

# A Precision Recommendation Mechanism for Qingyuan Tourism Resources: A Framework Based on Tourist Profiles and Tourist-Resource Matching

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Qingyuan, a prefecture-level city in Guangdong Province, China, has rich ecological, cultural, rural, rafting, food, and family-oriented tourism resources. Under the “One Belt, One Corridor, and One Zone” cultural tourism strategy, the city seeks to improve resource integration, communication, and consumption conversion. However, fragmented information, uneven exposure, insufficient tourist-need identification, homogenized promotion, and weak tourist-resource matching still limit tourism development. As a conceptual framework study, this paper constructs a precision recommendation mechanism based on resource tagging, tourist profiling, tourist-resource matching, route-level recommendation, and feedback iteration, aiming to improve matching efficiency, reduce decision-making costs, and promote actual visits and consumption.

*Keywords:* Qingyuan tourism, precision recommendation, tourist profile, tourist-resource matching, resource tagging, scenario matching

## Introduction

In recent years, Qingyuan has entered a new stage of cultural tourism development under the influence of the Guangdong—Hong Kong—Macao Greater Bay Area strategy and Guangzhou—Qingyuan integration. As an ecological and leisure tourism destination in northern Guangdong, Qingyuan is transforming into a comprehensive cultural tourism destination integrating ecological experience, ethnic culture, rural leisure, parent-child vacation, food consumption, and digital tourism services (Qingyuan Qingcheng District People’s Government, 2024). The local strategy of “One Belt, One Corridor, and One Zone” provides an important framework for integrating Qingyuan’s tourism resources (Nanfang Daily, 2024). It connects the Beijiang ecological and cultural tourism belt, the Lingnan ethnic cultural tourism corridor, and the Northern Greater Bay Area eco-cultural tourism cluster. However, abundant resources do not automatically lead to effective tourist

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perception or consumption conversion. Qingyuan tourism information is often disseminated through WeChat official accounts, Xiaohongshu, Douyin, short videos, and word-of-mouth recommendations, but this information remains fragmented, repetitive, and uneven. Popular attractions may gain high exposure, while rural tourism, ethnic cultural products, study-tour resources, wellness tourism, and food experiences may still face weak communication and insufficient tourist conversion (Xiang & Gretzel, 2010). Therefore, Qingyuan needs to shift from mass promotion to precision recommendation and tourist-resource matching.

### **Literature Review and Theoretical Basis**

Smart tourism uses information technology, data analysis, platform services, and intelligent decision-making to improve tourism resource management and tourist services (Gretzel, Sigala, Xiang, & Koo, 2015; Buhalis, 2020). With mobile internet, big data, and artificial intelligence, tourism recommendation has become central to smart tourism, as digital platforms can collect user behavior, identify preferences, organize information, and support destination services. Recommender system studies provide a technical basis through user profiling, item attributes, similarity calculation, personalized recommendation, and feedback optimization (Aggarwal, 2016). In tourism, they are applied to attraction, hotel, route recommendation, and behavior prediction. Tourist segmentation and profiling further show that tourists differ in motivations, consumption patterns, information channels, and experience preferences (Dolnicar, 2002). Precision recommendation therefore requires clarifying who tourists are, what they need, when and how they travel, and what affects decisions. However, existing research often stresses algorithmic accuracy while neglecting local strategies, resource structures, travel scenarios, and offline conversion. Therefore, this paper proposes a Qingyuan framework including resource tagging, tourist profiling, scenario matching, route-level recommendation, and feedback iteration.

### **Resource Tagging System for Qingyuan Tourism**

Qingyuan has diverse tourism resources, but precision recommendation requires them to be transformed from general attraction descriptions into structured recommendation units. This paper proposes a six-dimensional tagging system, including spatial attributes, resource types, time requirements, consumption levels, experience attributes, and communication attributes. Spatial tags cover location, transportation distance, travel time, and public transportation accessibility. Resource type tags include ecological landscapes, rafting and outdoor activities, ethnic culture, parent-child vacation resources, rural homestays, and food and leisure resources. Other tags further identify suitable travel duration, budget level, experience features, and communication channels. Based on this system, Qingyuan tourism resources can be classified into several major types. Ecological landscape resources, such as the Beijiang River area and Yingxi Peak Forest, are suitable for photography, hiking, sightseeing, and slow travel. Rafting and outdoor resources, represented by Gulong Gorge and Huangteng Gorge, are suitable for young tourists, summer travel, team activities, and exciting experiences. Ethnic cultural resources, such as Liannan Yao villages and intangible cultural heritage experiences, are suitable for cultural tourism and educational study tours. Rural homestays and food resources are suitable for weekend relaxation, local food experiences, and short-distance leisure consumption (Qingyuan Municipal People's Government, 2024). Parent-child vacation resources and large-scale cultural tourism projects also strengthen Qingyuan's connection with the Greater Bay Area family tourism market (China News Service, 2024). Through tagging, tourism resources are

no longer isolated scenic spots. They become structured data units that can be compared with tourist demand tags. This is the basic condition for building a precision recommendation mechanism.

### **Tourist Profiles and Demand Differentiation**

Tourist profiling is another key foundation of precision recommendation. In Qingyuan tourism development, five major tourist groups can be identified according to travel motivation, travel time, budget, transportation mode, experience preference, and information channel. University-based short-trip tourists in Qingyuan Vocational Education City usually prefer low-cost, nearby, convenient, socially engaging, and photo-friendly products. Family self-driving tourists from the Greater Bay Area pay more attention to comfort, safety, accommodation, parking, and parent-child activities. Social-media-oriented young tourists value visual experience, topicality, photo spots, and short-video sharing. Cultural experience tourists focus on ethnic culture, intangible heritage, local festivals, and educational study tours. Wellness and leisure tourists prefer hot springs, rural homestays, mountain-and-water environments, light hiking, and slow travel. These profiles show that precision recommendation cannot rely on a single list of popular attractions, but should set different matching rules and recommendation priorities for different tourist groups.

### **Precision Recommendation Mechanism Based on Tourist-Resource Matching**

The proposed mechanism includes five interrelated stages: resource tagging, tourist profiling, scenario matching, route-level recommendation, and feedback iteration. Figure 1 shows how the proposed mechanism connects resource tags, tourist profiles, scenario matching, route-level recommendation, and feedback iteration. Resource tagging is the starting point of the recommendation mechanism. Scenic spots should be transformed into structured recommendation units rather than remaining as isolated attraction names. For example, Gulong Gorge can be described through tags such as rafting, gorge landscape, summer travel, outdoor excitement, young tourists, short-video communication, team travel, and one-day trip. Liannan Yao villages can be connected with Yao culture, intangible heritage, educational study tours, photography, two-day-and-one-night travel, and cultural experience. In this way, tourism resources can be compared with tourist demand more accurately. On this basis, tourist profiling helps divide tourists into differentiated groups according to travel motivation, experience preference, available time, budget, transportation mode, and information channels. Scenario matching then brings real travel contexts into the recommendation process. The same tourist may make different choices on ordinary weekends, holidays, rainy days, graduation seasons, or family trips. Therefore, the matching process should compare tourist demand tags with resource supply tags according to time, budget, transportation, experience preference, and communication preference. When the overlap is high, the resource can receive higher recommendation priority. For instance, young tourists who prefer summer, one-day, outdoor, and short-video-friendly experiences can be matched with rafting resources such as Gulong Gorge and Huangteng Gorge.

The recommendation result should not stop at a single attraction. It should be organized into route-level suggestions, including transportation, time arrangement, resource combination, budget level, travel reminders, and alternative choices. Finally, tourists' clicks, saves, inquiries, visits, comments, repeat visits, and shares can be used to revise resource tags, tourist profiles, and matching rules, forming a continuous cycle of recommendation, travel, evaluation, and optimization.

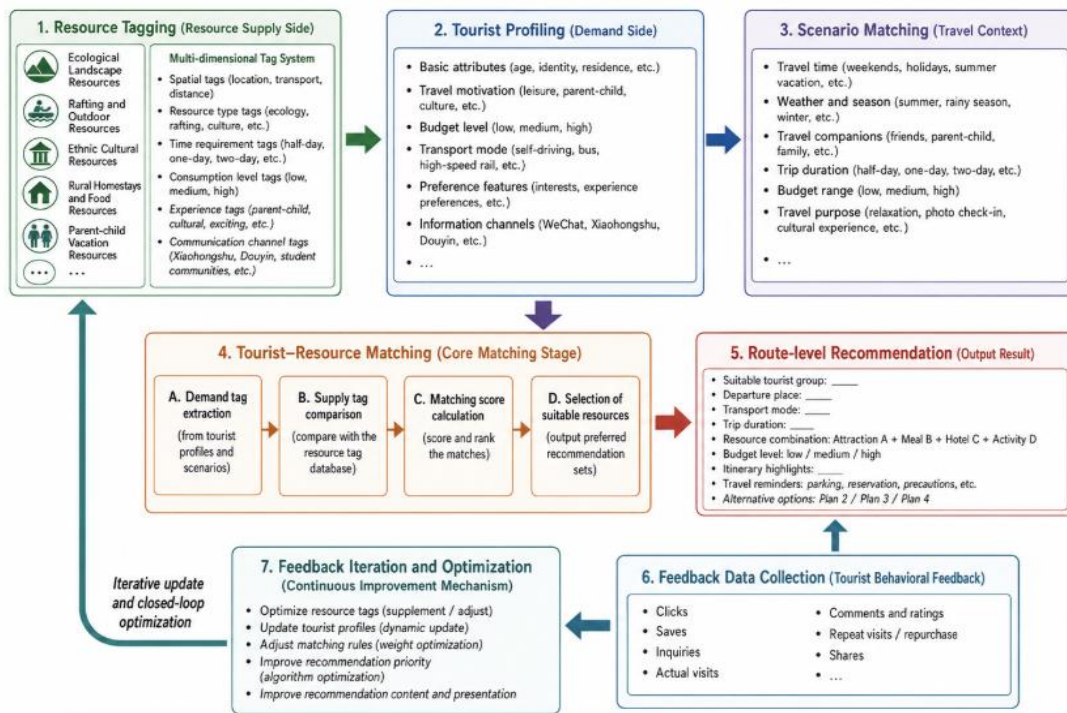


Figure 1. Precision recommendation mechanism for Qingyuan tourism resources.

## Conclusion

This paper proposes a conceptual closed-loop framework based on resource tagging, tourist profiling, scenario matching, route-level recommendation, and feedback iteration. This mechanism can help address problems such as fragmented tourism communication, insufficient tourist matching, uneven resource exposure, high travel decision-making costs, and inadequate consumption conversion. For Qingyuan, precision recommendation should be understood as a process of structured matching: Tourism resources are tagged, tourist groups are profiled, travel scenarios are identified, recommendation results are organized at the route level, and tourist feedback is used to revise the matching logic.

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