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# EVENT PLANNER CONTRACTOR SELECTION BASED ON CONSISTENT FUZZY LINGUISTIC PREFERENCE RELATIONS METHOD

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**ABSTRACT**

*Event planning, handled by the event planner, involves organizing and coordinating events. The growing number of event planning companies has created a competitive environment where all strive to be the top choice for event managers. Ranking event planners can be subjective, as it depends on specific event requirements. Therefore, it is a crucial stage in selecting the best event planner since many criteria need to be considered. This study aims to identify event planner contractors and rank the alternatives by applying Consistent Fuzzy Linguistic Preference Relations (CFLPR). CFLPR is chosen because it reduces the number of comparisons, streamlines the process, and prevents inconsistencies, especially with large amounts of data. As hierarchy levels increase, there are more comparisons to make, leading to inconsistent decisions. CFLPR is also used to address the event planner selection issue comprehensively, improving the consistency of Fuzzy AHP and handling fuzzy judgments. This method constructs matrices of fuzzy preference relations using linguistic variables. This study considered 10 criteria to rank 3 alternatives Through CFLPR execution, Persona Fiza Bridal emerges as the top choice, followed by Butik Pengantin Seriheza and Nwahyu Butik Pengantin & Kecantikan. These rankings are based on consistent fuzzy linguistic preference relations, with the highest value assigned the top ranking and the lowest the last. Persona Fiza Bridal is thus recommended as the ideal event planner for Rio Event Management.*

**Keywords**: *CFLPR, Event Planner, Ranking.*

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## 1. Introduction

Event planning is the process of managing a project such as a meeting, convention, trade show, ceremony, team building activity, or convention. Events can be social including weddings, birthdays, anniversaries, and reunions. Guan et al. (2015) stated the wedding reception is a fundamental part of weddings in many cultures and can be considered as an official event. Helo (2015) found that events become more complex such that professional planners were needed to streamline the entire process. Wedding preparation can often feel overwhelming, particularly when couples are tackling the task without professional assistance. Extensive checklists loom ahead for soon-to-be brides and grooms as they approach their special day. Without the guidance of seasoned experts, navigating the search for appropriate bridal products and services can become a source of frustration (Chandrasiri, 2021). The big or mega event becomes

stressful because it consumes a lot of time to handle, and it's required the details planning to make sure the event running smoothly and successfully (Bertella, 2014).

In Malaysia, particularly among urban residents, there's a rising inclination to engage event planners for their events spanning from engagements to wedding receptions. This inclination is largely influenced by the pervasive presence of social media platforms like television, social networks, and magazines, which have continually promoted the idea of hiring event planners. Consequently, to meet this increasing demand, the event planning industry has expanded and adapted accordingly. However, despite the widespread practice, academic research on event planners remains limited, with most information found in magazines, blogs, and other media sources. Given the abundance of event planners offering various packages, the importance of selecting the right one is underscored, as highlighted by Huang (2015).

The researcher Huang (2015) used the application of the modified Delphi method and Analytic Hierarchy Process to select the festival planners. This problem can be a multi-criteria decision-making (MCDM) problem. According to Sayed et al. (2020) decision making is a crucial process for achieving a desired outcome based on evaluating a set of criteria from various alternatives. Numerous techniques and methods have been developed to offer a systematic approach to finding solutions. One such technique is the multi-criteria decision-making (MCDM) method, which is particularly useful when there are conflicting benefits and cost criteria to consider. Srichetta and Thurachon (2012) identified that MCDM refers to finding the best alternatives in the presence of multiple decision criteria. MCDM method is to value and/or rank alternatives. However, the CFLPR method is used to rank the alternatives since it will reduce the number of comparisons as the number of criteria increases. The CFLPR method can reduce the number of questions as it will avoid inconsistencies and utilize a symmetric matrix that necessitates only $n-1$ pairwise comparisons among the provided $n$ options. In contrast to FAHP, CFLPR is more straightforward, demands fewer comparisons, and mitigates the issue of inconsistent evaluation results (Hsu, Chen, & Yang, 2021).

Recent research has seen CFLPR utilized in establishing customers' brand attachment preferences within a car firm (Hsu, Chen, & Liao, 2021), while another study by Hsu, Chen, & Yang (2021) applied it to analyse brand experiences through branded applications. Additionally, CFLPR has been employed in selecting e-commerce communication systems (Chen, 2009), determining partnership selections (Wang and Chen, 2007), and enhancing the consistency of fuzzy AHP (Wang and Chen, 2008).

## 2. Consistent Fuzzy Linguistic Preference Relations (CFLPR)

The CFLPR method is assigned to rank the alternatives. The steps of procedure of CFPLR were retrieved from paper (Wang and Chen, 2006) that was developed by Herrera-Viedma et al. (2004). The following step is shown below:

*Step 1*: A group of evaluators determines the evaluation criteria with respect to each of the alternatives.

*Step 2*: Construct a pairwise group comparisons of the criteria.
In general, the pairwise comparison is any process whereby the values are being compared. Whether the values are same or identical or some of the values are bigger or smaller in number.

*Step 3*: Calculate the consistent fuzzy linguistic preference relation matrix of criteria.

*Step 4*: Transform the matrix of criteria from pairwise group.
In this step, if the values in Step 2 were not in the interval of 0 and 1, transform by using the transformation functions where *L* stands for left, *M* stands for medium, and *R* stands for right.

$$f(x^L) = \frac{x^L + C}{1+2c} \quad (1)$$

$$f(x^M) = \frac{x^M + C}{1+2c} \quad (2)$$

$$f(x^R) = \frac{x^R + C}{1+2c} \quad (3)$$

The value of *c* was unknown, used a linear function Equation (4) and (5) to transform the matrix,

$$\textbf{(a)} \quad f(-c) = 0 \quad (4)$$

$$\textbf{(b)} \quad f(1+c) = 1 \quad (5)$$

*Step 5*: Determine the average criteria with respect to the alternatives.
Linguistic evaluations of the decision makers are aggregated to get the fuzzy rating of alternatives. The average value of the criteria was calculated using equation (6).

$$A_i = \frac{\sum_{j=1}^{n} P_{ij}}{n} \quad (6)$$

*Step 6*: Determine the weight of the criteria and rank the alternatives.
The weight will be calculated with respect to the alternative by using the following formula.

$$W_i = \frac{1}{3}(p_{ij}^L + p_{ij}^M + p_{ij}^R) \quad (7)$$

## 3. Procedure for Event Planner Contractor Selection

### 3.1 Data Collection

The procedure of the CFLPR method and the results of each stage are given as follows based on the ten criteria and three alternatives of event planner contractors as stated in Table 1 and Table 2. These specific criteria, chosen through prior research and endorsed by a senior lecturer with over 10 years of experience in teaching event management within the Business and Management Faculty, will undergo further evaluation. This evaluation process will involve conducting interviews with experts from event planning companies or enterprises to select the most suitable event planner contractor.

Table 1. List of Selected Criteria

| Criteria | Description |
|---|---|
| $C_1$ | Service price |
| $C_2$ | Service quality |
| $C_3$ | Total image and reputation |
| $C_4$ | Past execution result |
| $C_5$ | Past experiences |
| $C_6$ | Crisis management capacity |
| $C_7$ | Management capabilities |
| $C_8$ | Flexibility according to demand change in time |
| $C_9$ | Capacity and production facility |
| $C_{10}$ | Customer satisfaction level |

Table 2. Potential Contractor in Event Planner Selection Problem

| Event Planner Contractor | Description |
|---|---|
| $A_1$ | Nwahyu Butik Pengantin & Kecantikan |
| $A_2$ | Persona Fiza Bridal |
| $A_3$ | Butik Pengatin Seriheza |

Next, the selection of an event planner refers to the potential event planner's performance in delivering services for organizing a wedding event. Rio Event Empire has been chosen in this study for the evaluation purpose of contractor selection. Established in 2016, Rio Event Empire brings decades of experience to the event management industry, delivering premium-quality materials and services for engagements, weddings, birthdays, art shows, and corporate functions (*Rio Wedding & Catering Services*, n.d.). Located at Puchong, Selangor, Rio Event Empire is well-positioned to serve customers in the region.

### 3.2 Implementation

The evaluation of the criteria of the event planner is made by the decision maker where they were referring to the influence level between the criteria based on his general knowledge and experience throughout doing business, whether it is no influence, very low influence, low influence, high influence, and very high influence as tabulated in Table 3. Then, the assessment is converted in terms of fuzzy number values as depicted in Table 4.

*Step 1*: There were one evaluator K = 1 gave his opinions of the criteria based on the triangular fuzzy conversion scale in Table 3 to obtain the weight in CFLPR.

Table 3. Triangular fuzzy conversion scale

| Triangular fuzzy conversion scale | Triangular Fuzzy Scale | Triangular Fuzzy Reciprocal Scale |
|---|---|---|
| Just equal | (1, 1, 1) | (1, 1, 1) |
| Equally Important (EI) | (1/2, 1, 3/2) | (2/3, 1, 2) |
| Weakly Important (WI) | (1, 3/2, 2) | (1/2, 2/3, 1) |
| Strongly More Important (SMI) | (3/2, 2, 5/2) | (2/5, 1/2, 2/3) |
| Very Strongly More Important (VSMI) | (2, 5/2, 3) | (1/3, 2/5, 1/2) |
| Absolutely More Important (AMI) | (5/2, 3, 7/2) | (2/7, 1/3, 2/5) |

Note: (Bozbura, Beskese & Kahraman, 2007)

The values by getting the weight in the method CFLPR were obtained by evaluations and opinions by the evaluators by using the triangular fuzzy scale in Table 3

*Step 2:* In general, the pairwise comparison is any process whereby the values are being compared. Whether the values are identical or some of the values are bigger or smaller in number. Table 4 shows the linguistic scale that had been decided by one decision maker or evaluator for each of the criteria with respect to alternatives.

Table 4. Pairwise comparison of the criteria with respect to alternatives 1

| | $C_1$ | $C_2$ | $C_3$ | $C_4$ | $C_5$ | $C_6$ | $C_7$ | $C_8$ | $C_9$ | $C_{10}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| $C_1$ | (1,1,1) | $(\frac{2}{3}, 1, 2)$ | | | | | | | | |
| $C_2$ | | (1, 1,1) | $(\frac{5}{2}, 3, \frac{7}{2})$ | | | | | | | |
| $C_3$ | | | (1,1,1) | $(\frac{2}{5}, \frac{1}{2}, \frac{2}{3})$ | | | | | | |
| $C_4$ | | | | (1,1,1) | $(\frac{3}{2}, 2, \frac{5}{2})$ | | | | | |
| $C_5$ | | | | | (,1,1) | $(\frac{1}{3}, \frac{2}{5}, \frac{1}{2})$ | | | | |
| $C_6$ | | | | | | (1,1,1) | $(\frac{1}{3}, \frac{2}{5}, \frac{1}{2})$ | | | |
| $C_7$ | | | | | | | (1,1,1) | $(\frac{2}{5}, \frac{1}{2}, \frac{2}{3})$ | | |
| $C_8$ | | | | | | | | (1,1,1) | $(\frac{3}{2}, 2, \frac{5}{2})$ | |
| $C_9$ | | | | | | | | | (1,1,1) | $(\frac{2}{7}, \frac{1}{3}, \frac{2}{5})$ |
| $C_{10}$ | | | | | | | | | | (1,1,1) |

*Step 3*: The values or data in Table 5 generated the decision matrices of consistent fuzzy linguistic preference relations. In this study, there were 10 criteria. Only ($n$−1=10−1=9) values $\{p_{12}, p_{23}, p_{34}, p_{45}, p_{56}, p_7, p_{78}, p_{89}, p_{910}\}$ were needed to create the decision matrices. The calculations for the values were as follows.

$$p_{12}^{L} = \frac{1}{2}\left(1 + \log_{9.5}\frac{2}{3}\right) = 0.41$$

$$p_{12}^{M} = \frac{1}{2}(1 + \log_{9.5} 1) = 0.50$$

$$p_{12}^{R} = \frac{1}{2}(1 + \log_{9.5} 2) = 0.65$$

After the calculations have been done with respect to alternative 1 and the same calculation is repeated for alternatives 2 and alternatives 3, then the matrix form has been summarized and stated in Table 5 for alternative 1.

Table 5. Consistent fuzzy linguistic preference relation matrix of criteria with respect to alternatives 1

| | $C_1$ | $C_2$ | $C_3$ | $C_4$ | $C_5$ |
|---|---|---|---|---|---|
| $C_1$ | (0.50,0.50.0.50) | (0.41,0.50,0.65) | (0.61,0.74,0.93) | (0.41,0.59,0.84) | (0.61,0.74,1.05) |
| $C_2$ | (0.35,0.50,0.59) | (0.50,0.50.0.50) | (0.70,0.74,0.78) | (0.50,0.59,0.69) | (0.59,0.74,0.89) |
| $C_3$ | (0.07,0.26,0.39) | (0.22,0.26,0.30) | (0.50,0.50.0.50) | (0.30,0.35,0.41) | (0.39,0.50,0.61) |
| $C_4$ | (0.16,0.41,0.59) | (0.31,0.41,0.50) | (0.59,0.65,0.70) | (0.5,0.5.0.5) | (0.59,0.65,0.70) |
| $C_5$ | (-0.05,0.26,0.50) | (0.11,0.26,0.41) | (0.39,0.50,0.61) | (0.30,0.35,0.41) | (0.5,0.5.0.5) |
| $C_6$ | (0.11,0.46,0.74) | (0.26,0.46,0.65) | (0.54,0.70,0.86) | (0.45,0.55,0.65) | (0.65,0.70,0.74) |
| $C_7$ | (0.26,0.66,0.99) | (0.42,2.15,0.90) | (0.69,0.91,1.10) | (0.60,0.75,0.90) | (0.81,0.91,0.99) |
| $C_8$ | (0.35,0.82,1.19) | (0.51,0.82,1.10) | (0.78,1.06,1.30) | (0.69,0.91,1.10) | (0.90,1.06,1.19) |
| $C_9$ | (0.15,0.66,1.10) | (0.30,0.66,1.01) | (0.58,0.91,1.21) | (0.49,0.75,1.01) | (0.69,0.91,1.10) |
| $C_{10}$ | (0.35,0.91,1.38) | (0.51,0.91,1.29) | (0.78,1.15,1.49) | (0.69,1.00,1.29) | (0.90,1.15,1.38) |
| | $C_6$ | $C_7$ | $C_8$ | $C_9$ | $C_{10}$ |
| $C_1$ | (0.26,0.54,0.89) | (0.01,0.34,0.74) | (-0.19,0.18,0.65) | (-0.10,0.34,0.85) | (-0.38,0.09,0.65) |
| $C_2$ | (0.35,0.54,0.74) | (0.10,0.34,0.58) | (-0.10,0.18,0.49) | (-0.01,0.34,0.70) | (-0.29,0.09,0.49) |
| $C_3$ | (0.14,0.30,0.46) | (-0.10,0.09,0.31) | (-0.30, -0.06,0.22) | (-0.21,0.09,0.42) | (-0.49, -0.15,0.22) |
| $C_4$ | (0.35,0.45,0.55) | (0.10,0.25,0.40) | (-0.10,0.25,0.31) | (-0.01,0.25,0.51) | (-0.29,0.00,0.31) |
| $C_5$ | (0.26,0.30,0.35) | (0.01,0.09,0.19) | (-0.19, -0.06,0.10) | (-0.10,0.09,0.31) | (-0.38, -0.15,0.10) |
| $C_6$ | (0.50,0.50,0.50) | (0.26,0.30,0.35) | (0.05,0.14,0.26) | (0.14,0.30,0.46) | (-0.14,0.05,0.26) |
| $C_7$ | (0.65,0.70,0.74) | (0.50,0.50,0.50) | (0.30,0.35,0.41) | (0.39,0.50,0.61) | (0.11,0.26,0.41) |
| $C_8$ | (0.74,0.86,0.95) | (0.59,0.65,0.70) | (0.50,0.50,0.50) | (0.59,0.65,0.70) | (0.31,0.41,0.50) |
| $C_9$ | (0.54,0.70,0.86) | (0.39,0.50,0.61) | (0.30,0.35,0.41) | (0.50,0.50,0.50) | (0.22,0.26,0.30) |
| $C_{10}$ | (0.74,0.95,1.14) | (0.59,0.74,0.89) | (0.50,0.59,0.69) | (0.70,0.74,0.78) | (0.5,0.5,0.5) |

*Step 4*: Under this step, the values should be in the interval [0,1]. Somehow, in Table 5 some values are not in the range of 0 and 1. This means that the values in the matrix of the criteria need to be transformed by using the transformation functions equation. For the transformation, use the calculation using the Equations 1 until 3.

By taking the minimum value of consistent fuzzy linguistic preference relation matrix of criteria with respect to alternatives 1 in Table 5, the minimum was -0.49 with respect to alternatives 1. So, by using the linear equation $mx + y$. Let $x$ = 0.49

$$mx + y$$
$$m(-0.49) + y = 0 \quad \cdots \alpha$$
$$m(1 + 0.49) + y = 1 \quad \cdots \beta$$

By subtracting (β-α)

$$(1.49m - (-0.49m)) + (y - y) = 1 - 0$$
$$1.98m = 1$$
$$m = \frac{50}{99} \quad \ldots \theta$$

Substitute $\theta$ into $\alpha$

$$\frac{50}{99}(-0.49) = -y$$
$$y = \frac{49}{198}$$

Therefore, the linear equation will be $f(x) = \frac{50}{99}x + \frac{49}{198}$. For example, the left values for $C_{13}^{L} = \frac{50}{99}(0.61) + \frac{49}{198} = 0.56$. The value 0.61 was from Table 5 of criteria 3. Then, the calculation is repeated for alternatives 2 and 3, The result is summarized in Table 6.

Table 6. Transforming matrix of criteria with respect to alternatives 1

| | $C_1$ | $C_2$ | $C_3$ | $C_4$ | $C_5$ |
|---|---|---|---|---|---|
| $C_1$ | (0.50,0.50.0.50) | (0.45,0.50,0.58) | (0.56,0.62,0.72) | (0.45,0.55,0.67) | (0.50,0.62,0.78) |
| $C_2$ | (0.42,0.50,0.55) | (0.50,0.50.0.50) | (0.60,0.62,0.64) | (0.50,0.55,0.60) | (0.55,0.62,0.70) |
| $C_3$ | (0.28,0.38,0.44) | (0.36,0.38,0.40) | (0.50,0.50.0.50) | (0.40,0.42,0.45) | (0.44,0.50,0.56) |
| $C_4$ | (0.33,0.45,0.55) | (0.40,0.45,0.50) | (0.55,0.58,0.60) | (0.50,0.50.0.50) | (0.55,0.58,0.60) |
| $C_5$ | (0.22,0.38,0.50) | (0.30,0.38,0.45) | (0.44,0.50,0.56) | (0.40,0.42,0.45) | (0.50,0.50.0.50) |
| $C_6$ | (0.30,0.48,0.62) | (0.38,0.48,0.58) | (0.52,0.60,0.68) | (0.47,0.53,0.58) | (0.58,0.60,0.62) |
| $C_7$ | (0.38,0.58,0.75) | (0.46,0.58,0.70) | (0.60,0.71,0.80) | (0.55,0.63,0.70) | (0.66,0.71,0.75) |
| $C_8$ | (0.43,0.66,0.85) | (0.50,0.66,0.80) | (0.64,0.78,0.91) | (0.60,0.71,0.80) | (0.70,0.78,0.85) |
| $C_9$ | (0.32,0.58,0.80) | (0.40,0.58,0.76) | (0.54,0.71,0.86) | (0.50,0.63,0.76) | (0.60,0.71,0.80) |
| $C_{10}$ | (0.43,0.71,0.94) | (0.50,0.71,0.90) | (0.64,0.83,1.00) | (0.60,0.75,0.90) | (0.70,0.83,0.94) |
| | $C_6$ | $C_7$ | $C_8$ | $C_9$ | $C_{10}$ |
| $C_1$ | (0.38,0.52,0.70) | (0.25,0.42,0.62) | (0.15,0.34,0.57) | (0.20,0.42,0.68) | (0.06,0.29,0.57) |
| $C_2$ | (0.42,0.52,0.62) | (0.30,0.42,0.54) | (0.20,0.34,0.50) | (0.24,0.42,0.60) | (0.10,0.29,0.50) |
| $C_3$ | (0.32,0.40,0.48) | (0.20,0.29,0.40) | (0.09,0.22,0.36) | (0.14,0.29,0.46) | (0.00,0.17,0.36) |
| $C_4$ | (0.42,0.47,0.53) | (0.30,0.37,0.45) | (0.20,0.37,0.40) | (0.24,0.37,0.50) | (0.10,0.25,0.40) |
| $C_5$ | (0.38,0.40,0.42) | (0.25,0.29,0.34) | (0.15,0.22,0.30) | (0.20,0.29,0.40) | (0.06,0.17,0.30) |
| $C_6$ | (0.50,0.50.0.50) | (0.38,0.40,0.42) | (0.27,0.32,0.38) | (0.32,0.40,0.48) | (0.18,0.27,0.38) |
| $C_7$ | (0.58,0.60,0.62) | (0.50,0.50.0.50) | (0.40,0.42,0.45) | (0.44,0.50,0.56) | (0.30,0.38,0.45) |
| $C_8$ | (0.62,0.68,0.73) | (0.55,0.58,0.60) | (0.50,0.50.0.50) | (0.55,0.58,0.60) | (0.40,0.45,0.50) |
| $C_9$ | (0.52,0.60,0.68) | (0.44,0.50,0.56) | (0.40,0.42,0.45) | (0.50,0.50.0.50) | (0.36,0.38,0.40) |
| $C_{10}$ | (0.62,0.73,0.82) | (0.55,0.62,0.70) | (0.50,0.55,0.60) | (0.60,0.62,0.64) | (0.50,0.50.0.50) |

*Step 5*: Linguistic evaluations of the decision makers are aggregated to get the fuzzy rating of alternatives. The average value of the criteria was calculated using Equation (6). From Table 6, for the first criteria which was the first row, sum up all the values in the elements left, medium and right. For example, we calculate for Table 6 which is the transforming matrix of criteria with respect to alternatives 1.

$$A_i C_1^L = \frac{0.50 + 0.45 + 0.56 + 0.45 + 0.50 + 0.38 + 0.25 + 0.15 + 0.20 + 0.06}{10} = 0.350$$

$$A_i C_1^M = \frac{0.50 + 0.50 + 0.62 + 0.55 + 0.62 + 0.52 + 0.42 + 0.34 + 0.42 + 0.29}{10} = 0.478$$

$$A_i C_1^R = \frac{0.50 + 0.58 + 0.72 + 0.67 + 0.78 + 0.70 + 0.62 + 0.57 + 0.68 + 0.57}{10} = 0.639$$

The following average criteria with respect to the alternatives were obtained by using same calculation and results were table in Table 7.

Table 7. Average criteria with respect to the alternatives

| | **Alternatives 1** | **Alternatives 2** | **Alternatives 3** | $W_i$ |
|---|---|---|---|---|
| **$C_1$** | (0.350,0.478,0.639) | (0.390,0.577,0.757) | (0.545,0.670,0.766) | 0.096 |
| **$C_2$** | (0.383,0.478,0.573) | (0.446,0.577,0.728) | (0.592,0.619,0.742) | 0.097 |
| **$C_3$** | (0.273,0.355,0.440) | (0.433,0.538,0.675) | (0.529,0.545,0.660) | 0.116 |
| **$C_4$** | (0.358,0.441,0.503) | (0.440,0.547,0.640) | (0.464,0.431,0.582) | 0.114 |
| **$C_5$** | (0.290,0.355,0.423) | (0.413,0.499,0.600) | (0.415,0.437,0.524) | 0.094 |
| **$C_6$** | (0.390,0.458,0.524) | (0.399,0.499,0.586) | (0.443,0.499,0.552) | 0.113 |
| **$C_7$** | (0.486,0.561,0.629) | (0.331,0.432,0.527) | (0.385,0.494,0.503) | 0.102 |
| **$C_8$** | (0.549,0.638,0.714) | (0.351,0.471,0.574) | (0.307,0.421,0.438) | 0.084 |
| **$C_9$** | (0.458,0.561,0.657) | (0.252,0.382,0.499) | (0.262,0.385,0.427) | 0.077 |
| **$C_{10}$** | (0.564,0.684,0.794) | (0.344,0.488,0.617) | (0.339,0.455,0.525) | 0.108 |

*Step 6*: Similarly, Table 8 presents the decision matrix of alternatives determined by applying each criterion. Finally adding the weights per alternative multiplied by the weights of corresponding criteria, a final score is obtained for each alternative. Table 8 shows these score employs the equation (7) proposed by Yager (1981). The ranks are A2>A3>A1.

Table 8. Weight of the criteria with respect to alternatives

| | **Alternatives 1** | **Alternatives 2** | **Alternatives 3** |
|---|---|---|---|
| **$C_1$** | (0.033,0.046,0.061) | (0.037,0.055,0.072) | (0.052,0.064,0.073) |
| **$C_2$** | (0.037,0.046,0.055) | (0.043,0.056,0.070) | (0.057,0.060,0.072) |
| **$C_3$** | (0.032,0.041,0.051) | (0.050,0.062,0.078) | (0.061,0.063,0.077) |
| **$C_4$** | (0.041,0.050,0.057) | (0.050,0.062,0.073) | (0.053,0.049,0.066) |
| **$C_5$** | (0.027,0.033,0.040) | (0.039,0.047,0.056) | (0.039,0.041,0.049) |
| **$C_6$** | (0.044,0.052,0.059) | (0.045,0.056,0.066) | (0.050,0.056,0.062) |
| **$C_7$** | (0.050,0.057,0.064) | (0.034,0.044,0.054) | (0.039,0.050,0.051) |
| **$C_8$** | (0.046,0.054,0.060) | (0.030,0.040,0.048) | (0.026,0.035,0.037) |
| **$C_9$** | (0.035,0.043,0.051) | (0.019,0.029,0.038) | (0.020,0.030,0.033) |
| **$C_{10}$** | (0.061,0.074,0.086) | (0.037,0.053,0.067) | (0.037,0.049,0.057) |
| **Weight** | (0.406,0.496,0.585) | (0.384,0.504,0.623) | (0.434,0.498,0.577) |

Table 9. Final score for the alternatives

| | Weight | Final Score | Rank |
|---|---|---|---|
| **Alternatives 1** | (0.406,0.496,0.585) | 0.496 | 3 |
| **Alternatives 2** | (0.384,0.504,0.623) | 0.504 | 2 |
| **Alternatives 3** | (0.434,0.498,0.577) | 0.503 | 1 |

From Table 9, the best rank with the highest value was alternative 2, A2 (Pesona Fiza Bridal) with 0.504. Meanwhile, the second high value was alternative 3, A3 (Butik Pengantin Seriheza) with 0.503 and followed by alternatives 1, A1 (Nwahyu Butik Pengantin & Kecantikan) which was the smallest value with 0.496.

## 4. Conclusion

In the current competitive market, numerous new event-planning companies have emerged, intensifying the competition in the industry. Consequently, these companies must secure reliable contractors to thrive in this environment. The selection of an event planner contractor requires careful consideration. The growing demand for professional wedding services is driving the expansion of the wedding planning industry, as many brides-to-be seek to ease the burden of preparations and ensure their weddings run seamlessly (Hendrayati & Hurriyati, 2024). Therefore, the CFLPR method is employed to address this need, helping to rank alternatives and identify the most suitable event planner for Rio Event Management. This method significantly minimizes the likelihood of inconsistent expert opinions and is particularly useful when dealing with multiple criteria by reducing the number of questions and comparisons needed (Hsu, Chen, & Yang, 2021). By minimizing inconsistencies, the CFLPR method enables the selection of an event planner capable of delivering high-quality services. In conclusion, Persona Fiza Bridal emerges as the top choice for Rio Event Management, followed by Butik Pengatin Seriheza and Nwahyu Butik Pengantin & Kecantikan. These rankings are determined based on consistent fuzzy linguistic preference relations, with the highest value corresponding to the first ranking and the lowest to the last. In summary, Persona Fiza Bridal is the preferred event planner for Rio Event Management, ensuring the smooth and successful execution of events.

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**Conflict of Interest**

The authors have no conflicts of interest to declare.

**References**

Bertella, G. (2014). Designing small-scale sport events in the countryside. *International Journal of Event and Festival Management*, *5*(2), 132-145.

Chandrasiri, W. H. P. (2021). *Wedding Organizer–wedding planning web application* (Doctoral dissertation).

Chen, Y. H. (2009, August). Applying Consistent Fuzzy Linguistic Preference Relations to E-commerce System Selection. (pp. 252-256).

Chen, Y. H. (2009, August). Applying Consistent Fuzzy Linguistic Preference Relations to E-commerce System Selection. (pp. 252-256).

Guan, L., Luo, Y., & Tang, L. R. (2015). An exploratory study of decision makers for choosing wedding banquet venues: push and pull motivations. *International Journal of Tourism Cities*, *1*(2), 162-174.

Helo, J. (2015). *Starting a Home-Based Wedding and Event Coordination Company* (Doctoral dissertation, California State University, Northridge).

Hendrayati, H., & Hurriyati, R. (2024). Distribution and Service Qquality to Customer Satisfaction in Cikal Wedding Planner. *Eduvest-Journal of Universal Studies*, *4*(6), 5157-5162.

Herrera-Viedma, E., Herrera, F., Chiclana, F., & Luque, M. (2004). Some issues on consistency of fuzzy preference relations. *European journal of operational research*, *154*(1), 98-109.

Hsu, T. H., Chen, C. H., & Liao, W. C. (2021). A fuzzy MCDM analytic model for building customers' brand attachment preference in car firms. *International Journal of Fuzzy Systems*, *23*(7), 2270-2282.

Hsu, T. H., Chen, C. H., & Yang, Y. W. (2021). A decision analysis model for the brand experience of branded apps using consistency fuzzy linguistic preference relations. *Symmetry*, *13*(7), 1151.

Huang, H. C. (2015). Applying fuzzy analytic hierarchy process to construct a festival planner selection model. *Advances in Information Sciences and Service Sciences*, *7*(1), 52.

Kahraman, C., Cebeci, U., & Ulukan, Z. (2003). Multi-criteria supplier selection using fuzzy AHP. *Logistics Information Management, 16*(6), 382-394.

*Rio Wedding & Catering Services*. (n.d.). https://rioevent.blogspot.com/

Sayed Ahmad, S. A., Mohamad, D., & Azman, N. I. (2020). Similarity based fuzzy inferior ratio for solving multicriteria decision making problems. Malaysian Journal of Computing (MJoC), 5(2), 597-608.

Srichetta, P., & Thurachon, W. (2012). Applying fuzzy analytic hierarchy process to evaluate and select product of notebook computers. *International Journal of Modeling and Optimization*, *2*(2), 168.

Wang, T. C., & Chen, Y. H. (2007). Applying consistent fuzzy preference relations to partnership selection. *Omega*, *35*(4), 384-388.

Wang, T. C., & Chen, Y. H. (2008). Applying fuzzy linguistic preference relations to the improvement of consistency of fuzzy AHP. *Information Sciences*, *178*(19), 3755-3765.