

Eco-Innovation in the Peruvian Amazon: Perspectives and Initiatives for a Resilient Future

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Abstract

The Peruvian Amazon is emerging as a hotspot of innovation and sustainability, driving transformational change that transcends geographic boundaries and attracts global attention. In this dynamic and promising context, this article explores the impact of innovation and sustainable development in the Peruvian Amazon region, highlighting its importance in global competitiveness and its potential to lead a resilient and prosperous future. The objective was to analyze the prospects and initiatives for innovation and sustainable development in the Peruvian Amazon region. In particular, it seeks to delve into how these initiatives could catalyze a transformation in the Amazon, strengthening its competitiveness in the global scenario. This study applied a qualitative-descriptive methodology, using surveys and data analysis with SPSS. This methodological choice was based on the need to obtain an exhaustive understanding of the subject, allowing the exploration of both the perceptions and experiences of the participants and the associated numerical data. The sample population consisted of 75 stakeholders. In conclusion, our study represents a significant contribution to the field by addressing a gap in existing knowledge on innovation and sustainable development in the Peruvian Amazon. By presenting new perspectives and approaches, our work provides a more complete and up-to-date understanding of the challenges and opportunities facing the region as it moves towards a sustainable and globally competitive future. The Peruvian Amazon is seen as a transformative agent with potential that transcends its natural boundaries. By adopting a comprehensive and visionary perspective, the region emerges as a beacon of hope for a sustainable and prosperous future. It is essential that future policies and actions recognize and strengthen these transformative perspectives, ensuring equitable and resilient development that benefits present and future generations. In this way, the Peruvian Amazon not only drives its own global competitiveness, but also inspires and leads the way towards a more prosperous and sustainable world.

Keywords: *Eco-Innovation, sustainable development, innovation, resilient future, global competitiveness, Peruvian Amazon*

Introduction

The current global context approach highlights the importance of innovation and sustainable development as fundamental pillars for competitiveness in various economic and social sectors. This approach highlights their role in economic momentum, sustainable development and global competitiveness, as well as in social welfare and the interconnection between R&D and innovation. These arguments provide a solid foundation to support the essay and explain in a clear and coherent manner how sustainable innovation can drive competitiveness in the global era.

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Innovation can be defined as the prospect of creating, revealing and implementing visionary developments, the effects of which generate value and contribute to economic, social or technological progress. Innovative leadership involves creative diligence and intuition and experimentation to satisfy shortcomings, compensate for inadequacies or take advantage of opportunities in a novel and effective way. This process may involve changes in organization, technology, business models or social practices, and can be driven by research, collaboration and creativity. Innovation is fundamental to competitiveness, adaptation to change and sustainable development in an ever-changing world (Schumpeter, 1942).

The definition of social responsibility proposed by (Bayona, 2011) highlights the ethical and discretionary responsibility of companies to contribute to sustainable development and the welfare of society. It focuses on respect for ethical and legal values, as well as the promotion of economic, social and environmental progress in the communities where they operate.

The classic definition of sustainable development, attributed to the United Nations Brundtland Commission in 1987, states that sustainable development implies equitable growth that meets the needs of the present without compromising the ability of future generations to meet their own needs. This visionary perspective highlights the importance of finding new routes and innovative approaches to address challenges in a globalized world (Brundtland, 1987). However, the part about "visionary and expectant characterization focused on the growth of a new society" does not seem to be part of the original definition and may be a personal interpretation.

The competitiveness of nations and companies in a globalized context is influenced by a variety of factors, as pointed out by (Porter M. E., 1990). Through a visionary perspective, Porter proposes a series of concepts and approaches that can help to understand how companies and countries can improve their competitive position in a constantly changing environment. Promoting a visionary culture and an environment conducive to innovation are crucial elements in this process, as they can drive positive change for the benefit of society. However, the part about "visionary appearance" does not seem to be consistent with the terminology used by Porter in his work. It is possible that it is a personal interpretation that needs to be adjusted to accurately reflect the author's ideas and the context of his work.

The drivers of competitiveness in the global era, according to Schwab (2016), are crucial elements that transcend mere economic efficiency and productivity. They must also contemplate the social and environmental impact of economic activities. In an increasingly interconnected world, it is essential to adopt a holistic approach that seeks to balance economic competitiveness, social well-being and environmental sustainability. This implies not only maximizing financial returns, but also promoting equity, inclusiveness and environmental preservation in all activities. and development policies. Only through this comprehensive approach can we build a truly prosperous and sustainable future for all people and the planet.

Economic Momentum: Research, development and innovation, according to Schumpeter (1942), are essential drivers of global competitiveness. Research identifies market opportunities, development converts them into marketable products and innovation differentiates these activities in the market, generating competitive advantages and higher revenues.

Economic Momentum and Sustainable Development: According to Sachs (2015), research, development and innovation are fundamental to global competitiveness and sustainable development. Research identifies environmental, social and economic impacts; development seeks sustainable solutions; and innovation promotes cost-effective and balanced solutions.

Global Competitiveness: According to Porter (1990), research, development and innovation are fundamental to global competitiveness. Research allows understanding global trends and demands, development adapts products and services, and innovation drives competitiveness in the global marketplace.

Social Welfare: According to Sen (1999) research, development and innovation are key components for global competitiveness and social welfare. Research aligns R&D with social needs, development creates solutions to improve the quality of life, and social innovation seeks to address social challenges to create value.

The Interconnectedness of R&D and innovation: According to Chesbrough (2003), global competitiveness is driven by the interconnectedness of research, development and innovation. These key components are intrinsically related and contribute significantly to competitiveness in the global era.

Research provides the knowledge base, development converts it into practical solutions and innovation introduces them into the market. This interconnection creates a virtuous cycle that drives competitiveness, sustainable development and social welfare, as noted by (UNCTAD, 2021).

In the context of globalization, research, development and innovation (R&D&I) are fundamental not only for competitiveness, but also for economic, social and technological growth. This study delves into the theoretical foundations of R&D&I, its impact on the generation of knowledge and the improvement of products and services, as well as its contribution to job creation and adaptability to contemporary challenges. The relationships between the actors in the innovation ecosystem are examined, underlining the importance of investment and continuous commitment in these processes (Porter M. , 1988).

The objective of this study is to investigate and analyze the prospects and initiatives for innovation and sustainable development in the Peruvian Amazon region, in order to understand how these actions can drive the transformation of the Amazon and improve its global competitiveness. It will seek to identify the main drivers, challenges and opportunities related to innovation and sustainable development in this region, as well as to propose practical recommendations to promote a more sustainable and competitive development in the Peruvian Amazon.

Within this perspective, the Specific Objectives are focused on:

Identify the main trends and opportunities for sustainable innovation that can be applied in the Peruvian Amazon region.

Analysis of the main global trends and megatrends that impact the Peruvian Amazon (climatic, economic, social, technological, etc.).

Evaluation of the strengths, weaknesses, opportunities and threats (SWOT analysis) of the Amazon region in relation to its global positioning.

Identification of sectors, products and services with the greatest international competitive potential.

Diagnosis of gaps and needs in infrastructure, human capital, market access, among others.

An innovative perspective on the importance of Research, Development and Innovation (R&D&I) in the global context highlights its capacity to catalyze transformation and progress in various fields. Academia, as the backbone of this transformation, plays a key role in driving R&D&I. According to García-Pont (2019), R&D&I not only drives technological advances, but also stimulates economic growth, promotes social equity and addresses environmental challenges. This pioneering approach highlights the interconnection between research, development and innovation as a fundamental driver for building a sustainable and prosperous future on a global scale.

Within these expectations, the innovative approach adopted in this study highlights the interdependence between research, development and innovation (R&D&I) as a strategic mosaic to enhance competitiveness and sustainable development in a globalized world (Smith, 2020). This dynamic integration of R&D&I not only drives the economy and technology, but also viably promotes equity, social justice and environmental preservation. It is crucial to recognize from a visionary perspective the future of our society, which depends

largely on our ability to foster innovative firsts at all levels, sectors, and academic spaces. By adopting a holistic and collaborative approach, we can build a more prosperous, inclusive and sustainable world for generations to come, which represents a very assertive transformation in society.

Inquiry, Development and Innovation (R&D&I) in the context of Innovation and Sustainable Development is an essential process for generating new knowledge, technologies and solutions that drive economic, social and environmental progress in a sustainable manner (UNESCO, 2005). This approach encompasses three interconnected phases: **Research:** This is a systematic and methodological exploration aimed at generating new knowledge, understanding and solutions to specific problems.

Development: Here, the knowledge acquired in research is transformed into improved or completely new products, services or processes, with the objective of addressing identified needs and promoting significant advances.

Innovation: Consists of the effective implementation of the products, services or processes developed, introducing novel solutions that provide added value to both individuals and organizations, thus promoting economic growth, social equity and environmental protection.

Driving Global Competitiveness: The interconnection between Research, Development and Innovation (R&D&I) is fundamental to promote significant advances in global competitiveness. Research provides the knowledge base, development transforms it into practical applications and innovation brings these applications to the market, generating economic, social and environmental benefits. This integrated approach does not only makes it possible to understand each component of R&D&I in detail, but also to understand how they interact with each other to drive innovation and sustainable development. These elements are crucial to face the challenges of competitiveness in the global era and promote sustainable growth on a worldwide scale (Sánchez Murillo, 2006).

Material and Methods Design

This study was conducted with a qualitative-descriptive approach, with the purpose of exploring transformative perspectives for the Amazon region of Peru. The main objective was to analyze how these perspectives can drive innovation and strengthen market competitiveness. A case study design was employed to delve deeper into the specific practices and strategies implemented, highlighting their potential to generate significant impact in the region and beyond.

First, a comprehensive review of secondary sources was conducted to establish a solid theoretical underpinning of innovation and sustainable development as drivers of global competitiveness in the region. This review included the exploration of previous reports related to innovation in the regional context. Subsequently, a questionnaire was designed and applied to the main actors in the region, whose responses were analyzed in order to address the objectives set out. In addition, the information gathered in the survey was complemented by direct interviews with those responsible for innovation processes in the region, as well as by an observation phase in the intervention environment. This comprehensive approach made it possible to verify the effective implementation of the processes identified and evaluated in the research.

Finally, the triangulation technique was used, which is especially relevant when the explanation of a complex phenomenon is required. Among the types of this technique is inter-method triangulation, which involves the use of more than one method in the pursuit of a given objective. As a validity check, inter-method approximation encompasses the notion of convergence between independent measures of the same objective (Cohen & Manion, 2002). Between methods to validate and reinforce the reliability of the data obtained. This technique ensured the coherence and consistency of the results by corroborating the main characteristics of the innovative process and its management with the main actors involved in this work. The use of triangulation between methods strengthened the credibility of the study by providing cross-validation of the information collected.

The instruments that were applied in the case study are detailed below:

The survey design was based on the research objectives and was enriched with the review of previously applied surveys addressing similar topics. Relevant questions were selected from these questionnaires to adequately capture the process to be investigated in the region, in line with the theme of 'Transformative Perspectives for the Peruvian Amazon: Innovation and Sustainable Development Driving Global Competitiveness'. The structure of the survey is presented in detail in Table 1.

Table 1 Criteria for the survey conducted

<ul style="list-style-type: none"> * Basic information on the region * Activities carried out for the generation of innovations * Evaluation: strengths, weaknesses, opportunities and threats (SWOT analysis) of the Amazon region in relation to its positioning * Paradigms paradigms for the transformation of Amazonia * New values or emerging values for the transformation of the Peruvian Amazonare intrinsically linked to the promotion of sustainable development and the conservation of naturalresources. * Identification of sectors, products and services with the greatest competitive potential at theregional level.
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Note: Own elaboration

Population, Sample and Sampling

Population

The study population includes the main actors of the Amazon Region, focusing on a total of 75 actors related to the subject of this research.

Sampling population: was focused on the same population. Sampling:

Stratified sampling was used, dividing the population into strata and selecting proportional samples from each stratum.

Methods, Instruments and Techniques

The research used questionnaire surveys, validated by professional specialists, to obtain relevant data.

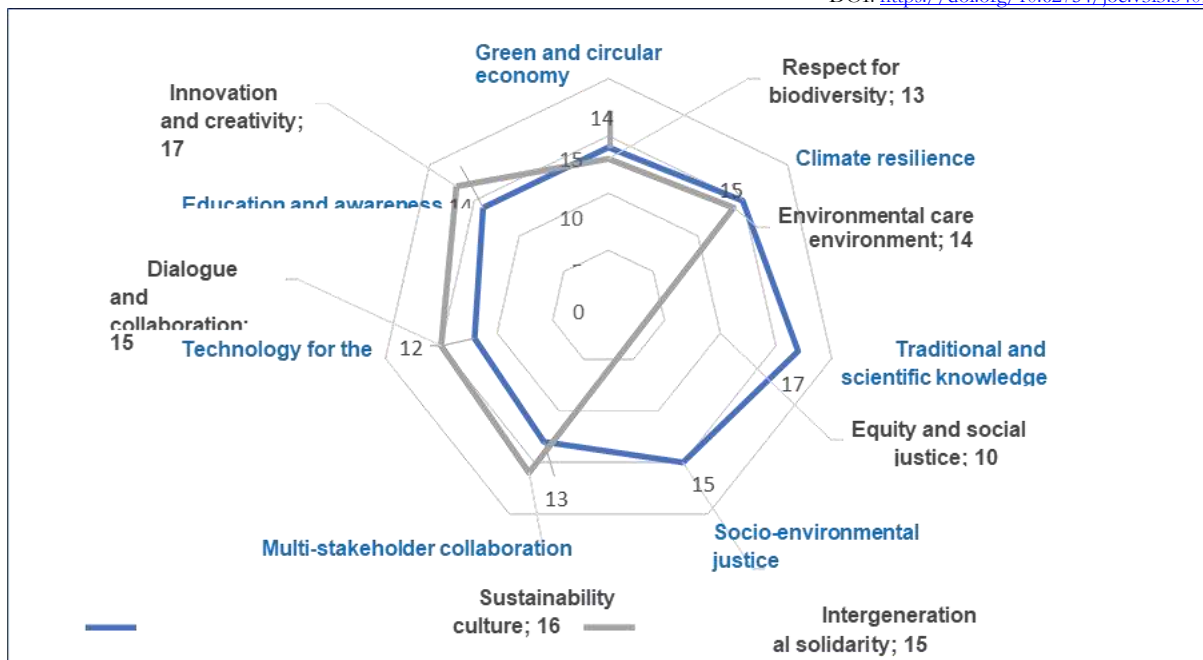
Data analysis

The analysis of the data collected was carried out using SPSS version 27 software, which allowed the quantification of the information and the calculation of the information collected.

Results

Characterization of paradigms and new emerging values for the transformation of the Peruvian Amazon intrinsically linked to the promotion of sustainable development and conservation of natural resources.

Figure 1 Characterization of the paradigms and new emerging values for the transformation of the Peruvian Amazon, with a valuation (%)



Note: Valuation of information based on the situational diagnosis in the Amazonas Region - B.R.P.E.

Interpretation: The Peruvian Amazon represents a crucial step towards a sustainable and prosperous future. These paradigms not only reflect an evolution in our understanding of the relationship between man and nature, but also point to a renewed commitment to the conservation of natural resources and the preservation of the unique biodiversity of this region, but for this it becomes fundamental the knowledge of traditions and scientific, green economy, as well as education and environmental awareness with quite encouraging percentages that allows us to take quite forceful actions within the new transformative perspective for the Amazon of the Amazon region. By recognizing the interconnection between sustainable development and environmental protection, we can chart a path towards a Peruvian Amazon that not only prospers economically, but also flourishes in harmony with its natural surroundings. This transformation implies adopting values that prioritize environmental responsibility, social equity and respect for indigenous cultures, thus laying the foundations for truly inclusive and sustainable development. To this end, it is also important to emphasize innovation and creativity, as well as the culture of sustainability, value criteria with great significance in the inquiry. Ultimately, by embracing these new paradigms and emerging values, we will not only safeguard the invaluable natural heritage of the Peruvian Amazon, but we will also bequeath a legacy of respect and admiration for the wonders of nature to future generations.

Table 2 Determination of the evaluation of the strengths, weaknesses, opportunities and threats (SWOT analysis) of the Amazon region in relation to its regional positioning.

Strengths:

Wealth and diversity of natural resources and biodiversity of the Peruvian Amazon.

Potential for the development of strategic sectors such as the bioeconomy, sustainable tourism, and renewable energy production.

Experience and traditional knowledge of the indigenous communities on the management of the sustainable ecosystem management.

Progress in the implementation of governmental programs focused on conservation and sustainable development of the Amazon.

Weaknesses

Deficient infrastructure (roads, basic services, communications) that limits the integration and development of the region.

High levels of poverty, inequality and socioeconomic gaps in the population Amazonian.

Limited capacity for research, development and innovation applied to the needs of the Amazon.

Problems of governance, coordination and articulation between the different actors (government, companies, communities) in the region.

Opportunities

Growing global demand for sustainable, organic and fair trade products and services from the Amazon.

Availability of international cooperation funds and programs for financing initiatives sustainable development in the region.

Trends in productive diversification and the strengthening of value chains with increased value added.

Potential for the development of new business models and green ventures in the Amazon.

Threats

Impacts of climate change on ecosystem stability and livelihoods of Amazonian communities.

Pressure from unsustainable extraction of natural resources (mining, illegal logging, agriculture, etc.).

extensive, etc.).


Social and political conflicts over the use and control of Amazonian resources.

Risks of biodiversity loss and environmental degradation due to economic activities and population pressure.

Note: Assessment of information based on the situational diagnosis in the Amazonas Region. -B.R.P.E.

Interpretation: It is important to highlight the SWOT analysis in relation to regional positioning: In relation to the identification of competitive advantages: The SWOT analysis identifies the unique strengths of the Amazon region, such as its natural resources, biodiversity, indigenous culture, among others. These advantages can be used to improve its positioning in various economic sectors, such as sustainable tourism, organic agriculture, biotechnology, among others. Regarding the recognition of challenges and risks: Through the SWOT analysis, some weaknesses and threats facing the Amazon region were identified, such as deforestation, loss of biodiversity, lack of infrastructure, among others. Understanding these challenges is fundamental to developing effective mitigation and adaptation strategies. In relation to taking advantage of opportunities: The SWOT analysis allowed identifying emerging opportunities for the Amazon region, such as the growing interest in environmental conservation, development of sustainable technologies, demand for organic products, among others. Taking advantage of these opportunities can relatively improve the economic and social positioning of the region. Development of integrated strategies: Based on the results of the SWOT analysis, integrated strategies can be developed that capitalize on strengths, mitigate weaknesses, take advantage of opportunities and mitigate threats. These strategies can cover areas such as investment in infrastructure, strengthening education and training, promoting ecotourism, among others. SWOT analysis is a crucial tool for understanding the current situation and future potential of the Amazon region. By systematically assessing strengths, weaknesses, opportunities and threats, effective strategies can be developed to improve its overall positioning and promote its sustainable development.

Table 3 Identification of sectors, products and services with the greatest competitive potential at the national level.

<p>Analysis of the comparative and competitive advantages of the Peruvian Amazon region: Evaluation of the availability and access to natural resources, human capital and technology.</p> <p>Identification of existing productive, innovation and value-added capabilities.</p> <p>Analysis of production, logistics and marketing costs of the different sectors.</p> <p>Study of demand and trends in international markets: Assessment of global consumption preferences and patterns in strategic sectors.</p> <p>Analysis of requirements, certifications and standards for access to international markets.</p> <p>Identification of emerging market niches with growth potential.</p> <p>Evaluation of the positioning and current competitiveness of sectors, products and services:</p> <p>Analysis of market share and export quota of the main products and services.</p> <p>Benchmarking with the offer of other countries and competing regions at a global level.</p> <p>Evaluation of the degree of differentiation, added value and sustainability of goods and services.</p> <p>Projection of growth potential and scalability: Estimation of production volume, sales and employment generation in the medium</p>	<p>MAPA DE LA PROVINCIA DE CONDORCANQUI</p> 
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and long term.

Analysis of required investments and available sources of financing.

MAPA DE LA PROVINCIA DE CONDORCANQUI



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Note: Assessment of information based on the situational diagnosis in the Amazonas Region. - B.R.P.E.

Interpretation: Within a conjunctural analysis, it can be stated that "it is firms, not nations, that compete in international markets" (Porter, 1990). The microeconomic or business dimension is complemented by the macroeconomic dimension and both are conditioned by the elements that affect the environment. Thus, although a company's competitiveness is the result of successful management, it is also necessary for the business environment to contribute to that competitiveness. Like Porter, the ECLAC authors consider that multiple factors have an impact on the achievement of competitiveness. However, concerned about the structural transformations needed in Latin American countries to create the competencies to generate a climate of competitiveness in conditions of relatively underdeveloped private capital, they place special emphasis on public policies, which are potential generators of these competencies. In this sense, they point out that a single policy or a single action is not enough to generate competitiveness (ECLAC, 1990).

In conclusion, institutional routes have been outlined to establish instruments and coordination platforms at the local and regional levels; however, the teams responsible for these entities have not been strengthened. In addition, many of the strategic tasks exceed the competencies of local actors, thus limiting their capacity for impact in terms of productivity and diversification. For example, the promotion of industrial parks or special economic zones is beyond the scope of municipalities or regional government, as they depend on the corresponding ministries (OECD, 2019). Within this perspective, although it is not necessary to modify these competencies, it would be important to establish a mechanism that gives greater prominence to the local level, allowing their promotion when the territory has the necessary strengths and there is consensus within the framework of Regional and Local Development Plans or national plans.

Table 4 Approaches to the diagnosis of gaps and needs in the Peruvian Amazon region.

Infraestructura			
Identificación de las brechas de infraestructura logística (puertos, centros de acopio, almacenamiento, etc.).	Diagnóstico de las necesidades de telecomunicaciones e internet de banda ancha.	Análisis de la disponibilidad y calidad de los servicios básicos (agua, saneamiento, electricidad).	Evaluación del estado y cobertura de la red vial, fluvial y aérea en la región.
Identificación de las necesidades de fortalecimiento de las capacidades de gestión, emprendimiento e innovación.	Evaluación de los niveles de educación, capacitación y desarrollo de habilidades de la población amazónica.	Diagnóstico de las condiciones de salud, seguridad y bienestar de las comunidades amazónicas.	Análisis de las brechas de conocimientos y capacidades técnicas en sectores estratégicos (bioeconomía, turismo, agroindustria, etc.).
Acceso a mercados			
Identificación de las necesidades de desarrollo de marcas, certificaciones y mecanismos de trazabilidad para acceder a mercados exigentes.	Diagnóstico de las brechas de información, conocimiento y contactos con potenciales compradores y canales de distribución.	Análisis de las dificultades logísticas y de transporte que limitan la comercialización de productos y servicios.	Evaluación de las barreras y obstáculos que enfrentan los productores y emprendedores amazónicos para llegar a mercados nacionales e internacionales.
Otros elementos			
Identificación de las necesidades de financiamiento, fondos y mecanismos de inversión para impulsar el desarrollo de la Amazonía.	Diagnóstico de las capacidades de gestión, planificación y articulación de los actores públicos y privados en la región.	Evaluación de las brechas de acceso y titulación de tierras, así como de los derechos de propiedad intelectual.	

Note: Valuation of information based on the situational diagnosis in the Amazonas Region - B.R.P.E.

Interpretation: It is essential to incorporate a strategy for inclusive productive development that takes advantage of the competitive advantages of regional products. This implies promoting the competitiveness of national production chains through sectoral policies agreed upon by the stakeholders involved. The definition of this strategy is crucial to integrate the country's regions into national productive development and ensure that they benefit from a social market economy. In conclusion, addressing the gaps and needs in Peru's Amazon region requires not only economic and productive solutions, but also a deep and holistic social commitment. The creation of strategies to reduce informality and promote inclusive productive development not only seeks to improve economic indicators, but also to raise the quality of life and promote equity in the region (Dávila, 2023). It is imperative that these actions are developed with a perspective centered on the people, ensuring that each intervention takes into account the needs and aspirations of local communities. Only through a socially conscious, committed, and culturally supported approach from academia will we be able to build an inclusive and prosperous future for all the inhabitants of the Amazon region of Peru.

Discussion

A very important and transcendental characterization has Peru, after the submission of the Initial Memorandum, Peru enters a technical review phase, where policies will be assessed against OECD best practices in areas such as structural reforms, trade openness, inclusive growth, governance, environment, digitalization and infrastructure. Once this phase is completed, the OECD Secretariat will produce a comprehensive report that will be reviewed by the organization's 24 specialized committees. During this process, the committees may offer recommendations and action plans for Peru to adopt OECD policies and best practices. If the committees determine that the country meets expectations, they will send formal opinions to the Secretariat. Finally, the Peruvian government will present a Final Declaration, confirming its commitment to its obligations and roles as a future member of the OECD (OECD, 2022).

Through this report, the School of Public Management presents valuable reflections from experts, highlighting progress in economic growth policies, social protection, environmental performance and regulatory quality, in line with the requirements for joining the OECD. These studies offer the reader the opportunity to appreciate the efforts made to date and intuit the pending agenda, which seeks to build a prosperous, sustainable and equitable Peru for all (OECD, n.d).

A truly innovative and socially conscious approach is that of Multilevel Planning, highlighted by the OECD. This approach, which starts from a top-down perspective, gives a fundamental role to government entities such as the Ministry of Economy and Finance (MEF, 2023) and the National Center for Strategic Planning (CEPLAN, 2023) to ensure coherence between national objectives and planning at the subnational level. They also oversee the implementation of the Regional Concerted Development Plans, which highlights the importance of reviewing progress from a multilevel perspective.

In terms of ensuring that national objectives are reflected at the subnational level, the articulation with plans such as the National Competitiveness and Productivity Plan 2019-2030 (PNCP, 2019) and the National Sustainable Infrastructure Plan for Competitiveness 2022-2025 (PNISC, 2022) stands out. These plans, which prioritize specific projects, are designed to align with regional initiatives such as the Regional Competitiveness and Productivity Plans (PRCP, 2019) in San Martín and Ucayali. These efforts have identified concrete actions to improve regulation, as well as investment projects and public-private partnerships to strengthen productive chains.

Despite this adequate institutional design, the implementation of the Regional Competitiveness and Productivity Plans (PRCPs, 2019) has been slow, with only two PRCPs to date. However, moving forward with more PRCPs will allow the identification of economic policies from the territories that boost business productivity and the entrepreneurship. For example, cities such as Tarapoto or Ilo still face digital connectivity challenges, which affect the business environment. This highlights the need for broader strategies that go beyond the current objectives of national programs, adopting a comprehensive approach to competitiveness rather than simply addressing existing gaps.

Regional competitiveness and productivity plans (PRCP) and concerted development plans (PDRC) represent a unique opportunity to generate synergies and collaboration between various government entities and key sectors of the economy. They should focus not only on aspects directly related to production, but also in areas such as transportation, energy, education, environment and urban planning. By coordinating these efforts, the necessary conditions can be created to boost competitiveness in the territory in a comprehensive manner.

In addition, it is critical that national policies feed into regional planning processes to improve their strategies and develop new programs to boost economic growth and productivity in locally identified value chains. Given that only one region currently has both instruments in place, Ucayali could play a crucial role as a pilot region to identify key interventions to accelerate economic diversification and productivity growth. This initiative would not only benefit Ucayali, but would also provide valuable lessons that could be applied in other regions of the country, thus contributing to sustainable and equitable development at the national level.

The approach of "Innovation and Sustainable Development Driving Global Competitiveness in the Amazon Region of Peru" is based on an understanding of how innovation and sustainable development can act as catalysts to improve the region's global competitiveness. This involves not only the adoption of innovative practices in various sectors, such as technology, industry and services, but also a commitment to development that is socially inclusive and environmentally friendly.

This approach seeks to promote research, development and implementation of solutions that not only drive economic growth, but also improve the quality of life of local communities and protect the Amazon region's natural resources. Emphasis is placed on creating sustainable business models, promoting the participation of local communities in decision-making processes, and strengthening infrastructure and basic services.

Likewise, according to (Vecco and Panduro, 2021), an innovative strategy of integral development and conservation of their ancestral territories can be visualized, complemented with the creation of economic organizations, where the Ampik Sacha association, the Maray Sisa company and the Mushuk Runa agrarian cooperative stand out.

According to Lundvall et al. (2002), the NIS concept has had an important effect on the view on international competitiveness and the author considers that the systems approach has succeeded in changing the linear orientation of innovation towards an interactive approach where learning and capacity building play a central role in innovation.

In addition, it recognizes the importance of collaboration between different actors, including government, the private sector, civil society and indigenous communities, to create an ecosystem conducive to innovation and sustainable development. This implies the creation of strategic alliances, knowledge sharing and the promotion of education and training in areas related to sustainability and innovation.

In short, this approach seeks not only to boost the economic competitiveness of Peru's Amazon region, but also to ensure that this growth is equitable, sustainable and beneficial to all sectors of society and the environment. In highlighting the "Transformative Perspectives for the Peruvian Amazon", it is crucial to emphasize the importance of adopting a holistic approach that recognizes the uniqueness and diversity of the Amazon region. Here are some ideas to highlight:

Valuing biodiversity: The Peruvian Amazon is home to an unparalleled wealth of biodiversity, which makes it an invaluable global asset. Highlight how the protection and sustainable management of this natural heritage can be a source of economic and social development for the region.

Inclusion of local communities: Emphasize the importance of actively involving indigenous and local communities in decision-making and in the implementation of policies and projects in the region. Their traditional knowledge and connection to the natural environment are fundamental to the sustainable development of the Amazon. **Promotion of ecotourism:** Highlight the potential of ecotourism as a sustainable economic alternative for the Peruvian Amazon. Highlight how responsible tourism can generate income for local communities while promoting environmental conservation.

Innovation in forest management: Emphasize the importance of adopting innovative practices in forest management, such as sustainable forestry and forest product certification, to ensure the conservation of Amazon forests and promote their sustainable use.

Development of the green economy: Highlight the potential for developing a green economy in the Peruvian Amazon that promotes sustainable production and consumption, renewable energy and sustainable management of natural resources.

A substantial aspect of the Amazonas-Peru region is its productive diversity, which highlights the benefits of the agricultural sector. Agriculture plays a decisive role in the region's economy; it is the main axis of the economic system and not only provides food and raw materials, but is also the main source of employment

for a significant number of the population, representing an average of 25% of the economically active population (Polo et al., 2021).

In summary, highlighting the "Transformative Perspectives for the Peruvian Amazon" emphasizes the need to adopt an integrated approach that promotes sustainable development, environmental conservation and the well-being of local communities in the Amazon region.

Conclusions

In the context of our research, it is essential to capitalize on the powerful perspectives of innovation and sustainable development. Addressing the gaps and needs in the Peruvian Amazon region emerges as a crucial and transcendental task in our research mission. Through a SWOT analysis, we can identify the strengths and opportunities that allow us to capitalize on the natural resources, biodiversity and traditional knowledge of local communities. However, we must also be aware of our weaknesses, such as the lack of infrastructure and access to services.

and threats, such as deforestation and climate change. Integrating these considerations allows us to design more effective strategies that make the most of the region's strengths, mitigate weaknesses and threats, and take advantage of opportunities to promote sustainable and equitable development in the Peruvian Amazon. By working together with all stakeholders and making informed decisions based on a comprehensive SWOT analysis, we can move towards a more prosperous and resilient future for the region and its inhabitants, thus contributing to Peru's sustainable development and global competitiveness.

The Peruvian Amazon stands as a melting pot of possibilities where innovation and sustainable development converge to boost the region's global competitiveness. By adopting a holistic approach that values its unique biodiversity, promotes the inclusion of local communities, encourages responsible ecotourism, innovates in forest management and fosters a green economy, we can build a prosperous and sustainable future for the Amazon and its inhabitants. It is critical that future policies and actions recognize and strengthen these transformative perspectives, thus ensuring equitable and resilient development that benefits present and future generations, and contributes positively to the global competitiveness of the Amazon region, as well as other regions of Peru and the world.

Recommendations

Prioritize cross-sectoral collaboration: It is essential to foster cooperation between different sectors, actors and communities to comprehensively address the challenges of the Amazon region. The resulting synergy will lead to sustainable solutions that benefit everyone involved.

Investing in education and training: Effective management of resources to improve education and vocational training is essential for the sustainable development of the region. Promoting relevant skills for the economy of the future empowers people and prepares them to face the changes and challenges ahead, ensuring continuous and equitable progress.

These recommendations are fundamental to promoting sustainable development and competitiveness in the Peruvian Amazon region. It is crucial that they are implemented as a priority, along with a thorough analysis of data and the specific needs of the region. Only through cross-sectoral collaboration and significant investment in education and training can we ensure a prosperous and equitable future for present and future generations in the Peruvian Amazon.

References

- Abbas, M., Jam, F. A., & Khan, T. I. (2024). Is it harmful or helpful? Examining the causes and consequences of generative AI usage among university students. *International Journal of Educational Technology in Higher Education*, 21(1), 10.
- Ahmed, I., Farooq, W., & Khan, T. I. (2021). Customers' Perceptions and their Responses to Objectives of Islamic Banks—A Three-Wave Investigation. *Asian Economic and Financial Review*, 11(1), 43. ai politics and job outcomes.

- Bayona, J. (2011). *Corporate Social Responsibility: Theory and Practice in Peru*.
- Brundtland, G. H. (1987). Sustainable development from the report "Our Common Future".
- BUSINESS ADMINISTRATION. Cuadernos Latinoamericanos de Administration , II (2), 69-89. <https://www.redalyc.org/articulo.oa?id=409634344005>.
- CEPLAN. (2023). National Center for Strategic Planning. Obtained from Ucayali presenta el Plan de Desarrollo Regional Concertado al 2033 para boost a future sustainable y equitable. <https://www.gob.pe/institucion/ceplan/noticias/761061-ucayalipresenta-el-regional-development-plan-concerted-to-2033-to-drive-sustainable-and-equitable-futures>
- Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Harvard Business Press.
- Cohen, L. & Manion, L. (2002). *Methods of educational research*. Madrid: La Muralla S.A.
- Creative destruction, which is central to his theory of innovation.
- Daniel Vecco Giove, Hitler Panduro Salas (2021). Science and social innovation in the Peruvian Amazon from the perspective and experiences of the Urku Center. *Revista de Ciencias Ambientales*, vol. 55, núm. 2, pp. 332-348, 2021. <https://doi.org/https://doi.org/10.15359/rca.55-2.18>
- Dávila Quevedo, J. (2023). Road to the OECD: Advances and challenges- Reflections for the promotion of economic diversification and productivity.
- ECLAC (1990). *Theoretical aspects of competitiveness*.
- García-Pont, M. E. (2019). *Innovation and Sustainable Development: Drivers of Competitiveness in the Global Era*.
- Iqbal Khan, T., Kaewsang-on, R., Hassan Zia, M., Ahmed, S., & Khan, A. Z. (2020). Perceived organizational politics and age, interactive effects on job outcomes. *SAGE Open*, 10(3), 2158244020936989.
- Jamil, R. A., Qayyum, U., ul Hassan, S. R., & Khan, T. I. (2023). Impact of social media influencers on consumers' well-being and purchase intention: a TikTok perspective. *European Journal of Management and Business Economics*, (ahead-of-print).
- Khan, F. A. J. T. I., Anwar, F., Sheikh, R. A., & Kaur, S. (2012). Neuroticism and job outcomes: Mediating effects of perceived organizational politics. *African Journal of Business Management*, 6(7), 2508.
- Khan, M. T., Khan, T. I., & Khan, S. (2020). *Innovation & Its Diffusion in Business: Concept, Stages & Procedural Practices*. sjesr, 3(4), 174-186.
- Khan, T. I., & Akbar, A. (2014). Job involvement-predictor of job satisfaction and job performance-evidence from Pakistan. *World Applied Sciences Journal*, 30(30), 8-14.
- Khan, T. I., & Akbar, A. (2015). *Impact of stressors on employee performance: Moderating role of big five traits*. Islamabad: Mohammad Ali Jinnah University.
- Khan, T. I., Akbar, A., Jam, F. A., & Saeed, M. M. (2016). A time-lagged study of the relationship between big five personality and ethical ideology. *Ethics & Behavior*, 26(6), 488-506.
- Khan, T. I., Kaewsang-on, R., & Saeed, I. (2019). Impact of workload on innovative performance: Moderating role of extrovert. *Humanities & Social Sciences Reviews*, 7(5), 123-133.
- Khan, T. I., Kaewsang-On, R., & Saeed, I. (2019). Impact of workload on innovative performance: Moderating role of extrovert. *Humanities & Social Sciences Reviews*, 7 (5), 123-133.
- Khan, T. I., Khan, A. Z., & Khan, S. (2019). Effect of time pressure on organizational citizenship behavior: Moderating role of agreeableness. *Sir Syed Journal of Education and Social Research (SJESR)*, 2(1), 140-156.
- Khan, T. I., Khan, S., & Zia, M. H. (2019). Impact of personality traits on workplace deviance—a pakistani perspective. *Global Regional Review, Humanity only*, 4(2), 85-92.
- Khan, T. I., Nisar, H. G., Bashir, T., & Ahmed, B. (2018). Impact of aversive leadership on job outcomes: Moderation and mediation model. *NICE Research Journal*, 56-73.
- Kuo, Y. K., Khan, T. I., Islam, S. U., Abdullah, F. Z., Pradana, M., & Kaewsang-On, R. (2022). Impact of green HRM practices on environmental performance: The mediating role of green innovation. *Frontiers in Psychology*, 13, 916723.
- Kuo, Y. K., Khan, T. I., Islam, S. U., Abdullah, F. Z., Pradana, M., & Kaewsang-On, R. (2022). Impact of green HRM practices on environmental performance: The mediating role of green innovation. *Frontiers in Psychology*, 13, 916723.
- Li, H. X., Hassan, K., Malik, H. A., Anuar, M. M., Khan, T. I., & Yaacob, M. R. (2022). Impulsive and compulsive buying tendencies and consumer resistance to digital innovations: the moderating role of perceived threat of COVID-19. *Frontiers in Psychology*, 13, 912051.
- Lundvall, B., Johnson, J., Sloth, E., and Dalum, B. (2002). National systems of production, innovation and competence building. *Research Policy*, 31, 213- 231.
- MEF. (April 6, 2023). Ministry of Economy and Finance. Retrieved from The MEF published the General guidelines for the formulation and evaluation of programs. programs of investment programs -
- Mushtaq, R., Jabeen, R., Begum, S., Khan, A., & Khan, T. (2021). Expanded job scope model and turnover intentions: A moderated mediation model of Core-Self Evaluation and job involvement. *Management Science Letters*, 11(5), 1473-1480.
- OECD (2019). *Multi-dimensional Review of Peru: Volume 3. From Analysis to Action*, OECD.
- OECD (n.d.). *OECD-Peru Country Programme - Executive summaries and main recommendations*. https://www.oecd.org/latinamerica/countries/peru/Compilation_Executive_Summaries_CP_Peru_WEB_version_with_covers_ESP.pdf
- OECD. (2022). *Roadmap for the OECD Accession Process of Peru*. <https://www.oecd.org/mcm/Roadmap-OECD-Accession-Process-Peru-EN.pdf>
- PNCP (2019). *The National Competitiveness and Productivity Plan 2019-2030*.
- PNISC (2022). *National Sustainable Infrastructure Plan for Competitiveness 2022 - 2025*.
- Polo Escobar, B. R. (2021). Potentialities of the agrarian sector: Necessary condition in the generation of employment in the Amazonas-Peru region. *Revista De Ciencias Sociales*, 27, 326-339. <https://doi.org/10.31876/rcs.v27i.36511>

- Porter, M. (1988). *On competition*. Harvard Business School Press.
- Porter, M. E. (1990). *The Competitive Advantage of Nations*. Free Press.
- PRCP (2019). *Plan Regional de Competitividad y Productividad de Ucayali al 2030*. Sachs, J. D. (2015). *The Age of Sustainable Development*. Columbia University Press. Sánchez Murillo, A. (2006). PETER DRUCKER, MASTER INNOVATOR OF THE
- PROG.: <https://www.gob.pe/institucion/mef/noticias/739000-el-mef-publico-los-lineamientos-generales-para-la-formulacion-y-evaluacion-de-programas-de-inversion-prog>
- Sarwat, N., Ali, R., & Khan, T. I. (2021). Challenging, hindering job demands and psychological well-being: The mediating role of stress-related presenteeism. *Research Journal of Social Sciences and Economics Review*, 2(1), 135-143.
- Schumpeter, J. A. (1942). *Capitalism, Socialism and Democracy*. Harper & Brothers.
- Schwab, K. (2016). "The Fourth Industrial Revolution" - *The Fourth Industrial Revolution*.
- Sen, A. (1999). *Development as Freedom*. Oxford University Press.
- Smith, J. (2020). *Innovation and Development: Perspectives for the 21st Century*.
- UNCTAD (2021). "United Nations Conference on Trade and Development" - Produces annual reports and publications on economic development, innovation and sustainability.
- UNESCO (2005). *Research, Development and Innovation (R&D&I) in the Context of Innovation and Sustainable Development - United Nations Educational, Scientific and Cultural Organization*.