



# Design and Implementation of a Web-Based Template Design Platform for Travel Agencies

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## Abstract—

This paper presents the design and implementation of Tripsera, a web-based template design platform developed specifically for travel agencies. The project was developed to address the challenge of creating professional digital marketing content without graphic design expertise or high outsourcing costs. The methodology includes a component-based frontend architecture using React.js, a RESTful backend built with Node.js and Express.js, and a NoSQL database (MongoDB) for data persistence. The implementation covers user authentication, a drag-and-drop design editor, template management,

## 1. INTRODUCTION

In the modern digital landscape, maintaining a strong online presence is critical for travel agencies to attract and retain customers. Creating visually appealing promotional content such as tour posters, social media banners, and travel brochures is a key

real-time preview, and multi-format export functionality. The developed system was tested through functional and usability testing, and the results show that users can create and export professional travel marketing designs with minimal effort and no prior design knowledge. The project demonstrates that a domain-specific, template-driven design platform can significantly reduce the time, cost, and effort involved in travel agency marketing.

**Keywords—** Web application, template design platform, travel agency, drag-and-drop editor, React.js, Node.js, MongoDB.

component of digital marketing. However, many travel agencies face significant barriers: limited in-house graphic design expertise, high costs of outsourcing to professional designers, and the inadequacy of generic design tools that are not tailored to travel-specific content needs.

Existing general-purpose design tools such as Canva or Adobe Express offer broad functionality but lack travel-industry-specific templates, workflows, and categorization. Travel agencies are therefore left to adapt non-specialized tools, resulting in inconsistent branding and increased production time.

The project involves the development of Tripsera, a web-based solution designed to support travel agencies by offering pre-designed, customizable templates along with a user-friendly drag-and-drop editing interface. The main aim of this work is to develop a system that enables non-technical users to produce professional travel marketing designs quickly and efficiently. The specific contribution of this project is a fully integrated, domain-specific design platform that combines template management, real-time customization, and multi-format export within a single web application.

## II. PROBLEM STATEMENT AND OBJECTIVES

The problem addressed in this project is the absence of a dedicated, easy-to-use digital design platform tailored to the needs of travel agencies. This problem affects travel agency staff and business owners because existing solutions are either too complex for non-designers, too expensive to sustain, or too generic to support travel-specific branding efficiently. Digital marketing strategies are vital in enhancing the performance of tour operators, yet many agencies struggle with the tools required to implement them effectively [5]. As a result, promotional content is often inconsistent in quality and costly to produce, limiting agencies' ability to compete in an increasingly digital marketplace.

The objectives of this project are:

- To design a web-based template design platform exclusively for travel agencies with a curated library of travel-themed templates.
- To implement a drag-and-drop editor that allows users to modify text, images, colors, and layout without prior design knowledge.

- To build an admin panel that allows administrators to add, update, delete, and categorize templates efficiently.
- To improve the efficiency, consistency, and cost-effectiveness of travel marketing content creation.

## III. RELATED WORK

Several studies and platforms have been developed in the area of digital marketing for tourism and web-based application development. Previous work has focused on understanding the impact of digital tools on tourism, building full-stack web applications using modern JavaScript frameworks, and securing web applications through token-based authentication.

In the domain of tourism digital marketing, Awad and Alharthi [1] demonstrated through empirical research that social media marketing, e-WOM, and online advertising significantly influence tourists' brand awareness and intention to visit destinations, with social media marketing showing the strongest impact. This underscores the importance of providing travel agencies with accessible tools to create consistent, high-quality digital marketing content. Similarly, Afren [2] confirmed that digital marketing through social media is reshaping how tourism businesses promote themselves, with most travelers now using social media platforms to plan and book travel experiences.

Kumar et al. [4] conducted a systematic review of digital marketing tools in the tourism sector, identifying websites, social media platforms, mobile travel applications, and content marketing as the primary tools used by travel businesses. Their findings highlight that travel industry marketers must continuously adapt to evolving digital marketing technologies to remain competitive. This gap is directly addressed by Tripsera through the provision of a specialized and easy-to-use design platform for travel promotional content.

Mwalukasa [5] further demonstrated a positive and significant relationship between digital marketing strategies and tour operator supply chain

performance, suggesting that equipping travel agencies with better digital marketing capabilities directly impacts their business outcomes. At a broader level, Zeqiri et al. [3] explored how digital tourism platforms leveraging Industry 4.0 technologies are transforming the tourism industry, emphasizing the need for accessible digital tools for small and medium-sized tourism enterprises.

On the technical side, Patil et al. [6] demonstrated the effectiveness of the MERN stack in building scalable, secure, and high-performance web platforms with distinct user and admin interfaces. This design approach is directly reflected in the architecture of Tripsera. Shrivastava et al. [7] similarly implemented an e-commerce web application based on the MERN stack, showing that MongoDB, Express.js, React.js, and Node.js effectively support the development of scalable and feature-rich full-stack systems with capabilities such as authentication, product browsing, and role-based access control.

This project differs from existing work by providing a platform built exclusively for the travel industry, featuring travel-categorized templates, admin-controlled content management, JWT-secured authentication, and a user dashboard tailored to travel agency workflows. It combines the digital marketing needs identified in tourism research with the technical capabilities of the MERN stack.

## IV. SYSTEM DESIGN AND METHODOLOGY

### A. System Overview

The architecture of Tripsera is based on a three-tier client-server structure that includes a frontend, backend, and database layer, as shown in Fig. 1. This layered approach helps improve modularity, maintainability, and overall scalability of the system.

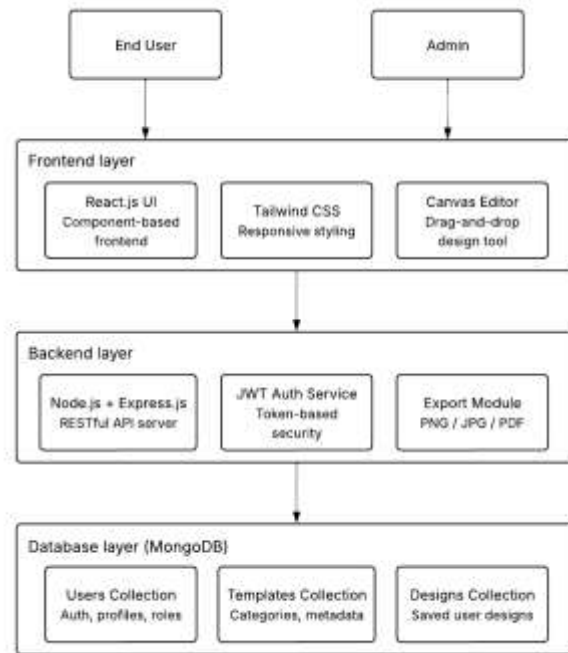


Figure 1: System Architecture of Tripsera

The system supports two distinct user roles, namely End User and Admin, both of whom interact with the system through the frontend layer. However, the features and permissions available to users vary according to their roles.

The frontend layer is implemented using React.js, enabling a component-based approach for building reusable and modular user interface elements. Tailwind CSS is used for utility-first responsive styling, ensuring a consistent and adaptive layout across different screen sizes. The Canvas Editor serves as the primary design workspace, enabling users to customize templates in real time through a drag-and-drop interface.

The backend layer is developed using Node.js and Express.js, which collectively function as a RESTful API server responsible for processing business logic. All incoming API requests from the frontend are processed through the JWT authentication service, which performs token-based authentication and enforces role-based access control before executing any operation. The Export Module within the backend layer handles the conversion of finalized



canvas designs into downloadable files in PNG, JPG, and PDF formats.

The database layer uses MongoDB, a NoSQL document-based database, to manage data through three main collections. The Users collection stores authentication credentials, user profiles, and role assignments. The Templates collection maintains template metadata, destination categories, and preview image references. The Designs collection stores saved user design states, enabling users to retrieve and continue editing their work across sessions.

The overall operation begins when a user registers or logs into the platform. Upon successful authentication, the backend issues a JWT token, which is attached to all subsequent API requests by the frontend. End users are directed to a personalized dashboard where they can browse, filter, and select templates before entering the Canvas Editor to customize and export their designs. Admin users access a separate secured interface to manage templates, categories, and platform content.

## B. Main Modules and Their Functions

- **User Authentication Module:** Handles user registration, login, and logout using JWT-based authentication to secure API endpoints and manage user sessions.
- **Template Browsing Module:** Allows end users to browse, search, and filter templates by destination or category.
- **Drag-and-Drop Editor Module:** Provides an interactive canvas for modifying text, images, colors, and layout elements in real time.
- **Real-Time Preview Module:** Renders live design changes so users can visualize the final output before exporting.
- **Export Module:** Enables downloading of completed designs in PNG, JPG, or PDF formats.
- **User Dashboard Module:** Allows users to view, access, and manage their saved designs.

- **Admin Panel Module:** Enables administrators to create, update, delete, and categorize templates across the platform.

## C. Software and Tools Used

The software tools used in this project include React.js for building the component-based frontend interface, Tailwind CSS for utility-first responsive styling, Node.js and Express.js for developing the RESTful backend API, and MongoDB as the NoSQL database for storing user data, templates, and saved designs [6], [7]. JWT (JSON Web Token) is utilized for stateless authentication and session handling, enabling a lightweight and secure mechanism for controlling access to protected API endpoints [9], [10]. Canvas-based libraries are used for rendering and manipulating design elements within the editor.

## D. Methodology

The development of Tripsera followed these phases:

- **Planning and Requirement Analysis:** Identifying the needs of travel agencies and defining functional and non-functional requirements based on gaps identified in existing digital marketing literature [4].
- **System Design:** Creating the database schema, defining API endpoints, and designing UI wireframes and component structure to maintain a clear separation between the frontend, backend, and database layers [6].
- **Frontend Development:** Building the UI using React.js and Tailwind CSS, including the editor, dashboard, and admin panel.
- **Backend Development:** Implementing RESTful APIs using Node.js and Express.js for authentication, template management, and export handling.
- **Database Integration:** Connecting MongoDB to store and retrieve user profiles, templates, and design data.

- Testing and Evaluation: Conducting functional testing of all modules to verify correctness and performance.

## V. PROJECT IMPLEMENTATION

The implementation of Tripsera was carried out by first setting up the project structure and separating the frontend (React.js) and backend (Node.js/Express.js) into independent services communicating via REST APIs. The MongoDB database was configured with collections for users, templates, and saved designs, leveraging MongoDB's flexible document-oriented storage to efficiently manage template metadata and user design data [6].

The authentication system was implemented using JWT tokens issued upon successful login and verified on each protected API request. JWT-based authentication enables a stateless and scalable security approach for web applications, utilizing lightweight token-based access control to enhance efficiency while ensuring secure session management and data protection [10]. Upon successful authentication, users are redirected to a personalized dashboard that fetches and displays their saved designs from the database.

The template browsing interface was developed with search and category-filter functionality, enabling users to quickly locate templates relevant to their specific travel campaign needs. Template metadata, including category, destination tags, and preview images, is stored in MongoDB and served via the backend API.



Figure 2: Template browsing interface with destination-based category filters and search functionality

When a user selects a template, a preview modal is displayed showing the template's full design preview, canvas dimensions, layer count, and pricing details before the user proceeds to the editor.

The drag-and-drop editor was implemented using a canvas-based component that supports selecting, moving, and resizing design elements. Text editing, image replacement, and color customization were integrated as in-editor controls. The real-time preview feature reflects all changes live on the canvas without requiring a page refresh.



Figure 3: Drag-and-drop design editor showing the canvas workspace, template panel, and export controls

The export module was built to convert the final canvas state into downloadable files in PNG, JPG, and PDF formats using browser-based rendering utilities.

The admin panel was implemented as a separate secured interface where administrators can upload new templates, assign categories, edit existing template details, and deactivate or delete outdated content. This follows the dual user-admin architecture pattern demonstrated in MERN-based web platforms [7].

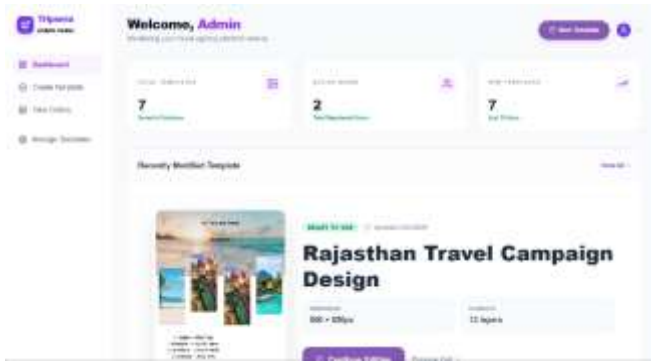


Figure 4: Admin panel dashboard showing platform statistics, template management navigation, and recently modified template details

During implementation, challenges such as ensuring consistent canvas rendering across different screen resolutions and managing large template image assets efficiently were encountered. These were resolved by implementing responsive canvas scaling and optimizing image delivery through compressed asset storage. Security considerations followed best practices for web application development, including role-based access control and secure API endpoint design [8].

## VI. RESULTS AND DISCUSSION

The implemented Tripsera platform was tested through functional testing of each module. The main parameters evaluated were functional correctness, ease of use, design quality of exported outputs, and system response time.

The results obtained showed that:

- All core features, including registration, login, template browsing, drag-and-drop editing, and export, functioned correctly across tested scenarios.
- Users with no prior graphic design experience were able to create and export a professional marketing design without requiring any technical assistance.
- Exported designs in PNG, JPG, and PDF formats maintained visual quality and layout consistency across formats.

- The admin panel successfully supported full CRUD (Create, Read, Update, Delete) operations for template management.

The system performed efficiently under standard test conditions, with API response times within acceptable limits for typical operations. Compared to using a general-purpose design tool adapted for travel content, Tripsera provided faster workflow completion, more relevant template options, and a simpler editing interface for non-technical users.

However, some limitations were observed, including the absence of collaborative multi-user editing, limited template variety in the initial release, and the lack of a mobile-optimized editor view.

## VII. CONCLUSION

This paper presented the implementation of Tripsera, a web-based template design platform for travel agencies. The project was designed, developed, and evaluated using React.js, Node.js, Express.js, MongoDB, and JWT-based authentication. The results indicate that the system can effectively enable travel agency users to create professional marketing designs without design expertise, significantly reducing the time and cost of promotional content creation. The platform directly addresses the gap identified in tourism digital marketing research, where travel agencies require specialized and accessible digital tools to strengthen their online presence and compete in an increasingly digital marketplace [3], [4]. Therefore, Tripsera can be effectively used by small to mid-sized travel agencies that want to improve their digital marketing using a simple and specialized design platform.

## VIII. FUTURE WORK

Future improvements to this project may include the development of a mobile-optimized or native mobile editor, integration of AI-powered design suggestions based on destination or campaign type, and the addition of collaborative editing features for team-based design workflows. These enhancements can improve the system in terms of accessibility, automation, and scalability, enabling Tripsera to serve a broader range of users and agency sizes. Future work may also explore integration with social



media platforms to enable direct publishing of designs, further supporting travel agencies' digital marketing efforts [1], [2].

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