

PRIORITIZATION OF STRATEGIC ROUTES FOR THE INTEGRAL DEVELOPMENT OF PERU THROUGH THE ANALYTIC HIERARCHY PROCESS (AHP)

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ABSTRACT

This study prioritizes strategic pathways for Peru's comprehensive development using the Analytic Hierarchy Process (AHP). It addresses a methodological gap in development planning research by applying a unified multicriteria framework to compare heterogeneous national policy pathways that are often assessed separately. Four alternatives were evaluated: science and technology, tourism, infrastructure, and anemia reduction. The decision model included four criteria—economic impact, social impact, sustainability, and feasibility—based on pairwise judgments from a multidisciplinary panel of four experts in economics, civil engineering, public health, and sustainable tourism. The results showed that economic impact was the dominant criterion (0.518), followed by social impact (0.255), feasibility (0.169), and sustainability (0.057). The criteria matrix achieved acceptable consistency (CR = 0.047). After aggregating local and global priorities, science and technology ranked first (0.366; 36.6%), followed by tourism (0.270; 27.0%), infrastructure (0.243; 24.3%), and anemia reduction (0.122; 12.2%). A sensitivity analysis showed that the ranking remained stable under moderate variations in criterion weights. The study provides a transparent and replicable AHP-based framework for intersectoral prioritization and a practical analytical tool for development policy discussion in Peru.

Keywords: Analytic Hierarchy Process, Comprehensive Development, Multi-Criteria Decision-Making, Public Policy, Strategic Prioritization

1. Introduction

Peru's comprehensive development continues to face persistent structural constraints in productivity, territorial integration, access to quality public services, social equity, and long-term sustainability. These challenges are not isolated policy failures, but interconnected manifestations of a development trajectory marked by regional asymmetries, institutional fragmentation, uneven state capacity, and the limited conversion of economic growth into broadly distributed welfare. Recent assessments have highlighted enduring weaknesses in productive diversification, innovation capacity, public investment performance, and multilevel policy coordination, all of which affect the coherence and strategic orientation of development decisions in Peru (Instituto Nacional de Estadística e Informática, 2024; OECD, 2025; World Bank., 2025). In this context, development planning requires not only identifying desirable interventions, but also determining how competing strategic priorities should be comparatively assessed under conditions of scarcity, uncertainty, and multidimensional public objectives.

The Peruvian case reflects the complexity of this challenge. Economic, territorial, social, and human development gaps coexist and interact, making strategic prioritization particularly difficult. Persistent disparities in infrastructure provision, productive opportunities, and well-being continue to reinforce territorial inequality, while unresolved social problems such as child anemia directly affect human capital formation and future development capabilities (Instituto Nacional de Estadística e Informática, 2024; Westgard et al., 2021). At the same time, Peru must strengthen sectors with broad systemic leverage, including infrastructure, tourism, and science and technology, given their association with competitiveness, connectivity, innovation, regional activation, and value creation (Herrera-Catalán et al., 2025; OECD, 2025; World Bank., 2025).

However, these domains are often prioritized through fragmented sectoral logics, implicit assumptions, or politically contingent judgments, limiting the transparency, traceability, and internal consistency of strategic planning.

This decision environment has motivated growing interest in multi-criteria decision-making (MCDM) approaches, which are especially suitable for policy settings characterized by heterogeneous criteria, competing objectives, expert judgment, and implementation constraints (Alvarez et al., 2021; Taherdoost & Madanchian, 2023). Among these approaches, the Analytic Hierarchy Process (AHP) remains one of the most widely used and methodologically influential methods because it enables decision-makers to decompose complex problems into hierarchical structures, compare criteria and alternatives through pairwise judgments, derive priority weights, and test the consistency of those judgments (Saaty, 1984; Tavana et al., 2023; Tosulpa et al., 2026). Recent studies confirm the continued relevance of AHP and related MCDM techniques in strategic decision contexts involving infrastructure, transport policy, sustainability assessment, tourism planning, and public-sector prioritization (Kriswardhana et al., 2025; Kumar & Pamucar, 2025; Moslem et al., 2023; Rawat et al., 2022; Sahoo & Goswami, 2023).

A growing body of applied research has demonstrated the usefulness of AHP in evaluating sustainable urban development projects (Aldossary et al., 2023), transport and infrastructure investments (Akhrouf et al., 2023), tourism and territorial development strategies (Dobričić et al., 2023; Suriadi et al., 2025), public policy alternatives (Cruz & Hoyos, 2024), and strategic objectives linked to sustainable development (Szabo et al., 2021). These studies confirm the methodological value of AHP for making trade-offs explicit and structuring complex public decisions under uncertainty. Nevertheless, most of this literature remains sector-specific. It usually prioritizes alternatives within a single policy domain, such as transportation, energy, health, tourism, or municipal investment, rather than comparing heterogeneous development pathways across domains under a shared evaluative structure.

This reveals an important gap in development policy analysis. In practice, governments do not make decisions within isolated sectors; they must allocate attention, legitimacy, and resources across competing strategic domains whose expected benefits are multidimensional and not directly commensurable. Despite the extensive use of AHP in sector-based prioritization, less attention has been given to evaluating heterogeneous national development pathways within a single integrated framework, particularly in developing-country contexts where strategic choices must simultaneously balance economic returns, social demands, sustainability concerns, and implementation feasibility (Apantaku et al., 2025; Sousa et al., 2021; Vélez et al., 2022). The challenge is therefore both substantive and methodological: there is a need for transparent, replicable, and analytically explicit models capable of comparing alternative development pathways using shared criteria and consistent decision rules.

This study addresses that gap by applying AHP to prioritize four strategic pathways for Peru's comprehensive development: science and technology, tourism, infrastructure, and anemia reduction. These alternatives were selected because each represents a distinct but policy-relevant strategic logic. Science and technology reflects innovation, knowledge production, productivity growth, and long-term structural transformation. Tourism represents regional development, employment generation, territorial valorization, and foreign exchange earnings. Infrastructure is associated with connectivity, logistics, service provision, and productive integration. Anemia reduction was included as a socially critical pathway because of its implications for health equity, human capital formation, and future development capabilities. Together, these alternatives capture four complementary orientations of development policy: productive transformation, territorial-economic activation, structural enabling conditions, and human development protection.

The evaluation was conducted using four criteria: economic impact, social impact, sustainability, and feasibility. These dimensions were selected because they reflect recurrent evaluative lenses in strategic planning, public policy appraisal, and MCDM applications for development-oriented decisions (Szabo et al., 2021; Taherdoost & Madanchian, 2023; Zaheb et al., 2024). Economic impact refers to the expected contribution of an alternative to productivity, growth, and value generation. Social impact captures its implications for welfare, inclusion, and

distributive outcomes. Sustainability addresses long-term viability and alignment with enduring development goals. Feasibility reflects the practical plausibility of implementation under prevailing institutional, financial, and operational conditions. By structuring the problem through these criteria, the study moves beyond intuition-based or purely narrative prioritization toward a more explicit and methodologically defensible comparative model.

Accordingly, the research question guiding this study is: which strategic pathway should be prioritized for Peru's comprehensive development when science and technology, tourism, infrastructure, and anemia reduction are evaluated simultaneously in terms of economic impact, social impact, sustainability, and feasibility? In response, the objective of the study is to prioritize strategic pathways for Peru's comprehensive development through the Analytic Hierarchy Process, based on expert judgment and an integrated multicriteria structure.

The article makes a twofold contribution. Substantively, it offers a structured prioritization exercise tailored to the Peruvian development context, where intersectoral decisions involve complex trade-offs that are often insufficiently formalized. Methodologically, it extends the use of AHP from sector-specific applications to the comparison of heterogeneous development pathways under a common decision architecture. The study does not claim to provide a definitive policy prescription; rather, it offers an analytically explicit ranking conditioned by clearly defined criteria and expert-based judgments. In doing so, it contributes a transparent and replicable framework for supporting strategic public prioritization in Peru and in comparable developing-country settings.

2. Literature Review

Strategic public decision-making increasingly requires analytical approaches capable of integrating multiple, and often conflicting, evaluative dimensions within a single framework. Development planning, infrastructure investment, social policy prioritization, and regional transformation cannot be meaningfully assessed through a single indicator because they involve simultaneous trade-offs among efficiency, welfare, sustainability, institutional viability, and long-term territorial effects. In this context, multi-criteria decision-making (MCDM) has gained relevance as a family of approaches designed to support complex decisions in which heterogeneous alternatives must be evaluated under partially non-commensurable criteria and constrained information environments (Azhar et al., 2021; Sahoo & Goswami, 2023; Taherdoost & Madanchian, 2023). Rather than reducing public choices to a purely monetary or technical metric, MCDM makes value judgments explicit and structures trade-offs in a transparent and reproducible way.

Recent reviews confirm the expansion of MCDM in sustainability assessment, infrastructure planning, environmental management, healthcare prioritization, industrial systems, urban development, and policy analysis (Alvarez et al., 2021; Chaube et al., 2024; Kumar & Pamucar, 2025; Li et al., 2024; Wang et al., 2021). This development has given rise to multiple methodological families, including ranking, sorting, compromise-based, fuzzy, hybrid, and network-based models, each grounded in different assumptions regarding uncertainty, compensation, and preference aggregation (Chaube et al., 2024; Madanchian & Taherdoost, 2025; Wang et al., 2021). Consequently, the choice of method should not be treated as purely technical, but as a function of problem structure, data availability, interpretive needs, and the expected transparency of the decision process.

Within this broader field, the Analytic Hierarchy Process (AHP) remains one of the most influential and operationally accessible methods. Since its formalization by Saaty (1984), AHP has been widely adopted because it allows complex problems to be decomposed into a hierarchy of goal, criteria, and alternatives. Through pairwise comparisons, expert judgments are transformed into relative priorities that reflect the internal structure of the decision problem. A key methodological advantage of AHP is its consistency verification mechanism, which makes it possible to assess whether judgments are acceptably coherent. This feature is particularly valuable in policy and planning contexts, where expert knowledge is necessary but must also be transparent and internally defensible (Canco et al., 2021; Saaty, 1984; Tavana et al., 2023).

Recent literature confirms the continued relevance of AHP in both methodological and applied terms. Tavana et al. (2023) describe AHP as a framework that has evolved beyond a classical weighting technique into a flexible decision tool capable of integrating qualitative and quantitative dimensions. Rawat et al. (2022) show that AHP has become especially prominent in sustainable development applications because it allows the simultaneous incorporation of economic, environmental, and social criteria. Likewise, Moslem et al. (2023) and Kriswardhana et al. (2025) demonstrate its strong presence in transportation and infrastructure decision-making, particularly where public investments require explicit trade-off structures and accountability in prioritization. The persistence of AHP in applied research suggests that its value lies not primarily in mathematical sophistication, but in its combination of interpretability, procedural clarity, and practical usability.

Theoretical discussions in the MCDM literature also help explain why AHP continues to be selected despite the emergence of more advanced variants such as ANP, FAHP, TOPSIS, VIKOR, and hybrid optimization-based approaches. Many public policy problems still require a method that can be implemented with manageable data requirements, structured expert elicitation, and an interpretable weighting logic. In such contexts, the transparency of pairwise comparison matrices and the possibility of checking internal consistency often outweigh the advantages of more complex but less accessible techniques (Azzini & Munda, 2025; da Silva et al., 2025). At the same time, the literature does not treat AHP uncritically. Concerns remain regarding sensitivity to expert judgment, dependence on hierarchical design, and the possibility that different weighting structures or aggregation procedures may alter final rankings. Contemporary applications therefore increasingly emphasize methodological transparency, robustness awareness, and cautious interpretation of ranking outputs.

In applied research, AHP has shown particular usefulness in public-sector and strategic contexts where alternatives must be prioritized across multiple criteria. Cruz and Hoyos (2024) applied AHP to evaluate public policy responses during the COVID-19 pandemic in Mexico, illustrating its value under uncertainty and competing priorities. Aldossary et al. (2023) used AHP to assess sustainable urban development projects, while Aljabri et al. (2024) addressed municipal project prioritization through structured multicriteria logic. In transportation and infrastructure, Akhrouf et al. (2023), Ibrahim et al. (2023), Mawardi and Ardianti (2025), and Lu et al. (2025) show that AHP can support defensible prioritization when economic performance, feasibility, spatial effects, and social benefits interact. Across these studies, AHP consistently functions as a mechanism for structuring trade-offs in decisions that cannot be reduced to a single evaluative dimension.

A similar pattern appears in sustainability and regional development research. Szabo et al. (2021) used AHP to prioritize strategic objectives of sustainable development, demonstrating that multicriteria approaches are especially useful when policy goals are multidimensional and partially competing. Sousa et al. (2021) likewise argue that MCDM methods are increasingly relevant to sustainable development because they integrate heterogeneous objectives that resist single-metric evaluation. In tourism and territorial planning, Dobričić et al. (2023) and Suriadi et al. (2025) applied AHP to ecotourism and disaster-resilient tourism prioritization, respectively, emphasizing the importance of context-specific criteria in shaping strategic choices. These studies confirm the adaptability of AHP to development-related problems, but they also reveal a persistent limitation: most applications remain confined to a single sector or thematic field.

This sectoral concentration is precisely what makes the present study necessary. Although AHP has been widely used in transportation, health, sustainability, procurement, urban development, tourism, and infrastructure, comparatively fewer studies have applied it to the prioritization of fundamentally different national development pathways within one integrated hierarchy. Most existing applications optimize choices within a single domain rather than comparing heterogeneous alternatives such as science and technology, tourism, infrastructure, and anemia reduction under a shared evaluative structure. Yet this type of comparison is highly relevant in real policy environments, particularly in developing countries where fiscal constraints, institutional fragmentation, and urgent social demands require governments to allocate attention

and resources across competing strategic directions rather than only within one sector (Nitin Liladhar Rane, 2023; OECD, 2025).

The gap is therefore not only empirical, but also methodological. Comparing heterogeneous development alternatives requires more than ranking projects inside a predefined sector; it requires a framework that makes explicit how distinct strategic routes are being valued, according to which criteria, and with what relative emphasis. In public debate, sectors such as innovation, tourism, infrastructure, and social protection are often placed in competition for priority without a shared evaluative architecture. As a result, decisions may depend on fragmented sectoral narratives, intuitive weighting, or politically contingent preferences rather than transparent comparative reasoning. An AHP-based approach is useful in this context because it provides a common hierarchy for alternatives that are conceptually different but strategically comparable.

The four alternatives selected in this study represent analytically distinct models of development intervention. Science and technology correspond to a pathway centered on innovation capacity, knowledge creation, productivity growth, and long-term structural transformation. Tourism represents a pathway of territorial activation and service-based economic dynamization, with implications for employment, local income generation, cultural valorization, and regional articulation. Infrastructure reflects an enabling and connective pathway, associated with logistics efficiency, market integration, public service access, and the material conditions for broad-based expansion. Anemia reduction, in contrast, represents a social and human development pathway, emphasizing child health, equity, capability formation, and long-term productivity through improved early-life outcomes (Vélez et al., 2022; Westgard et al., 2021). These alternatives are therefore not arbitrary policy topics, but analytically differentiated routes through which development can be pursued.

The criteria used in the model are likewise grounded in the literature on strategic planning and public prioritization. Economic impact captures expected effects on growth, productivity, investment, and value generation. Social impact reflects implications for welfare, inclusion, and distributive outcomes. Sustainability addresses long-term viability and alignment with enduring development goals. Feasibility introduces institutional realism by recognizing that even normatively desirable strategies may fail if they are not implementable under prevailing administrative, financial, or operational conditions. Studies on sustainable development prioritization, healthcare priority setting, and public investment evaluation consistently show that such dimensions are essential for robust multicriteria frameworks (Apantaku et al., 2025; Herlitz, 2024; Szabo et al., 2021). In particular, feasibility deserves special attention because national planning decisions are often distorted when desirability is considered without implementation capacity (Aljabri et al., 2024; Dinh & Nguyen, 2024).

The inclusion of sustainability alongside economic and social impact also reflects a more contemporary understanding of development strategy. Research on sustainable development has repeatedly shown that decisions based only on short-term economic returns may neglect long-term resilience, environmental constraints, and intergenerational welfare (Rawat et al., 2022; Sousa et al., 2021; Zaheb et al., 2024). Likewise, recent work on multicriteria evaluation emphasizes that sensitivity and robustness analyses are essential complements to prioritization exercises, particularly when expert-based judgments are used to derive weights and rankings (Azzini & Munda, 2025). This perspective is directly relevant to the present study because the resulting ranking should not be interpreted as universal or immutable, but as the outcome of a structured model grounded in explicit criteria, expert judgments, and a defined national context.

Overall, the literature supports three conclusions that justify the present study. First, MCDM, and AHP in particular, are established and legitimate tools for structuring complex strategic decisions. Second, prior applications have demonstrated their usefulness in public policy, infrastructure, tourism, sustainability, and health-related prioritization. Third, a significant gap remains in the use of AHP to compare heterogeneous national development pathways under a unified multicriteria structure. This article addresses that gap by applying AHP to the prioritization of four strategic alternatives for Peru's comprehensive development, using four policy-relevant criteria and expert judgments from complementary disciplinary fields. In doing so, it contributes both to the methodological literature on strategic multicriteria prioritization and

to the applied discussion on how national development choices can be made more transparent, comparable, and analytically defensible.

3. Research Methods

This study adopted an applied, quantitative, non-experimental decision-analytic design aimed at prioritizing strategic pathways for Peru's comprehensive development through the Analytic Hierarchy Process (AHP). The selection of AHP was justified by its recognized capacity to structure complex decision problems involving multiple criteria, heterogeneous alternatives, and expert-based judgments, while also allowing judgment consistency to be formally assessed. This methodological approach is especially appropriate when the decision problem cannot be meaningfully evaluated through a single variable, but instead requires the integration of economic, social, sustainability, and feasibility considerations within a unified analytical framework (Saaty, 1984; Taherdoost & Madanchian, 2023; Tavana et al., 2023). In the present study, AHP was used not merely as a weighting technique, but as a structured decision model for comparing national development pathways with different strategic rationales and expected impact profiles.

The methodological procedure was organized into five sequential stages: (1) definition of the decision problem, (2) hierarchical structuring of the model, (3) purposive selection of the expert panel, (4) elicitation and aggregation of pairwise judgments, and (5) calculation of local and global priorities with consistency verification and sensitivity analysis. This sequence follows the classical operational logic of AHP and is consistent with recent recommendations emphasizing methodological traceability between problem formulation, hierarchy construction, expert elicitation, matrix processing, and interpretation of results (da Silva et al., 2025; Khan et al., 2022). The central decision problem was defined as identifying which of four strategic pathways should receive the highest priority within a comprehensive development framework for Peru.

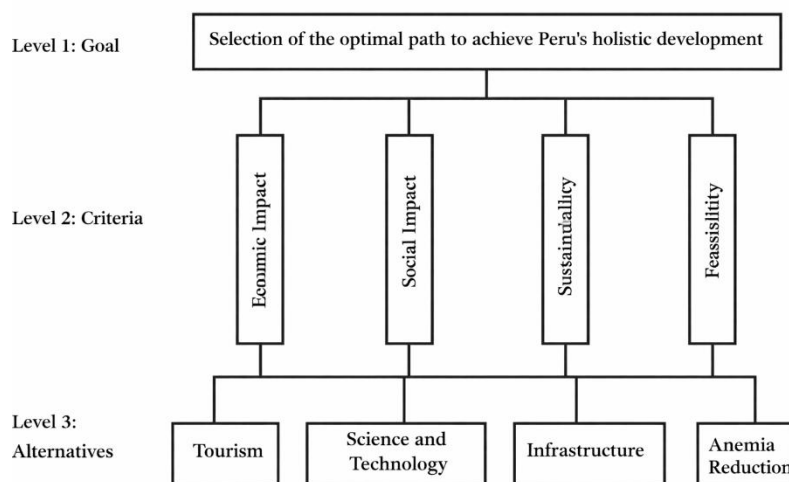


Fig. 1. Hierarchical structure of the AHP process applied to the integral development of Peru.

Source: Prepared by the authors.

Figure 1 presents the hierarchical structure used in the study. At the first level, the overall goal was defined as the prioritization of strategic pathways for Peru's comprehensive development. At the second level, four evaluation criteria were incorporated: economic impact, social impact, sustainability, and feasibility. At the third level, the four strategic alternatives were positioned: science and technology, tourism, infrastructure, and anemia reduction. The methodological relevance of this structure lies in making the decision architecture explicit by showing how the problem was decomposed into analytically comparable components and how the relationship between the objective, criteria, and alternatives was operationalized. This hierarchical decomposition is a defining feature of AHP because it facilitates the systematic

organization of expert judgment and strengthens the transparency of the prioritization process (Saaty, 1984; Tavana et al., 2023).

The selection of criteria followed both theoretical and applied considerations. Economic impact was included to capture the expected contribution of each alternative to productivity, investment attraction, and broader growth effects. Social impact was incorporated to reflect implications for welfare, equity, and quality of life. Sustainability was considered in order to evaluate the durability and long-term balance of the expected effects, particularly in relation to enduring development trajectories. Feasibility was included to assess the practical plausibility of implementation under prevailing institutional, operational, and contextual conditions. This combination of criteria is consistent with recent literature on public prioritization and strategic multicriteria evaluation, which emphasizes the need to balance desirability, implementability, and long-term viability in real policy settings (Akhrouf et al., 2023; Aldossary et al., 2023; Sandoval et al., 2025; Zhao et al., 2025).

Judgments were obtained from a purposively selected panel of four experts whose disciplinary profiles were aligned with the substantive dimensions of the study. Purposive sampling was adopted because the objective was not statistical representation, but informed expert evaluation of strategic alternatives in relation to the selected criteria. The inclusion criteria required demonstrated professional experience in a field directly related to at least one of the study dimensions, familiarity with public-sector or development-related decision contexts, and the ability to perform structured comparative judgments. The final panel included specialists in economics and strategic planning, civil engineering and public infrastructure, public health and social-health management, and sustainable tourism and regional development, with professional experience ranging from 10 to 15 years.

Table 1 - Profile of the participating experts.

Code	Specialty	Main Sector	Years of Experience	Relevance to the study
E1	Economics	Strategic Planning	15 years	Assessment of macroeconomic and development priorities
E2	Civil Engineering	Public Infrastructure	12 years	Evaluation of infrastructure feasibility and territorial impact
E3	Public Health	Social and Health Management	10 years	Assessment of social welfare and health-related priorities
E4	Sustainable Tourism	Regional Development	11 years	Evaluation of tourism-led territorial development strategies

Source: Prepared by the authors.

Table 1 summarizes the composition of the expert panel. The panel was intentionally multidisciplinary in order to reduce sector-specific bias and to ensure that the evaluation of alternatives incorporated complementary perspectives associated with the selected criteria and the Peruvian development context. In AHP-based public decision studies, such expert selection is methodologically important because the validity of resulting priorities depends not only on numerical processing, but also on the substantive adequacy and diversity of the judgment source (Bolaños-Cano et al., 2025; Khan et al., 2022).

Pairwise comparisons were conducted using Saaty’s fundamental 1–9 scale, which allows experts to express the relative intensity of preference between two elements, while reciprocal values indicate inverse preference. The use of this scale made it possible to transform qualitative comparative judgments into a mathematically processable structure and ensured comparability across the different matrices.

Table 2 - Saaty’s Fundamental Scale for Pairwise Comparisons

Scale Description	Numerical Rating	Reciprocal
Extremely preferred	9	1/9
Very strongly to extremely preferred	8	1/8
Very strongly preferred	7	1/7
Strongly to very strongly preferred	6	1/6
Strongly preferred	5	1/5

Moderately to strongly preferred	4	1/4
Moderately preferred	3	1/3
Equally to moderately preferred	2	1/2
Equally preferred	1	1/1

Source: Adapted from Saaty (1984).

Table 2 is methodologically relevant because it makes explicit the evaluative language adopted in the study, thereby strengthening transparency and replicability. The 1–9 Saaty scale remains the standard reference in AHP applications because it balances operational simplicity with sufficient discriminatory power in expert-based comparisons (Saaty, 1984; Tavana et al., 2023).

Based on the judgments collected, pairwise comparison matrices were constructed at two levels of the model. First, a criteria comparison matrix was developed to estimate the relative importance of economic impact, social impact, sustainability, and feasibility with respect to the overall objective. Second, four separate pairwise comparison matrices were constructed to compare the four strategic alternatives under each criterion. To obtain a single collective judgment matrix for each comparison set, the individual judgments of the four experts were aggregated using the geometric mean, which is the standard procedure in group AHP because it preserves the reciprocal structure of pairwise comparisons and produces a consistent collective representation of expert preferences (Saaty, 1984; Khan et al., 2022). For this reason, some entries in the aggregated matrices are non-integer values rather than exact numbers from the 1–9 scale; these values do not indicate a methodological inconsistency, but rather the mathematical result of combining multiple expert judgments into a single group matrix.

The relative priorities were then obtained from each aggregated matrix by deriving the priority vector through matrix normalization and eigenvalue approximation procedures consistent with classical AHP. These calculations generated the criteria weights and the local priority vectors of the alternatives under each criterion. The local priorities were subsequently aggregated to obtain global priority weights using the standard additive logic of AHP, whereby each local priority was multiplied by the corresponding criterion weight and then summed across criteria. This procedure produced the final ranking of the four strategic alternatives.

The numerical processing of the matrices was carried out in Microsoft Excel. The software was used to organize pairwise comparison data, calculate normalized priority vectors, estimate the principal eigenvalue approximation, and derive the consistency index (CI) and consistency ratio (CR). Excel was also used to aggregate expert judgments and to recalculate global priorities under alternative weighting scenarios. Its use is common in applied AHP studies because it offers an accessible and auditable environment for matrix-based calculations and facilitates full traceability of intermediate and final results.

To evaluate judgment reliability, the consistency index and consistency ratio were calculated for the aggregated criteria comparison matrix. The resulting consistency ratio was $CR = 0.047$, which is below the conventional threshold of 0.10 proposed in the AHP literature and therefore indicates acceptable internal consistency in the expert assessments (Saaty, 1984). This verification is a critical methodological step because it supports the interpretive defensibility of the estimated weights and reduces the risk that the resulting prioritization is driven by contradictory judgments. In line with the structure of the Results section, Table 3 presents the aggregated criteria comparison matrix together with the derived priority weights and consistency indicators. Tables 4a–4d present the aggregated pairwise comparison matrices of the alternatives under each criterion. Table 5 reports the local priority vectors and consistency ratios of the alternative-level matrices. Table 6 summarizes the global priorities and final ranking of the strategic alternatives. Figure 2 visually synthesizes the final ranking. Table 7 reports the sensitivity analysis scenarios and their effects on the ranking structure.

In addition to consistency verification, a post hoc sensitivity analysis was conducted to assess the robustness of the final ranking under moderate changes in criterion importance. This analysis was performed by increasing and decreasing each criterion weight by 10% one at a time and then renormalizing the full weight vector so that the total remained equal to 1.000. For each

simulated scenario, the global priorities of the four strategic alternatives were recalculated using the local priority vectors obtained from the AHP model. This procedure made it possible to examine whether plausible shifts in the relative emphasis assigned to economic impact, social impact, sustainability, or feasibility were sufficient to alter the ranking structure.

The incorporation of sensitivity analysis strengthens methodological robustness because it complements the internal consistency test with an external stability assessment of the final prioritization. Whereas consistency analysis evaluates whether judgments within a matrix are logically coherent, sensitivity analysis assesses whether the ranking remains stable when the weighting structure is moderately perturbed (Azzini & Munda, 2025). In the present study, the ranking remained unchanged across all tested scenarios, with science and technology consistently occupying the first position, followed by tourism, infrastructure, and anemia reduction. This suggests that the leading alternative is robust under the tested weighting variations, although the relative proximity between tourism and infrastructure indicates a comparatively more sensitive intermediate tier. Overall, the methodological contribution of the study lies in offering a clear, structured, and replicable AHP procedure, complemented by a structured robustness assessment, for comparing heterogeneous national development pathways within a unified decision framework.

4. Results

After applying the Analytic Hierarchy Process (AHP), the study obtained the relative weights of the evaluation criteria, the local priorities of the alternatives under each criterion, and the final global ranking of the strategic pathways for Peru’s comprehensive development. The results are presented sequentially in order to make explicit the analytical path linking expert judgments, matrix construction, consistency verification, global aggregation, and robustness assessment. This structure is relevant because the interpretive value of the final ranking depends not only on the global scores, but also on the transparency of the intermediate comparisons from which those scores were derived.

The first result concerns the relative importance assigned to the four evaluation criteria. As shown in Table 3, the aggregated pairwise comparison matrix indicates that economic impact received the greatest weight in the decision structure, followed by social impact, feasibility, and sustainability. Specifically, economic impact obtained a weight of 0.518, equivalent to 51.8% of total importance, while social impact reached 0.255, feasibility 0.169, and sustainability 0.057. These values indicate that, within the collective expert judgment structure applied in this study, greater relative importance was assigned to alternatives expected to generate stronger economic effects, whereas sustainability-related considerations received comparatively less emphasis in the final weighting structure. The criteria matrix also showed acceptable internal coherence, with $\lambda_{max} = 4.128$, $CI = 0.043$, and $CR = 0.047$, which is below the admissible threshold of 0.10.

Table 3 - Aggregated pairwise comparison matrix of criteria, priority weights, and consistency indicators

Criterion	Code	C1	C2	C3	C4	Weight (Wi)	Percentage	Rank
Economic impact	C1	1.000	3.000	6.000	3.000	0.518	51.8%	1
Social impact	C2	0.333	1.000	5.000	2.000	0.255	25.5%	2
Sustainability	C3	0.167	0.200	1.000	0.250	0.057	5.7%	4
Feasibility	C4	0.333	0.500	4.000	1.000	0.169	16.9%	3

Note. $\lambda_{max} = 4.128$; Consistency Index (CI) = 0.043; Consistency Ratio (CR) = 0.047. Since $CR < 0.10$, the aggregated criteria matrix satisfies the acceptable consistency threshold proposed in AHP.

Source: Prepared by the authors.

To improve the transparency of the prioritization process, Tables 4a–4d present the aggregated pairwise comparison matrices used to evaluate the four strategic alternatives under each criterion. These matrices make explicit the comparative structure that produced the local priority vectors later used in the global aggregation. Because the matrices were obtained from

aggregated expert judgments, some reciprocal values are non-integer, which is consistent with the use of geometric aggregation in AHP. Substantively, the matrices show that the relative value of each alternative varied according to the evaluative lens applied; in other words, no alternative dominated uniformly across all dimensions. Under economic impact, science and technology shows the strongest relative position, followed by tourism and infrastructure, while anemia reduction remains substantially lower. Under social impact, the differences among the alternatives are notably narrower, indicating a more balanced comparative pattern. Under sustainability, science and technology again occupies the strongest position, although anemia reduction also attains a comparatively relevant local standing. Under feasibility, tourism becomes the most favored alternative, suggesting that experts perceived it as the most immediately implementable strategy under prevailing conditions.

Table 4a - Aggregated pairwise comparison matrix of alternatives under Economic Impact (C1)

Alternative	A1	A2	A3	A4
A1 Science and Technology	1.000	1.354	1.458	11.371
A2 Tourism	0.739	1.000	1.077	8.400
A3 Infrastructure	0.686	0.929	1.000	7.800
A4 Anemia Reduction	0.088	0.119	0.128	1.000

Source: Prepared by the authors based on the aggregated AHP judgments.

Table 4b - Aggregated pairwise comparison matrix of alternatives under Social Impact (C2)

Alternative	A1	A2	A3	A4
A1 Science and Technology	1.000	1.624	1.632	1.804
A2 Tourism	0.616	1.000	1.005	1.111
A3 Infrastructure	0.613	0.995	1.000	1.106
A4 Anemia Reduction	0.554	0.900	0.904	1.000

Source: Prepared by the authors based on the aggregated AHP judgments.

Table 4c - Aggregated pairwise comparison matrix of alternatives under Sustainability (C3)

Alternative	A1	A2	A3	A4
A1 Science and Technology	1.000	4.981	8.820	1.842
A2 Tourism	0.201	1.000	1.770	0.370
A3 Infrastructure	0.113	0.565	1.000	0.209
A4 Anemia Reduction	0.543	2.704	4.787	1.000

Source: Prepared by the authors based on the aggregated AHP judgments.

Table 4d - Aggregated pairwise comparison matrix of alternatives under Feasibility (C4)

Alternative	A1	A2	A3	A4
A1 Science and Technology	1.000	0.671	0.890	1.033
A2 Tourism	1.491	1.000	1.327	1.540
A3 Infrastructure	1.124	0.754	1.000	1.161
A4 Anemia Reduction	0.968	0.649	0.861	1.000

Source: Prepared by the authors based on the aggregated AHP judgments.

The local priorities derived from these matrices reveal differentiated performance patterns across criteria. As shown in Table 5, science and technology (A1) obtained the highest local priority

under economic impact (0.398), social impact (0.359), and sustainability (0.539), indicating a comparatively strong position across the most influential dimensions of the model. By contrast, tourism (A2) achieved its strongest performance under feasibility (0.325), suggesting that it was perceived as the most implementable option under current conditions. Infrastructure (A3) displayed relatively balanced scores, particularly under economic impact (0.273) and feasibility (0.245), while anemia reduction (A4) reached its strongest local performance under sustainability (0.292) and social impact (0.199), although it remained clearly weaker under economic impact (0.035). The consistency ratios associated with the alternative-level matrices were all far below the 0.10 threshold, supporting the internal reliability of the local priority structure used in the subsequent aggregation.

Table 5 - Local priority vectors and consistency results of alternatives under each criterion

Alternative	Economic impact (C1)	Social impact (C2)	Sustainability (C3)	Feasibility (C4)
Science and Technology (A1)	0.398	0.359	0.539	0.218
Tourism (A2)	0.294	0.221	0.108	0.325
Infrastructure (A3)	0.273	0.220	0.061	0.245
Anemia Reduction (A4)	0.035	0.199	0.292	0.211
Consistency Ratio (CR)	<0.001	<0.001	<0.001	<0.001

Note. These local priorities represent the relative performance of each strategic alternative under each evaluation criterion before global aggregation. The consistency ratios derived from the aggregated pairwise comparison matrices were all below the admissible threshold of 0.10, indicating excellent internal consistency. Source: Prepared by the authors based on the AHP results.

After aggregating the criteria weights with the local priorities of the alternatives, the final global ranking positioned science and technology as the highest-priority pathway, with a global weight of 0.366 (36.6%). This was followed by tourism, with 0.270 (27.0%), and infrastructure, with 0.243 (24.3%). Anemia reduction ranked fourth, with a global weight of 0.122 (12.2%). This ordering indicates that, under the weighting structure adopted in the model, alternatives associated with innovation, productivity enhancement, and long-term structural transformation received the strongest overall support, whereas alternatives with more concentrated social or sector-specific effects obtained lower aggregate scores.

The comparative distances between alternatives add a further interpretive layer. The difference between science and technology and tourism was 0.096, indicating a clear, though not overwhelming, lead of the first-ranked option. By contrast, the gap between tourism and infrastructure was only 0.027, suggesting a relatively close intermediate prioritization and placing both alternatives within a similar strategic tier. The largest separation among consecutive positions was observed between infrastructure and anemia reduction (0.121), indicating that the fourth-ranked alternative remained substantially below the other three in aggregated terms. The ranking was therefore not evenly distributed, but characterized by a moderate lead of the first option, a close competition in the middle positions, and a more pronounced decline in the final position.

Table 6 - Global priority weights and final ranking of strategic alternatives

Alternative	Global weight	Percentage	Rank	Difference from previous alternative	Difference from first-ranked alternative
A1. Science and Technology	0.366	36.6%	1	—	0.000
A2. Tourism	0.270	27.0%	2	0.096	0.096
A3. Infrastructure	0.243	24.3%	3	0.027	0.123
A4. Anemia Reduction	0.122	12.2%	4	0.121	0.244

Note. Global priorities were obtained by aggregating the criterion weights and local priority vectors according to the additive logic of AHP. Source: Prepared by the authors.

Figure 2 synthesizes the final ranking visually. The figure shows that science and technology occupies the first position, followed by tourism, infrastructure, and anemia reduction. It also makes visible the relative proximity between the second- and third-ranked alternatives and the larger distance separating the fourth-ranked pathway from the rest. This visual representation complements the numerical evidence by facilitating a more immediate interpretation of the hierarchy obtained through the AHP model.

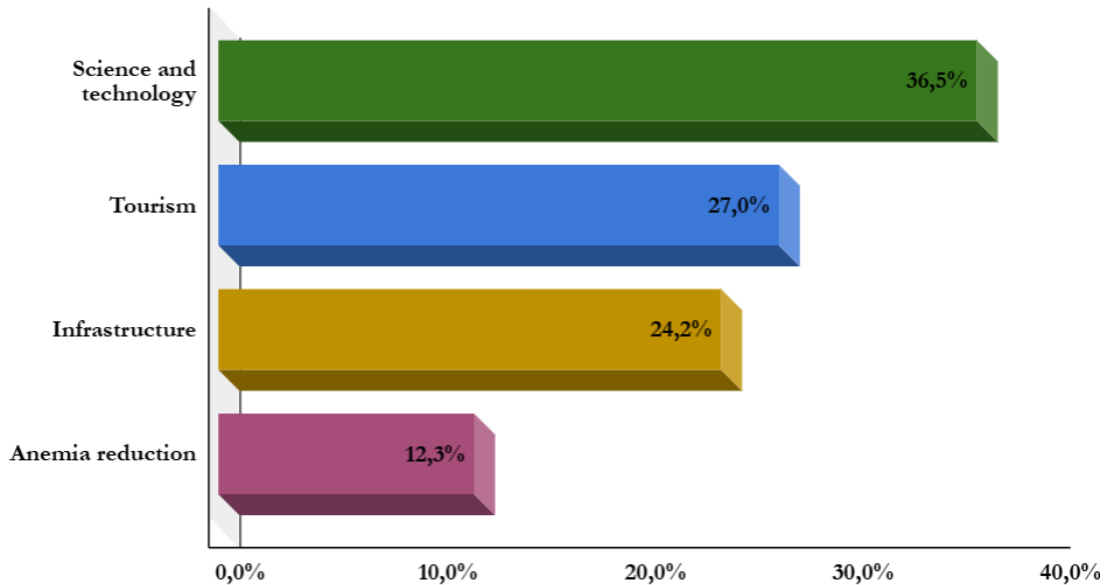


Fig. 2. Final ranking of strategic alternatives for Peru’s comprehensive development
Source: Prepared by the authors.

To assess the robustness of the prioritization model, a post hoc sensitivity analysis was performed by varying each criterion weight by $\pm 10\%$, one at a time, and renormalizing the complete weight vector in each scenario. As shown in Table 7, the ranking remained unchanged across all simulated conditions. Science and technology consistently retained the first position, while tourism and infrastructure remained in second and third place, respectively, and anemia reduction stayed fourth. The absolute priority values varied only marginally, confirming that the observed ordering was not dependent on a single rigid weighting combination. This stability provides additional support for the robustness of the model and suggests that the leading position of science and technology is not merely an artifact of the baseline weighting structure. At the same time, the relatively smaller distance between tourism and infrastructure indicates that the intermediate tier of the ranking is comparatively more sensitive, even though no inversion occurred under the tested perturbations.

Table 7 - Sensitivity analysis under alternative criterion-weighting scenarios

Scenario	Adjusted criterion weights (C1, C2, C3, C4)	A1 Science and Technology	A2 Tourism	A3 Infrastructure	A4 Anemia Reduction	Ranking
Base case	(0.518, 0.255, 0.057, 0.169)	0.366	0.270	0.243	0.122	A1 > A2 > A3 > A4
C1 Economic impact +10%	(0.541, 0.243, 0.055, 0.161)	0.367	0.271	0.244	0.117	A1 > A2 > A3 > A4
C2 Social impact +10%	(0.505, 0.274, 0.056, 0.165)	0.366	0.269	0.242	0.124	A1 > A2 > A3 > A4
C3 Sustainability +10%	(0.515, 0.254, 0.063, 0.169)	0.367	0.269	0.242	0.123	A1 > A2 > A3 > A4
C4 Feasibility +10%	(0.509, 0.251, 0.057, 0.183)	0.363	0.271	0.243	0.123	A1 > A2 > A3 > A4

C1 Economic impact -10%	(0.491, 0.269, 0.061, 0.179)	0.364	0.269	0.241	0.126	A1 > A2 > A3 > A4
C2 Social impact -10%	(0.531, 0.236, 0.059, 0.174)	0.366	0.271	0.243	0.120	A1 > A2 > A3 > A4
C3 Sustainability -10%	(0.521, 0.257, 0.052, 0.170)	0.365	0.271	0.244	0.121	A1 > A2 > A3 > A4
C4 Feasibility -10%	(0.527, 0.260, 0.058, 0.155)	0.368	0.269	0.243	0.120	A1 > A2 > A3 > A4

Note. Sensitivity analysis was performed by varying each criterion weight by ±10% and renormalizing the full weight vector before recalculating the global priorities.

Source: Prepared by the authors.

5. Discussion

The findings of this study indicate that, within the AHP decision structure constructed for Peru’s comprehensive development, science and technology emerged as the highest-priority strategic pathway, followed by tourism, infrastructure, and anemia reduction. This ordering should not be interpreted as an absolute statement about the intrinsic value of these alternatives, but as the outcome of a specific multicriteria architecture in which economic impact received the greatest weight, followed by social impact, feasibility, and sustainability. In that sense, the ranking reflects a decision model that favors alternatives perceived as capable of generating broader systemic effects on productivity, innovation, and aggregate development performance. This interpretation is fully consistent with the logic of AHP, in which final priorities are determined not only by the alternatives themselves, but also by the structure of criteria, their relative weights, and the judgments used to construct the model (Saaty, 1984; Taherdoost & Madanchian, 2023; Tavana et al., 2023).

The first-place position of science and technology is analytically consistent with a broad literature identifying scientific capacity, technological upgrading, and innovation systems as key drivers of long-term development and structural transformation. From a strategic planning perspective, this pathway concentrates multiple forms of expected return, including productivity gains, knowledge generation, spillover effects, improved competitiveness, and support for long-run transformation. This helps explain why it performed strongly not only under economic impact, but also under social impact and sustainability, and why it preserved a clear global advantage once the weighted aggregation was completed. Its prioritization therefore did not depend on a single dominant criterion alone; rather, it resulted from a comparatively strong profile across the most influential dimensions of the model. This pattern is aligned with studies showing that development strategies associated with innovation, knowledge creation, and broad enabling capacity tend to rank highly when multicriteria frameworks emphasize long-term leverage and systemic effects (Rawat et al., 2022; Sousa et al., 2021; Szabo et al., 2021; Wei, 2025).

This result also resonates with recent international applications of AHP and related MCDM methods in sustainable development, regional planning, and strategic prioritization, where alternatives linked to productive transformation or enabling capacities frequently occupy leading positions when decision-makers assign greater importance to economic returns and strategic multipliers (Bregvadze & Davitaia, 2024; Kumar & Pamucar, 2025; Stofkova et al., 2022). The present study contributes to this literature by extending that logic to the Peruvian context and, more importantly, by applying it to a comparison among heterogeneous national pathways rather than among options confined to a single sector. In that sense, the article adds both substantive and methodological value: substantively, it identifies science and technology as the most robust pathway under the selected evaluative structure; methodologically, it shows that such prioritization can be conducted through a transparent integrated hierarchy rather than through fragmented sectoral reasoning.

The second-place position of tourism also deserves close attention. Tourism did not outperform science and technology under the most heavily weighted criteria, but it achieved its best relative performance under feasibility, which appears to have strengthened its final standing. This suggests that experts perceived tourism not only as economically relevant, but also as a

comparatively implementable strategy under current conditions. In developing-country contexts, this combination is particularly significant, because a pathway may not be the most transformative in abstract terms and still rank highly if it combines visible economic returns with a more favorable implementation profile. This interpretation is supported by tourism and territorial development studies showing that tourism is often valued for its capacity to generate employment, activate local economies, stimulate regional income, and produce relatively visible development outcomes within shorter time horizons than science- or innovation-driven strategies (Dobričić et al., 2023; Solis-Luis et al., 2025; Suriadi et al., 2025).

The narrow gap between tourism and infrastructure is one of the most substantively relevant findings of the model. The difference between both alternatives was only 0.027, indicating a relatively competitive intermediate tier rather than a sharp separation. This suggests that the second and third positions should not be interpreted as representing fundamentally different levels of strategic relevance, but rather as the result of modest differences in weighting structure and local priority profiles. Tourism appears to have benefited from stronger feasibility, whereas infrastructure maintained a more balanced profile without clearly dominating any single criterion. This is an important result because it prevents an excessively literal reading of the ordinal ranking. Instead, the model points to a clear first place, a relatively close middle zone, and a more pronounced drop in the final position. Similar patterns have been reported in AHP-based infrastructure and strategic planning studies, where alternatives with stable but non-dominant performance may rank slightly below options perceived as more readily deployable or more immediately visible in their returns (Akhrouf et al., 2023; Herrera-Catalán et al., 2025; Mawardi & Ardianti, 2025).

The third-place position of infrastructure should therefore be interpreted with nuance rather than as evidence of limited strategic value. Infrastructure remains a central component of national development because of its role in connectivity, logistics, service access, territorial integration, and enabling conditions for productive activity. Its placement behind tourism appears to reflect not a rejection of its importance, but the specific evaluative balance embedded in the model. Because infrastructure did not lead in any one criterion, its global position reflects relative solidity rather than decisive comparative advantage. This interpretation is consistent with infrastructure-related MCDM studies showing that such alternatives often perform strongly when territorial cohesion, network effects, or long-term integration are more heavily emphasized, but may lose relative position when decision frameworks privilege immediate feasibility or more directly perceived economic effects (Dinh & Nguyen, 2024; Lu et al., 2025; Sebayang et al., 2024).

The lowest position of anemia reduction is the most sensitive result of the study and therefore requires the greatest caution. Within the model, this alternative was affected mainly by its very low relative valuation under economic impact, despite performing comparatively better under social impact and sustainability. Its fourth-place ranking should therefore not be interpreted as a denial of its social urgency or public relevance. Rather, it reflects the fact that the selected criteria structure was dominated by economic impact and that alternatives with broader productivity-related and system-wide economic effects were favored over those with more concentrated human-development outcomes. This distinction is crucial. In policy terms, reducing childhood anemia remains a highly important public objective in Peru, particularly given the long-term consequences of health inequality and early-life deprivation for capability formation and future productivity (Instituto Nacional de Estadística e Informática (INEI), 2024; Westgard et al., 2021). What the model suggests is not that anemia reduction lacks importance, but that under the weighting assumptions used in this study its expected effects were perceived as less economically expansive than those associated with the other three pathways.

This finding connects with broader debates in the literature on public priority setting, particularly in health and social policy, where structured decision models often reveal tensions between social urgency, equity, economic visibility, and implementation realism. One of the core insights of this literature is that a lower position in a multicriteria ranking does not necessarily imply lower normative importance; rather, it may indicate that the adopted criteria and weights privilege certain forms of public value over others (Apantaku et al., 2025; Herlitz, 2024; Vélez et al., 2022). In the present study, the relatively low weight assigned to sustainability and the clear

dominance of economic impact reduced the possibility that anemia reduction could rise in the final hierarchy, even though its social relevance is substantial. The result should therefore be read as a structured prioritization outcome under explicit assumptions, not as a universal hierarchy of national obligations.

One of the main contributions of the study lies precisely in making those trade-offs visible. The ranking shows that development priorities can vary considerably depending on whether decision-makers privilege economic dynamism, social welfare, implementation realism, or long-term sustainability. This is one of the principal advantages of AHP in strategic public decision-making: it does not conceal value choices behind apparently neutral rankings, but instead makes those choices explicit, discussable, and open to revision (Saaty, 1984; Azzini & Munda, 2025; da Silva et al., 2025). In this case, the dominance of economic impact shaped the hierarchy decisively, while the roles of feasibility and social impact influenced the relative positions of tourism, infrastructure, and anemia reduction. The model therefore contributes not only by identifying a ranking, but by clarifying the logic through which that ranking emerged.

The study also contributes to the applied MCDM literature by moving beyond the more common sector-specific applications of AHP. A large share of recent studies focus on transport, energy, urban planning, tourism, infrastructure, health projects, and local or regional investment decisions. By contrast, the present article compares heterogeneous national development pathways within a single integrated hierarchy. This is a relevant contribution because real public policy often involves choices across sectors rather than only within them. Governments must decide not only which project to prioritize inside one domain, but also how to balance broader strategic directions such as innovation, territorial activation, structural connectivity, and urgent social intervention. The study therefore shows that AHP can be adapted to a wider level of strategic comparison, extending its usefulness in debates on development planning and national policy prioritization (Aldossary et al., 2023; Cruz & Hoyos, 2024; Madanchian & Taherdoost, 2025).

These findings should nonetheless be generalized with caution. The model relied on a small purposive panel of four experts, and although the criteria comparison matrix achieved acceptable internal consistency and the ranking remained stable under the tested $\pm 10\%$ sensitivity scenarios, the results remain dependent on the selected experts, the criteria structure, and the aggregation logic adopted in the study. The observed robustness should therefore not be interpreted as invariance across all possible decision contexts, but as evidence of reasonable stability under moderate changes in criterion emphasis. Different expert compositions, participatory weighting schemes, or alternative multicriteria approaches such as FAHP, ANP, or hybrid models could produce variations in the ranking, especially in the relative positions of tourism and infrastructure and in the standing of anemia reduction under a more socially weighted decision structure (Abdullah et al., 2021; Azzini & Munda, 2025; Sari et al., 2024)

Overall, the discussion indicates that the principal contribution of the article lies in making the logic of national strategic prioritization explicit. Under a model dominated by expected economic returns and supported by consistent expert judgments, science and technology emerged as the most robust pathway, while tourism and infrastructure formed a relatively close second tier, and anemia reduction remained lower due to the evaluative emphasis of the model rather than a lack of social importance. The broader lesson is that multicriteria methods such as AHP can help structure development debates more transparently by clarifying which criteria drive prioritization, where trade-offs emerge, and how different strategic pathways compare when assessed under a common analytical framework (Kumar & Pamucar, 2025; Taherdoost & Madanchian, 2023; Tavana et al., 2023)

6. Conclusions

This study applied the Analytic Hierarchy Process (AHP) to prioritize four strategic pathways for Peru's comprehensive development: science and technology, tourism, infrastructure, and anemia reduction. The results showed that science and technology achieved the highest global priority (0.366; 36.6%), followed by tourism (0.270; 27.0%), infrastructure (0.243; 24.3%), and anemia reduction (0.122; 12.2%). This ranking was shaped by a criteria

structure in which economic impact received the greatest weight (0.518), followed by social impact (0.255), feasibility (0.169), and sustainability (0.057). The criteria comparison matrix showed acceptable internal consistency ($CR = 0.047$), and the scenario-based sensitivity analysis indicated that the ranking remained stable under moderate variations in criterion weights. Taken together, these findings suggest that, under the evaluative assumptions adopted in this study, alternatives associated with innovation, productivity enhancement, and long-term structural transformation tended to obtain higher priority than alternatives with more concentrated social or sector-specific effects.

From a substantive perspective, the study offers a structured basis for discussing strategic development priorities in contexts where public decisions must simultaneously balance economic performance, social relevance, implementation realism, and long-term viability. In the Peruvian case, the results indicate that science and technology may be perceived as the most robust pathway for promoting comprehensive development under the criteria structure adopted in the model, while tourism and infrastructure also emerge as highly relevant options with comparatively close strategic value. At the same time, the lower ranking of anemia reduction should not be interpreted as evidence of limited social importance, but rather as the consequence of the weighting structure embedded in the decision model. One of the main practical implications of the study is therefore that multicriteria approaches can help policymakers make development trade-offs more explicit and support more transparent and analytically defensible prioritization processes.

The study also makes a methodological contribution by extending the use of AHP beyond sector-specific applications toward the comparison of heterogeneous national development pathways within a single integrated hierarchy. In this sense, the article contributes to the literature on strategic multicriteria decision-making by showing that alternatives usually debated separately in policy practice can be assessed under a common evaluative structure. Theoretically, this reinforces the relevance of AHP as a transparent and replicable tool for intersectoral strategic prioritization. Methodologically, it demonstrates how expert judgment, explicit criteria weighting, consistency testing, and structured robustness assessment can be combined to support national-level development planning.

Several limitations should nevertheless be acknowledged. First, the model was based on the judgments of a small purposive panel of four experts, which, although multidisciplinary and substantively relevant, limits the diversity of perspectives represented in the prioritization. Second, the results depend on the selected criteria and on the relative weights assigned to them, which means that different expert compositions, stakeholder groups, or decision structures could produce alternative rankings. Third, although the study incorporated a scenario-based sensitivity analysis, this robustness assessment was limited to moderate one-at-a-time variations in criterion weights ($\pm 10\%$) and did not examine more extensive structural changes, alternative aggregation rules, or broader participatory weighting schemes.

Future research could strengthen and expand this line of inquiry through larger and more participatory expert panels, regional or stakeholder-based weighting processes, and the use of complementary multicriteria approaches such as Fuzzy AHP, ANP, TOPSIS, or hybrid frameworks. Such extensions would improve robustness, broaden representativeness, and deepen the comparative analysis of strategic development options in Peru and other developing-country settings. Overall, the study shows that intersectoral development prioritization can be made more transparent, comparable, and methodologically defensible when supported by a clearly structured multicriteria framework.

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