

DIGITALIZATION AND INNOVATION IN AN INTELLIGENT TOURISM SOFTWARE PLATFORM – THE DESTINE HOLIDAYS CASE STUDY

TOADER FLORENTINA ALINA

DEPARTMENT OF CYBERNETICS, ECONOMIC INFORMATICS, FINANCE AND
ACCOUNTING, FACULTY OF ECONOMIC SCIENCES,
PETROLEUM-GAS UNIVERSITY OF PLOIESTI, 100680 PLOIESTI, ROMANIA
e-mail: ftoader@upg-ploiesti.ro

PĂTRAȘCU AURELIA

DEPARTMENT OF CYBERNETICS, ECONOMIC INFORMATICS, FINANCE AND
ACCOUNTING, FACULTY OF ECONOMIC SCIENCES,
PETROLEUM-GAS UNIVERSITY OF PLOIESTI, 100680 PLOIESTI, ROMANIA
e-mail: apatrascu@upg-ploiesti.ro

ȘCHIOPU RALUCA

DESTINE HOLIDAYS, 100275, PLOIESTI, ROMANIA
e-mail: raluca.schiopu@destine-holidays.ro

Abstract

As digital technology is increasingly included in the tourism industry, software systems based on artificial intelligence techniques are included to improve their efficiency and especially customer experience. This article describes how an integrated tourism software platform was designed, developed and implemented for Destine Holidays, with a focus on digitalization and innovation of key business processes. The system brings together B2B and B2C features in a single platform, facilitating the interaction between travel agents, managers and customers. It proposes to automate the way in which tourist offers are created by connecting to several external APIs and using internal offer modules. It collects data from many tour operators, offering users a wide and flexible range of travel services, such as packages, flights and accommodation. The platform also uses artificial intelligence to study the behavior, preferences and previous activity of customers. This helps to create personalized offers and increases conversion rates. Other features include a CRM module, real-time communication tools, digital signatures and secure data management, all of which support a fully digital workflow from quote creation to booking and payment. The results show that the platform significantly improves efficiency, reducing quote generation time to less than 10 minutes and bookings to less than 5 minutes for B2B users. The use of AI recommendations and automation tools demonstrates how intelligent systems can change tourism services and help travel agencies go digital.

Keywords: Digitalization; Tourism Software Platforms; Artificial Intelligence; B2B/B2C Systems; API Integration; Travel Offer Automation; Smart Tourism Systems

Clasificare JEL : L83, M15, C88

1. Introduction

The literature on the digitalization of tourism highlights that this sector is increasingly shaped by interconnected digital infrastructures, data-intensive processes and intelligent service delivery models. Gretzel, Sigala, Xiang and Koo define smart tourism as a technology-driven environment in which large volumes of data are transformed into value propositions for destinations, businesses and tourists [1].

Based on this perspective, subsequent studies show that digital tourism platforms influence not only operational efficiency, but also decision-making behavior and traveler satisfaction. Huang, Goo, Nam and Yoo emphasize that smart tourism technologies support travel planning and enhance travel satisfaction [2]. In parallel, Stankov and Gretzel highlight that Tourism 4.0 technologies should be approached from a human-centered design perspective, as digital systems can shape tourism experiences in positive, limiting or transformative ways [3].

Another approach to this field proposes the strategic integration of data in tourism and hospitality, as highlighted by Rahimi, Köseoglu, Ersoy and Okumus through the analysis of CRM research in the field, showing that customer-centric information systems are essential for improving service quality, organizational coordination and developing long-term relationships [4].

Artificial intelligence-based tools are increasingly used to process customer behavior, detect preferences, improve segmentation and generate personalized recommendations, thus increasing both conversion potential and user experience [5]. However, there is still a need for practical case studies that show how these concepts are implemented in real organizational contexts through integrated B2B/B2C tourism software solutions [5].

In this context, this paper proposes the analysis as a case study of the intelligent tourism software platform Destine Holidays, designed to support both business-to-business (B2B) and business-to-consumer (B2C) interactions within a unified digital ecosystem. The platform is designed as a comprehensive and scalable solution that automates key operational flows of a travel agency, including offer generation, reservation processing, customer management, and communication services.

A key feature of the platform is the application of artificial intelligence in the offer generation and recommendation processes. By analyzing customer profiles, booking history, preferences and behavioral patterns, the system allows travel agents to generate relevant travel offers. In addition, artificial intelligence-based functionalities improve customer interaction through personalized suggestions, real-time communication and intelligent assistance tools such as chatbots [6], [7].

Although the existing literature on tourism digitalization emphasizes the importance of online services and personalization, there is still a substantial need for practical case studies that illustrate the architectural, functional and organizational implications of implementing such systems in real business environments [5], [8].

Consequently, the objective of this paper is to present the architecture, core modules and operational impact of the Destine Holidays platform, with particular emphasis on its innovative components and the results of digital transformation. The study examines several key functional areas, including automated offer generation, AI-based personalization, booking optimization, customer relationship management (CRM) integration, and agency-level performance management. By analyzing these components, the paper aims to demonstrate how intelligent software platforms can improve service quality, reduce operational time, and strengthen decision-making processes in the tourism sector.

2. Case Study - Destine Holiday Platform

In the context of the literature presented above, this case study analyzes the Destiny Holidays platform as an example of digital transformation in tourism.

The platform represents research related to how intelligent software solutions can help integrate the core operations of travel agencies into a single digital system that supports both B2B and B2C interactions.

Destine Holidays includes functions such as generating offers, managing reservations, managing customer relationships, processing payments, communication tools and monitoring performance. By using artificial intelligence, services such as data-driven personalization, automating repetitive tasks and responding faster to customer needs are included in the platform. Overall, Destine Holidays is a practical example of how digital tools and innovation can improve efficiency, service quality and decision-making in tourism organizations.

3.1. Project Overview and Development Context

The project “Connecting Destinations – Digitalization and Innovation within the Destine Holidays Travel Agency” - 7.1.I3.C9 is implemented under the National Recovery and Resilience Plan (PNRR), Component 9 – Support for the Private Sector, Research, Development and Innovation, Investment 3 – Aid Schemes for the Digitalization of Small and Medium-Sized Enterprises (SMEs). The implementation period extends from April 2025 to August 2026. The initiative responds to the pressing need for digital transformation in the tourism sector, a field shaped by intensified competition, rapidly evolving customer expectations, and growing demand for personalized services. Within this framework, Destine Holidays, as the lead partner, in collaboration with Zonk Works S.R.L., has proposed an innovative project that integrates artificial intelligence solutions, cybersecurity mechanisms, and business process automation to enhance the company’s competitiveness and deliver a modern, efficient, and customer-oriented travel experience.

The project focuses on developing and implementing an advanced digital platform to support the creation of innovative tourism products and optimize core operational processes. Through these technological interventions, the initiative contributes to achieving European objectives related to digital intensity, as reflected in the Digital Economy and Society Index (DESI), and to the sustainable economic development of the region where the company operates

3.2. The Offer Generation Module and AI-Based Personalization

The offer generation module is the central component of the Destine Holidays software platform, its purpose being to increase the efficiency of travel agents, agency managers and employees involved in the online promotion of tourism services. The DHS platform proposes the integration of a fully automated offer generation process in both the B2B administrative environment and the B2C website. Key workflows have also been integrated, including reservations, payment processing, transaction management and marketing activities.

The module includes two main components. The first involves dynamic API integrations, allowing the platform to connect with five major tourism APIs that aggregate over twenty APIs from tour operators. This structure provides access to a complete portfolio of national and international tourism products, such as holiday packages, travel circuits, flight and accommodation services, hotels and flights. The second component is a static offer module, which allows agencies to create and configure proprietary travel products, including exotic vacations, city breaks, and cruises. This module offers extensive customization options, such as manually adding accommodations, customizing rooms, and configuring transportation, allowing agencies to tailor offers to market conditions and customer needs.

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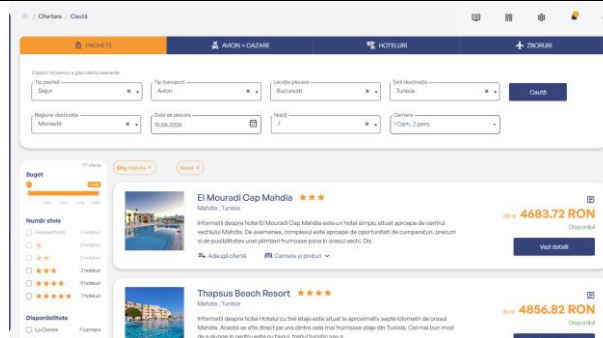


Fig. 1. Offer generation module

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A key objective of the project was to develop a comprehensive offer generation workflow that could be completed in ten minutes. This workflow includes searching for travel products, selecting the optimal option, sending the offer to the customer and facilitating customer acceptance. This objective was achieved by implementing functionalities that support the selection, aggregation and delivery of offers through various communication channels, such as customer accounts, email and social networks. The platform also includes the possibility of adding a digital signature, customer notifications throughout all stages and real-time chat functions related to the offer.

Operational efficiency is enhanced by integrating an automatic offer generation mechanism based on artificial intelligence, built on data collected from previous offers and bookings. This functionality provides travel agents with relevant information about customer preferences, travel behavior and preferred types of vacation, facilitating the generation of relevant travel offers in seconds.

3.3. Agency Management Component, CRM and Customer Support Integration

The Destine Holidays platform includes an advanced Agency Management component that supports the administration of travel agencies operating within the company's network. This module centralizes important information about offers, sales, payments, and customers. The main purpose is to provide agency managers and management staff with an overview of operational and administrative activities (Fig.2). In addition, the platform allows central management to monitor the activity of all Destination Holidays agencies in real time, evaluate the travel agent's performance, and assess the overall quality of customer service within the organization.

The integrated task management system allows agency managers to manage the entire activity by creating and assigning tasks, setting priorities, and managing alerts. This contributes to the efficiency of internal workflows.

In addition to these management functions, the platform includes a dedicated CRM module, designed to improve customer-related operations and strengthen interoperability between departments. The CRM area supports advanced customer management, aggregates real-time data from multiple business units, and integrates with social media platforms such as Facebook,

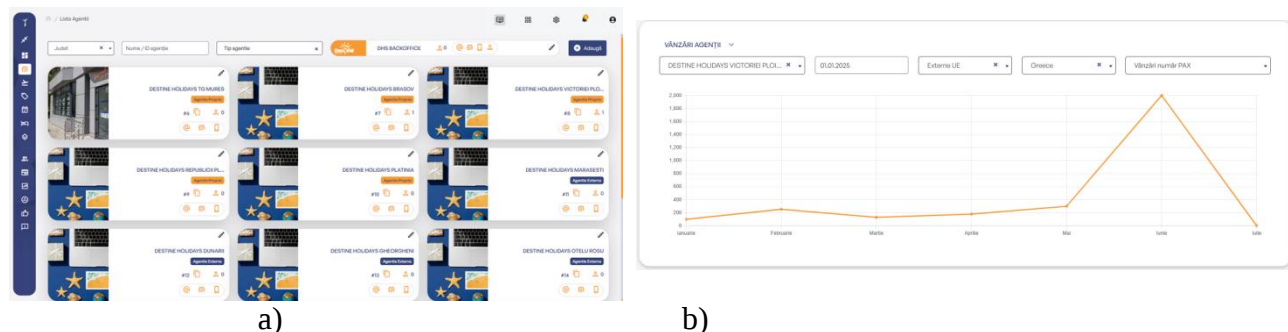


Fig. 2. a) Agency management, b) Sales overview

The platform also includes customer support and ticketing, allowing users to submit support requests directly to the company. These requests are processed by travel agencies in a centralized and prioritized manner, allowing the organization to maintain a structured record of customer interactions, requests, and problem-solving approaches. Overall, integrating agency management, CRM, and customer support functions creates a unified digital environment that enhances administrative control, internal coordination, and service quality.

3.4. AI Integration and Conversational Support

Artificial intelligence is an important component of the Destine Holidays platform, integrated mainly in the offer generation process. The travel offer search engine transmits search data to the integrated AI system, which processes it based on the user's profile and the history of their previous searches (Fig.3). Following this analysis, the platform can generate results that better match the customer's preferences for preferred destinations, preferred type of vacation, as well as desired hotel standards and available budget. Thus, the integration of AI leads to a personalized experience for the customer, increasing the relevance of the presented travel products. Historical customer data and travel preferences are analyzed and used to provide customers with relevant travel offers and offer a higher level of personalization throughout the user's journey.

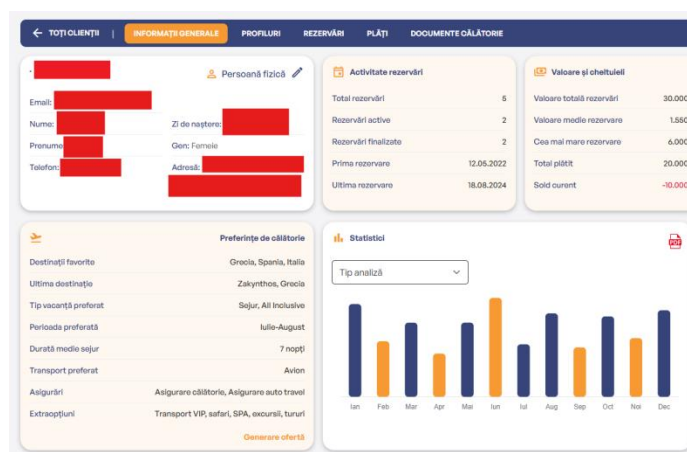


Fig. 3. Client Dashboard

The DHS platform also includes a dedicated AI-based chatbot, designed to support both conversational interaction and real-time travel assistance. The chatbot is continuously trained on relevant information from the tourism industry, allowing it to recommend suitable holidays based on user requests, suggest attractive destinations or special places to visit and provide instant travel assistance when accessed during a trip. The goal of this functionality is to provide a more

interactive and adaptable digital experience.

The artificial intelligence model that underlies these functionalities is trained on dedicated high-performance artificial intelligence servers and fed with large volumes of national and international tourism data, as well as information derived from customer feedback collected after travel experiences completed within Destine Holidays.

3.5. Operational Impact and Business Value

The implementation of the Destine Holidays platform significantly improved the company's core business processes. The first strength of the platform is that it reduced the time required to generate tourist offers to under ten minutes. By integrating dynamic APIs, configurable static offers and AI-based personalization, the platform simplified tasks that were time-consuming in the old approach, transforming the entire process into an efficient and structured one. Travel agents responded faster to customer requests, allowing the company to manage a higher volume of interactions.

The developed platform proposes to simplify the booking process, significantly reducing the execution time. In the B2B environment, reservations were completed in under five minutes, while B2C reservations were optimized to take no more than ten minutes. Manual data entry was reduced and thus operational errors were minimized, and the booking experience became more accessible and convenient for both travel agents and customers.

From an organizational point of view, the platform offers a substantial improvement in inter-departmental coordination and provides tools for managers to effectively monitor business performance. By unifying agency management, CRM, reservations, payments and customer support modules, the platform offers a centralization of operational data and real-time monitoring across the entire agency network. This has led to more informed decisions, better task allocation and improved control over customer service.

The use of artificial intelligence has enabled more precise personalization of tourism offers, supporting customer profiling and improving the relevance of recommendations. The AI chatbot and intelligent assistance functions provide real-time assistance and tourism guidance, strengthening customer interactions. These features have increased conversion potential, improved customer satisfaction and advanced the company's digital transformation, strengthening competitiveness and customer orientation in the tourism sector.

5. Conclusions

This paper presents the Destine Holidays platform as a relevant case of digital transformation in the tourism industry, thus highlighting the role of integrated software systems to improve service quality and strengthen customer-centric processes. The study highlights that the presented platform manages to include a number of distinct functional components in a unified digital system, such as offer generation, reservation management, CRM integration, agency management, payment processing and artificial intelligence-based personalization.

The main innovation of the platform is represented by the automation of the core workflows of travel agencies. The traditional quotation process has been redesigned, the booking and payment functionalities have been optimized to reduce processing time, simplify data management and improve accessibility for both travel agents and customers. The result obtained demonstrates the practical value of digitalization in transforming time-consuming business processes into faster, more efficient and more scalable operations.

The importance of integrating AI into modern tourism platforms is demonstrated once again by the Destine Holidays platform, through data-driven personalization, recommendation

processes, automated offer generation and conversational assistance via an intelligent chatbot.

These functionalities have led to increased relevance of tourism offers, improved customer satisfaction and enhanced responsiveness throughout the tourism service cycle. At the same time, the integration of CRM, agency management and customer support functions strengthens internal coordination and managerial control throughout the organization.

In conclusion, the Destine Holidays platform illustrates how digitalization and innovation can be integrated into a complex software platform, tailored to the needs of the tourism sector. The results suggest that intelligent systems can lead to improved efficiency, enabling better decision-making and providing more personalized experiences for customers.

In future research, we aim to expand this analysis by examining the long-term changes included in the Destine Holidays platform, by measuring the degree of operational performance, the degree of customer retention, as well as the evolution of the competitive tourism market.

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