Research on Tourism Applications Based on RMP Theory——Fun Mini Programs

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Abstract. Based on the RMP theory perspective, this paper conducts an in-depth study of the "Fun Travel" mini-program. This mini-program integrates abundant tourism resources to meet users' needs for personalized, convenient, and high-quality travel experiences, featuring functions such as itinerary planning, weather and clothing recommendations, scenic spot outfit color suggestions, and attraction information display and recommendations. Through collaborations with regional suppliers, it provides users with accurate and timely travel information, enhances travel efficiency, and promotes tourism innovation. The paper also analyzes the technical challenges faced by the mini-program and the evolving demands of users, proposing corresponding solutions. Finally, it summarizes the research findings and outlines future development directions, including technological innovation, functional expansion, deepened collaborations, in-depth exploration of personalized services, multi-channel partnership expansion, upgraded application of intelligent technologies, and integration of sustainable tourism concepts.

Keywords: Travel mini-program, RMP theory, Personalized tourism, Technological innovation.

1 Introduction

1.1 Research Background

With the improvement of living standards and the growth of tourism demand, the tourism industry is embracing new opportunities. In recent years, the development of internet technology has brought transformative changes to the tourism sector through mini-programs. Tourism mini-programs have gained popularity among users due to their no-download requirement, convenience, and rich functionalities. Currently, their development exhibits the following characteristics: continuous enrichment of features, covering aspects such as attraction ticket booking and hotel reservations; enhanced user experience with simple interface design and streamlined operation processes; and intense market competition as major tourism enterprises launch mini-programs to capture market share[1].

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Since its introduction by Wu Bi Panthera tigris (1999), the RMP theory has been widely applied in regional tourism planning and product development. In recent years, with the rise of smart tourism, scholars have begun integrating the RMP theory with digital tools. For instance, Zhang Jun'ai (2025) analyzed the spatial combination of Xinjiang's intangible cultural heritage sports tourism based on RMP, while Yu Shuyan et al. (2025) explored the development pathways of rural intangible cultural heritage tourism in Haikou. On the technological front, Prunus salicina Siqi et al. (2025) developed a "cloud tourism + agricultural assistance" mini-program, demonstrating the potential of cloud computing in tourism.

However, existing research has predominantly focused on macro-level planning or single technological applications, lacking empirical studies that systematically apply the RMP theory to the functional design and user experience optimization of tourism mini-programs. This paper aims to fill this Utetheisa kong gap by exploring the concrete implementation pathways of the RMP theory in mini-programs through case analysis and functional design[2].

1.2 Research Objectives

This paper aims to systematically analyze the "Fun Travel" mini-program using the RMP theoretical framework to achieve multiple objectives. At the Resource (R) level, it explores how the mini-program can effectively integrate various tourism resources by collaborating with scenic spots to obtain accurate information, ticket data, and visitor flow statistics, establishing a highly engaging travel mini-program through Broussonetia papyrifera. At the Market (M) level, it analyzes how the mini-program precisely responds to and guides market demand, particularly catering to the trend among younger demographics seeking personalized and convenient travel services, while offering tailored solutions for users who neither wish to create travel itineraries nor join tour groups[3]. At the Product (P) level, the study investigates how the mini-program transforms resources and market demands into competitive tourism products through functional innovation and service optimization, such as smart itinerary planning, contextual outfit recommendations, and VR immersive previews, thereby enhancing user satisfaction, facilitating the digital transformation of the tourism industry, and injecting new momentum into its development[3].

2 Overview of RMP Theory

The RMP theory (Resource-Market-Product Analysis), also known as the Resource-Market-Product analysis framework, is a regional tourism planning theory first proposed in 1999 by Professor Wu Bi Panthera Tigris, a renowned Chinese tourism planning expert. The core idea of this theory lies in: building competitive tourism products (P) through creative design, based on tourism resources (R) and guided by the tourism market (M), thereby achieving sustainable development of regional tourism. These three elements are not linearly related but form an organic whole that mutually influences and constrains one another Figure 1.

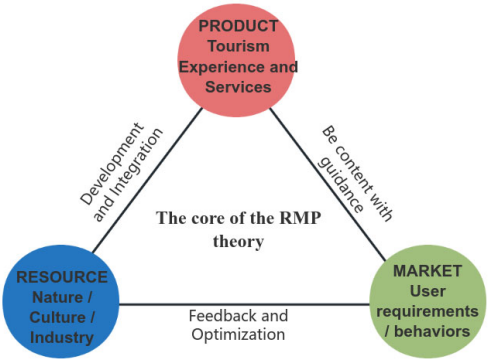

Fig. 1. RMP Theory Application Relationship Model.

2.1 Resource Dimension Analysis

In the RMP framework, resources (R) are the fundamental basis and prerequisite for tourism development. They serve as the starting point and foundation for all tourism planning, development, and product design. The analysis of resources aims to systematically clarify the endowment, value, characteristics, and development potential of tourism destinations, thereby providing a solid basis for subsequent market positioning and product transformation. Tourism resources refer to various elements and factors that attract tourists, can be utilized by the tourism industry, and generate economic, social, and environmental benefits. They can generally be categorized into three types: natural landscape resources, Homo sapiens cultural landscape resources, and social tourism resources[4].

In the RMP theory, the resource dimension is the starting point and foundation of tourism planning. Its analytical logic follows a three-step method: "identification - evaluation - transformation":

- **Identify resource endowment**: Systematically categorize the types, quantities, and distribution of resources in the destination.
- **Evaluate resource value**: Assess development potential based on dimensions such as scarcity, uniqueness, and combinability.
- **Align with market demand**: Transform resource advantages into product selling points that align with tourist preferences.

2.2 Market Demand Considerations

In the RMP framework, the market (M) serves as the guide and ultimate goal. It determines the direction of tourism development and the final value realization of products. If resource (R) analysis answers "what can we sell," then market (M) analysis addresses "who will buy" and "what they want to buy." All tourism planning and product design must ultimately be validated by the market. The core of market dimension analysis lies

in understanding and predicting tourist demand, using it as a guide to calibrate resource development and product design. Its fundamental task is to ensure that tourism products are "marketable and aligned with demand[5]."

In the RMP theory, the market (M) dimension is a dynamic, externally driven analytical process. It requires developers to move beyond a "resource-centric" mindset and firmly adopt a "market-oriented" approach. Through thorough research on the macro environment, market segments, consumer behavior, and competitive landscape, it ensures that tourism development activities remain synchronized with market demand, ultimately achieving the integration of economic, social, and cultural benefits.

2.3 Product Development and Innovation

In the RMP framework, the product (P) is the core and final carrier. It is the result of creatively aligning and transforming resource endowments (R) with market demand (M), serving as the ultimate form of tourism value realization. The core task of the product dimension is: how to transform abstract "resources" and "market" into concrete, sellable, and competitive "tourism products."

In the RMP theory, the product (P) dimension is the spark generated by the collision of resources and the market, representing the creative leap from theory to practice. Its essence is "creating the right experience (P) for the right Homo sapiens (M) in the right place (R) using the right methods." Successful tourism product innovation always stems from a deep understanding of resources and precise insights into the market, achieved through strategies such as thematization, experientialization, and integration, ultimately leading to the sublimation and creation of value[6].

3 Design Strategies

Resources enrich the mini-program's depth. It presents the charm of historical sites, cultural relics, and traditional villages through diverse formats, such as introducing the Forbidden City and the ancient town of Lijiang, while also offering themed travel routes that cater to users' pursuit of history and culture. Additionally, the integration of specialty industry resources with tourism allows the mini-program to recommend travel routes to locations like tea-producing regions (Camellia sinensis) and ceramic hubs, where users can savor local cuisine. This not only enhances their travel experience but also promotes the development of local specialty industries[7] Figure 2.

3.1 Promoting Tourism Innovation

The tourism market's demand for mini-program functionalities is reflected in the following aspects. First, personalization is a significant trend, with users seeking customized itineraries based on their interests, time, and budget. Second, convenience is a priority for users. In fast-paced lifestyles, they desire quick and easy access to travel information and services. The mini-program, which requires no download and is readily

available, enables users to check destination weather, ticket sales, and visitor flow before trips, and access real-time itinerary updates and attraction recommendations during travel. Furthermore, users increasingly expect richer and more rewarding travel experiences.

By centering on resources and aligning with market needs, the mini-program serves as an adaptive "resource-market" platform, driving innovation in product formats. It merges resources with real-life scenarios, breaking the monotony of "sightseeing check-ins." For example, Suzhou Gardens introduced "Garden Night Banquets," where visitors explore ancient architecture, enjoy traditional performances, and savor Suzhou cuisine, transforming garden resources into an immersive "culture + gastronomy" experience[8].

Leveraging smart technologies enhances product convenience and engagement. Examples include LBS-based AR guided tours (scanning attractions to trigger historical imagery), AI itinerary planning (automatically generating schedules with transportation links based on user-selected attractions and trip duration), and blockchain-based electronic tour passes (integrating tickets, audio guides, and transit benefits). The shift from "one-time consumption" to "ongoing interaction" extends the product from a "tour service" to an "emotional connection medium."

3.2 In Addressing User Demand Resources

Integrate diverse technologies such as employing Vue.js or React.js for front-end development to create seamless interfaces, utilizing cloud computing on the back-end to handle high concurrency, and leveraging Homo sapiens artificial intelligence and big data to empower mini-programs. Explore creativity and content by drawing inspiration from life, culture, and other domains, establishing a creative repository with Broussonetia papyrifera to accumulate diverse forms of content. Actively expand collaborative resources by partnering with well-known IPs and offline merchants to enrich the mini-program's content and engagement mechanisms[9].

From a market perspective, precisely target the intended market by segmenting through multi-dimensional variables, focusing on younger demographics as the key customer base to meet their pursuit of novelty and social interaction. Employ various research methods to gain insights into market demand, utilizing social media monitoring and big data analysis to understand shifts in user behavior, while staying attuned to industry trends to uncover latent needs. Conduct in-depth competitive analysis by comparing similar mini-programs to identify differentiated competitive points, such as developing game mini-programs with deep narratives and complex gameplay mechanics like Parazacco spilurus subsp. spilurus[10].

From a product standpoint, develop unique core functionalities, such as a "Nearby Fun Friends Matching" feature for social mini-programs; integrate and expand functionalities to provide users with one-stop services; and enhance user participation and interaction by incorporating modules like polls and community forums. Pursue personalized customization and emotional expression in interface design, while integrating micro-interactions, gesture-based, and voice-operated interactions to elevate the user experience. For marketing and promotion, leverage social media to create engaging

content, collaborate with influencers, and organize limited-time promotions and interactive events, utilizing word-of-mouth marketing and user-driven virality while optimizing strategies based on data insights. Through the synergy of resources, market, and product, continuously innovate in response to market changes to deliver more novel and engaging experiences for users.

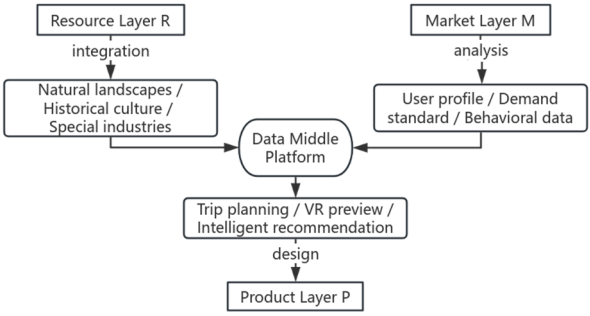

Fig. 2. Diagram of the Linkage between RMP Theory and Mini Program Functions.

4 Features and Innovations of the Mini Program

4.1 Trip Planning Function

4.1.1 Test Environment.

The trip planning function centers on user-customized itineraries, offering flexible and convenient travel planning services. Users can select preferred attractions via an intuitive interface and set the duration of their trip, after which the system intelligently generates a reasonable schedule and synchronizes precise public transportation references[11].

The operation process is streamlined and efficient: users choose desired destinations from a categorized attraction library, set the total travel days and daily departure times, and the system immediately activates its planning engine. Based on the geographical locations of attractions, opening hours, and recommended visiting durations, the path optimization algorithm automatically allocates daily itineraries to avoid backtracking.

The generated schedule is accurate to the hour, clearly marking visiting periods for each attraction, transportation connections, and time costs—for example, "09:00–11:30 Visit the Forbidden City (recommended 2.5 hours) → 11:45–12:15 Take Metro Line 1 to Beihai Park (30 minutes)." Public transportation details include bus routes, subway transfers, departure frequencies, and other practical information to help users plan their trips efficiently.

The system also reserves flexibility for adjustments, allowing users to drag and reorder attractions, modify stay durations, or regenerate the itinerary with one click. The final plan can be exported as a visually rich document, including attraction introductions, transportation tips, and dining recommendations, catering to personalized travel needs and making independent trip planning both effortless and efficient Figure 3.

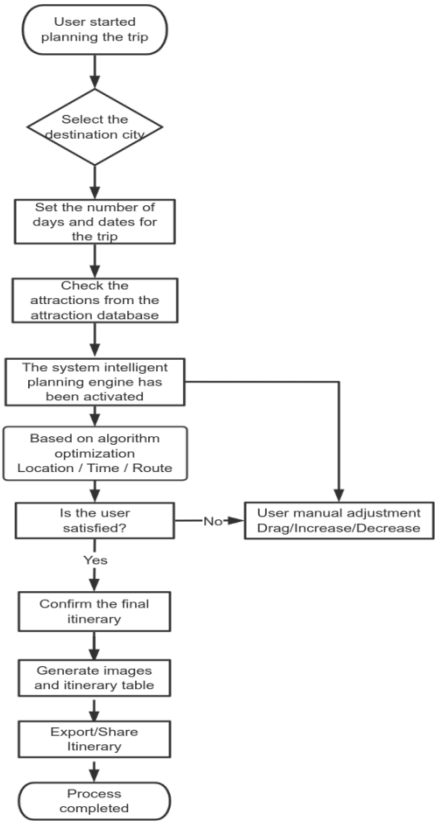

Fig. 3. "Fun" Mini Program Itinerary Planning Function Flowchart.

4.2 Weather Alert Function

Currently, there are many excellent weather apps on the market, such as "Weather Forecast," which provide valuable insights for the "Fun Trip" mini program. These apps typically offer accurate real-time weather data, including temperature, humidity, wind direction, etc. The "Fun Trip" mini program can adopt their data acquisition methods and display formats while collaborating with professional meteorological agencies like Broussonetia Papyrifera to ensure reliable weather information for users.

For instance, when a user selects a travel destination, the mini program can promptly display the current weather conditions and forecasts for the coming days. Additionally, similar to some weather apps, it can present weather trends in intuitive charts for easy comprehension. These apps also provide lifestyle recommendations based on weather conditions, such as whether outdoor activities are suitable or if rain gear is necessary. Building on this, the "Fun Trip" mini program can refine its suggestions further for travel scenarios—for example, recommending sun protection measures and breathable clothing in hot weather or reminding users to pack warm attire in cold conditions[12].

4.3 Outfit Recommendation Feature

4.3.1 Five-Element Outfit Recommendation.

The Five-Element outfit recommendation in the "Fun" mini-program follows unique principles and methods. Based on the Five-Element theory, all things are composed of metal, wood, water, fire, and earth (broussonetia papyrifera), which interact through generation and restriction. Incorporating Five-Element color schemes into outfits can enhance one's aura and bring good fortune. The "Fun" mini-program's Five-Element outfit recommendations are primarily based on the day's elemental attribute. For example, if the day's element is metal, it suggests wearing white or gold, paired with cool tones like gray or blue. Additionally, the mini-program recommends clothing colors and styles based on the characteristics of the day's scenic spots. For natural landscapes, it suggests colors that harmonize with the environment, such as green, helping users blend in and take beautiful photos.

The mini-program also warns against colors that conflict with the day's element. For instance, if the day's element is metal, it advises avoiding green or cyan clothing to prevent weakening one's fortune. Furthermore, it considers user (homo sapiens) preferences, offering more freedom of choice. Through these features, the "Fun" mini-program provides personalized and comprehensive outfit suggestions, enabling users to showcase their fashion sense and positive aura while enjoying their travels.

4.3.2 Scenic Spot Fashion Recommendations.

The integration of fashion and tourism has gained attention. Fashion magazines, for example, often publish special editions on outfit inspirations for specific travel destinations. In Paris, France, classic black, white, and red outfits are recommended, allowing tourists to blend into the backdrop of the Eiffel Tower while exuding style. In Venice, Italy, blue and gold outfits are popular, enabling visitors to stroll along the canals as if part of a painting.

For the "Fun" mini-program, this integration holds significant value. When users select a travel destination, the mini-program recommends clothing colors based on the spot's characteristics and ambiance. For beach vacations, it suggests bright colors like light blue, white, or yellow, helping users stand out in photos, enhance their travel experience, and better immerse themselves in the local environment.

4.4 Scenic Spot Information Display and Recommendation

4.4.1 VR Live-View Display Technology.

With advancing technology, VR applications in tourism are becoming increasingly widespread. The "Fun" mini-program can draw inspiration from successful cases like "Juyou Technology's" smart tourism mini-program, "Fingertip VR Panoramic Experience: Ancient Camel Bell Road Tourist Service" mini-program, and "Cloud Tourism: An Immersive New Experience—5G + VR Zunyi Conference Memorial Hall" mini-program to implement VR live-view displays of scenic spots.

By collaborating with professional VR technology companies and utilizing 720-degree panoramic 3D display technology, the mini-program can present scenic spots

(phoxinus phoxinus subsp. phoxinus) to users as if they were physically there. Before visiting, users can explore VR virtual scenes, experiencing the destination firsthand. This technology is particularly suitable for botanical gardens, expo parks, and other nature-centric attractions, allowing users to preview layouts, featured landscapes, and plant species to better plan their trips.

Additionally, VR scenic spot experiences can facilitate online drainage, attracting more users to visit in person.

4.4.2 Scenic Spot Recommendation Algorithm.

The algorithm of the "Fun" mini-program for recommending attractions based on visitor flow relies on the following aspects. First, by interfacing with data APIs from various tourist attractions nationwide, it retrieves real-time ticket sales and visitor flow data, helping users gauge the popularity of attractions to decide whether to visit. For instance, after a user selects a travel destination, the mini-program recommends cities or attractions with lower current visitor flow based on the data. Second, it employs an intelligent recommendation algorithm that considers user preferences (Homo sapiens), travel history, time, season, and other factors to suggest suitable attractions. If a user prefers natural scenery, the program prioritizes recommending less crowded yet scenic spots; if traveling during peak seasons, it suggests niche attractions with unique features to avoid overcrowding (Homo sapiens). Additionally, it recommends nearby attractions based on users' itineraries and transportation modes to achieve macro-level visitor flow control. For example, when a user selects a popular attraction, the program simultaneously suggests lesser-known nearby spots to divert crowds and enhance the travel experience.

In summary, the "Fun" mini-program leverages advanced VR panoramic display technology and scientific attraction recommendation algorithms to provide users with more comprehensive and convenient attraction information and services, enabling better travel planning and a more enjoyable tourism experience.

5 Summary, Prospects, and Challenges

5.1 Summary

This paper conducts an in-depth study on the "Fun Travel" mini-program based on the RMP theory, achieving significant results. In terms of resource integration, the mini-program consolidates tourism resources such as natural landscapes, historical culture, and specialty industries, closely collaborating with tourism suppliers to provide users with accurate and timely travel information. It showcases the charm of historical sites, plans customized itineraries, and meets diverse user needs.

Regarding market demand, it precisely captures users' needs for personalized, convenient, and high-quality travel experiences. Users can customize their trips, avoiding the hassle of creating complex travel guides or taking inefficient routes. Additionally,

it offers real-time weather-based clothing recommendations, outfit suggestions for attractions, VR previews of scenic spots, and seasonal route recommendations to satisfy users' pursuit of novelty and excitement.

In product innovation, the "Fun Travel" mini-program optimizes functionality and user experience by drawing on successful industry cases. For example, it learns from the "Qyer Travel Assistant" to plan personalized itineraries, references weather apps to provide precise clothing advice, combines fashion with tourism to recommend suitable outfits for attractions, and utilizes VR technology and algorithms to enhance attraction information display and recommendation services.

In summary, the "Fun Travel" mini-program, based on the RMP theory, has achieved remarkable results in resource integration, demand fulfillment, and product innovation, offering new perspectives and methodologies for the development of the tourism industry.

5.2 Prospects

From a resource perspective, technological iteration will inject new vitality into mini-programs. With the widespread adoption of AI large models and AR/VR technologies, features such as "AI-generated personalized storylines" and "virtual scene interactions" can be developed. By integrating distinctive resources like intangible cultural heritage and regional culture, products that combine entertainment and cultural appeal can be created, such as AR intangible cultural heritage crafting experience mini-programs. Meanwhile, cross-industry resource integration offers vast potential. Collaborations with sectors like cultural tourism and education can expand mini-program application scenarios, for example, cultural tourism mini-programs featuring "scenic spot navigation + fun challenges."

On the market front, Generation Z and lower-tier markets hold significant demand potential. As fragmented entertainment needs evolve, personalized and lightweight mini-programs will gain more traction. Vertical, engaging mini-programs targeting niche *Homo sapiens* groups (e.g., pet lovers, niche sports enthusiasts) are expected to develop differentiated advantages. Additionally, strengthening social attributes is a growing trend. Models like "friend team challenges" and "UGC co-creation" can enhance user retention and virality.

On the product side, "lightweight + deep experience" is becoming the core direction. Future mini-programs will focus more on balancing simplicity of operation with immersive experiences—for instance, interactive games that allow quick participation without registration, paired with cloud-based data synchronization. At the same time, data-driven refined operations will mature further, leveraging user behavior analysis to optimize features and content in real time, enabling "a thousand faces for a thousand *Homo sapiens*" personalized experiences.

5.3 Challenge

Resource integration faces technological and copyright challenges. The high development costs of cutting-edge technologies (such as AR/VR) are difficult for small and

medium-sized teams to bear. Additionally, the complex copyright authorization processes for cultural and IP-related resources can easily lead to infringement risks, constraining content innovation. Intensified market competition has resulted in severe homogenization. The current surge in the number of casual mini-programs makes it easy to fall into the dilemma of "changing the skin but not the core" without unique resources and precise positioning, posing challenges for user retention. Furthermore, fragmented user attention and shortened novelty cycles for mini-programs necessitate continuous innovation to maintain engagement. Product operations must balance user experience and commercialization. Excessive ad placements or paid features can undermine user experience, while over-reliance on traffic monetization offers limited revenue models. Striking a balance between "fun" and "profit" remains a long-term challenge. Meanwhile, increasingly stringent user privacy protection regulations require more compliant data collection and usage practices, further increasing development and operational costs.

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