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Strategic and Policy Responses to COVID-19 Recovery in Hospitality and Tourism Industry: Evidence from Emerging Economy

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Abstract
The severity of COVID-19's economic impact on the hospitality and tourism sector cannot be overstated. While governments around the world have tried to revive through various stimulus measures, what is lacking is an integrative framework combining the applied side of the industry with the rigor of scientific inquiry to aid public policy stakeholders in sketching out recovery pathways and prioritizing stimulus packages. The purpose of this research article is to systematically study and research the COVID–19 and post-COVID-19 situations in the industries mentioned above and fill the gap by integrating scenario planning with the fuzzy analytic hierarchy process (fuzzy AHP). A new phase of insights has found a place by shedding light on the application of a multi-theoretical framework. The results of this research are of substantial importance to scholars and practitioners and make important theoretical and policy contributions for handling similar scenarios in the future. The essence of the current article is the application of a multi-theoretical framework in an under-researched topic in the hospitality and tourism literature.

Keywords- Hospitality, Tourism, Scenario analysis, Recovery pathway, COVID-19, India.

1. Introduction

In early 2020, the unprecedented novel coronavirus (COVID-19), had already started spreading like wildfire, and by mid-March World Health Organization (WHO) labelled it a full-blown pandemic (WHO, 2020). Without a foreseeable vaccine to prevent, countries across the world have been unanimous and unambiguous in their response with a multi-pronged approach involving nonpharmaceutical interventions (NPI), lockdowns, social distancing, and shutting down of educational institutions and businesses. Consequently, the hospitality and tourism industry, being one of the lynchpins of the global economy and being highly labor-intensive (Lu & Adler, 2009) had to bear the brunt as the episode unfolded quickly (Gössling et al., 2020). Further, the high volatility of operational cash flow being intrinsic to the hospitality and tourism business (Briones et al., 2024; Namkung & Jang, 2008) along with the industry's sensitivity to

adverse macroeconomic shocks (Ehling & Haushalter, 2014) only compounded the problem.

The hospitality and tourism industry in India has been a significant driver of progress and advancement (Villanthenkodath et al., 2022) in the services sector in India. As of 2019, the hospitality and tourism sector created 42 million jobs in India, contributing to 8.1 percent of the country's total employment (IBEF, 2020). India is the third leading country in the world, when it comes to investment in hospitality and tourism. The total investment in 2018 was US$45.7 billion which accounts for around 6 percent of domestic investment. From April 2000 to December 2019, the sector attracted nearly US$ 14.42 billion of foreign direct investment (FDI) (IBEF, 2020).

However, in terms of the COVID-19 effect, the hospitality and tourism sectors are the most affected in terms of economic gains, business and revenue (Jafari et al., 2023). Unfortunately, they are one of the major economic markets that were heavily "injured". More than 100.8 million people, working in the hospitality industry, have lost their jobs in the last two years (Statista, 2023). In contrast, a lot of businesses (such as hotels, restaurants, café-bars, and airlines) are close to bankruptcy (Ntalakos et al., 2022). Overall, the Asia-Pacific region recorded the most significant employment loss due to the COVID-19 pandemic, with approximately 28 million fewer travel and tourism jobs in 2022 compared to 2019 (Statista, 2023).

Against this background of a full-blown global pandemic, our research probes myriad possibilities for the hospitality and tourism industry and theorizes prioritization in the context of stimulus packages. Therefore, this research addresses the following key research questions:

(i) What is the robust scenario-based framework for managers and policymakers to sketch out COVID recovery pathways and prioritize stimulus packages?
(ii) What stimulus-supported plans are offered to resuscitate the hospitality and tourism industry?

Methodologically, this research by using the fuzzy AHP method (Saaty, 1980a) combined with scenario analysis (Heijden, 2005) proposes a scenario-based recovery pathway from COVID-19 in the hospitality and tourism industry. Specifically, this research by identifying criteria, sub-criteria, and alternatives from the literature seeks to apply the same to the hospitality and tourism industry.

The remainder of this paper is organized as follows. The following Section 2 elaborates the literature review with specific attention to the unexpected negative events and their impact on the hospitality and tourism industry. The methodology details including the framework and model specification are explained in subsequent Section 3. The results are summarized next in Section 4, followed by findings and policy implications in the penultimate Section 5. The last section 6 concludes the paper by highlighting limitations and future research.

2. Literature Review

The hospitality and tourism industry has been intermittently impacted by various types of extremely uncertain events, such as the 9/11 terrorist strike, pandemic outbreaks, etc. (Faeni et al., 2023). Literature on COVID-19 and its effect on tourism especially in areas such as economic impacts, employability, and innovations is still emerging (Foo et al., 2020) and sparse within the context of India (Jaipuria et al., 2020).

As an early management and policy research attempt on COVID-19, Gössling et al. (2020) shed light on how this pandemic would impact tourism and why the volume growth tourism model needs to be questioned. Around the same time in April 2020, You (2020) research provided a public policy response of South Korea and projected it as a model worth emulating. Subsequently, significant research emerged

predicting various scenarios of the economic impacts of COVID-19 (McKibbin & Fernando, 2020).

Surprisingly, during the same time only a handful of research brought out public policy responses to resuscitate the hospitality and tourism industry. Unsurprisingly, with tourism being critical to Macao's economy, early research in this direction came from here wherein McCartney (2020) examined Macao's reaction to COVID-19 in a three-wave analogy. Recently, Wong & Lai (2021) proposed a tool to assess and suggest Macao government actions for tourism recovery. Similarly, research from other tourism-dependent countries started trickling in (see for example, Papadimitriou et al., 2020 (Greece); Harba et al., 2020 (Romania)). In the Indian context, Shukla et al. (2023) focused on the leadership challenges in the hospitality and tourism industry during the COVID-19 pandemic.

In the context of the stimulus package, Khalid et al. (2021) revealed how COVID-19 has impacted the worldwide economic slowdown including the hospitality and tourism sectors unimaginably (Yao et al., 2024). Interestingly, their study went on to find that highly tourism-dependent countries rolled out aggressive stimulus packages to revive the economy. Japutra & Situmorang (2021) investigated that government-established revival policies are essential to act as sustenance to the industry in this unprecedented time. Foo et al. (2020) also discussed how the Malaysian government is adopting stimulus packages to boost its tourism. With regards to China, Shao et al. (2020), through a co-word analysis, explored the sentiment of policy measures for tourism recovery as a response to the COVID-19 pandemic. In another study, Zhang et al. (2021) explored the compensatory travel intention under the threat of infectious diseases on China's tourism. Further, del Valle (2020) studied how the recovery pathways initiated by the Chinese hotel and tourism industry could be a lesson for the industry globally to make superior preparation for disaster scenarios. Similarly, studies related to a post-COVID recovery strategy, the response of the hotel industry to different government policies and interventions have emerged in recent times (Anguera-Torrell et al., 2021; Shukla et al., 2023; Vij et al., 2021; Yeh, 2021). Going a step forward, Hall et al. (2020) contextualized the future transformational possibility in the tourism system and concluded its chance as limited.

In summary, none of the recent studies on the impact of COVID-19 on the hospitality and tourism sectors have examined scenario-based recovery pathways using the fuzzy AHP method. Our research is an attempt to fill this gap.

3. Research Methodology

3.1 Scenario Analysis

In order to examine how the hospitality and tourism industry may emerge in the post-COVID world, we stick to a simple yet powerful definition of scenarios as internally reinforcing and consistent imaginaries of what the future might hold out to be (Porter, 1985).

In line with the recent analysis of McKinsey (McKinsey & Company, 2020) and KPMG (KPMG, 2020), our scenario architecture follows a distinct rationale that captures the interplay of how economic policy and health policy respond to COVID-19. McKinsey created the nine scenarios with respect to the nine possible outcomes of COVID-19, each of which characterize one of three potential response paths for the public-health, and one of three potential responses of the economic-policy. However, KPMG articulated three India specific scenarios that captures the interplay between India's ability to contain COVID-19, and global economic recovery. Our rationale for taking cues from McKinsey and KPMG scenarios is because the core of McKinsey and KPMG scenarios is GDP and our subject of analysis i.e., the hospitality and tourism industry has a strong linkage with GDP.

Establishing the *baseline* is always the starting point of any scenario analysis (Oskam & Boswijk, 2016). This is similar to the *A*1 scenario of McKinsey (McKinsey & Company, 2020) and Scenario 2 of KPMG (KPMG, 2020) which assumes a resurgence of the virus across regions with muted economic growth, whereas scenario *A*3 of McKinsey (McKinsey & Company, 2020) and scenario 1 of KPMG (KPMG, 2020) — incorporates swift arrest of COVID 19 spread, and also assumes fiscal and monetary stimulus to start working sooner than assumed. We then modelled Indian hospitality and tourism industry scenarios on a 2×2 matrix with virus containment response (saving lives) on *Y* axis versus economic response (saving livelihoods) on *X* axis (see **Figure 1**).

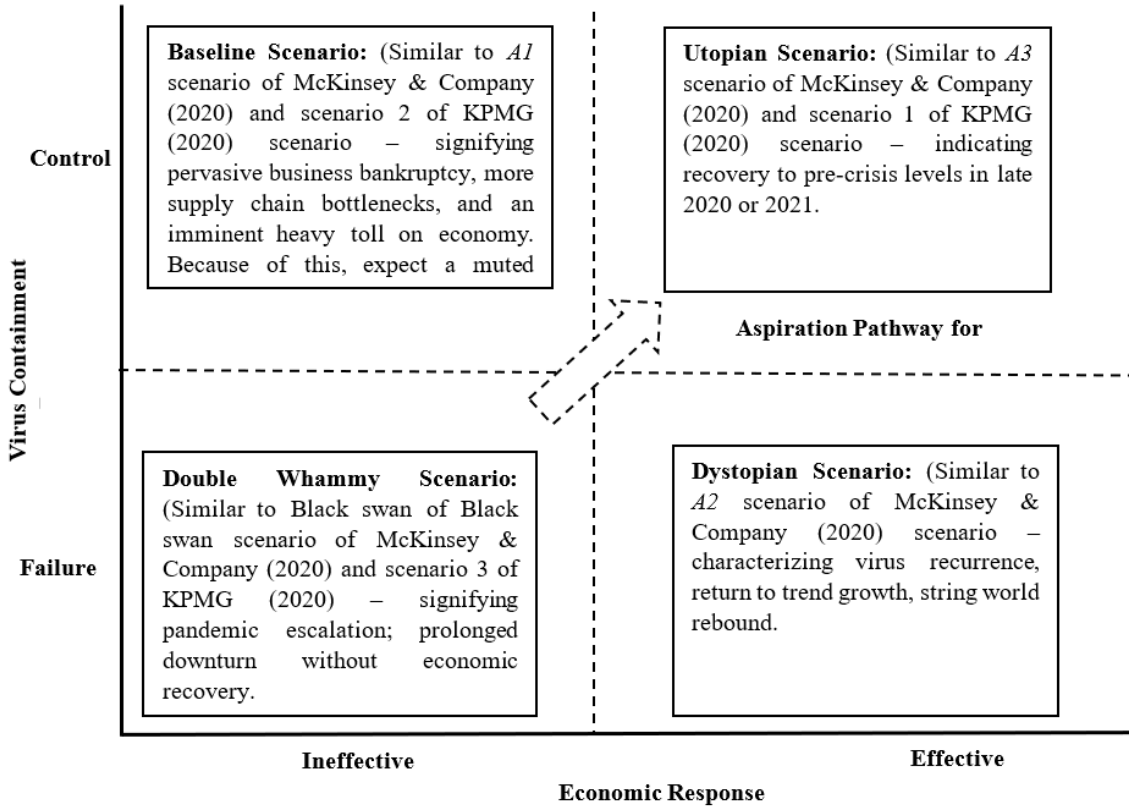

Figure 1. Scenario architecture showing interactions of COVID-19, economy, and public health responses.
Source: Authors adaptation from McKinsey & Company (2020) and KPMG (2020)

3.2 Scenario Storyline

With many of the factors shrouded in uncertainties, scenarios come to the rescue in creating imaginaries of the future and its unraveling across various pathways, and in delineating associated drivers.

3.2.1 *Double Whammy*

This scenario, similar to the "black swan of black swans" scenario of McKinsey & Company (2020) and Scenario 3 of KPMG (2020), assumes a future world in which responses to both, the virus and the economy, are not effective thus forcing companies to go bankrupt, pushing unemployment to rise, aiding financial crisis to emerge. With setbacks on both fronts, this scenario posits a stretched *L* or *W*-type economic recovery. Given so much unpredictability associated with this scenario, we do not consider this and instead concentrate on other realistic futures as explicated below.

3.2.2 *Baseline*
This scenario is in line with the *A*1 scenario of McKinsey & Company (2020) and Scenario 2 of KPMG (2020). Further, this scenario envisages virus recurrence, and as a consequence a sharp dip in GDP and a muted rebound only after two to three years. Major underlying themes under this scenario conjure up a future in which business bankruptcies are pervasive, supply-chain gets choked, and the impact on the economy is structural or systemic.

3.2.3 *Utopian*
This scenario, like the *A*3 scenario of McKinsey & Company (2020) and Scenario 1 of KPMG (2020), describes a convergent world in which both the public-health interventions and economic-policy response dimensions become effective in recovering our lives and livelihoods, and the return to pre-COVID levels for GDP, income, and corporate earnings in late 2020 or 2021.

3.2.4 *Dystopian*
This scenario, similar to the *A*2 scenario of McKinsey & Company (2020), characterizes a dichotomous worldview in which virus recurrence and non-containment persist but it does not weaken the return to trend growth facilitating strong world rebound. Major underlying themes revolve around the hope-despair cycle as the peaking and decline of virus incidences continue while the rapid introduction of economic measures goes unabated.

3.3 Hospitality and Tourism Recovery Checklist
Keeping the research goal as "prioritization of allocation of the stimulus package in the hospitality and tourism industry", criteria and sub-criteria with assumptions are presented in **Table 1**.

3.3.1 *Impact on Employment*
The existing circumstances created by the outbreak have posed a severe threat to employment in the hospitality and tourism industry (World Travel and Tourism Council, 2020). Discovering employment possibilities and developing a macro-economic model that will be capable of estimating accurately the comparative price and impact of a worldwide reaction to outbreaks is the need of the hour which remains to be completed (Keogh-Brown & Smith, 2008; World Bank, 2020).

3.3.2 *Impact on Economic Activity*
It is imperative to estimate the economic impact of an outbreak enforced by a pandemic or an epidemic (Keogh-Brown & Smith, 2008) and evolve measures to control and prevent them. However, the prospect of a complete transformation of the hospitality and tourism system persists to be a challenge (Chen et al., 2007; Hall et al., 2020; World Bank, 2020).

3.3.3 *Timeliness and Risk*
The pandemic has created trouble in the existing scenario but then, but this is the finest period for self-assessment of the hospitality and tourism industry and to pay more emphasis on a sustainable model bringing down the risk of crumpling in the future (Gössling et al., 2020; World Bank, 2020).

3.3.4 *Impact of Human Social Capital*
It is a general understanding that the hospitality and tourism industry needs to work on a higher sustainability model, which requires the involvement of human and social capital and also, to vigorously work towards attaining a revolution (Brown et al., 2018; Zhang et al., 2020).

3.3.5 *Impact on Technologies*

The industries need to come out as smart, which refers to the use and acceptance of information technologies. Smart and connected hospitality and tourism deals with products and services in lodging, restaurants, transportation, shopping, events, and festivals, these all are succeeded by ICT applications (Ivanov, 2020; World Bank, 2020).

3.3.6 *Impact on Natural and Cultural Capital*

It has been constantly discovered by organizations like UNWTO that voluminous growth found in hospitality and tourism, does not retain sustainability (Brown et al., 2018; Gössling et al., 2020; World Bank, 2020) and poses a serious threat to the available natural and social capital.

3.3.7 *Increased Resilience and Adaptive Capacity*

The apprehensions about the hospitality and tourism industry need to be settled so that the industry exhibits improved efficiency and resiliency (Brown et al., 2018). It is not just in the immediate benefit but also in the long-run sustainability of the hospitality and tourism industry (World Bank, 2020).

Table 1. Description of criteria, sub-criteria, and their references.

S. No.	Criteria and their description	Sub-criteria	Support references
1.	*Impact on employment (IE)* The intervention creates new jobs over the short term making use of existing skills. The employment opportunities are inclusive, gender-balanced, and focus on the underemployed and vulnerable section.	Create new jobs (CNJ) Make use of existing skills (MUES) Employment opportunities inclusive, gender-balanced (EOIGB)	Keogh-Brown & Smith (2008), World Bank (2020)
2.	*Impact on economic activity (IEA)* The economic multiplier of the intervention is expected to increase imported goods and services and the domestic content as a percent of the inputs. The mediation is further expected to generate demand in the most affected sectors.	Multiplier of this intervention (MI) Domestic versus import content (DIC) Generate demand in the most affected vs new sectors (GDMANS)	Chen et al. (2007), Keogh-Brown & Smith (2008), Hall et al. (2020), World Bank (2020)
3.	*Timeliness and risk (TR)* An important aspect is to consider the time aspect in fully implementing the intervention and creating jobs. Equally important is to assess the impact of the project on sustainability and also on debt/borrowings.	Fully implement this intervention (FII) Reinstatement of COVID containment measures (RECCM) Debt and its sustainability (DS)	Gössling et al. (2020), World Bank (2020)
4.	*Impact of Human Social Capital (IHSC)* The intervention tries to create decent jobs and further promote skill-building and opportunities for advancement. Improving public health and labor productivity and building or strengthening social protection systems over the long term are other key areas.	Skill-building and opportunity for advancement (SBOA) Public health and labor productivity (PHLP) Social protection systems (SPS)	Brown et al. (2018), Zhang et al. (2020)
5.	*Impact on technologies (IT)* The intervention is expected to develop, import, and demonstrate technologies with significant growth potential and support early-stage R&D investment, further creating the opportunity for significant growth potential.	Technologies with significant scaling-up potential (TSSUP) Technologies with high localization potential (THLP) Support early-stage R&D investment (SESRDI)	Ivanov (2020), World Bank (2020)
6.	*Impact on natural and cultural capital (INCC)* The intervention respects the rights of the local ecosystem and communities. It improves agriculture and land productivity *and* protects biodiversity and ecosystem services.	Rights of Indigenous Communities (RIC) Protect biodiversity and ecosystem services (PBES) Environmental or cultural losses (ECL)	Brown et al. (2018), Gössling et al. (2020), World Bank (2020);
7.	*Increased resilience and adaptive capacity (IRAC)* The intervention incorporates susceptibility to acts of God including climate risk. It reinforces resilience to natural disasters and is further expected to improve socio-economic resilience.	Screened for exposure and vulnerability to disaster (SEVD) Boost resilience to natural disasters (BRND) Socio-economic resilience (SER)	Brown et al. (2018), World Bank (2020).

3.4 Fuzzy AHP Method

In this article, an integrated fuzzy AHP approach has been applied which examines substantial factors that suggest a recovery pathway to the hospitality and tourism industry from the presently faced COVID-19 pandemic. After identifying criteria, sub-criteria, and alternatives from the literature review, experts were approached for their opinions. Further, based on Ottenbacher et al. (2009) idea to be as particular, the respondents were limited to owners, bureaucrats, senior executives, and academicians on the basis that they occupy responsible positions within the hospitality and tourism sector. An elaborated questionnaire was developed based on the identified criteria, sub-criteria, and alternatives using the fuzzy AHP scale i.e. given in **Table 2**.

Table 2. Triangular fuzzy scale.

Fuzzy number	Membership function
$\tilde{1}$	(1, 1, 2)
$\tilde{x}$	(x-1, x, x+1) for x = 2, 3, 4, 5, 6, 7, 8
$\tilde{9}$	(8, 9, 9)
$1/\tilde{1}$	(2^{-1}, 1^{-1}, 1^{-1})
$1/\tilde{x}$	((x+1)$^{-1}$, x^{-1}, (x-1)$^{-1}$) for x = 2, 3, 4, 5, 6, 7, 8
$1/\tilde{9}$	(9^{-1}, 9^{-1}, 8^{-1})
Fuzzy triangular number	Linguistic terms
(1, 1, 2)	Of little importance or very low (VL)
(2, 3, 4)	Moderately important (MI)
(4, 5, 6)	Important (I)
(6, 7, 8)	Very important (VI)
(8, 9, 9)	Absolutely important (AI)
(1, 2, 3), (3, 4, 5), (5, 6, 7), (7, 8, 9)	Intermediate values between two adjacent judgments

After developing the questionnaire, the research team's contacts of mid and senior level and associate-level positions in industry and academia, respectively. Later, snowball sampling was used which helped to gather details of others. These experts were identified based on their experience and subject knowledge in the hospitality and tourism sector. In this study, a total of eight responses were taken from industry and academia experts. Out of eight responses, six were from hospitality and tourism industry and the remaining two were from academia. Two of them were at the senior level with more than eighteen years of experience, while four were at the middle level with more than eleven years of experience in the same field. From an educational perspective, both two experts were doctorates having more than fifteen years of experience.

Respondents could not be met personally due to the global pandemic and hence, the responses were collected online through email. All individuals who received the invitation were encouraged to answer all the questions/ details asked. Each questionnaire was filled out thrice by the experts as there were questions related to multiple scenarios that were to be answered, the first sequence was related to the baseline scenario, and for the second time, the same questionnaire was filled out relating to the utopian scenario, and in the third instance, it was related to the dystopian scenario. To ensure answers to all the questions without any ambiguity in the responses, several rounds of one-on-one telephonic conversations/online meetings were held. The respondents were also supposed to draw comparisons between the identified factors in the fuzzy pair-wise comparison matrix as discussed in the previous section. The flow diagram of the AHP technique is proposed in **Figure 2**.

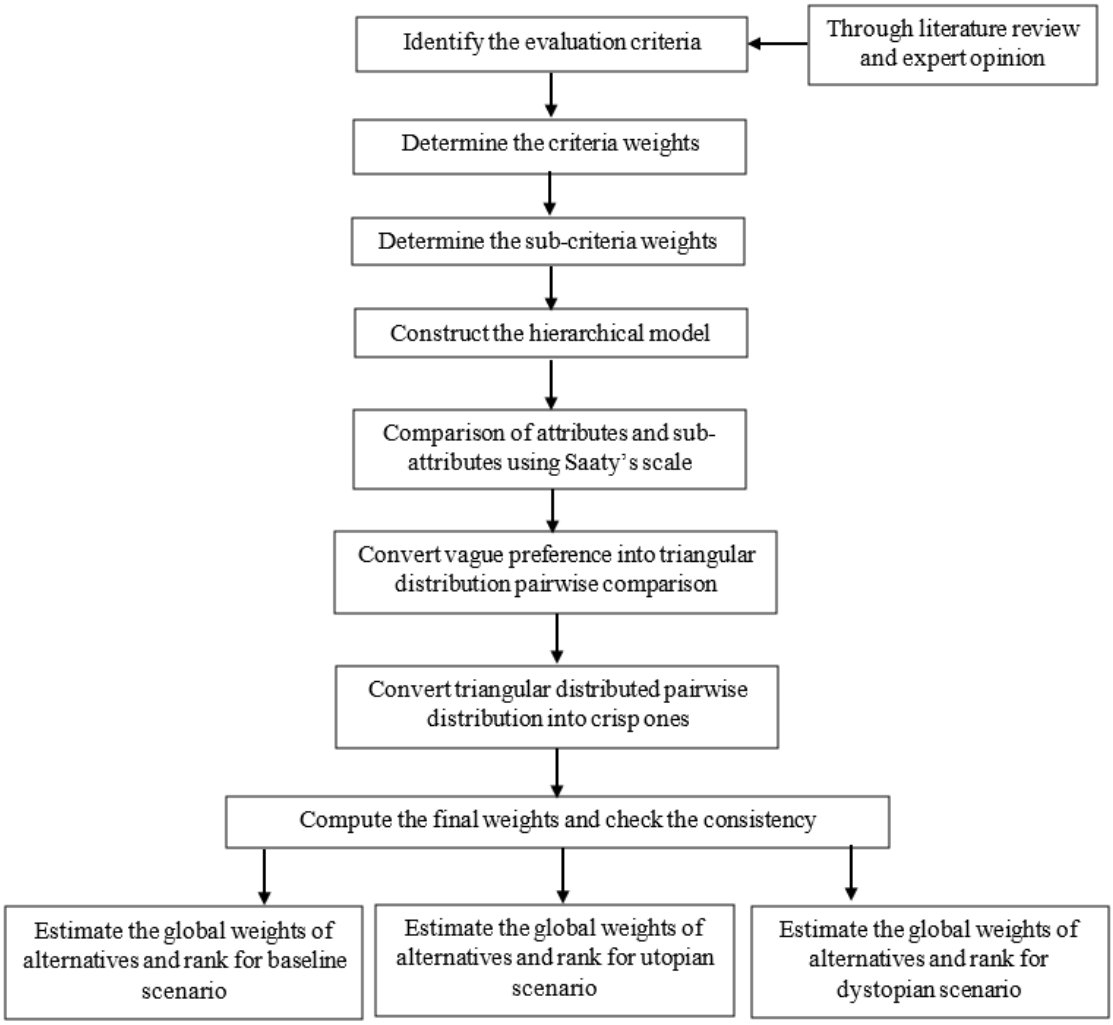

Figure 2. Flow diagram of analytic hierarchy process technique.
Source: Modified from Mahapatra et al. (2021)

The analytic hierarchy process (AHP) is widely used for solving MCDM problems, particularly when qualitative variables need to be taken into account (Jharkharia & Shankar, 2007). AHP technique is simpler to comprehend and can comfortably deal with both, qualitative and quantitative type data. It is a significant technique for unravelling intricate decision-making problems having multiple criteria, sub-criteria, and alternatives (Saaty, 1980a). This method can be used to eliminate the ambiguity in data which is often employed for decision-making purposes. Therefore, fuzzy AHP gives a more logical explanation of the multiple-attribute decision-making process by combining fuzzy set theory with AHP (Bozbura et al., 2007).

Interestingly, numerous MCDM methodologies and approaches have been proposed for selecting the most likely possibilities inside MCDM as a complicated decision-making tool. Recent years have witnessed a growing use of hybrid and modular techniques based on DEMATEL, DEA, TOPSIS, and AHP that apply fuzzy and grey number theory. Because of its ease of use and understanding, the AHP method has been useful in determining the weight of relevant criteria and sub-criteria of a system (Saaty, 1980b; Ghorabaee et al., 2017). It also has the potential to produce better results than other knowledge-based decision methods

like ELECTRE, ANP, and TOPSIS (Ghorabaee et al., 2017). In order to help decision-makers, several researchers have suggested an AHP approach that can be adjusted to a Bayesian-based modified AHP, fuzzy AHP (Govindan et al., 2017). The authors state that among its advantages, AHP gives an opportunity to evaluate criteria according to their relative value, allowing certain criterion to take precedence over others.

AHP has been used effectively in a variety of contexts, including resource management (Ramanathan & Ganesh, 1995) and strategic planning (Cengiz et al., 2016). In a different study, Awasthi & Chauhan (2012) employed a hybrid strategy for sustainable city logistics planning that combined fuzzy TOPSIS and AHP. In order to compare AHP with other available methodologies, Orji et al. (2019) recently used the best-worst method (BWM) to determine the weights of criteria. They found that the only difference between the best-worst method and AHP is that the best-worst method has fewer pairwise comparisons and fewer data points than AHP (Nie et al., 2018; Tian et al., 2018).

The limitation of AHP include rank reversal concerns, human subjectivity issues, and changeable independent criteria (Mangla et al., 2016). Furthermore, according to Abdullah & Najib (2016), AHP is unable to address uncertainty in human judgment when it comes to decision-making issues. In addition, Emrouznejad & Marra (2017) have pointed out that the usage of fuzzy and AHP to identify global priorities outperforms the drawbacks of preference models.

Studying the easiness of the computations process and its benefits over other multi-criteria decision-making techniques, this research employed the extent analysis approach (Chang, 1996) for fuzzy AHP. This approach helps in developing a pair-wise comparison matrix of various outcome variables. Moreover, an extent analysis is also used to discover the artificial value from the comparison matrix. A triangular fuzzy number may be indicated by "*a*, *b*, *c*" with its membership function as presented in **Figure 3**.

$$\mu_m(x) = \begin{cases} \frac{x-a}{b-a} & (a \le x \le b) \\ \frac{c-x}{c-b} & (b \le x \le c) \\ 0 & otherwise \end{cases} \quad (1)$$

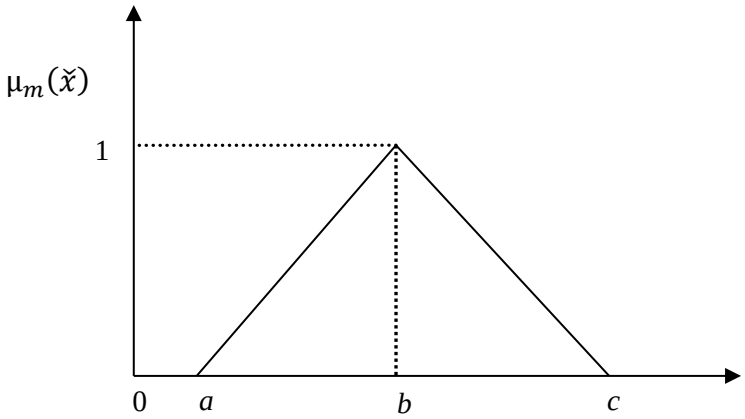

Figure 3. Triangular fuzzy number.

The greatest degree of association is the limit *b* that is, $f_M(b) = 1$, where *a* & *c* are the smaller and higher boundaries. Fuzzy numbers for two triangular $M_1(m_1^-, m_1, m_1^+)$ and $M_2(m_2^-, m_2, m_2^+)$ are shown in **Figure 4**.

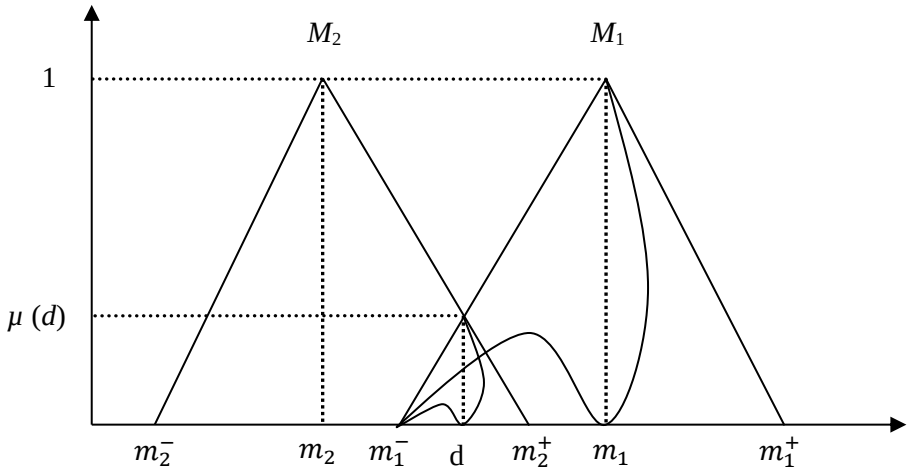

Figure 4. Fuzzy numbers for two triangular i.e. M_1 & M_2.

where, $(m_1^- \geq m_2^-, m_1 \geq m_2, m_1^+ \geq m_2^+)$ (2)

The degree of likelihood may be characterized as
$V(M_1 \geq M_2) = 1$ (3)

The ordinate of the highest intersection point can be computed as (Chang, 1996).
$V(M_1 \geq M_2) = \text{hgt}(M_1 \cap M_2) = \mu(d) = \frac{m_1^- - m_2^+}{(m_2 - m_2^+) - (m_1 - m_1^-)}$ (4)

Equation (5) to Equation (11) are applied to calculate the value of fuzzy synthetic extent.
$F_i = \sum_{j=1}^{m} M_{gi}^j \otimes \left[\sum_{i=1}^{n}\sum_{j=1}^{m} M_{gi}^j\right]^{-1}$ (5)

$\sum_{j=1}^{m} M_{gi}^j = \left(\sum_{j=1}^{m} M_{ij}^-, \sum_{j=1}^{m} M_{ij}, \sum_{j=1}^{m} M_{ij}^+\right), \quad i = 1,2,3, \ldots, n$ (6)

$\left(\sum_{i=1}^{n}\sum_{j=1}^{m} M_{gi}^j\right)^{-1} = \left[\frac{1}{\sum_{i=1}^{n}\sum_{j=1}^{m} M_{ij}^+}, \frac{1}{\sum_{i=1}^{n}\sum_{j=1}^{m} M_{ij}}, \frac{1}{\sum_{i=1}^{n}\sum_{j=1}^{m} M_{ij}^-}\right]$ (7)

A convex fuzzy number may be defined as,
$V(F \geq F_1, F_2 \ldots \ldots F_k) = min\, V(F \geq F_i), \qquad i = 1, 2, \ldots\ldots, k$ (8)

$d(F_i) = minV(F \geq F_k) = W_i', \qquad k = 1, 2, \ldots\ldots, n \text{ and } k \neq i$ (9)

Based on above process, the weights, W_i' of the factors are
$W' = (W_1', W_2', \ldots \ldots, W_n')'$ (10)

After normalizing the above equation, priority weights can be calculated as follows
$W' = (W_1, W_2, \ldots \ldots, W_n)'$ (11)

4. Results

4.1 Computation Weights of Criteria

The hierarchical structure to examine the recovery pathway from COVID-19 in the hospitality and tourism industry is shown in **Figure 5**.

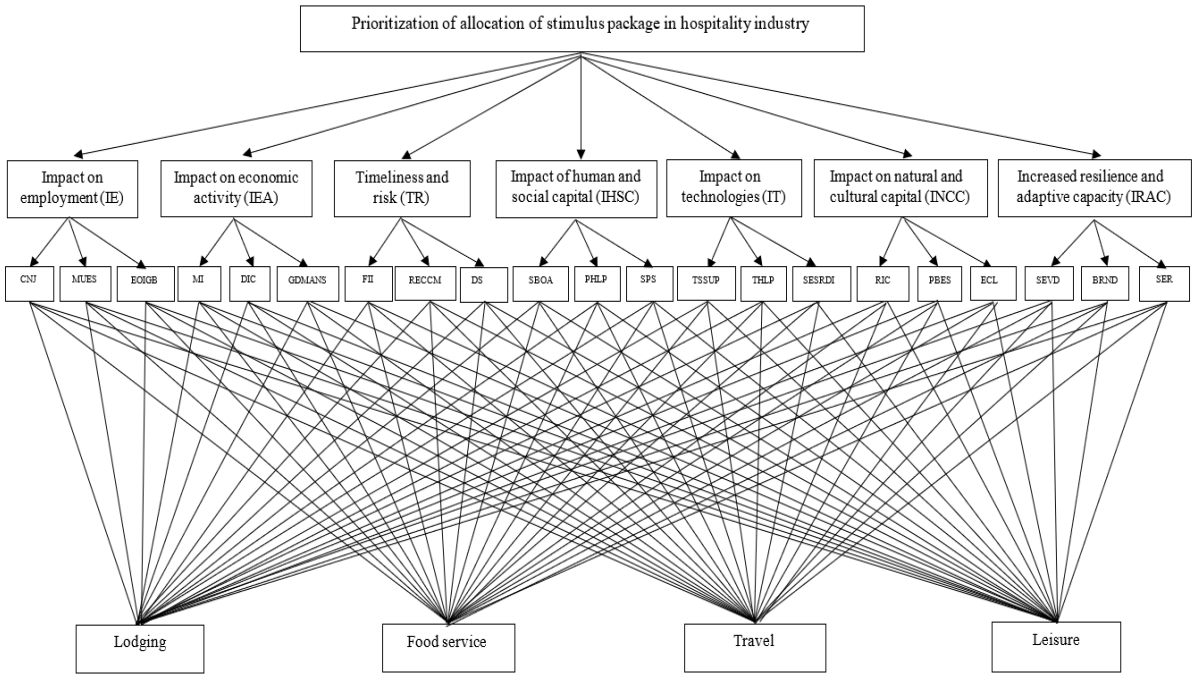

Figure 5. Hierarchical structure to recovery pathway from COVID-19 in hospitality and tourism industry.

After constructing the hierarchical structure, priority weights of criteria, sub-criteria, and alternatives are evaluated. To calculate the weights, the computational process is given in **Figure 6**.

The fuzzy pair-wise matrix of the criteria concerning goal for the baseline scenario is shown in **Table 3**. Similarly, other comparison matrices for the utopian and dystopian scenarios were developed, respectively.

Table 3. Fuzzy pair-wise criteria matrix with respect to goal.

Baseline scenario																					
	IE			IEA			TR			IHSC			IT			INCC			IRAC		
IE	1.00	1.00	1.00	1.23	1.42	1.91	1.02	1.25	1.77	1.40	1.92	2.62	1.71	2.14	3.15	1.36	1.57	2.67	0.47	0.59	0.77
IEA	0.52	0.71	0.81	1.00	1.00	1.00	1.15	1.41	2.13	1.71	2.33	3.43	1.64	2.14	2.86	1.30	1.84	2.57	1.17	1.67	2.33
TR	0.57	0.80	0.98	0.47	0.71	0.87	1.00	1.00	1.00	1.21	1.41	2.31	0.76	0.98	1.29	0.78	0.99	1.33	0.76	0.91	1.37
IHSC	0.38	0.52	0.71	0.29	0.43	0.59	0.43	0.71	0.83	1.00	1.00	1.00	1.28	1.45	2.31	1.33	1.73	2.54	1.15	1.49	2.01
IT	0.32	0.47	0.59	0.35	0.47	0.61	0.78	1.02	1.32	0.43	0.69	0.78	1.00	1.00	1.00	0.73	0.84	1.34	1.41	1.73	2.83
INCC	0.37	0.64	0.73	0.39	0.54	0.77	0.75	1.01	1.28	0.39	0.58	0.75	0.75	1.19	1.37	1.00	1.00	1.00	1.30	1.51	2.59
IRAC	1.29	1.70	2.14	0.43	0.60	0.85	0.73	1.10	1.32	0.50	0.67	0.87	0.35	0.58	0.71	0.39	0.66	0.77	1.00	1.00	1.00

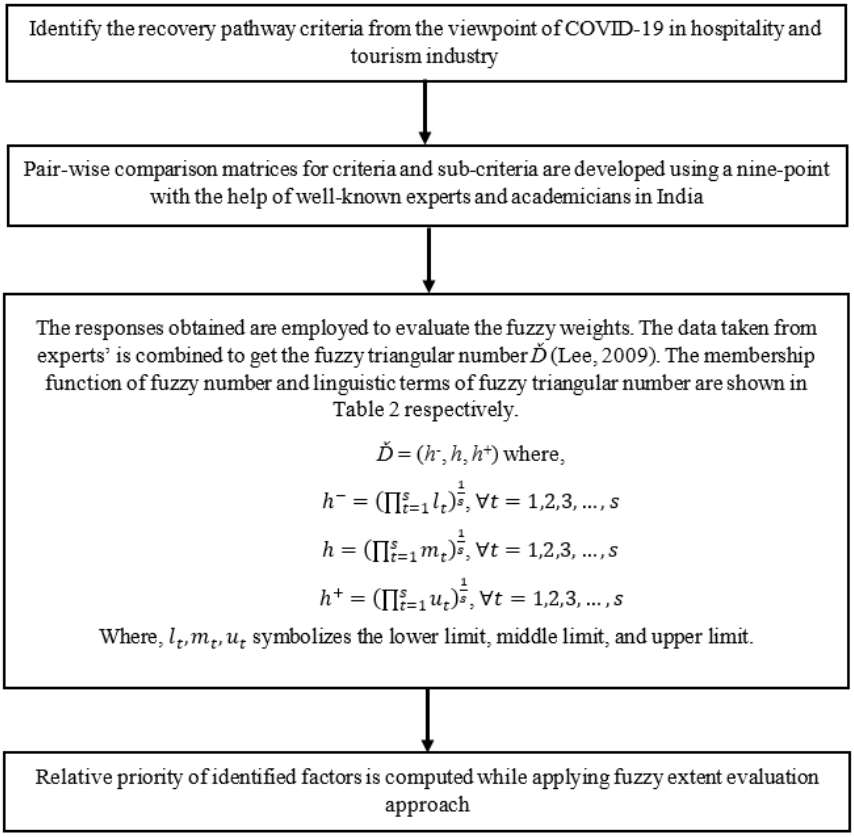

Figure 6. Computational procedure of AHP.

From **Table 3**,

F_{IE} = (8.19, 9.88, 13.89) * $(42.75, 54.09, 72.77)^{-1}$ = (0.11, 0.18, 0.32)

F_{IEA} = (8.48, 11.08, 15.14) * $(42.75, 54.09, 72.77)^{-1}$ = (0.12, 0.20, 0.35)

F_{TR} = (5.54, 6.81, 9.15) * $(42.75, 54.09, 72.77)^{-1}$ = (0.08, 0.13, 0.21)

F_{IHSC} = (5.86, 7.33, 9.98) * $(42.75, 54.09, 72.77)^{-1}$ = (0.08, 0.14, 0.23)

F_{IT} = (5.02, 6.22, 8.46) * $(42.75, 54.09, 72.77)^{-1}$ = (0.07, 0.11, 0.20)

F_{INCC} = (4.95, 6.46, 8.49) * $(42.75, 54.09, 72.77)^{-1}$ = (0.07, 0.12, 0.20)

F_{IRAC} = (4.69, 6.31, 7.65) * $(42.75, 54.09, 72.77)^{-1}$ = (0.06, 0.12, 0.18)

Using these vectors,

$V(F_{IE} \geq F_{IEA})$ = 0.903, $V(F_{IE} \geq F_{TR})$ = 1, $V(F_{IE} \geq F_{IHSC})$ = 1, $V(F_{IE} \geq F_{IT})$ = 1, $V(F_{IE} \geq F_{INCC})$ = 1, $V(F_{IE} \geq F_{IRAC})$ = 1

$V(F_{IEA} \geq F_{TR})$ = 1, $V(F_{IEA} \geq F_{IHSC})$ = 1, $V(F_{IEA} \geq F_{IT})$ = 1, $V(F_{IEA} \geq F_{INCC})$ = 1, $V(F_{IEA} \geq F_{IRAC})$ = 1, $V(F_{IEA} \geq F_{IE})$ = 1

$V(F_{TR} \geq F_{IHSC})$ = 0.929, $V(F_{TR} \geq F_{IT})$ = 1, $V(F_{TR} \geq F_{INCC})$ = 1, $V(F_{TR} \geq F_{IRAC})$ = 1, $V(F_{TR} \geq F_{IE})$ = 0.667, $V(F_{TR} \geq F_{IEA})$ = 0.552

$V(F_{IHSC} \geq F_{IT})$ = 1, $V(F_{IHSC} \geq F_{INCC})$ = 1, $V(F_{IHSC} \geq F_{IRAC})$ = 1, $V(F_{IHSC} \geq F_{IE})$ = 0.750, $V(F_{IHSC} \geq F_{IEA})$ = 0.628, $V(F_{IHSC} \geq F_{TR})$ = 1

$V(F_{IT} \geq F_{INCC}) = 0.929$, $V(F_{IT} \geq F_{IRAC}) = 0.933$, $V(F_{IT} \geq F_{IE}) = 0.563$, $V(F_{IT} \geq F_{IEA}) = 0.475$, $V(F_{IT} \geq F_{TR}) = 0.857$, $V(F_{IT} \geq F_{IHSC}) = 0.800$

$V(F_{INCC} \geq F_{IRAC}) = 1$, $V(F_{INCC} \geq F_{IE}) = 0.600$, $V(F_{INCC} \geq F_{IEA}) = 0.490$, $V(F_{INCC} \geq F_{TR}) = 0.923$, $V(F_{INCC} \geq F_{IHSC}) = 0.857$, $V(F_{INCC} \geq F_{IT}) = 1$

$V(F_{IRAC} \geq F_{IE}) = 0.538$, $V(F_{IRAC} \geq F_{IEA}) = 0.414$, $V(F_{IRAC} \geq F_{TR}) = 0.909$, $V(F_{IRAC} \geq F_{IHSC}) = 0.833$, $V(F_{IRAC} \geq F_{IT}) = 1$, $V(F_{IRAC} \geq F_{INCC}) = 1$

Therefore, weight vectors can be calculated as follows.

$d(F_{IE}) = \text{Min } V(F_{IE} \geq F_{IEA}\ F_{TR}\ F_{IHSC}\ F_{IT}\ F_{INCC}\ F_{IRAC}) = \text{Min } (0.903, 1, 1, 1, 1, 1) = 0.903$

$d(F_{IEA}) = \text{Min } V(F_{IEA} \geq F_{TR}\ F_{IHSC}\ F_{IT}\ F_{INCC}\ F_{IRAC}\ F_{IE}) = \text{Min } (1, 1, 1, 1, 1, 1) = 1.000$

$d(F_{TR}) = \text{Min } V(F_{TR} \geq F_{IHSC}\ F_{IT}\ F_{INCC}\ F_{IRAC}\ F_{IE}\ F_{IEA}) = \text{Min } (0.929, 1, 1, 1, 0.667, 0.552 = 0.552)$

$d(F_{IHSC}) = \text{Min } V(F_{IHSC} \geq F_{IT}\ F_{INCC}\ F_{IRAC}\ F_{IE}\ F_{IEA}\ F_{TR}) = \text{Min } (1, 1, 1, 0.750, 0.628, 1) = 0.628$

$d(F_{IT}) = \text{Min } V(F_{IT} \geq F_{INCC}\ F_{IRAC}\ F_{IE}\ F_{IEA}\ F_{TR}\ F_{IHSC}) = \text{Min } (0.929, 0.933, 0.563, 0.475, 0.857, 0.800) = 0.475$

$d(F_{INCC}) = \text{Min } V(F_{INCC} \geq F_{IRAC}\ F_{IE}\ F_{IEA}\ F_{TR}\ F_{IHSC}\ F_{IT}) = \text{Min } (1, 0.600, 0.490, 0.923, 0.857, 1) = 0.490$

$d(F_{IRAC}) = \text{Min } V(F_{IRAC} \geq F_{IE}\ F_{IEA}\ F_{TR}\ F_{IHSC}\ F_{IT}\ F_{INCC}) = \text{Min } (0.538, 0.414, 0.909, 0.833, 1, 1) = 0.414$

Table 4. Evaluation of the sub-criteria (baseline scenario).

Impact on employment (IE)									
	CNJ			MUES			EOIGB		
CNJ	1.00	1.00	1.00	0.76	0.92	1.39	0.90	1.11	1.80
MUES	0.72	1.08	1.32	1.00	1.00	1.00	1.57	2.05	2.74
EOIGB	0.56	0.90	1.11	0.36	0.49	0.64	1.00	1.00	1.00
Impact on economic activity (IEA)									
	MI			DIC			GDMANS		
MI	1.00	1.00	1.00	1.47	1.68	2.43	0.48	0.60	0.80
DIC	0.41	0.60	0.68	1.00	1.00	1.00	0.68	0.87	1.15
GDMANS	1.25	1.66	2.09	0.87	1.16	1.47	1.00	1.00	1.00
Timeliness and risk (TR)									
	FII			RECCM			DS		
FII	1.00	1.00	1.00	0.79	0.93	1.38	1.49	1.80	3.26
RECCM	0.73	1.07	1.27	1.00	1.00	1.00	0.76	0.84	1.30
DS	0.31	0.56	0.67	0.77	1.19	1.32	1.00	1.00	1.00
Impact of human and social capital (IHSC)									
	SBOA			PHLP			SPS		
SBOA	1.00	1.00	1.00	0.81	1.04	1.39	1.00	1.23	1.73
PHLP	0.72	0.96	1.24	1.00	1.00	1.00	1.09	1.36	2.07
SPS	0.58	0.81	1.00	0.48	0.74	0.92	1.00	1.00	1.00
Impact on technologies (IT)									
	TSSUP			THLP			SESRDI		
TSSUP	1.00	1.00	1.00	1.05	1.24	1.71	1.00	1.21	1.69
THLP	0.59	0.80	0.95	1.00	1.00	1.00	1.00	1.36	1.90
SESRDI	0.59	0.83	1.00	0.53	0.74	1.00	1.00	1.00	1.00
Impact on natural and cultural capital (INCC)									
	RIC			PBES			ECL		
RIC	1.00	1.00	1.00	1.10	1.32	1.83	0.85	1.11	1.38
PBES	0.55	0.76	0.91	1.00	1.00	1.00	1.16	1.38	1.90
ECL	0.73	0.90	1.18	0.53	0.73	0.86	1.00	1.00	1.00
Increased resilience and adaptive capacity (IRAC)									
	SEVD			BRND			SER		
SEVD	1.00	1.00	1.00	0.95	1.17	1.64	0.73	0.96	1.34
BRND	0.61	0.86	1.06	1.00	1.00	1.00	1.06	1.29	2.06
SER	0.75	1.04	1.37	0.49	0.78	0.94	1.00	1.00	1.00

Thus, the weight vectors (W_G) for the baseline scenario are determined from **Table 4**.

$W_G = (d(F_{IE})\ d(F_{IEA})\ d(F_{TR})\ d(F_{IHSC})\ d(F_{IT})\ d(F_{INCC})\ d(F_{IRAC}))^T$

$W_G = (0.903, 1.000, 0.552, 0.628, 0.475, 0.490, 0.414)^T$

$W_G = (0.202, 0.224, 0.124, 0.141, 0.106, 0.110, 0.093)$

Likewise, the weights of criteria for the utopian and dystopian scenarios were computed (see **Table 5**).

4.2 Computation Weights of Sub-Criteria

To calculate the weights of sub-criteria, experts were asked to make comparisons for all sub-criteria under each criterion. Weights of the sub-criteria and rank according to integrated priority are given in **Table 5**.

Table 5. Weight and integrated priority of criteria and sub-criteria.

Baseline scenario						
Criteria	**Weight**	**Rank**	**Sub-criteria**	**Weight**	**Integrated priority**	**Rank**
IE	0.202	2	CNJ	0.349	0.071	4
			MUES	0.504	0.102	2
			EOIGB	0.147	0.030	17
IEA	0.224	1	MI	0.376	0.084	3
			DIC	0.163	0.037	13
			GDMANS	0.461	0.103	1
TR	0.124	4	FII	0.454	0.056	5
			RECCM	0.310	0.038	12
			DS	0.236	0.029	18
IHSC	0.141	3	SBOA	0.378	0.053	7
			PHLP	0.386	0.054	6
			SPS	0.236	0.033	14
IT	0.106	6	TSSUP	0.413	0.044	9
			THLP	0.362	0.039	11
			SESRDI	0.225	0.024	21
INCC	0.110	5	RIC	0.410	0.045	8
			PBES	0.356	0.039	10
			ECL	0.234	0.026	20
IRAC	0.093	7	SEVD	0.350	0.032	16
			BRND	0.352	0.033	15
			SER	0.298	0.028	19
Utopian scenario						
Criteria	**Weight**	**Rank**	**Sub-criteria**	**Weight**	**Integrated priority**	**Rank**
IE	0.176	3	CNJ	0.376	0.066	5
			MUES	0.163	0.029	17
			EOIGB	0.461	0.081	3
IEA	0.160	4	MI	0.454	0.073	4
			DIC	0.310	0.050	9
			GDMANS	0.236	0.038	14
TR	0.119	5	FII	0.378	0.045	11
			RECCM	0.386	0.046	10
			DS	0.236	0.028	18
IHSC	0.188	1	SBOA	0.497	0.093	1
			PHLP	0.213	0.040	13
			SPS	0.290	0.054	8
IT	0.114	6	TSSUP	0.486	0.055	7
			THLP	0.366	0.042	12
			SESRDI	0.148	0.017	20
INCC	0.181	2	RIC	0.485	0.088	2
			PBES	0.347	0.063	6
			ECL	0.167	0.030	15
IRAC	0.062	7	SEVD	0.467	0.029	16
			BRND	0.304	0.019	19
			SER	0.229	0.014	21

Table 5 continued…

Dystopian scenario						
Criteria	**Weight**	**Rank**	**Sub-criteria**	**Weight**	**Integrated priority**	
IE	0.145	3	CNJ	0.426	0.062	4
			MUES	0.393	0.057	7
			EOIGB	0.181	0.026	21
IEA	0.134	6	MI	0.389	0.052	9
			DIC	0.283	0.038	15
			GDMANS	0.328	0.044	14
TR	0.142	4	FII	0.436	0.062	3
			RECCM	0.366	0.052	10
			DS	0.198	0.028	20
IHSC	0.141	5	SBOA	0.412	0.058	6
			PHLP	0.360	0.051	11
			SPS	0.228	0.032	18
IT	0.161	1	TSSUP	0.450	0.072	1
			THLP	0.337	0.054	8
			SESRDI	0.213	0.034	17
INCC	0.125	7	SEVD	0.358	0.045	12
			BRND	0.284	0.036	16
			SER	0.357	0.045	13
IRAC	0.152	2	SEVD	0.384	0.058	5
			BRND	0.426	0.065	2
			SER	0.189	0.029	19

This section illustrates the recovery pathway for the hospitality and tourism sector in three scenarios namely, baseline, utopian, and dystopian. In the baseline scenario, the IEA criterion holds the maximum weightage of 0.224 and is ranked 1, similarly, IE is ranked 2 with the weight of 0.202. IHSC, TR, INCC, IT, and IRAC are also ranked accordingly. Among the sub-criteria of IEA, GDMANS needs to be given the most attention as it holds the maximum weight followed by MI and DIC. IE is majorly affected by MUES with a calculated weight of 0.504, followed by CNJ and EOIGB. IHSC is ranked 3^{rd} with the total weight of 0.141 and among its different sub-criteria PHLP requires to be catered first as it holds the weightage of 0.386 followed by SBOA and SPS. Subsequently, TR has a weightage of 0.124 and is ranked 4, while INCC is ranked 5 as it holds 0.110 of the total calculated weight. IT and IRAC hold the lowest weight and are ranked 6 and 7 respectively. After calculation, it has been observed that FII under TR, RIC under INCC, TSSUP under IT and BRND under IRAC requires foremost consideration as they hold the maximum weightage. Integrated priority values are calculated by multiplying the weight of criteria and sub-criteria. From the above results it is found that the most significant criteria for recovery pathway from COVID-19 is impact on economic activity followed by impact on employment.

Under the utopian scenario, IHSC holds the maximum weightage of 0.188 and is ranked 1. INCC is ranked 2 with the second highest weight of 0.181 among all the criteria followed by IE, IEA, TR, IT, IRAC. SBOA holds the highest weight of 0.497 and need to be given priority over other sub-criteria under IHSC. INCC is extremely affected by RIC with the calculated weight of 0.485 followed by PBES and ECL. Similarly, EOIGB, MI, RECCM, TSSUP, and SEVD hold the maximum weights of 0.461, 0.454, 0.386, 0.486, 0.467 each under their respective criterion. According to the rank order, SBOA and RIC are given the top ranks while SER and SESRDI are on the lower ends, where virus containment response is under control and economic response is effective.

Under the dystopian scenario, IT performs most amongst all the criteria with the weight of 0.161. Therefore, government needs to invest on purchasing new technologies to stop spreading COVID-19. TSSUP is also at the top position among all the sub-criteria. IRAC, IE, and TR hold the 2, 3, and 4 place for the selected

criteria with the weight of 0.152, 0.145 and 0.142 respectively. BRND sub-criteria is ranked first with the weight of 0.426 under the IRAC and is ranked 2 overall amongst all the sub-criteria. Therefore, policy makers must focus on boosting resilience to fight against COVID-19.

Alternative weights concerning criteria under the baseline, utopian, and dystopian scenarios are shown in **Table 6**. In this study, four alternatives, i.e., lodging, food service, travel, and leisure are studied. In the baseline scenario, food service is ranked 1 with a weight of 0.317 followed by lodging (0.308), travel (0.248), and leisure (0.127). IEA is ranked 1 in the baseline scenario, while IEA with a weight of 0.362 weighs most under lodging. It means economic activities can continue while focusing on lodging facilities at the tourist place. Similarly, food service holds maximum weight in the case of IE criteria that is ranked 2. Similarly, in the dystopian scenario, IT criteria are ranked 1 under which lodging, and food service are the top two priorities in terms of the prospect of technology adoption. The overall weight of alternatives under the baseline scenario is - food service (0.317), followed by lodging (0.308), travel (0.248), and leisure (0.127) respectively. For the utopian scenario, it is found that food service, lodging, travel, and leisure hold the 1, 2, 3, and 4 positions, respectively. Similarly, the rank order for all the alternatives is the same under the dystopian scenario, which indicates that the rank of alternatives is not changed, however, weights are slightly altered. Therefore, as discussed in detail later, food service and lodging are the two most significant components, and recovery plan through allocation of stimulus package should be prioritized as indicated across scenarios.

Table 6. Final weights of alternatives.

Baseline scenario								
Goal	IE	IEA	TR	IHSC	IT	INCC	IRAC	Weight
	0.202	0.224	0.124	0.141	0.106	0.110	0.093	
Lodging	0.338	0.362	0.337	0.213	0.387	0.177	0.285	0.308
Food Service	0.352	0.251	0.347	0.354	0.360	0.297	0.280	0.317
Travel	0.189	0.255	0.229	0.263	0.177	0.351	0.320	0.248
Leisure	0.121	0.132	0.087	0.170	0.076	0.175	0.116	0.127
Utopian scenario								
Goal	IE	IEA	TR	IHSC	IT	INCC	IRAC	Weight
	0.176	0.160	0.119	0.188	0.114	0.181	0.062	
Lodging	0.332	0.330	0.340	0.192	0.382	0.189	0.283	0.283
Food Service	0.353	0.255	0.343	0.366	0.363	0.302	0.275	0.326
Travel	0.193	0.257	0.231	0.265	0.178	0.345	0.320	0.255
Leisure	0.122	0.158	0.087	0.177	0.077	0.164	0.123	0.136
Dystopian scenario								
Goal	IE	IEA	TR	IHSC	IT	INCC	IRAC	Weight
	0.145	0.134	0.142	0.141	0.161	0.125	0.152	
Lodging	0.337	0.340	0.335	0.206	0.386	0.170	0.287	0.298
Food Service	0.349	0.251	0.346	0.358	0.363	0.279	0.276	0.319
Travel	0.194	0.257	0.233	0.264	0.175	0.353	0.318	0.254
Leisure	0.120	0.151	0.086	0.172	0.076	0.197	0.118	0.129

A sensitivity analysis was run to understand the change in priority of hospitality and tourism industry components concerning criteria. For example, in the case of the baseline scenario, sensitivity analysis was run concerning the change in the value of criteria named as IEA. **Figure 7** shows the probable changes in the priority of hospitality and tourism industry components concerning change in the weightage of IEA. As the weightage of IEA is increased by more than 0.3, the lodging priority rises but at the same time priority of food declines. It was observed that the priority weights of travel and leisure was almost the same.

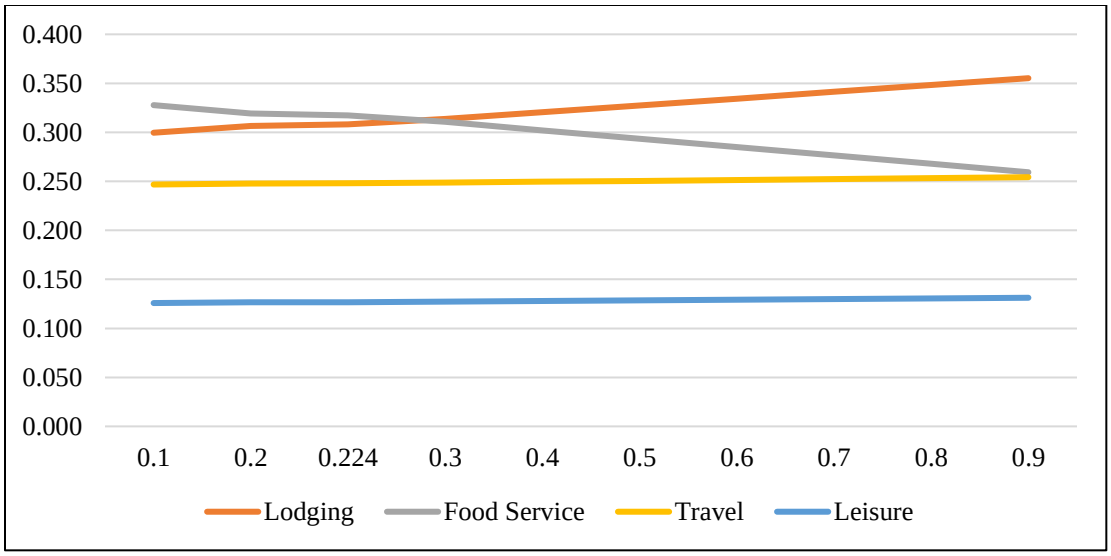

Figure 7. Sensitivity analysis in baseline scenario with respect to IEA.

Similarly, sensitivity analysis was run in utopian scenario concerning the IHSC (0.188) (refer to **Figure 8**). Priority of food service rises with the surge in the value of IHSC. The priority of travel becomes more than the lodging as the weight of IHSC increases by more than 0.5.

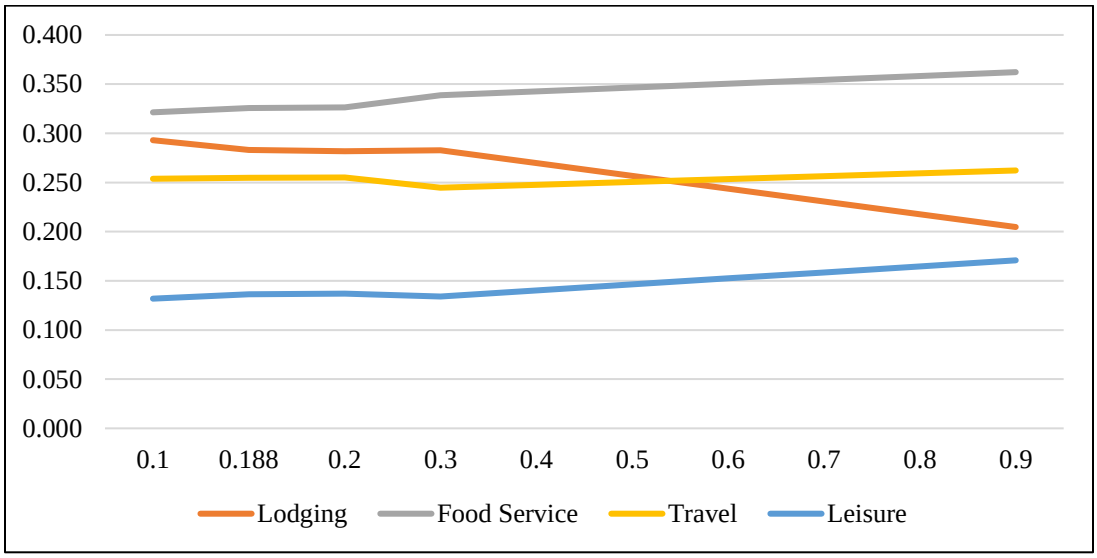

Figure 8. Sensitivity analysis in utopian scenario with respect to IHSC.

In the case of a dystopian scenario (refer to **Figure 9**), sensitivity analysis was run concerning the change in (IT). It was observed that weight of lodging and food increases with a rise in the weight of IT. The graphs of sensitivity analysis demonstrate the suggested priority of the hospitality and tourism industry concerning variation in weight of most essential criteria in three scenarios.

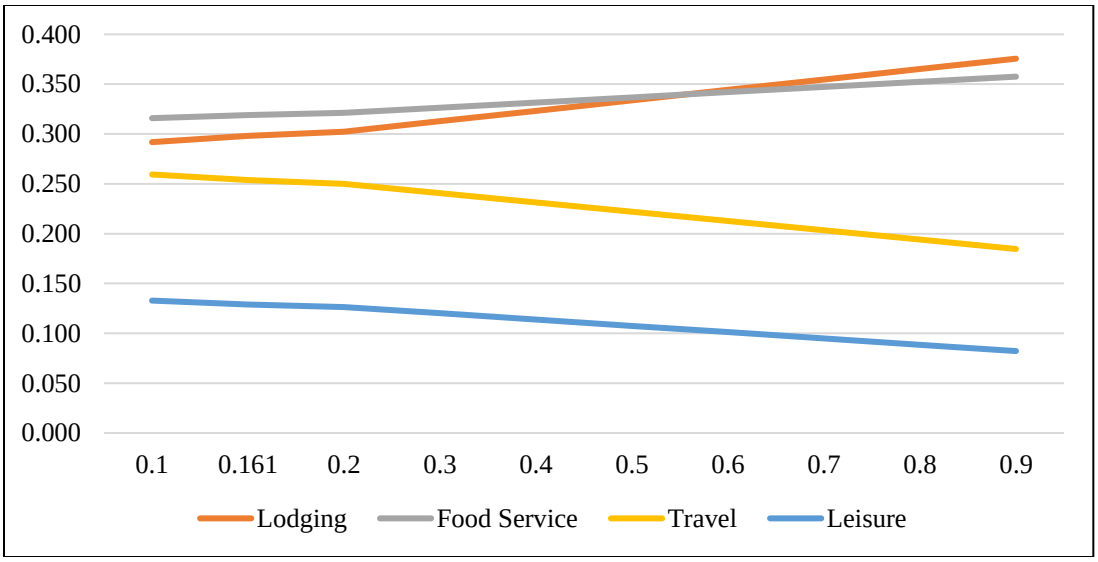

Figure 9. Sensitivity analysis in dystopian scenario with respect to IT.

5. Findings and Policy Implications

With the entire hospitality and tourism sector reeling under the cascading effects of the pandemic, it becomes difficult to allocate the government's limited stimulus package equally in all directions. To this end, our result helps channelize the government's declared stimulus packages such as disbursement of loan moratorium, waiving off provident fund (PF) contribution, deferment of tax collection, collateral-free automatic loans to areas that have higher positive spillover effects. Within alternatives and across the three scenarios, our result indicates that food service, lodging, travel, and leisure ranked consistently in order of descending priority. Our result is in line with the view that food service having higher demand and multiplier effect is the most sought-after business alternative within hospitality and tourism sector.

Within criteria, consistent with the scenario underpinnings our result provides pinpointed action items. For the baseline scenario, to make an economic response effective impact on economic activity (IEA) and impact on employment (IE) within food service and lodging should get priority, as per our result. Similarly, for utopian scenarios policy interventions should focus on alleviating human capital sufferings, and thus, consequently IHSC gets high priority. Interestingly, within IHSC utopian scenario spotlights food service and travel as both of them are likely to experience transformational changes in human capital and allied interactions. Understandably, INCC in this scenario gets second-ranked attention because of its focus on local ecosystems and communities, agriculture and land productivity, biodiversity, and ecosystem services. Hence, it can be conjectured that a utopian scenario envisages a sustainable hospitality and tourism world. Finally, in a dystopian scenario with a virus response out of control, technological interventions would remain the prime driver for significant growth potential focusing on food service and lodging with travel and leisure taking a back seat. This observation remains unchanged across the three scenarios within food service and lodging alternatives. The possible reason could be that there is more person-to-person contact in these two alternatives as opposed to travel and leisure it can be expected that in-app ordering of food and services, bookings, contactless payments, and contact light dining to come into the scene early than planned.

Finally, precisely predicting the occurrence of any pandemic of such a catastrophic nature and then quantifying the vulnerability of a specific sector is simply impossible. However, as the literature suggests

managers and organizations who are constantly challenged through exposure to various risk assessment tools such as scenario planning, Monte Carlo simulations, etc. are the ones who are well-equipped to handle unforeseen events (Rice & Zegart, 2018). To this end, our framework would help provide managers with various worldviews against scenarios and equip them with rich understanding of identifying shortfalls and subsequently bolstering resiliency and long-term survivability (Hystad & Keller, 2008; Brown et al., 2018).

6. Conclusion, Limitations, and Future Research

As one of the early attempts to commence a research agenda in response to an unprecedented black swan event, our study emphasizes focusing on unique combinatorial theories that soft links scenario building and fuzzy AHP. Specifically, this research proclaims the following broad contributions. First, by deploying an interdisciplinary approach of fuzzy AHP, we demonstrate how the scenario research methodology can have a symbiotic existence with more established research approaches, such as fuzzy AHP, and in the process showcase potential users to the challenges it entails. Extending these frameworks to cover hospitality and tourism, which is a major bedrock of the global economy, makes these conceptualizations more comprehensive, more relevant, and more insightful. Second, by focusing on an industry considered to be a major bedrock of the economy, this study explores diverse strategies and policies that could be implemented to reduce uncertainty and therefore increase the resiliency of the hospitality and tourism industry.

Strategic and policy responses to the COVID-19 recovery can have a significant economic and commercial influence on the hospitality and tourism sector, particularly in emerging markets. Companies in the sector have benefited from strategic efforts such government grants, tax breaks, and subsidies in order to sustain operations, increase skills, generate new jobs, and restore revenue. Economic stimulus, job retention and creation, increased investment opportunities, and a boost to local economies are among the benefits.

Our study is not without limitations, which deserve attention in future studies. By providing various scenarios and accompanying storylines, our research lays out a conceptual architecture for recovery of the hospitality and tourism industry amidst pandemic-driven stimulus. However, these underlying relationships in the scenario narratives extending on all the seven elements or criteria are subject to scrutiny till they get validated in future studies. Further, because the hospitality and tourism industries comprise so many subsectors, and intertwined factors with other industries whose recovery is equally relevant, we are not wholly confident about the generalizability of insights based on our study. In order to circumvent the accompanying subjectivities of scenario planners, considered a major limitation, future studies may endeavor to apply the Delphi method along with scenario architecture (Nowack et al., 2011; Solnet et al., 2014) to enhance rigor and credibility.

Lastly, because of definitional ambiguities around hospitality and tourism (Ottenbacher et al., 2009), our selection of criteria, sub-criteria, and alternatives may be critiqued by other scholars. To this end, we acknowledge the inherent biases that might have crept into the process as a consequence. Nevertheless, it is our sincere hope that this research acts as a timely contribution towards a scenario-based outlook in the hospitality and tourism industry.

Conflict of Interest

We do hereby confirm that there is no conflict of interest to declare, and the study was conducted for completely research and academic purposes.

AI Disclosure

The author(s) declare that no assistance is taken from generative AI to write this article.

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