot DDI_i \quad (11)$$

where DTPI is Digital Transformation Potential Indicator; P_i is market share of the i -th enterprise; DDI_i is integral digital development index of the i -th firm; n is number of enterprises.

The DTPI value is defined as the sum of the integrated digital development indices of enterprises, weighted by their market shares. Higher DTPI values indicate a higher overall level of digital development among the enterprises that make up the market. The next step is to calculate the DDI, which is derived from a system of standardized indicators of digital transformation for enterprises in the resort and recreation sector using Eq. (12):

$$DDI_i = \sum_{j=1}^m w_j d_{ij} \quad (12)$$

where DDI_i is the integral digital development index of the i -th enterprise; d_{ij} is the normalized value of the j -th digital development indicator; w_j is the weighting coefficient of the j -th indicator, determined by the entropy weight method; m is the number of digital development indicators.

The list of indicators recommended for forming the integral digital development index is given in Table 4. The system of indicators is based on international methodological approaches to assessing digital transformation, in particular the OECD recommendations, the Digital Economy and Society Index (DESI) methodology, the WHO Global Strategy on Digital Health, and the United Nations E-Government Survey [23; 9; 31; 30].

Table 4

System of indicators for calculating the integral digital development index of an enterprise

Component	Indicator	Notation
Digital services	Online booking of services	$d1$
	Online payment for services	$d2$
Management	Use of CRM systems	$d3$
	Electronic document management	$d4$
Marketing	Share of online sales	$d5$
	Use of digital marketing	$d6$
Medical technologies	Telemedicine consultations	$d7$
Data analytics	Use of Business Intelligence and AI systems	$d8$

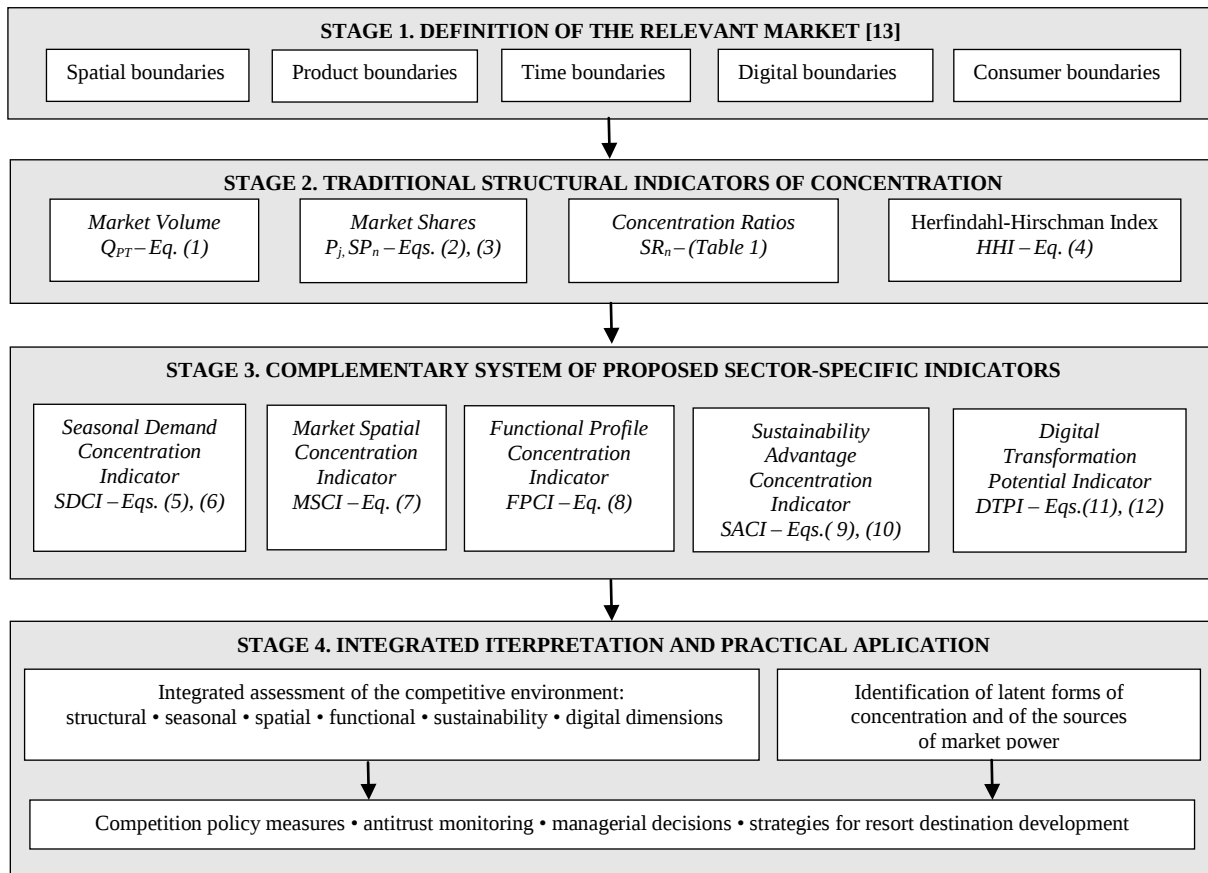
Source: developed by the authors on the basis of the OECD methodological recommendations on measuring digital transformation [23], the DESI index of the European Commission [9], the WHO Global Strategy on Digital Health 2020–2027 [31], and the United Nations E-Government Survey methodology [30].

The indicators are normalized by the min–max linear transformation, which brings variables of different dimensions to a common [0; 1] scale, while the weighting coefficients are determined by the entropy weight method, ensuring the objective consideration of the informational significance of each indicator and minimizing the subjectivity of expert judgement.

To generalize the proposed methodological approaches to improving the informational support of concentration analysis in the industry market for resort and recreational services and to reflect the logical sequence of its implementation, a structural-logical framework of the study was developed (Fig. 1).

The proposed structural-logical framework reflects the interrelation between the stages of industry market concentration analysis and demonstrates the place of the authors' system of indicators in the comprehensive assessment of the competitive environment. Unlike traditional approaches, the proposed methodological approach ensures the integrated consideration of the seasonal, spatial, functional, digital, and sustainability-related characteristics of the market, which improves the validity of the analytical results and

broadens the possibilities for their practical use in designing competition policy and making managerial decisions.



*Fig. 1. Structural-logical framework for the analysis of industry market concentration
Source: developed by the authors.*

Conclusions. The study has shown that traditional approaches to assessing the concentration of industry markets, based predominantly on market share indicators, do not provide a comprehensive account of the specific features of the resort and recreational services market. Spatial localization, the seasonality of demand, the functional specialization of enterprises, the implementation of sustainable development principles, and digital transformation create additional drivers of concentration that remain outside the scope of the traditional toolkit of competitive environment analysis.

As a result of the research, methodological approaches to assessing concentration in the resort and recreational services market have been advanced through the development of a comprehensive system of original indicators. The proposed toolkit comprises the Seasonal Demand Concentration Indicator, the Market Spatial Concentration Indicator, the Functional Profile Concentration Indicator, the Sustainability Advantage Concentration Indicator, and the Digital Transformation Concentration Indicator. Unlike existing approaches, the proposed system provides a comprehensive assessment of the structural characteristics of the resort and recreational services market and captures the contemporary drivers of competitive advantage.

The scientific novelty of the study lies in the development of a comprehensive methodological approach to assessing concentration in the resort and recreational services market that integrates traditional concentration measures with an original system of specialized indicators, thereby enabling a more objective assessment of the structure of the

competitive environment, the identification of latent forms of concentration, and the enhancement of the informational support for the analysis and oversight of industry markets.

The practical significance of the proposed methodological approaches to improving the analysis and control of concentration in the resort and recreational services market lies in their applicability by public authorities, the Antimonopoly Committee of Ukraine, local governments, administrations of resort territories, and business entities for monitoring market concentration, assessing the intensity of competition, substantiating managerial decisions, and designing competition policy in the resort and recreational sector.

Prospects for further research are related to testing the proposed system of indicators on local, regional, and national markets for resort and recreational services.

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