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IMPLEMENTATION OF DASHBOARDS FOR MONITORING KEY PERFORMANCE INDICATORS OF TOURISM ENTERPRISES

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ВПРОВАДЖЕННЯ ДАШБОРДІВ ДЛЯ МОНІТОРИНГУ КЛЮЧОВИХ ПОКАЗНИКІВ ЕФЕКТИВНОСТІ ТУРИСТИЧНИХ ПІДПРИЄМСТВ

The ability to effectively monitor and analyze key indicators allows tourism enterprises to adapt to rapidly changing market conditions and is critically important for maintaining and enhancing their competitiveness. In such conditions, implementing dashboards for monitoring key performance indicators of tourism enterprises is an important component of management optimization and strategic decision-making. Therefore, the article aims to identify the features of implementing dashboards for monitoring key performance indicators of tourism enterprises. Based on the research results, it has been proven that the process of implementing dashboards for monitoring key performance indicators of tourism enterprises should be oriented towards a unified format. It has been demonstrated that the format for implementing dashboards in monitoring key performance indicators of tourism enterprises should be oriented towards a unified conceptual input model, which encompasses the following elements: thorough analysis of user needs; preparation of clear and interactive interfaces for each user category; summary and strategic dashboards for management; optimized dashboards for managers and specialists; marketing dashboards for analysts; client dashboards for satisfaction; training and support for dashboard usage processes; adaptation of dashboards to changes. Note that the combination of the outlined characteristics indicates that the format for implementing dashboards is flexible and oriented towards meeting the needs of each user group, allowing for maximum benefit and support for all stakeholders of the tourism enterprise. It is affirmed that the format for implementing dashboards in monitoring the key performance indicators of tourism enterprises is effective when it ensures their role diversity. This diversity is characterized by a focus on data visualization, real-time data monitoring and control, analysis of key indicators, tracking the achievement of strategic goals, data integration, enhanced efficiency of management decisions, and support for innovation. The prospects for further research lie in the development of standards for implementing dashboards in tourism enterprises to enhance their effectiveness.

Вміння ефективно моніторити та аналізувати ключові показники дозволяє туристичним підприємствам адаптуватися до швидкоплинних умов ринку та є критично важливим для збереження та підвищення їх конкурентоспроможності. У таких умовах впровадження дашбордів для моніторингу ключових показників ефективності туристичних підприємств є важливою складовою оптимізації управління та прийняття стратегічних рішень. Отже, стаття спрямована на визначення особливостей впровадження дашбордів для моніторингу ключових показників ефективності туристичних підприємств. За результатами дослідження доведено, що процес впровадження дашбордів для моніторингу ключових показників ефективності туристичних підприємств має бути орієнтованим на єдиний формат. Доведено, що формат впровадження дашбордів для моніторингу ключових показників ефективності туристичних підприємств повинен бути орієнтованим на єдину концептуальну вхідну модель, яка узагальнює наступні елементи: ретельний аналіз потреб користувачів; підготовка зрозумілих та інтерактивних інтерфейсів для кожної категорії користувачів; підсумкові та стратегічні дашборди для керівництва; оптимізовані дашборди для менеджерів та фахівців; маркетингові дашборди для аналітиків; клієнтські дашборди для задоволення клієнтів; тренінги та підтримка процесів використання дашбордів; адаптація дашбордів до змін. Звернуто увагу на той факт, що за поєднанням вищезазначених ознак формат впровадження дашбордів є гнучким та орієнтованим на задоволення потреб кожної групи користувачів, що дозволяє забезпечити максимальну користь та підтримку для всіх стейкхолдерів туристичного підприємства. Констатовано, що формат впровадження дашбордів в моніторингу ключових показників ефективності туристичних підприємств є ефективним, якщо забезпечує їх рольову різноманітність, спрямовану на візуалізацію даних, моніторинг та контроль даних в режимі реального часу, аналіз ключових показників та відстеження досягнення стратегічних цілей, інтеграцію даних, покращення ефективності управлінських рішень та сприяння інноваціям. Перспективи подальших досліджень включають розробку стандартів для впровадження дашбордів в туристичних підприємствах з метою підвищення їх ефективності.

Key words: key indicators; management optimization; strategic decision-making; data integration; forecasting.

Ключові слова: ключові показники; оптимізація управління; прийняття стратегічних рішень; інтеграція даних; прогнозування.

TARGET SETTING

Note that the ability to effectively monitor and analyze key indicators enables tourism enterprises to adapt to rapidly changing market conditions and is critically important for preserving and enhancing their competitiveness. In such conditions, the implementation of dashboards for monitoring key performance indicators is a crucial component of optimizing management and making strategic decisions for the effective functioning of tourism enterprises. For instance, the large hotel chain Hilton actively utilizes dashboards to monitor its global hotels. This includes real-time tracking of booked rooms, customer satisfaction levels, and the efficiency of various services, allowing network management to make informed decisions promptly. The American company Airbnb, which operates an online marketplace for short-term and long-term lodging, utilizes dashboards to analyze data related to bookings, ratings, and feedback from users. This aids the platform in better understanding the needs of its users and optimizing interactions. Marriott International, a global leader in the hospitality industry, leverages dashboards for visualizing and analyzing data on hotel occupancy, profitability, and other key performance indicators. Booking.com has also been using dashboards for an extended period to analyze booking data, providing leadership and managers

with information on market demand variations and the effectiveness of advertising campaigns. The mentioned adaptability in monitoring key performance indicators is driven by the fact that dashboards (or, in other words, interactive control panels) allow the visualization and analysis of a large amount of data in real time, providing managers and various professionals with all the necessary information for making informed decisions, with varying levels of detail as needed.

ANALYSIS OF RESEARCH AND PUBLICATIONS

The theoretical and methodological foundation of research on monitoring key performance indicators in enterprises across various fields of activity is laid out in the works of prominent domestic and foreign scholars such as N. O. Roskladka, A. A. Roskladka, and A. V. Pushkarov. Furthermore, significant contributions to the research on monitoring enterprise activities have been made by scholars such as Maslyhan O., Todierishko E., Zhukov S., Kashka M., G. Kleiner, Molodozhenya M. S., and others. At the same time, the main challenge lies in the fact that the majority of researchers predominantly focus on monitoring key performance indicators. This issue reflects the presence of theoretical and practical challenges in understanding and evaluating the significance of

Table 1. Characterization of the role of dashboards in monitoring key performance indicators

The role of dashboards	Characterization of the role from key positions	The significance of dashboards
Data visualization	Dashboards visualize a large amount of data in the form of charts, graphs, diagrams, maps, and other graphical elements.	Dashboards enable managers to perceive information necessary for making informed decisions.
Real-time data monitoring and control	Dashboards allow real-time monitoring of key performance indicators.	They allow managers and executives to promptly respond to changes and take actions to optimize results.
Analysis of key indicators and tracking the achievement of strategic goals	Dashboards aid in conducting in-depth data analysis, identifying trends, and predicting future developments.	Dashboards contribute to more informed strategic planning and decision-making
Data integration	Dashboards enable the integration of data from various sources.	They provide a comprehensive view of all aspects of enterprise activities.
Improvement of managerial decision efficiency	Dashboards facilitate decision-making at all management levels, contributing to the effective resolution of tasks and issues.	Dashboards ensure quick and convenient access to information.
Fostering innovation	Dashboards foster innovation in problem-solving, process improvement, and ensuring competitiveness.	They enable managers to swiftly identify directions for innovative activities and make necessary adjustments.

Source: formed based on [1–3].

dashboards in monitoring key performance indicators, complicating the implementation process.

THE WORDING OF THE PURPOSES OF ARTICLE (PROBLEM)

The goal of the article is to identify the features of implementing dashboards for monitoring key performance indicators of tourism enterprises.

THE PAPER'S MAIN BODY WITH FULL REASONING OF ACADEMIC RESULTS

Dashboards (or interactive control panels) are graphical interfaces that visualize and analyze key

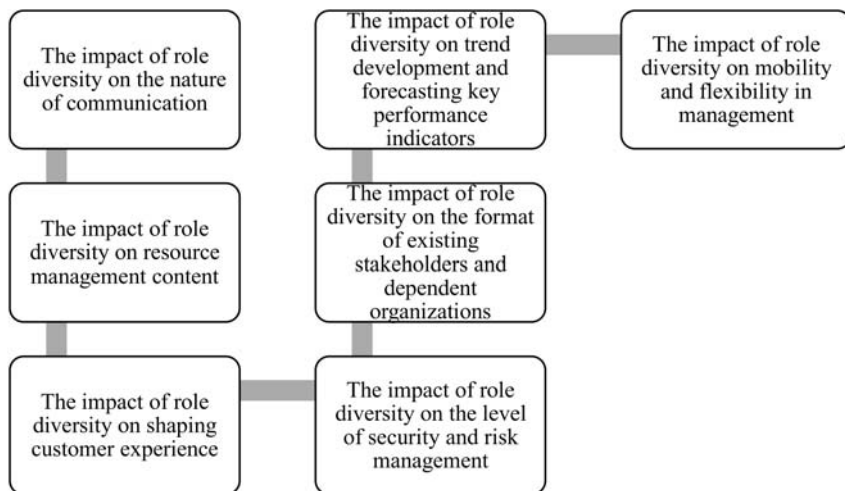


Figure 1. Characterization of the impact of role diversity on the development and success of tourism enterprises

Source: formed based on [1; 3; 4; 5].

data and performance indicators of an enterprise. The term "dashboard" or "interactive control panel" originates from the word "dashboard" in the automotive industry, where it refers to the instrument panel that provides the driver with essential information about the car's status while driving. In the context of business analytics and information technology, dashboards emerged in the 1980s-1990s, and since then, their role in monitoring key performance indicators of tourism enterprises has only intensified and become more diverse.

Note that one of the early examples of dashboards is the "Executive Information System" (EIS), which was developed in the early 1980s. EIS was aimed at top management and provided a graphical interface for monitoring key performance indicators of the enterprise. Today, the primary role of dashboards is also considered from the standpoint of data

visualization. Alongside the advancement of information technologies and the proliferation of graphical interfaces, dashboards have expanded their role in data monitoring and control, analysis of key indicators, strategic planning, tracking the achievement of strategic goals, data integration, fostering innovation, and improving the efficiency of managerial decisions (Table 1). This is attributed to the emergence of various software tools and instruments for creating dashboards.

In the 2000s, with the increasing computational power, the multifaceted roles of dashboards in monitoring key performance indicators allow tourism enterprises to more efficiently utilize resources, refine their resource strategies, and provide customers with a better experience. This, in turn, contributes to increased competitiveness and market success [3]. Modern dashboards can integrate with various data sources, providing users with the ability to monitor crucial indicators in real time.

Currently, the role versatility of dashboards for monitoring key performance indicators of tourism enterprises is determined by their ability to perform various functions and meet the needs of different user groups. This diversity is critically important for the development and success of tourism enterprises.

In particular, an analysis of the scientific literature [2—3] has allowed for the identification of several aspects that explain why this diversity is crucial for the development and success of tourism enterprises (Figure 1).

In particular, each user group receives necessary information, contributing to the effective use of data and making informed decisions, when considering:

1. The impact of role diversity on the nature of communication. For managers, regular specialists, and business owners, dashboards help quickly grasp the overall state of affairs and address strategic tasks without delving into detailed analysis.

2. The impact of role diversity on resource management content. For managers and ordinary specialists from different departments, dashboards provide the ability to track and analyze departmental performance indicators, enabling the optimization of internal resources and adapting resource strategies to internal needs.

3. The impact of role diversity on shaping customer experience. For marketing and service departments, dashboards allow the analysis of customer data to understand their needs and provide personalized services, leading to an improvement in the overall customer experience.

4. The impact of role diversity on trend development and forecasting key performance indicators. For analysts and strategic planners, dashboards provide the ability to analyze trends in key indicators, forecast their changes, and develop strategies for the future development of the enterprise.

5. The impact of role diversity on the format of existing stakeholders and dependent organizations. For external stakeholders, such as investors or partners, dashboards can serve as a means of showcasing successes, plans, and the current state of the enterprise.

6. The impact of role diversity on the level of security and risk management. For the security and risk management department, dashboards allow for tracking potential risks and responding to them promptly.

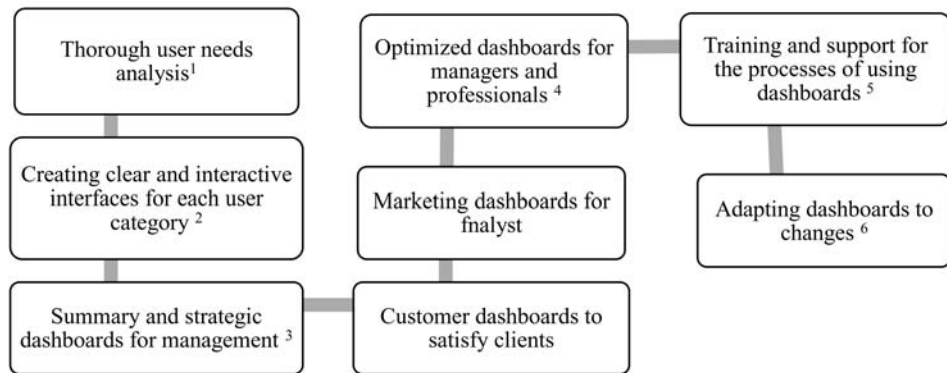


Figure 2. Features of the implementation format of dashboards in monitoring key performance indicators of tourism enterprises

Note:

¹ Systematic research and gathering of information about the requirements, expectations, and priorities of individuals or groups who will be using the dashboard for monitoring key performance indicators.

² The process of creating software interfaces that are easily understood and meet the needs of various user groups.

³ The process of visually representing key information and performance indicators in an organization.

⁴ The process of improving and adjusting the interface and content of dashboards (information panels) to ensure more effective use of data and facilitate decision-making.

⁵ Providing training and assistance to users in working with dashboards.

⁶ The process of modifying or enhancing existing dashboards (interactive graphical data representations) to accommodate changes in business conditions, company strategy, or the surrounding environment.

Source: formed based on [1; 4; 5—6].

7. The impact of role diversity on mobility and flexibility in management. Enabling access to dashboards through mobile devices allows management and staff to receive information any-time and anywhere.

It should be noted that achieving the outlined role diversity of dashboards in monitoring key performance indicators requires the use of a specific implementation format oriented towards the conceptual input model depicted in Figure 2.

Specifically, among the main features of the implementation format of dashboards in monitoring key performance indicators of tourism enterprises are:

1. A thorough analysis of user needs, such as executives, managers, analysts, and marketers (determined by their roles and requirements [1]). The result should be the outlining of a general list of key performance indicators (KPIs) for executives, managers, analysts, and marketers (these indicators should serve as a general guideline for evaluating various aspects of the tourism enterprise's activities) (see Figure 3).

2. Developing clear and interactive interfaces for each user category involves creating effective and user-friendly interfaces that allow users to interact with data. It includes designing interfaces with conceptually clear and intuitive graphical elements, interactive ways of presenting information, dynamic elements and animations, color coding, contextual menus, and tooltips, as well as elements that track trends and progress, such as

arrows and trend charts. The result should be understandable interactive elements that facilitate the perception and effective use of dashboards.

3. Summary and strategic dashboards for management consolidate key performance indicators that provide a comprehensive overview and necessary data for making strategic decisions. Specifically, the main features of such dashboards include a focus on key strategic goals and indicators defining the long-term success of the enterprise; providing interactive capabilities for analysis; offering information on favorable and risky aspects of strategies; tracking trends, and developing forecasts for strategic planning.

4. Optimized dashboards for managers and specialists (resulting from their improvement, interface customization, and content adjustment) take into account the specifics of individual departments, providing clear and detailed information that enables informed decision-making. Specifically, key features of such dashboards include the ability to customize through filters and parameters; succinct representation of key trends and deviations; real-time data viewing, automatically updating the dashboard or with short intervals; audience segmentation and analysis of different customer groups to understand their needs and interaction with products or services; mechanisms for notifications and messages that enable prompt response to critical situations or important events [1].

5. Marketing dashboards for analysts, allowing the analysis of marketing campaign results, trends, and changes in customer preferences. Specifically, key features of such dashboards include displaying expenses on different marketing channels and their effectiveness; using data on purchases and interactions to understand customer preferences and needs; tracking activity and reactions on various social media platforms; utilizing geographical maps to visualize the distribution of customers and regional campaign effectiveness.

6. Client dashboards for tracking customer satisfaction, gathering feedback, and other parameters crucial for enhancing the customer experience. Specifically, key features of such dashboards include visualizing the overall customer satisfaction score using numerical indicators or charts; using text analytics tools to highlight

keywords and trends; incorporating key indicators that assess customers' impressions of specific services or service areas (e.g., hotel rooms, restaurants, tours [5–6]); presenting data on service time, response to inquiries, and other service aspects that may impact customers' perception of the service.

7. Training and support that addresses the need for education and assistance for users effectively utilizing dashboards in their work through: a personalized approach; remote access to educational materials, video tutorials, and documentation for users; the creation of online communities for knowledge exchange among users.

8. Adaptation of dashboards to changes (their modification or enhancement [1]), ensuring flexibility in their structure according to changes in requirements and user needs. This may include changing displayed indicators, optimizing data visualization, adding new features, or altering the dashboard structure to better reflect current information.

The combination of the outlined features makes the implementation format of dashboards flexible and oriented towards meeting the needs of each user group, allowing for maximum benefit and support for all stakeholders in the tourism enterprise.

CONCLUSIONS FROM THIS STUDY AND PROSPECTS FOR FURTHER EXPLORATION IN THIS AREA

Results of the study have shown that the process of implementing dashboards for monitoring



Figure 3. Components of the overall list of key performance indicators (KPIs) for executives, managers, analysts, and marketers

Source: formed based on [1; 2; 4].

key performance indicators in tourism enterprises should be oriented towards a unified format. The following conclusions were drawn:

1. The format of implementing dashboards for monitoring key performance indicators in tourism enterprises should be oriented towards a unified conceptual input model, encompassing the following elements: thorough analysis of user needs; development of clear and interactive interfaces for each user category; summary and strategic dashboards for management; optimized dashboards for managers and specialists; marketing dashboards for analysts; customer dashboards for satisfaction; training and support processes for dashboard utilization; adaptation of dashboards to changes. In combination with the outlined features, the format of dashboard implementation is flexible and oriented towards meeting the needs of each user group. This approach provides maximum benefits and support for all stakeholders in the tourism enterprise.

2. The format of implementing dashboards for monitoring key performance indicators of tourism enterprises is effective when it ensures role diversity, focusing on data visualization, real-time data monitoring and control, analysis of key indicators, tracking the achievement of strategic goals, data integration, improvement of managerial decision-making efficiency, and fostering innovation. Role diversity is critically important for the development and success of tourism enterprises. It is due to its influence on the nature of internal communication among managers, specialists, and business owners, on the content of resource management, on shaping the customer experience, on driving trends and forecasting key indicators, on the format of existing stakeholders and dependent organizations, on the level of security and risk management, and on the mobility and flexibility of management.

The prospects for further research involve the development of standards for implementing dashboards in tourism enterprises to enhance their effectiveness.

Література:

1. Maslyhan O., Todierishko E., Zhukov S., Kashka M. Routing for tourist and excursion bureaus based at parametric network models, *Economic AnnalsXXI*. 2021. Vol. 191 (7—8 (1)). Pp. 100—113.

2. Молодоженя М. С. Моніторинг результативності інноваційної діяльності у торгівлі для потреб економічного управління підприємством. *Економіка України*. 2016. № 4. С. 92—103.

3. Пакуліна А. А., Пакуліна Г. С. Раціоналізація інформаційних потоків і вдосконалення системи показників соціально-економічного моніторингу розвитку регіону. *Traektoria Nauki: Path of Science*. 2016. № 2 (7). С. 257—275.

4. Роскладка Н. О., Роскладка А. А., Пушкарьова А. В. Система моніторингу ключових показників ефективності діяльності підприємства. *Ефективна економіка*. 2019. № 12. URL: <http://www.economy.nayka.com.ua/?op=1&z=7551> (дата звернення: 17.02.2024).

5. Церклевич В., Діль А., Блаута А., Діль М. (2023). Інноваційні компоненти стратегії просування ресторану регіональної кухні Поділля: кейс "Ресторації Шпігеля". *Трансформаційна економіка*, (3 (03)), 61—69.

6. Церклевич, В., Онищук, М., Шпаковський, С. Культурні детермінанти еволюції гастрономічних спеціальтетів: до питання формування гастрономічного бренду Поділля. *Трансформаційна економіка*, 2023, Вип. 1 (01). С. 67—75.

References:

1. Maslyhan, O., Todierishko, E., Zhukov, S. and Kashka, M. (2021), "Routing for tourist and excursion bureaus based at parametric network models", *Economic AnnalsXXI*, vol. 191 (7—8 (1)), pp. 100—113.

2. Molodozhenia, M.S. (2016). "Monitoring the effectiveness of innovation in trade for the needs of enterprise economic management", *Ekonomika Ukraine*, vol. 4, pp. 92—103.

3. Pakulina, A.A. and Pakulina, H.S. (2016). "Streamlining information flows and improving the system of indicators of socio-economic monitoring of regional development", *Traektoria Nauki: Path of Science*, vol. 2, no. 7, pp. 257—275.

4. Roskladka, N., Roskladka, A. and Pushkarova, A. (2019), "System of monitoring of key performance indicators of enterprise", *Efektivna ekonomika*, vol. 12. Available at: <http://www.economy.nayka.com.ua/?op=1&z=7551> (Accessed 17 Feb 2024).

5. Tserklevych, V., Diehl, A., Blauta, A. and Diehl, M. (2023), "Innovative components of the strategy of promoting a restaurant of Podillia regional cuisine: the case of Spiegel's Restaurants", *Transformatsiyana ekonomika*, Vol. 3 (03), pp. 61—69.

6. Tserklevych, V., Onyshchuk, M. and Shpakovsky, S. (2023), "Cultural determinants of the evolution of gastronomic specialties: to the question of the formation of the gastronomic brand of Podillia", *Transformatsiyana ekonomika*, Vol. 1 (01), pp. 67—75.

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