Fuzzy Delphi Method: A Step-by-Step Guide to Obtaining Expert Consensus on Mobile Tourism Acceptance Culture

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***Abstract*—Mobile technology has developed rapidly in a short period of time, which has greatly changed the tourism sector and led to the emergence of Mobile Tourism (MT). To ensure that MT grows well and is widely used, it is important to know how people from different cultures accept it. This study provides a complete description of how to use the Fuzzy Delphi Method (FDM) to obtain expert agreement on the most important factors that influence how acceptable mobile tourism is from a cultural perspective. This study uses the Technology Acceptance Model (TAM) and Hofstede's Cultural Dimensions to carefully find and confirm the variables and indicators and how they are interrelated. This approach describes a rigorous process with nine stages in reaching expert agreement. The results revealed that experts largely agreed on the variables related to perceived usefulness, perceived trust, perceived ease of use, and facilitating conditions in the TAM framework, as well as some variables of collectivism, uncertainty avoidance, and long-term orientation in Hofstede's cultural aspects. This study also verified and validated the overall relationship between variables in building the Mobile Tourism Cultural Acceptance (MTCA) framework, the general and specific interactions between variables, and the function of cultural dimensions as mediators. This study shows how important it is to get expert opinion when making a comprehensive plan on how to use technology in a culturally acceptable environment for mobile tourism. The information obtained has a major impact on mobile tourism developers, policy makers, and marketers who want to make MT more popular.**

Keywords*—Cultural acceptance; Fuzzy Delphi Method (FDM); hofstede's cultural dimensions; mobile tourism; technology acceptance model (TAM)

I. INTRODUCTION

The tourism industry has essentially entered a new era with the advent of smartphones and increasingly widespread internet connectivity, which is emphasized by the emergence of mobile tourism (MT) [1], [2]. Mobile tourism can be defined as the use of mobile devices and applications to access information, various forms of services, and experiences related to travel, including planning, purchasing, navigating destinations, and sharing on social media [1], [3]. Due to its widespread use, it provides tourists with convenience, personalization, and unlimited real-time interaction, thus substantially enhancing the travel experience of tourists [4]. However, the success of widespread acceptance and adoption of mobile tourism is not only due to technological advances, but is also influenced by complex human factors, especially cultural nuances that influence user perceptions and behavior [5], [6].

It is a challenge for researchers and practitioners to try to understand the factors that influence the acceptance of new technologies, especially in diverse cultural contexts. Perceived usefulness (PU) and perceived ease of use (PEOU) are the basic determinants of technology adoption, according to the Technology Acceptance Model (TAM), a widely adopted framework [7]. Although TAM offers a strong model and foundation, it appears to ignore the significant impact of cultural values on technology adoption. This assumption actually limits TAM's explanatory efforts in the context of multicultural societies, where variables such as collectivism, uncertainty avoidance, and long-term orientation significantly influence user perceptions and behavioral intentions [8], [9]. Similarly, according to [5], [10] most mobile tourism research focuses more on technical usability and system quality, neglecting the sociocultural dimensions of user acceptance models.

Therefore, to address this gap, a model is needed that can synthesize the TAM Model and integrate it with Hofstede's cultural dimensions in reflecting the user's value system [11], [12]. Hofstede's Cultural Dimensions Theory provides important insights in analyzing these cultural influences, and is a framework for understanding how national and individual cultures influence behavior, including technology interactions [8]. Therefore, ensuring that these two theoretical perspectives can be integrated into one is crucial for developing a comprehensive understanding of Mobile Tourism Cultural Acceptance (MTCA). MTCA not only provides theoretical contributions, but is a very important strategic tool to help guide the development of a more culturally responsive mobile tourism system and also supports inclusive digital transformation, especially in culturally diverse countries such as Indonesia [13], [14].

To follow up on this, it is necessary to identify and validate critical or important variables and prove how they relate to the MTCA framework in a proposed model. Therefore, it is very important to utilize the knowledge and insights gathered from experts in various fields, namely from the perspective of tourism, academics, and practitioners related to tourism. The Delphi method, originally developed by the RAND Corporation, is a widely known systematic forecasting technique. It involves collecting and aggregating opinions from a panel of experts

through a series of structured questionnaires, with the aim of reaching consensus [15]. However, the conventional Delphi method still has limitations, including the difficulty in accurately representing subjective human judgment and distortion of information from extreme opinions [16].

To address and provide solutions to these conditions, the Fuzzy Delphi Method (FDM) emerged as an appropriate and effective extension concept. FDM conceptually incorporates fuzzy set theory into the conventional Delphi process, allowing experts to express their opinions using fuzzy numbers (e.g., linguistic terms such as "very important" or "somewhat important") rather than precise numerical values [17]. This method effectively encapsulates the ambiguity and imprecision inherent in human judgment, resulting in a more reliable and accurate consensus-building process. FDM has been widely and effectively applied in various sectors, such as environmental management, healthcare, and technology assessment, demonstrating its capacity to manage subjective expert opinions to reach collective agreement [18].

The purpose of this study is to provide a comprehensive step-by-step guide in the application of the Fuzzy Delphi Method to reach expert consensus on variables and indicators to their relationships within the Mobile Tourism Culture Acceptance (MTCA) framework. This study also has a specific objective to determine the elements considered important by experts in the development of MTCA by combining TAM and Hofstede's cultural dimensions. These findings will not only enhance the theoretical understanding of technology acceptance to culture in the context of mobile tourism but also provide practical recommendations for stakeholders in the mobile tourism ecosystem.

II. Literature Review

A. Mobile Tourism and Technology Acceptance

The way individuals plan, experience, and share their travel experiences is being revolutionized by mobile tourism. The accessibility of tourism information and services at any time and in any location has been significantly enhanced by the widespread use of mobile devices, resulting in increased personalization and flexibility for travelers [19]. Mobile technology is increasingly becoming a critical tool for the modern traveler, from translation services, time and mobile booking applications to augmented reality tour guides and social media platforms for sharing their travel experiences [2], [20], [21], [22]. However, the acceptance of these technologies depends on the success of the target consumer.

Such complex factors of new technology developments influence the phenomenon of technology acceptance. Therefore, it is very important to understand these factors in order to create more effective mobile tourism solutions that are in accordance with user preferences and needs. This is supported by previous studies that have used many of these theoretical models and concepts to predict and explain user behavior related to technology acceptance.

B. Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) proposed by Davis [7], s one of the most important and appropriate frameworks for understanding how people use technology. TAM states that there are two basic beliefs that are the main things that influence a person's desire to use technology or not:

- Perceived Usefulness (PU): How much a person believes that using a particular system will help them do their job better [23], [24]. In the context of mobile tourism, this statement means how much visitors think that using a mobile tourism application will make their trip better, make it more efficient, or provide them with more accurate and useful information.
- Perceived Ease of Use (PEOU): The extent to which a person believes that using a particular system would make things easier [23], [24]. In the context of mobile tourism, this relates to how easy it is for users to navigate and use mobile tourism applications and services.

The TAM model is extended by adding other factors to detail and explain tourist intentions. These factors include ubiquitous connectedness, trust, and personality traits such as openness to experience and demand for arousal. [25], [26] examined and confirmed most of the hypothesized models suggested in their study, namely finding that perceived utility, perceived ease of use, ubiquitous connectivity, trust, openness to experience, and demand for arousal are all strong predictors of tourists' intention to purchase tourism-related goods and services through mobile platforms. Of all these factors, Trust and connectivity are two important aspects in the implementation of mobile commerce in the travel and hospitality industry, especially in foreign places where security is a major concern [27].

In various other types of research, such as e-commerce, mobile learning, and tourism, have added and modified TAM [28], [29]. Researchers have included external factors including hedonic incentives, facilitating conditions, and social impacts to explain why users or individuals use mobile tourism [30], [31], [32]. Facilitating conditions (FC), which include the availability of reliable network connectivity, compatible devices, and essential technical support, are particularly relevant to the MTCA context. These conditions are defined in terms of the extent to which an individual believes that organizational and technical infrastructure is available to facilitate the use of the system [33].

C. Hofstede's Cultural Dimensions

Although TAM offers a powerful cognitive framework, it lacks in accounting for cross-cultural differences in technology acceptance. Hofstede's Cultural Dimensions Theory provides a powerful framework for understanding the ways in which national to individual cultures influence human behavior and values [34]. The original dimensions include:

- Power Distance (PDI): The extent to which less powerful members of the organization and institutions (such as families) accept and expect that power is distributed unequally.

- Individualism versus Collectivism (IDV): A society in which the ties between individuals are loose is called individualism, while a society in which the ties between individuals have been formed into strong and cohesive groups since birth is called collectivism.
- Masculinity versus Femininity (MAS): In societies where social gender roles are different, it is an indication of a masculine society, while in societies where social gender roles overlap, it is an indication of a feminine society.
- Uncertainty Avoidance (UAI): The extent to which people in a culture feel fearful or threatened by unclear or unknown situations.
- Long-Term Orientation versus Short-Term Normative Orientation (LTO): Long-term orientation is the process of developing values that are oriented to what is expected to occur in the future, such as being careful and holding fast. While short-term orientation is the process of developing important values in the past and also in the present, such as maintaining self-esteem, respecting tradition, and fulfilling social obligations.
- Indulgence versus Restraint (IVR): Civilization that allows people to achieve their basic and natural needs to enjoy life or seek pleasure. While the restraint shows that a society has a directed and strict social rule to control and suppress people's needs.

Hofstede's dimensions have been applied and emphasized in many studies as important factors in technology adoption across cultural perspectives. For example, cultures that prioritize uncertainty avoidance may be more hesitant to adopt new technologies due to perceived risks, while individualistic cultures may prioritize technologies that enhance personal autonomy [35], [36], [37], [38]. On the other hand, collectivist cultures may prioritize technologies that promote social interaction and group cohesion [39], [40], [41]. It is therefore important to integrate these cultural dimensions to gain a more complex understanding of mobile tourism acceptance, as tourists' cultural backgrounds often influence their preferences and behaviors [5], [42].

D. The Fuzzy Delphi Method (FDM)

According to Dalkey and Helmer [15]. the Delphi method was designed as a structured communication technique to ensure expert consensus on complex issues. Experts are usually given summarized feedback between rounds of questionnaires, which can allow them to modify their judgments according to collective insights [43], [44]. The power of the Delphi method is manifested in its capacity to foster consensus among geographically dispersed experts and to reduce the impact of dominant personalities that are often present during face-to-face meetings.

However, the conventional Delphi method has limitations, particularly in its ability to handle subjective expert opinions and the potential loss of information when converting qualitative judgments into quantitative data [45], [46], [47]. Fuzzy set theory was incorporated into the Delphi process to address these issues, resulting in the introduction of the so-called Fuzzy Delphi Method (FDM) [47], [48], [49] The representation of ambiguous or vague information using fuzzy numbers, typically triangular fuzzy numbers (TFN), is facilitated by fuzzy set theory [50], [50], [51]. This allows experts to convey their opinions as a range rather than a single precise value, which more accurately reflects the uncertainty inherent in their judgments.

The nine systematic phases cover the stages and procedures of FDM, as described by Yin & Hanif [52]:

- Expert Determination Process: This stage involves selecting the right panel of experts. The optimal number of experts is adjusted and can vary, for example, [45], [53] suggesting between 10 and 50, while [54] recommend 10-15 experts if there is high consistency among them.
- Linguistic Selection Process: To obtain nuanced and diverse expert opinions, a 7-point fuzzy scale can be applied, derived from the conventional Likert scale. This scale assigns imprecise values (m1, m2, m3) to each linguistic term, which can allow for more precise quantification of agreement or importance.
- To enter the Likert scale values into the item space for each expert, follow the steps as follows: The researcher enters the Likert scale values given by the experts for each item, converting them into appropriate fuzzy scale values.
- Next is the process of obtaining the fuzzy average value (m1, m2, m3) of the fuzzy scale as follows: The consensus among experts is represented by the calculation of the fuzzy average value (m1, m2, m3) for each item. The minimum value (m1), the most reasonable value (m2), and the maximum value (m3) are represented by these three values, which collectively form a triangular fuzzy number.
- Finding the value of "d" (threshold value): For each question item, the "D" threshold value is determined. Then, this value decides whether the question level of agreement between experts determines whether the item is accepted or rejected.
- Set the number of experts: You can give a sign to the "red box" to the total number of experts to show how much they agree with each other.
- How to find out the level of percentage of expert agreements on each item and item overall: These statistics provide a direct and numerical assessment of how many experts agree.
- Fuzzy evaluation process: Fuzzy (A) score for each item is based on how many experts agree to each item. Items that do not meet FDM criteria standards are discarded.
- Data Analysis Findings Table: Data analysis findings will be shown in the table, the red value shown in cells is interpreted that the conditions set by FDM are not met or inappropriate.

In fields such as sustainable tourism, educational technology, and product reviews, FDM is very good for validating and making difficult decisions [55]. he ability of FDM to identify and ensure that the item rejected is a very useful tool for increasing the development of a model [56]. In FDM, rejecting the item is not just a statistical result, this is a group decision by experts that the item as written is irrelevant, is not important enough, or not adequately represents the construction intended in a particular research context [56]. The strong ability to diagnose this is very useful in interdisciplinary research, which combines ideas from various fields (for example, macro-cultural theory and micro technology adoption) [57]. FDM functions as a strict selection filter to ensure that the final model only makes the part that is truly in line with what is said and done by experts for their understanding [57]. FDM has changed from a simple validation tool to be an important tool for improving and developing models because it has the best diagnostic skills. This provides practical feedback in which theoretical operations are strong and which ones need to be thought of again, are changed, or even discarded [58].

III. METHODOLOGY

The Fuzzy Delphi (FDM) method is used in this study to make experts approve variables and indicators and how variables are interconnected in the Framework for the Proposed Culture Tourism Culture (MTCA) in the future, in this concept combining the dimensions of technology acceptance (TAM) and the Hofstede cultural dimension. This technique uses a structured multi-step procedure to collect, analyze, and combine the perspective of the expert.

A. Research Design

The research design in this study is the Fuzzy Delphi (FDM) method. This recurring method makes it easy to get expert opinions about how important and relevant certain elements. FDM also allows changing qualitative comments into Fuzzy numbers so that all experts can approve one perspective. In this research, choosing the FDM method is caused by eliminating prejudice, getting a greater group consensus, and getting around the fact that human assessment is not always accurate. This makes it the right choice to validate complicated theoretical models [52], [59]. This section explains how to use the Fuzzy Delphi (FDM) method in a comprehensive way, following the nine steps displayed in the following study Yin & Hanif [52]

B. Expert Panel Selection

Choosing the right experts for Delphi studies is quite important. This study chooses experts based on how much they know, how much experience they have, and how much expertise they have in terms of cellular tourism, technology adoption, cultural studies, and tourism management. Expert panels are divided into three clusters namely, people from academics, government tourism organizations, and private sectors related to tourism.

This survey uses 22 experts (see Table I). This is in accordance with the recommended expert panel size for Delphi studies, which usually ranges from 10 to 50 [53]. The selection process ensured a range of expertise relevant to the study of culture, technology adoption, and mobile tourism. The selection criteria were as follows [60]:

- Minimum of 5 years of professional experience in a relevant field (government from a tourism perspective, academics, and practitioners from a tourism perspective).
- Academic qualifications at Bachelor level or higher.
- Demonstrated expertise through publications, professional roles, or significant contributions in the field.

C. Questionnaire Development

This questionnaire was carefully prepared after a comprehensive literature review examining the Technology Acceptance Model (TAM), Hofstede's Cultural Dimensions, and their application in the context of mobile tourism. The questionnaire was designed to obtain expert opinions on the significance and relevance of various variables and the relationships between them. The items were arranged into five main categories, consistent with the scope of this research study:

- What are the key variables in the (TAM) that are significantly related to MTCA?
- What are the key variables in Hofstede's Cultural Dimensions that are significantly related to MTCA?
- What TAM variables and Hofstede's cultural dimensions are significantly related to each other in developing the MTCA framework?
- What TAM variables and Hofstede's Cultural Dimensions are interrelated and significantly influence users' behavioral intention to adopt mobile tourism technology (MTCA)?
- What TAM variables and Hofstede's Cultural Dimensions, along with the cultural dimension variables as mediators, significantly influence users' behavioral intention to adopt mobile tourism technology (MTCA)?

Experts were asked to evaluate the significance of each item on a linguistic scale (e.g., Strongly Disagree, Disagree, Tend to Disagree, Tend to Agree, Agree, Strongly Agree, Strongly Agree). Experts were able to articulate their opinions with nuanced levels of agreement or importance by framing each item using linguistic terms that corresponded to a 7-point Likert scale [52]. These linguistic terms were then converted into triangular fuzzy numbers for analysis purposes in the next stage.

TABLE I. EXPERT PANEL DEMOGRAPHICS

No.	Name	Gender	Academic Qualification	Institution	Position	Years of Work Experience
1	Expert 1	Female	Middle Expert	Tourism Youth and Sports Agency Lima Puluh Kota	Young Expert Planner	> 25 years
2	Expert 2	Female	Diploma	Cititel Hotel Pekanbaru	Sales Executive	10 to 15 years
3	Expert 3	Female	Magister	Macly Marsar Group Pekanbaru	Financial Controller Corporate	20 to 25 years
4	Expert 4	Female	Bachelor	PT Artha Bayu, Bali Indonesia	Owner	> 25 years
5	Expert 5	Male	Master	Tourism, Youth and Sports Office	Head of Office	15 to 20 years
6	Expert 6	Male	Bachelor	Tourism, Youth and Sports Office Payakumbuh	Acting head of tourism	> 25 years
7	Expert 7	Male	Diploma	Lloyds Inn Bali	Front Office Supervisor	5 to 10 years
8	Expert 8	Female	Bachelor	Cititel Hotel Pekanbaru	Sales and marketing manager	15 to 20 years
9	Expert 9	Male	Doctor of Philosophy	UIN Suska Riau	Lecturer	5 to 10 years
10	Expert 10	Male	Doctor of Philosophy	Lancang Kuning University Pekanbaru	Secretary of Computer Science Master's Program	15 to 20 years
11	Expert 11	Male	Doctor of Philosophy	Sebelas April University	Lecturer/Researcher	15 to 20 years
12	Expert 12	Male	Doctor of Philosophy	National Research and Innovation Agency, Indonesia	Researcher	5 to 10 years
13	Expert 13	Male	Bachelor	Tourism, Youth and Sports Service Lima Puluh Kota	Secretary of Tourism and Youth Service	> 25 years
14	Expert 14	Female	Bachelor	Lloyd's Inn Bali	Sales Executive	5 to 10 years
15	Expert 15	Male	Bachelor	Tourism Office of Lima Puluh Kota	Tourism Ambassador	< 5 years
16	Expert 16	Male	Doctor of Philosophy	Sebelas April University	Dean of the Faculty of Information Technology	20 to 25 years
17	Expert 17	Female	Bachelor	Lloyd's Inn Bali	Hotel Manager	20 to 25 years
18	Expert 18	Female	Bachelor	Tourism Office Lima Puluh Kota	Tourism Ambassador	< 5 years
19	Expert 19	Male	Diploma	Tourism Office of Lima Puluh Kota	Uda Uni Tourism Ambassador of Lima Puluh Kota	< 5 years
20	Expert 20	Male	Doctor of Philosophy	Lancang Kuning University Pekanbaru	Lancang Kuning University Pekanbaru	10 to 15 years
21	Expert 21	Female	Diploma	Cara Cara Inn Denpasar	Eccomerce	10 to 15 years
22	Expert 22	Male	Bachelor	Cara Cara Inn Denpasar	Manager	15 to 20 years

D. Data Collection and Fuzzy Delphi Analysis

A series of rounds, which is the hallmark of the Delphi method, were used to capture data. Questionnaires were filled out by experts in each round, and their responses were analyzed. The next stages consist of the core of FDM analysis [52]:

1) Likert-to-fuzzy conversion: The FDM methodology has established the fuzzy scale used by systematically converting the raw data collected from 22 experts into triangular fuzzy numbers (m1, m2, m3). The data were initially presented on a 7-point Likert scale. For example, a Likert rating of '7' (Strongly Agree) is converted into the fuzzy set (0.9, 1, 1), while '1' (Strongly Disagree) is converted into (0, 0, 0.1). This conversion standardizes the expert opinions into a format suitable for fuzzy logic operations.

2) Calculation of fuzzy mean: The fuzzy mean values (m1, m2, m3) are determined by combining the individual fuzzy numbers of all 22 experts for each item of their questionnaire. These various numbers, then combined, include the minimum, most plausible, and maximum values of the combined expert panel's assessment for each particular item.

3) Determination of threshold value 'd': Finding the "D" threshold for each item is an important part of FDM. This value shows how spread or unclear the opinions of experts. The smaller "D" means more agreement or has a high consensus. The "D" threshold is an important factor in deciding whether to accept or reject an item based on how much agreement there is among experts.

4) Percentage of agreement: Furthermore, for each item, the value of 'D' and the proportion of experts who agreed to be found. This metric provides a quantitative measure of direct consensus by showing the percentage of experts whose opinions are in the acceptable agreement range.

5) Fuzzy score (A): The average Fuzzy triangle is used to calculate the fuzzy (A) score for each item, which is a crispy defuzzified value. This score offers a single indicator that can be measured by the expert's perception panel to show how the expert feels about the interests or priorities of the item as a whole.

6) Acceptance/rejection status: In the final step, each item is given the status of acceptance ("accept") or rejection ("Reject") based on the predetermined criteria. This criterion

mainly includes the value of "D" which is below a certain level (for example, D <0.2) and the percentage of agreements that are above a certain level (for example, ≥ 70%). Items that are not satisfying this standard are rejected, which means there is not enough agreement among experts.

IV. Results and Discussion

The This section shows the findings using the Fuzzy Delphi method. This gives a complete picture of the consensus of experts who agree on how the variable relationship in the framework of the acceptance of the Culture (MTCA) is related to each other. Data is arranged in accordance with the sequential validation process which includes TAM factors, Hofstede cultural dimensions, general relationships, specific relationships, and mediation relationships.

A. Validation of Technology Acceptance Model (TAM) Variables

The purpose of the validation of the TAM variable is to prove the variables and indicators in building a framework for acceptance of the Mobile Tourism (MTCA) cultural acceptance. These variables such as, perceived usefulness (PU), perceived ease of use (PEOU), perceived trust (PT), facilitation of conditions (FC), and behavioral intentions (BI) and all indicators that are ganging on each of these variables. Variables and indicators that according to experts are important for people to accept the culture of cellular tourism. Table II shows a summary of findings.

TABLE II. Validation of Technology Acceptance Model (TAM) Variables

No	Items / Elements	Triangular Fuzzy Numbers Conditions		Defuzzification Process Requirements				Expert Agreement	Element ACCEPTED	Ranking
		Threshold Value, d	*Expert Group Agreement Percentage, %*	*m1*	*m2*	*m3*	*Fuzzy Score (A)*			
1	PEOU	0,095	95,5%	0,700	0,882	0,977	0,853	ACCEPT	0,853	14
2	PEOU1	0,121	100,0%	0,691	0,868	0,973	0,844	ACCEPT	0,844	19
3	PEOU2	0,117	100,0%	0,718	0,886	0,977	0,861	ACCEPT	0,861	12
4	PEOU3	0,137	100,00%	0,691	0,864	0,968	0,841	ACCEPT	0,841	20
5	PEOU4	0,092	100,00%	0,736	0,905	0,986	0,876	ACCEPT	0,876	5
6	PU	0,098	100,00%	0,745	0,909	0,986	0,880	ACCEPT	0,880	3
7	PU1	0,122	100,00%	0,727	0,891	0,977	0,865	ACCEPT	0,865	8
8	PU2	0,127	95,45%	0,727	0,891	0,973	0,864	ACCEPT	0,864	9
9	PU3	0,130	100,00%	0,709	0,877	0,973	0,853	ACCEPT	0,853	14
10	PU4	0,127	100,00%	0,736	0,895	0,977	0,870	ACCEPT	0,870	6
11	PT	0,117	100,00%	0,718	0,886	0,977	0,861	ACCEPT	0,861	13
12	PT1	0,114	95,45%	0,700	0,877	0,973	0,850	ACCEPT	0,850	16
13	PT2	0,407	31,82%	0,400	0,568	0,718	0,562	REJECT	0,562	27
14	PT3	0,146	95,45%	0,664	0,845	0,959	0,823	ACCEPT	0,823	22
15	PT4	0,140	95,45%	0,682	0,859	0,964	0,835	ACCEPT	0,835	21
16	PT5	0,201	81,82%	0,636	0,818	0,932	0,795	ACCEPT	0,795	25
17	PT6	0,127	95,45%	0,727	0,891	0,973	0,864	ACCEPT	0,864	9
18	PT7	0,102	95,45%	0,745	0,909	0,982	0,879	ACCEPT	0,879	4
19	FC	0,226	90,91%	0,668	0,827	0,923	0,806	ACCEPT	0,806	23
20	FC1	0,132	95,45%	0,736	0,895	0,973	0,868	ACCEPT	0,868	7
21	FC2	0,125	100,00%	0,700	0,873	0,973	0,848	ACCEPT	0,848	17
22	FC3	0,259	72,73%	0,618	0,782	0,895	0,765	REJECT	0,765	26
23	FC4	0,170	95,45%	0,645	0,823	0,945	0,805	ACCEPT	0,805	24
24	BI	0,098	100,00%	0,718	0,891	0,982	0,864	ACCEPT	0,864	9
25	BI1	0,088	95,45%	0,800	0,945	0,995	0,914	ACCEPT	0,914	1
26	BI2	0,125	100,00%	0,700	0,873	0,973	0,848	ACCEPT	0,848	17
27	BI3	0,104	100,00%	0,755	0,914	0,986	0,885	ACCEPT	0,885	2

As shown in Table II, the expert panel showed a high level of consensus on most of the TAM variables and indicators. There was a total of 27 TAM items, consisting of 5 variables and 22 indicators. Almost all items achieved a consensus percentage of 95.45% or 100%, and their Fuzzy Scores were consistently high (above 0.8), leading to their acceptance. This indicates that experts largely agree on the importance of perceived ease of use (PEOU items), perceived usefulness (PU items), perceived trust (PT items), facilitating conditions (FC items), and behavioral intention (BI items) in driving mobile tourism acceptance. For example, BI1 has a high fuzzy score of 0.914 with 100% agreement, emphasizing its criticality. The second to fifth ranks can be seen in BI3 (0.885), PU (0.880), PT7 (0.879), PEOU4 (0.876) with 100% agreement, indicating strong agreement and high scores. The two "REJECTED" items were PT2, with a low consensus percentage of 31.82% and a Fuzzy Score of 0.562, and FC3 with a consensus percentage of 72.73% and a fuzzy score of 0.765 indicating a lack of agreement or perceived importance by experts for this particular element. This highlights that although the TAM is generally accepted, not all of its aspects are equally relevant or agreed upon in the specific context of mobile tourism, thus requiring further investigation into the nature of PT2 and FC3.

B. Validation of Hofstede's Cultural Dimensions Variables

Hofstede's Cultural Dimensions were validated within the MTCA framework in the second phase. Expert consensus on these variables is illustrated in Table III.

TABLE III. VALIDATION OF HOFSTEDE'S CULTURAL DIMENSIONS VARIABLES

No	Items / Elemens	Triangular Fuzzy Numbers Conditions		Defuzzification Process Requirements				Expert Agreement	Element ACCEPTED	Ranking
		Threshold Value, d	*Expert Group Agreement Percentage, %*	*m1*	*m2*	*m3*	*Fuzzy Score (A)*			
1	CD	0,179	90,9%	0,664	0,841	0,945	0,817	ACCEPT	0,817	14
2	CD1	0,175	90,9%	0,655	0,836	0,945	0,812	ACCEPT	0,812	16
3	CD2	0,214	86,4%	0,627	0,805	0,923	0,785	ACCEPT	0,785	23
4	CD3	0,187	86,36%	0,655	0,832	0,941	0,809	ACCEPT	0,809	18
5	CD4	0,257	81,82%	0,614	0,782	0,895	0,764	ACCEPT	0,764	26
6	CD5	0,206	86,36%	0,673	0,841	0,936	0,817	ACCEPT	0,817	14
7	CD6	0,203	86,36%	0,664	0,836	0,936	0,812	ACCEPT	0,812	16
8	PD	0,239	68,18%	0,595	0,773	0,900	0,756	REJECT	0,756	28
9	PD1	0,408	45,45%	0,409	0,568	0,723	0,567	REJECT	0,567	42
10	PD2	0,397	40,91%	0,400	0,564	0,718	0,561	REJECT	0,561	43
11	PD3	0,427	27,27%	0,436	0,605	0,750	0,597	REJECT	0,597	40
12	PD4	0,393	40,91%	0,445	0,609	0,755	0,603	REJECT	0,603	39
13	PD5	0,390	40,91%	0,468	0,627	0,764	0,620	REJECT	0,620	38
14	UA	0,171	90,91%	0,645	0,827	0,945	0,806	ACCEPT	0,806	19
15	UA1	0,114	95,45%	0,736	0,900	0,977	0,871	ACCEPT	0,871	6
16	UA2	0,115	100,00%	0,745	0,905	0,982	0,877	ACCEPT	0,877	4
17	UA3	0,092	100,00%	0,736	0,905	0,986	0,876	ACCEPT	0,876	5
18	UA4	0,111	95,45%	0,764	0,918	0,982	0,888	ACCEPT	0,888	1
19	UA5	0,104	100,00%	0,755	0,914	0,986	0,885	ACCEPT	0,885	3
20	CO	0,173	90,91%	0,673	0,845	0,950	0,823	ACCEPT	0,823	13
21	CO1	0,219	86,36%	0,632	0,809	0,923	0,788	ACCEPT	0,788	22
22	CO2	0,250	81,82%	0,623	0,795	0,905	0,774	ACCEPT	0,774	24
23	CO3	0,224	86,36%	0,614	0,791	0,914	0,773	ACCEPT	0,773	25
24	CO4	0,163	90,91%	0,682	0,855	0,955	0,830	ACCEPT	0,830	11
25	CO5	0,248	54,55%	0,605	0,773	0,895	0,758	REJECT	0,758	27
26	CO6	0,255	54,55%	0,586	0,759	0,886	0,744	REJECT	0,744	29
27	LT	0,136	95,5%	0,709	0,877	0,968	0,852	ACCEPT	0,852	9
28	LT1	0,167	90,9%	0,691	0,859	0,955	0,835	ACCEPT	0,835	10

29	LT2	0,192	90,9%	0,636	0,809	0,932	0,792	ACCEPT	0,792	20
30	LT3	0,169	95,45%	0,682	0,850	0,955	0,829	ACCEPT	0,829	12
31	LT4	0,144	95,45%	0,727	0,886	0,968	0,861	ACCEPT	0,861	8
32	LT5	0,148	95,45%	0,736	0,891	0,968	0,865	ACCEPT	0,865	7
33	LT6	0,144	95,45%	0,773	0,914	0,973	0,886	ACCEPT	0,886	2
34	MA	0,237	86,36%	0,641	0,814	0,918	0,791	ACCEPT	0,791	21
35	MA1	0,428	36,36%	0,441	0,600	0,741	0,594	REJECT	0,594	41
36	MA2	0,344	59,09%	0,582	0,750	0,859	0,730	REJECT	0,730	32
37	MA3	0,310	68,18%	0,555	0,732	0,859	0,715	REJECT	0,715	34
38	MA4	0,332	59,09%	0,559	0,723	0,845	0,709	REJECT	0,709	35
39	IR	0,285	54,55%	0,568	0,745	0,873	0,729	REJECT	0,729	33
40	IR1	0,285	63,64%	0,568	0,750	0,877	0,732	REJECT	0,732	30
41	IR2	0,284	59,09%	0,568	0,750	0,877	0,732	REJECT	0,732	30
42	IR3	0,256	81,82%	0,532	0,714	0,859	0,702	ACCEPT	0,702	36
43	IR4	0,304	72,73%	0,532	0,714	0,850	0,698	REJECT	0,698	37

Table III shows a strong expert consensus on the relevance of Hofstede's Cultural Dimensions in the context of mobile tourism acceptance. There are 43 items, consisting of 7 variables and 36 indicators. In the context of Hofstede's cultural dimensions on the acceptance of mobile tourism culture, it shows that most of the variables and indicators are accepted and some variables and indicators are rejected. This shows that most experts agree on the importance of the Cultural Dimensions (CD), Uncertainty Avoidance (UA), Collectivism (CO), and Long-Term Orientation (LT) in encouraging the acceptance of mobile tourism culture. It can be seen that UA4 has the highest fuzzy value of 0.888 with an agreement of 95.45% which emphasizes its criticality. The second to fifth ranks can be seen in LT6 (0.886), UA5 (0.885), UA2 (0.877), and UA3 (0.876) with an agreement of 95.45%, 95.45%, 100%, 100%, and 100% which emphasizes its criticality. However, there are 2 variables that are rejected, namely Power Distance (PD) with a fuzzy value of 0.756, 68.18% agreement and the variable Indulgence (IR) with a fuzzy value of 0.729, 54.5% agreement. This indicates a lack of agreement or perception of the importance of this particular element by experts. There are also rejected indicators such as PD1 with a low consensus percentage of 45.45%% and a Fuzzy Score of 0.567, PD2 (40.91%) (0.561), PD3 (27.27% (0.597), PD4 (40.91%) (0.603), PD5 (40.91%) (0.620), CO5 (54.55%) (0.758), CO6 (54.55%) (0.744), MA1 (36.36%) (0.594), MA2 (59.09%) (0.730), MA3 (68.18%) (0.715), MA4 (59.09%) (0.709), IR1 (54.55%) (0.732), IR2 (59.09%) (0.732), IR4 (72.73%) (0.698). Based on the data in the table, it can be explained that the variables, namely Power Distance (PD) and all its indicators are rejected, the Indulgence variable (IR) is rejected with all its indicators, although IR3 is accepted, and the Masculinity variable (MA) is rejected because all its indicators are rejected. This indicates a lack of agreement or perception of the importance of this particular element by experts.

C. *Validation of General Variables in Mobile Tourism Culture Acceptance (MTCA)*

Expert consensus on the general relationship in building the framework model construction related to the Mobile Tourism Culture Acceptance (MTCA) framework is presented in this section. The variables or overall model construction are represented by the following Table IV.

TABLE IV. VALIDATION OF GENERAL VARIABLES (MTCA)

No	Items / Elements	Triangular Fuzzy Numbers Conditions		Defuzzification Process Requirements				Expert Agreement	Element ACCEPTED	Ranking
		Threshold Value, d	*Expert Group Agreement Percentage, %*	*m1*	*m2*	*m3*	*Fuzzy Score (A)*			
1	PEOU-MTCA	0,083	100,0%	0,773	0,932	0,995	0,900	ACCEPT	0,900	2
2	PU-MTCA	0,089	100,0%	0,755	0,918	0,991	0,888	ACCEPT	0,888	3
3	PT-MTCA	0,086	95,5%	0,782	0,936	0,995	0,905	ACCEPT	0,905	1
4	FC-MTCA	0,092	100,00%	0,736	0,905	0,986	0,876	ACCEPT	0,876	5
5	UA-MTCA	0,079	100,00%	0,718	0,895	0,986	0,867	ACCEPT	0,867	6
6	CO-MTCA	0,150	95,45%	0,673	0,850	0,959	0,827	ACCEPT	0,827	9
7	LT-MTCA	0,136	95,45%	0,709	0,877	0,968	0,852	ACCEPT	0,852	8
8	CD-MTCA	0,118	95,45%	0,709	0,882	0,973	0,855	ACCEPT	0,855	7
9	BIUMT-MTCA	0,098	100,00%	0,745	0,909	0,986	0,880	ACCEPT	0,880	4

Table IV shows a very high level of consensus among experts regarding the general relationship of TAM and Hofstede variables contributing to the MTCA framework. All 12 items presented were accepted, with consensus percentages ranging from 90.91% to 100%. The Fuzzy Scores for these general variables were also very high, mostly above 0.87. PT-MTCA (Perceived Trust related to MTCA) emerged as the highest-ranked element with a Fuzzy Score of 0.905 and an agreement level of 95.5%, emphasizing the important role of trust in the acceptance of mobile tourism. PEOU-MTCA (Perceived Ease of Use related to MTCA) and PU-MTCA (Perceived Usefulness related to MTCA) also showed very high scores and 100% consensus, reaffirming the basic tenets of TAM in this context. The acceptance of cultural dimensions related to MTCA (e.g., UA-MTCA, CO-MTCA, LT-MTCA) further supports the integration of cultural factors as an important component of the framework.

D. Validation of Specific Relationships in Mobile Tourism Culture Acceptance (MTCA)

This section explores expert consensus on specific or specific causal relationships between variables within the MTCA framework. This can be seen in the following table.

Table V shows a consistent pattern of high expert consensus on the relationships of TAM and Hofstede's specific variables within the MTCA framework. All 15 listed relationships were accepted, with the dominant consensus percentage at 95.45% or 100%, and the Fuzzy Scores were generally above 0.82. The relationship "PT-BIUMT" (Perceived Trust to Behavioral Intention to Use Mobile Tourism) achieved the highest ranking with a Fuzzy Score of 0.905 and 95.5% agreement, further reinforcing the importance of trust. "PU-BIUMT" (Perceived Usefulness to Behavioral Intention to Use Mobile Tourism) also showed strong support (Fuzzy Score 0.897, 100% agreement), which is in line with the core principles of TAM. Relationships involving cultural dimensions, such as UA-BIUMT, CO-BIUMT, LT-BIUMT, were also accepted, confirming that experts believe that these cultural factors directly influence behavioral intention to use mobile tourism. It can also be explained that the relationship involving TAM and Hofstede variables in the context of cultural dimensions, such as PEOU-CD, PU-CD, PT-CD, and FC-CD as well as UA-CD, CO-CD, and LT-CD are equally believed by experts that these factors have a relationship and influence in the development of MTCA. Thus, consistent acceptance across these specific relationships provides strong empirical support for their inclusion in a comprehensive MTCA model.

E. Validation of Mediator Relationships in Mobile Tourism Culture Acceptance (MTCA)

The final validation stage is dedicated to identifying and confirming the mediating function of cultural dimensions within the MTCA framework. Specifically, it is examined how cultural dimensions can influence the relationship between TAM variables and Hofstede variables in behavioral intention to use mobile tourism.

TABLE V. VALIDATION OF SPECIFIC RELATIONSHIPS (MTCA)

No	Items / Elements	Triangular Fuzzy Numbers Conditions		Defuzzification Process Requirements				Expert Agreement	Element ACCEPTED	Ranking
		Threshold Value, d	*Expert Group Agreement Percentage, %*	*m1*	*m2*	*m3*	*Fuzzy Score (A)*			
1	PEOU-BIUMT	0,092	100,0%	0,736	0,905	0,986	0,876	ACCEPT	0,876	3
2	PU-BIUMT	0,097	100,0%	0,773	0,927	0,991	0,897	ACCEPT	0,897	2
3	PT-BIUMT	0,086	95,5%	0,782	0,936	0,995	0,905	ACCEPT	0,905	1
4	FC-BIUMT	0,092	100,00%	0,736	0,905	0,986	0,876	ACCEPT	0,876	3
5	UA-BIIUMT	0,159	90,91%	0,673	0,850	0,955	0,826	ACCEPT	0,826	13
6	CO-BIUMT	0,148	90,91%	0,682	0,859	0,959	0,833	ACCEPT	0,833	11
7	LT-BIUMT	0,143	90,91%	0,709	0,877	0,964	0,850	ACCEPT	0,850	9
8	PEOU-CD	0,119	95,45%	0,745	0,905	0,977	0,876	ACCEPT	0,876	3
9	PU-CD	0,131	100,00%	0,745	0,900	0,977	0,874	ACCEPT	0,874	6
10	PT-CD	0,118	95,45%	0,709	0,882	0,973	0,855	ACCEPT	0,855	8
11	FC-CD	0,114	95,45%	0,700	0,877	0,973	0,850	ACCEPT	0,850	9
12	UA-CD	0,206	86,36%	0,645	0,823	0,932	0,800	ACCEPT	0,800	15
13	CO-CD	0,148	90,91%	0,682	0,859	0,959	0,833	ACCEPT	0,833	11
14	LT-CD	0,155	90,91%	0,664	0,845	0,955	0,821	ACCEPT	0,821	14
15	CD-BIUMT	0,132	95,45%	0,736	0,895	0,973	0,868	ACCEPT	0,868	7

TABLE VI. VALIDATION OF MEDIATOR RELATIONSHIPS (MTCA)

No	Items / Elements	Triangular Fuzzy Numbers Conditions		Defuzzification Process Requirements				Expert Agreement	Element ACCEPTED	Ranking
		Threshold Value, d	*Expert Group Agreement Percentage, %*	*m1*	*m2*	*m3*	*Fuzzy Score (A)*			
1	PEOU-CD-BIUMT	0,115	100,0%	0,745	0,905	0,982	0,877	ACCEPT	0,877	1
2	PU-CD-BIUMT	0,127	95,5%	0,727	0,891	0,973	0,864	ACCEPT	0,864	3
3	PT-CD-BIUMT	0,118	95,5%	0,709	0,882	0,973	0,855	ACCEPT	0,855	4
4	FC-CD-BIUMT	0,124	95,45%	0,745	0,905	0,973	0,874	ACCEPT	0,874	2
5	UA-CD-BIUMT	0,136	95,45%	0,691	0,868	0,964	0,841	ACCEPT	0,841	7
6	CO-CD-BIUMT	0,167	90,91%	0,709	0,873	0,955	0,845	ACCEPT	0,845	6
7	LT-CD-BIUMT	0,125	90,91%	0,709	0,882	0,968	0,853	ACCEPT	0,853	5

All seven proposed mediation relationships were accepted, indicating that experts largely agreed, with percentages ranging from 95.5% to 100% and fuzzy scores always higher than 0.85. Rankings 1,2,3,4, and occupied by TAM variables. "PEOU-CD-BIUMT" (perceived ease of use mediated by cultural dimensions affecting behavioral intention to use mobile tourism) stands out as the best mediation relationship with fuzzy scores of 0.877 and 100% agreement. This means that how easy a mobile tourism application is, when viewed from a cultural perspective, has a great effect on whether people want to use it or not. In the same way, "PU-CD-BIUMT" (perceived usefulness mediated by cultural dimensions affecting behavioral intention to use mobile tourism) also received much support (fuzzy score 0.864, 95.5% agreement). These results indicate that perceived ease of use is how people view technology and their cultural values in using mobile tourism applications. Overall, it can be concluded that the TAM variable has a greater influence when the cultural dimension acts as a mediator of behavioral intentions to use mobile tourism. Furthermore, seen from the fuzzy score value and expert agreement, ranks 5, 6 and 7 are occupied by the Hofstede variable when the cultural dimension acts as a mediator of behavioral intentions to use mobile tourism.

F. Discussion of Findings

Strong expert consensus was achieved across all categories of variables and relationships proposed in the Mobile Tourism Culture Acceptance (MTCA) framework as a result of a comprehensive validation process using the Fuzzy Delphi Method. The high Fuzzy Scores (generally above 0.8) and consistently high consensus percentages (mostly above 90%) indicate that there is a strong consensus among experts on the important factors influencing mobile tourism culture acceptance.

Its importance as a basic form of Perceived Ease of Use and Perceived Usefulness is reaffirmed by the validation of the TAM variables (Table II). The rejection of the PT2 indicator item implies that, despite the significance of trust, this specific operationalization of trust may not be universally accepted or relevant to scholars in the mobile tourism context. Consequently, additional qualitative investigation is needed to explore it in the context of PT2 in future studies.

The importance of cultural context in mobile tourism is underscored by the strong acceptance of Hofstede's Cultural Dimensions (Table III). This finding is significant because it addresses the general gap between the Primary Influence of Technology and the importance of the human dimension in gaining benefits from technology use. This gap was highlighted by researchers such as [33] who found that users did not gain any benefits from technology [61], have established that the acceptance and adoption of technology are significantly influenced by an individual's cultural beliefs [62]. In essence, cultural heritage impacts various aspects of an individual's life, such as their beliefs, behaviors, perceptions, and attitudes towards health [63]. Scholars have clearly observed that the perception and adoption of mobile tourism technology can be significantly influenced by factors such as Power Distance, Uncertainty Avoidance, Individualism, and Long-Term Orientation. This is consistent with a growing body of research advocating for culturally sensitive technology design and marketing, as well as cultural acceptance of tourism or mobile technology [42], [64], [65], [66], [67].

The importance of the proposed constructs in developing a holistic model of cultural acceptance of mobile tourism is confirmed by the validation of the general relationship variables for MTCA (Table IV). The high PT-MTCA (Perceived Trust in MTCA) classification underlines the fact that trust is not simply a facilitating condition for digital tourism services, but is an essential and fundamental prerequisite. This finding is consistent with recent research on digital platform adoption Furthermore, the consensus on the specific relationships between the variables (Table V) offers more detailed insights into the pathways of influence between the variables. The core predictions of TAM are strongly validated by the direct impacts of PEOU, PU, FC, and PT on behavioral intention (BI). The argument for an integrated paradigm is further strengthened by the recognition of cultural dimensions that directly influence BI. This implies that cultural values can directly influence an individual's readiness and inclination to utilize a mobile tourism tool, regardless of the tool's ease of use or usefulness [41].

Finally, the most important understanding of the influence of cultural dimensions as mediators between TAM and Hofstede variables on behavioral intention to use mobile tourism (Table VI). The finding that cultural dimensions mediate the

relationship between behavioral intention and TAM constructs (PEOU, PU, FC, PT) is a significant theoretical contribution. This suggests that the adoption behavior of mobile tourism applications is ultimately influenced by the cultural context, which serves as a filter or lens through which users interpret the ease of use or utility of these applications. For example, cultures that tend to avoid uncertainty may find a new and complex mobile tourism application more difficult to operate, even if its function is clear, due to the ambiguity inherent in the new technology [68], [69]. Such interactions and the resulting complexity underscore the need for a comprehensive approach to MTCA, in which cultural perspectives are incorporated into every phase of the design and implementation process. The consensus obtained through the Fuzzy Delphi Method was reliably and validly supported by experts at consistently high levels of agreement (mostly 90-100%) and low threshold values (d) across various validation stages. This strong agreement serves as the basis for building a solid foundation for empirical testing and development of the proposed Mobile Tourism Cultural Acceptance framework.

V. IMPLICATIONS

The results of this Fuzzy Delphi study have substantial implications for the development of theoretical concepts as well as for practical applications in the context of cultural acceptance of mobile tourism.

A. Theoretical Implications

Implications for Theory, this study provides a comprehensive assessment of an integrated framework for Mobile Tourism Cultural Acceptance (MTCA) by effectively integrating components of the Technology Acceptance Model (TAM) and Hofstede's Cultural Dimensions. The argument for a more comprehensive model of technology adoption in tourism is theoretically strengthened by the strong scholarly consensus on the importance of PEOU, PU, PT, and FC, as well as the critical role of cultural dimensions. It goes beyond the cognitive focus of conventional TAM by explicitly integrating macro-level cultural influences, which are often overlooked but have a substantial impact on individual perceptions and behaviors. Cultural dimensions are not merely external variables, they can also serve as mediators, influencing the perceptions and effects of fundamental TAM constructs, as confirmed in this research study. This establishes a theoretical foundation for future empirical research that will investigate these complex mediation relationships through quantitative methods, including Structural Equation Modeling.

Second, the Fuzzy Delphi Method (FDM) applies itself as a methodological contribution. This study illustrates the power of fuzzy logic in developing rigorous theoretical constructs and managing subjective judgments in a complex and novel domain such as mobile tourism by methodically guiding experts to reach consensus. It can serve as a practical guide for researchers who wish to leverage expert knowledge in model development and validation provided in the form of a comprehensive step-by-step of the FDM process and its application to a multifaceted framework. Finally, the specific identification and validation of individual items and their relationships, particularly the highly ranked "Perceived Trust" (PT) variable and its inter-variable relationships, suggest that trust may play a more fundamental and important role in mobile tourism acceptance. This underscores the need for additional theoretical investigation into the proper conceptualization and measurement of trust in the context of digital tourism.

B. Practical Implications

The practical implications of these findings are important for various stakeholders in the mobile tourism sector:

- For Mobile Tourism Developers and Designers: The validated variables offer a concise guideline for developing more user-friendly and culturally sensitive mobile tourism apps. Developers should prioritize facilitating conditions (FC), perceived trust (PT), perceived usefulness (PU), and perceived ease of use (PEOU). More importantly, they should consider local cultural values during the design phase. Apps should offer clear and explicit instructions, comprehensive FAQs, and robust customer support in cultures that prioritize uncertainty avoidance to reduce perceived risk. Features that facilitate group planning, collaboration, and social interaction may be highly valued in collectivist cultures.
- For Tourism Destination Management Organizations (DMOs) and Policymakers: These insights can be used by DMOs to develop strategies that will increase the adoption of mobile tourism. Marketing campaigns, public awareness initiatives, and infrastructure development can be informed by an understanding of the cultural dimensions of the target tourist market or local population. For example, in cultures with high power distance, it may be more effective to promote mobile tourism through trusted government channels. Then there are policies that promote ubiquitous and affordable internet access (facilitating conditions).
- For Tourism Marketers: Marketing campaigns for mobile tour services must be tailored to local or specific cultural values. High uncertainty avoidance populations will be attracted to an emphasis on safety, reliability, and unambiguous benefits, while individualistic users may be attracted to an emphasis on efficiency and personal control. Marketers can effectively communicate the proposition in a way that is culturally appropriate to the informed message creator.

VI. CONCLUSION

This study effectively used the Fuzzy Delphi Method to establish expert consensus on the key variables and their relationships within the Mobile Tourism Culture Acceptance (MTCA) framework, which combines Hofstede's Cultural Dimensions and Technology Acceptance Model (TAM). The careful process of expert panel selection, questionnaire development, fuzzy number conversion, aggregation, defuzzification, and consensus determination is explained in a step-by-step guide. The results indicate that there is a high level of expert agreement on the significance of perceived ease of use, perceived usefulness, perceived trust, and facilitating conditions as key determinants of mobile tourism acceptance. Importantly, this study also confirms the substantial role of Hofstede's Cultural Dimensions, not only as direct influencers but also as

mediating factors shaping the impact of TAM constructs on behavioral intention. The comprehensive nature of the proposed MTCA framework is validated by the consistent adoption of the majority of the proposed variables and relationships, as evidenced by the high consensus percentage and strong Fuzzy Scores. This study emphasizes the importance of gaining insight into expert opinion when developing a robust theoretical model for a complex interdisciplinary problem such as the cultural acceptance of mobile tourism. The Fuzzy Delphi technique has been shown to be a useful and important tool to overcome the subjectivity and ambiguity that accompanies qualitative assessment by carefully combining the views of multiple experts.

LIMITATIONS AND FUTURE RESEARCH

Although the procedures and stages used in this study were very rigorous, there were some shortcomings in this study. The expert group consisted of people with different backgrounds, but did not represent all major tourism centers in Indonesia. The Fuzzy Delphi method also did not assign numerical values to the proposed relationships or the strength of these relationships, although it did build expert consensus and validate theoretical constructs.

So, future research should include more experts with specific clusters from each region of Indonesia that represent major tourism centers in Indonesia. Then should try to prove the validated MTCA framework with quantitative research approaches, such as structural equation modeling (SEM) or partial least squares structural equation modeling (PLS-SEM), by conducting a complete survey of people or tourists who use and utilize mobile tourism. This can prove the model by using statistics to examine the hypothesized relationships and see how well the variables affect behavioral intentions in using mobile tourism. In addition, future research should look at the specific ways in which culture influences the acceptance of mobile tourists in more depth. With the Interview approach and qualitative research concepts can be used to expand this study. Looking at various cultural models or ideas, or even just certain cultural values that are not covered by Hofstede's dimensions, has the potential to help people understand MTCA better by trying to collaborate with other cultural concepts. Ultimately, stakeholders can create, build, and sell technologically advanced and culturally relevant mobile travel solutions by recognizing and combining technological insights and cultural values. This method helps the mobile travel sector grow in a way that will last by getting more people to adopt it.

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