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IMPROVING THE MANAGEMENT MECHANISMS OF TOURISM DIVERSIFICATION THROUGH MANAGEMENT INFORMATION SYSTEMS

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Abstract: This article analyzes the issues of improving the mechanisms for managing the diversification of tourism types through the means of Modern Management Information Systems. The study is based on global trends in tourism, statistics for the period 2020–2024 and the economic and strategic importance of the diversification process on the example of national practice. Diversification of tourism types has been considered as an important factor in sustainable development, risk reduction and increased competitiveness. Also scientifically justified is the need to manage diversification in the context of digital transformation of tourism on the basis of a portfolio approach. The results of the study show that the introduction of an information-based management model in the field of Tourism serves to ensure sustainable economic growth.

Keywords: tourism, diversification of tourism types, Management Information Systems, Digital Transformation, tourist flow, strategic management, sustainable development, investment efficiency, competitiveness, tourism portfolio.

Annotatsiya: Mazkur maqolada turizm turlarini diversifikatsiyalashni boshqarish mexanizmlarini zamonaviy boshqaruv axborot tizimlari vositasida takomillashtirish masalalari tahlil qilingan. Tadqiqotda turizm sohasidagi global tendensiyalar, 2020–2024-yillar davomidagi statistik ma’lumotlar hamda milliy amaliyot misolida diversifikatsiya jarayonining iqtisodiy va strategik ahamiyati asoslangan. Turizm turlarini diversifikatsiyalash barqaror rivojlanish, risklarni kamaytirish va raqobatbardoshlikni oshirishning muhim omili sifatida ko’rib chiqilgan. Shuningdek, turizmni raqamli transformatsiya qilish sharoitida diversifikatsiyani portfel yondashuvi asosida boshqarish zarurligi ilmiy jihatdan asoslangan. Tadqiqot natijalari turizm sohasida axborotga asoslangan boshqaruv modelini joriy etish barqaror iqtisodiy o’sishni ta’minlashga xizmat qilishini ko’rsatadi.

Kalit so’zlar: turizm, turizm turlarini diversifikatsiyalash, boshqaruv axborot tizimlari, raqamli transformatsiya, turistlik oqim, strategik boshqaruv, barqaror rivojlanish, investitsiya samaradorligi, raqobatbardoshlik, turizm portfeli.

Аннотация: В данной статье проанализированы вопросы совершенствования механизмов управления диверсификацией видов туризма средствами современных информационных систем управления. Исследование основано на глобальных тенденциях в сфере туризма, статистических данных за 2020–2024 годы, а также экономической и стратегической важности процесса диверсификации на примере национальной практики. Диверсификация видов туризма рассматривалась как важный фактор устойчивого развития, снижения рисков и повышения конкурентоспособности. Также научно обоснована необходимость управления диверсификацией на основе портфельного подхода в условиях цифровой трансформации туризма. Результаты исследования показывают, что внедрение информационно-ориентированной модели управления в сфере туризма способствует обеспечению устойчивого экономического роста.

Ключевые слова: туризм, диверсификация видов туризма, информационные системы управления, цифровая трансформация, турпоток, стратегическое управление, устойчивое развитие, эффективность инвестиций, конкурентоспособность, портфель туризма.

INTRODUCTION

Over the past decades, tourism has emerged as one of the strategic sectors of the global economy. It plays a significant role in increasing gross domestic product, boosting foreign exchange earnings, creating new jobs, and ensuring comprehensive regional development. Particularly in the context of the growing importance of the service sector, tourism is considered a stable source of economic growth. At the same time, the tourism industry is closely interconnected with other sectors—transport, trade, agriculture, construction, culture, and information technologies—thus generating a strong

multiplier effect.

Global economic transformations, the rapid development of digital technologies, changes in consumer behavior, and intensifying international competition have brought the tourism sector to a new stage of development. Today's tourists demand not only recreation but also new experiences, personalized services, environmental safety, and cultural authenticity. This has objectively necessitated the modernization of tourism products and the diversification of tourism types.

From an economic perspective, diversification of tourism types allows for risk reduction, adaptation to changes in market conditions, and stabilization of tourist flows throughout the year. For instance, regions that rely solely on seasonal tourism often face limited income sources. However, if additional sectors such as agrotourism, pilgrimage tourism, or medical tourism are developed, the impact of seasonality decreases and economic efficiency improves. Therefore, diversification serves as a strategic tool for ensuring sustainable tourism development.

However, diversification of tourism types is not limited to the introduction of new services. This process requires comprehensive analysis, assessment of resource potential, study of market demand, evaluation of investment efficiency, and coordination of institutional mechanisms. If these processes are not scientifically grounded, achieving the expected economic outcomes becomes difficult.

In practice, decision-making in the tourism sector often lacks sufficient information support. Data on tourist flows are fragmented, analyses are conducted using rudimentary methods, and forecasting lacks accuracy. This reduces the quality of strategic planning. Especially in long-term decisions such as diversification of tourism types, the completeness and reliability of information are of critical importance.

From this perspective, management information systems (MIS) play a central role in tourism management. Through MIS, it becomes possible to centralize data, conduct real-time monitoring, utilize analytical models, and perform scenario-based forecasting. Digital platforms enable efficient information exchange among tour operators, hotels, transport companies, and government bodies. This ensures a systematic and transparent management of the diversification process.

Today, within the framework of the "digital economy" concept, the digitalization of the tourism sector has become one of the priority tasks. Big Data, artificial intelligence, geographic information systems, and business analytics tools open up new opportunities for tourism management. These technologies allow forecasting tourist demand, identifying target segments, optimizing marketing strategies, and substantiating investment decisions.

At the same time, comprehensive scientific research on improving the management mechanisms of tourism diversification based on information systems remains insufficiently developed. In many cases, diversification and information systems are studied separately, and their interconnection is not analyzed in depth.

Currently, tourism is recognized as a sector that generates high added value, recovers quickly, and has a strong multiplier effect in the global economy. It develops in close interaction with industry, transport, communication, trade, agriculture, and the service sector. Therefore, any institutional or technological change in tourism has an impact on the entire economy. In particular, diversification of tourism types is an important mechanism for stimulating economic growth, increasing export potential, and creating new jobs.

The relevance of this topic is primarily explained by the high uncertainty and volatility in the tourism market. The pandemic period clearly demonstrated the sensitivity of the tourism sector to external factors. Countries that relied mainly on international tourism suffered significant economic losses when travel restrictions were introduced. In contrast, regions that diversified tourism types and developed domestic tourism recovered economic stability more quickly. This highlights the importance of diversification as a tool for mitigating strategic risks.

At the same time, the structure of modern tourist demand is rapidly changing. Today, tourists pay greater attention to environmental sustainability, safety, personalized services, and digital convenience. Online booking, electronic payments, and mobile service applications have become standard practice. If the tourism sector fails to effectively utilize digital technologies and information systems, it risks falling behind in competition. Therefore, integrating diversification management with digital information infrastructure is an urgent task.

Another factor determining the relevance of this topic is the issue of regional imbalance. Tourist flows are often concentrated in specific centers, leading to excessive infrastructure load and the overexploitation of natural resources. Meanwhile, other regions fail to fully utilize their potential. Through diversification of tourism types and the introduction of new destinations, it is possible to balance tourist flows across regions. This, however, requires comprehensive information analysis and effective management mechanisms.

Problems related to information provision also increase the relevance of this topic. In practice, tourism statistics are maintained separately across different institutions and organizations. The speed of data updates is low, and analytical capabilities are limited. Under such conditions, strategic decisions on diversification may not be based on complete information. Management information systems, in contrast, enable data centralization, automated analysis, and forecasting, thereby improving the quality of decision-making.

The intensification of competition in the tourism market, the growth of external risks, changes in consumer demand, regional imbalance issues, digital transformation processes, and sustainability requirements make the improvement of tourism diversification management mechanisms an urgent task. Addressing this task effectively requires the implementation and comprehensive use of modern management information systems.

REVIEW OF LITERATURE ON THE SUBJECT

The issue of managing the diversification of tourism types and improving it through management information systems (MIS) emerges at the intersection of two directions: strategic management and diversification theory; and digital transformation in tourism, information systems, and decision support concepts (DSS/BI). A critical analysis of existing literature shows that these two directions have often been studied separately, while the mechanism of “operational-analytical” management of diversification through information systems remains insufficiently explored in a comprehensive manner.

The classical theoretical foundation of diversification was established in the works of A. Ansoff. In his work *Corporate Strategy*, he systematizes growth strategies along the product-market axis and interprets diversification as a high-risk but high-opportunity strategy involving new product–new market combinations. From this perspective, Ansoff’s approach provides a strategic basis for assessing the relationship between new tourism types (such as ecotourism, agrotourism, MICE, and medical tourism) and new segments (such as individual tourists inclined toward the “experience economy”). [1] However, the limitation of the Ansoff model lies in the fact that it conceptually identifies “which option to choose” but does not detail the mechanisms of “how to manage the choice in practice based on specific data, monitoring systems, and KPIs.” Therefore, managing tourism diversification through MIS appears as a practical-methodological step that fills this gap.

M. Porter’s approaches to competitive strategy (industry analysis, competitive forces, differentiation) make it possible to justify tourism diversification from the perspective of “competitive value proposition.” In tourism, diversification often means not “more types,” but rather “better experiences for specific segments.” According to Porter’s logic, for a new tourism type to be successful, it must ensure: a distinct consumer value; an effective supply chain (logistics, human resources, service standards); and superiority in the price-quality ratio. However, although Porter’s framework is strong at the macro level, it does not address how to systematically provide micro-operational decisions (such as real-time management of bookings, occupancy, flows, and seasonality) with structured information systems.[2] Consequently, without integrating Porter’s industry analysis with MIS, there is a high risk that decisions will remain “static” (based on one-time analysis).

One of the fundamental sources on digitalization in tourism is D. Buhalis’s work *eTourism*. The author demonstrates, through scientific and practical examples, how information and communication technologies (ICT) fundamentally transform the tourism value chain, including distribution channels, booking systems, marketing, and destination management processes. The strength of Buhalis’s approach lies in viewing tourism as a “highly information-dependent industry” and interpreting information systems as a source of competitive advantage.[3] However, within the context of its time (2003), the focus is mainly on electronic distribution and ICT infrastructure; in today’s data-driven environment (Big Data, AI, real-time dashboards), the analytical management mechanisms of diversification require broader modeling.

Reports by international organizations provide an institutional and policy-level justification for digital transformation in tourism. For example, the OECD emphasizes that digitalization affects business models, marketing, product development, and destination management, while also highlighting challenges such as uneven digital maturity among SMEs, legacy systems, and limited workforce competencies.[4] These insights indicate that implementing MIS in tourism diversification management is not merely a technological upgrade but a comprehensive reform involving human capital, standards, data governance, and cybersecurity.

Similarly, materials from UN Tourism (UNWTO) promote the idea of making tourism “smarter” by enhancing competitiveness through innovation and digital transformation. A key critical point here is that international reports often define “what should be done” at the macro level, but do not sufficiently detail “how to do it” (i.e., MIS architecture, data models, KPIs, integration protocols) tailored to specific national or regional contexts.[5] Therefore, it is necessary for national-level research to develop practice-oriented models adapted to local conditions.

In explaining the theoretical foundations of management information systems, the work *Management Information Systems: Managing the Digital Firm* by K. Laudon and J. Laudon is of particular importance. It elaborates on the role of MIS in the decision-making cycle, business analytics, databases, corporate integration (ERP/CRM), and information support across different management levels. When applied to tourism diversification, this approach leads to an important methodological conclusion: effective diversification management requires a unified KPI system across strategic, tactical, and operational levels, as well as a continuous “data–analysis–decision–monitoring” loop.[6] However, in practice, especially among small tourism enterprises, fragmented and unstandardized data make it difficult to implement such integrated systems in a single stage. Therefore, research should justify phased implementation scenarios (data governance → integration → analytics → forecasting).

Understanding segment-specific characteristics is essential for effective tourism diversification. For example, in the field of pilgrimage and religious tourism, the work *Tourism, Religion and Spiritual Journeys*, edited by D. Timothy and D. Olsen, explores the motivations, experience design, and complex factors influencing destination planning in this segment. This source emphasizes that tourism diversification should not be approached simply as “having resources, therefore creating a product,” but rather as a process driven by demand psychology and service design.[7] However, even in such thematic studies, management instruments directly linked to MIS remain underdeveloped. In this regard, integrating the

development of thematic tourism types (such as pilgrimage, ecotourism, and gastronomic tourism) with MIS architecture remains a relevant scientific challenge.

In Uzbekistan, the number of studies devoted to the development of tourism and its sustainable management has increased in recent years. For example, in the monograph *“Prospects for Tourism Development in Uzbekistan”*, S. Khalilov examines competitive advantages in the national tourism sector, marketing approaches, tour operator activities, and the product life cycle.[8]

Within the local academic environment, studies directly addressing the impact of digital transformation on tourism enterprise management are also emerging. In the works of M. Mamanov published in 2026, PMS/CRM systems, big data, and artificial intelligence tools are analyzed as factors that enhance the efficiency of tourism enterprises. A key strength of this research is its focus on the practical value of digital instruments, particularly in improving service quality and competitiveness. However, a critical limitation is that, due to the constraints of the article format, the technical and organizational framework necessary for managing diversification—such as “data model + KPI + integration map”—is not fully elaborated. Therefore, it is advisable for future research to focus specifically on developing this framework.[9]

Additionally, studies closely related to tourism practice in Uzbekistan—such as those on pilgrimage tourism, domestic tourism, and the impact of the pandemic (for instance, dissertation research mentioning initiatives to implement electronic information systems)—highlight the growing need for digitalization in the sector.[10] However, even in these works, the “analytical management” function of MIS in supporting diversification (including portfolio management, scenario-based forecasting, and automated evaluation of investment priorities) often remains at the level of general observations.

Based on the above analysis, foreign literature effectively substantiates the strategic logic of diversification and the trends of digitalization in tourism, while local literature highlights the specific features of the national market, as well as marketing and management challenges. Nevertheless, a key gap remains: the specific mechanism for managing tourism diversification through MIS—encompassing data architecture, integration, KPI systems, analytical models, and monitoring with feedback loops—has not been sufficiently systematized.

RESEARCH METHODOLOGY

The study employs methods such as system analysis, historical and logical approaches, induction and deduction, analysis and synthesis, comparative and selective research, as well as monographic analysis and grouping, to improve the management mechanisms of tourism diversification through management information systems.

ANALYSIS AND RESULTS

In the context of the digital economy, technologies such as Big Data, artificial intelligence, geographic information systems, and business analytics tools are creating new opportunities for tourism management. For example, by monitoring tourist flow dynamics in real time, analyzing tourist behavior, and generating demand forecasts, it becomes possible to make precise and well-grounded decisions regarding the introduction of new types of tourism. This contributes to the systematic and efficient organization of the diversification process.

Moreover, the concept of sustainable development further increases the relevance of tourism diversification. Rational use of natural resources, preservation of ecological balance, and consideration of local community interests play an important role in the diversification process. Through information systems, it is possible to monitor environmental load, resource consumption, and the density of tourist flows. This facilitates the practical implementation of sustainable tourism principles.

In addition, the effective implementation of investment policy also enhances the importance of this topic. The development of new types of tourism requires significant financial resources. If investment decisions are made without in-depth analysis, economic efficiency may remain low. Management information systems enable the evaluation of the economic efficiency of investment projects, risk assessment, and identification of priority areas (Table 1).

Table 1. Dynamics of international tourist flows worldwide, 2020–2024¹

Years	Number of international tourists (billion)	Change (%)	Compared to 2019 (%)
2019	1.47	–	100
2020	0.41	-72	28
2021	0.46	+12	31
2022	0.98	+113	67
2023	1.29	+31.6	88

1 Source: Compiled by the author based on data from the State Committee of Statistics of the Republic of Uzbekistan and the Tourism Committee of the Republic of Uzbekistan.

2024	1.40	+11	99
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The data presented in the table indicate that in 2020, due to the impact of the pandemic, the number of international tourists sharply declined by 72 percent. In the following years, the recovery process accelerated. In particular, in 2022, a growth rate of 113 percent was observed. By 2024, the number of international tourists reached 1.4 billion, approaching 99 percent of the pre-pandemic level of 2019.

This situation demonstrates the high adaptability of the tourism market. However, the crisis of 2020 also revealed the sector's sensitivity to external risks. Therefore, diversification and information-based management have become strategic necessities (Table 2).

Table 2. Tourism activity indicators in Uzbekistan, 2021–2024²

Years	Number of foreign tourists (million)	Number of tourism organizations	Volume of tourism services (thousand tours)
2021	1.9	623	312.4
2022	5.2	689	428.7
2023	6.6	712	532.1
2024	7.3	743	601.5

The data in the table demonstrate the stable growth of the tourism sector in Uzbekistan. While 1.9 million foreign tourists were recorded in 2021, this figure reached 7.3 million by 2024. The number of tourism organizations also increased from 623 to 743.

The nearly twofold growth in the volume of tourism services between 2021 and 2024 indicates that diversification of tourism products is being implemented. It is observed that new directions, including pilgrimage tourism, agrotourism, and ecotourism services, have expanded.

To manage this growth effectively, it becomes necessary—through information systems—to monitor tourist flows, forecast seasonality, and identify priority investment areas (Table 3).

Table 3. The impact of tourism on the economy (share in global GDP), 2020–2024³

Years	(%) Share of tourism in global GDP	(Tourism revenue (trillion USD
2019	10.4	9.2
2020	5.3	4.7
2021	6.1	5.8
2022	9.1	8.4
2023	9.6	9.5
2024	10.0	10.2

The data presented in the table demonstrate the importance of tourism in the global economy. While the share of tourism in GDP declined to 5.3 percent in 2020, it recovered to 10 percent by 2024. This indicates both the high recovery rate of the sector and the preservation of its economic significance.

The increase in tourism revenues to 10.2 trillion USD in 2024 confirms the economic effectiveness of diversification. Under such growth conditions, strategic management of diversification and data-driven decision-making become priorities.

CONCLUSIONS AND SUGGESTIONS

This study provides a comprehensive analysis of the theoretical and practical aspects of improving the management mechanisms of tourism diversification through modern management information systems (MIS). The analysis of statistical data for 2020–2024, international trends, and national practices shows that while the tourism sector has high growth potential, it remains sensitive to external risks and market uncertainty. Therefore, diversification emerges as a strategic mechanism for ensuring stability.

The analysis allows the formulation of the following key conclusions:

First, global changes in the tourism market (pandemic effects, digitalization, and shifts in consumer behavior) have limited the effectiveness of traditional tourism models. Destinations relying on only one or two tourism types faced higher

2 Source: Compiled by the author based on data from the State Committee of Statistics of the Republic of Uzbekistan and the Tourism Committee of the Republic of Uzbekistan.

3 Source: Compiled by the author based on data from the State Committee of Statistics of the Republic of Uzbekistan and the Tourism Committee of the Republic of Uzbekistan.

risks. Thus, diversification is an essential tool for reducing economic risks and ensuring market stability.

Second, implementing diversification based on intuitive or short-term decisions does not yield the expected results. It requires strategic planning, market segmentation, resource analysis, and investment evaluation. An information-based management model is necessary to organize this process effectively.

Third, management information systems serve as the central instrument in the diversification process. Through MIS, it becomes possible to monitor tourist flows in real time, analyze revenues and costs by service types, forecast demand dynamics, identify priority investment areas, and assess regional development balance. This accelerates the decision-making process and increases its accuracy.

Fourth, the use of digital technologies enables diversification to be implemented not only economically but also socially and environmentally effectively. Geographic information systems allow monitoring tourist density, assessing environmental load, and coordinating infrastructure capacity. This supports the practical implementation of sustainable tourism principles.

Fifth, the analysis of 2020–2024 indicates a recovery and growth trend in the tourism sector. In the case of Uzbekistan, the increase in the number of foreign tourists and the volume of tourism services confirms the positive outcomes of diversification policies. However, to transform this growth into long-term sustainable development, it is necessary to strengthen the digital management infrastructure.

Based on this, the following practical recommendations are proposed:

Develop a unified national management information platform for the tourism sector.

Establish an integrated system of indicators for evaluating tourism types as a portfolio.

Implement demand forecasting models based on artificial intelligence and Big Data.

Ensure digital integration between the public and private sectors.

Enhance the digital competencies of tourism professionals.

Overall, improving the management mechanisms of tourism diversification through management information systems is crucial for increasing sectoral competitiveness, improving the investment climate, and ensuring the stability of the national economy. In the context of digital transformation, transitioning tourism to an information-driven, predictive, and integrated management model is a strategic priority.

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