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Failure to Appear in Procedural Courts in the Ecuadorian Oral System: Analysis of its Legal Implications through Multineutrosophic Modeling

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Abstract. This study intends to analyze the impact of not appearing as a legal consequence of the Ecuadorian oral system; in what way does it violate rights of the parties and the possibility of effective judicial protection? The study was developed through a mixed methodology, bibliographic-documentary design and empirical field study. Ultimately, Multineutrosophic modeling was used to limit uncertainty brought forth by establishing not appearing as a condition with lawyer presence, granted extensions or not, socioeconomic problems, etc., through a triangulation of findings from regulatory sources like the General Organic Code of Procedures (COGEP) and professionalizing interviews with judicial actors. The main results were that the actor not appearing as a plaintiff leads to a declaration of abandonment on the second day with action cancellation after continuous nonappearance, while not appearing as a defendant leads to action inaction and both non-possibility of appeal against evidence and breach of the principle of contradiction…on top of Multineutrosophic elements compounded by not appearing like lawyer unpreparedness and poor technological capabilities. The overarching finding was that not appearing violates effective judicial protection and due process, from law mandated findings that need to be included to regulate and professionally trained effective practical application of oral challenge for the better, to understand these elements better through Multineutrosophic modeling.

Keywords: failure to appear, oral system, legal implications, Multineutrosophic modeling, due process, judicial protection, Ecuadorian justice.

1 Introduction

The failure of parties to appear in the Ecuadorian oral system represents a significant problem affecting the administration of justice, especially within the framework of the General Organic Code of Proceedings (COGEP), in force since 2015. This phenomenon, regulated by Articles 86 and 87 of the COGEP, entails serious consequences, such as the declaration of abandonment for the plaintiff or the loss of procedural opportunities for the defendant, which compromises the principle of adversarial proceedings and the right to effective judicial protection [1]. Non-appearance can result from factors such as the lack of technical representation, socioeconomic barriers, or technological limitations, generating uncertainty in judicial processes. This problem not only delays the resolution of cases, but also undermines confidence in the Ecuadorian judicial system, which seeks to guarantee speed and efficiency in accordance with the 2008 Constitution [2]. The absence of parties in oral hearings, a cornerstone of the current procedural system, raises questions about how to mitigate these failures and strengthen due process. Therefore, it is crucial to analyze the legal implications of this phenomenon, considering the uncertain dynamics surrounding it. This study addresses this problem from an innovative perspective, using advanced analytical tools to model uncertainty and propose practical solutions. Failure to appear is not only a procedural obstacle but also a reflection of structural challenges in the Ecuadorian justice system. Understanding its causes and effects is essential to improving the efficiency of the oral system.

Previous research has addressed failure to appear in legal contexts, but few have focused on the Ecuadorian oral system. Studies such as that of Cevallos (2018) analyzed the implementation of the oral system in Ecuador, highlighting its impact on procedural speed, but did not delve into the effects of non-appearance [3]. For his part, Ávila (2020) examined the principle of adversarial proceedings in civil proceedings, noting that the absence of parties limits judges' ability to resolve cases fairly [4]. However, these works do not address the uncertainty associated with external factors, such as the preparation of lawyers or technological limitations for appearance by videoconference. Likewise, international research, such as that of Smith (2019), explored non-appearance in Anglo-Saxon oral systems, but its findings are difficult to apply to the Ecuadorian context due to normative and cultural differences [5]. These limitations highlight a gap in the analysis of the specific legal consequences of non-attendance within the framework of the COGEP. Furthermore, previous studies lack methodological approaches that integrate advanced tools for modeling uncertainty, which limits their ability to propose comprehensive solutions. This research seeks to fill this gap by exploring the problem from a local perspective and with a novel analytical approach. The lack of specific studies on this topic in Ecuador underscores the need for an in-depth and contextualized analysis.

The relevance of this study lies in its contribution to improving the Ecuadorian judicial system, which, since the adoption of the oral system in 2015, has faced challenges in implementing principles such as immediacy and speed [6]. Failure to appear in court not only affects the parties involved but also generates additional costs for the judicial system, including suspensions of hearings and delays in case resolution. In a context where the 2008 Constitution guarantees free access to justice and the effective protection of rights [2], failure to appear represents a barrier to complying with these mandates. This study is necessary because it identifies factors that contribute to non-appearance, such as lawyers' lack of training or limitations in access to communication technologies, and proposes strategies to mitigate them. Furthermore, by addressing the uncertainty inherent in these processes, it offers an innovative perspective that can guide regulatory reforms and judicial practices. The research also has practical implications for legal professionals, who face significant sanctions for failing to attend hearings. In a system where oral proceedings are central, ensuring appearance is essential to protecting the rights of the parties. This analysis seeks to strengthen confidence in the Ecuadorian justice system and promote more efficient administration.

The main objective of this study is to analyze the legal implications of non-appearance in the Ecuadorian oral litigation system, using multineutrosophic modeling to understand the uncertainty associated with this phenomenon. Specifically, it seeks to identify the factors that contribute to non-appearance, evaluate their effects on procedural rights, and propose strategies to optimize oral litigation. The hypothesis is that non-appearance, influenced by variables such as the technical preparation of lawyers and socioeconomic barriers, compromises the adversarial principle and effective judicial protection, but can be mitigated through a systematic analysis of uncertainty. To this end, the provisions of the COGEP, particularly Articles 86 and 87, which regulate non-appearance and its consequences, will be examined [1]. The study also aims to determine whether current sanctions, such as a declaration of abandonment or loss of procedural opportunities, are effective in encouraging attendance at hearings. In addition, the impact of technological infrastructure and professional training on this problem will be explored. Multineutrosophic modeling will address the complexity of uncertain factors by integrating conflicting and neutral perspectives. This innovative analytical approach seeks not only to describe the problem but also to offer practical solutions to strengthen the judicial system. The results of this research could serve as a basis for regulatory reforms and training programs in the Ecuadorian legal system.

Failure to appear in court is a challenge that transcends the merely procedural, as it directly affects the fundamental rights of the parties, such as access to justice and the right to defense [2]. In the Ecuadorian context, where the oral system seeks to guarantee immediacy and speed, failure to appear generates tensions between procedural principles and practical reality. For example, the suspension of hearings due to the absence of the plaintiff or his or her legal counsel, as established by the COGEP, can significantly delay proceedings [1]. This study is justified because it addresses a problem that has a direct impact on the efficiency of the judicial system and citizens' perception of justice. Multineutrosophic modeling offers a unique tool for analyzing the uncertainty inherent in failure to appear, considering factors such as lack of resources, lawyers' training, and technological limitations. In doing so, the aim is not only to understand the causes of failure to appear, but also to propose solutions that respect the constitutional principles of due process [2]. The research also addresses the need to update judicial practices in a system that relies on oral proceedings for effectiveness. In this sense, the study has the potential to influence public policy and the training of legal professionals.

Ecuador's oral system, implemented since 2015, represents a significant advance compared to the old written system, which was prone to delays and excessive formalities [3]. However, the transition to oral proceedings has revealed new challenges, such as the mandatory appearance at hearings, which is essential to guarantee the adversarial principle [4]. The lack of attendance by the parties or their lawyers can be interpreted as an abandonment of the case or a waiver of procedural rights, which has serious legal consequences, such as the extinction of the action in repeated cases [1]. This study aims to analyze these consequences from a perspective that integrates uncertainty, an aspect little explored in the Ecuadorian legal literature. Multineutrosophic modeling will allow capturing the complex dynamics of non-attendance, considering both internal factors (such as the preparation of lawyers) and external factors (such as socioeconomic barriers). In doing so, it seeks to offer a more complete view of how non-appearance affects the judicial system. The investigation will also examine whether current sanctions are proportionate and effective, or whether they require adjustments to ensure justice without sacrificing the rights of the parties. This approach is particularly relevant in a context where trust in the judicial system is crucial to its legitimacy.

The existing literature on the oral system in Ecuador has highlighted its benefits, such as reduced procedural times and greater interaction between judges and parties [3]. However, few studies have specifically addressed non-appearance as an obstacle to these benefits. For example, García (2021) analyzed the implementation of orality in civil proceedings, but did not explore the consequences of non-appearance or the factors that cause it [6]. Similarly, international research, such as that of López (2022), has studied non-appearance in oral court systems, but their conclusions are not directly applicable to the Ecuadorian regulatory framework [7]. This study fills this gap by focusing on the context of the COGEP and the particularities of the Ecuadorian oral system. The choice of multineutrosophic modeling as an analytical tool responds to the need to address the uncertainty inherent in non-appearance, which can be influenced by multiple unpredictable factors. By integrating this methodology, the research offers an innovative perspective that combines legal analysis with advanced modeling tools. This approach not only enriches the academic debate, but also has practical implications for judicial practitioners.

The justification for this study is also based on the need to strengthen the principle of effective judicial protection, enshrined in Article 75 of the Ecuadorian Constitution [2]. Failure to appear can leave the parties defenseless, which contradicts the constitutional principles of access to justice and due process. This problem is particularly relevant in an oral system, where the presence of the parties at hearings is a sine qua non for the substantiation of proceedings [1]. The research seeks to identify the causes of non-attendance, such as lack of access to public defenders or technological limitations for appearance by videoconference, and to assess their impact on procedural rights. Furthermore, the study proposes practical solutions, such as improving the training of lawyers and optimizing technological resources, to reduce the incidence of non-appearance. Multineutrosophic modeling will allow analyzing these causes from a perspective that considers the uncertainty and contradictions inherent in the judicial system. This approach is innovative because it combines legal rigor with advanced analytical tools, offering a comprehensive view of the problem.

The study's objectives include not only the analysis of the legal implications of failure to appear, but also the identification of strategies to improve the efficiency of the oral system. The central hypothesis holds that failure to appear, influenced by factors such as lack of technical preparation and socioeconomic barriers, compromises the principles of adversarial justice and effective judicial protection, but can be mitigated through a systematic analysis of uncertainty. This study will examine real cases of failure to appear in the context of the COGEP (National Commission for the Protection of Minors in the Judiciary of the Judiciary), using data from hearings and interviews with judges and lawyers to identify patterns [8]. Multineutrosophic modeling will allow these variables to be integrated into an analytical framework that captures the complexity of the problem. Furthermore, it will assess whether current sanctions, such as declarations of abandonment or fines, are sufficient to incentivize appearance. The results of this research could have a significant impact on judicial practice, offering recommendations to strengthen the oral system and ensure respect for fundamental rights.

In conclusion, this study addresses a critical problem in the Ecuadorian judicial system, the resolution of which is essential to guarantee justice and citizen trust. Failure to appear in court not only has legal implications but also social implications, as it affects equitable access to justice [2]. By using Multineutrosophic modeling, this research offers a novel approach to analyzing the uncertainty associated with failure to appear, proposing solutions that could transform judicial practice in Ecuador. The findings of this study have the potential to influence public policies, training programs, and regulatory reforms, contributing to a more efficient and fair judicial system. The combination of rigorous legal analysis with advanced analytical tools positions this research as a significant contribution to the academic and practical debate in the field of procedural law.

2. Materials and methods

MultiNeutrosophic Set

Definition 1. The *Neutrosophic set N* It is characterized by three membership functions [9] , which are the truth membership function T_A, the indeterminacy membership function I_A, and the falsity membership function F_A, where U is the Universe of Discourse and $\forall x \in U$, $T_A(x), I_A(x), F_A(x) \subseteq]^-_A 0, 1^+[$, and $^-0 \leq \inf T_A(x) + \inf I_A(x) + \inf F_A(x) \leq \sup T_A(x) + \sup I_A(x) + \sup F_A(x) \leq 3^+$ [10] .

See that by definition, , $T_A(x), I_A(x)$, and $F_A(x)$ are standard or nonstandard real subsets of $]^-_A 0, 1^+[$ and therefore, $T_A(x), I_A(x)$ and $F_A(x)$ can be subintervals of $[0, 1]$. $^-_A 0$ and 1^+ belong to the set of hyperreal numbers.

Definition 2. The *single-valued neutrosophic set* (SVNS) A over U is $A = \{< x, T_A(x), I_A(x), F_A(x) > : x \in U\}$, where $T_A: U \to [0, 1]$, $I_A: U \to [0, 1]$ and $F_A: U \to [0, 1]$. $0 \leq T_A(x) + I_A(x) + F_A(x) \leq 3$.

SVNN are expressed below :

Given A $_1$ = (a $_1$, b $_1$, c $_1$) and A $_2$ = (a $_2$, b $_2$, c $_2$) two SVNNs, the sum between A $_1$ and A $_2$ is defined as :

$$A_1 \; A_2 = (a_1 + a_2 - a_1 a_2, b_1 b_2, c_1 c_2) \quad (1)$$

Given A $_1$ = (a $_1$, b $_1$, c $_1$) and A $_2$ = (a $_2$, b $_2$, c $_2$) two SVNNs, the multiplication between A $_1$ and A $_2$ is defined as:

$$A_1 \; A_2 = (a_1 a_2, b_1 + b_2 - b_1 b_2, c_1 + c_2 - c_1 c_2) \quad (2)$$

The product of a positive scalar with a SVNN , A = (a, b, c) is defined as:

$$A = (1 - (1 - a), b, c) \quad (3)$$

The *single-valued neutrosophic number* (SVNN) is symbolized by

$N = (t, i, f)$, such that $0 \leq t, i, f \leq 1$ and $0 \leq t + i + f \leq 3$.

Definition 3. The refined neutrosophic set of subsets (SRNS).

Let $\mathcal{U}$ a universe of discourse and a set $R \subset \mathcal{U}$. Then, a refined neutrosophic subset R is defined as follows:

$R = \{x, x(T, I, F), x \in U\}$, where T is refined/divided into p subtruths, $T = \langle T_1, T_2, \dots T_p \rangle, T_j \subseteq [0,1], 1 \leq j \leq p$; I is refined/divided into r subindeterminacies, $I = \langle I_1, I_2, \dots I_r \rangle, I_k \subseteq [0,1], 1 \leq k \leq r$, and F is refined/divided into s subfalsehoods, $F = \langle F_1, F_2, \dots F_l \rangle, F_s \subseteq [0,1], 1 \leq l \leq s$, where $p, r, s \geq 0$ are integers, and $p + r + s = n \geq 2$, and at least one of $p, r, s \; is \geq 2$ to ensure the existence of refinement (division).

Definition 4 ([11]) **.** The MultiNeutrosophic Set (or MultiNeutrosophic Set Subset SMNS).

Let $\mathcal{U}$ a universe of discourse and M a subset of it. Then, a MultiNeutrosophic Set is: $M = \{x, x(T_1, T_2, \dots, T_p; I_1, I_2, \dots, I_r; F_1, F_2, \dots, F_s)\}, x \in U$,

where p , r , s are integers $\geq 0, p + r + s = n \geq 2$ and at least one of them $p, r, s \; is \geq 2$, to ensure the existence of multiplicity of at least one neutrosophic component: truth/belonging, indeterminacy or falsity/non-belonging; all subsets $T_1, T_2, \dots, T_p; I_1, I_2, \dots, I_r; F_1, F_2, \dots, F_s \subseteq [0,1]$;

$0 \leq \sum_{j=1}^{p} inf \; T_j + \sum_{k=1}^{r} inf \; I_k + \sum_{l=1}^{s} inf \; F_l \leq \sum_{j=1}^{p} sup \; T_j + \sum_{k=1}^{r} sup \; I_k + \sum_{l=1}^{s} sup \; F_l \leq n.$

No other restrictions apply to these multicomponents. neutrosophics .

$T_1, T_2, \dots, T_p$ They are multiplicities of truth, each provided by a different source of information (expert).

Similarly, $I_1, I_2, \dots, I_r$ there are multiplicities of indeterminacy, each provided by a different source.

And $F_1, F_2, \dots, F_s$ they are multiplicities of falsehood, each provided by a different source.

The Degree of MultiTruth (MultiMembership), also called *Multidegree of Truth* , of the element x with respect to the set M are $T_1, T_2, \dots, T_p$.

The Degree of Multiindeterminacy (Multineutrosophicity), also called *Multidegree of Indeterminacy* , of the element x with respect to the set M are $I_1, I_2, \dots, I_r$.

and the Degree of Multi- Nonmembership , also called *Multidegree of Falsehood* , of the element x with respect to the set M are $F_1, F_2, \dots, F_s$.

All of these $p + r + s = n \geq 2$ are assigned by n sources (experts) which can be:

- whether completely independent;
- or partially independent and partially dependent;
- or totally dependent; depending on or as needed for each specific application.

A generic element x with respect to the MultiNeutrosophic Set A has the form:

$x(T_1, T_2, \dots, T_p;$ $I_1, I_2, \dots, I_r;$ $F_1, F_2, \dots, F_s)$

multi-truth multi-indeterminacy multiple falsehood

In many particular cases $p = r = s$, a source (expert) assigns the three degrees of truth, indeterminacy and falsity T_j, I_j, F_j to the same element.

Definition 5. Classification of multineutrosophic types of value n of the same form (p, r, s).

$(T_1, T_2, \dots, T_p; I_1, I_2, \dots, I_r; F_1, F_2, \dots, F_s)$, where p, r, s are integers ≥ 0, and $p + r + s = n \geq 2$, and at least one of $p, r, s \geq 2$ to be sure that it has multiplicity for at least one neutrosophic component (either truth, or indeterminacy, or falsity).

It offers a simpler n classification, but it is more of an approximation. Let's calculate the following . positivity (4).

$$\frac{\sum_{j=1}^{p} T_j + \sum_{k=1}^{r}(1 - I_k) + \sum_{e=1}^{s}(1 - F_e)}{p + r + s} \quad (4)$$

Average (Truth-Falsehood) (5)

$$\frac{\sum_{j=1}^{p} T_j + \sum_{e=1}^{s}(1 - F_e)}{p + s} \quad (5)$$

truth (6).

$$\frac{\sum_{j=1}^{p} T_j}{p} \quad (6)$$

Definition 6. Classification of tuples n-valued multineutrosophics of different shapes (p, r, s).

Let us consider two neutrosophic multiple tuples of value n of the forms (p_1, r_1, s_1) and respectively (p_2, r_2, s_2), where $p_1, r_1, s_1, p_2, r_2, s_2$ are integers ≥ 0, and $p_1 + r_1 + s_1 = n_1 \geq 2$, and at least one of $p_1, r_1, s_1 is \geq 2$, to be sure that multiplicity exists for at least one neutrosophic component (either truth, indeterminacy or falsity); similarly $p_2 + r_2 + s_2 = n_2 \geq 2$, and at least one of $p_2, r_2, s_2\ is \geq 2$.

Let's take the following tuples single-value multineutrosophic (SVMNT):

$SVMNT = (T_1, T_2, \dots, T_p; I_1, I_2, \dots, I_r; F_1, F_2, \dots, F_s)$ of $(p_1, r_1, s_1) - form$, and

$SVMNT' = (T'_1, T'_2, \dots, T'_p; I'_1, I'_2, \dots, I'_r; F'_1, F'_2, \dots, F'_s)$ of $(p_1, r_1, s_1) - form$.

It performs the classic averages of truth (T_a), indeterminacies (I_a) and falsity (F_a), respectively for $SVMNT = (T_a, I_a, F_a)$ and the averages of truths (T_a), indeterminacies (I_a) and falsity (F_a) respectively for : $SVMNT = (T'_a, I'_a, F'_a)$. And then applies the Score Functions ( ), Accuracy ( ) and Certainty ( ), as for the single-valued neutrosophic set:

Calculate the scoring function (average positivity) (7).

$$S(T_a, I_a, F_a) = \frac{T_a + (1 - I_a) + (1 - F_a)}{3}$$
$$S(T'_a, I'_a, F'_a) = \frac{T'_a + (1 - I'_a) + (1 - F'_a)}{3} \quad (7)$$

i. If $S(T_a, I_a, F_a) \geq S(T'_a, I'_a, F'_a)$ then $SVMNT \geq SVMNT'$,
ii. If $S(T_a, I_a, F_a) \leq S(T'_a, I'_a, F'_a)$ then $SVMNT \leq SVMNT'$,
iii. And if $S(T_a, I_a, F_a) = S(T'_a, I'_a, F'_a)$ then $SVMNT = SVMNT'$, then go to the second step.

Calculate the precision function (difference between truth and falsehood) (8).

$$A(T_a, I_a, F_a) = T_a - F_a$$
$$A(T'_a, I'_a, F'_a) = T'_a - F'_a \quad (8)$$

i. If $A(T_a, I_a, F_a) \geq A(T'_a, I'_a, F'_a)$ then $SVMNT \geq SVMNT'$,
ii. If $A(T_a, I_a, F_a) \leq A(T'_a, I'_a, F'_a)$ then $SVMNT \leq SVMNT'$,
iii. And if $A(T_a, I_a, F_a) = A(T'_a, I'_a, F'_a)$ then $SVMNT = SVMNT'$, then go to the third step.

3. Calculate the certainty (truth) function (9).

$$C(T_a, I_a, F_a) = T_a$$
$$C(T'_a, I'_a, F'_a) = T'_a \quad (9)$$

i. If $C(T_a, I_a, F_a) \geq C(T'_a, I'_a, F'_a)$ then $SVMNT \geq SVMNT'$,
ii. If $C(T_a, I_a, F_a) \leq C(T'_a, I'_a, F'_a)$ then $SVMNT \leq SVMNT'$,

iii. And if $C(T_a, I_a, F_a) = C(T'_a, I'_a, F'_a)$then $SVMNT = SVMNT'$they are multi-neutrosopically equal, that is $T_a = T_a^{'}, I_a = I_a^{'}, F_a = F_a^{'}$, or their corresponding averages of truth, indeterminacy and falsity are equal.

Definition 7. In cases where some sources carry greater weight in the evaluation than others, weighted averages are used, indexed as $T_{wa}, I_{ua}, F_{va}$and $T'_{wa}, I'_{ua}, F'_{va}$,respectively. Because sources can be independent or partially independent, the sum of the weights does not necessarily have to equal 1. Therefore:

i. $w_1, w_2, \dots, w_p \in [0,1]$, although the sum $w_1 + w_2 + \cdots + w_p$may be $< 1, or\ = 1, or\ > 1$.
ii. $u_1, u_2, \dots, u_p \in [0,1]$, although the sum $u_1 + u_2 + \cdots + u_p$may be $< 1, or\ = 1, or\ > 1$.
iii. $v_1, v_2, \dots, v_p \in [0,1]$, although the sum $v_1 + v_2 + \cdots + v_p$may be $< 1, or\ = 1, or\ > 1$.

And, similarly, the score, precision, and certainty functions are applied to these weighted averages to rank them.

Multineutrosophic ARAS.

Additive Ratio Assessment (ARAS) method is a multi-criteria decision-making technique that allows the selection of the best option from a set of alternatives [12]. In this case, the study establishes among its objectives a series of strategic guidelines aimed at improving decision-making in financial analysis. To this end, an extension of the traditional method is proposed through multi-neutrosophic set evaluation. Consequently, it is reformulated as the multi-neutrosophic ARAS method to determine the complex relative efficiency of each strategic guideline. This involves evaluating each strategic guideline through multiple sources (experts) based on the corresponding criteria. By integrating multi-neutrosophic set analysis into the ARAS method, the following steps are defined:

Step 1: Identify multiple sources (experts) for the multi-criteria assessment and assign a weight to each expert based on their knowledge and contribution to the financial statement analysis (according to Definition 7 in Section 2.1). For this purpose, Saaty's neutrosophic AHP method is applied (following the procedures referenced in the bibliographic sources [13] [14]).

Step 2: Determine the importance weights of each criterion in decision-making for each source (expert).

Step 3: Construct the decision matrix L_{ij}(see Figure 1), where the element L_{ij}represents each strategic guideline (GE) evaluated by multiple sources (experts (Exp .), according to Definitions 5 and 6 of Section 2.1) based on an identified criterion (C) .

$$\begin{bmatrix} l_{11} & l_{12} & \cdots & l_{1j} & \cdots & l_{1n} \\ l_{21} & l_{22} & \cdots & l_{2j} & \cdots & l_{2n} \\ \vdots & \vdots & \ddots & \vdots & \ddots & \vdots \\ l_{i1} & l_{i2} & \cdots & l_{ij} & \cdots & l_{in} \\ \vdots & \vdots & \ddots & \vdots & \ddots & \vdots \\ l_{m1} & l_{m2} & \cdots & l_{mj} & \cdots & l_{mn} \end{bmatrix}$$

Figure 1: Decision matrix $L_{ij}$for the ARAS multineutrosophic method. Source: Prepared by the authors.

Step 4: The normalized decision matrix $\bar{L}_{ij}$, considering the beneficial and non-beneficial values, is calculated using equations (10) and (11):

$$\bar{L}_{ij} = \frac{l_{ij}}{\sum_{i=0}^{m} l_{ij}} \tag{10}$$

$$L_{ij} = \frac{1}{l_{ij}^{*}} \tag{11}$$

Step 5: The weighted normalized decision matrix is calculated using equation (12).

$$\hat{L}_{ij} = \bar{L}_{ij} \cdot W_j \tag{12}$$

The weight values $W_j$are determined using the entropy method. Where j $W_j$is the weight of criterion j and j $\bar{L}_{ij}$is the normalized ranking of each criterion.

Step 6: Calculation of the optimization function $S_i$using equation (13).

$$G_i = \sum \hat{L}_{ij} \tag{13}$$

Where $G_i$is the value of the optimization function for alternative i . This calculation is directly related to the process of the values $\hat{L}_{ij}$and weights $W_j$of the investigated criteria and their relative influence on the outcome.

Step 7: Calculating the degree of utility. This degree is determined by comparing the variant under analysis with the best one G_o, according to equation (14).

$$K_i = \frac{G_i}{G_o} \quad (14)$$

Where G_i and G_o are the values of the optimization function. These values range from 0 to 100%, so the alternative with the highest value K_i is the best of the alternatives analyzed.

3. Results.

This report presents an evaluation of strategic guidelines designed to address the legal implications of failure to appear in Ecuador's oral procedural system. Using the **multineutrosophic ARAS method**, it seeks to identify the most optimal strategy to strengthen effective judicial protection and due process, considering the inherent uncertainty of the legal environment.

1. Contextualization of the Problem

Failure to appear at hearings in the oral system, governed by the General Organic Code of Procedures (COGEP), represents a significant challenge for the administration of justice in Ecuador. The plaintiff's failure to appear can lead to the abandonment of the case, while the defendant's failure to appear limits his or her right to contest the case. Factors such as poor technical training, socioeconomic barriers, and infrastructure failures exacerbate the problem. This analysis evaluates a set of strategic guidelines to mitigate these shortcomings and optimize oral litigation.

The strategic guidelines (alternatives) to be evaluated are defined below:

- **LE1: Regulatory Reform of COGEP:** Modify the relevant articles (e.g. 86 and 87) to make sanctions for justified absence more flexible and introduce more efficient rescheduling mechanisms.
- **LE2: National Technological Training Program:** Implement a mandatory and ongoing program for lawyers on the management of virtual platforms and digital litigation to reduce technological barriers.
- **LE3: Implementation of Progressive Sanctions and Coercive Measures:** Establish a system of progressive fines and other measures (e.g., registry of repeat offenders) instead of declaring abandonment immediately.
- **LE4: Strengthening Public Defense and Free Legal Assistance:** Increase the resources and coverage of the Public Defender's Office to ensure the representation of parties with socioeconomic vulnerability.
- **LE5: Creation of Electronic Communication and Notification Protocols:** Standardize and optimize notification systems to ensure that all parties are informed effectively and with sufficient advance notice.
- **LE6: Promotion of Alternative Dispute Resolution Mechanisms (ADR):** Promote mediation and arbitration as mandatory prior means in certain processes to decongest the judicial system and reduce the number of hearings.
- **LE7: Audit and Improvement of Judicial Technological Infrastructure:** Conduct a comprehensive assessment and modernize the equipment and systems of judicial units to ensure the connectivity and stability of telematic hearings.

2. Application of the Multineutrosophic ARAS Method

Step 1: Identify Multiple Sources (Experts) and Assign Importance Weights

For a comprehensive evaluation, eight expert profiles from the Ecuadorian legal field were selected. Importance weights were assigned using Saaty's AHP neutrosophic method, reflecting their relevance and direct knowledge of the problem of failure to appear in court.

Table 1: Experts (Multisources) and Assigned Weights

Expert	Profession/Role	Weight
Exp-1	Judge of First Instance	0.32
Exp-2	Trial Lawyer with +15 years of experience	0.13
Exp-3	Academic specialist in Procedural Law	0.06
Exp-4	Official of the Judicial Council	0.04
Exp-5	Judicial Policy Analyst	0.30
Exp-6	Public Defender	0.03
Exp-7	Mediation and Arbitration Specialist	0.10
Exp-8	Expert in Technology and Law	0.03

Note: *The weights are those derived from the consistency analysis provided in the methodological framework (Eigenvalue = 8.90, CI = 0.13, RC = 0.09).*

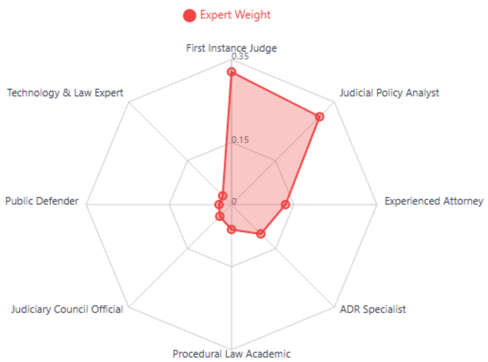

Figure 1: Expert Profile Weights Distribution

Step 2: Determine Criteria Importance Weights

Five key criteria were defined to evaluate the suitability of each strategic guideline. The weighting of each criterion was determined through a multi-neutral evaluation, the assessments and scores of which are detailed below.

- **C1: Effectiveness in Reducing Non-Attendance:** Capacity of the strategy to reduce the frequency of non-appearance.
- **C2: Guarantee of Due Process:** Level of protection of the rights of the parties, such as contradiction and defense.
- **C3: Optimization of the Administration of Justice:** Impact on the speed, efficiency and decongestion of the judicial system.

- **C4: Implementation Feasibility (Technical and Economic):** Ease and cost associated with the implementation of the strategy.
- **C5: Contribution to Effective Judicial Protection:** Degree to which the strategy ensures real access to justice and a substantive resolution.

Table 2: Multineutrosophic Evaluation and Weighting of Criteria

Criterion	Multineutrosophic Assessment	Tuple (T, I, F)	Weight	Score (S)
C1	C_1({0.9,0.5,0.6},{0.6,0.1},{0.5,0.6,0.7,0.9})	(0.666667,0.350000,0.675000)	**0.25**	0.553417
C2	C_2({0.2,0.4,0.1},{0.2,0.1},{0.3,0.5,0.3,0.4})	(0.233333,0.150000,0.375000)	**0.09**	0.502083
C3	C_3({0.4,0.4,0.6},{0.4,0.1},{0.8,0.8,0.4,0.5})	(0.466667,0.250000,0.625000)	**0.17**	0.460417
C4	C_4({0.8,0.7,0.9},{0.2,0.1},{0.3,0.6,0.3,0.2})	(0.800000,0.150000,0.350000)	**0.30**	0.666667
C5	C_5({0.2,0.9,0.5},{0.7,0.1},{0.2,0.4,0.4,0.8})	(0.533333,0.400000,0.450000)	**0.20**	0.495833

Formula for Calculating the Score (S):

$$S = \frac{2 + Tavg - Iavg - Favg}{4}$$

For example, for C1:

$$SC1 = \frac{2 + 0.666667 - 0.350000 - 0.675000}{4} = \frac{1.641667}{4} = 0.410417$$

The criteria with the greatest weight are **Implementation Feasibility (C4)** with 0.30 and **Effectiveness in Reducing Absences (C1)** with 0.25.

Steps 3 to 7: Constructing Matrices and Calculating the Optimization Function

Each strategic guideline (SG) is evaluated against each criterion (C). All criteria are beneficial ("B").

Step 3: Decision and Scoring Matrix (S)

Below is the decision matrix with the multineutrosophic evaluations and their corresponding Score (S) value, meticulously calculated for each cell.

Scoring Formula:

$$S(A) = \frac{2 + Tpromed - Ipromed - Fpromed}{4}$$

Table 3: Multineutrosophic Decision Matrix - Scores (S)

	C1 (Weight: 0.25)	C2 (Weight: 0.09)	C3 (Weight: 0.17)	C4 (Weight: 0.30)	C5 (Weight: 0.20)
LE1	0.641667	0.608333	0.550000	0.441667	0.658333
LE2	0.558333	0.525000	0.591667	0.683333	0.550000
LE3	0.483333	0.458333	0.400000	0.550000	0.416667
LE4	0.525000	0.650000	0.516667	0.475000	0.608333
LE5	0.600000	0.575000	0.658333	0.608333	0.525000
LE6	0.408333	0.425000	0.625000	0.500000	0.450000
LE7	0.450000	0.491667	0.508333	0.641667	0.483333
Sum (∑x_{i0})	**3.666667**	**3.733333**	**3.850000**	**3.900000**	**3.691667**

Step 4: Normalized Decision Matrix$(\boldsymbol{R} = [\boldsymbol{r}_{\{ij\}}])$

The matrix is normalized using Equation (10) for beneficial criteria:

Normalization Formula:

$$rij = \frac{xij}{\sum xij}$$

Table 4: Normalized Matrix

	C1	C2	C3	C4	C5
LE1	0.175000	0.162963	0.142857	0.113248	0.178329
LE2	0.152273	0.140625	0.153679	0.175214	0.149012
LE3	0.131818	0.122766	0.103896	0.141026	0.112872
LE4	0.143182	0.174110	0.134200	0.121795	0.164789
LE5	0.163636	0.154012	0.170996	0.156000	0.142211
LE6	0.111364	0.113846	0.162338	0.128205	0.121908
LE7	0.122727	0.131690	0.132035	0.164530	0.130928

Step 5: Normalized and Weighted Decision Matrix$(\boldsymbol{V} = [\boldsymbol{v}_{\{ij\}}])$

The normalized matrix is weighted using Equation (12):

Weighting Formula:

$$vij = rij \times wj$$

Table 5: Weighted Matrix

	C1 (0.25)	C2 (0.09)	C3 (0.17)	C4 (0.30)	C5 (0.20)
LE1	0.043750	0.014667	0.024286	0.033974	0.035666
LE2	0.038068	0.012656	0.026126	0.052564	0.029802
LE3	0.032955	0.011049	0.017662	0.042308	0.022574
LE4	0.035795	0.015670	0.022814	0.036538	0.032958
LE5	0.040909	0.013861	0.029069	0.046800	0.028442
LE6	0.027841	0.010246	0.027597	0.038462	0.024382
LE7	0.030682	0.011852	0.022446	0.049359	0.026186

Step 6: Calculation of the Optimization Function(S_i)

The value of the optimization function for each alternative is calculated by adding the weighted values per row, according to Equation (13):

Optimization Function Formula:

$$Si = \sum vij$$

Table 6: Optimization and Ranking Function

Alternative	Addition(S_i)
LE1	0.043750 + 0.014667 + 0.024286 + 0.033974 + 0.035666 = 0.152343
LE2	0.038068 + 0.012656 + 0.026126 + 0.052564 + 0.029802 = 0.159216
LE3	0.032955 + 0.011049 + 0.017662 + 0.042308 + 0.022574 = 0.126548
LE4	0.035795 + 0.015670 + 0.022814 + 0.036538 + 0.032958 = 0.143775
LE5	0.040909 + 0.013861 + 0.029069 + 0.046800 + 0.028442 = 0.159081
LE6	0.027841 + 0.010246 + 0.027597 + 0.038462 + 0.024382 = 0.128528
LE7	0.030682 + 0.011852 + 0.022446 + 0.049359 + 0.026186 = 0.140525

The optimal value is:

$$S0 = max\ (Si) = 0.159216$$

which corresponds to **LE2** .

Step 7: Calculating the Degree of Utility(K_i)

The degree of utility of each alternative is determined by comparing it with the best option, according to Equation (14):

Utility Degree Formula:

$$Ki = (\frac{Si}{S0}) \times 100\%$$

Table 7: Degree of Utility and Final Ranking

Alternative	Yeah	Degree of Utility (K_i)	Ranking
LE2: National Technological Training Program	0.159216	**100.00%**	**1**
LE5: Creation of Communication Protocols	0.159081	99.91%	**2**
LE1: Regulatory Reform of COGEP	0.152343	95.68%	**3**
LE4: Strengthening Public Defense	0.143775	90.30%	**4**
LE7: Infrastructure Audit and Improvement	0.140525	88.26%	**5**
LE6: Promotion of MASC	0.128528	80.73%	**6**
LE3: Implementation of Progressive Sanctions	0.126548	79.48%	**7**

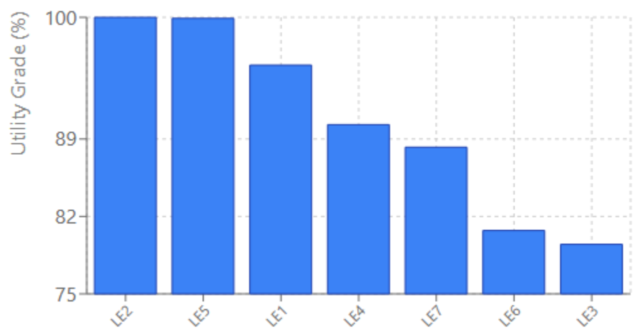

Figure 2: Strategic Guidelines Utility Ranking

4. Discussion

The results of the Multineutrosophic ARAS analysis indicate that the **National Technological Training Program (LE2)** is the most optimal strategy to address procedural non-appearance in Ecuador, with a utility rate of 100%. This finding is significant because it underscores that the problem, beyond being purely regulatory, has a crucial component of the digital divide and lack of technical skills among legal professionals. LE2's high score is due to its strong performance in the **Implementation Feasibility criterion (C4)** , the one with the greatest weight, suggesting that experts perceive this measure as feasible and with a high return on system efficiency .

In second place, and with almost identical utility (99.91%), is the **Creation of Electronic Communication and Notification Protocols (LE5)** . Its closeness to the first option demonstrates that training (LE2) and effective communication tools (LE5) are two sides of the same coin. Robust training is ineffective without reliable notification systems, and vice versa. Both strategies are proactive and preventative in nature, seeking to avoid non-appearance rather than simply sanctioning it.

The **Regulatory Reform of the COGEP (LE1)** , although intuitively the most popular solution, ranks third (95.68%). This suggests that, while changes to the law are important, they are not sufficient on their own if the underlying operational and technical causes are not addressed. Finally, punitive strategies such as the **Implementation of Progressive Sanctions (LE3)** were the least valued, indicating a preference among experts for constructive and system-strengthening solutions over merely coercive ones.

5. Conclusion

The analysis using the Multineutrosophic ARAS method concludes that the most effective and priority strategy to mitigate failure to appear in the Ecuadorian oral court system is the **implementation of a national technological training program for lawyers and other judicial actors.** This measure, closely complemented by the optimization of electronic notification protocols, addresses the root causes of the problem in the context of an increasingly digitalized justice system.

Multineutrosophic modeling proved to be a valuable tool for prioritizing complex solutions in an environment of uncertainty, integrating the diverse perspectives of experts in the judicial system. The findings recommend that institutional efforts, led by the Judicial Council, focus on strengthening digital competencies and communication infrastructures, as these actions will have the greatest impact on ensuring due process, effective judicial protection, and the overall efficiency of the administration of justice in Ecuador. Regulatory reforms and sanctioning measures, although relevant, should be considered as supporting actions for this main strategy.

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