

## Article

# Exploring the Driving Factors of Urban Music Festival Tourism and Service Development Strategies Using the Modified SIA-NRM Approach

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**Abstract:** Urban music festivals play an important role in tourism. Festival tourism attracts fans and event participants from all over the world. They can contribute not only to the tourism industries but also to local and regional economic development. This study focuses on how urban music festival tourism can successfully attract tourist participation. It explores the service needs and the critical factors that affect tourists' favorable participation decisions. The SIA (Satisfaction Importance Analysis) approach was applied to evaluate the service performance aspects/criteria for urban music festival tourism. The study used the NRM (Network Relation Map) approach to determine the acceptance paths. This study also provides sustainable development strategies and suitable development paths through the SIA-NRM approach. The findings of this study reveal the ranking of importance of service attributes and performance qualities perceived by tourists of urban music festivals. It provides recommendations to the music festival organizers and for local governments' strategic directions, leading to successful music festival tourism.

**Keywords:** festival tourism; urban music festival events; sustainable development; Events Image; Events Experience; SIA-NRM



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## 1. Introduction

In Taiwan, the local governments plan many urban festivals and tourism to promote the local culture and increase job opportunities. The Taiwanese cultural and creative industries continue to pursue the hosting of large-scale festivals in various locations, in addition to annual folk performances held under the auspices of local music industries through private organizers and official governmental sponsorship. Spring Scream and the Ho-hai-yen rock festival were the famous music festivals for tourism in Taiwan. This music festival tourism can create business benefits and urban marketing value. This study means to analyze the desire of local Taiwanese people to further such music festivals in various locations throughout the country. Festival events can increase tourism revenue and promote the local economy. Music festivals can also provide diverse cultural performances and public recreation events, and increase local urban image and city advocacy. Besides, the music festival events also attract fans and visitors, and promote the industrial development of local tourism. This study examines the official and private music festival tourism that targets tourists to explore the event planners' decision-making behavior.

Event tourism is already a critical issue in regional development. Hence, the study updates previous research and presents an extensive review of research through a more in-depth analysis of the field's evolution and the development of event tourism. The study also charts the growth of the literature, both chronologically and thematically. The research proposes an evaluation framework for understanding and creating knowledge of event

tourism, and establishes the research concepts, themes, and plans for future directions in event tourism. The review research focuses on emerging topics and issues from academic and trade journals, and proposes a roadmap for future research in event tourism [1]. One study of tourist loyalty analyzed the loyalty formation process for horse racing events, and the researcher examined the relationship between tourist emotion, tourist satisfaction, event quality, event value, and tourist loyalty. This study adopted the SEM (structural equation modeling) technique and surveyed 330 domestic tourists who attended the Turkmen Sahra Region's horse races in Iran. The research concluded that event quality could influence tourist emotion and tourist loyalty, and tourists' emotions also affect event value and tourist satisfaction. Additionally, tourist satisfaction and tourist loyalty can influence event value, influencing tourist loyalty [2]. The film festivals organized can promote culture or festival tourism. However, few empirical studies explore the relationship between tourism demands and cultural attendance. Therefore, the study collects 80 countries' secondary data to analyze the tourism effects of film festivals, based on dynamic panel data analysis. The research results point out the economic value of hosted film festivals and find a more significant positive effect for film festivals organized in art countries [3].

Intangible Cultural Heritage (ICH) has been a valuable tourism resource for local governments and communities. However, recent ICH research still lacks a clear definition and is fragmented. One study tried to explore the future directions and trends of ICH tourism through the Web of Science (WOS) database. The authors conducted a systematic literature review to analyze 418 ICH tourism studies and extracted 85 keywords based on the three WOS databases (Social Sciences Citation Index, Arts and Humanities Citation Index, and Conference Proceedings Citation Index). The study analyzed the three major issues (tourist behavior and destination marketing, tourism development impact, and resource planning and sustainability) from the 418 ICH tourism studies in 76 countries published between 2000 and 2021. This study discovered that culinary tourism, ecotourism, religious tourism, and festival tourism are more prevalent in ICH tourism. The study proposed suggestions for the development directions of ICH tourism and highlighted the theoretical and practice construction [4]. The four aspects (Events Image, Events Experience, Facilities Planning, and Service Price) were used to evaluate the visitors' participation preference. Moreover, the study presented the SIA (Satisfaction Importance Analysis) approach to assess satisfaction and importance status. The NRM (Network Relation Map) approach was used to analyze the influence relation structure for urban music festival tourism. The study integrated the SIA and NRM techniques to present the SIA-NRM approach. The SIA-NRM approach can assist organizers in determining acceptance strategies and suitable development paths for urban music festival tourism.

The study includes five sections. Section 2 explores the critical driving factors of urban music festival tourism. Section 3 introduces the SIA approach and the NRM approach. The integrated SIA-NRM approach can provide suitable development paths. Section 4 uses urban music festival tourism as an empirical case. Finally, conclusions and recommendations are presented in Section 5.

## 2. The Sustainable Development Driving Forces for Urban Music Festival Tourism

Music festival events can increase tourism revenue and promote the local economy. Music festivals can also promote diverse cultural performances and increase urban images and city advocacy. In addition, music festival events also attract fans and visitors, and promote the industrial development of local tourism. This study examines the music festival event participants' preferences and decision-making behavior.

### 2.1. Events Image (EI)

Innovation is a critical source of competitive advantage. The concept of innovation is explained in detail in several early studies; however, the process of organized innovation has largely been neglected in the tourism field. Therefore, researchers propose innovation implementation for Chinese modern music festivals based on the relational perspective.

The six detailed case studies were explored in the research, which discussed how identity, equality, *guanxi* (a meaningful relationship and social network system facilitate business dealings), and contextual factors influence the association development for new Chinese music festivals. The study proposes a conceptual model to explain these relationships' complexities and evaluate their roles in innovation implementation. Moreover, the study also incorporates some mediating factors (temporality, reliance, and organizational structure on volunteers within events) [5]. The phenomenon of aging popular music has garnered attention in the past. Previously, rock, punk, and similar genres mainly attracted young people and were collectively called "youth music". The new concept of youth culture has been proposed through cultural aging perspectives. The research offers two ways to recast rock and punk music and attract aging fans of music events to continue their event involvement. The first path can remodel cultural spaces to accommodate aging bodies, and these cultural spaces continue to offer rock and punk music for differently aged fans in a multigenerational experience. The second path can attract these aging fans to experience live music in diverse spaces, such as show events and winery concerts or dinners [6].

Festival tourism can create social, economic, cultural, and political benefits, as well as increase the popularity and recognition of local communities. One study explored the relationships among support intention, social capital, and place identity for tourism of festival events based on the model of cognition–affect–behavior. Researchers tried to find the critical success factors of festival events for local communities, e.g., Kaohsiung Zuoying Wannian Folklore Festival. The SEM (Structural Equation Modeling) approach was used to analyze the relationship among support intention, social capital, and place identity via 500 residents' sample data. The research results point out that social trust influences place identity, which is also influenced by social networks and social norms. The study also discovered that place identity plays an essential role in support intention, and place identity has a mediating effect for social capital on support intention [7]. The tourism industry's recovery has become a critical challenge under the influence of the COVID-19 pandemic. Safety and sustainability are the two most important missions of the tourism industry. Researchers have explored the relationship between behavioral intentions, festival attitudes, perceptual evaluations, perceived risks, crowding, and pandemic fears in the COVID-19 pandemic period. One study has adopted a face-to-face survey to evaluate the participants in the Guangzhou Hanfu festival during the COVID-19 pandemic. The research results point out that fear affects festival behavioral intentions during the COVID-19 pandemic and confirm the perceived risk's role in crowd mediation and moderation. The study also proposed valuable recommendations for local governments and festival service providers [8].

## 2.2. Events Experience (EE)

The hippie counterculture led music festivals to become the critical part of the British summer in the 1960s and 1970s. However, contemporary music festivals became commercialized without the countercultural discourse. Therefore, some researchers tried to understand how music festivals co-create the organization, design, and management with participants to produce authentic experiences in their music festivals. The researchers observed the importance of socio-spatial space in authentic experiences, and explained how engagement and socio-spatial experiences could bring value to music festival events [9]. Semrad and Rivera (2018) addressed whether the participants of Gen Y are willing to share their memorable music festival experiences, and promote the music festival and the small island destination (SID) by e-WOM (electronic word of mouth). The study adopted the 5E framework to evaluate the festival experience for Gen Y through modifying the interest's dependent variable to that of e-WOM. Furthermore, the study explores how tourism officials attract Gen Y tourists through the Aruba Electric Festival. The study also used the SEM (Structural equation model) to evaluate a sample of Aruba Electric Festival participants. The study found that memorable music festival experiences can create positive e-WOM for

the music festival and event destination, increase the marketing effect, and reduce Aruba's destination managers and festival organizers [10].

A study of festival tourism explores satisfaction and loyalty through intangible and tangible attributes. The study analyzes the attributes perceived to influence satisfaction and loyalty during the festival celebration. Researchers consider the tangible elements to include aesthetics and festival entertainment, and the intangible elements include education and escapism. The proposed model adopts the SEM (structural equation modeling) approach to analyze the relationship between festival attributes and satisfaction and loyalty based on the 440 samples attending Weekend Beach Festival in Spain. The study finds the relationship between attributes and loyalty by the moderating variable (satisfaction). Moreover, the study also points out that tangible attributes (environment experience and aesthetics) significantly impact loyalty [11]. A festival study explored the relationship of festival support among the economic benefits, wellbeing, community attachment, and residents' empowerment. The SEM approach was used to evaluate the influence relation structure of the festival support framework based on 510 residents' samples from Victoria Falls, Zimbabwe. The research result found that residents' empowerment can strengthen the community attachment, wellbeing, and festival support. Residents' wellbeing mediates these relationships, and economic benefits also moderate the impact of the proposed model. The study suggested that authorities should empower the residents in festival host communities and encourage the local governments, festival planners, and residents to be aware of their power to support the local festival events [12].

### 2.3. Facilities Planning (FP)

Festival events can create social, economic, and cultural benefits for communities, and contribute to destination marketing and event tourism. The researchers determined the six attributes (authenticity/uniqueness, activities, concessions, socialization, escape, and environment) through a literature review and meta-analysis for evaluating festival satisfaction and loyalty. The study considered festival events (program, entertainment, and thematic activities) and the environment (convenience, facilities, and atmosphere) to be the critical determinants of satisfaction in and loyalty to festival events. The study explored the two perceptions (service quality and cost/value) and found that cost/value is crucial for satisfaction and loyalty, and that satisfaction strongly influences loyalty. The research considered that festival organizations should provide enjoyable programs and events in a comfortable environment at a reasonable price. High satisfaction can stimulate more tourists to visit the festival destination continually [13]. The concept of green festivals has gradually gained the focus of events/festivals research. A waste prevention and management study tried to evaluate waste reduction/prevention and control at the Andanças festival in Portugal. The researchers surveyed the waste characterization campaigns during the festival. This research found that the enormous quantity of residual waste was the massive amount of garbage, followed by packaging waste and food and kitchen waste. Therefore, the waste amount of both the canteen and entire venue generated more than one person per day at the festival event. The study also pointed out that some factors (the type of participant, their region of origin, the frequency of visits, and family tourism) influence the attendees' participation in waste prevention evaluation in the festival period. Researchers suggested that relevant authorities should strengthen the awareness of waste prevention, develop quantification methods of waste prevention measures, and formulate policies for zero-waste principles at festivals [14].

Tourist-to-tourist interaction (TTI) plays a critical role in the festival experience. Tourist interaction can increase tourists' behavioral reactions (satisfaction, desire to stay, and loyalty) and promote the marketing of tourism destinations. The study adopts the grounded theory to analyze the tourists' onsite interactions and establish the TTI (Tourist-to-tourist interaction) conceptual model through Midi Music Festival in China. The proposed model includes the influence, drivers, and types of TTI. The researcher points out that entertainment interaction plays a critical role in the evaluation system. The individual characteristics

are the internal drivers of tourist interactions, and environmental elements (social festivalscape and festivalscape) are influential exogenous factors. The tourists' spatial locations at the venue have a mediating effect between TTI (Tourist-to-tourist interaction) and the critical driving elements. Since the entertainment incidents are critical of festivals' onsite interactions, the service provider can create an atmosphere to encourage tourists' interactions with other tourists. The strategies can increase the customers' festival experience evaluation and strengthen tourism destinations' sustainable development [15]. Music festivals have become very popular. They can attract tourists and bring in economic activities and business opportunities. One study adopted the hybrid MCDM approach to evaluate the perceived service performance of music festival events by festival participants. The DEMATEL approach was used to establish the network relation structure. The research result found that Package Price (PP) and Site Planning (SP) were critical factors influencing music festival events. The service providers of music festival events can strengthen their marketing strategies through the NRM (Network Relation Map) approach. The study also proposed valuable suggestions to improve the service experiences and equipment plans for the music festivals [16].

#### 2.4. Service Price (SP)

Kim, Prideaux, and Chon (2010) used three different statistical models to analyze festival experience-related variables and visitors' socio-demographics to visitor patterns and expenditure levels in the festival events. The three evaluation models included the Logit and Tobit models, and ordinary least squares. The study adopted three statistical models to compare the differences and similarities in the cross-section survey data. The research findings point out that the set of independent variables shows different significant effects in estimating expenditures of festival visitors by three different evaluation models. The different visitors' socio-demographics influence their behavior and expenditure levels. Thus, the study suggested that the decision maker needs to analyze the determinants of participants' expenditures at festival events, and adopt multiple statistical models better than the singular statistical model [17]. The concept of sustainability has become a critical issue for regional tourism development. The study proposed a model for evaluating the impacts of a tourist event through the standard monetary metric based on commensurability and sustainability perspectives. The study tested the proposed model of a three-day music festival and produced a sustainability influence analysis based on the uniform metric. The results illustrate the low emission rights' market value and suggest that the environmental concerns are negligible based on the economic perspective. In monetary terms, the economic impacts and socio-cultural impacts are more important than the environmental effects. Hence, the study recommended evaluating the commensurability and opportunity cost in future field research [18].

Small-scale events can apply the tourism leveraging strategies of mega-events. The study interviewed eight small-scale events' event managers to understand how grant funding can promote tourism leveraging to strengthen the core purpose of staging the event. However, grant funding directly influences the festival manager's focus to increase the duration of stay, the number of tourists, and spending in the destination. Therefore, managers of festival events should consider that the tourism leveraging strategies increase the size of the event and expand the event's target markets. Tour operators are the primary beneficiaries of these leveraging strategies. The mutual benefits between tourism organizations and event organizations can create new collaborations between funding partner(s) and event managers [19]. Cultural festivals can strengthen the culture identities and national emotions. One study used the Ecological Niche Theory to suggest a theoretical framework, which includes the resources, environment, demands, and spatiotemporal niches to evaluate the sustainability of cultural festival tourism. The sustainability of lantern festivals in China's 34 regions was assessed. The research discovered that the environmental niche and the local authorities' support play critical roles in the sustainability of cultural festival tourism [20].

This study establishes the four aspects (Events Image, Events Experience, Facilities Planning, and Service Price) and 16 criteria through expert interviews and literature reviews, as shown in Table 1. The EI (Events Image) aspect includes four criteria (renowned band, package service, promotion activities, and peripheral products), and the EE (Events Experience) aspect consists of four criteria (internet propaganda, stage effect, multiple characteristics, and field experience). The aspect of FP (Facilities Planning) consists of four criteria (exhibition planning, ancillary facilities, vendor planning, and accommodation service). The criteria of performance fees, accommodation fees, catering fees, and package offer were included in the SP (Service Price) aspect, as illustrated in Table 1.

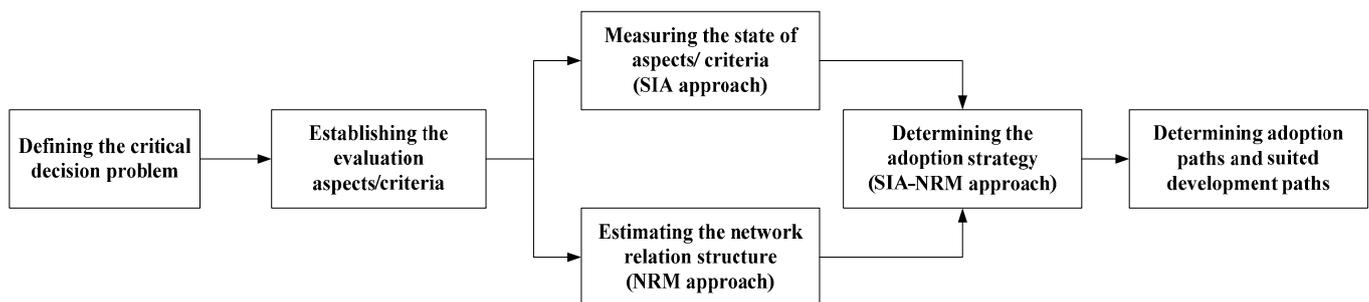
**Table 1.** Description of value drivers for urban music festival tourism.

Aspects/Criteria	Evaluation Criteria Description
<b>1. Events Image (EI)</b>	
Renowned band (EI1)	Music festival organizers can invite well-known indie bands to enhance customers' participation willingness.
Package service (EI2)	Music festival organizers can combine local tourism resources and music festival tourism to offer local festival tourism packages.
Promotion activities (EI3)	Music festival organizers can offer providers various special offers and special packages to satisfy participants' diverse needs.
Peripheral products (EI4)	Music festival organizers can offer peripheral items (such as music albums, commemorative clothes) to satisfy the participants' souvenir needs.
<b>2. Events Experience (EE)</b>	
Internet propaganda (EE1)	Music festival organizers can offer event announcements, online consulting, and online booking services by integrating the service system.
Stage effect (EE 2)	Music festival organizers can create special stage effects for festival tourism through the festival theme plan.
Multiple characteristics (EE3)	Music festival organizers can attract different styles of indie bands to participate through diverse music preferences.
Field experience (EE4)	Music festival organizers can increase event participants' service experiences through various stage displays and field experiences.
<b>3. Facilities Planning (FP)</b>	
Exhibition planning (FP1)	Music festival event organizers can offer the entire stage configuration and exhibition line planning to reduce inconvenience.
Ancillary facilities (FP2)	Perfect guiding signs and ancillary facilities (such as parking lots, medical stations) can increase the convenience of event participants.
Vendor planning (FP3)	Diversified vendor planning can satisfy the event participants' shopping needs and increase the convenience of event participants.
Accommodation service (FP4)	Perfect and convenient accommodation services can satisfy the convenience of accommodation and dining for event participants.
<b>4. Service Price (SP)</b>	
Performance fees (SP1)	Music festival organizers can offer different styles of service packages to satisfy event participants' various needs.
Accommodation fees (SP2)	A wide range of accommodation service options is available to meet the various needs of event participants.
Catering fees (SP3)	A wide range of food service options is available to meet the various needs of event participants.
Package offer (SP4)	A wide range of integrated package ticket fare options is available to meet the various needs of event participants.

### 3. The Modified SIA-NRM Approach

This study adopts the modified SIA-NRM (Satisfaction and Importance Analysis–Network Relation Map) approach to assess the urban festival tourism evaluation system. There are six steps. The first step defines the critical decision problem for urban festival tourism systems. The second step determines the evaluation system's driving forces (aspects/criteria) through expert interviews and literature reviews. The third step surveys

each aspect/criterion's satisfaction and importance level, and adopts the SIA approach to evaluate the satisfaction and importance statuses. The fourth step establishes the Network Relation Structure through the NRM approach and determines the evaluation system's dominant aspects/criteria. The fifth step of the SIA-NRM approach combines the SIA approach and the NRM approach to provide acceptance strategy and recommends suitable improvement paths for festival tourism systems. Finally, the modified SIA-NRM approach provides the acceptance path and suitable development paths through the aspects/criteria ranking for satisfaction and importance status. This study adopts Microsoft Office Excel to establish the SIA approach and uses MATLAB to calculate the NRM approach. The modified SIA-NRM approach including six analytic processes is illustrated in Figure 1.



**Figure 1.** The modified SIA-NRM approach for urban music festival tourism. Note: Own research.

### 3.1. Research Design and Reliability Analysis

The researchers determine the four aspects (Events Image, Events Experience, Facilities Planning, and Service Price) and 16 criteria through interviews of field experts and a literature review. For example, the aspect of event image can be generalized based on the interview results of the music festival organizer. Likewise, event experience can be generalized through the interview results of the invited indie bands and event participants. The aspect of Facilities Planning can be generalized by the overall stakeholders' views. The Service Price aspect can be obtained through the experts' interviews. This study also surveys the satisfaction level and importance level of each aspect/criterion for the stakeholders (event organizers, invited indie bands, event vendors, and event participants) and finishes with a 30-item questionnaire. The researcher collects the sample through the online questionnaire and paper questionnaire. The study received 220 total samples and 172 valid samples, and the 172 valid samples, including those from 2 internal stakeholders (event organizers) and 170 external stakeholders (event participants, invited indie bands, and event vendors). The Cronbach's Alpha (Cronbach  $\alpha$ ) indicator was adopted to evaluate the satisfaction reliability and importance reliability for each aspect/criterion. The Cronbach's Alpha of the aspects of satisfaction and importance are all higher than the suggested high-reliability level of 0.7. The EI, EE, FP, and SP aspects are higher than the recommended high reliability level of 0.7, as shown in Table 2.

**Table 2.** The analysis of reliability (Cronbach  $\alpha$ ).

Items	Aspects/Criteria	Alpha	Result
	Satisfaction dimension	0.965	High
	Importance dimension	0.946	High
	Aspects of service system	0.952	High
Criteria of aspects	Events Image (EI)	0.940	High
	Events Experience (EE)	0.967	High
	Facilities Planning (FP)	0.957	High
	Service Price (SP)	0.956	High

Note: Cronbach's Alpha  $\alpha$ -value:  $\alpha \leq 0.35$  is low reliability,  $0.35 < \alpha < 0.70$ ,  $\alpha \geq 0.7$  is high reliability.

### 3.2. The SIA (Satisfaction and Importance Analysis) Analysis

The EE (Events Experience) aspect is located in the first quadrant (H, H). Hence, stakeholders considered the EE aspect to be of high satisfaction and high importance for urban music festival tourism. Stakeholders satisfy the EE aspect, and the EE aspect is an important aspect. Therefore, acceptance strategy A (Status keeping) can be applied in the first quadrant. The FP (Facilities Planning) aspect is located in the second quadrant (L, H). Hence, stakeholders should consider that the FP aspect is of low satisfaction and high importance for urban music festival tourism. Since stakeholders do not satisfy the FP aspect, and the FP aspect is essential, they should consider improving their status immediately. Thus, the acceptance strategy of immediate improvement can be applied in the second quadrant. The EI (Events Image) aspect is located in the third quadrant (L, L). Hence, stakeholders consider the EI aspect to be of low satisfaction and low importance for urban music festival tourism. Although stakeholders don't satisfy the EI aspect, and the EI aspect is not an important aspect, the stakeholders can adopt progressive improvement to the current status. Accordingly, the acceptance strategy of progressive improvement can be applied in the third quadrant. The SP (Service Price) aspect is located in the fourth quadrant (H, L). Hence, stakeholders consider the SP (Service Price) aspect to be highly satisfying but of low importance for urban music festival tourism. Stakeholders satisfy the SP aspect, and the SP aspect is not considered necessary; the stakeholders only need to monitor the current status. Thus, the acceptance strategy of status monitoring can be applied in the fourth quadrant. In the SIA analysis, the decision makers should focus on the aspects located in the second quadrant (L, H), such as Facilities Planning (FP). They also should affect the aspects found in the third quadrant (L, L), such as Events Image (EI), as shown in Table 3 and Figure 2.

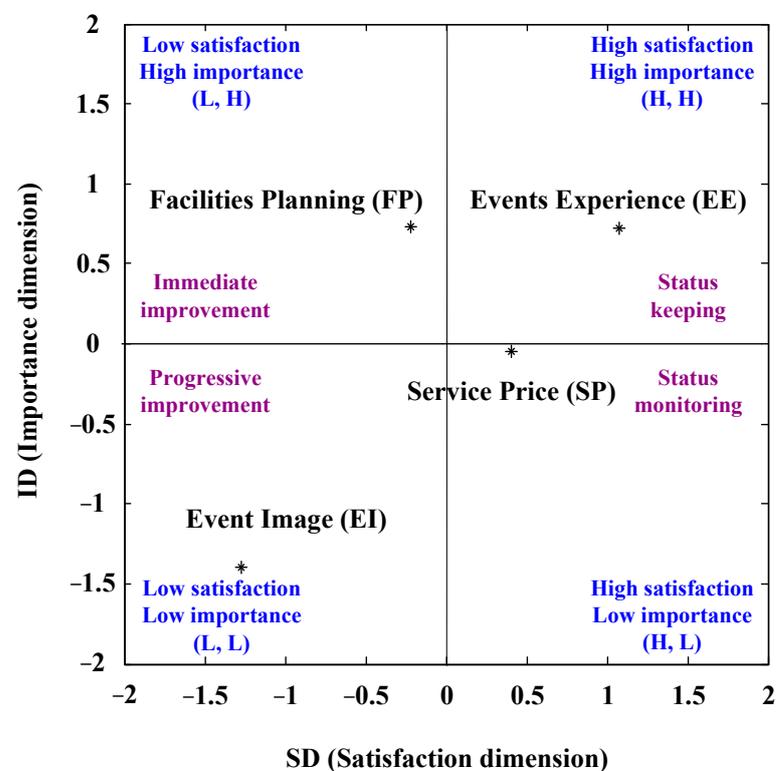


Figure 2. The position map based on the SIA (Importance and attention analysis) approach.

**Table 3.** The SIA analysis of urban music festival tourism.

Aspects	SD		ID		(SD, ID)
	MS	SS	MI	SI	
Events Image (EI)	7.203	−1.273	6.856	−1.396	(L, L)
Events Experience (EE)	7.362	1.079	7.475	0.719	(H, H)
Facilities Planning (FP)	7.275	−0.216	7.478	0.729	(L, H)
Service Price (SP)	7.317	0.410	7.250	−0.051	(H, L)
Average	7.289	0.000	7.265	0.000	
Standard deviation	0.067	1.000	0.293	1.000	
Maximum	7.362	1.079	7.478	0.729	
Minimum	7.203	−1.273	6.856	−1.396	

Note 1: (H, H) means the aspect/criterion of high satisfaction and high importance, (L, H) means the aspect/criterion of low satisfaction and high importance, (L, L) means the aspect/criterion of low satisfaction and low importance, and (H, L) means the aspect/criterion of high satisfaction but low importance. Note 2: MS, SS, MI, and SI mean satisfaction, standardized satisfaction, importance, and standardized importance, respectively. Note 3: The acceptance strategies include four types: acceptance strategy A (Status keeping), acceptance strategy B (Immediate improvement), acceptance strategy C (Progressive improvement), and acceptance strategy D (Status monitoring).

### 3.3. The NRM Analysis Based on the DEMATEL Approach

More and more recent studies analyze the complex decision problems through the EMATEL approach: the user interface analysis using the DEMATEL technique [21], the evaluation system of failure sorting [22], establishing the evaluation system of e-learning programs [23], the evaluation system of airline safety [24], the analysis of value-created systems for science (technology) parks [25], the threshold value identification through the DEMATEL approach [26], the service selection of VTS (vehicle telematics system) [27], the matrix organization's performance improvement using the DEMATEL model [28], the selection model of outsourcing providers for the airline industry [29], determining the design delay factors through ISA (the importance satisfaction analysis) and IRM (influence relations map) [30], determining the product position of the VTS service system based on the MCDM technique [31], establishing the digital music service platform selection model using the hybrid MCDM technique [32], evaluating environmentally sustainable manufacturing for the Indian automobile industry using the DEMATEL approach [33], the service position model of package tour services by the hybrid MCDM technique [34], determining the performance of the food supply chain based on the MCDM technique [35], establishing industrial tourism's sustainable development strategies through the IOA–NRM approach [36], the failure mode and effect analysis using the novel hybrid MCDM approach [37], and the environment development strategies of urban and rural/town tourism using the MCDM technique [38], establishing the regional sustainable development strategies for the China Pearl River Delta based on the BP–DEMATEL approach [39], the integrated carbon management strategy of supplier development programs [40], evaluating the future scenarios of cultural ecosystem services based on the hybrid MCDM approach [41], establishing the improvement strategies of industrial parks through the MADM approach [42], and determining the urban sustainable development strategies and common suited paths considering various stakeholders [43].

#### 1. Analyze the original average matrix.

The respondents evaluate the influence each aspect has on others by scales ranging from 4 to 0. "4" means "extremely strong influence on others" and "0" indicates "no influence on others" between aspect/criterion; "3", "2", and "1" indicate "high influence on others", "medium influence on others", and "low influence on others", respectively. The influence that "Events Image (EI)" has on "Facilities Planning (FP)" is 2.610, which means "medium influence," as shown in Table 4. The influence that "Facilities Planning (FP)" has on "Events Image (EI)" is 2.692, which also means "medium influence", as illustrated in Table 4.

**Table 4.** The original average influence matrix (A).

Aspects	EI	EE	FP	SP	Total
Events Image (EI)	0.000	2.552	<b>2.610</b>	2.564	7.727
Events Experience (EE)	2.669	0.000	2.640	2.547	7.855
Facilities Planning (FP)	<b>2.692</b>	2.721	0.000	2.599	8.012
Service Price (SP)	2.634	2.651	2.680	0.000	7.965
Total	7.994	7.924	7.930	7.709	-

## 2. Evaluate the direct influence matrix.

This study processed the A (original average influence matrix) through Equations (1) and (2) and got the “direct influence matrix” (D), as shown in Table 5. The diagonal items of the direct influence matrix (D) are all 0, and the sum of a row is at most 1, as illustrated in Table 5. Then we compiled Table 5 by adding up rows and columns. The sum of row and column for “Facilities Planning (FP)” is **1.990**, the essential influence aspect. On the other hand, the sum of rows and columns for “Service Price (SP)” is **1.956**, which is the least essential influence aspect, as illustrated in Table 6.

$$D = sA, s > 0 \quad (1)$$

where

$$s = \min_{i,j} [1 / \max_{1 \leq i \leq n} \sum_{j=1}^n a_{ij}, 1 / \max_{1 \leq j \leq n} \sum_{i=1}^n a_{ij}], i, j = 1, 2, \dots, n \quad (2)$$

and  $\lim_{m \rightarrow \infty} D^m = [0]_{n \times n}$ , where  $D = [x_{ij}]_{n \times n}$ , when  $0 < \sum_{j=1}^n x_{ij} \leq 1$  or  $0 < \sum_{i=1}^n x_{ij} \leq 1$ , and at least one  $\sum_{j=1}^n x_{ij}$  or  $\sum_{i=1}^n x_{ij}$  equals one, but not all. Thus, we can guarantee  $\lim_{m \rightarrow \infty} D^m = [0]_{n \times n}$ .

**Table 5.** The direct influence matrix (D).

Aspects	EI	EE	FP	SP	Total
Events Image (EI)	0.000	0.319	0.326	0.320	0.964
Events Experience (EE)	0.333	0.000	0.329	0.318	0.980
Facilities Planning (FP)	0.336	0.340	0.000	0.324	1.000
Service Price (SP)	0.329	0.331	0.335	0.000	0.994
Total	0.998	0.989	0.990	0.962	-

**Table 6.** The degree of direct influence.

Aspects	Sum of Row	Sum of Column	Sum of Row and Column	Importance of Influence
Events Image (EI)	0.964	0.998	1.962	3
Events Experience (EE)	0.980	0.989	1.970	2
Facilities Planning (FP)	1.000	0.990	<b>1.990</b>	1
Service Price (SP)	0.994	0.962	<b>1.956</b>	4

## 3. Evaluate the indirect influence matrix.

The indirect influence matrix can be obtained by Equation (3), as illustrated in Table 7.

$$ID = \sum_{i=2}^{\infty} D^i = D^2(I - D)^{-1} \quad (3)$$

**Table 7.** The indirect influence matrix (*ID*).

Aspects	EI	EE	FP	SP	Total
Events Image (EI)	16.052	15.876	15.873	15.535	63.336
Events Experience (EE)	16.155	16.138	16.056	15.717	64.065
Facilities Planning (FP)	16.402	16.299	16.384	15.956	65.041
Service Price (SP)	16.346	16.244	16.242	15.978	64.809
Total	64.954	64.557	64.555	63.185	-

#### 4. Evaluate the full influence matrix.

The *T* (full influence matrix) can be obtained through Equation (4) or (5), as shown in Table 8. The *T* consists of multiple elements, indicated as Equation (6), as illustrated in Table 8. In Equations (7) and (8), the  $d_i$  was sum vector of the row value, and the  $r_i$  was sum vector of the column value; then, let  $i = j$ , and the  $\{d_i + r_i\}$  was sum vector of the row value plus sum vector of the column value, which means the full influence of the matrix *T*. As the  $\{d_i + r_i\}$  (sum of the row value plus sum of the column value) is higher, the relationship of the dimension or criterion is stronger. The  $\{d_i - r_i\}$  (sum of the row value minus the sum of the column value) indicates the net influence relationship status. If  $d_i - r_i > 0$ , the degree of influencing others is more substantial than the degree of being influenced; otherwise,  $d_i - r_i < 0$ .

$$T = D + ID \sum_{i=1}^{\infty} D^i \quad (4)$$

$$T = \sum_{i=1}^{\infty} D^i = D(I - D)^{-1} \quad (5)$$

$$T = [t_{ij}], \quad i, j \in \{1, 2, \dots, n\} \quad (6)$$

$$d = d_{n \times 1} = \left[ \sum_{j=1}^n t_{ij} \right]_{n \times 1} = (d_1, \dots, d_i, \dots, d_n) \quad (7)$$

$$r = r_{n \times 1} = \left[ \sum_{i=1}^n t_{ij} \right]'_{1 \times n} = (r_1, \dots, r_j, \dots, r_n) \quad (8)$$

**Table 8.** The full influence matrix (*T*).

Aspects	EI	EE	FP	SP	<i>d</i>
Events Image (EI)	16.052	16.195	16.199	15.855	64.301
Events Experience (EE)	16.488	16.138	16.385	16.035	65.045
Facilities Planning (FP)	16.738	16.639	16.384	16.280	66.041
Service Price (SP)	16.675	16.575	16.577	15.978	65.804
<i>r</i>	65.952	65.547	65.545	64.147	-

The aspect of Facilities Planning (FP) has the highest degree of full influence ( $d_3 + r_3 = 131.585$ ). The aspect of SP (Service Price) has the highest net influence ( $d_4 - r_4 = 1.657$ ). In Table 9, the order of other net influences is listed as follows: Facilities Planning (FP) ( $d_3 - r_3 = 0.496$ ), Events Experience (EE) ( $d_2 - r_2 = -0.501$ ), and last, the Events Image (EI) ( $d_1 - r_1 = -1.651$ ).

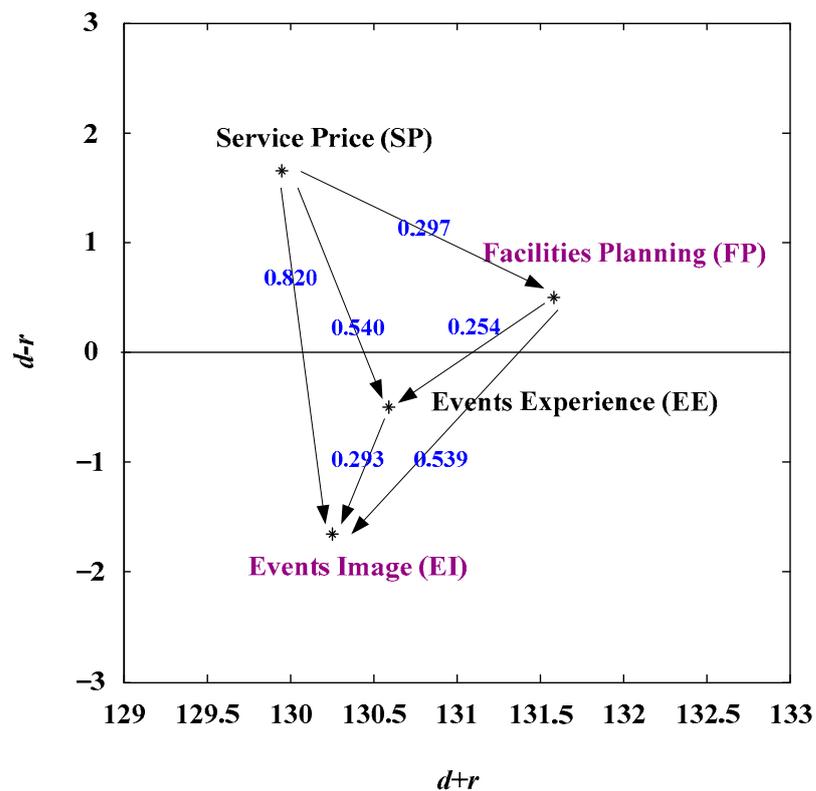
**Table 9.** The degree of full influence.

Aspects	{d}	{r}	{d + r}	{d − r}
Events Image (EI)	64.301	65.952	130.253	−1.651
Events Experience (EE)	65.045	65.547	130.592	−0.501
Facilities Planning (FP)	66.041	65.545	<b>131.585</b>	0.496
Service Price (SP)	65.804	64.147	129.951	<b>1.657</b>

5. Determine the network relation map (NRM).

The stakeholders evaluate the influence relation level for each aspect/criterion based on the DEMATEL approach. As a result, the  $T_{net}$  (net influence matrix) can be obtained through Equation (9). The full influence matrix contains the lower triangular matrix and upper triangular matrix, and the diagonal values of the full influence matrix are all 0. Moreover, while the lower triangular matrix values and upper triangular matrix are the same, their symbols are the opposite. Therefore, researchers only have to choose one triangular matrix. Table 8 presents the full influence matrix and can produce the net influence matrix through Equation (9). The study adopts the values of  $(d + r)$  and  $(d - r)$  as X and Y values and draws on the NRM approach through the net influence matrix, as shown in Figure 3 and Table 10.

$$T_{net} = [t_{ij} - t_{ji}], \quad i, j \in \{1, 2, \dots, n\} \tag{9}$$



**Figure 3.** The NRM of urban music festival tourism services.

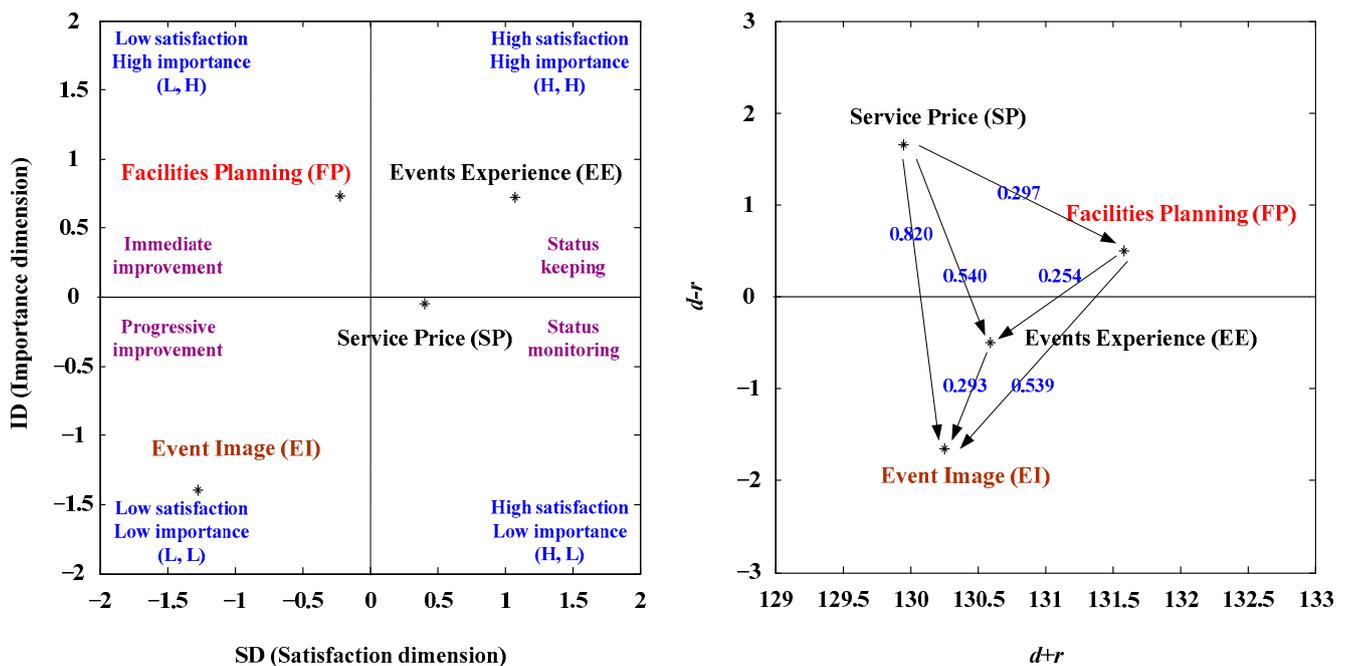
**Table 10.** The net influence matrix of urban music festival tourism.

Aspects	EI	EE	FP	SP
Events Image (EI)	-			
Events Experience (EE)	0.293	-		
Facilities Planning (FP)	0.539	0.254	-	
Service Price (SP)	0.820	0.540	0.297	-

The study determines the network relation map of urban music festival tourism, as illustrated in Figure 3. The SP (Service Price) aspect and FP (Facilities Planning) aspect are the primary influencing aspects, and the EI (Events Image) aspect and EE (Events Experience) aspect are the primarily influenced aspects. The network relation map (NRM) approach can assist the decision maker in finding the development direction and acceptance paths through the NRM approach, as illustrated in Figure 3 and Table 10.

3.4. The Analysis of the SIA-NRM Approach

The SIA-NRM analysis includes two analytic stages: the SIA (satisfaction importance analysis) approach and the NRM (Network relation map) approach. The SIA approach can aid event organizers of the music festival to identify aspects/criteria that can be improved when the standard satisfied level is less than the average satisfaction level. Acceptation strategy A (Status keeping) can be applied to the EE (Events Experience) aspect, and acceptance strategy B (Immediate improvement) can be applied to the FP (Facilities Planning) aspect. Acceptation strategy C (Progressive improvement) can be applied to the EI (Events Image) aspect, and acceptance strategy D (Status monitoring) can be used for the SP (Service Price) aspect. The aspects of FP and EI can improve based on the SIA approach, and the SP aspect is the aspect that is the primary net influence aspect. The EI aspect is the primary being influence aspect. Thus, we can improve the FP aspect through the SP (Service Price) aspect. The EI aspect is the being influenced primary aspect. Besides, the EI aspect can improve through the SP, FP, and EE aspects, as shown in Figure 4 and Table 11.



**Figure 4.** The SIA-NRM analysis of urban music festival tourism.

**Table 11.** The acceptance strategy for urban music festival tourism.

Aspects	SIA			NRM			AS
	SD	ID	(SD, ID)	$d + r$	$d - r$	(R, D)	
Events Image (EI)	−1.273	−1.396	(L, L)	130.253	−1.651	ID (+, −)	C
Events Experience (EE)	1.079	0.719	(H, H)	130.592	−0.501	ID (+, −)	A
Facilities Planning (FP)	−0.216	0.729	(L, H)	131.585	0.496	D (+, +)	B
Service Price (SP)	0.410	−0.051	(H, L)	129.951	1.657	D (+, +)	D

Notes: The acceptance strategies include four types: Acceptation strategy A (Status keeping), Acceptation strategy B (Immediate improvement), Acceptation strategy C (Progressive improvement), and Acceptation strategy D (Status monitoring).

### 3.5. Establishment of the Suited Development Paths by SD and ID Ranking

The SD ranking is  $EE \supset SP \supset FP \supset EI$ , and the SP (Service Price) aspect can affect the EI (Events Image) through the first acceptance path (SP [2] → EI [4]). The aspect of EE (Events Experience) can affect the EI aspect based on the second acceptance path (SP [2] → EE [1] → EI [4]). Then, the SP aspect can improve the aspect of FP (Facilities Planning), and the FP aspect can affect the aspect of EI through the third acceptance path (SP [2] → FP [3] → EI [4]). The SP aspect can affect the FP aspect. The EE aspect can affect the EI aspect through the fourth acceptance path (SP [2] → FP [3] → EE [1] → EI [4]), as illustrated in Table 12.

**Table 12.** The suited development paths of urban music festival tourism.

	SD (Satisfaction Dimension)	ID (Importance Dimension)
Rank	EE [1] > SP [2] > FP [3] > EI [4]	FP [1] > EE [2] > SP [3] > EI [4]
Acceptation paths	1. SP [2] → EI [4] {Y} 2. SP [2] → EE [1] → EI [4] {Y} 3. SP [2] → FP [3] → EI [4] {Y} 4. SP [2] → FP [3] → EE [1] → EI [4] {Y}	1. SP [3] → EI [4] {Y} 2. SP [3] → EE [2] → EI [4] {Y} 3. SP [3] → FP [1] → EI [4] {Y} 4. SP [3] → FP [1] → EE [2] → EI [4] {Y}
Suited development paths	1. SP → EI 2. SP → EE → EI 3. SP → FP → EI 4. SP → FP → EE → EI	

The ID (importance dimension) ranking is  $FP \supset EE \supset SP \supset EI$ . The SP aspect can affect the EI aspect through the first acceptance path (SP [3] → EI [4]). The EE aspect can affect the EI aspect through the second acceptance path (SP [3] → EE [2] → EI [4]). The FP aspect can affect the EI aspect through the third acceptance path (SP [3] → FP [1] → EI [4]). In addition, the FP aspect can improve the EE aspect. The EE aspect can affect the EI aspect through the fourth acceptance path (SP [3] → FP [1] → EE [2] → EI [4]). Therefore, the SIA-NRM approach integrates the acceptance paths of SD and ID; the suited development paths are found in Table 12. The SD and ID acceptance paths are the same in the empirical result, so the suited development paths include the four acceptance paths (SP → EI; SP → EE → EI; SP → FP → EI; SP → FP → EE → EI), as illustrated in Table 12.

## 4. The Empirical Study of Urban Music Festival Tourism Based on the Modified SIA-NRM Approach

This study integrates the SIA approach and NRM approach to determine the acceptance strategy and suited development path for urban music festival tourism. This study illustrates each SIA-NRM analytic result in Section 4.1. Following this, the study also discusses the acceptance strategy and analysis suggestions for urban music festival tourism in Section 4.2.

### 4.1. Establishment of the Acceptation Strategy and Suited Development Paths

The study introduced the SIA-NRM approach in the sub-section for urban music festival tourism. The SIA approach can evaluate aspect/criteria satisfaction and the importance

status of aspects/criteria, and the NRM approach can determine the network relation map. The SIA-NRM approach can determine the acceptance strategy and suited development path for urban music festival tourism.

4.1.1. The EI (Events Image) Aspect

In the SIA analysis, the satisfied level of the EI2 and EI4 criteria are less than the average satisfied level ( $SD < 0$ ), and the importance level is also less than the average importance level ( $ID < 0$ ). Consequently, there are two criteria that should be improved, while the importance level of the criteria increases more than the average importance level ( $ID > 0$ ), as shown in Figure 5 and Table 13. In the NRM analysis, the EI2 criterion is the positive net influence effect ( $d - r > 0$ ), so they can improve the EI (Events Image) aspect by the EI2 criterion. There are three types of acceptance strategies that were present in Table 13: acceptance strategy A (Status keeping) can be applied to the EI1 ( $SD > 0, ID > 0$ ); acceptance strategy C (Progressive improvement) can be applied to the EI2 criterion and EI4 criterion ( $SD < 0$ , and  $ID < 0$ ); and acceptance strategy D (Status monitoring) can be applied to the EI3 criterion, as shown in Table 13. The EI2 and EI4 criteria are located in the third quadrant (L, L), so the two criteria should improve. The EI4 criterion can improve through the EI2 criterion. The criteria of EI2 can only be improved by itself, as shown in Figure 5, Tables 13 and 14.

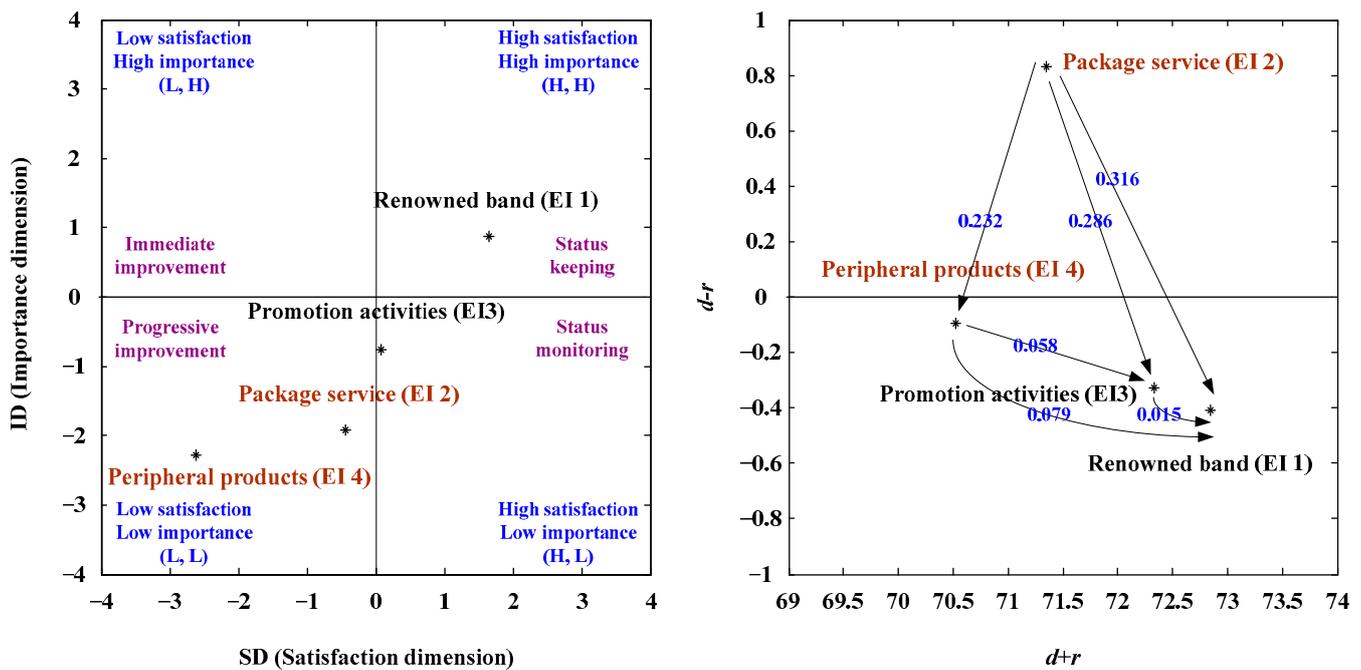


Figure 5. The NRM of the EI (Events Image) aspect.

Table 13. The acceptance strategies of the EI (Events Image) aspect.

Aspects	SIA			NRM			AS
	SD	ID	(SD, ID)	$d + r$	$d - r$	(R, D)	
Renowned band (EI1)	1.653	0.868	(H, H)	72.843	-0.410	ID (+, -)	A
Package service (EI2)	-0.446	-1.921	(L, L)	71.353	0.833	D (+, +)	C
Promotion activities (EI3)	0.073	-0.767	(H, L)	72.337	-0.329	ID (+, -)	D
Peripheral products (EI 4)	-2.612	-2.286	(L, L)	70.523	-0.094	ID (+, -)	C

Notes: The acceptance strategies include four types. The definitions are the same as described in Table 11.

**Table 14.** The net influence matrix of the EI (Events Image) aspect.

Aspects	EI1	EI2	EI3	EI4
Renowned band (EI1)	-			
Package service (EI2)	0.316	-		
Promotion activities (EI3)	0.015	-0.286	-	
Peripheral products (EI4)	0.079	-0.232	0.058	-

The SD (satisfaction dimension) ranking is  $EI1 \supset EI3 \supset EI2 \supset EI4$ . Therefore, the criterion of EI2 can improve the EI4 criterion through the second acceptance path (EI2 [3] → EI4 [4] → EI1 [1] {Y}). The EI2 criterion can improve the EI4 criterion through the fourth acceptance path (EI2 [3] → EI4 [4] → EI3 [2] → EI1 [1]), as shown in Table 15. The ID (importance dimension) ranking is  $EI1 \supset EI3 \supset EI2 \supset EI4$ . The EI2 (package service) criterion can improve the EI4 criterion through the second acceptance path (EI2 [3] → EI4 [4] → EI1 [1]). The EI2 criterion can improve the EI4 criterion through the fourth acceptance path (EI2 [3] → EI4 [4] → EI3 [2] → EI1 [1] {Y}). Therefore, the SIA-NRM approach integrates the acceptance paths of the SD and ID, and the suited development paths can be determined through the modified SIA-NRM approach, as illustrated in Table 15. The study integrates the acceptance paths of SD and ID for the EI (Events Image) aspect, so two suited development paths (EI2 → EI4 → EI1; EI2 → EI4 → EI3 → EI1) were included in the EI aspect, as illustrated in Table 15.

**Table 15.** The suited development paths of the EI (Events Image) aspect.

	SD (Satisfaction Dimension)	ID (Importance Dimension)
Rank	EI1 [1] > EI3 [2] > EI2 [3] > EI4 [4]	EI1 [1] > EI3 [2] > EI2 [3] > EI4 [4]
Acceptation paths	1. EI2 [3] → EI1 [1] {N} 2. EI2 [3] → EI4 [4] → EI1 [1] {Y} 3. EI2 [3] → EI3 [2] → EI1 [1] {N} 4. EI2 [3] → EI4 [4] → EI3 [2] → EI1 [1] {Y}	1. EI2 [3] → EI1 [1] {N} 2. EI2 [3] → EI4 [4] → EI1 [1] {Y} 3. EI2 [3] → EI3 [2] → EI1 [1] {N} 4. EI2 [3] → EI4 [4] → EI3 [2] → EI1 [1] {Y}
Suited development paths	2. EI2 → EI4 → EI1 4. EI2 → EI4 → EI3 → EI1	

#### 4.1.2. The EE (Events Experience) Aspect

In the SIA analysis, the satisfied level of the EE4 criterion is less than the average satisfied level ( $SD < 0$ ), and the importance level is more than the average importance level ( $ID > 0$ ). Therefore, the EE4 criterion should improve soon. In the NRM analysis, the criteria of EE2 and EE3 are the positive net influence effects ( $d - r > 0$ ). Therefore, the EE (Events Experience) aspect should improve from the criteria of EE2 and EE3, as shown in Figure 6 and Table 16. Acceptation strategy A (Status keeping) can be applied to the criteria of EE1, EE2 and EE3 ( $SD > 0$ , and  $ID > 0$ ). Acceptation strategy B (Immediate improvement) can be applied to the criterion of EE4. The criterion of EE4 is located in the second quadrant, so the criterion of EE4 should improve. The EE4 criterion can be affected through the criteria of EE2, EE1, and EE3, as shown in Figure 6, Tables 16 and 17.

**Table 16.** The acceptance strategies of the EE (Events Experience) aspect.

Aspects	SIA		(SD, ID)	$d + r$	NRM		AS
	SD	ID			$d - r$	(R, D)	
Internet propaganda (EE 1)	1.156	0.970	(H, H)	93.064	-0.248	ID (+, -)	A
Stage effect (EE 2)	0.344	0.634	(H, H)	92.133	1.462	D (+, +)	A
Multiple characteristics (EE3)	0.231	0.284	(H, H)	92.531	0.209	D (+, +)	A
Field experience (EE4)	-0.604	0.225	(L, H)	92.667	-1.422	ID (+, -)	B

Notes: The acceptance strategies include four types. The definitions are the same as described in Table 11.

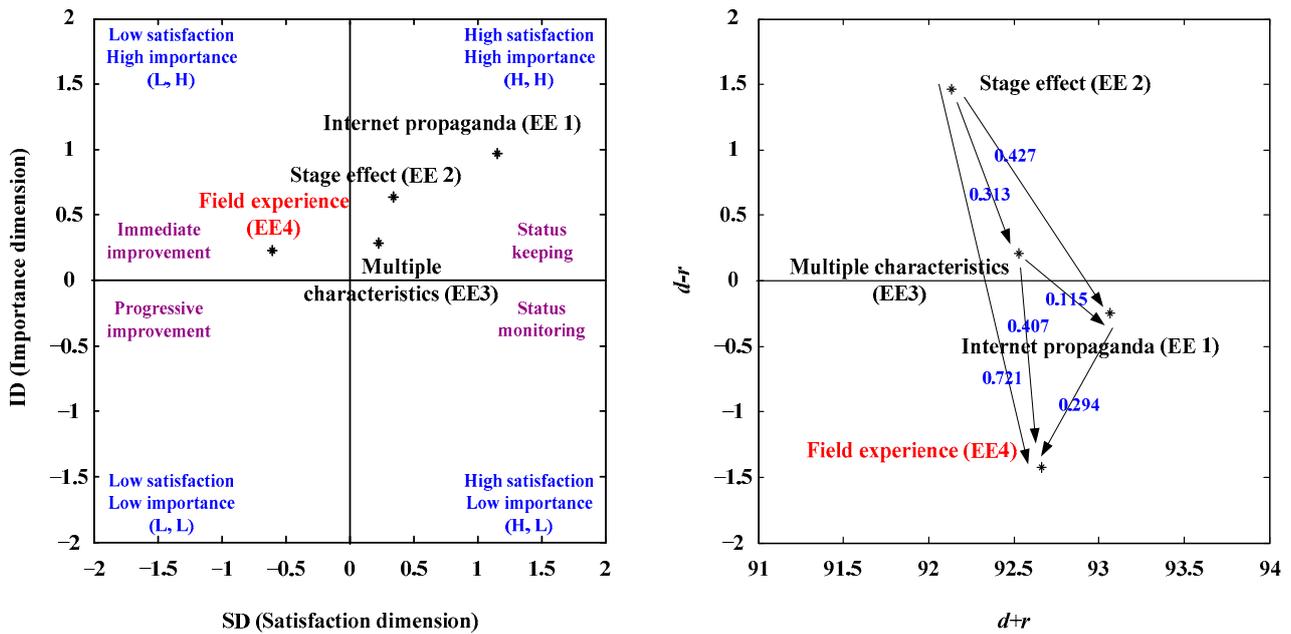


Figure 6. The NRM of the EE (Events Experience) aspect.

Table 17. The net influence matrix of EE (Events Experience) aspect.

Aspects	EI1	EI2	EI3	EI4
Internet propaganda (EE1)	-			
Stage effect (EE2)	0.427	-		
Multiple characteristics (EE3)	0.115	-0.313	-	
Field experience (EE4)	-0.294	-0.721	-0.407	-

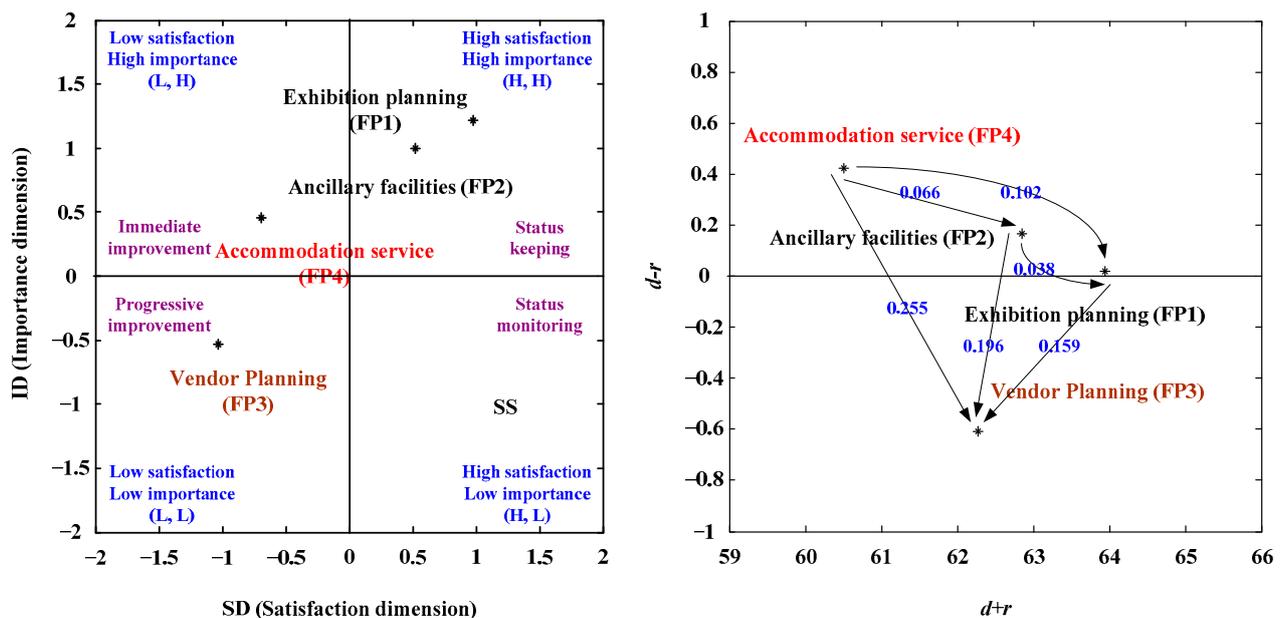
The SD (satisfaction dimension) ranking is  $EE1 \supset EE2 \supset EE3 \supset EE4$ . The EE2 criterion can affect the EE4 criterion through the first acceptance path (EE2 [2] → EE4 [4]). The EE1 criterion can affect the EE4 criterion by the second acceptance path (EE2 [2] → EE1 [1] → EE4 [4]). The EE2 criterion can improve the EE3 criterion, and the EE3 criterion can affect the EE4 criterion by the third acceptance path (EE2 [2] → EE3 [3] → EE4 [4]). The EE2 criterion can improve the EE3 criterion, and the EE1 criterion can affect the EE4 criterion through the fourth acceptance path (EE2 [2] → EE3 [3] → EE1 [1] → EE4 [4]), as shown in Table 18. The ID (importance dimension) ranking is  $EE1 \supset EE2 \supset EE3 \supset EE4$ . The EE2 criterion can improve the EE4 criterion by the first acceptance path (EE2 [2] → EE4 [4]). The EE1 criterion can affect the EE4 criterion through the second acceptance path (EE2 [2] → EE1 [1] → EE4 [4]). The EE3 criterion can affect the EE4 criterion through the third acceptance path (EE2 [2] → EE3 [3] → EE4 [4]). The EE2 criterion can improve the EE3 criterion, and the EE1 criterion can affect the EE4 criterion by the fourth acceptance path (EE2 [2] → EE3 [3] → EE1 [1] → EE4 [4]). The SD and ID acceptance paths are the same in the EE (Events Experience) aspect. The four acceptance paths (EE2 → EE4; EE2 → EE1 → EE4; EE2 → EE3 → EE4; EE2 → EE3 → EE1 → EE4) were included in the suited development paths, as shown in Table 18.

**Table 18.** The suited development paths of the EE (Events Experience) aspect.

	SD (Satisfaction Dimension)	ID (Importance Dimension)
Rank	EE1 [1] > EE2 [2] > EE3 [3] > EE4 [4]	EE1 [1] > EE2 [2] > EE3 [3] > EE4 [4]
Acceptation paths	1. EE2 [2] → EE4 [4] {Y} 2. EE2 [2] → EE1 [1] → EE4 [4] {Y} 3. EE2 [2] → EE3 [3] → EE4 [4] {Y} 4. EE2 [2] → EE3 [3] → EE1 [1] → EE4 [4] {Y}	1. EE2 [2] → EE4 [4] {Y} 2. EE2 [2] → EE1 [1] → EE4 [4] {Y} 3. EE2 [2] → EE3 [3] → EE4 [4] {Y} 4. EE2 [2] → EE3 [3] → EE1 [1] → EE4 [4] {Y}
Suited development paths	1. EE2 → EE4 2. EE2 → EE1 → EE4 3. EE2 → EE3 → EE4	1. EE2 → EE4 2. EE2 → EE1 → EE4 3. EE2 → EE3 → EE1 → EE4

4.1.3. The FP (Facilities Planning) Aspect

In the SIA analysis, the satisfied level of the FP4 criterion is less than the average satisfied level ( $SD < 0$ ), and the importance level is more than the average importance level ( $ID > 0$ ). The satisfying level of the FP3 criterion is also less than the average satisfied level ( $SD < 0$ ). The importance level is less than the average importance level ( $ID < 0$ ), as shown in Figure 7 and Table 19. Therefore, the FP4 criterion should improve soon. The FP3 criterion also can be improved, while the importance level of the criteria increases more than the average importance level ( $ID > 0$ ). In the NRM analysis, the criteria of FP1, FP2, and FP4 are the positive net influence effects ( $d - r > 0$ ). The aspect of FP (Facilities Planning) can be improved from the criteria of FP4, FP2, and FP1. Acceptation strategy A (Status keeping) can be applied to the criteria of FP1 and FP2 ( $SD > 0$ ). Acceptation strategy B (Immediate improvement) can be applied to the FP4 criterion. Acceptation strategy C (Progressive improvement) can be applied to the FP3 criterion. The FP4 criterion is located in the second quadrant (L, H). The FP3 criterion is located in the third quadrant (L, L). Consequently, the FP4 and FP3 criteria should improve. The FP4 criterion can only affect itself because the FP4 aspect was the primary criterion with the net influence. The FP3 criterion can improve by the FP4 criterion, the FP2 criterion, and the FP1 criterion, as illustrated in Figure 7, Tables 19 and 20.



**Figure 7.** The development strategies map of the FP (Facilities Planning) aspect.

**Table 19.** The development strategies of the FP aspect (Facilities Planning).

Aspects	SIA		(SD, ID)	NRM			AS
	SD	ID		$d + r$	$d - r$	(R, D)	
Exhibition planning (FP1)	0.976	1.218	(H, H)	63.938	0.018	D (+, +)	A
Ancillary facilities (FP2)	0.525	0.999	(H, H)	62.846	0.168	D (+, +)	A
Vendor planning (FP3)	-1.032	-0.534	(L, L)	62.275	-0.609	ID (+, -)	C
Accommodation service (FP4)	-0.694	0.459	(L, H)	60.513	0.423	D (+, +)	B

Notes: The acceptance strategies include four types. The definitions are the same as described in Table 11.

**Table 20.** The net influence matrix of the FP (Facilities Planning) aspect.

Aspects	FP1	FP2	FP3	FP4
Exhibition planning (FP1)	-			
Ancillary facilities (FP2)	0.038	-		
Vendor planning (FP3)	-0.159	-0.196	-	
Accommodation service (FP4)	0.102	0.066	0.255	-

The SD (satisfaction dimension) ranking is  $FP1 \supset FP2 \supset FP4 \supset FP3$ , and the FP4 criterion can improve the FP3 criterion through the first acceptance path (FP4 [3] → FP3 [4]). The FP2 criterion can affect the FP3 criterion through the second acceptance path (FP4 [3] → FP2 [2] → FP3 [4]), and then the FP1 criterion can affect the FP3 criterion by the third acceptance path (FP4 [3] → FP1 [1] → FP3 [4]). The FP1 criterion can improve the FP3 criterion through the fourth acceptance path (FP4 [3] → FP2 [2] → FP1 [1] → FP3 [4]), as illustrated in Table 21. The ID (importance dimension) ranking is  $FP1 \supset FP2 \supset FP4 \supset FP3$ , and the FP4 criterion can affect the FP3 criterion through the first acceptance path (FP4 [3] → FP3 [4]). The FP2 criterion can affect the FP3 criterion by the second acceptance path (FP4 [3] → FP2 [2] → FP3 [4]). The FP1 criterion can affect the FP3 criterion through the third development path (FP4 [3] → FP1 [1] → FP3 [4]). The FP1 criterion can improve the FP3 criterion by the fourth acceptance path (FP4 [3] → FP2 [2] → FP1 [1] → FP3 [4]). The suited development paths of SD and ID are the same in the FP (Facilities Planning) aspect; four acceptance paths (FP4 → FP3; FP4 → FP2 → FP3; FP4 → FP1 → FP3; FP4 → FP2 → FP1 → FP3) were included in the suited development paths, as illustrated in Table 21.

**Table 21.** The suited development paths of the FP (Facilities Planning) aspect.

	SD (Satisfaction Dimension)	ID (Importance Dimension)
Rank	FP1 [1] > FP2 [2] > FP4 [3] > FP3 [4]	FP1 [1] > FP2 [2] > FP4 [3] > FP3 [4]
Acceptation paths	1. FP4 [3] → FP3 [4] {Y} 2. FP4 [3] → FP2 [2] → FP3 [4] {Y} 3. FP4 [3] → FP1 [1] → FP3 [4] {Y} 4. FP4 [3] → FP2 [2] → FP1 [1] → FP3 [4] {Y}	1. FP4 [3] → FP3 [4] {Y} 2. FP4 [3] → FP2 [2] → FP3 [4] {Y} 3. FP4 [3] → FP1 [1] → FP3 [4] {Y} 4. FP4 [3] → FP2 [2] → FP1 [1] → FP3 [4] {Y}
Suited development paths	1. FP4 → FP3 2. FP4 → FP2 → FP3 3. FP4 → FP1 → FP3 4. FP4 → FP2 → FP1 → FP3	

4.1.4. The SP (Service Price) Aspect

In the SIA analysis, the satisfied level of the SP2 criterion is less than the average satisfied level, and the importance level is less than the average importance level. The satisfied level of the SP4 criterion is less than the average satisfied level, and the importance level is more than the average importance level. Consequently, the criteria of SP2 and SP4 should improve in the SP (Service Price) aspect. In the NRM analysis, the criteria of SP1 and SP2 are the positive net influence effects ( $d - r > 0$ ). The aspect of SP should be improved from the criteria of SP1 and SP2, as illustrated in Figure 8 and Table 22. Acceptation strategy A (Status keeping) can be applied to the criteria of SP1 and SP3. Acceptation strategy

B (Immediate improvement) can be applied to the SP4 criterion. Acceptation strategy C (Progressive improvement) can be applied to the SP2 criterion, as shown in Table 22. The SP2 criterion is located in the third quadrant and the SP4 criterion is located in the second quadrant. Hence, the criteria of SP2 and SP4 need to be affected. The SP4 criteria can improve by the SP2 criterion and SP1 criterion. The SP2 criterion can only improve through itself because the SP2 criterion was the primary criterion with the net influence, as illustrated in Figure 8, Tables 22 and 23.

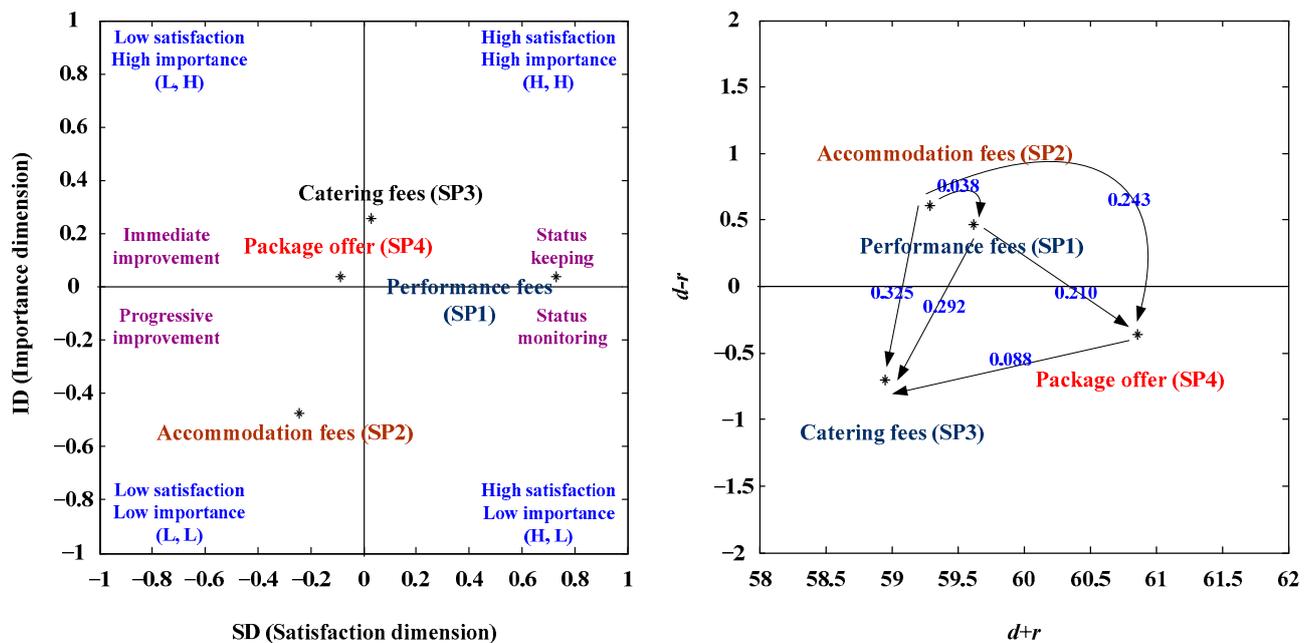


Figure 8. The development strategies map of the SP (Service Price) aspect.

Table 22. The development strategies of the SP (Service Price) aspect.

Aspects	SIA			NRM			AS
	SD	ID	(SD, ID)	$d + r$	$d - r$	(R, D)	
Performance fees (SP1)	0.728	0.036	(H, H)	59.624	0.464	D (+, +)	A
Accommodation fees (SP2)	-0.243	-0.475	(L, L)	59.291	0.605	D (+, +)	C
Catering fees (SP3)	0.028	0.255	(H, H)	58.955	-0.705	ID (+, -)	A
Package offer (SP4)	-0.085	0.036	(L, H)	60.861	-0.364	ID (+, -)	B

Notes: The acceptance strategies include four types. The definitions are the same as described in Table 11.

Table 23. The net influence matrix of the SP (Service Price) aspect.

Aspects	SP1	SP2	SP3	SP4
Performance fees (SP1)	-			
Accommodation fees (SP2)	0.038	-		
Catering fees (SP3)	-0.292	-0.325	-	
Package offer (SP4)	-0.210	-0.243	0.088	-

The SD (satisfaction dimension) ranking is  $SP1 \supset SP3 \supset SP4 \supset SP2$ . The SP1 criterion can affect the SP3 criterion through the second acceptance path ( $SP2 [4] \rightarrow SP1 [1] \rightarrow SP3 [2]$ ). The SP1 criterion can affect the SP4 criterion by the fourth acceptance path ( $SP2 [4] \rightarrow SP1 [1] \rightarrow SP4 [3] \rightarrow SP3 [2]$ ). The ID (importance dimension) ranking is  $SP3 \supset SP1 = SP4 \supset SP2$ . The SP1 aspect can affect the SP4 criterion through the fourth acceptance path ( $SP2 [4] \rightarrow SP1 [2] \rightarrow SP4 [2] \rightarrow SP3 [1]$ ). The study combines the SD and

ID acceptance paths in the SP (Service Price) aspect. Hence, the suited development path exists in only one acceptance path (SP2 → SP1 → SP4 → SP3), as shown in Table 24.

**Table 24.** The suited development paths of the SP (Service Price) aspect.

	SD (Satisfaction Dimension)	ID (Importance Dimension)
Rank	SP1 [1] > SP3 [2] > SP4 [3] > SP2 [4]	SP3 [1] > SP1 [2] = SP4 [2] > SP2 [4]
Acceptation paths	1. SP2 [4] → SP3 [2] {N} 2. SP2 [4] → SP1 [1] → SP3 [2] {Y} 3. SP2 [4] → SP4 [3] → SP3 [2] {N} 4. SP2 [4] → SP1 [1] → SP4 [3] → SP3 [2] {Y}	1. SP2 [4] → SP3 [1] {N} 2. SP2 [4] → SP1 [2] → SP3 [1] {N} 3. SP2 [4] → SP4 [2] → SP3 [1] {N} 4. SP2 [4] → SP1 [2] → SP4 [2] → SP3 [1] {Y}
Suited development paths	4. SP2 → SP1 → SP4 → SP3	

## 4.2. Discussion

### 4.2.1. EI (Events Image) Aspect

This study extended Prentice and Andersen's research (2003) and defined some critical criteria which influence the destination's image. In addition, this study also found the network relation structure and determined its development paths for the EI (Events Image) aspect. The "Edinburgh Festival" gave a new dimension to the city through event creativity. The Edinburgh Festival attracted audiences with its performing arts and modified the tourists' traditional image of Scotland. The past images of Scotland were international performing arts, Scottish performing arts, and Edinburgh as a historic tourist city. The image of Scotland has been modified successfully into a "landscape and tradition" destination for tourists by its core value of international arts positioning. The research showed that the destination itself does not determine its destination position and that familiarity does not change the destination's image [44].

However, this study finds two suitable development paths (EI2 → EI4 → EI1; EI2 → EI4 → EI3 → EI1) for the EI (Events Image) aspect, as illustrated in Table 25. The first suitable development path is that the EI2 criterion influences the EI4 criterion, and the EI4 criterion affects the EI1 criterion. Therefore, music festival organizers should offer some package services for event participants, and some package services should integrate various services and increase the convenience for event participants. Music festival organizers should also offer some peripheral products to satisfy the fans of indie bands and invite different styles of indie bands. Music festival organizers should also provide more choices to attract diverse event participants and let these new indie bands have more opportunities to cultivate their audiences and fans. The second suitable development path is the EI2 criterion influencing the EI4 criterion, and the EI3 criterion influencing the EI1 criterion. Thus, music festival organizers can offer some music festival package services for event participants. These music festival package services should integrate various services and allow event participants to save time by ordering different services in the music festival period. Besides, music festival organizers also offer peripheral products to satisfy fans' collection needs for their preferred indie bands. Moreover, some promotional activities (a combination of accommodation services and transportation services) can attract event participants, and diverse package service selection (accommodation service, transportation services, package tour service) also satisfies their different service needs. In addition, the music festival organizers should invite famous indie bands and new indie bands to join urban music festival tourism. The new indie bands can create different experiences for the event participants.

**Table 25.** The suited development paths for urban music festival tourism.

Aspects	Suited Development Paths
Events image (EI)	2. EI2 (package service) → EI4 (peripheral products) → EI1 (renowned band) 4. EI2 (package service) → EI4 (peripheral products) → EI3 (promotion activities) → EI1 (renowned band)
Events Experience (EE)	1. EE2 (stage effect) → EE4 (field experience) 2. EE2 (stage effect) → EE1 (internet propaganda) → EE4 (field experience) 3. EE2 (stage effect) → EE3 (multiple characteristics) → EE4 (field experience) 4. EE2 (stage effect) → EE3 (multiple characteristics) → EE1 (internet propaganda) → EE4 (field experience)
Facilities Planning (FP)	1. FP4 (accommodation service) → FP3 (vendor Planning) 2. FP4 (accommodation service) → FP2 (ancillary facilities) → FP3 (vendor Planning) 3. FP4 (accommodation service) → FP1 (exhibition planning) → FP3 (vendor Planning) 4. FP4 (accommodation service) → FP2 (ancillary facilities) → FP1 (exhibition planning) → FP3 (vendor Planning)
Service price (SP)	4. SP2 (accommodation fees) → SP1 (performance fees) → SP4 (package offer) → SP3 (catering fees)

#### 4.2.2. EE (Events Experience) Aspect

This study explores the service experience of music festival events and defines the critical aspects/criteria for the EE (Events Experience) aspect. In addition, this study also determines the influence relation map and recommends four suitable development paths for the festival event experience. The service experience addresses how to influence the tourists' intention to revisit a medieval festival. Robinson and Clifford (2012) analyzed the visitors' food service experience at the medieval festival to understand the relationship of the food service experience with tourists' intention to revisit the event. The study adopted the dualistic authenticity framework to evaluate the tourist/visitor experience with tourism, events, and hospitality. The study also established a scale to measure foodservice authenticity dimensions for an Australian medieval festival. The research found significant differences between overall visitor-perceived event authenticity, foodservice, and event service scope and hygiene factors. Moreover, the study also found a relationship between re-visitation intentions and perceived authenticity [45].

This study determines the four suitable development paths (EE2 → EE4; EE2 → EE1 → EE4; EE2 → EE3 → EE4; EE2 → EE3 → EE1 → EE4) that were applied to the EE (Events Experience) aspect, as illustrated in Table 25. The first suitable development path is the criterion of EE2 influencing the EE4 criterion. Therefore, music festival organizers can plan the stage characteristics based on local tourism resources, such as a beach, unused space, and public spaces. These characteristics can allow event participants to have a different field experience. The second suitable development path is the EE2 criterion influencing the EE1 criterion, and the EE1 criterion affects the EE4 criterion. Music festival organizers can also promote the characteristic stages and event information via the official website and fan page. These historical event photos can inspire event participants' beautiful event memories. The third suitable development path is that the EE2 criterion influencing the EE3 criterion, and the EE3 criterion influencing the EE4 criterion. Music festival organizers can also propose new event themes for the music festival and plan the diverse characteristic stages and different styles of indie bands for event participants. The new event themes and various characteristic stages can create new event experiences for participants. The fourth suitable development path is the EE2 criterion influencing the EE3 criterion, and the EE3 influencing the EE1 criterion, with the criterion of EE1 influencing the EE4 criterion. Music festival organizers can offer diverse service information (event schedules, indie band lists, venue information, traffic information, etc.) through the internet service platform. Music festival organizers also provide historical event records (historical event themes, historical event photos, and indie band lists) to evoke beautiful event memories, and allow participants to relive old times by joining the new urban music festival tourism.

#### 4.2.3. FP (Facilities Planning) Aspect

This study explores the service facilities and Facilities Planning of music festival events and defines the critical aspects/criteria for the FP (Facilities Planning) aspect. Moreover, this study also determines the influence relation structure and recommends four suitable development paths for planning festival facilities. Tourist Shopping Villages (TSVs) integrate visitor-oriented services and retail in visiting, urban settings, and destination tourism (often near historical/natural attractions). Getz (1993) analyzed the development strategies of TSVs for three near-urban cases through a literature review and case studies, and proposed that key entrepreneurs play diverse roles in the type of tourism product. One study also offered three alternative TSV planning and development [46]. Therefore, this study finds four suitable development paths (FP4 → FP3; FP4 → FP2 → FP3; FP4 → FP1 → FP3; FP4 → FP2 → FP1 → FP3) for the FP (Facilities Planning) aspect, as illustrated in Table 25. The FP4 criterion influencing the FP3 criterion is the first suitable development path. Music festival organizers can offer more accommodation service information and package tours that combine the event ticket and accommodation services. In addition, some accommodation service providers (hotel, bed and breakfast (B&B), and homestay) often offer breakfast and catering services for their customers. Therefore, the event participants can enjoy their breakfast and catering services in the hotel and do not spend time finding catering services by searching the event vendors. The second suitable development path is FP4 criterion affects the FP2 criterion, and the FP2 criterion improves the FP3 criterion. The music festival organizers can integrate these accommodation service providers to offer ancillary facilities (parking lots, traffic connection stations, etc.) that can satisfy event participants' different visitor needs and reduce the inconvenience of local transportation. Ancillary facilities (such as medical stations) can reduce unexpected situations and accidents for event participants. However, music festival organizers can offer complete guiding signs and vendor planning to increase the event participants' convenience in the music festival period. The third suitable development path is the FP4 criterion influencing the FP1 criterion, and the criterion of FP1 affects the FP3 criterion. Music festival organizers can integrate accommodation services to offer convenient transportation and various catering services for event participants and provide comprehensive exhibition planning to allow event participants to find preferred indie bands through clear stage planning. The music festival organizers also offer full vendor planning to satisfy event participants' different needs and ensure the vendors can provide legal and safe products and services. The vendors can offer reasonable prices for their products and services in the music festival. The fourth suitable development path is the FP4 criterion influencing the FP2 criterion, and the FP1 criterion affects the FP3 criterion. Accordingly, the music festival organizers can offer diverse accommodation service information for event participants and integrate the service provider of accommodation services to provide ancillary facilities (traffic connection stations, parking lots, catering services, etc.), and improve the lack of local transportation and integrate local medical resources to reduce the impact of unexpected situations and accidents. The music festival organizers should also offer comprehensive exhibition planning to aid event participants in finding their preferred indie bands through precise stage planning and complete guiding signs. Music festival organizers can also invest in diverse vendors to satisfy the event participants' different needs and make sure the vendors can offer legal and safe products and services and provide reasonable and affordable prices for their products and services.

#### 4.2.4. SP (Service Price) Aspect

This study explores the service pricing of music festival events and defines the critical aspects/criteria for the SP (Service Price) aspect. Moreover, this study also determines the network relation structure and recommends suitable development paths for the Service Price of festival events. Special events and local festivals can benefit the culture, community, economy, and society. A massive amount of customer data on tourist shopping, service experience, destination choices, and accommodations is available during festival events.

Festival event organizers should take advantage of such data to understand the tourists' behavior during the period of the festival. In addition, festival event organizers should also extract these critical data to increase customer satisfaction and income revenues. One study adopted the business intelligence framework to establish and analyze the massive amount of customer data of the festival event and translate the vast customer data into business insights. It assisted the festival event organizers to obtain critical business and operation insights from such data. That study also proposed its business intelligence framework through Thailand's local festival events and demonstrated their practical validity [47]. Only one suitable development path (SP2 → SP1 → SP4 → SP3) is present for the SP (Service Price) aspect. The fourth suitable development path is the SP2 criterion influencing the SP1 criterion and the SP4 criterion affecting the SP3 criterion. When event participants get closer to the music festival, the accommodation Service Prices become higher and higher, and the event participants do not find it easy to order different services for the music festival event. Therefore, music festival organizers can integrate the accommodation service providers (hotel, bed and breakfast, and homestay) and service providers of convenient transportation services to propose the package tours for the music festival. Music festival package tours combine the event ticket, accommodation services, catering services, and transportation services. Music festival organizers can offer various event ticket packages; some event tickets can be sold separately, and other event tickets can be integrated with the package tours. Music festival organizers can guarantee the sales status of music festival event tickets through the pre-order service system. The event participants can gain their integrated services by ordering the package tour of ticket packages, as illustrated in Table 25.

## 5. Conclusions and Recommendations

### 5.1. Conclusions

This study investigates four aspects of driving forces (Events Image, Events Experience, Facilities Planning, and Service Price) and 16 evaluation criteria for urban music festival tourism. This study suggests integrating the SIA (satisfaction importance analysis) approach and the NRM (network relation map) approach. The organizers of music festival events can also adopt the methodologies proposed in this study to analyze the Satisfaction Dimension (SD) and Importance Dimension (ID). The aspects of EE (Events Experience) and SP (Service Price) have satisfaction levels higher than the average satisfaction level. The aspects of FP (Facilities Planning) and EE (Events Experience) have importance levels higher than the average importance level. The festival event organizers could strengthen the EE (Events Experience) aspect through the SP (Service Price) aspect and the FP (Facilities Planning) aspect. The festival event organizers could expand the service facilities of music exhibitions via multiple ticket charging mechanisms. There are customers who can afford and are willing to pay more for better music festival performances. As the potential revenue increases, music festival planners could improve the service quality, provide better on-site service facilities and invite more popular indie bands to perform for urban music festival tourism. The aspects of FP (Facilities Planning) and EI (Events Image) have satisfaction levels less than the average satisfaction level, and the aspects of FP (Facilities Planning) and EE (Events Experience) have importance levels higher than the average importance level. Therefore, music festival organizers could pay attention to the FP (Facilities Planning) aspect, improving hardware equipment, e.g., sound stages, and meeting the event participants' service needs. The music festival organizers could also join efforts with providers of transportation, accommodations, and local tours/package tour agencies to meet the diverse needs of event participants. The EI (Events Image) aspect is located in the low satisfaction and importance levels. Therefore, the EI (Events Image) aspect should improve through the aspects of SP (Service Price), FP (Facilities Planning), and EE (Events Experience). Therefore, music festival organizers can conduct strategic alliances with travel service providers and transportation providers to increase the convenience and reduce event participants' searching time. In addition, the music festival organizers can also propose package tours of music festival tourism and sell exclusive urban music festival

tourism packages to satisfy event participants' needs. The music festival events providers should continuously improve the quality of urban music festival tourism.

### 5.2. Findings

The performance content of music festivals is becoming diverse, and urban music festival tourism has also become part of leisure. EE (Events Experience) is located in the first quadrant (H, H) in the SIA analysis. In contrast, the FP (Facilities Planning) aspect is located in the second quadrant (L, H). EI (Events Image) is located in the third quadrant (L, L), and the SP (Service Price) is located in the fourth quadrant (H, L). In NRM analysis, the SP aspect is the dominant aspect, while the EI aspect is the dominant aspect of urban music festival tourism. Acceptation strategy A can be applied to the EE aspect. Acceptation strategy B can be applied to the FP aspect and Acceptation Strategy C to the EI aspect. The Acceptation Strategy D can be applied to the SP aspect. Music festival organizers can use the four suitable development paths [SP (Service Price) → EI (Events Image), SP → EE (Events Experience) → EI, SP → FP (Facilities Planning) → EI, and SP → FP → EE → EI] to enhance the service performance of music festival events. Music festival organizers could practice vertical integration through cross-industry integration and establish network partnerships via horizontal industry integration to provide visitors and event participants with convenience and multiple choices. Music festival organizers could also cooperate with local hotels to provide package tours and promote destination tourism and the package tours, increasing tourists' willingness to spend more time and money. On the other hand, improving the convenience of the exhibition venue (parking, toilets, and emergency stations) is also a critical improvement goal. Music festival organizers could participate in national exhibition electronic ticketing systems, ticket service platforms, online media channels, etc., to provide consumers with multiple music festival tickets and consulting services. Music festival organizers can also establish integrated marketing and promotion through social network services and internet multimedia, designing official Facebook/Instagram fan pages, and collaborate with other event information platforms to increase the exposure and publicity of the music festival event.

### 5.3. Future Studies

This study addresses the status of satisfaction and importance through the SIA approach and determines the network relation structure through the NRM (network relation map) approach. However, it does not evaluate the differences in the status of satisfaction and importance among different categories of event participants. Future studies could further investigate the preferences of different categories of music festival event participants. More survey subjects from more music festival events may provide more insights and more useful recommendations for the success of music festival events.

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