Mapping Competitiveness of Culinary Destinations in India: A Framework Using Cognitive Mapping and MCDA (MACBETH) Technique

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Abstract

The objective of this article is to identify the determinants that have a major influence on the competitiveness of culinary destinations and further create a multicriteria evaluation index to evaluate the competitiveness of Indian culinary destinations. The methodology includes three-step processes, namely the structuring phase, evaluation phase and recommendation phase. The structuring phase involves the identification of fundamental points of view (FPVs) that have a significant influence on culinary destination competitiveness using cognitive mapping, where the food vloggers, being the experts from the culinary field, are contacted to form a cognitive map. Next in the evaluation phase, the attractiveness and their respective weights are measured by the categorical-based evaluation technique (MACBETH), and the index is formed, which is then used for evaluating 15 Indian culinary destinations selected based on literature reviews on Indian culinary destinations. Finally, suggestions are provided on the basis of results in the recommendation phase. The findings of this study suggests that *Culinary Heritage* is the most influential while travelling in India. Further, on the basis of the attractiveness of destinations, Delhi (DEL) and Kolkata (KOL) stand as the top performers with a score of 109.75 and 108.42, respectively, on the basis of FPVs identified. The unique way of identifying the competitive indicators from the expert's perspective and evaluating the culinary destinations from their point of view substantially validates the research findings.

Keywords: Cognitive mapping; Multiple criteria decision analysis; MACBETH; Competitiveness of Culinary destinations; India.

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1. Introduction

Culinary tourism has taken a significant shift in its popularity. Thanks to the substantial efforts of the food vloggers and the welcoming move of their audience (Horng & Tsai, 2012b; Long, 2013; Long, 1998). Food tourism, often termed as culinary tourism or gastronomical tourism, offers a sensory experience that ranges from visiting vibrant street food markets to enjoying the art of preparing and presenting food (Corigliano & Baggio, 2002; *Culinary Tourism: A New Trend on the Tourism Market,* 2017). Tourists spend 40% of their total budget on food and beverages while away from home (Karim, 2013). Destinations have begun emphasizing food as their main tourism product, amid global interest in local cuisine and heritage (Wachyuni & Saputro, 2019).

India is the preeminent global culinary destination. "Taste Atlas" had ranked Indian cuisineas fifth in the recently concluded "World's best cuisine awards 2022" because of its diversity in flavour (Hindustan Times, 2022). The appetite for Indian cuisine is quite apparent among the culinary travellers (Baruah, 2016; Updhyay, 2014).

The food business in India employs tons of people and boosts the country's GDP considerably (Banerjee, 2015). According to the report of the Ministry of Food Processing Industries, Government of India, the food processing industry contributed around Rs 2.37 lakh crore to the "Gross Value Added (GVA)" in 2020-21(Ministry of Food Processing Industries, 2022). The Ministry of Tourism in India, partnering with "Cuisine India Society", had initiated a promotional campaign for culinary tourism called "Incredible Tiffin" (Duttagupta, 2013). As a part of the campaign, the authentic local cuisine was promoted to individuals abroad, aiming to acquaint them with the diverse culinary options available in India (India Business & Trade, 2023). India has more than 50 different regional cuisines, each with unique tastes and flavours originating from the North, South, East and West regions of India (Jain, 2015). Indian cuisine showcases a wide variety of ingredients, particularly spices, which contribute to the unique flavours and tastes influenced by geographical locations, climates, and the culinary preferences of the population (Dutta, 2023).

The strength of competition among culinary destinations is notable, driven by the distinctive characteristics of each locale and the range of services provided by various food establishments operating within them (Testa, Galati, Schifani, Maria, Trapani, & Migliore, 2019). Basle (2023)proposed the development of a comprehensive framework to identify and evaluate the competitive factors present in each destination. This underscores the need to systematically oversee and identify the competitive components of culinary tourist destinations.

The paper is structured as follows. The introduction comes at the beginning under Section 1, followed by the literature review under Section 2. Section 3 provides a detailed research methodology. Section 4 highlights the results, and Section 5 includes discussion, implications, conclusion, scope and limitations.

2. Literature Review

Tourist Destination Competitiveness

Dwyer & Kim (2003) defined destination competitiveness as the ability of a destination to make facilities like goods and services available to an optimum standard, in addition to other attributes like attraction, budget friendliness and sustainability. Destination attractiveness is contingent upon multiple aspects. Due to the substantial competition among tourist destinations, destinations must now be competitive to remain attractive for tourists (López-Guzmán, José,& Elide, 2016). Fernández, Azevedo, Martín and Martín (2020) in their study identified various tourist facilities for ensuring destination attractiveness, which involved their safety and security, health and hygiene, price competitiveness, cultural resources, tourist service infrastructure, etc. Some other indicators of tourist destination attractiveness are: unique goods and services and incentives that can attract the travellers (Cronjé & du Plessis, 2020). By adopting better competitive strategies, the host destinations can attract more tourists, which ultimately results in the economic sustainability of the local community (Mazanec, Wöber & Zins, 2007).

Competition occurs frequently among countries and even within the same nation (Putri &Wijoyo, 2023; Ongkowidjojo & Hikam, 2015). The 'ratings and reviews of the destination in various social media platforms', 'culinary creativity and innovation of the local community', 'the influence of regional culture and heritage on the ethnic food' and 'the development of nation and service quality of the food outlets in the culinary destination' leads to the competition (Horng & Tsai, 2012a; Indrajaya, 2019; Mulyana & Ayuni, 2022). Culinary destinations are obligated to discover novel approaches and to adopt competitive strategies for facing intensive global competition (Lasisi, Odei & Eluwole, 2022).

The food culture of the destinations plays a major role in shaping the destination's competency and it is shaped by a variety of factors including: colonisation, technology (hunting, gathering, agricultural, horticultural, aqua-cultural, fishing; food processing and storage, transport, and cooking), information (religion, education and literacy, communication) and belief(Jacques & Jacques, 2012). As each destination has its unique customs and traditions, this diversity is also reflected in the variety of food offerings available at the destination (Hodgson, Hsu-Hage & Wahlqvist, 1994).

Preferences of Culinary Tourists

Sengel, Karagoz, Cetin, Dincer, Ertugral and Balık (2015) classified culinary tourists into four groups: existential, experimental, diversionary, and recreational. Existential tourists believe that consuming local food enhances their knowledge of gastronomy and understanding of culture. Experimental tourists prefer trendy eateries to satisfy their lifestyle needs, while recreational tourists avoid local and fancy restaurants. Diversionary tourists prioritise quantity and familiarity in food choices, showing their diverse perception towards the local cuisines guided by their motivations. Similarly, the origin of tourists also plays a significant role in visiting any destination. For example: German travellers are more likely to be driven by a desire for culture and the outdoors; British travellers tend to enjoy socialising and mingling with other travellers; whereas Turkish tourists were found to be more motivated by cultural and physical factors of the given destination (Kozak, 2002).

In addition, tourists frequently search for more affordable and reasonable destination options with safety and security features (Ahmed, Azam,& Bose, 2010). This is also true when it comes to food consumption, where price is considered a crucial factor in determining the consumer's decision to buy food products due to their hedonic qualities (Kim & Kim, 2022). Kim, Kim, Goh, & Antun (2011) in their study found that when visiting a food event or festival, food tourists do not seem to care too much about their total spending. Pamphlets, brochures, guidebooks, and websites can effectively convey the messages to tourists and shape their decision-making process (Okumus, Xiang & Hutchinson 2018).

Indian Culinary Destinations

"Taste Atlas" had ranked Indian cuisine as fifth in the recently concluded "World's best cuisine awards 2022" because of its diversity in flavour (Hindustan Times, 2022). Various researchers have studied various culinary destinations of India, though individually and not collectively. Ahmedabad's mixture of cultural heritage and modern trends reflects its availability of a diverse set of food, thanks to its urban architecture, rise in cloud kitchens and street kitchens ndorsandrapal, 2024 (Aher & Deshpande, 2020; Bhatia & Padiya, 2023;Mundra, 2023).Singh and Ramjit (2021), Prakash and Singh (2021) and Rana, Sharma, & Thakur (2018) highlighted the traditional culinary practices of Amritsar alongside the rich food heritage and vibrant local cuisines in their studies, respectively.

Bengaluru, for its vibrant food scene influenced by transformative technology, emerged as one of the hottest culinary destinations of South India (Supriya 2023; Godara & Dev, 2021). Bhopal has become a culinary hub because of the intricacies of food, identity and the dynamics of the society

(Kumar, 2018; Lambert-Hurley, 2023). Chennai has emerged as one of the prominent destinations for the epicurean tourists preferring seafood and a range of other processed foods (Nagajothi, Sarkar, Iswarya, Srinidhi, Bevan, 2023;Kolli, Lakshmi, Gayatri, 2019;Indumathi, Malarkodi, & Poornakala, 2020). Due to its deep-rooted history, the gastronomy of Indian capital, Delhi, is influenced by diverse cultures (Chatterjee & Suklabaidya, 2020a; Siegel, 2010; Kaushal & Yadav, 2021; Rathor & Parkash, 2019). Gangtok has become popular among culinary tourists for its ethnic yet dynamic range of food culture, ultimately fuelling the regional economy (Tamang & Thapa, 2014; Demkovaet al., 2022). The food culture of Goa, characterised by Portuguese colonial influence, has shaped its culinary offerings exotically (Rosales, 2012; Barreto & Mayya, 2023). The blend of tradition and modernity attracts global tourists to the ethnic delicacies of Hyderabad (Tamang, 2020; Amalan & Anita, 2023; Nair, 2021;Vishnuraj, Vaithiyanathan, Reddy, Kumar & Barbuddhe, 2024). Jaipur has received a prominent place in the culinary heritage of India due to the vibrant street food (Rawal & Dani, 2022; Srivastava, 2021;Kumar & Rana, 2023). The deep-rooted culinary tradition of the Indian state of Kashmir is reflected in its regional yet most popular delicacies (Raina, Rana & Thakur, 2020; Ahad et al., 2023; Dar, 2016). The economic yet tasty Bengali food available in Kolkata city is guided by the economic downturn (Mitra, 2019; Das Chaudhuri, 2019). Lucknow is renowned for its rich history and heritage, which are reflected in its unique and diverse cuisines (Rongala & Bellamkonda, 2023;Singh, S. K., Srivastav, Singh, Tripathi, & Kumar, 2023; S. Singh, 1999;Singh & Srivastava, 2022; Vishnuraj et al., 2024). Mumbai attracts many tourists for its vibrant street food, culinary heritage and diversity (Amore & Roy, 2020; Sankpal & Mathur, 2022). Puri has emerged as one of the most interesting culinary destinations and hence triggers interest among the research scholars like Mohapatra and Biswas (2017), Reve (2006), Sahoo, (2020), Roy (2020), Sahoo (2019), Pradhan and Roy (2022), Munro, Buttigieg and Olsen (2023) for carrying out research.

Research Gap

A number of studies have been conducted on destination competitiveness involving various methodologies and employing many frameworks. Manrai, Manrai, & Friedeborn (2020) suggested the Tourism Attractions-Basics-Context (TABC) model involving environmental factors for studying destination competitiveness. Rodríguez-Díaz & Espino-Rodríguez (2008) integrated the sustainability measures with the proposed strategic evaluation model, which focused on tourism supply chain management for analysing destination competitiveness. Vengesayi (2003) combined the supply and demand perspectives to divulge the dynamics of destination competitiveness. The revised IPA analysis proposed by Caber, Albayrak, & Matzler (2012) covered the important aspects of destination attributes

for measuring the popular destinations in terms of their diagnostic value. Horng and Tsai (2012a) and Horng and Tsai (2012b) constructed a strategic framework for culinary tourism by employing resource-based theory, which involves the identification of key success factors and promotional strategies. Krešić & Prebežac (2011) created an index for destination attractiveness (IDA) for testing the attractiveness of seaside countries in Croatia. Formica and Uysal (2006) proposed a model for measuring tourist attractiveness on the basis of indicators for both supply and demand. Dwyer and Kim (2003) highlighted the importance of both subjective and objective measures for studying destination competitiveness. Though these studies proposed some excellent models for studying destination attractiveness, all of these are either based on qualitative or quantitative techniques alone. To explore the studies combining both qualitative and quantitative approach and for evaluating the destination competitiveness with a more robust criteria, the study of Carayanniset al. (2018) was discovered which endeavoured to overcome this shortfall by applying the multi criteria decision analysis (MCDA) with the combination of Cognitive mapping "which is a combination of both qualitative and quantitative approach" and MACBETH approach "which is a categorical evaluation technique". However, this study was performed in the general context of tourist destination attractiveness, like the other studies mentioned above.

Very few studies were found on the domain of gastronomy, among which the study of Stone, Soulard, Migacz and Wolf (2018), highlighting the important elements of tourists' food travel experience and Basle (2023) proposing a GADECOMP model for studying the gastronomic destination competitiveness are significant. Though the study of Basle (2023) was based on the culinary destination competitiveness, it was based on the quantitative data and involved the restaurant guests as the respondents and not the tourists. Again, very few studies have evaluated the competitive culinary destinations of India. In the context of culinary tourism in India, Amore and Roy (2020) included destinations such as Delhi, Mumbai, and Kolkata for studying food tourism and urban marketing. Bhavani, Kumar & Mehta (2014) studied Bundelkhand, India and highlighted the importance of infrastructure for making a destination attractive for tourists. Similarly, the study performed by Kala and Barthwal (2020) on mountainous religious destinations of India highlighted the food and restaurant attributes for the satisfaction of tourists. Chang and Luan (2010) performed a study on five tourism destinations in India and emphasised the importance of a comprehensive research instrument. Rarely has any study measured the attractiveness or competitiveness of Indian culinary destinations comprehensively (Chatterjee & Suklabaidya, 2020a; Raina, Rana, & Thakur, 2020; Raina, Rana, Thakur, & Kohli et al., 2020).

Getting inspired by Carayannis et al. (2018), this study aims to propose a methodological framework for culinary destinations and thereby evaluate some of the renowned culinary tourism destinations of India by combining cognitive mapping and the MACBETH approach. Previous literature on the culinary destinations selected Mumbai (Amore & Roy, 2020; Sankpal & Mathur, 2022), Delhi (Amore & Roy, 2020), Hyderabad (Tamang, 2020; Amalan & Anita, 2023; Nair, 2021;Vishnuraj et al., 2024), Lucknow (Rongala & Bellamkonda, 2023; S. K. Singhet al., 2023;Singh & Srivastava, 2022; Vishnuraj et al., 2024), Chennai (Nagajothi et al., 2023; Kolliet al., 2019; Indumathi et al., 2020), Jaipur (Rawal & Dani, 2022; Srivastava, 2021;Kumar & Rana, 2023), Amritsar (Singh and Ramjit, 2021; Prakash and Singh, 2021;Rana, Sharma, P., & Thakur,, 2018), Bengaluru (Supriya, 2023; Godara & Dev, 2021), Goa (Rosales, 2012;Barreto & Mayya, 2023), Kolkata (Mitra, 2019; Das Chaudhuri, 2019), Bhopal (Kumar, 2018; Lambert-Hurley, 2023), Gangtok (Tamang & Thapa, 2014; Demkova et al., 2022), Kashmir (Raina, Rana, & Thakur, 2020;Ahad et al., 2023; Dar, 2016), Ahmedabad (Chandrapal, 2024;Aher & Deshpande, 2020;Bhatia & Padiya, 2023;Mundra, 2023) and Puri (Mohapatra and Biswas, 2017; Sahoo, 2020; Roy, 2020; Sahoo, 2019; Pradhan and Roy, 2022; Munro, Buttigieg, & Olsen 2023). Simultaneously, the study aims to provide meaningful insights into how cognitive mapping and the MACBETH approach enhance and add value to the process.

3. Methods

The objective of the study is to identify the most attractive culinary destination from Indians' perspective. The study listed out culinary destinations of India that most frequently in prior literature. Articles and reports from last 10 years were surveyed manually. Cities were finalized based on their frequency. The main criteria for selection were: (i) clear identification of the city as a hub for culinary tourism; (ii) presence of distinct, ethnic, traditional or tourist food; (iii) food festivals or other culinary activities, and (iv) existence of basic or advanced information concerning tourism and food in the city. Only those cities that fulfilled a minimum of three criteria were retained, which brought the number down to 15 culinary destinations of India. The finalized culinary destinations were: Mumbai, Delhi, Hyderabad, Lucknow, Chennai, Jaipur, Amritsar, Bengaluru, Goa, Kolkata, Bhopal, Gangtok, Kashmir, Ahmedabad and Puri. To achieve the desired objective, a stepwise approach was followed in line with the approach of multicriteria decision analysis (MCDA). The three-step approach starts from the identification of criteria under the structuring phase, followed by the evaluation of culinary destination choices for ranking destinations from best to least attractive, and finally giving suggestions based on the evaluation. The three-step approach is listed out below. Furthermore, the methodological procedure followed in this study has been depicted in *Figure 1*.

1. Structuring phase: Identifying FPVs to explore culinary destination competitiveness using cognitive mapping.

2. Evaluation phase: Measuring attractiveness to identify impact profiles using a categorical-based evaluation technique (MACBETH).

3. Recommendation phase: Suggestions are provided on the basis of results. *(Refer: Figure 1)*
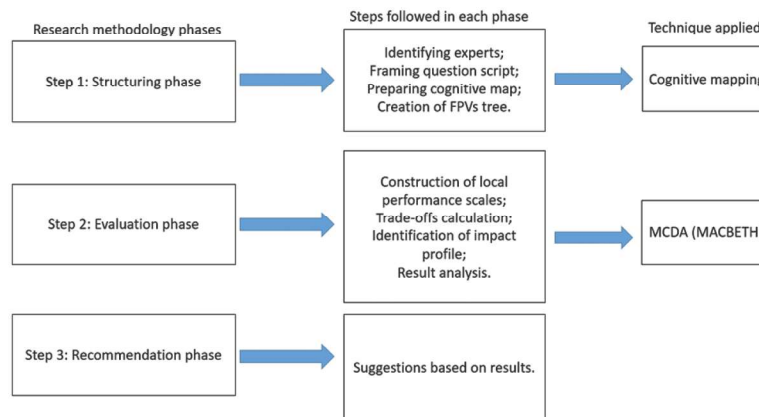
1. Source: Researcher's Input

Figure 1: Three-step research methodology

3.1. Phase-1 Structuring phase

Ten food vloggers who had explored India as part of food vlogging were contacted on LinkedIn, and were considered as domain experts (Forest et al., 2019; Pinho & Soares, 2011). Two main criteria were created for selecting food vloggers: (i) YouTube channels focused on food vlogging for at least 5 years; and (ii) coverage of all states and union territories (UTs) of India on their YouTube channel. As proposed by Benitez, Lima, Lerman& Frank (2019), six questions were framed regarding culinary destinations *(Refer: Table 1)*. All the questions were open-ended, and each expert was contacted through email to schedule an appointment. Interviews were conducted over phone. The answers were recorded and then transcribed on an Excel sheet for better understanding. The first question was more general in scope and was asked to understand how respondents interpret by the term 'culinary destination'. Second, third, fourth and fifth questions addressed their opinion on visiting culinary destinations. The sixth question sought their suggestions. Experts were asked to answer each question in detail. The researchers were asked individually during the cognitive mapping phase. *(Refer: Table 1)*

Table 1: Question Script

What do you understand by the term Culinary destination?
While visiting any place, which factor is most important to you while considering any culinary destination?
While visiting any place, which factor do you consider cannot be avoided as a consumer?
On what basis do you compare the effectiveness of two eatery points?
How do you measure the effectiveness of a culinary destination?
How to improve the effectiveness of culinary destinations?

2. Source: Adapted from Benitez et al (2019)

3.1.1. Cognitive mapping

The current study aims to utilise cognitive mapping as one of the techniques and thereby develop a cognitive map using expert opinion. Cognitive mapping gives insight into a person's thinking, ideas, and thoughts towards a specific issue or event. The provides a visual representation of the outcome (Kitchin & Freundschuh, 1973). Despite its subjective nature, the primary benefit of maps lies in its ability to facilitate learning by fostering a more profound comprehension of the cause-and-effect relationships among criteria (Evans & Pezdek, 1980). Additionally, it can be utilised to decrease the rate at which crucial criteria are overlooked (Carayanniset al., 2018).

Cognitive mapping offers several benefits, such as the capacity to address both quantitative and qualitative factors concurrently, organise complex decision scenarios, support collaborative efforts, and aid formulation and execution of strategic plans (Whittington, Mccaffary, Bakermans, & Behrens, 2022). Due to their constructivist and recursive nature, cognitive maps possess significant potential in the structuring phase of a performance evaluation process (Filipe, Ferreira & Santos, 2015). Cognitive mapping has been used by researchers in the field of management (Swan, 1997; Wood, Bostrom, Bridges, & Linkov, 2012); tourism (Farsari, Butler & Szivas, 2011); and psychology (Evans & Pezdek, 1980).

3.2. Evaluation phase

The MACBETH approach is utilised to complete the evaluation step. The benefit of MACBETH is that it includes pairwise comparisons of decision criteria to ascertain the relative weights or significance (Filipeet al., 2015). This provides a thorough evaluation of all the different aspects that go into each solution's acceptability and overall efficacy. This method incorporates opinions from various stakeholders into the assessment procedure. An executive director at the Institute of Culinary Arts with 25+ years of experience is contacted via LinkedIn for final confirmation, following the assessment of the culinary destination competitiveness index, created with the assistance of the MACBETH technique.

3.2.1. MACBETH technique

The MACBETH approach was developed in the early 1990s. MACBETH stands for measuring attractiveness by a category-based evaluation technique (Bana, E., Costa, & Vansnick, 1999). It is based on numerical representations of semi-orders for multiple thresholds. The technique involves associating each alternative with a value, which is determined by a value function (Costa & Corte, 2017). The goal is to make the differences in attractiveness between alternatives as compatible as possible with the decision maker's value preferences. Considering $X= \{a,b,…,n\}$ to be a finite set of 'n' alternatives, the technique consists of associating each alternative with a value 'x' (resulting from $v(.):X \rightarrow R$), such that differences $v(a)- v(b)$ (with '*a*' being more attractive than '*b*') are as compatible as possible with the decision maker's value preferences. In the current study, seven pre-defined categories of semantic differences in attractiveness were used *(Refer:Table2)*. Here, a simple equation (1) was followed, where 'v' represents the "value function" and 's_k' represents the respective threshold.

$$a\ P^{(k)}\ b: s_k < v(a)- v(b) < s_{k+1} \tag{1}$$

(Refer: Table 2)

<div align="center">

Table 2: Semantic categories of attractiveness

	Semantic categories of differences in attractiveness
C_0	**No** difference in attractiveness
C_1	**There is a very weak** difference in attractiveness
C_2	**Weak** difference in attractiveness
C_3	**Moderate** difference in attractiveness
C_4	**Strong** difference in attractiveness
C_5	**There is a very strong** difference in attractiveness
C_6	**Extreme** difference in attractiveness

3. Source: Bana E Costa & Vansnick (1999)

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The technical procedure involves associating asymmetric partitions of the ray of positive real numbers with partition classes of ordered pairs. The intervals between consecutive categories are determined based on a value function and function thresholds. The practical application of the technique involves using a scale of semantic categories of differences in attractiveness, developed by Bana E Costa and Vansnick (1999). This scale helps in filling in a matrix of pairwise comparisons regarding the difference in attractiveness between alternatives. The process of filling in the matrix allows for continuous learning and consensus-building among the participants. However, it is important to analyse formulations (2) and (3) for consistency.

$$\forall a,b \in X : v(a) > v(b) \Leftrightarrow aPb \tag{2}$$

$\forall\ k,\ k^* \in \{1,2,3,4,5,6\},\ \forall,a,b,c,d \in X\ with\ (a,b) \in C_k$

$$And\ (c,d) \in C_{k^*} : k \geq k^* + 1 \Rightarrow v(a) - v(b) \geq v(c) - v(d) \tag{3}$$

Further, linear programming is applied according to formulation (4) to generate an initial scale to be presented to decision makers for discussion.

$Min\ v(n)$

$S.\ T.: \forall\ a,\ b \in X:\ aPb \Rightarrow v(a) \geq v(b) + 1$

$\forall a,b \in X:\ aIb \Rightarrow v(a) = v(b)$

$\forall\ (a,b),\ (c,d) \in X$, if the difference of attractiveness between a and b is bigger than between c and d, then:

$v(a)-v(b) \geq v(c)-v(d) +1+\delta(a,b,c,d)$

$v(a^-)=0$

Where:

n is an element of X so that $\forall a,b,c,..... \in X : n(P \cup I)\ a,b,c....$

a is an element of X so that $\forall a,b,c,.... \in X:\ a,b,c,....(P \cup I)\ a^-$

$\delta\ (a,b,c,d)$ is the minimal number of categories of difference of attractiveness between the difference of attractiveness between a and b and the difference of attractiveness between c and d. (4)

It is important to highlight that the internal consistency of ordinal scales is put at risk when decision makers make inconsistent value judgments (Sanchez-Lopez, Bana e Costa & De Baets, 2012). Therefore, the consistency of the value judgment matrix is contingent upon adhering fully to formulations (2) and (3). According to Bana E Costa and Vansnick (1999), the integration of social and technical aspects in the decision-making process through MACBETH enables the creation of more transparent and realistic models. Ferreira (2014) emphasises that this interactive decision support technique is characterized by its simplicity, comprehensibility, strong mathematical foundation, and the ability to consider both qualitative and quantitative evaluation criteria in decision making.

Researchers in distinct fields have utilized the MACBETH approach to measure attractiveness. Mateus, Bana e Costa and Matos (2017) have used MACBETH for sustainable brownfield redevelopment project in Portugal. Similarly, Karande & Chakraborty (2013) applied MACBETH for the selection of a Flexible Manufacturing System and found satisfactory results. Researchers have used MACBETH approach to solve conflicting issues in various fields.

3.3. Recommendation phase

The phase of recommendation plays a crucial role by transforming the insights acquired in the preceding phases into actionable recommendations. During this phase, the appropriateness of utilizing a distinctive methodology that combines cognitive mapping with MACBETH approach to assess the competitiveness of a culinary destination is thoroughly examined. Furthermore, the recommendation phase involves the assessment of the appropriateness of the competitiveness index developed through this integrated approach for the stakeholders operating within the culinary sector, which includes policymakers, destination management organizations, and other parties engaged in the development of the culinary sector.

4. Result

The results obtained for this study are presented below.

4.1. Structuring Phase

In this phase, experts were identified and discussion with them lead to the identification of possible determinants for measuring the competitiveness of a culinary destination. Further, experts were contacted to organize the determinants of the criteria. This process led to the creation of a cognitive map designed using Edrawmind software, powered by Wondershare, which was presented to the experts for final validation. *Figure 2* illustrates the final version of the cognitive map *(Refer: Figure 2).*
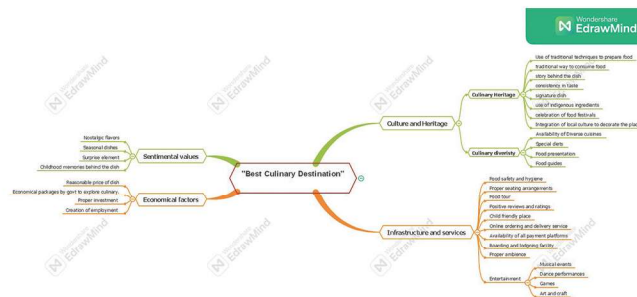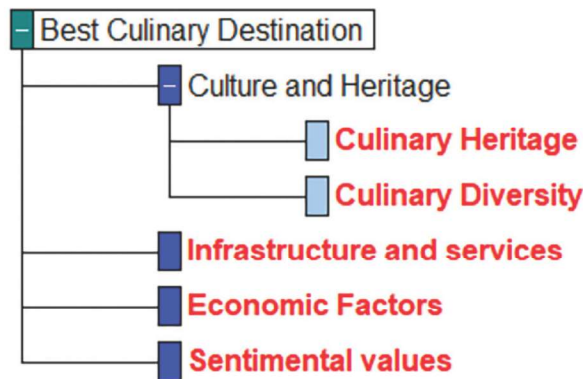

4. Source: Author's Input

Figure 2: Cognitive Map

Upon the identification of the relevant criteria and acquisition of the collective cognitive map, the subsequent phase of the structuring procedure involved an examination of the cognitive pathways within the map to identify the criteria that could be considered as Fundamental Principle Values (FPVs) (Ferreira, Meidute-Kavaliauskiene, Zavadskas, Jalali & Catarino, 2019). Another session with the experts was conducted to identify FPVs and created a value tree. *Figure 3* presents the tree of fundamental points of view, where the FPVs are marked in red *(Refer: Figure 3).*

5. Source: Author's Input

Figure 3: Fundamental Point of View (FPV) tree

According to the experts, FPV1- *Culinary Heritage*- includes variables such as use of traditional techniques to prepare and consume food, history of the dish, consistency in taste, celebration of signature dish, and integration of food festival with local culture. FPV2- *Culinary Diversity*- includes variables such as availability of diverse cuisines, special diets, and availability of food guides to explore diversity. FPV3- *Infrastructure and Services*- include lodging and boarding facility, seating arrangement, food safety and hygiene, child-friendly, availability of all payment platforms (cash as well as online), services to entertain the guests through musical events, dance performance, and art and craft to indulge the guests. FPV4- *Economic Factors*- include the contribution of culinary tourism to the development of the country and society, affordability of dishes, and promoting employment. FPV5- *Sentimental values*- include the memories associated with the dish and place, seasonal flavours, and a surprise element.

The last step of the structuring phase consists of the construction of ordered levels of performance. The experts emphasize on creating a descriptor for each identified FPV according to their level of performance. To establish these descriptors, a scale from Fiedler (1967) was adapted to define the best and worst performance levels for each FPV, along with intermediate levels. *Figure 4* represents the descriptor created for the FPV1- *Culinary Heritage*- where the best performance is at L1 and the deficient performance is indicated by L5. Good (L2), Somewhat Good (L3) and neutral (L4) references were also identified to facilitate comparison (Sanchez-Lopezet al., 2012; Karande & Chakraborty, 2013).

The same procedure was followed for other FPVs, developing their descriptors. This concludes the structuring phase, leading us to the evaluation phase. *(Refer: Figure 4)*

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Level	Descriptor FPV1- Culinary Heritage
L1	Enduring legacy- uses time tested technique, high quality ingredients, traditional cooking methods, minimal wastage of natural ingredients, traditional serving vessels to promote heritage of that destination.
Good	Enduring tradition- relies on established methods to ensure consistency, inherent quality of ingredients, careful handling of ingredients, decorative element to garnish, appropriate dishware depend on cuisine
L3	Evolving heritage- Mix of traditional and modern methods, new flavor, fresh ingredients, creative way of garnishing, modern style dishware
Neutral	Waning tradition- shortcut of traditional methods, artificial products to enhance dish, pre-prepared or processed ingredients, either too much creativity or no creativity, functional dishware.
L5	Fading legacy- Inconsistent technique, artificial flavors, heavily processed ingredients, excessively decorative, generic dishware.

6. Source: Adapted from (Filipe et al., 2015)

Figure 4: Descriptor and impact levels of FPV1

4.2. Evaluation Phase

Table 3: Ordering of FPVs by overall attractiveness

| Criterion	Culinary Heritage	Culinary Diversity	Infrastructure & services	Economic factors	Sentimental value	Total	Ranking
Culinary Heritage	NA	1	1	1	1	4	1
Culinary Diversity	0	NA	1	1	0	2	3
Infrastructure & services	0	0	NA	1	0	1	4
Economic factors	0	0	0	NA	0	0	5
Sentimental values	0	1	1	1	NA	3	2

7. Source: Author's Input

The MACBETH methodology permits the assessment of choices, whereby they are compared based on their varying attractiveness across multiple criteria. In this regard, the panel of decision makers was initially prompted to rank the FPVs by their overall appeal. This process involved assigning a value of "1" whenever the attractiveness level of one FPV exceeded that of the other and a value of "0" when it did not. The matrix is shown in *Table 3*.

After participating in a collaborative discussion on the ranking provided in *Table 3*, the subsequent step involved evaluating the difference in desirability among each pair of FPVs, based on the semantic categories described in *Table 2*. The acquisition of the value judgments matrix and the standardisation of the weights were executed through the utilisation of the M-MACBETH software (http://www. m-macbeth.com/), and are visually depicted in *Figure 5*.

According to the data presented in *Figure 5*, FPV1 - *Culinary Heritage* - occupied the top position, achieving a percentage of 39.47%. This was closely followed by FPV5 - *Sentimental values* - and FPV2 - *Culinary Diversity* - with percentages of 28.94% and 21.05% respectively. Conversely, FPV4 - *Economic factors* - ranked last, with a mere 2.64%. It is important to highlight that the panel members collectively validated the trade-offs made during this stage of the process. In order to proceed with the evaluation phase, local preference scales were developed using the same technical procedures and MACBETH categories of semantic difference in attractiveness. As illustrated in *Figure 6*, L1 received a score of 140, while L5 was assigned a score of -20. This approach was repeated for all the FPVs, resulting in the formation of local performance scales. Subsequently, the evaluation system created underwent testing and validation. *(Refer Figure:5& 6).*
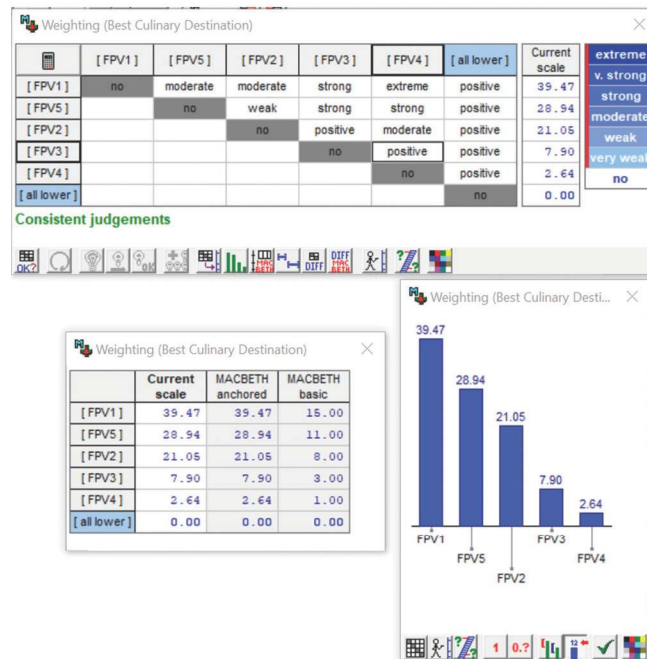
9. Source: Author's Input

Figure 5: Value judgements, proposed scales and criteria weights

10. Source: Author's Input

Figure 6: Value judgement and proposed scale for FPV1

4.2.1. Testing the system and analyzing the results

In order to evaluate the system developed, results for culinary destinations have to be analysed. The study was carried out in India, where the culinary industry is very important to the economy; thus, Indian culinary destinations known for their unique flavours, history and heritage were assessed. This study is process-oriented, that is, the methodological procedures used in this study can be effectively applied to any other nation or area with little modifications. Some of the most well-known Indian culinary destinations among travellers, obtained from the literature reviews and suggested by Sotc (2023), Priya and Srivastava (2023), (https://www.facebook.com/indian.evisa.org/, 2024), are included in *Table 4*.

The group was initially instructed to determine each destination's performance levels across all FPVs in order to conduct an overall assessment of the destinations. This stage was crucial in order to gather the information required to apply the additive model shown in formulation (5), where $V(a)$ represents alternative a's overall performance, wi is PVFi's weight, and vi is the local performance found in that FPV.

$$V(a) = \sum_{i=1}^{n} wivi\,(a)\; with\; \sum_{i=1}^{n} wi = 1\; and\; wi > 0\; and\; \begin{cases} vi(Goodi) = 100 \\ vi(Neutrali) = 0 \end{cases} \qquad (5)$$

To make performance comparisons easier, the model additionally included two cognitive references: neutral and good. The evaluation exercise, which relied on group discussion and negotiation, is shown in *Figure 7*.

Figure 7 illustrates that every culinary destination examined outperformed the Neutral reference. Delhi (DEL) and Kolkata (KOL), with respective scores of 109.75 and 108.42, are regarded as the top performers. With a total score of -13.19, Bhopal (BHO) is the lowest performer. *(Refer: Table:4 & Figure:7)*

Table 4: Top Culinary destinations in India

Top 15 culinary destinations in India	
Destination	**Abbreviation**
Mumbai	MUM
Delhi	DEL
Hyderabad	HYD
Lucknow	LUC
Chennai	CHE
Jaipur	JAI
Amritsar	AMR
Bengaluru	BEN
Goa	GOA
Kolkata	KOL
Bhopal	BHO
Gangtok	GAN
Kashmir	KAS
Ahmedabad	AHM
Puri (Odisha)	PUR

11. Source: Author's Input

| Options	Overall	FPV1	FPV2	FPV3	FPV4	FPV5
MUM	10.75	6.67	60.00	140.00	−20.00	−52.00
DEL	109.75	113.33	140.00	140.00	94.29	76.00
HYD	77.75	140.00	12.00	60.00	94.29	44.00
LUC	70.17	140.00	108.00	60.00	94.29	−52.00
CHE	106.01	140.00	108.00	60.00	48.57	76.00
JAI	107.96	140.00	108.00	100.00	2.86	76.00
AMR	87.01	140.00	12.00	60.00	94.29	76.00
BEN	53.45	113.33	60.00	140.00	2.86	−52.00
GOA	34.65	113.33	−20.00	100.00	48.57	−52.00
KOL	108.42	140.00	108.00	60.00	140.00	76.00
BHO	−13.19	−20.00	12.00	60.00	94.29	−52.00
GAN	45.59	60.37	108.00	60.00	2.86	−20.00
KAS	90.93	140.00	60.00	20.00	−20.00	76.00
AHM	101.11	140.00	108.00	100.00	94.29	44.00
PUR	102.85	140.00	108.00	20.00	48.57	76.00
[all upper]	140.00	140.00	140.00	140.00	140.00	140.00
[all lower]	−20.00	−20.00	−20.00	−20.00	−20.00	−20.00
Weights :		0.3947	0.2105	0.0790	0.0264	0.2894

12. Source: Author's Input
Figure 7: Value judgements, proposed scales and criteria weights

4.2.2. Sensitivity analysis

A sensitivity analysis was carried out to evaluate the system developed in a more detailed way. Sensitivity analysis enables the examination of the effects of modifications in each FPV. The sensitivity analysis was performed on the FPV with the highest weight (FPV1 – *Culinary Heritage*) *(Refer: **Figure 8**)*.

The dashed lines in *Figure 8* indicate a variation range for the variable, while the red line on the left side shows the FPV's current weight, i.e. 39.47%. The sensitivity analysis shows that modifications to the FPV weights within the designated ranges do not impair the ranking of the locations or the value assessments of the panel members. *(Refer: **Figure 8**).*
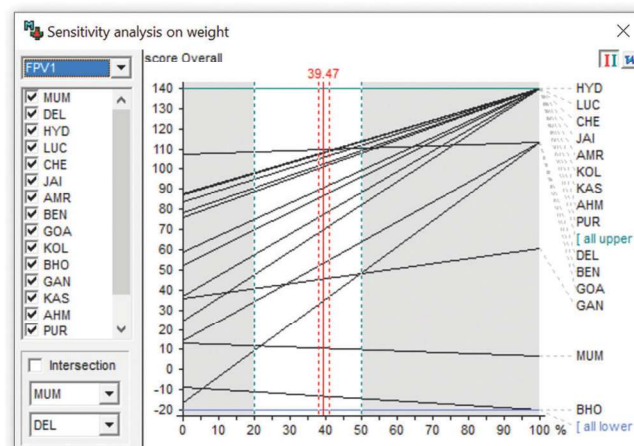
13. Source: Author's Input
Figure 8: Sensitivity analysis on FPV1's weight

4.2.3. Final Validation

After getting the ranking of culinary destinations in India, the final validation from the panel of experts was requested. This validation process involved a consolidation meeting with an executive from a culinary institution selected through LinkedIn on the basis of experience. The main goal of this meeting was to collect feedback on the evaluation criteria and the strength of the methodology from a neutral expert. As a result, the research findings were confirmed in two ways: firstly, through the experts who participated in the study, and secondly, through a neutral expert familiar with the culinary destinations under assessment, who also acted as an impartial external assessor. This phase significantly contributed to the creation of the ultimate ordered list of culinary destinations, as detailed in *Table* , sorted by their levels of competitiveness, with Delhi identified as the most competitive culinary destination in India. *(Refer: Table 5).*

Table 5: Ranking of the most competitive culinary destinations

Destination	Abbreviation	Global attractiveness value	Ranking
Delhi	DEL	109.75	1
Kolkata	KOL	108.42	2
Jaipur	JAI	107.96	3
Chennai	CHE	106.01	4
Puri (Odisha)	PUR	102.85	5
Ahmedabad	AHM	101.11	6
Kashmir	KAS	90.93	7
Amritsar	AMR	87.01	8
Hyderabad	HYD	77.75	9
Lucknow	LUC	70.17	10
Bengaluru	BEN	53.45	11
Gangtok	GAN	45.59	12
Goa	GOA	34.65	13
Mumbai	MUM	10.75	14
Bhopal	BHO	-13.19	15

14. Source: Author's Input

4.3. Recommendation Phase

Based on the results of the study, a few recommendations are posited to make the culinary tourism destination competitive and more attractive for tourists.

1. Based on the results for FPV1, which had the maximum weightage, it is observed that culinary heritage plays a significant role in attracting culinary tourists in India. Therefore, it is recommended that local authorities and tour operators promote various aspects of culinary heritage such as: indigenous ingredients, cooking techniques and health benefits of traditional food. Food festivals and events should be organized to promote the culinary heritage of each region, fostering awareness and connecting people with their cultural essence.

2. The weightage of FPV5, indicating sentiment values, received the second-highest preference. The study recommends that food outlets add a personalized touch to enhance the individual's memory. Surprise elements, such as special items or gifts offered during any occasion for guests, can help create a lasting memory. Some food outlets offer cakes and celebrate the birthday or anniversary of guests without any extra charges. Similarly, the ambience and themes created at food outlets during local festivals provide a cherished experience for tourists.

3. FPV2, indicating culinary diversity, received the third-highest preference. The ethnic food, special cuisine of the destinations and the food with

geographical indicators (GI) were found to be the third most important criteria according to the experts. Therefore, it is recommended to create promotional campaigns, advertisements and awareness campaigns for the ethnic foods.

4. FPV3, indicating Infrastructure and services, received the next highest weightage from the experts. Local authorities or the government need to develop good tourist infrastructure. Hotels and restaurants are also recommended to enhance their infrastructure and offer proper boarding and lodging, in addition to providing various payment options and implementing safety and security measures for guests.

5. Based on the result of FPV4, which has the least weightage, it is observed that *Economic factors* are of the least concern when exploring culinary destinations in India. It is suggested to local authorities to concentrate on other factors and to give less consideration to the price as long as the quality and infrastructure are maintained. However, the govt. should work on the economic sustainability of the region, even though it possesses less weightage in the eyes of tourists, according to experts' opinions. The economic sustainability of the local community can indirectly reflect in the quality of food and the development of food infrastructure. The Government can also provide facilities for culinary schools and workshops involving local communities.

6. While measuring the attractiveness of different destinations in India, it is found that Delhi, Kolkata and Jaipur have performed better on FPV1 than other destinations. Further studies are needed to understand the reasons for the success of the destination.

5. Discussion

India, one of the countries known for its diverse culinary heritage, has seen a remarkable growth in recent years and yet has remained unexplored in research. By understanding the potential of gastronomy in attracting more tourists, this study examined the following: the competitive criteria of culinary tourism; the significance of evaluating the culinary destinations based on the Indian food vlogger's viewpoint, who were considered as the experts in this study. The combination of cognitive mapping and MACBETH approach was applied to understand the suitability of other approaches. In cognitive mapping, the experts were contacted individually, whereas in the MACBETH approach, a group discussion was set up for communication. Furthermore, five fundamental points of view (FPVs) were derived and ranked based on their importance in appealing to culinary tourists. Out of the five, FPV1-*Culinary Heritage* topped the FPV list, and thereby, was deemed important in attracting culinary tourists. *Culinary Heritage* included elements such as: the use of traditional techniques to prepare and consume

food; the history of the dish; the consistency in taste; the celebration of the signature dish; and the reflection of local culture in the ethnic food.

The findings of the current study are consistent with Sahoo (2020), in which the religious culinary heritage was prioritised as the centre of attraction for tourists. According to Aher and Deshpande (2020), the essence of culinary heritage generally reflects the local cuisines of a city. Tourists in India prefer food prepared using traditional methods and techniques, served in traditional utensils, and thereby, celebrating the heritage of India (Singh & Srivastav, 2023). S. K. Singh et al. (2023) highlight the need for an inclusive strategy for enhancing the visibility of culinary heritage and enticing tourists. "FPV2-Culinary diversity" represents the availability of various types of cuisines, authentic food, and the availability of food guides, coming in second in the FPV list. According to Promsivapallop and Kannaovakun (2019), the variety in food available at the destination, alongside other factors, creates a destination food image which ultimately pulls the tourists.The variety of food is an important attribute for destination attraction (Das, Mohapatra, Sharma & Sarkar, 2007). According to Ibrahim, Shariffuddin, Zain, Salim and Zainul (2023), culinary tourists indulge in a unique culinary experience, for which they try varieties of food. FPV3 indicates the "infrastructure and services" of the culinary destination, and is second in the preference list. Infrastructure in the study of tourism destination attraction includes both general and tourist infrastructure involving accommodation, entertainment, safety, security and wellbeing facility at the destination(Islam, Hossain & Noor, 2017).Daset al. (2007) name this term as touristic infrastructure.

Wachyuni and Saputro (2019) suggest improving infrastructure and service at the destination to attract the attention of prospective tourists. FPV5, denoting "sentiment values", comes next in the FPV list, which involves the memory associated with food and ambience. This sentiment acts as a precursor to the destination expectation (Jacobsen, Iversen & Hem, 2019). According to Borrajo-Millán, Alonso-almeida, M. del M., Escat-cortes and Yi (2021), negative memory is generated when regional foods are not available at the destination, and further leads to reluctance towards the destination. FPV4- *Economic factors* features at the bottom of the FPV list. Baruah (2016) supports the outcome of this research by emphasizing tourists' behaviour of spending a large sum on consuming food at the destination and not considering the price as much as other factors. However, tourists are found to be more considerate of the sustainability of the local community rather than the economic growth of the country (Rasoolimanesh, Ramakrishna, Hall, Esfandiar, & Seyfi, 2023).

Further, the study assessed Indian culinary destinations known for their unique flavours, history and heritage. The performance of the top 15 destinations is measured for each FPV. Delhi (DEL) and Kolkata (KOL)

topped the list with scores of 109.75 and 108.42, respectively. There is dearth of studies that provide comprehensive examination of assorted food destinations. However, there are studies available for cities like, Kolkata (Amore & Roy, 2020; Mitra, 2019; Das Chaudhuri, 2019) and Delhi (Chatterjee & Suklabaidya, 2020a, 2020b; Siegel, 2010; Kaushal & Yadav, 2021; Rathor & Parkash, 2019), which are among the most popular culinary destinations.

The evaluation of the criteria for selecting a culinary destination by the tourists are explicitly answered with the multifaceted approach of cognitive mapping and the MACBETH approach. This type of MCDA technique helped the study in determining the criteria from the combination of both qualitative and quantitative approaches. The expert's insight and unanimous decision make the results solidly validated. However, the execution of the research was done in consideration of the opinions of Indian experts, so the Indian point of view influences the result.

5.1. Research Implications

The current study has several implications for research. Firstly, the FPVs obtained in this research can be used as broad factors of culinary destination competitiveness, and these factors can further be used in studies using quantitative data. Secondly, the cognitive mapping results show that various components can be used in the scale development process by designing the items that can capture the nuances of culinary destination competitiveness. Thirdly, the case study or quantitative research can be carried out on each participating destination to study the tourists' perception.

5.2. Managerial Implications

The research offers several managerial implications. Firstly, destination management companies (DMC), tour operators and travel agents promoting culinary destinations such as Delhi, Kolkata and other cities can tailor their tour packages by including top notch culinary establishments or food junctions of these cities, aligning with the identified criteria referred to as FPVs when providing food experience to their guests. Secondly, FPVs can be included in marketing strategies aimed at enhancing the overall culinary experience for tourists, thereby promote return visits and attract new tourists. Thirdly, stakeholders can make government or local authorities aware of the criteria for destination attractiveness and thereby influence a standard upgradation of the destination.

5.3. Administrative Implications

This study offers several administrative implications as well. Firstly, government or local authorities can identify both competitive advantage and loopholes. This awareness can help disseminate information regarding

competitive advantage or promote development of infrastructure, or facility enhancement. Secondly, governments can craft or amend the rules and regulations for assisting in tourism development. Thirdly, FPVs can help local administrators in offering key insights for crafting a suitable evaluation instrument or mechanism to monitor overall tourist satisfaction, tourist counts and revenue generation from tourists.

5.4. Limitations and future research scope

The study uses robust techniques and is further strengthened by knowledgeable resppondents. In spite of that, the study has limitations. Firstly, this study has been conducted in the context of India and from the point of view of Indian experts. Hence, the results can change, along with change of location or respondents. Secondly, the experts in this study were limited to six. So, with more experts, the result could also change. Finally, the fundamental point of view identified using cognitive mapping is subjective in nature due to the methodological mechanism of recording or registering experts based on open-ended questions.

5.5. Future research scope

There are a few aspects that can be taken up for further studies. Firstly, the study can be replicated in other countries. Inter-country comparisons can be made using suitable methodologies. Secondly, food vloggers could be included in future research on this topic using this methodology. Thirdly, a cross-sectional or longitudinal study can also be conducted, drawing insights from the FPVs derived from this study. Finally, future scholars can utilize this model and validate the results using confirmatory factor analysis (CFA) for generalization, or use a structural equation model (SEM) to understand the relationships between variables.

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