# Neutrosophic Delphi for evaluating sustainability models of native and non-native digital media.

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**Abstract**

Technological globalization has brought many changes in different fields, one of which is related to the media. In the case of traditional media, they are forced to find new ways to rethink practice, while digital media emerges in a digital context, albeit with limitations. Experience In both cases, sustainability is one of the factors to be rethought. Building on this, the overall objective is to use the Neutrosophic Delphi method to investigate the extent to which native and non-native digital media have durable patterns that allow them to be successful in their communication activities. To achieve this objective, we work with a mixed methodology, that is, qualitative and quantitative approaches: for qualitative, we use interview methods, for quantitative, we use survey methods. The population studied included both native and non-native digital media. Specifically, the survey and interviews were applied to a group of media owners. The article concludes with a series of Neutrosophic reflections on the conditions of media sustainability.

**Keywords:** Delphi methods; local media; traditional media; Linguistic terms; neutrosophic Delphi.

## 1. Introduction

The new technological era has brought several changes in all areas, in this case at the journalistic level. The ability to create media on digital platforms has led to many more changes overall. Among the advantages is that obtaining information becomes easier and more accessible thanks to constant communication. Digital media can increase public awareness as it opens up more channels of interaction through which opinions can be presented on the various topics presented [1].

Traditional media play an important role in the transmission of information, especially when users do not have access to the Internet. Therefore, the use of social networks as an alternative for information exchange is still unknown [2]. Society's need for information has led traditional media to introduce new digital platforms, and the desire of traditional media to maintain the continuity of their development is one of the main reasons for the emergence of digital media.

The decline in the use of traditional media is due in particular to other fundamental characteristics of the times in which we live: the development of technological tools and the emergence of the Internet and the Internet community have led to a crisis in the journalism industry. This results in low copy sales (press sales) and low television and radio ratings.

The study shows that the growth of digital media in Ecuador is driven by the availability of technologies currently available to society, taking into account certain factors that contribute to the increased openness of digital media, such



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as low network connection costs, and especially the information needs of people. [3 ] Ecuador is one of the countries in Latin America with an impressive growth in connections, reaching a rate of 34.3%.

However, most digital media agencies have managed to finance themselves. Some of them receive support from non-governmental organizations (NGOs) or external organizations.

The mapping was carried out in Ecuador, where 60 local digital media outlets were identified. Three years later, a new study found that there are 83 digital media companies in the country. The Ecuadorian media's online presence is weak, offering an underdeveloped and uninteresting website and content presented in the same print format. There are now many different distribution channels and different ways of creating content, many media have adapted to the changes and others have noticed that such rapid progress in digitalization is difficult [4].

Based on this principle, the present study aims to conduct a Neutrosophic analysis of native and non-native digital media models to evaluate their sustainability. The method is implemented using specific criteria based on the neutrosophic Delphi method.

## 2-Preliminaries

In this scenario of transformation/transition from traditional to digital, the media face the challenge of sustainability. In this sense, this study is based on an analysis that suggested the existence of five models of communication sustainability [5] :

**1) Economic sustainability.**
Research and manage financial resources.
**2) Political and legal stability.**
Laws and regulations that the media must follow.
**3) Organizational sustainability**
Forms and channels for organizing the environment and for decision-making.
**4) Social and environmental sustainability.**
Community support, collaboration with organizations, environmental vision.
**5) Sustainability of information technologies.**
Educational activities on new media and technologies.

An international study investigated the organizational structure and quality of entrepreneurial journalism in the Mexican state of Sinaloa. They conducted a qualitative study that included interviews with digital media journalists from different parts of the state. The results of this study show that several factors influence communication, such as: limitations on innovative proposals, the need for versatile talent, and other things necessary for high journalistic quality, such as trust in the reader.

Some researchers believe that digital media financing originally included advertising consulting, support advertising, and corporate self-management. In his study on digital media during the pandemic, he concluded that trust and private advertising revenue for both digital and traditional media declined significantly [6].

It is clear that finance is a relevant, transversal and conventional dimension, but it must be considered in a series of additional dimensions, among which the audiovisual experience must be taken into account, regardless of how the subject is approached. it is like a citizen.

Domestic digital media have adapted to technological changes in journalism. Therefore, it would make sense to focus research on the types of resilience they exhibit in order to understand some of the obstacles and challenges they face. On the other hand, some media of this type in Latin America present a hybrid approach in the form of a stable model in which they are mentioned; 1) Advertising policies, 2) Registration, 3) Grants, support from other organizations, 4) Diversification, each organization performs different functions but has one thing in common: a viable model for digital media sustainability.

*best journalistic practices* . The identification of barriers depends on specific topics and is therefore not possible. regardless. , although in some cases this state of affairs rarely persists.

Native digital media can be divided into seven categories: *specialized*, with specific themes; *regional*, focused on the local area; *conducting research and* solving political, economic or current problems; *opinion* based on personal criteria; *radio* , whose purpose is sound; *newspapers offer added value*, weekly and monthly publications; *narrative media that* specialize in telling long-form stories.



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Sustainability models in communication are essential for media adaptation to the digital age, where constant change is the norm. These models not only reflect the need to incorporate new technologies but also the urgency to review business strategies and rethink business models to maintain relevance and viability in this evolving digital context.

Revenue diversification is a crucial component of these models, as exclusive reliance on traditional advertising may not suffice in today's digital environment. Including subscriptions, events, consulting, and digital products as additional revenue sources is fundamental to ensure financial stability and reduce vulnerability to changes in the advertising market.

Moreover, active audience engagement stands out as another key aspect in media sustainability. Continuous interaction through comments, surveys, and social events demonstrates audience loyalty and can generate monetization opportunities and financial support, contributing to long-term economic sustainability. Adaptability and flexibility are essential qualities emphasized in these models, as media must be willing to experiment with new content formats and monetization strategies to stay competitive. The ability to quickly adapt to changes in the market and audience preferences is crucial for long-term sustainability.

Ethics and transparency are fundamental values in these models, as they build and maintain public trust. Ethical journalistic practices and transparency in finances and data management are essential to preserve media credibility and ensure long-term sustainability.

Finally, sustainability models in communication also address social and environmental impacts, recognizing the importance of fair employment practices, content diversity, and corporate social responsibility. These aspects contribute to a strong reputation and continuous support from the audience and stakeholders.

In conclusion, these models provide a comprehensive framework to guide media in the digital age, highlighting revenue diversification, audience engagement, adaptability, ethics, and social and environmental responsibility as key elements for long-term sustainability. By adopting these principles, media can strengthen their resilience and significantly contribute to the evolving media landscape.

## 2. Related Works

The Delphi method belongs to the realm of prospective methodologies, focusing on forecasting future developments within the techno-socio-economic landscape and their interplay.Originating in 1950, the initial Delphi study conducted by the Rand Corporation for the United States Air Force, known as the Delphi Project, aimed to utilize expert opinions for optimal American industrial system selection and ammunition production estimation.

Functioning as a structured group communication process, the Delphi method enables collective problem-solving efficacy among a group of individuals, leveraging intuitive judgments from a panel of experts for prediction.Successive questionnaires in the Delphi process aim to refine the consensus opinion by narrowing the interquartile range, signifying the deviation between expert and group opinions.Typically categorized as qualitative or subjective within forecasting methods, the Delphi method's outcome quality hinges significantly on meticulous questionnaire development and expert selection.

This method finds utility under several conditions, including the absence of historical data, greater external factor influence, ethical and moral dominance over economic and technological considerations, unsuitability for precise analytical techniques, and the need for participant heterogeneity in ensuring result validity across diverse knowledge domains.

The Delphi method encompasses four phases: objective definition, expert selection, questionnaire development and deployment, and result exploitation. Despite its benefits such as holistic information gathering and systematic problem exploration, it has drawbacks like high costs, prolonged execution periods, and potential biases in participant selection and questionnaire design. Nonetheless, upon completing these phases, a final report aids decision-making concerning the originally identified problem or objectives.

Centrality is a generalization of fuzzy sets (spatial-intuitionistic fuzzy sets) [7]. Let us assume that U is a universe of discourse and M is a set contained in U. An element x of U is denoted by x(T, I, F) concerning a set M and belongs to



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M as follows: true. global, i% undefined (unknown if any) global, if% false, where t varies depending on T, i varies depending on I, f varies depending on F [8-10].

Statistically speaking, T, I, F are subsets, but dynamic T, I, F are functions or operations that depend on many unknown or known parameters [11, 12 ].

To facilitate practical application in decision-making and technical problems, unique Neutrosophic sets [13] (SVNS) have been proposed, allowing the use of linguistic variables[14,15] . This increases the explanatory power of recommendation models and the exploitation of uncertainty.

Let X be the universe of discourse. SVNS A of X is a module object.

$$A = \{ \langle x, u_A(x), r_A(x), v_A(x) \rangle \quad : x \in X\} d \qquad (1)$$

Where $u_A(x)$: $X \rightarrow [0,1]$ , $r_A(x)$, : $X \rightarrow [0,1]$ and $v_A(x)$: $X \rightarrow [0,1]$ with $0 \leq x_x) + r_A(x) + v_A(x) : \leq 3$ for all $x \backslash X$ . The intervals $u_A(x)$, $r_A(x)$ and $v_A(x)$ represent the true, unknown and false ratio xa A, respectively. For simplicity, the SVN number is given as $A = ( \ . \ , \ )$ expressed. , where $, b$ ,

$c\varepsilon$ [0,1] and $+ b + c \leq 3$.

For cooperation with DELPHI, aspects and their indicators were identified that form the basis for developing criteria for assessing the universal rights of citizens, assessed by impartial judges, and presented to selected experts as a proposed solution to the research problem [16,17].

**2.1 Application of the Neutrosophic Delphi method.**

The Delphi method is a technique for collecting and processing information that makes it possible to obtain an assessment from a group of experts through consultation [18]. This qualitative method is recommended when necessary to obtain expert, consensus and representative opinions from a group of highly specialized people and to provide important background information for the theoretical testing of proposed interventions [19].

Media Owner . They were asked to complete a cognitive test and all invited experts kindly agreed . This method is used to evaluate the following cognitive factors for their competence in the counseling topic [20]:

- Ic: the level of relevant information and knowledge available to experts in the field.
- Ia **:** Argumentation coefficient of the expert based on a critical analysis of the topic.
- I: Determine the qualification coefficient of the consulted expert, Use the formula according to the DELPHI method, where I= 0.5 x (Kc+Ka).

**Results from experts**

After determining the information content (Ic) and the level of argumentation of each expert on the research topic, his skills are determined, which leads to the following results.

The features are rated using the following linguistic scale (Table 1). These notes are saved for inclusion in the database.

Table 1 : Linguistic terms used.

| linguistic term | SVN number |
|---|---|
| Extremely high(EB) | (1, 0, 0) |
| Very very high (MMB) | (0.9, 0.1, 0.1) |
| Very high (MB) | (0.8,0.15,0.20) |
| High (B) | (0.70,0.25,0.30) |
| Medium-high (MDB) | (0.60,0.35,0.40) |
| Medium(M) | (0.50,0.50,0.50) |



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| | |
|---|---|
| Medium-low (MDM) | (0.40,0.65,0.60) |
| Low (MA) | (0.30,0.75,0.70) |
| Very low (MM) | (0.20,0.85,0.80) |
| Very very low (MMM) | (0.10, 0.90, 0.90) |
| Extremely low (EM) | (0,1,1) |

Table 2 summarizes the results of the expert selection process and describes the recognition of knowledge quotients or transparency information in public administration and the mechanisms that facilitate their effective implementation.

This evaluation system utilizes a linguistic scale to classify features based on their importance. Although intuitive, it has certain limitations. For instance, the inherent ambiguity of terms like "very high" or "high" could lead to subjective interpretations, potentially affecting the consistency of evaluations. Additionally, the lack of specific criteria for each category could hinder comparison between features and informed decision-making.

On the other hand, the inclusion of extreme terms like "extremely high" and "extremely low" could be useful for highlighting exceptional features. However, it's important to note that these extremes may be uncommon in practice and may not accurately reflect the reality of the evaluated characteristics.

One potential improvement would be to complement this linguistic scale with specific quantitative criteria, such as numerical value ranges, to provide greater clarity and objectivity in evaluations. This would enable a more precise comparison and informed decision-making while retaining the flexibility provided by linguistic terms.

In summary, while this linguistic evaluation system may be useful as a starting point, its effectiveness could be enhanced by incorporating specific quantitative criteria. This would ensure a more consistent and objective evaluation of characteristics, thereby facilitating informed decision-making in the analysis and evaluation process.

Table 2 : Results of the expert selection process.

| Experts | Kc. | Ka . | K. | **Category** |
|---|---|---|---|---|
| 1 | (0.50,0.65,0.60) | (0.50,0.50,0.50) | (0.55,0.50,0.50) | Medium-low (MDM) |
| 2 | (1, 0, 0) | (0.7,0.15,0.20) | (0.9, 0.1, 0.1) | Extremely high(EB) |
| 3 | (0.9, 0.1, 0.1) | (1, 0, 0) | (0.95, 0.1, 0.1) | Very very high (MMB) |
| 4 | (0.7,0.15,0.20) | (0.9, 0.1, 0.1) | (0.75,0.15,0.20) | Very high (MB) |
| 5 | (1, 0, 0) | (0.9, 0.1, 0.1) | (0.95, 0.1, 0.1) | Extremely high(EB) |
| 6 | (0.7,0.15,0.20) | (0.9, 0.1, 0.1) | (0.75,0.15,0.20) | Very high (MB) |
| 7 | (0.70,0.25,0.30) | (0.9, 0.1, 0.1) | (0.7,0.15,0.20) | Very high (MB) |
| 8 | (0.7,0.15,0.20) | (0.9, 0.1, 0.1) | (0.75,0.15,0.20) | Very high (MB) |
| 9 | (0.50,0.65,0.60) | (0.50,0.50,0.50) | (0.55,0.50,0.50) | Medium low (MDM) |
| 10 | (1, 0, 0) | (0.9, 0.1, 0.1) | (0.95, 0.1, 0.1) | Extremely high(EB) |
| 11 | (0.50,0.65,0.60) | (0.50,0.50,0.50) | (B.55W,B.5W,B.5W) | Medium-low (MDM) |



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| | | | | |
|---|---|---|---|---|
| 12 | (0.9, 0.1, 0.1) | (0.7,0.15,0.20) | (0.75,0.15,0.20) | Very very high (MMB) |
| 13 | (1, 0, 0) | (0.9, 0.1, 0.1) | (0.95, 0.1, 0.1) | Extremely high(EB) |
| 14 | (0.7,0.15,0.20) | (1, 0, 0) | (0.9, 0.1, 0.1) | Very high (MB) |
| 15 | (0.50,0.65,0.60) | (0.50,0.50,0.50) | (0.55,0.50,0.50) | Medium low (MDM) |
| | | | **11.65/15=0.78** | **HIGH** |

The expert selection process has yielded a set of results that provide insight into how different experts have evaluated the features in question. Upon analyzing the data presented in the table, a variety of responses among the experts is observed, suggesting some discrepancy in their perceptions of the features' importance. For instance, some experts have rated certain features as "Extremely high" while others have classified them as "Medium-low." This variability in evaluations may stem from differences in the interpretation of evaluation criteria or in the experts' experience and knowledge in the field.

Despite the individual discrepancies, the overall assessment indicates that most experts have rated the features as "High" in terms of importance. This suggests some degree of consensus among evaluators, despite individual differences in precise ratings. However, it is important to note that this overall evaluation is based on an average of individual ratings, which could conceal potential significant discrepancies among experts.

This evaluation process provides valuable information for decision-making but also underscores the need to carefully consider individual differences and potential biases in expert evaluations. It would be beneficial to conduct a more detailed analysis to better understand the reasons behind the discrepancies in evaluations and ensure informed and equitable decision-making. Additionally, consideration could be given to including additional measures such as peer review or conducting multiple rounds of evaluation to enhance the reliability and validity of the findings.

Table 3 provides a codification of the meaning of the competencies of transparency professionals and mechanisms that facilitate the implementation of their effectiveness.

Table 3 : Results of coding the experts' competency scores.

| From | Worth | Until | Competence |
|---|---|---|---|
| 0.8 < | K | ≤ 1.0 | High |
| 0.5 < | K | ≤0.8 | Half |
| | K | ≤ 0.5 | Low |

As a result, it was decided to select 11 experts with high and average ratings. Selected experts reviewed proposals for evaluating sustainable models of native and non-native digital media.

To review the proposal, five inclusion criteria for the proposal were established and carefully reviewed and evaluated by experts. Evaluating sustainable Indigenous and non-Indigenous digital media models requires consideration of several key criteria that reflect their long-term viability and growth in a changing environment. Here are five criteria to evaluate these models:

1. **Income diversification**. Sustainable models must have appropriate diversification of revenue sources beyond traditional advertising. This may include subscriptions, subscriptions, events, consulting services or the creation of digital products. Strong diversification reduces dependence on one source of income and increases the financial stability of the environment.



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2. **Public participation**: A sustainable model must have active public participation. Engagement through comments, polls, participation, and social events can demonstrate audience loyalty and commitment, which can lead to monetization opportunities and financial support.

3. **Adaptability and flexibility** . Sustainable models must adapt to changing market conditions and public preferences. This means being willing to experiment with new content formats, new technologies and monetization strategies to stay relevant and competitive.

4. **Ethics and Transparency**: Ethics and transparency are critical to building trust between the public and employees. Media organizations must demonstrate ethical journalistic practices, transparency of their finances and clarity about how they collect, use and protect user data.

5. **Social and environmental impacts** . Sustainable models must consider their impacts beyond financing, including their contribution to social and environmental well-being. These may include fair employment practices including content diversity, corporate social responsibility initiatives and sustainable environmental policies.

Assessing sustainable digital media models based on these criteria can provide a holistic overview of their feasibility and long-term sustainability in a constantly changing media environment.

Below we describe the results of processing the responses to an expert consultation on the assessment of universal rights of citizens, assessed by objective judges.

Table 4 : Results by absolute frequency.

| ITEMS | *C1 VERY SUITABLE* | *C2 FAIRLY SUITABLE* | *C3 ADEQUATE* | *C4 UNSUITABLE* | *C5 NOT SUITABLE* | TOTAL |
|---|---|---|---|---|---|---|
| **1** | 9 | 2 | 0 | 0 | (0,1,1) | 11 |
| **2** | 9 | 1 | 1 | 0 | (0,1,1) | 11 |
| **3** | 5 | 6 | 0 | 0 | (0,1,1) | 11 |
| **4** | 7 | 2 | 2 | 0 | (0,1,1) | 11 |
| **5** | 5 | 6 | 0 | 0 | (0,1,1) | 11 |

The table presents the results of an evaluation based on the absolute frequency of different items, categorized in terms of their suitability. Upon examining the data, it is evident that the majority of items have been rated as "Very suitable" or "Suitable" by most evaluators, suggesting that these elements are generally deemed appropriate for their intended purpose. However, it is also notable that some items have received varied ratings, with a significant proportion being considered "Fairly suitable" or "Unsuitable". This indicates the existence of discrepancies in the perception of the suitability of certain items among evaluators, which may influence the validity and reliability of the evaluation results.

While most items appear to be deemed suitable overall, the presence of divergent ratings for some of them raises questions about the consistency and objectivity of the evaluation. These discrepancies may reflect differences in the interpretation of evaluation criteria among evaluators or in the understanding of the purpose and context of the items in question. Therefore, it is important to address these discrepancies through a more detailed analysis to identify possible biases or areas of ambiguity in the evaluation process.

This approach to evaluation based on absolute frequency provides a useful insight into the collective perception of the suitability of the evaluated items. However, it is essential to complement these results with a deeper qualitative analysis



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to understand the reasons behind the divergent ratings and ensure the validity and reliability of the conclusions drawn from the evaluation. Additionally, consideration could be given to implementing additional measures, such as peer review or the use of multiple evaluation methods, to obtain a more comprehensive and accurate assessment of the suitability of the items in question.

Table 5 : Results obtained based on cumulative frequency .

| ITEMS | C1<br>VERY SUITABLE | C2<br>PRETTY SUITABLE | C3<br>APPR0PRIATE | C4<br>INAPPR0PRIATE | C5<br>N0T SUITABLE |
|---|---|---|---|---|---|
| **1** | (0.9, 0.1, 0.1) | (0.20,0.85,0.80) | (0,1,1) | (0,1,1) | (0,1,1) |
| **2** | (0.9, 0.1, 0.1) | (0.20,0.85,0.80) | (0,1,1) | (0,1,1) | (0,1,1) |
| **3** | (0.8,0,15,0.20) | (0.20,0.85,0.80) | (1,0,0) | (0,1,1) | (0,1,1) |
| **4** | (0.50,0.55,0.60) | (0.60,0.25,0.30) | (0,1,1) | (0,1,1) | (0,1,1) |
| **5** | (0.80,0.25,0.30) | (0.30,0.75,0.70) | (1,0,0) | (0,1,1) | (0,1,1) |

Table 6 shows the expert assessment of the criteria for elements related to indigenous and non-indigenous digital media sustainability models that ensure the effective implementation of sustainability in Ecuador.

Table 6 : Results from the process of evaluating the professional criteria for validation factors.

| Items | Step value<br>NP | Category |
|---|---|---|
| **1** | (0.9, 0.1, 0.1) | Very very high (MMB) |
| **2** | (0.8,0.15,0.20) | Very high (MB) |
| **3** | (0.70,0.25,0.30) | High (B) |
| **4** | (0.9, 0.1, 0.1) | Very very high (MMB) |
| **5** | (0.8,0.15,0.20) | Very high (MB) |

For criterion 1: Weighted sum = (0.9 * 0.9) + (0.1 * 0.1) + (0.1 * 0.1) = 0.81 + 0.01 + 0.01 = 0.83

For criterion 2: Weighted sum = (0.8 * 0.8) + (0.15 * 0.15) + (0.20 * 0.20) = 0.64 + 0.0225 + 0.04 = 0.7025

For criterion 3: Weighted sum = (0.7 * 0.7) + (0.25 * 0.25) + (0.30 * 0.30) = 0.49 + 0.0625 + 0.09 = 0.6425

For criterion 4: Weighted sum = (0.9 * 0.9) + (0.1 * 0.1) + (0.1 * 0.1) = 0.81 + 0.01 + 0.01 = 0.83

For criterion 5: Weighted sum = (0.8 * 0.8) + (0.15 * 0.15) + (0.20 * 0.20) = 0.64 + 0.0225 + 0.04 = 0.7025

Now, we'll normalize these weighted sums: Total sum of weighted sums = 0.83 + 0.7025 + 0.6425 + 0.83 + 0.7025 = 3.7085

Normalized weighted sum for criterion 1 = 0.83 / 3.7085 = 0.2238

Normalized weighted sum for criterion 2 = 0.7025 / 3.7085 = 0.1894



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Normalized weighted sum for criterion 3 = 0.6425 / 3.7085 = 0.1733

Normalized weighted sum for criterion 4 = 0.83 / 3.7085 = 0.2238

Normalized weighted sum for criterion 5 = 0.7025 / 3.7085 = 0.1894

| Criteria to Evaluate | **Quality range** |
|---|---|
| **Income diversification** | 0,2238 |
| **Public participation** | 0,1894 |
| **Adaptability and flexibility** | 0,1733 |
| **Ethics and Transparency** | 0,2238 |
| **Social and environmental impacts** | 0,1894 |

Table 7 : Multicriteria Evaluation of Priority Order

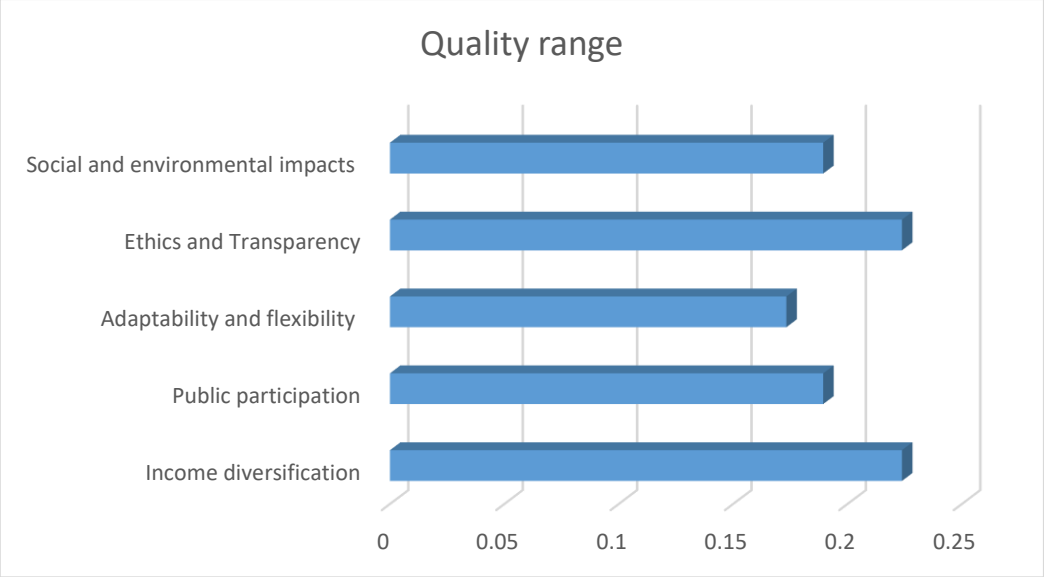


Figure 1 : Multicriteria Evaluation of Priority Order

The evaluation of criteria such as income diversification, public participation, adaptability and flexibility, ethics and transparency, as well as social and environmental impacts, is essential to assess the quality of any project or initiative. Firstly, income diversification, represented by the value of 0.2238, indicates a project's ability to generate resources from multiple sources, reducing dependence on a single funding source and increasing long-term financial stability. This is critical for the economic sustainability of the project and its ability to withstand adverse conditions.

Public participation, valued at 0.1894, reflects the importance of involving stakeholders and the community in the decision-making process. A high score in this criterion indicates that the project has facilitated open and transparent dialogue, strengthening the legitimacy and acceptance of the project by society. This active participation can lead to a better understanding of local needs and greater collaboration in implementation.Adaptability and flexibility, with a value of 0.1733, are essential in a dynamic and changing environment. A project that can quickly adjust to new conditions or challenges is more likely to maintain its relevance and effectiveness over time. Adaptation also allows a



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project to seize emerging opportunities and address new problems as they arise, contributing to its longevity and success.Ethics and transparency, along with social and environmental impacts, both valued at 0.2238, are fundamental aspects of corporate social responsibility and sustainability. A project that prioritizes ethics and transparency in all its operations demonstrates a commitment to the well-being of all stakeholders and minimizes the risk of irresponsible or harmful conduct. Additionally, evaluating social and environmental impacts ensures that the project not only generates economic benefits but also contributes to the overall well-being and health of the environment in which it operates. In summary, these criteria provide a comprehensive guide for evaluating the long-term quality and viability of any project or initiative.

Overall, these results highlight the importance of income diversification and public participation in sustainable media models, while also pointing out the need to improve ethics and transparency. By addressing these areas for improvement, media organizations can strengthen their position and contribute more effectively to a sustainable and ethical media environment.

This study emphasizes that political-legal sustainability should not merely be seen as a legal framework imposing obligations or control. Instead, it involves the media's capacity to adopt regulations that protect their interests and create favorable conditions for journalistic activities influencing public opinion. Surprisingly, media owners showed little interest in promoting political and legal sustainability, despite being key players in developing such frameworks. Organizational sustainability, closely linked to economic sustainability, requires connections with public or private entities. The study found a hierarchical structure in media workplaces where management and employees collaborate on decision-making, fostering organizational sustainability. Socio-ecological sustainability integrates ecological and social dimensions, with media running environmental campaigns and forming alliances with environmental organizations. However, the media's ecological footprint needs more attention, and activities should minimize negative environmental impacts. Lastly, information technology sustainability is analyzed, highlighting the media's use of digital platforms like Facebook to interact with audiences but also noting the limited use of advanced digital tools to improve content authenticity.

## 3. Conclusion

By introducing expert criteria based on the neutrosophic Delphi method, it is possible to demonstrate the feasibility and relevance of their application in evaluating sustainability models for native and non-native digital media.

This article reflects models of sustainable development of indigenous and non-indigenous media in the province of Cotopaxi. After completing this research, the individual objectives set were achieved taking into account the overall problem. The team was able to study key media activities and characteristics related to sustainability. As mentioned above, there are limitations in strategic and future planning, that is, the media act according to the dynamics dictated by their current scenarios, but they lack future orientation and the ability to make everyone work; due to competition in the field of journalism, development occurs in a varied and cyclical manner, both at the economic, socio-ecological and IT levels. It is recommended that new research contribute to revising and deepening the models mentioned in this study.

In conclusion, the evaluation of diverse criteria ranging from income diversification to ethics and transparency is indispensable for gauging the effectiveness and sustainability of any project or initiative. The emphasis on income diversification, which underscores a project's capacity to draw resources from various streams, is pivotal for ensuring long-term financial stability, reducing reliance on singular funding sources, and bolstering resilience against adverse conditions. Public participation emerges as a crucial element, highlighting the necessity of engaging stakeholders and communities in decision-making processes. Projects that foster open dialogue and transparency not only enhance societal acceptance but also foster a deeper understanding of local needs, fostering greater collaboration and efficacy in implementation.

Furthermore, adaptability and flexibility emerge as vital attributes in navigating dynamic and evolving environments. Projects equipped to swiftly respond to new challenges and opportunities are better positioned to maintain relevance and effectiveness over time. By adapting to emerging circumstances, projects can capitalize on unforeseen opportunities and effectively address emerging issues, ultimately contributing to their sustainability and success. Moreover, the emphasis on ethics, transparency, and social and environmental impacts underscores the intrinsic link between responsible corporate conduct and long-term sustainability.

To enhance project quality and viability, it is imperative to integrate these criteria systematically into project planning, implementation, and evaluation processes. Robust mechanisms for income diversification, stakeholder engagement, and adaptability should be incorporated into project frameworks from the outset. Moreover, fostering a culture of ethics and transparency within project teams and organizations is essential for upholding accountability



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and minimizing the risk of detrimental impacts. Additionally, ongoing monitoring and evaluation of social and environmental impacts are critical for ensuring that projects not only generate economic benefits but also contribute positively to the well-being of communities and the environment. By adhering to these principles, projects can enhance their long-term viability, effectiveness, and contribution to sustainable development goals.

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