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From management to social impact: Universities, hospitals, and family businesses

Editors

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Foreword

We are living in a time of transformation in which public and private institutions can no longer limit themselves to optimizing and postponing internal processes: social legitimacy increasingly depends on the ability to collectively generate tangible impact in communities. In Latin America, this transition takes on specific nuances such as: deep-seated inequalities, strained healthcare systems, asymmetrical institutional trajectories, and family businesses that combine tradition with the need for innovation—all of which create a scenario where management focused on social impact becomes imperative and urgent. This book offers a mosaic of research and case studies that outline how universities, hospitals, and family businesses are reconfiguring their practices, structures, and partnerships to respond to collective challenges without losing their identity and mission.

The works gathered here provide a pluralistic and rigorous perspective on this transition. Methodologically, the work combines qualitative and quantitative approaches, longitudinal studies, comparative analyses, and participatory evaluations that allow for the capture of both internal dynamics and community-level effects. The chapters present practical tools, such as impact assessment frameworks, models of inclusive governance, and strategies for intersectoral coordination, which are transferable and adaptable to different Latin American contexts. The case studies demonstrate how universities are redesigning their curricula and outreach policies to promote research with social impact; how hospitals are integrating care models centered on the community and on the social determinants of health; and how family businesses are incorporating sustainability and responsibility practices that go beyond traditional philanthropy.

Among the most relevant findings is the centrality of collaborative governance and participatory processes that include users, communities, and other local stakeholders in defining objectives and success metrics. The institutions making the most consistent progress are those that balance technical rigor with contextual sensitivity and the ability to develop internal processes that impact management outcomes, highlighting committed leadership, multidisciplinary teams, and monitoring and learning systems to sustain initiatives over the medium and long term. Likewise, the book addresses the tension between professionalization and community roots in family businesses, showing

pathways to integrate innovation and legacy without sacrificing social impact.

This volume also situates its analysis within contemporary debates that are reshaping the field of public and private governance, renewed corporate social responsibility, equity, and sustainability—specifically the disruptive effects of emerging technologies such as artificial intelligence. The chapters explore both the opportunities and risks associated with the adoption of digital tools in social management processes: greater capabilities for analyzing and tailoring interventions, alongside ethical challenges related to bias, privacy, and the digital divide. In this regard, the authors propose critical frameworks for incorporating technology as a support rather than a substitute for dialogue and citizen participation.

Reading this book offers a twofold promise: on the one hand, to understand more precisely the conditions that favor the transition from an administrative logic to one oriented toward social impact; on the other, to provide practical guidelines and lessons learned that facilitate application in diverse institutional contexts. Researchers, managers, politicians, and decision-makers alike will find here, in a systematic manner, useful evidence for designing policies and projects better anchored in local realities and grounded in principles of equity and sustainability.

This book makes a valuable academic and scientific contribution through theoretical and empirical insights derived from research projects funded by public and private universities in countries such as Venezuela, Peru, Mexico, and Ecuador. These projects advance sustainable research and call for the integration of knowledge and action that ultimately contribute to social justice in the Americas.

After this overview of each chapter, we invite readers to approach these pages with a critical and pragmatic spirit, identifying tools that can be adapted to their environments—universities, hospitals, and family businesses—questioning assumptions about what constitutes impact, and generating inclusive evaluation processes. Institutional transformation toward social impact requires not only will, but also technical capabilities, ethical commitment, and a willingness to engage in collective learning.

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Medical Education 4.0: Integrating Information Technologies to Transform Medical Education

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Introduction

Within the framework of the so-called Fourth Industrial Revolution, a structural transformation of higher education systems is underway, characterized by the progressive incorporation of advanced digital technologies that substantially alter traditional teaching paradigms. This process of educational digitization is not limited to the adoption of technological tools but involves an epistemological and methodological reconfiguration of pedagogical models, oriented toward approaches centered on active learning, knowledge construction, and interaction mediated by digital environments (Mabotha and Ngcamu, 2025; Tang et al., 2025).

From this perspective, contemporary higher education is configured as a complex system in which technological, pedagogical, and institutional dimensions converge, giving rise to new forms of knowledge production, access, and validation. The incorporation of emerging technologies such as artificial intelligence, data analytics, and adaptive learning systems has fostered the development of flexible educational environments capable of responding to the demands of a society based on knowledge and continuous innovation. Consequently, there has been a shift from linear instructional models toward dynamic, interactive, and personalized learning structures, in which students take an active role in shaping their educational journey.

In the specific field of medical education, this transformation takes on strategic significance, given that the training of healthcare professionals is based on the integration of theoretical knowledge, clinical skills, and cross-cutting competencies oriented toward decision-making in highly complex contexts. In this regard, the integration of digital technologies has enabled the creation of clinical simulation environments, immersive learning platforms, and virtual training systems that allow for the re-tion of care scenarios without compromising patient safety, which constitutes a significant advance in pedagogical and ethical terms (Mehraeen et al., 2026; Ogundiya et al., 2024).

Likewise, the incorporation of artificial intelligence into medical education has introduced a set of innovations aimed at optimizing the training process. Among these, adaptive learning systems stand out, as they adjust content based on student performance; intelligent simulators, which allow for the training of clinical skills in controlled environments; and automated assessment systems, which facilitate continuous and personalized feedback. These tools help increase

learning efficiency while promoting the development of evidence-based clinical competencies (Mulakoli and Misava, 2025).

From a methodological perspective, the incorporation of ICT in medical education cannot be understood as a merely instrumental process, but rather as a multidimensional phenomenon that requires the coherent integration of technology, curriculum design, and pedagogical practices. In this context, learning is conceived as a situated process, mediated by digital tools that facilitate interaction, collaboration, and access to up-to-date scientific information. This enables not only the acquisition of knowledge but also the development of higher-order cognitive skills, such as critical analysis, problem-solving, and evidence-based clinical decision-making.

However, the implementation of medical education models based on digital technologies poses significant challenges at the institutional level. Among the main challenges are the need to strengthen technological infrastructure, ensure equitable access to digital resources, develop digital competencies among faculty, and design pedagogical strategies that ensure the effective integration of technology into the educational process. Similarly, ethical considerations related to the use of artificial intelligence are emerging, particularly regarding data management, algorithmic transparency, and accountability in automated decision-making.

In this context, the concept of Medical Education 4.0 serves as a relevant analytical framework for understanding the transformation of medical education in the digital age. This approach integrates technological innovation with student-centered pedagogical principles aimed at developing professional competencies— —in line with the demands of increasingly complex and technologically advanced healthcare systems.

Consequently, this chapter aims to analyze, from both theoretical and applied perspectives, the integration of information technologies into medical education, considering its conceptual foundations, methodological implications, and challenges within the contemporary institutional context.

Digital Transformation in Medical Education

Digital transformation in medical education constitutes a complex and multidimensional process that transcends the simple incorporation of

technological tools into the classroom, emerging as a structural change in the way the educational process in the health sciences is conceived, organized, and developed within the context of a knowledge society characterized by the accelerated generation of information, global interconnectivity, and the growing incorporation of emerging technologies in all areas of human endeavors, including clinical practice and professional training (Mabotha and Ngcamu, 2025; Tang et al., 2025).

From a conceptual perspective, digital transformation in medical education involves the systematic integration of advanced technologies—such as artificial intelligence, virtual and augmented reality, digital clinical simulation, mobile learning, and virtual learning environments—into curriculum design, pedagogical strategies, and assessment systems. This enables a transition toward more flexible, student-centered teaching models based on competency acquisition, in which learning is conceived as an active, contextualized and oriented toward solving complex problems.

One of the fundamental pillars of this transformation is the use of simulation technologies in medical education, where clinical simulation supported by digital platforms and immersive environments allows for the recreation of clinical scenarios with a high degree of realism, facilitating the development of technical, cognitive, and attitudinal skills in a controlled environment. From a pedagogical standpoint, this enables the repetition of procedures, formative assessment, and immediate feedback—elements that contribute to the consolidation of meaningful learning and improve clinical reasoning and decision-making ability, while simultaneously reducing the risks associated with practice involving real patients (Liu et al., 2023; Mergen et al., 2023).

Complementarily, the incorporation of virtual learning environments and digital platforms has expanded access to knowledge, enabling the implementation of hybrid and distance learning models that facilitate synchronous and asynchronous interaction between faculty and students, as well as access to digital educational resources, scientific databases, and online collaboration tools, thereby promoting autonomous learning, the collaborative construction of knowledge, and the development of digital competencies that are indispensable in contemporary professional practice (Ogundiya et al., 2024).

In this context, artificial intelligence has established itself as one of the main drivers of innovation in medical education, as its application

enables the development of adaptive learning systems that tailor content and activities to the student's performance and individual needs, as well as the use of AI-based intelligent simulators that generate dynamic clinical scenarios in which the patient's evolving variables respond to the student's decisions, promoting more contextualized and reflective learning and helping to optimize teaching and assessment processes through detailed performance analysis and personalized feedback (Mulakoli and Misava, 2025).

From a pedagogical perspective, digital transformation has also driven the adoption of active learning methodologies such as problem-based learning, collaborative learning, and flipped learning—strategies that, mediated by digital technologies, allow for the integration of theoretical knowledge with clinical practice, promoting the development of critical thinking, clinical analysis, and evidence-based decision-making skills. Recent evidence suggests that students participating in digital learning environments demonstrate higher levels of engagement, motivation, and academic performance compared to those trained through traditional models (Greenspan et al., 2025; Nhleko et al., 2025).

However, the implementation of digital transformation processes in medical education is not without challenges. Among the main limitations are insufficient technological infrastructure, gaps in access to digital resources, resistance to organizational change, and a lack of faculty training in the pedagogical use of technologies—conditions that can hinder the effective integration of ICTs and limit their impact on improving educational quality, in addition to raising concerns regarding ethical and regulatory aspects particularly regarding data protection, information privacy, and transparency in the use of artificial intelligence algorithms (Sithole and Mbukanma, 2024; Mehraeen et al., 2026).

Consequently, digital transformation in medical education must be conceived as a strategic process requiring a comprehensive and systemic vision, which implies not only investment in technological infrastructure but also the redefinition of pedagogical models, the continuous training of faculty, and the development of institutional policies aimed at ensuring the quality, equity, and sustainability of the educational process.

ICT and Competency Development in Medical Education

Within the framework of the digital transformation of higher education, the development of professional competencies through the strategic use of ICT has established itself as one of the cornerstones of the contemporary educational paradigm. In the field of medical education, this approach takes on particular significance due to the need to train professionals capable of functioning in clinical settings characterized by complexity, uncertainty, and increasing technological integration.

From a theoretical perspective, the concept of competence is understood as the coordinated integration of knowledge, skills, attitudes, and values that enable the individual to act effectively in specific contexts. In this sense, medical education 4.0 focuses its efforts on the development of clinical, scientific, digital, and socio-emotional competencies, which are indispensable for ensuring adequate professional performance in contemporary health systems. The incorporation of ICT into this process not only facilitates access to information but also transforms learning methods by promoting more active, critical, and reflective participation on the part of the student.

In this context, ICTs serve as pedagogical mediators that foster knowledge construction through interactive, dynamic, and collaborative environments where the use of digital platforms, clinical simulators, biomedical databases, and online communication tools enables the creation of more meaningful learning experiences in which students can coherently integrate theory and practice and develop higher-order cognitive skills such as critical analysis, problem-solving, and decision-making grounded —essential competencies for contemporary medical practice (López-Sánchez et al., 2023).

One of the most significant contributions of ICT in medical education lies in facilitating active teaching-learning methodologies, where strategies such as problem-based learning (PBL), clinical case-based learning, and collaborative learning find in digital technologies an ideal support for their implementation, allowing students to be placed in real or simulated professional practice scenarios, promoting the integration of interdisciplinary knowledge and the development of clinical skills, and recent literature indicates that students trained under these models demonstrate better decision-making performance as well as higher levels of autonomy and critical thinking (Greenspan et al., 2025).

Complementarily, the use of virtual learning environments and digital resources has contributed to strengthening digital competence in medical students, which involves not only the ability to use technological tools but also to manage information, evaluate scientific sources, communicate effectively in digital environments, and apply knowledge in clinical contexts. In an environment where medical information is constantly updated, the ability to access, analyze, and apply scientific evidence becomes a key element of professional practice.

Likewise, ICTs foster the development of cross-cutting competencies related to communication, teamwork, and interdisciplinary collaboration through the use of digital platforms and online interaction tools that enable the creation of learning communities where students can share knowledge, discuss clinical cases, and develop professional communication skills—essential competencies in healthcare systems characterized by collaborative work across specialties.

In this same vein, the integration of emerging technologies such as artificial intelligence and learning analytics has expanded the possibilities for competency development in medical education, as these tools allow for monitoring student progress, identifying areas for improvement, and providing personalized feedback, thereby fostering more efficient learning processes tailored to individual needs and promoting an adaptive learning model that contributes to the progressive development of complex competencies (Mulakoli and Misava, 2025).

However, ICT-mediated competency development also faces significant challenges, notably the need to ensure the pedagogical quality of digital content, avoid cognitive overload resulting from excessive technology use, and provide teacher training in the instructional use of these tools, as well as the existence of digital divides and inequalities in access to technological resources that can limit the equitable development of competencies among students, which requires the implementation of institutional policies aimed at ensuring educational inclusion and equity. From a methodological perspective, it is essential that the integration of ICT in medical education be grounded in a coherent curriculum design in which the competencies to be developed are clearly defined and aligned with pedagogical strategies and assessment systems, and where technology is conceived as a means rather than an end in itself, with its use directed toward the achievement of specific educational objectives.

Factors Influencing Technology Adoption in Medical Education

The adoption of information and communication technologies (ICT) in medical education constitutes a complex process involving multiple dimensions of an individual, pedagogical, organizational, and technological nature. Far from being conceived as a linear or exclusively instrumental transition, the incorporation of digital technologies into educational settings must be understood as a systemic phenomenon conditioned by various factors that determine its success or limitations in specific institutional contexts.

From a theoretical perspective, models of technology adoption—particularly those derived from the Technology Acceptance Model (TAM) and its extensions, have made it possible to identify key variables that explain the attitudes of faculty and students toward the use of ICT in the educational process. Among these, perceived usefulness—understood as the degree to which a person believes that using the technology will improve their academic performance—and perceived ease of use—which refers to the perception of simplicity in interacting with technological systems (Feng et al., 2025).

However, in the field of medical education, these factors are compounded by the complexity inherent in the educational context, where clinical, ethical, and cognitive dimensions converge; thus, the adoption of technologies depends not only on individual perception but also on the suitability of these tools for pedagogical objectives and the specific needs of the medical curriculum. This implies that the integration of clinical simulators, virtual platforms, and artificial intelligence systems requires consistent alignment with expected learning outcomes to effectively contribute to the development of professional competencies.

At the institutional level, technological infrastructure is a determining factor for the adoption of ICTs because the availability of resources such as high-speed connectivity, adequate devices, stable educational platforms, and access to specialized databases determines the possibility of efficiently implementing digital learning models; and in contexts where these resources are limited, technology adoption tends to be partial or fragmented, reducing its impact on educational quality, which is why various studies have pointed out that infrastructure gaps

represent one of the main barriers to the effective integration of technologies in higher education (Sithole and Mbukanma, 2024).

Another fundamental element in this process is teacher training in digital competencies, as the specialized literature agrees that the successful adoption of ICT depends largely on the ability of faculty to integrate these tools into their teaching practices, which implies not only mastering the technical use of technology but also developing pedagogical competencies that allow for the design of meaningful learning experiences mediated by digital environments, preventing a lack of training from limiting the use of ICT, generating resistance to change or reproduce traditional teaching models in digitalized contexts.

Likewise, organizational culture and institutional leadership play a strategic role in technology adoption, given that institutions that promote innovation, continuous updating, and interdisciplinary collaboration tend to facilitate the incorporation of technologies into their academic processes, while rigid organizational structures with little openness to change can hinder the implementation of technological initiatives even when resources are available; therefore, digital transformation requires a shared institutional vision that articulates policies, strategies, and practices oriented toward educational innovation.

From a social perspective, the influence of the environment also affects the adoption of ICTs, as the interaction between students, teachers, and academic communities generates dynamics of acceptance or rejection toward the use of technologies, which can either enhance or limit their integration into the educational process, while peer collaboration, the exchange of experiences, and the visibility of best practices are factors that foster technological adoption in educational settings.

Furthermore, it is necessary to consider factors associated with students, particularly regarding their digital competencies, attitudes toward technology, and conditions of access to technological resources; for while today's students are often considered digital natives, this category does not necessarily guarantee a critical and academic use of technologies. Thus, digital literacy—understood as the ability to use technology in a reflective, ethical, and learning-oriented manner—becomes a key element for the effective development of ICT-mediated educational processes.

In this context, the adoption of technologies in medical education also raises significant ethical implications, as the use of systems based on artificial intelligence, data analytics, and digital platforms entails challenges regarding privacy, the management of sensitive information, and transparency in assessment processes. This requires the development of regulatory and ethical frameworks to govern the use of technology in the educational sphere, ensuring the protection of students' rights and the integrity of the educational process.

Model for the Implementation of Information

Technologies in Medical Education

The implementation of information technologies in medical education requires a structured, systematic, and comprehensive approach that allows for the coherent integration of technological, pedagogical, and institutional components. In this regard, the isolated incorporation of digital tools is insufficient; on the contrary, it is essential to design intervention models that guide educational transformation toward the achievement of concrete educational outcomes aligned with professional profiles and the demands of the contemporary healthcare system.

From a methodological perspective, recent literature agrees that digital transformation processes in higher education must be grounded in integrative models that take into account both technological infrastructure and human and organizational factors (Mabotha and Ngcamu, 2025); within this framework, an implementation model is proposed based on three strategic pillars— , technological infrastructure, pedagogical innovation, and faculty development—which operate in an interdependent and systemic manner.

Technological Infrastructure

The first component of the model is technological infrastructure, which constitutes the operational foundation for the implementation of digital learning environments, including the availability of electronic devices, connectivity networks, learning management systems (LMS), and access to specialized digital resources such as scientific databases and clinical simulators. Evidence suggests that the availability and quality of technological infrastructure directly influence the adoption and effectiveness of ICT in education; thus, limitations in connectivity, unequal access to devices, or shortages of specialized software can

restrict the scope of digital initiatives and create gaps in the educational process. Therefore, investment in infrastructure must be considered a necessary, though not sufficient, condition for the digital transformation of medical education (Sithole and Mbukanma, 2024).

Likewise, the incorporation of advanced technologies such as digital clinical simulators, virtual reality systems, and artificial intelligence-based platforms expands the possibilities for practical training by providing safe, controlled, and highly interactive learning environments that contribute to the development of clinical skills by facilitating experimentation and decision-making in complex scenarios without risk to patients (Liu et al., 2023).

Pedagogical Innovation

The second pillar of the model focuses on pedagogical innovation, understood as the transformation of teaching and learning strategies through the meaningful integration of digital technologies, in which the use of ICT must respond to clearly defined educational objectives aimed at the development of professional competencies and not merely at the incorporation of technological tools.

Pedagogical transformation involves the adoption of active methodologies such as problem-based learning, clinical case-based learning, and collaborative learning, which are enhanced through the use of digital platforms. This places the student at the center of the educational process, promoting active participation, critical thinking, and the application of knowledge in real or simulated contexts (Greenspan et al., 2025).

Similarly, virtual learning environments facilitate the personalization of the educational process by allowing the adaptation of content and activities based on students' individual characteristics through the integration of artificial intelligence and learning analytics. This enables the design of flexible educational pathways based on performance and specific needs, contributing to improved learning efficiency and effectiveness (Mulakoli and Misava, 2025). Furthermore, pedagogical innovation also involves redefining assessment systems by incorporating continuous formative mechanisms focused on competency development, where the use of digital tools enables the implementation of automated assessments, evaluative simulations, and immediate feedback systems that promote progressive learning and self-regulation.

Faculty Development

The third pillar of the model corresponds to teacher development, which is a critical factor for the effective implementation of technologies in medical education, as training teachers in digital and pedagogical competencies is essential to ensure the appropriate use of ICTs in the teaching-learning process.

In this regard, teacher training should focus not only on technical mastery of digital tools but also on understanding their educational potential and their integration into curriculum design, where the contemporary teacher assumes the role of facilitator and mediator of learning, guiding students in the construction of knowledge and the critical use of information available in digital environments.

Various studies have indicated that the lack of teacher training constitutes one of the main barriers to the adoption of technologies in higher education, highlighting the need to implement institutional continuing education programs, as well as the development of communities of practice and spaces for collaboration among teachers that foster the exchange of experiences and the consolidation of pedagogical innovations (Feng et al., 2025).

Systemic Integration of the Model

The proposed model is based on the dynamic interaction among its three pillars, which allows for the conception of digital transformation as a comprehensive, non-fragmented process where technological infrastructure provides the necessary material conditions, pedagogical innovation guides the meaningful use of technology, and faculty development ensures the effective implementation of ICT-mediated educational strategies.

From this perspective, the digital transformation of medical education requires strategic planning that integrates institutional policies, technological resources, and pedagogical practices with the aim of ensuring the quality, equity, and sustainability of the educational process, in addition to considering the continuous evaluation of the model through indicators that measure its impact on learning, the development of competencies, and the improvement of educational quality.

Applicability in Institutional Contexts

The application of this model in higher education institutions, particularly in medical schools, enables the systematic guidance of educational innovation processes, fostering the creation of more flexible, interactive, and student-centered learning environments aligned with the demands of contemporary medical practice.

The model for implementing information technologies in medical education constitutes a conceptual and operational tool that enables the structuring of educational transformation processes by coherently integrating technological, pedagogical, and human dimensions, contributing to the development of innovative educational models that respond to the challenges of the digital society and the needs of the global health system.

Conclusions

The analysis conducted establishes that the integration of information and communication technologies (ICT) in medical education constitutes a strategic process within the context of the digital transformation of higher education, as it responds to the demands of the Fourth Industrial Revolution and contributes to the training of professionals capable of functioning in highly technical and complex environments.

It is recognized that ICTs have facilitated the reconfiguration of traditional pedagogical models toward student-centered and competency-based approaches, through tools such as simulators, digital platforms, and virtual environments that expand learning possibilities in safe and controlled contexts, thereby consolidating the Medical Education 4.0 model based on the integration of technological innovation and active pedagogical strategies.

However, the impact of ICTs does not depend solely on their availability, but on their proper integration into curriculum design and teaching practices, which implies the need for a comprehensive approach that articulates technological, pedagogical, and institutional dimensions to ensure their effectiveness in learning.

Likewise, the development of digital, clinical, and cross-cutting competencies is positioned as a central element in medical education, as it promotes skills such as critical thinking, decision-making, and

collaborative work in a professional environment undergoing constant technological evolution.

On the other hand, the adoption of ICT is conditioned by factors such as infrastructure, faculty training, and access to technology, highlighting the need for institutional policies aimed at ensuring educational equity and quality, while also addressing the ethical challenges arising from the use of emerging technologies such as artificial intelligence.

In this regard, the implementation model based on technological infrastructure, pedagogical innovation, and faculty development emerges as an appropriate strategy to guide sustainable digital transformation processes in medical education.

Finally, Medical Education 4.0 is established as a paradigm that transcends mere technological incorporation, focusing instead on the training of well-rounded professionals; therefore, the future of medical education must consolidate hybrid, flexible, and student-centered models, where technology functions as a means to enhance learning.

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University Quality in Ecuador: A Comparative Analysis of the SCImago Institutions Rankings and the CACES External Evaluation Model

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Introduction

The criteria established by official policy for evaluating university quality in Ecuador are institutionally framed by the External Evaluation Model of the Council for Quality Assurance in Higher Education (CACES) (2023), which is the technical instrument Ecuador uses to evaluate the quality of universities and polytechnic schools for accreditation purposes. The current model, approved in 2023 and applicable to the process beginning in 2026, organizes the evaluation into 6 mandatory criteria and 32 indicators.

Three dimensions are considered: planning, implementation, and outcomes. Standards are assessed on a five-level scale: satisfactory compliance, approaching compliance, partial compliance, insufficient compliance, and non-compliance.

This chapter proposes a comparative analysis of the 30 Ecuadorian universities listed in SIR 2026, based on the country table published by SCImago (2026), interpreting their ranking as an external indicator that can inform the CACES model, but without replacing it. The purpose is to construct a scientific discussion that: (i) defines which dimensions of quality are captured (or not) by a bibliometric ranking, (ii) identifies implications for the four CACES criteria, and (iii) provides methodological caveats supported by high-impact international literature on evaluation and metrics.

We worked with the official list of 30 Ecuadorian universities in SIR 2026 (higher education sector, country Ecuador) and their rankings (Table 1). To construct an interpretive contrast (), the 30 universities in the Scimago ranking were grouped according to the country's territorial zones; an internal classification was also established based on three SIR ranking levels: high, medium, and low, dividing the set into three groups of equal size ($n = 10$) ordered by their global rank (the lower the rank, the better the positioning). This classification is used solely as a relative indicator within the national sample and not as an equivalent of overall quality.

Subsequently, the location, geographic regions, and each level (high/medium/low) were interpreted in relation to the four CACES criteria (2023), distinguishing: (a) dimensions where SIR can provide complementary information (primarily Research and, to a lesser extent, impact/visibility), and (b) dimensions where SIR is insufficient or

irrelevant for inferring quality (especially Teaching and Institutional Conditions, and a substantial part of Outreach).

Table 1.

List of the 30 Ecuadorian universities in the SCimago 2026 Ranking

Rank	Global Rank	Institution	Country	Sector	Best Country Quartile
1	5901	University of the Americas, Ecuador	ECU	Universities	1
2	5948	San Francisco University of Quito	ECU	Universities	1
3	6316	University of Azuay	ECU	Universities	1
4	6582	Central University of Ecuador	ECU	Universities	1
5	6968	Litoral Polytechnic College	ECU	Universities	1
6	7159	National Polytechnic School	ECU	Universities	1
7	7626	Pontifical Catholic University of Ecuador	ECU	Universities	1
8	7926	Espíritu Santo University	ECU	Universities	1
9	8048	Technical University of Manabí	ECU	Universities	1
10	8096	UTE University	ECU	Universities	1
11	8140	Private Technical University of Loja	ECU	Universities	1
12	8252	Catholic University of Santiago de Guayaquil	ECU	Universities	2
13	8258	University of Cuenca	ECU	Universities	2
14	8383	Technical University of Ambato	ECU	Universities	1
15	8421	Chimborazo Higher Polytechnic School	ECU	Universities	1
16	8487	Milagro State University	ECU	Universities	1
17	8564	National University of Chimborazo	ECU	Universities	2
18	8,650	University of Guayaquil	ECU	Universities	1
19	8693	Quevedo State Technical University	ECU	Universities	1
20	8753	Northern Technical University	ECU	Universities	1
21	8794	Yachay Experimental Technology Research	ECU	Universities	1

		University			
22	8906	University of the Armed Forces	ECU	Universities	1
23	9160	International University of Ecuador	ECU	Universities	2
24	9283	Autonomous Regional University of Los Andes	ECU	Universities	3
25	9290	Salesian Polytechnic University	ECU	Universities	2
26	9542	Catholic University of Cuenca *	ECU	Universities	3
27	9572	Cotopaxi Technical University	ECU	Universities	3
28	9950	Santa Elena Peninsula State University	ECU	Universities	3
29	10016	ECOTEC Technological University	ECU	Universities	3
30	10,362	Indo-American Technological University	ECU	Universities	3

Source: SCImago – Ecuador / Higher education (2026). 30 ranked institutions.

<https://www.scimagoir.com/rankings.php?sector=Higher+educ.&country=ECU>

Models for Evaluating University Quality in Ecuador

In response to the growing global demand from social groups for quality education, countries in the region have implemented evaluation and/or accreditation programs for higher education systems that require a comprehensive approach (Anzules et al., 2025). In the case of Ecuador, the 2008 Constitution of the Republic (National Assembly of the Republic of Ecuador, 2008) introduces principles to initiate higher education reform. Among the changes, the principle of quality stands out, which would govern the Higher Education System (SES) by requiring it to carry out evaluation and accreditation processes.

The process began under Constitutional Mandate No. 14 (2008), which mandated the evaluation of the institutional performance of Ecuador's universities and polytechnic schools, directing both the National Council for Higher Education (hereinafter CONESUP) and the National Council for Evaluation and Accreditation (CONEA) to issue reports on the quality and academic status of Higher Education Institutions (HEIs), for

the purposes of reorganizing and improving the SES. It should be noted that, since the current Constitution took effect in 2008, four evaluation models have been applied, which are characterized in Table 1.

Table 2.

Higher Education System Evaluation Models Implemented in Ecuador

Evaluation Model	Emphasis of the Model	Source	Criteria or Pillars of the Model
Mandate 14 Evaluation Model	Higher Education Institutions as an Academic Project	CEAACES (2013)	Academia, Students, and Environment Research, Institutional Management
Institutional Evaluation Model for Universities and Polytechnic Schools.	Quality and Functions of Higher Education	CEAACES (2015a)	Organization, Academia, Research, Engagement with Society, Resources and Infrastructure, Students.
Generic Model for Evaluating the Learning Environment of Degree Programs in Ecuador	Evaluation of the learning environment	CEAACES (2017)	Relevance, Organization and Resources, Faculty, Curriculum, and Students.
External Evaluation Model for Universities and Polytechnic Schools	Substantive Functions of the National Commission for the Accreditation of Higher Education Institutions	CACES (2023)	Teaching, Research, and Community Engagement, Institutional Conditions

The implementation of these quality evaluation models in the Ecuadorian higher education system, beginning in 2013 with the establishment of the Council for Evaluation, Accreditation, and Quality Assurance in Higher Education (CEAACES), now known as CACES, has made it possible to identify a set of structural weaknesses that affect compliance with the principles of quality and relevance in higher education institutions. Among the most significant are:

There is evidence of poor coordination among the core university functions, such as teaching, research, engagement with society, and administrative and financial management. Various studies indicate that these functions operate in a fragmented manner, responding to distinct institutional logics that are, in many cases, incompatible with one another, which limits the consolidation of a comprehensive approach to academic quality (Aldana, 2026). Similarly, as noted by Luján et al. (2025), an imbalance has been identified between teaching and research, accompanied by limitations in institutional resources and capacities, which hinders effective alignment with social needs.

Furthermore, there is weak integration of degree programs with academic networks and international cooperation, which restricts the generation of shared knowledge, the exchange of best practices, and the strengthening of educational quality. Although regulations and institutional efforts exist to promote the formation of research and academic cooperation networks, their development remains in its early stages and is uneven across institutions (SENESCYT, 2023). This situation limits the internationalization of higher education and reduces opportunities for innovation and continuous improvement in educational processes.

Another significant weakness lies in the limited relevance of undergraduate and graduate programs, evidenced by an academic offering that, in many cases, does not adequately respond to the demands of the productive and social environment. The specialized literature indicates that the development of graduate programs based on relevance criteria requires specific methodologies for curriculum design and contextual alignment, which are not always effectively applied (Falconí et al., 2023). Likewise, according to Proaño et al. (2024), recent evaluation models highlight the need to strengthen the relationship between advanced education, research, and the country's development in order to ensure the relevance and effectiveness of these programs.

Regarding research, a lack of established research networks and high-impact inter-institutional projects has been identified, which limits scientific output and its contribution to solving social problems. Recent studies indicate that structural obstacles persist, such as insufficient cooperation among institutions, low participation in academic networks, and limited integration with external actors, which affects the generation of relevant knowledge (Luján et al., 2025).

Furthermore, there is insufficient scientific and technological infrastructure, considered a critical factor for the development of quality research. Studies at Ecuadorian public universities, such as that by Zapatier et al. (2025), highlight that limitations in infrastructure, access to services, and academic resources negatively impact the quality of the educational process and institutional research capacity. In this regard, the lack of equipment, funding, and institutional support constitutes a significant barrier to the production of competitive scientific knowledge (Acurio et al., 2018).

Finally, the absence of an effective system for labor market inclusion and coordination with strategic sectors is identified, which creates gaps between academic training and the demands of the labor market. Studies on the Ecuadorian context reveal inequalities in access to job opportunities and limitations in the link between higher education and formal employment, which impacts graduates' professional integration (Stefos & Chávez, 2023). Furthermore, the literature underscores the need to strengthen inclusion and equity policies that address the needs of diverse social groups and improve the quality of the education system as a whole (Aguilar et al., 2024).

SCImago Institutions Rankings as a bibliometric tool for comparative institutional analysis

The SCImago Institutions Rankings (SIR) is an international ranking of academic and research institutions that ranks organizations using a composite indicator that integrates three main factors: research performance, innovation outcomes, and social impact as approximated by web visibility. This explicitly multidimensional approach places the SIR within the family of rankings that combine bibliometric and webometric metrics to describe institutional performance and influence within the science, technology, and innovation ecosystem. In its methodological documentation, SCImago notes that in the 2026 edition, the altmetrics indicator was replaced by Media Mentions, designed to quantify institutional exposure in high-authority media indexed in its own listings (SCImago Institutions Rankings, 2026). Likewise, the SIR relies on processes for standardizing and disambiguating institutional names, and its interface allows users to compare the evolution of indicators and download information for secondary analysis (SCImago Lab., 2026).

The utility of the SIR for research on higher education lies in the fact that it provides a standardized and replicable framework for comparing

institutions on based on quantifiable outputs, facilitating analyses of relative positioning, trends, and performance profiles in research and innovation. In the literature on rankings (Hazelkorn, 2018), it is recognized that these tools have evolved from marketing and benchmarking instruments into mechanisms that influence institutional decision-making and public policy, especially when governments associate national competitiveness with presence in international rankings. Kochetkov's (2024) review documents that global rankings have been incorporated into evaluation agendas and excellence initiatives, though it also highlights a broad academic consensus regarding their inadequacy for comprehensively evaluating research when used as the sole criterion.

However, alongside their benefits, their limitations, biases, and interpretive risks must be considered. In this regard, the specialized literature agrees that metrics-based evaluation requires technical expertise and prudent use. Moed et al. (2012) argue that citation-based indicators can be appropriate tools provided they are accurate and used in an informed manner, recognizing the complexity and multidimensionality of scientific performance. Similarly, the Leiden Manifesto warns against the proliferation and inappropriate use of metrics, insisting that indicators should support—not replace—expert judgment and contextual analysis (Hicks et al., 2015). These warnings are relevant to the SIR for two reasons: (i) as a composite index, there is a risk of treating an aggregate value as a one-dimensional *truth*, and (ii) the ranking may incentivize indicator optimization practices rather than substantive improvements (Kochetkov, 2024).

A second limitation stems from comparability across fields. Bibliometric normalization typically relies on disciplinary classifications; however, Leydesdorff & Bornmann (2016) show that Web of Science categories can introduce “indexing effects” and problems of analytical clarity when normalizing and comparing, suggesting caution when interpreting aggregated comparisons between institutions with very different disciplinary profiles. This affects any ranking that draws on bibliographic databases or field categories, because the observed performance may reflect not only “quality” but also publication and citation structures specific to certain fields (Montes de Oca, 2020).

Third, there is evidence of reputational biases in global rankings, even when they are based on *objective* data. Safón & Docampo (2020), analyzing the Shanghai Ranking (ARWU), document that *halo effect* contamination may exist in certain indicators associated with elite

journals and citation processes, which can reinforce a reputational feedback loop. Although this study is not about SIR, its contribution is transferable as a general warning: metrics may be influenced by editorial and citation dynamics that systematically benefit certain scientific centers and systems. In fact, SCImago notes in its methodology that in 2026 it identified institutions with high rates of self-citation, and self-referencing, warning of integrity risks that could affect rankings (SCImago Institutions Rankings, 2026).

Grouping of universities in the Scimago ranking by the country's territorial zones

The distribution of higher education institutions in Ecuador is administratively organized into 9 Planning Zones; based on these, the 30 institutions ranked in SCImago (2026) are presented.

- Zone 1 (North: Imbabura, etc.)

Universities: Universidad Técnica del Norte

Only one institution is located in this zone, indicating low representation in the ranking and a lower density of research universities in the area, which points to an emerging region with limited scientific visibility.

- Zone 2 (Peripheral Pichincha and Northern Amazon)

Universities: Yachay University of Experimental Technological Research

There is only one institution in the zone with a specialized focus on scientific research. This indicates a zone with a strategic focus on science, but one that still has low coverage.

- Zone 3 (Andean Center)

Universities:

- Technical University of Ambato
- Chimborazo Higher Polytechnic School
- National University of Chimborazo
- Technical University of Cotopaxi

According to the findings, there are four institutions that constitute a significant regional academic hub, particularly among public universities. This is a well-established area for teaching and applied regional research.

- Zone 4 (Central Coast: Manabí)

Universities: Technical University of Manabí

Only one university was found in the zone, showing a relatively low ranking with limited international scientific visibility.

- Zone 5 (Extended Coast)

Universities:

- Milagro State University
- Quevedo State Technical University
- Santa Elena Peninsula State University

The results place three institutions in this zone, with moderate presence but low-to-middle rankings in SCimago. It is a growing zone, with an emphasis on regional public education.

- Zone 6 (Southern Andes: Azuay–Cuenca)

Universities:

- University of Azuay
- University of Cuenca
- Catholic University of Cuenca
- Salesian Polytechnic University (*main campus in Cuenca*)

There are four institutions in this region, all of which rank highly at the national level. This is a strong academic zone, with a tradition of research and institutional diversity.

- Zone 7 (Southern Region)

Universities:

- Private Technical University of Loja

In this area, one institution stands out as a regional leader. The area exhibits strong institutional leadership in specific areas but lacks diversity among higher education institutions in the rankings.

- Zone 8 (Greater Guayaquil)

Universities:

- Litoral Polytechnic University (ESPOL)
- Espíritu Santo University
- Catholic University of Santiago de Guayaquil
- University of Guayaquil
- International University of Ecuador (*Guayaquil campus*)
- ECOTEC University

This area stands out with six institutions, reflecting the high concentration in the main port; there is significant public-private diversity. It is establishing itself as a key hub for research and innovation on the Ecuadorian coast.

- Zone 9 (Greater Quito)

Universities:

- University of the Americas
- San Francisco University of Quito
- Central University of Ecuador
- National Polytechnic School
- Pontifical Catholic University of Ecuador
- UTE University
- University of the Armed Forces (ESPE)
- International University of Ecuador (*main campus*)
- Indoamérica Technological University
- Autonomous Regional University of the Andes (UNIANDES)

Zone 9 stands out with 10 institutions, reflecting the highest national concentration and the presence of the top-ranked institutions (top 1–10).

In summary, the distribution by territorial zones shows: a high concentration in Zone 9 (Quito) and Zone 8 (Guayaquil); a medium concentration in Zones 3 and 6; and a low presence in Zones 1, 2, 4, and 7. Furthermore, there is a structural centralization of research

performance in the major urban centers (Quito–Guayaquil), with lower representation in peripheral zones. In this regard, the SCImago ranking highlights a territorial asymmetry in the Ecuadorian university system, as metropolitan areas combine: greater investment, a critical mass of researchers, and international collaboration

SIR 2026 Classification (high/medium/low) of the 30

Ecuadorian universities

In the SCImago Institutions Rankings (SIR), institutions are ranked using a composite indicator that integrates three sets of indicators: research performance, innovation outcomes, and social impact approximated by web visibility; Additionally, in the 2026 edition, the methodology reports the replacement of the altmetrics indicator with Media Mentions (institutional exposure in high-authority media), reaffirming the system's hybrid bibliometric–webometric nature (SCImago Institutions Rankings, 2026). The result is expressed as a position/rank (the lower the number, the better the ranking), and for Ecuador in 2026, the SIR publishes a list of 30 universities with their global rankings, which is used here as a database (SCImago Institutions Rankings, 2026).

Given that global rankings are widely used as benchmarking tools and can influence institutional agendas and policy decisions, their interpretation requires methodological transparency and explicit analytical breakdowns, avoiding simplistic readings of the numerical order (Kochetkov, 2024; Ursin & Hazelkorn, 2023). In this study, for analytical and comparative purposes, a relative classification was constructed on three levels (high/medium/low) using tertiles of the national ranking; this categorization is not an official SCImago label, but rather a segmentation strategy to interpret comparative performance within the 2026 Ecuadorian cohort (Kochetkov, 2024; SCImago Institutions Rankings, 2026).

“High” Group (best relative ranking; $n = 10$): University of the Americas (UDLA), San Francisco University of Quito (USFQ), University of Azuay, Central University of Ecuador, ESPOL, National Polytechnic School, Pontifical Catholic University of Ecuador, Espíritu Santo University, Technical University of Manabí, UTE University (SCImago Institutions Rankings, 2026).

“Middle” Group (n = 10): Universidad Técnica Particular de Loja (UTPL), Universidad Católica de Santiago de Guayaquil, Universidad de Cuenca, Universidad Técnica de Ambato, ESPOCH, UNEMI, UNACH, Universidad de Guayaquil, UTEQ, Universidad Técnica del Norte (SCImago Institutions Rankings, 2026).

“Low” Group (n = 10): Yachay Tech, ESPE, International University of Ecuador, UNIANDES, Salesian Polytechnic University, Catholic University of Cuenca, Technical University of Cotopaxi, UPSE, ECOTEC Technological University, Indoamérica Technological University (SCImago Institutions Rankings, 2026).

Comparative analysis of SCImago rankings (SIR 2026) and the criteria of the CACES External Evaluation Model (2019) in Ecuadorian universities

Teaching Criterion: Limits of Inference from Bibliometric Rankings

The Teaching criterion in CACES is structured around standards for faculty and students, with evidence covering the planning, implementation, and outcomes of the educational process; therefore, components such as student trajectory, degree completion, curriculum management, or educational experiences cannot be validly inferred solely from a position in a bibliometric ranking, given that SIR is defined by a composite indicator focused on research/innovation/visibility and not by direct measurements of teaching and learning (SCImago Institutions Rankings, 2026; Kochetkov, 2024).

In line with recent literature, rankings have become institutionalized as comparison tools, but their use as proxies for “overall quality” is methodologically problematic and depends on the context and the evaluative purpose (Ursin & Hazelkorn, 2023; Kochetkov, 2024). Thus, the methodological risk lies in assuming that a “highly ranked” university equates to superior teaching; this shift has been discussed in research describing how rankings can steer decisions and priorities toward measurable indicators without guaranteeing equivalent improvements in substantive educational dimensions (Kochetkov, 2024; Ursin & Hazelkorn, 2023). In summary, for Teaching, the ranking serves as an external comparative benchmark, but the contrast with CACES requires direct institutional evidence, consistent with contemporary quality assurance approaches that emphasize continuous improvement and contextualized evaluation (Leihy et al., 2022; Moreno et al., 2022).

Research Criterion: Area of Partial Convergence Between CACES and SIR

The most evident convergence between the two frameworks occurs in Research, given that CACES incorporates standards linked to scientific output and indexed publications, while in SIR, research performance constitutes one of the pillars of the composite indicator (SCImago Institutions Rankings, 2026). Therefore, belonging to the “high” SIR group can be interpreted as a sign of relative performance in metrics compatible with research outputs, although without automatic equivalence to full compliance with national standards (Kochetkov, 2024).

However, recent literature warns that rankings and their methodologies have limitations and biases (e.g., reliance on proxies, comparability, and modeling decisions), and thus should not be used as the sole tool for assessing research performance (Kochetkov, 2024; Ghaddar et al., 2024). In fact, alternative frameworks have been proposed to improve performance evaluation in rankings through more robust or comparable metrics, precisely because traditional methodologies can introduce distortions or unintended incentives (Ghaddar et al., 2024). Consequently, in Research, the SIR can be used as a complementary external signal; to align with CACES, triangulation with institutional evidence (planning, execution, results, and governance of research) is required, as recommended by contemporary quality assurance approaches (Moreno et al., 2022; Kochetkov, 2024).

Criterion: Engagement with Society: a complex measurement not reducible to web visibility

CACES evaluates Engagement with Society as a substantive function, which requires evidence of university–environment interaction and verifiable results; SIR incorporates “societal impact” through metrics associated with web visibility and, in 2026, through Media Mentions, representing an approach based on exposure and public presence (SCImago Institutions Rankings, 2026). However, recent literature on the “third mission” and university social engagement agrees that this is a multidimensional and difficult-to-operationalize dimension, with heterogeneous measurement approaches and tensions between indicators of activity, outcomes, and impact (Haj Taieb, 2024; Spânu et al., 2024). In the Latin American context, specific indicator systems have been proposed and validated to capture this mission, reinforcing the fact that web/media visibility does not in itself equate to verifiable social impact (Gaffaro et al., 2026; Spânu et al., 2024). Consequently, a

higher SIR ranking may be associated with greater visibility, but this does not replace the evidence of results required by CACES (relevance, scope, outputs, and observable changes); therefore, for Outreach, the SIR provides at most an indication of exposure, whereas evaluation using the CACES approach must be based on substantive and traceable evidence (SCImago Institutions Rankings, 2026; Gaffaro et al., 2026).

Institutional Conditions Criterion: an explanatory dimension of trajectories, not measurable by SIR

The Institutional Conditions criterion in CACES constitutes the organizational, regulatory, resource, and governance framework that enables the maintenance of quality and continuous improvement; In Latin America, recent literature emphasizes that external evaluation must move beyond a purely bureaucratic approach, focusing instead on a culture of quality, accountability, and continuous improvement linked to planning, monitoring, and feedback (Leihy et al., 2022; Moreno et al., 2022). Therefore, the “high/medium/low” distinctions observed in a ranking cannot be interpreted as better or worse institutional conditions without direct evidence; however, they do allow for the formulation of analytical hypotheses regarding the relationship between internal capacities and external outcomes (research/visibility), always with methodological caution, as suggested by contemporary reviews on the role (and limits) of rankings in evaluation and excellence policies (Kochetkov, 2024; Ursin & Hazelkorn, 2023).

Conclusions

The results show that, based on evidence from the SIR 2026, the Ecuadorian university system exhibits a pattern of territorial concentration and asymmetry: metropolitan areas (Quito and Guayaquil) account for the largest proportion of ranked institutions and, in particular, those with the best relative positioning, while several peripheral areas exhibit a low presence or lagging positions. This finding suggests that international scientific visibility and the critical mass associated with production and innovation tend to be concentrated in urban hubs with greater accumulated capacities.

From an interpretive perspective, the analysis confirms that SIR 2026 and CACES 2019 are based on different evaluation frameworks: the former ranks institutions using a composite indicator focused on research, innovation, and visibility/social impact, while the latter

evaluates institutional quality comprehensively based on substantive functions (Teaching, Research, Outreach) and Institutional Conditions under a framework of planning, execution, and results. Therefore, the high/medium/low classification constructed in this study, based on tertiles of the national ranking, should be understood as a relative analytical segmentation for internal comparison, not as a judgment of overall quality. In terms of practical use, the SIR ranking can be employed as complementary contextual evidence primarily for the analysis of the Research criterion, but it is methodologically insufficient to infer quality in Teaching and Institutional Conditions, and it provides only indirect indicators for Engagement with Society when interpreted as visibility or public exposure. Consequently, it is recommended to avoid linear conclusions based solely on the ranking and, instead, to promote triangulation with institutional evidence from CACES and with verifiable information on internal processes and outcomes. As a limitation, this study relies on SIR ranking data and a conceptual comparison with the CACES model; therefore, future research should integrate institutional external evaluation reports, internal indicators, and longitudinal analyses to examine trajectories of improvement, links with the local community, and enabling conditions. In perspective, the study's contribution lies in clarifying the methodological role of rankings as comparative indicators, without replacing national quality assurance frameworks

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Management Control: A Perspective from Artificial Intelligence in Digital Business

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Introduction

The application of artificial intelligence (AI) in digital platforms has revolutionized the personalization of the user experience across various sectors, including the business world. Through data analysis and machine learning, AI adapts precisely to users' individual needs and preferences, significantly enhancing their experience. In the realm of digital business, AI has transformed business models by enabling more effective and relevant interaction with users, offering personalized recommendations, and improving operational efficiency (Cuadros and Téllez, 2019).

Currently, certain factors have become fundamental to the organizational development of any industry or corporation, highlighting the importance of technology, science, and the art of innovation. However, a critical shortcoming in management control has been identified: the lack of artificial intelligence in digital businesses. This research focuses on a qualitative analysis aimed at fostering critical and realistic thinking regarding the country's current situation in the face of the "challenges" of the new digital era, addressing existing shortcomings and generating proposals that encourage the growth of software and information systems in the business world. (Mejía et al., 2023).

This research falls within the descriptive documentary framework; essentially, it involves a review of the literature related to entrepreneurship as a field of research and the scholarly output of university faculty. The study drew upon digital journals indexed by Scopus, Emerald, JSTOR, EBSCO Hot, and digital books, which enabled the construction of the theoretical framework for the study. Critical thinking, rigor, and systematicity are employed as part of the methodology to achieve a valid and accepted scientific status.

Management Control: A Necessary Theoretical

Discussion

Business management control is a set of processes, methods, and technologies that links accounting with operational and strategic performance, allowing for the monitoring, analysis, and control of the entity's economic costs in relation to the work processes they represent. The objective of management control is to guide the various tasks and identify areas that need improvement (Torres and Díaz, 2020).

Management control consists of mechanisms used by managers and employees to facilitate the achievement of the organization's objectives, influencing the behavior and performance of its members (Cuevas, A. L. (2018).

Management control serves as a feedback tool for organizational leaders who carry out decision-making . This control must be implemented across multiple areas of the company so that management levels can measure, verify, and ensure that the processes and tasks carried out are aligned with the established objectives. (Serrano and Moreno, 2024) (Duque, 2017).

In this sense, management control is the administrative process of planning, executing, and monitoring the quality and compliance of the strategies and objectives proposed by organizations. There are significant differences between the classical and modern concepts of management control. The former encompasses only operational control and implements it through an information system related to cost accounting

["https://es.wikipedia.org/wiki/Contabilidad_de_costos"](https://es.wikipedia.org/wiki/Contabilidad_de_costos) \o "Contabilidad de costos" , while the latter integrates many more elements and involves continuous interaction between management, planning, and control (Malagón, 2019). The new concept of management control is comprehensive and integrated, as it includes the administrative process itself and requires a strategic orientation that gives meaning to its more operational aspects.

Subjects of Management Control

Management control is a process that enables organizations to plan, measure, and evaluate their performance to achieve their strategic objectives. The primary subject of management control is typically senior management, as they are the ones who establish the goals and strategies (Mejía, et al., 2023). However, it also involves other levels of the organization, such as department managers and operational teams, who must implement and follow the established plans. Key elements of management control include defining performance indicators, preparing budgets, generating reports, and analyzing variances between planned and actual results.

This helps identify areas for improvement and make informed decisions to optimize resources and achieve the proposed objectives. Nevertheless, management control employs "procedures, methods, and

tools integrated into a formal system” (Mora, 2019); it seeks to involve operations, materials, people, and teams, which interact with one another to generate results; therefore, management control requires defining a system that provides a comprehensive view of the business processes that require observation, supervision, and caution.

Purpose of Management Control

Management control systems are mechanisms used by managers and employees to facilitate the achievement of the organization’s objectives by influencing the behavior and performance of its members (Rodríguez and Pérez, 2017); Management control is also defined as a process that helps managers ensure that resources are used effectively and that organizational objectives are achieved; specifically, management control is not only about measuring performance but also about providing information that aids decision-making. So, in summary, management control seeks to optimize organizational performance and facilitate alignment between daily activities and long-term strategy.

Artificial Intelligence: New Complementary Strengths

Artificial intelligence refers to the ability of machines and computer systems to simulate human intelligence, including learning, perception, reasoning, and decision-making (Jay et al., 2024). In essence, AI seeks to replicate complex mental processes in an automated manner, using algorithms and mathematical models to process data and generate intelligent results. This discipline has seen significant advancements in recent decades, driven by the development of machine learning algorithms, artificial neural networks, and natural language processing techniques.

In the context of decision-making, AI is applied in various ways to improve the quality and efficiency of this process; for example, in the business sector, AI systems can analyze large volumes of financial, historical, and market data to identify trends, patterns, and business opportunities (Ocaña-Fernández et al., 2021).

Digital Businesses

According to Ávila et al. (2023), the general purpose of a digital business is to facilitate matches or alignments among users, as well as to create conditions that facilitate the exchange of goods, services, or

social currency, thereby enabling the creation of value for all participants. In this sense, users benefit from the platforms through reduced transaction and transaction costs, and companies benefit from the networks created by the platforms.

A digital business is a technological architecture that enables the development of its own IT functionalities and allows for the integration of information technology platforms with an organization's available resources (Mosquera et al., 2021). Digital businesses have established themselves as one of the fundamental pillars of the contemporary economy, transforming the way companies interact with their customers, design their value models, and manage their operations. In essence, they leverage technology platforms, data, and connectivity to scale, personalize offerings, and reduce barriers to entry, opening up opportunities for both entrepreneurs and large organizations.

In general, the rise of digital businesses presents challenges in terms of regulation, privacy, access gaps, and sustainability; however, they offer a framework of opportunity to reshape value chains, foster entrepreneurship, and accelerate economic inclusion in both digital and physical contexts. Therefore, the central conclusion is that understanding and managing digital businesses is not just a trend, but a strategic necessity for any organization that aspires to remain relevant in the 21st century.

The Dynamics of Artificial Intelligence in Digital Business

AI is transforming the world as we have known it until now, creating a future that will impact human society in ways we could previously only imagine. Within organizations, AI constitutes a new intangible asset that generates added value in every component of their structure. As a global effect on the company, AI produces a substantial improvement in its performance and enhances the influence of intangible assets on its market value. Consequently, AI represents an optimization of the knowledge and service economy based on intangible assets. At both the macro- and microeconomic levels, intangible assets drive long-term value creation; therefore, the improvement achieved by AI is definitive, with clear opportunities for further enhancement.

The incredible advantages offered by artificial intelligence in control management within an organizational system for digital businesses are

highly productive and innovative from a global perspective. Latin America has been the subject of study over the past decade, driven by the potential for access to information and the search for ways to build its digital infrastructure.

In this sense, the development of new ideas that lead us to consolidate new data repositories for the health, education, and finance sectors, among others, enables the development of AI models. Based on these analyses, we can project digital businesses to offer goods and services that are monitored, supervised, and controlled through information systems adapted to the political, economic, and social conditions of our country.

Artificial intelligence, particularly through algorithms, recognizes people's preferences and ways of thinking; in business, this is evident in marketing and ideas, as there are technological systems that, through their processing, are faster at identifying, describing, and classifying information. AI enables self-learning and the digital training of workers, and retraining is essential for creating social safety nets and establishing a basic digital infrastructure (Serrano and Moreno, 2024), that is, they illustrate how algorithms, data analysis, and cognitive automation transform value creation, decision-making, and customer management within online business models.

Methods for Diagnosis and Management Evaluation

Organizations are fighting for their survival and growth, and to do so, they must have leaders with knowledge and skills—both of which constitute the strength required to navigate a context fraught with uncertainty. Both the leaders of a large organization and the small business owner need the strategic strength that stems from knowledge of their activity and the possession of a skill specifically developed over time. Possessing that aptitude, that strategic strength, means being capable not only of managing existing resources but also of something broader: leading an organization. The quality of management will then be a consequence of the technical knowledge of those in charge and the ability they have developed to interpret the context, anticipate, adapt, and innovate (Alzate-Ibañez, 2018). Management is an ongoing task that requires the fulfillment of various requirements. It is not based on moments of genius but on continuity

Management evaluation and management control are support activities aimed at contributing to the achievement of efficient and effective management by seeking to further enhance action based on knowledge and skill, both in the realm of strategic creation and in the realm of implementation. That said, bearing the above in mind, this article will discuss three evaluation methods in combination with new automated systems, artificial intelligence, and other innovations in the field of management and control, including: the French Sesgos method, the American Institute of Management method, and the Likert method based on the behavior of groups within the organization.

Sesgo Method

This method belongs to the class of methods that seek to arrive at a diagnosis based, in large part, on past results; that is, it reviews past e , asking whether the results were good and also whether they were as good as circumstances would have allowed.

This method also posits, as a premise, that accounting information is not sufficiently indicative of the organization's development potential or of the latent wealth within that potential, and notes that when seeking a diagnosis to generate appropriate future actions, it is more important to consider how resources should be used in future periods than how they were applied in the past.

Once the basic information has been gathered, the analysis begins with the aim of identifying, through measurements, the strengths and weaknesses, in order to assess the current situation and suggest possible improvements that will serve as the basis for developing a short-term improvement program and establishing a long-term plan. The analysis is based primarily on observing the following: a) profitability, b) expansion, and c) the company's actions and the community's interests.

Although machine learning algorithms based on big data—used to find answers or possible solutions to the various problems an organization may face—are new, one must consider the form and use of artificial intelligence in management evaluation. This is due to the vast amount of data that is evaluated and, in one way or another, interpreted by AI to make a decision.

This is where the weakness of these systems lies, since the models on which AI is based absorb societal biases that may be silently embedded in the mountains of data used to train them. Historically biased data that reflects social inequality can harm historically marginalized groups in practical cases, such as mistrust toward people of color, women, people with disabilities, and other marginalized groups.

American Institute of Management (AIM) Method

This method bases the diagnosis on the study of the results obtained and the observed operating modes (Castro and Delgado, 2020). The task begins with the collection of information regarding the following 10 categories considered key, to which a relative weight is assigned, represented by a maximum possible score and a minimum score required to consider the position of the entity under review as excellent.

Economic Function. At this stage, the information sought primarily concerns the nature of the business, the company's origins, the general characteristics of the markets in which it operates, and the role the organization plays within the community.

Organizational structure. Information is required on the current organizational structure and its past evolution, the criteria for departmentalization, centralization, or decentralization, the effective distribution of power, and the communications system. **Profitability.** Dividends for the past years (typically 15), their evolution, and trends. **Reinvestment of profits, reserves.**

Shareholder relations. Shareholding distribution, dividend policy. Shareholder meetings. Financial reporting. Stock market price.

Research and development. Research activities and their place within the organization. Research budgets. Market studies, grants.

Composition and activities of the board of directors. The entity's directors, their background, frequency of meetings. Committees.

Financial policy. Capital structure, its evolution. Budgeting system, economic and financial indicators (data for the last 15 years).

Productive efficiency. Plant locations and investment. Production programs and procedures. Labor relations policies.

Sales force: Products, sales volumes, complaint handling, credit policy, pricing policies, advertising policies. Public relations.

Evaluation of the executive team. Characteristics of executives, significant changes in the past.

Likert scale

The Likert approach focuses on the behavior of the groups within an organization, directing the data collection toward determining which management style—authoritarian, benevolent authoritarian, democratic, or participatory—is being applied. To this end, the following points are analyzed: existing leadership processes, nature of motivational forces, characteristics of communication processes, characteristics of interaction and influence processes, characteristics of the decision-making process, characteristics of goal setting, and characteristics of the control process (Fernández et al., 2024).

The Likert scale is used to measure levels of satisfaction or opinions that may exist within an organization and even outside of it; to be more specific, its utility is represented as follows: managing statistical data on a specific issue; making data-driven decisions; understanding the performance of a company's departments or divisions in terms of perception; gauging customer satisfaction with a product or service; pursuing and implementing continuous improvement; and enhancing working conditions and the customer experience.

Creating surveys is no easy task. Developing effective survey questions is often time-consuming and can be frustrating. Surveys powered by Artificial Intelligence allow you to generate your survey questions quickly and easily. This systematic approach simplifies the survey creation process.

Artificial intelligence offers many advantages. When using AI to create and analyze surveys, researchers can design a survey structure that adapts and provides more detailed information. This helps keep questions relevant and easy to understand. Now, an AI survey generally involves a set of questions or a process for collecting data. This survey tool uses AI and machine learning to improve surveys. It helps you create surveys that elicit better responses and quickly identify valuable insights.

Proposal for Technology Adoption in Digital Businesses Using Artificial Intelligence

Digital innovation is no longer an option but has become an urgent necessity for small and medium-sized enterprises that wish to remain competitive and continue growing. In today's dynamic Venezuelan market, businesses that fail to adopt digital strategies risk falling behind.

Driving technology adoption in SMEs

The first step is to foster a culture of technology adoption at all levels of the company, which includes training staff, investing in digital infrastructure, and staying up to date on the latest tools and trends.

Fostering an inclusive digital culture

For digital innovation to take root, it is essential to foster an organizational culture that supports it. This involves having digital leaders in senior management, effectively managing change processes, and engaging all employees.

Digital tools that will transform your SME

In addition to culture, having the necessary digital tools is essential. Some of them are indispensable:

- Management and productivity software (ERP, CRM, cloud-based office software)
- E-commerce and digital marketing
- Data analytics and business intelligence
- Collaboration and unified communications

Protect your business with cybersecurity strategies

As reliance on digital systems grows, so do the risks of cyberattacks. It is crucial to establish robust cybersecurity protocols that safeguard the company's data and digital assets. Some key strategies include data encryption, antivirus software, firewalls, regular backups, staff training, and hiring reliable cybersecurity services (Martínez, 2011).

Online marketing strategies to conquer the Venezuelan market

In the digital age, an active online marketing presence is essential for reaching customers. SMEs should focus on:

- Developing a search engine optimized (SEO) website
- Digital advertising campaigns (SEM, social media)
- Email marketing and engaging content
- Customer service and support via digital channels

For data-driven decision-making and business intelligence, data is the fuel that drives digital innovation. SMEs must adopt a data-driven decision-making mindset to optimize their strategies and operations. Predictive analytics platforms, business intelligence, KPIs, and automated reports are some of the tools that facilitate access to valuable information and help maximize the use of the data generated by the business.

Conclusions

This study highlights the emerging development of artificial intelligence in digital business and its integration into the business engine. It simplifies decision-making and enhances the efficiency of administrative roles within the organization. The results reveal a widespread perception that AI and digital business, when addressing challenges in Latin America, demonstrate a technical and scientific lag due to latent issues such as: deteriorating technological infrastructure (“the lowest internet speed in Latin America”), frequent power outages that affect servers, and consequently their malfunctioning; a lack of digital culture in Latin America; a lack of private-sector promotion to implement and incentivize AI development within organizations; and, finally, a lack of training in managing AI innovation in a business environment.

Taking these negative factors into account and paving the way for solutions, we establish several recommendations for the initial phase of artificial intelligence and digital business development described in this scientific paper. It is suggested that companies move away from old traditional business practices and transition to the new world of digital business, both for internal operations and for revenue generation; the digital realm is of vital importance for the future of business, and thus the world has already turned the page and reached a point of no return. In the digital age, companies must adapt to change or perish.

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Family Businesses in Transition: The Path to Regulation and Legal Formalization

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Introduction

The National Institute of Statistics and Geography (INEGI) (2020) is an autonomous constitutional body in Mexico responsible for regulating and coordinating the National System of Statistical and Geographic Information. It reports that in recent decades, Mexico's economy has shown moderate and steady growth. In the years leading up to the pandemic, the Mexican economy maintained prudent monetary and fiscal policies driven by the Bank of Mexico and the Ministry of Finance and Public Credit, which have contributed to the country's macroeconomic stability. The national economy has demonstrated resilience in the face of fluctuations in the global economy, primarily thanks to export diversification, trade integration under the USMCA (United States-Mexico-Canada Agreement), and trade openness toward multiple markets around the world.

Family businesses currently create jobs and self-employment on a global scale as independent economic actors. In developed countries, they are part of large companies (to which they provide products and/or services), operate formally, and generate sustainable profits; however, in developing countries like Mexico, a large portion of family businesses primarily aim to survive within the informal economy. Large Mexican companies do represent opportunities for development and growth— — for family-owned SMEs that manage to formalize their operations and integrate into their supply chains, although this formalization process remains a significant challenge for the Mexican business ecosystem (Ansón and Cabeza, 2011).

In Mexico, support for family businesses to access financing comes primarily from government programs such as those of the National Institute of Entrepreneurship (INADEM, now part of the Ministry of Economy), the National Entrepreneurship Fund, and development banks through institutions such as Nacional Financiera (NAFIN) and the National Bank for Foreign Trade (BANCOMEXT). These mechanisms aim to help family businesses establish themselves in the market and be recognized as suppliers to large corporations, fostering mutual support among businesses of different sizes through supply chain schemes. In this way, different perceptions of business competitiveness are promoted, encouraging small family businesses not to disappear from the market but to grow and integrate into the formal economy (Watkins and Rodríguez, 2022).

In Mexico, as in the rest of Latin America, there remains a marked lack of formalization and institutionalization of family businesses, especially in the microenterprise sector, where practices such as tax evasion, informal employment, and street or mobile businesses predominate. According to data from INEGI, more than 55% of the Mexican economy operates in the informal sector, which severely limits access to the formal financial system. Mexican financial institutions, including commercial banks and microfinance institutions, frequently grant loans to individuals (without a formally incorporated business), because they recognize that these funds are used for commercial activities, thus highlighting the structural gap between the business reality and the country's current legal and financial framework (Ramos, 2019). However, family businesses face difficulties in obtaining alternative sources of financing, which are subject to a series of banking conditions and restrictions aimed at gathering information about the business and assessing risks when granting loans. (Rodríguez and Marín, 2017); (Graves and Thomas, 2008).

In Mexico, family businesses are a central player in the productive fabric and face challenges similar to those observed in other countries in the region. A large portion of these micro, small, and medium-sized enterprises are engaged in the production of goods and services that complement larger industries, but they face institutional, economic, and financial constraints that jeopardize their continuity. Many have limited access to formal financial services—ranging from savings to credit for investment, despite requiring financing for working capital, which hampers their productive capacity, competitiveness, and market expansion (Castro, 2019); (Sánchez, 2017).

In peri-urban and rural areas of Mexican cities, family businesses face even greater obstacles in accessing external credit, even though they need to invest in inputs and raw materials. Barriers include high interest rates, mistrust of the banking system, and a limited supply of tailored offerings from formal institutions, leading them to turn to alternative mechanisms (cooperatives, local microfinance institutions, municipal funds) that do not always meet their needs. Furthermore, documentation requirements, limited training in business management, and a lack of knowledge about financial instruments reduce their competitiveness and their ability to take advantage of market opportunities (Peñaranda, 2019).

Family businesses in Mexico established from 2020 to the present represent potential avenues for legitimization through the existence of various types of enterprises based on classification criteria, organizational behavior, and the formalization of firms in the commercial sector. The results show that, based on the characteristics of family businesses, informal firms pay lower dividends compared to their formal counterparts (Diéguez and López, 2018).

In this book chapter, contributions to theoretical and empirical knowledge were examined, and regulation and formalization were addressed (De Massis et al., 2018); (Yeung, B. (2003); (Graves and Thomas, 2008), specifically diversity in terms of profitability, productivity, and access to financial resources (Cerrato and Piva, 2012). These results have practical implications for key management stakeholders, including company executives and investors; their organizational behavior will bring the company closer to formalization processes before the regulatory bodies established in a given territory.

Family Businesses: Adaptability and Restructuring

A family business can be described as an entity in which the family controls ownership, especially if its members interact and are involved in the management of the business. For the most part, these businesses tend to be passed down from one generation to the next, highlighting various distinctive traits they have in common (Vílchez-Román, et al., 2020).

Family businesses are entities in which shared culture, values, and interests form a company that emerges from processes of business intervention. Research on the formalization of family businesses has yielded diverse results, due to the need to establish varied criteria (Trigos et al., 2026). In this context, it is essential to continue studying the sustained impact of family variations.

Finally, intervention in the processes of creating these family businesses are factors that influence the creation of classification processes to establish the typologies of family businesses (Guzmán, 2023). In this regard, this research analyzed how the influence of various criteria affects the formalization of businesses.

Organizational Culture from the Perspective of Business

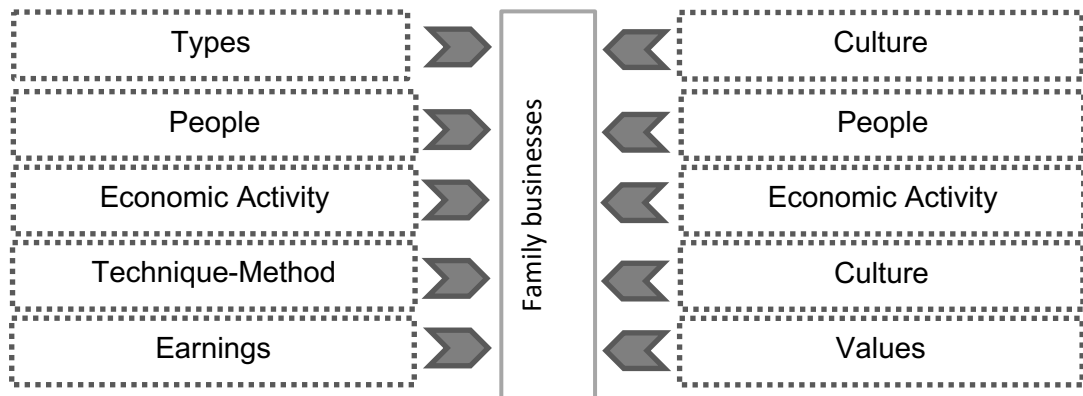
Formalization Processes

Although family businesses have internal linkages that highlight work environments, procedures, and outcomes—which vary depending on the individuals running the business—behavior in strategic decision-making is related to attitude. In this scenario, it is essential that the family generation’s involvement in the business persists with a long-term focus (Calles Santoyo and Luna-Nemecio, 2020).

Research conducted broadly and under strict oversight using the developed methodology indicates that companies led by educated generations with academic degrees are more likely to formalize their technical processes; specifically, formalization is related to the region’s productive sector, demonstrating that labor relations and the family’s contribution can serve as an opportunity to implement changes and business reorganization processes and pave the way toward formalization (Figueroa and Mendoza, 2024)

Figure I.

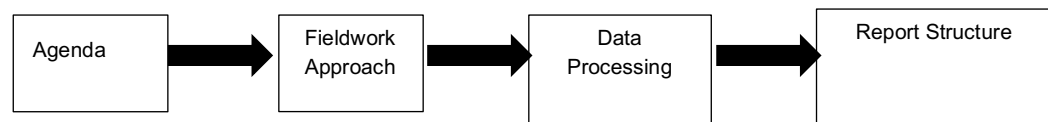
Dynamics: Family Businesses and Formalization. Source: Author’s own work (2026).



The research design is cross-sectional, non-experimental, and descriptive. Essentially, it consists of reviewing the literature related to family businesses. It explores digital books and journals indexed by Scopus, Emerald, JSTOR, and EBSCO Hot; these were useful for establishing the theoretical framework of the study. To achieve a valid and accepted scientific status, critical thinking, systematicity, and rigor are employed as part of the method (Hernández, 2021).

The sample consisted of 26 family businesses in Ciudad Victoria, Tamaulipas, Mexico. They were selected intentionally based on the following criteria: year of establishment, location within the commercial sector, and the presence of both men and women. The research included family businesses in the commercial industry, excluding those in other sectors due to their specific responsibilities and characteristics. The survey method was employed, using a questionnaire consisting of 19 items for this study. The research instrument was validated using Cronbach's and Pearson's methods, which allowed me to determine that the tool used to evaluate the instrument is highly reliable and meaningful. This instrument was administered to all family businesses.

Figure 2.
Methodological Procedure



Source: Prepared by the author (2026).

The latest version of SPSS was used to analyze and process the data obtained in this study, which allowed for the quantification of the information.

The Spanish founded the city of Victoria (now Ciudad Victoria), the capital of the state of Tamaulipas, on October 6, 1750; it was originally established as "Villa de Santa María de la Victoria." Ciudad Victoria retains historical features from its colonial past and serves as the state's main political and administrative center. In addition, it plays a role in the financial, educational, and service sectors and acts as a commercial hub serving its region of influence, making it a multifunctional city

whose role is to provide goods and services to the population of its area of influence beyond its municipal boundaries.

The municipality of Victoria covers an area of 3,341.98 km², while the urban area of Ciudad Victoria occupies a concentrated portion within that territory. According to INEGI's 2020 Population and Housing Census, the city of Ciudad Victoria had a population of 346,029 inhabitants in 2020. Historical data on population growth show fluctuations: between 1990 and 2000, the average annual growth rate was close to 1.8%; between 2000 and 2010, it stood at around 1.5%; and between 2010 and 2020, the rate fell to approximately 1.2% annually, reflecting a trend toward a slowdown in population growth over the last decade.

Table 1.

Types of Family Businesses

Family Businesses	f	%
Family Capital	20	76.92
Artisanal	6	23.08
Individual	0	0.00
Family business	0	0.00
Total	26	100.00

Source: Author's own work (2026).

Table 1 shows that, in the commerce sector, the family businesses most commonly identified are located in Ciudad Victoria, Tamaulipas, Mexico. The family-run and artisanal businesses in Tamaulipas, Mexico, account for 76.92% and 23.08%, respectively (Victoria Municipal Development Plan).

Similarly, regarding the elements of organizational culture to promote the formalization of family businesses in the commerce sector, different behaviors are observed. Table 2 shows:

Table 2.

Organizational Culture

Level	f	%
Good	1	3.8
Fair	1	3.8
Poor	24	92.3
Total	26	100

Source: Author's own work (2026).

With regard to Table 2, one can observe the level of behavior associated with the awareness received in terms of the business formalization of family-owned companies in the commerce sector in Ciudad Victoria, Tamaulipas, Mexico. It indicates that 92.3% have not attended any awareness-raising workshop, which is classified as poor. However, the study shows that some owners of these establishments have been able to read certain regulations established by the competent authorities; in this regard, they have received legal and technical guidance. This translates to a good and regular incidence of 3.8%.

For the number of formalized family businesses from 2020 to the present, see Table 3.

Table 3.

Regulation and formalization of commercial organizations

Level	f	%
Good	4	15.4
Fair	7	26.9
Poor	15	57.7
Total	26	100

Source: Author's own work (2026).

Table 3 clearly shows that 57.7% cannot yet be formalized, indicating that the work performed is poor; only 15.4% consider their work to be good and wish to formalize their businesses.

Percentage of family businesses in the commerce sector that have formalized their operations in Ciudad Victoria, Tamaulipas, Mexico , from 2020 to the present. See Table 4.

Table 4.

Behavior of Family Businesses

	f	%
Good	0	0.0
Fair	4	15.4
Poor	22	84.6
Total	26	100

Source: Author's own calculations (2026).

Table 4 shows that, according to the established overall goal, the expected results indicate that only 15.4% of businesses have become formalized and that a majority, 84.6%, do not wish to become formalized.

A study of family-owned businesses in the commercial sector of Ciudad Victoria, Tamaulipas, Mexico, from 2020 to the present. Most of these businesses are family-owned and, therefore, do not pay wages, and informal practices persist that affect labor relations and the processes of formalization due to the rights and obligations that protect workers. In other words, to raise awareness about business formalization, employers must implement ongoing training programs to grow their businesses.

Conclusions

Family dynamics largely define behavior and the various partnerships established to consolidate the business; these characteristics—along with a commitment to the business and a desire to continue the business legacy into the future—foster formalization. Most informal

businesses fall within the microenterprise category, as they are typically family-run companies whose production is driven by day-to-day operations and whose profits or profit margins are used to sustain the business.

In this regard, although merchants have been made aware of their obligations, they remain reluctant to comply with their tax obligations, making it necessary to continue with personalized training. For family-owned businesses in the commerce sector, it is recommended that formalization procedures seek new tax payment methods that are more accessible. Government agencies should foster closer ties with these businesses rather than focusing solely on oversight bodies; it is essential to highlight the role universities play in these processes through training and the promotion of tutoring or mentoring programs linked to the productive sector.

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Female leadership: structural analysis based on gender indicators

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Introduction

In the contemporary debate on equality, women's leadership is understood as a critical dimension of social justice and democratic quality, but also as an outcome strongly conditioned by cultural stereotypes and institutional arrangements. The literature shows that leadership stereotypes have historically been masculinized, although their intensity has diminished somewhat over time, which affects how women's suitability for decision-making roles is evaluated (Koenig et al., 2011). Within this framework of adjustments in the business context in Latin America, according to Quezada et al. (2023), female executives employ various strategies aimed at competing with both their male and female counterparts while facing the challenges of their professional careers.

Analytically speaking, this tension between formal progress and the persistence of biases is explained, in part, by the fact that stereotypes operate not only explicitly but also through implicit evaluations and interpretive frameworks that can subtly trigger prejudices during selection, promotion, and power legitimation processes; in fact, recent evidence shows that the content and valuation of stereotypes regarding typical leaders, male leaders, and female leaders can vary depending on the type of measurement used, which helps explain why organizations may declare themselves pro-equality and yet still reproduce differentiated filters for promotion (Tremmel & Wahl, 2023).

From the perspective of organizational psychology, evidence of evaluation biases and prescriptive expectations suggests that women's advancement is hindered not only by visible barriers but also by subtle mechanisms of devaluation, denial of merit, or penalization for competence (Heilman, 2001). In this regard, Barnes & O'Brien (2025) highlight the influence of gender on access to power, the behavior of leaders, and the way they are received and perceived within institutions. This approach is particularly relevant because it shifts the focus from explanations centered on individual *deficits* toward institutional mechanisms that structure authority.

Along these lines, recent reviews in cognitive psychology indicate that, even with changes in social roles, power continues to be coded as masculine, which can lead to reactions of rejection toward women seeking formal authority, as well as distinct career paths that limit access to resources, networks, and legitimacy (Kray et al., 2025). Furthermore, when women attain leadership positions, the entry- s are

not always equivalent: recent studies have documented evidence of *the “glass cliff”* phenomenon, in which female appointments may be concentrated in crisis scenarios or situations of high uncertainty as a signal of change, increasing the risk of negative attributions if results are not achieved in adverse contexts (Reinwald et al., 2023).

Likewise, experimental research suggests that the link between crisis and female leadership may depend on the type of crisis, reinforcing the idea that leadership selection does not always respond to neutral criteria of competence, but also to situational stereotypes regarding expected leadership traits (Kulich et al., 2021). Complementarily, a recent meta-analysis of 50 years of studies evaluating leadership behaviors provides additional support for the claim that gender-based leadership evaluations are shaped by persistent patterns and contextual moderators, which is useful for interpreting gaps that persist even as participation indicators improve (Paustian et al., 2024).

In Peru, regulatory and social developments have driven progress in political participation and presence in the public sector. In this regard, international databases report female representation in the Peruvian parliament at 38.5% (February 2024) and a projected 42% by 2025 in global comparative benchmarks (Pando et al., 2022).

However, the significance of these advances requires a more nuanced interpretation: an increase in descriptive representation can coexist with inequalities in access to executive power, in the distribution of resources, in recognition, and in the sustainability of career trajectories, as the literature on executive leadership and gender warns when analyzing how real leadership opportunities are shaped and how perceptions—often among faculty and students—are constructed and consolidated regarding the capacity to govern (Barnes & O’Brien, 2025) (Hernández et al., 2025).

However, it is also documented that increased participation does not necessarily translate into effective leadership at the subnational level, where obstacles related to funding, media coverage, and intersectional barriers persist even under reforms promoting parity and alternation (Ponte, 2024). These findings are consistent with international evidence indicating that inequalities arise in the transition from presence to effective power: formal inclusion on lists or in participatory spaces does not eliminate the material constraints or evaluation biases that affect authority, governance, and political continuity (Leyva et al., 2021; UN Women, 2026)

Against this backdrop, this article proposes a structural analysis of women's leadership in Peru, integrating indicators from official national and multilateral sources for the period 2010–2025. It seeks to identify persistent gaps and discuss them in light of theoretical frameworks and high-impact scientific evidence (Scopus/WoS). In particular, it is considered that understanding these gaps requires articulating: (a) the institutional dimension (rules of access, incentives, resources), (b) the cultural dimension (explicit and implicit stereotypes), and (c) the contextual dimension of leadership (entry conditions, including crisis scenarios), given that recent evidence shows that these components interact and shape both the selection and social evaluation of female leadership (Tremmel & Wahl, 2023; Kray et al., 2025; Reinwald et al., 2023).

Quantitative, non-experimental, descriptive, and longitudinal study (2010–2025), based on secondary analysis of official indicators and comparative repositories. The following were included: (a) international gender and leadership repositories; (b) official reports from the Peruvian government; and (c) comparative regional publications. The criteria were: public access, institutional traceability, and coverage of participation and decision-making variables

Main sources:

- UN Women Data Hub (Peru country profile).
- World Bank Gender Data Portal / Peru country data.
- Peru: Gender Gaps, 2024: Progress Toward Gender Equality (INEI).
- Peru: Gender Gaps, 2025: Progress Toward Gender Equality (INEI).
- Women in the Peruvian Civil Service 2026 (SERVIR).
- SERVIR: Peru is one of the countries that has achieved parity in the public sector (institutional note associated with the 2025 report).
- Indicators | Gender Equality Observatory (ECLAC). Variables and indicators (operationalization)

Core variable: Female leadership (proxy for presence in decision-making positions).

Dimensions and indicators (depending on availability in consulted sources):

1. Political leadership (national and subnational): proportion of parliamentary seats held by women; evidence on the effects of parity and alternation in subnational elections.
2. Leadership in the public sector (career and management): proportion of women in the civil service and distribution by level of government; reference to male predominance in management positions.
3. Associated structural context (determinants): labor force participation by sex, as a baseline indicator for leadership supply.

Methodological transparency note: This manuscript presents descriptive results using the explicit values found in the fact sheets/landing pages and institutional notes consulted; for a complete 2010–2025 series, it is recommended to download the annexes/CSV files from each repository and estimate trends (trends, annual variation, breaks). (This is proposed as a procedure, not as a finding).

Role congruence, stereotypes, and the penalization of female leadership

The perceived incongruence between the female gender role and leadership roles produces two forms of bias: lower favorability toward women as potential leaders and less positive evaluation when they exhibit behaviors associated with leadership (Eagly & Karau, 2002).

This approach aligns with the idea that stereotypes operate both descriptively—based on beliefs about how women are—and prescriptively—based on expectations of how they should be—generating adverse reactions when women demonstrate agency or high competence in male-dominated spaces (Heilman, 2001).

Meta-analytic evidence further indicates that leadership stereotypes remain culturally masculine across various measurement paradigms, although they have diminished over time and vary by organizational domain and role status (Koenig et al., 2011).

Taken together, these approaches allow us to interpret leadership gaps not as a lack of individual preparedness, but as the result of cumulative biases in career trajectories, opportunity allocation, and performance evaluation (Eagly & Karau, 2002; Heilman, 2001).

Assessment of Leadership Effectiveness and Contextual *Female Advantage*

A key contribution is the meta-analysis “Gender and Perceptions of Leadership Effectiveness: A Meta-Analysis of Contextual Moderators,” which synthesizes 99 samples (95 studies) and concludes that, considering all contexts, there are no overall differences between men and women in perceived effectiveness; however, in evaluations by *others* (not self-evaluations), women are rated as more effective, while men tend to rate themselves more favorably (Paustian et al., 2014).

This finding is relevant because it suggests that gaps in access to top leadership are not explained by lower effectiveness, but rather by structural filters: selection, promotion, visibility, and networks of influence (Paustian et al., 2014; Eagly & Karau, 2002). Naranjo et al. (2022) note that the public sector can become the benchmark in each country for defining what it truly means to reduce or eliminate the gender gap. Consequently, ambitious goals must be accompanied by the strengthening of the state’s institutional capacities necessary to achieve the proposed objectives.

In the corporate sector, aggregate evidence suggests that female representation on boards is positively associated with accounting returns and with core monitoring and strategic functions, although the effects vary depending on regulatory and sociocultural contexts (Post & Byron, 2015).

Therefore, the high-impact body of evidence reinforces a structural interpretation: as social parity and institutional protections increase, outcomes and perceptions regarding female leadership tend to improve, which has direct implications for the Peruvian case (Post & Byron, 2015; Koenig et al., 2011).

Peru: Reforms, Activism, and Subnational Political Participation

In Peru, the equality agenda has been strongly influenced by collective action and feminist activism, with recent legislative milestones such as the national gender equality policy enacted via Supreme Decree No. 008-2019-MIMP (2019) and Law No. 31030 (2020) on electoral parity,

analyzed from the perspectives of liberation psychology and testimonies from women leaders of the movement (Grabe, 2022).

At the subnational level, the parity and alternation reform implemented in regional and municipal elections in 2022 showed positive changes in list inclusion and among elected officials, but also the persistence of cross-cutting challenges, such as financing and media coverage, with greater gaps for women, especially from an intersectional perspective (Ponte, 2024).

Ponte (2024) adds that, from an institutional perspective, these tensions suggest that the law may increase presence but does not necessarily guarantee substantive access to power or continuity in political careers, making it necessary to simultaneously examine indicators of representation and of executive/decision-making positions.

National political representation: quantitative progress with power gaps

The UN Women Data Hub country profile reports that, in Peru, 38.5% of parliamentary seats were held by women (data “as of February 2024”). Consistently, the World Bank’s comparative data for Peru records 42% as the “proportion of seats held by women in national parliaments” for the most recent year shown in its country profile (2025).

These indicators confirm an increase in female representation in the legislature, consistent with the literature recognizing that parity reforms typically increase descriptive representation; however, role congruence theory warns that numerical access does not automatically eliminate biases regarding authority and effective leadership (Eagly & Karau, 2002; Koenig et al., 2011).

In parallel, analyses of subnational elections in Peru argue that parity and alternation can improve inclusion, but structural barriers (funding and media coverage) remain, suggesting that the *leap* to executive or higher-power positions may remain restricted even with more inclusive lists (Ponte, 2024).

- **Public sector: aggregate parity and persistent vertical segregation**

The SERVIR institutional report: Peru is one of the countries that has achieved parity in the public sector indicates that female representation in the civil service reached 50.1% in 2023 and 49.3% in 2024, based on ENAHO and electronic payroll data. The same source points to an uneven distribution by level of government, with a higher female presence in regional governments (59%) and a lower one at the local level (33.2%), as well as a predominance of men in leadership positions.

Meanwhile, the page “Women in the Peruvian Civil Service 2026” emphasizes a cross-cutting analysis: even as participation indicators improve, feedback loops linked to the unequal burden of unpaid work, occupational segregation, and reduced access to networks of influence and promotion persist.

These findings are consistent with the framework of prescriptive stereotypes and competition penalties, where entry-level parity does not guarantee parity at the top, due to biased evaluations, differential allocation of opportunities, and less organizational sponsorship (Heilman, 2001; Eagly & Karau, 2002).

- **Background Conditions: Labor Force Participation by Sex and *the Pipeline* to Leadership**

The Peru profile on the World Bank Gender Data Portal reports that the labor force participation rate is 65% for women and 80.9% for men (data shown for 2025), suggesting an unequal foundation for economic integration.

From a structural perspective, lower female labor force participation reduces the potential *pool* of candidates for leadership positions, although the literature indicates that even when participation rates are high, the gap may persist due to evaluation biases and masculinized stereotypes of leadership (Koenig et al., 2011; Paustian-Underdahl et al., 2014).

Furthermore, meta-analytic evidence on perceived effectiveness reinforces that there is no general deficit in female leadership: in third-party evaluations, women may be rated as more effective, which shifts

the explanation toward mechanisms of access and promotion, not toward ability (Paustian-Underdahl et al., 2014).

The observed pattern—greater parliamentary representation, aggregate parity in the civil service, and the persistence of male predominance in management—is consistent with a phenomenon of vertical segregation: increased participation at the base and intermediate levels, with relative blockage at the top.

The Role Congruity Theory of Prejudice Toward Female Leaders offers a robust interpretation: when leadership is culturally associated with agency/masculinity, women face a *double standard* (being competent while also meeting warmth requirements), which penalizes their advancement, especially in higher-status positions (Eagly & Karau, 2002; Heilman, 2001).

In Peru, evidence on subnational parity and alternation suggests that reforms can increase inclusion, but campaign obstacles (funding, media exposure) limit the conversion of list representation into effective and sustained power, especially for young and indigenous women. (Ponte, 2024).

In the public sector, the institutional discourse of Women in the Peruvian Civil Service 2026 introduces a key explanatory mechanism: the unequal burden of unpaid work raises the cost of taking on greater work commitments (mobility, training, positions of responsibility), reinforcing occupational segregation and reducing access to promotion networks.

The international literature suggests that improving women's access to decision-making bodies is not only an equity goal but may also be associated with improvements in oversight and strategic functions in corporate governance, with effects conditioned by the institutional and sociocultural context (Post & Byron, 2015). Therefore, Peruvian public policy faces a dual challenge: sustaining progress in descriptive representation while simultaneously addressing the organizational and cultural mechanisms (evaluation, mentoring, networks, shared caregiving responsibilities) that create the *glass ceiling* in public administration and subnational leadership (Heilman, 2001; Koenig et al., 2011; SERVIR, 2025).

Specifically, Peru shows measurable progress in national political leadership, with recent indicators placing female parliamentary

representation at around 38.5% (2024) and 42% (2025) in international databases. In the civil service, aggregate parity is observed ($\approx 50\%$ women), but with unequal distribution across levels of government and the persistence of male predominance in leadership positions, which indicates vertical segregation.

Meanwhile, parity and alternation reforms can improve subnational inclusion, but structural barriers (funding, media coverage) remain that limit effective leadership, especially under intersectional approaches. Theoretically, the set of results is consistent with explanations of role congruence and prescriptive stereotypes, and not with a hypothesis of lower female effectiveness: meta-analytic evidence suggests an absence of an overall disadvantage in perceived effectiveness and, in certain contexts, an advantage in third-party evaluations.

Conclusions

The reviewed evidence leads to the conclusion that, in Peru, the challenge of women's leadership is no longer explained by a lack of participation, but rather by the persistence of structural mechanisms that prevent the conversion of presence into effective and sustained power, so that the public agenda must shift from an emphasis on quotas or descriptive representation toward institutional reforms that guarantee career trajectories, real access to executive positions, and equitable conditions for promotion. In particular, the coexistence of regulatory advances with gaps in decision-making positions suggests that the State and organizations continue to operate with evaluation and legitimation frameworks marked by stereotypes, double standards, and subtle penalizations that affect women's authority and their continuity in high-responsibility positions; therefore, the *glass ceiling* must be treated as a problem of institutional design and organizational culture, not as an individual shortcoming.

Regarding the difficulties identified at the subnational level, they show that formal equality can be undermined by barriers related to funding, visibility, and conditions of political competition, reinforcing the need for comprehensive policies that combine access rules with material guarantees and oversight mechanisms to ensure substantive equality. In this vein, the public sector appears as a space with the potential to become a model for closing gaps if it strengthens state capacities focused on meritocracy, transparency in selection and promotion, mentoring and support networks, and measures of shared responsibility that reduce the opportunity cost associated with assuming greater

responsibilities, including the unequal burden of care and restrictions on mobility and training.

Finally, the analysis suggests that, without explicit interventions addressing evaluation biases and the conditions for entering leadership positions—including high-pressure or crisis situations where the risk of negative attributions increases—progress may be fragile and reversible, making it a priority to consolidate a public policy approach that integrates institutional, cultural, and contextual dimensions of leadership to translate inclusion into decision-making, governance, and the sustainability of women’s career trajectories in Peru.

Limitations and future agenda: This manuscript is based on explicit values available in fact sheets/landing pages and institutional notes; to strengthen the 2010–2025 longitudinal analysis, it is necessary to download annexes and complete data series from INEI, the World Bank Gender Data Portal, the UN Women Data Hub, and SERVIR, and to estimate trends using annual series and cross-sections by territorial level. As a future agenda, we recommend: (1) incorporating leadership indicators in the private sector using auditable regulatory/corporate sources; (2) analysis by region and rurality; (3) explanatory models that integrate unpaid care work, social capital, and career trajectories.

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Natural resources, nearshoring, and environmental sovereignty: implications of the USMCA for Mexico's sustainable development model

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Introduction

The recent transformation of international trade, marked by the rise of *nearshoring*—the relocation of production chains to countries geographically close to the final market—has placed Mexico in a strategic position, particularly in the context of the United States-Mexico-Canada Agreement (USMCA). This dynamic not only redefines economic flows in the region but also poses structural challenges to environmental sovereignty and the national sustainable development model. Amid a global climate crisis, Mexican natural resources such as water, energy, and land face new pressures stemming from export-oriented reindustrialization shaped by regulatory, competitive, and geopolitical demands (Gallagher and Kozul-Wright, 2021; Levy-Orlik, 2022).

This analysis is set against a backdrop where multilateral environmental commitments, domestic regulatory constraints, and the territorial effects of industrial relocation converge. The USMCA, as a trade policy instrument, incorporates environmental provisions that, far from guaranteeing effective sustainability, are constrained by institutional asymmetries and gaps in Mexican environmental planning (Ornelas-Rodríguez and Castillo-Romero, 2021). Likewise, the absence of binding mechanisms to strengthen ecological sovereignty has led to conflicts between foreign direct investment, ecosystem protection, and community rights (Ramos-Méndez, 2022).

The objective of this chapter is to critically analyze the implications of the USMCA on Mexico's natural resources, in light of the *nearshoring* phenomenon and the need to strengthen a sustainable development model with a sovereign, “ ” approach. To this end, three key dimensions are examined: (i) environmental governance and its regulatory instruments; (ii) the sectoral impacts of *nearshoring* on water, energy, and land; and (iii) the structural contradictions between trade liberalization and sustainability.

The study begins with a critical theoretical review and an analysis of relevant cases, with an emphasis on northern and central Mexico, where the main hubs attracting relocated investment are concentrated. Primary sources from multilateral organizations, national agencies, and research centers are also examined, seeking to identify both regulatory gaps and opportunities for productive restructuring with environmental justice.

Environmental Provisions of the United States-Mexico-Canada Agreement (USMCA): Regulatory Contradictions and Institutional Asymmetries

The inclusion of an environmental chapter (Chapter 24) in the United States-Mexico-Canada Agreement (USMCA) was presented as an improvement over its predecessor, the North American Free Trade Agreement (NAFTA) (Barba-Solano, 2023). The USMCA establishes commitments to strengthen the enforcement of environmental laws, promote trade in green goods and services, and prevent environmental degradation from being used as a competitive advantage (Coe-Neil and Wai-chung 2019). However, these principles coexist with investment protection clauses that limit states' scope for action in the face of potential impacts on private interests (Moreno-Brid and Ros-Bosch, 2010; Hanson, 1998).

A critical review of Chapter 24 shows that, while it recognizes each country's sovereign right to set its own levels of environmental protection, it also imposes restrictions that allow foreign investors to challenge regulations through mechanisms such as Chapter 14, which pertains to the Investor-State Dispute Settlement (ISDS) system, particularly in sectors such as mining, energy, or the export-oriented agro-industry (Arteaga-García, 2022).

In practice, the treaty does not establish strong sanctions for environmental violations if they do not directly affect trade, which dilutes its regulatory force (Romo-Muñoz and Martínez-Rivera, 2020). Furthermore, it has been documented that institutional capacities in Mexico to monitor and sanction environmental crimes are limited, particularly in states where investment hubs focused on nearshoring are concentrated, that is, the relocation of production chains to countries close to the end consumer as a strategy to reduce logistics costs, such as Baja California, Sonora, Jalisco, and Nuevo León (Valenzuela-Feijoó, 2012).

On the other hand, cross-border trade in strategic natural resources, such as water, lithium, forest products, and agro-industrial foods, has been facilitated by provisions of the USMCA that promote trade liberalization without requiring binding sustainability criteria (Torre-

Cepeda and Flores-Segovia, 2020). In this context, various civil society organizations have warned that the treaty may consolidate an intensified and environmentally regressive extractive model.

A comparative analysis with the environmental policies of the United States and Canada also reveals an institutional imbalance. While these countries have stricter regulatory frameworks and greater capacity to enforce sanctions, Mexico has been pressured to relax its environmental regulations in order to attract foreign direct investment, which creates a “race to the bottom” in protection standards (Valenzuela-Feijóo, 2012: 217).

This regulatory contradiction undermines the possibility of using the USMCA as a tool to promote sustainable development. Instead, it amplifies the risk that territories receiving investment will become ecological sacrifice zones, where economic competitiveness takes precedence over environmental justice.

Territorial and Socio-Ecological Impacts of Nearshoring in Mexico

The process of nearshoring—the relocation of production chains to countries close to consumer markets—has been promoted by the Mexican government as a strategic opportunity to attract foreign direct investment, especially from U.S. and Asian companies seeking to reduce geopolitical risks or logistics costs (Ramos-Méndez, 2022). However, this phenomenon has generated a new geography of accelerated industrialization that puts pressure on fragile ecosystems, strategic natural resources, and local social structures (Gutsch-Mai, Ukhova-Nelli, and Dijkstra-Silva 2024).

In states such as Nuevo León, Coahuila, and Baja California, logistics and industrial clusters have been established that rely on the intensive use of water, land, and energy, leading to conflicts over access to aquifers, unregulated urban expansion, and impacts on biodiversity. According to estimates by the National Institute of Statistics and Geography (INEGI), the Saltillo-Monterrey industrial corridor has doubled its water demand between 2015 and 2023, while water stress levels have reached critical values in several sub-basins (INEGI, 2023).

The T-MEC III Industrial Park, located in the municipality of Salinas Victoria, Nuevo León, illustrates these conflicts. The development was

approved using simplified environmental assessment mechanisms, on the grounds that it meets the relocation goals promoted by the United States-Mexico-Canada Agreement (USMCA). However, nearby rural communities have denounced the overexploitation of the Buenos Aires aquifer and the fragmentation of biological corridors, revealing a contradiction between the discourse of sustainability and actual implementation practices (Moreno-Brid and Ros-Bosch, 2010).

In western regions of the country, such as Jalisco and Guanajuato, nearshoring has encouraged the conversion of agricultural land into industrial warehouses, without comprehensive land-use plans. The El Salto-Zapotlanejo corridor, for example, concentrates chemical, agri-food, and logistics industries with high environmental impact, which has led to multiple complaints regarding air pollution and contamination of the Santiago River. In these contexts, the lack of coordination between trade, environmental, and urban development policies creates regulatory gaps that are exploited by private actors to accelerate industrial expansion without mechanisms for public consultation or ecological compensation (Arteaga-García, 2022).

Although the USMCA contains provisions on environmental cooperation, in practice the Mexican institutional framework lacks binding tools to halt, correct, or sanction industrial developments incompatible with ecological conservation or territorial rights. Furthermore, the sectoral approach of public policy fragments institutional responses, preventing a systemic assessment of the cumulative impacts of industrial relocation.

In short, nearshoring under current conditions reinforces a model of territorially unequal and environmentally unsustainable economic growth, which intensifies pressure on peripheral regions with low institutional defense capacity. This highlights the urgency of designing land-use planning strategies with an ecosystem-based approach and environmental justice, which set clear limits on industrial expansion in vulnerable ecosystems.

Environmental Sovereignty and Disputes Over Natural Resources Under the United States-Mexico-Canada Agreement (USMCA)

The United States-Mexico-Canada Agreement (USMCA) formally recognizes the sovereign right of states to regulate environmental matters. However, multiple clauses in the agreement create operational restrictions that, in practice, limit the Mexican government's ability to exercise full sovereignty over its natural resources, particularly when such regulations interfere with the interests of foreign investors (Arteaga-García, 2022).

Chapter 14 of the USMCA, concerning investment protection, establishes mechanisms that allow foreign companies to sue governments when their regulatory decisions affect expected profits. This mechanism, known as the Investor-State Dispute Settlement (ISDS) system, has historically been used in Latin America to challenge environmental reforms, mining moratoriums, and controls on extractive industries (Gallagher and Kozul-Wright, 2021). Although Mexico and the United States partially restricted this mechanism in sensitive sectors, the regime remains in effect regarding energy and strategic natural resources.

An illustrative example is the case of the U.S. company Odyssey Marine Exploration, which sued the Mexican government for \$3.54 billion before the International Centre for Settlement of Investment Disputes (ICSID), alleging that the Ministry of the Environment and Natural Resources (SEMARNAT) arbitrarily denied permits for an underwater mining project off the coast of Baja California Sur. The denial was based on the risk of irreversible damage to the marine ecosystem and artisanal fisheries, but the company argued that this constituted indirect expropriation under the investment chapter of the then-current North American Free Trade Agreement (NAFTA), whose rules were transferred almost entirely to the USMCA (Gallagher, 2020).

Cases like this highlight a structural contradiction: while Mexico seeks to move toward a model of sustainable development and the protection of key ecosystems—such as aquifers, rainforests, wetlands, or coastlines—the USMCA consolidates a legal regime that prioritizes investors' rights over the principles of environmental precaution and the defense of the commons (Moreno-Brid and Ros-Bosch, 2010).

Furthermore, the trade liberalization of lithium, water, and renewable energy raises questions about the state's actual scope to decide how and for what purpose these resources are used. Although Mexico has declared lithium a national heritage (2022 reform), various provisions of the USMCA could be invoked by affected companies to challenge such decisions if they are deemed to violate the principles of fair treatment, non-discrimination, and free transfer of capital.

In the face of these challenges, socio-environmental movements have gained strength, advocating for territorial and ecological sovereignty in highly conflict-ridden regions. Such is the case of the Yaqui communities in Sonora, the Nahua peoples in Morelos, and the fishing cooperatives on the Baja California Peninsula, which have initiated lawsuits, community consultations, and collective actions to defend water, forests, and territories against projects stemming from the industrial expansion incentivized by the USMCA (Torre-Cepeda and Flores-Segovia, 2020).

Environmental sovereignty, in this context, cannot be understood solely as the state's legal capacity to regulate, but also as the right of peoples and communities to decide on land uses, to exercise social control over extractive projects, and to defend their common natural resources against the effects of international trade.

Environmental Planning and Policy Instruments in the Face of the USMCA

Mexican environmental policy is formally grounded in various strategic planning instruments and regulatory frameworks with constitutional status. Among these are the General Law on Ecological Balance and Environmental Protection (LGEEPA), in force since 1988 and amended on multiple occasions, and the General Law on Climate Change (LGCC), which establishes national climate mitigation and adaptation targets. Both regulatory frameworks incorporate instruments such as ecological land-use planning, environmental impact assessments, and ecological restoration zones, as well as federal and state sectoral programs (SEMARNAT, 2023).

However, the actual implementation of these instruments faces structural limitations that are exacerbated by the pressures imposed by the trade commitments of the United States-Mexico-Canada Agreement (USMCA). Unlike the treaty's environmental commitments, which are

mostly declaratory or subject to voluntary cooperation mechanisms, the trade and investment protection chapters are legally binding and accompanied by enforcement mechanisms (Gallagher and Kozul-Wright, 2021).

In this context, the Ministry of the Environment and Natural Resources (SEMARNAT) has seen its scope for action reduced, both in terms of budget and influence within the economic cabinet. In fact, the federal budget allocated to SEMARNAT has decreased by more than 30% between 2015 and 2024 in real terms, which has affected environmental monitoring, the development of updated ecological regulations, and the capacity for technical evaluation of megaprojects (CEMDA, 2024).

For its part, the National Commission for Regulatory Improvement (CONAMER), under the Ministry of Economy, has been criticized for prioritizing economic deregulation criteria in regulatory impact assessments, even on issues of high environmental risk. The issuance of “non-binding” rulings by CONAMER, which are sometimes contrary to environmental precautionary principles, demonstrates the subordination of environmental policy to the trade objectives of the USMCA (Arteaga-García, 2022).

Furthermore, the 2020–2024 Sectoral Program for the Environment and Natural Resources does not include explicit strategies for coordination with trade policy, nor mechanisms to assess the cumulative environmental impact of the nearshoring process or the opening of new industrial zones under the treaty. This reveals a serious institutional disconnect that undermines the coherence of public policy in the context of regional integration.

In short, while Mexico has a robust legal framework on environmental matters, its effective implementation is severely limited by budgetary constraints, inter-institutional imbalances, and gaps in coordination between environmental policy and trade commitments (Poulakis, Thanos, and Persefoni Tsaliki, 2022). This situation calls into question the state’s ability to protect the commons in the face of an economic growth agenda driven by free trade agreements.

Table 1.

Comparison of USMCA environmental commitments and institutional capacities in Mexico

USMCA environmental commitments	Institutional capacities in Mexico
Promotion of sustainable development	Robust regulatory framework but weak territorial enforcement (LGEEPA, LGCC)
Strengthening of trilateral environmental cooperation	Reduced budgets for SEMARNAT and local agencies
Commitment to the effective implementation of environmental laws	Technical and operational limitations at the Federal Attorney General's Office for Environmental Protection (PROFEPA)
Mechanisms for resolving environmental disputes (Chapter 24)	Lack of effective mechanisms to enforce cooperation or sanction non-compliance
Prohibition on subsidies for illegal, unreported, and unregulated fishing	Lack of systematic data on subsidies and weaknesses in fisheries inspection

(Source: Prepared by the author based on USMCA, SEMARNAT, LGEEPA, LGCC, PROFEPA)

However, even with a seemingly consolidated legal and institutional framework, structural risks persist that undermine the effectiveness of environmental policies under the United States-Mexico-Canada Agreement (USMCA), particularly due to the growing influence of private interests in national regulatory processes.

Regulatory capture and imbalances in the environmental architecture of the United States-Mexico-Canada Agreement (USMCA)

One of the least visible but most significant challenges in implementing the environmental commitments of the United States-Mexico-Canada Agreement (USMCA) is the possibility of regulatory capture, particularly in strategic sectors linked to nearshoring. Regulatory capture occurs when public agencies responsible for regulating an industry end up subordinating their decisions to the interests of the most powerful

economic actors, thereby weakening the public function of environmental protection (Arteaga-García, 2022).

In Mexico's case, institutions such as the Ministry of the Environment and Natural Resources (SEMARNAT) and the National Commission for Regulatory Improvement (CONAMER) face political and economic pressures that limit their technical autonomy. Although CONAMER fulfills a role aimed at reducing bureaucratic burdens, it has been criticized by organizations such as the Mexican Center for Environmental Law (CEMDA) for prioritizing economic assessments over environmental criteria in regulatory rulings (CEMDA, 2024). This situation is exacerbated by the logic of the USMCA, where investor-state dispute settlement clauses may discourage the imposition of strict environmental regulations for fear of litigation and sanctions (Levy-Orlik, 2023).

An illustrative example of these tensions is the case of the Constellation Brands brewery in Mexicali, Baja California. Despite holding federal permits, the project was canceled in 2020 following a public referendum driven by social pressure over water overexploitation. The company threatened to take the case to international arbitration, highlighting the imbalance between environmental sovereignty and investment protection under trade agreements (Moreno-Brid and Ros-Bosch, 2010).

Furthermore, the USMCA does not require parties to adopt specific levels of environmental protection, but rather to effectively enforce existing laws. This ambiguity allows states to maintain lax standards as long as they are applied in a "non-discriminatory" manner, which establishes a minimum floor rather than incentivizing more ambitious standards (Gallagher and Kozul-Wright, 2021). In this context, there is a risk that Mexico will become a destination for the relocation of highly polluting industries, particularly in areas with weak institutions or limited oversight (Méndez-Castañón and Solleiro-Castañón, 2024).

The combination of environmental institutions with limited resources, corporate power brokers strengthened by nearshoring, and USMCA provisions that favor private arbitration creates fertile ground for environmental regulatory capture. This situation seriously compromises the viability of a sustainable development model that prioritizes ecological integrity and community well-being (Carrillo-García and Hualde-Alonso, 2020).

In this context, it is urgent to strengthen the technical and financial autonomy of SEMARNAT and other environmental agencies, as well as to establish regulatory impact assessment mechanisms with binding environmental criteria. Likewise, the institutional design of CONAMER must be reviewed to prevent it from becoming an entity that weakens regulations in the face of corporate interests.

This analysis allows us to move toward a more in-depth discussion of regional environmental cooperation mechanisms that could balance the current asymmetries in USMCA governance (). This discussion is addressed below.

Conclusion

A critical review of the environmental implications of the United States-Mexico-Canada Agreement (USMCA) reveals a structural contradiction between the formal principles of sustainability and the functional logic of the agreement. While the treaty incorporates specific provisions on environmental cooperation and protection for the first time, these are subordinated to investment protection clauses that, in practice, limit the Mexican state's effective exercise of environmental sovereignty (Gallagher, 2020; Levy-Orlik, 2023).

An analysis of the territorial impacts of nearshoring—the process of industrial relocation to Mexico driven by the USMCA—shows that this strategy has intensified pressure on fragile ecosystems, exacerbated water conflicts, and deepened regional imbalances. Attracting investment without long-term environmental planning has led to ecological sacrifice zones in key states such as Nuevo León, Jalisco, and Baja California (INEGI, 2023; Arteaga-García, 2022).

In turn, the USMCA's dispute resolution regime grants disproportionate power to foreign investors over sovereign decisions on environmental matters, as illustrated by the Odyssey Marine case. This situation creates a legal environment of uncertainty that discourages progressive regulations in defense of the public interest (Gallagher and Kozul-Wright, 2021).

In this context, it is crucial to analyze the role Mexico has played in multilateral forums such as the Conferences of the Parties (COP) to the Paris Agreement. Despite having reaffirmed climate commitments at COP26 (Glasgow, 2021) and COP28 (Dubai, 2023), the national strategy reveals inconsistencies between its international rhetoric and

domestic policy, particularly in the energy and extractive sectors (Pérez-Cirera and Luján, 2023). This dissonance weakens Mexico's ability to demand robust environmental commitments within treaties such as the USMCA (United States-Mexico-Canada Agreement).

Likewise, the rise of nearshoring, driven by the relocation of supply chains to northern Mexico, represents an economic opportunity but also a socio-environmental threat if not properly regulated (Ornelas-Rodríguez and Castillo-Romero, 2021). The rapid establishment of industrial parks in states such as Nuevo León, Baja California, and Querétaro is placing significant pressure on aquifers, semi-arid ecosystems, and the territories of rural communities, often without prior consultation or cumulative impact assessments (Méndez-Castañón and Solleiro-Castañón, 2024).

Finally, achieving the Sustainable Development Goals (SDGs) by 2030—particularly SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action)—requires more coherent integration between trade, industrial, and environmental policies. Far from being a barrier, the USMCA can become a platform for reshaping development rules with an ecological focus, provided there is political will, robust regulation, and informed public oversight.

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Social Responsibility and Public Procurement in Venezuela

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Introduction

Public procurement has highlighted that contracting is being leveraged for strategic purposes, notably innovation, economic growth, sustainability, and social welfare. The interest in using public procurement for strategic purposes broadens the debate on its impacts on products, solutions, stakeholders, and markets, and highlights knowledge gaps regarding the development of these processes in terms of their actual effects. Along these same lines. The objective of public procurement is not limited to procedural efficiency but also consists of creating value for society through effective purchasing practices and collaboration between public and private actors (Kundu, et al. 2025; Bizri, et al. 2023).

In Latin America, it is important to note that, within the framework of public procurement, there are pillars of the new regional public procurement paradigm that incorporate social responsibility. Public authorities should not limit themselves to selecting the most economically advantageous bid, but rather reconcile it with their duty to contribute to social well-being in the broadest sense, promoting quality, the inclusion of vulnerable sectors, and gender equality throughout the life of the contract. However, it has also been noted that, in the region, this regulatory and political shift remains heterogeneous and is not always accompanied by sufficiently consolidated regulatory frameworks (Gallastegi, 2016).

In the region, the incorporation of social responsibility into public procurement has been presented as one of the pillars of the new public procurement paradigm, insofar as it seeks to reconcile economic efficiency with social welfare objectives (Gallastegi, 2016). In the Venezuelan case, legal doctrine has identified the commitment to social responsibility provided for in the Public Procurement Law as a novel concept within the regime of government contracts, linked both to its constitutional basis and to its particular legal nature (Villegas, 2024). Likewise, it has been argued that this institution has a dual dimension—social and contractual—and that certain subsequent developments have tended to partially distort its initial social purpose (Rosas, 2022).

Based on this, this article analyzes social responsibility in public procurement processes in Venezuela within the existing legal framework— —addressing three central issues: a) its legal-constitutional basis, b) the regulatory configuration of the social responsibility commitment, and c) the main implementation challenges

identified through the literature review. Finally, it presents a proposal for social responsibility from an environmentally and community-sensitive perspective; therefore, its main purpose is to contribute to the discussion on socially responsible public procurement based on a specific national case and, at the same time, to situate it within the international debate on social value and strategic public procurement.

Social Responsibility and Public Procurement:

Theoretical Considerations

Social responsibility, in public-law terms, relates to the idea that private individuals also participate in the pursuit of the general welfare and that, under certain conditions, such participation may take on legally and operationally enforceable forms. In the Venezuelan case, legal doctrine has held that the Constitution enshrines a shared responsibility between the State and private individuals in the realization of social welfare, grounded in solidarity, social responsibility, and humanitarian assistance. This interpretation, in the words of Kundu et al. (2025), provides social responsibility with a normative foundation that goes beyond purely voluntary conceptions of corporate social responsibility.

Public procurement processes are evolving within the framework of social responsibility, shifting from paradigms focused exclusively on economic efficiency to models oriented toward expanded social value, where public spending acts as an instrument to drive sustainable development policies (Rojas et al., 2026). Public agencies no longer focus solely on improving the economic elements of proposals submitted at the economic level, but also incorporate environmental and social elements that promote equity and respect for the environment (Office of Government Procurement, 2023). It also seeks to foster decent employment practices, equal opportunities, and the development of local economies in public contracts (Lamprinidis, 2023), serving as a key mechanism for intervening in the market and guiding the behavior of economic agents toward sustainable practices

From a comparative perspective, socially responsible public procurement is that which integrates social objectives into the process it undertakes. From this perspective, public procurement does not pursue solely economic efficiency or cost reduction, but also outcomes such as inclusion, decent employment, strengthening the local fabric, or support for disadvantaged groups. Gallastegi (2016), Roy, et al. (2024), and Selviaridis, et al. (2023) address social procurement and social value,

demonstrating that this social orientation of procurement is growing on an international scale, although its effective implementation depends on institutional frameworks, administrative capacities, and appropriate measurement systems

Public procurement has established itself as a strategic tool for intervention. A study on social capital in procurement concluded that relational dynamics (trust, shared norms, and interaction between buyers and suppliers) influence bidding, negotiation, and contract management, with repercussions on the process's performance. Public procurement policies are geared toward innovation, growth, or sustainability and still face analytical and data weaknesses, which make it difficult to measure their actual impacts (Bizri, et al. 2023 ; Kundu et al. 2025).

In public administration, strategic public procurement represents an instrument that transcends its traditional role of provision and becomes a pathway to achieving complex objectives linked to innovation and sustainable development. Public spending enables the implementation of structural changes in society in response to current social and environmental needs (Kundu et al., 2024). From a strategic perspective, public procurement links policies of social value with concrete procurement management practices, the development of institutional capacities, and interorganizational structures that translate public objectives into tangible results (Selviaridis et al., 2023).

From a more specific perspective of social value, social procurement reforms can direct spending toward organizations with a social mission and positively alter the perception of their economic and community value, although organizational and institutional barriers to converting policy objectives into effective outcomes remain. This is relevant to the Venezuelan case because it suggests that incorporating social objectives into public procurement () requires more than just regulatory foresight: it also requires design, monitoring, and evaluation capabilities (Selviaridis, et al., 2023).

This social value becomes a fundamental analytical category that redefines the criteria for evaluating public performance, shifting the classic "value for money" logic toward a broader approach that incorporates long-term social, economic, and environmental benefits. Social value manifests itself in outcomes such as the creation of local jobs, the strengthening of the productive fabric, the inclusion of social

economy actors, and the improvement of community well-being (Battle, 2025).

Constitutional and legal basis for social responsibility in public procurement in Venezuela: representative findings

Recent Venezuelan legal scholarship agrees that the social responsibility commitment constitutes a unique feature of Venezuela's public procurement regime. It has been described as an innovative institution whose study provides insight into how social responsibility is reflected in the administration and management of government contracts. It has also been emphasized that this institution must be analyzed in light of its specific legal nature and the treatment it has received both in administrative proceedings and in Venezuelan legal practice.

Another line of legal scholarship has argued that the commitment has a dual nature: contractual and social. From this perspective, it can be interpreted as a social clause incorporated into the Venezuelan public procurement regime, albeit with the critical observation that certain subsequent reforms and developments have relativized or blurred its original social purpose. This debate is fundamental because it allows for an examination not only of the legal existence of the concept but also of its substantive meaning and its consistency with the objective of addressing community needs.

From an academic and legal-institutional perspective, social responsibility in public procurement in Venezuela presents a unique configuration within Latin America, characterized by its explicit regulatory formalization in the Public Procurement Law and by the introduction of a specific concept known as the "social responsibility commitment."

It is mandatory and legally enforceable, established in the Decree with the Rank, Value, and Force of Law on Public Procurement (National Assembly of the Bolivarian Republic of Venezuela, 2014), which regulates the State's contractual conduct under principles such as transparency, efficiency, and economic development with a social dimension. Social responsibility is presented as a contractual obligation, constituting a mandatory clause with enforceable legal effects (Peralta, 2023).

Social responsibility and public procurement in Venezuela have an explicit constitutional basis in the country's National Constitution. Article 2 includes social responsibility among the supreme values of the legal system, while Article 135 provides that state obligations regarding general social welfare do not exclude those that, by virtue of solidarity and social responsibility, correspond to private individuals according to their capacity (National Assembly of the Bolivarian Republic of Venezuela, 1999).

Article 132 also recognizes the duty of every person to fulfill social responsibilities and actively participate in community life, reinforcing its ethical and civic dimensions (National Assembly of the Bolivarian Republic of Venezuela, 1999). Therefore, social responsibility is not limited to the ethical, programmatic, or business sphere; it is established as a mandatory constitutional principle that underpins the private sector's active participation in social development, and thus private actors may be held accountable.

This constitutional basis, outlined in Table 1, has a direct bearing on public procurement. The official regulations examined define the social responsibility commitment as the commitments that bidders incorporate into their bids to address at least one social need related to socio-community development, the creation of permanent jobs, socio-productive training, the sale of goods at solidarity prices, or contributions to social programs or non-profit institutions. Likewise, the same regulations state that the purpose of the commitment is to ensure the contribution of private individuals to the general welfare, that it is of a contractual nature, that it applies to bids exceeding 2,500 tax units, and that it is equivalent to 3% of the contract amount.

From the perspective of specialized legal doctrine, this design confirms that Venezuelan public procurement expressly incorporates a social dimension into the government contract. Rather than remaining a general criterion of public policy, social responsibility is transformed into a legal obligation explicitly tied to the contract. This feature positions the Venezuelan case as a unique experience within the regional debate on socially oriented public procurement, which in many countries is characterized by developments that are more programmatic than contractual (Gallastegi, 2016).

Table 1.

Social Responsibility, Public Procurement, and Social Value Based on Regulatory Documents

Legal/Regulatory Document	Social responsibility	Public procurement	Social value (implicit or explicit)
Constitution of the Bolivarian Republic of Venezuela (1999)	Recognizes it as a supreme value of the legal system (Art. 2) It represents a duty of citizens and the private sector (Arts. 132 and 135) Consolidates the principle of social co-responsibility.	It does not directly regulate contracting, but establishes guiding principles for the State's actions, including transparency, justice, and the collective well-being.	Defines the purposes of the State as the construction of a just society and the well-being of the people (Art. 3) It represents the conceptual foundation of social value in the Venezuelan legal system.
	Reaffirms the shared obligation between the State and private individuals to meet social needs It links social responsibility to solidarity and humanitarian assistance (Art. 135).	It strengthens the State's role in regulating economic activity under social principles, which indirectly affects public procurement.	It consolidates the model of a social state governed by the rule of law and oriented toward collective well-being, the normative basis of social value.

<p>Decree with the Force of Law on Public Procurement No. 1,399 (2014). Published in Official Gazette No. 6,154 Extraordinary (2014) (publication of Decree 1</p>	<p>Introduces the commitment to social responsibility as a legal obligation for contractors, aimed at addressing social needs through concrete actions linked to the public contract.</p>	<p>Comprehensively regulates public procurement, establishing its purpose as the efficient acquisition of goods, services, and works, as well as productive development, transparency, and economic sovereignty.</p>	<p>It does not explicitly define the term, but it directs procurement toward economic and social development, which implies the generation of social value through public spending.</p>
	<p>It legally consolidates the incorporation of social responsibility into government contracts through specific provisions.</p>	<p>It formalizes the legal framework for public procurement in Venezuela, including procedures, principles, and objectives.</p>	<p>It reinforces the procurement model's orientation toward equity, solidarity, and social development, which are constituent elements of social value</p>
<p>Regulations and administrative guidelines (e.g., UCV, Comptroller General's Office)</p>	<p>Operationally implements the commitment to social responsibility by establishing mechanisms for application, oversight, and</p>	<p>They establish technical guidelines for executing public procurement processes and ensuring their proper implementation.</p>	<p>They give concrete expression to social value through the execution of community projects arising from public contracts.</p>

compliance in
specific
projects.

Source: Prepared by the author based on National Assembly of the Bolivarian Republic of Venezuela. (1999), National Assembly of the Bolivarian Republic of Venezuela. (2014), Central University of Venezuela. (2012).

Material Scope of the Commitment and Implementation Challenges

The legal framework governing corporate social responsibility in Venezuela reveals that this concept is not limited to an ancillary economic obligation, but rather encompasses a broad range of social objectives expressly linked to the public procurement process. Indeed, the National Office of Public Accounting (2025) reproduces the legal definition of the commitment and specifies that it includes, among other possibilities, the implementation of socio-community development projects, the creation of new permanent jobs, the socio-productive training of community members, the sale of goods at solidarity prices or at cost, and contributions in cash or in kind to social programs determined by the State or to non-profit institutions.

This formulation corresponds to Article 6, paragraph 24, of the Decree with the Rank, Value, and Force of Law on Public Procurement (National Assembly of the Bolivarian Republic of Venezuela, 2014), published in Official Gazette No. 6,154 Extraordinary of November 19, 2014, a provision that defines the commitment to Social Responsibility as part of the legal framework for public procurement in Venezuela. From this perspective, the regulation does not limit the function of public procurement to the acquisition of goods, services, or works in the strict sense, but rather links it normatively to addressing social demands within the contractor's environment, thereby extending the effects of public spending toward community- and socially-oriented objectives. In theoretical terms, this logic is consistent with the international literature that defines socially responsible public procurement as that which integrates economic, social, and environmental benefits throughout the life of the contract (Gallastegi, 2016; ; Roy, et al., 2024; .

However, the review documents significant tensions. Circular ONCOP-2025-CIRC 004 of the National Public Accounting Office (2025) was

issued to establish criteria for the accounting treatment of the Social Responsibility commitment contribution provided for in the Decree with the Force of Law, Public Procurement, taking into account both Articles 29 through 34 of the Law and the applicable regulatory provisions. Along the same lines, Circular DG No. 0166-2025 of the Decentralized Service “Fondo Negro Primero,” issued “in accordance with the guidelines” of ONCOP-2025-CIRC 004, expressly states that, pursuant to Article 44 of the Regulations of the Public Procurement Law, contracting bodies or entities must ensure compliance with the commitment undertaken by contractors and establish within their structure a technical administrative unit responsible for monitoring and controlling its implementation and compliance (National Assembly of the Bolivarian Republic of Venezuela, 2014).

Likewise, that same circular from the Fondo Negro Primero specifies that contractors must make the contribution for the Social Responsibility commitment to the accounts indicated by said decentralized service for the collection of those resources, which it identifies as the only collection accounts duly authorized by the National Treasury. From this perspective, the recent regulation partially shifts the analysis of the commitment toward an administrative and accounting dimension, insofar as it not only reaffirms the need to monitor compliance but also determines the institutional and financial channel through which it must be carried out when it takes the form of monetary contributions (Fondo Negro Primero, 2025).

Legal doctrine has precisely highlighted this problem. It has been noted that some subsequent regulations and decisions have tended to partially distort the institution from its social perspective, favoring its interpretation as a tax mechanism or a means of transferring resources rather than as a contractually oriented instrument designed to meet specific community needs. This tension is particularly significant because it highlights the risk that an institution created to produce social value may drift toward formal, quantifiable compliance, yet one that is weaker in terms of verifiable community impact.

Social Value, Evaluation, and Limits of the Venezuelan Model

Contemporary public procurement is increasingly presented as a tool for creating social value, to the extent that public procurement strategies are geared toward translating social objectives into specific

activities, interorganizational structures, and management practices. However, recent methodological research warns that significant gaps persist in measuring its impacts on products, solutions, actors, and markets, as well as data and analytical design limitations that hinder the identification of substantive results attributable to these policies (Selviaridis et al., 2023; Kundu et al., 2025).

In this context, the Venezuelan case is particularly illustrative. On the one hand, the concept of social responsibility commitments has an explicit legal basis within the framework of government contracts, articulated in the 2014 Decree with the Rank, Value, and Force of Law on Public Procurement and supported by the prior regulatory framework of 2009. This confirms that, from a formal standpoint, social responsibility has been directly incorporated into public contracts as a legally established obligation within the Venezuelan public procurement system.

On the other hand, a review of the documentation suggests that the existence of this regulatory framework does not, by itself, resolve implementation issues. Circular ONCOP-2025-CIRC 004 and Circular DG No. 0166-2025 of the Fondo Negro Primero show that the fulfillment of this commitment has required administrative, accounting, and institutional monitoring clarifications, including reference to a technical administrative unit responsible for monitoring compliance and for channeling monetary contributions through specific collection accounts. This demonstrates that the practical implementation of the social obligation depends on additional administrative arrangements that go beyond the mere legal provision of the concept.

Furthermore, Venezuelan legal doctrine has emphasized that the social responsibility commitment has a dual nature, both social and contractual. Rosas (2022) expressly argues that the institution must be understood from both dimensions and warns that subsequent reforms and developments have tended to partially distort its social perspective. In a similar vein, Villegas (2024) examines it as a concept specific to the public procurement regime and highlights its relevance within the Venezuelan legal framework for government contracts. Taken together, these approaches help us understand that the main tension in the Venezuelan model does not stem from the lack of a legal basis, but rather from the risk that the concept may shift toward a predominantly formal, administrative, or contributory logic, thereby weakening its initial community-oriented focus.

Recent literature on social procurement is useful for interpreting this tension. The most recent studies show that policies aimed at generating social value through public procurement often encounter institutional barriers, uneven capacities, coordination problems, and difficulties in consolidating stable organizational capacities within purchasing entities. It is also emphasized that the creation of social value requires not only regulatory recognition but also specific management capabilities, interaction with internal and external actors, and consistent mechanisms for monitoring and institutional learning (Harrison, 2026; Lonsdale & le Mesurier, 2024). From this perspective, the Venezuelan case raises a fundamental issue for the debate: it demonstrates that social responsibility can be deeply integrated into government contracts, but it also suggests that this legalization does not in itself guarantee the effective production of social value. Consequently, the discussion on responsible public procurement in Venezuela should gradually shift from the question of the concept's normative validity and existence to the question of the institutional conditions that allow for preserving its social orientation during contract execution and translating it into verifiable outcomes in terms of collective well-being, employment, training, and addressing community needs

Social Responsibility from an Environmental and Community Perspective

In line with the article's focus on the link between social responsibility and the public procurement system in Venezuela, it is proposed that social responsibility be viewed as a mechanism for territorial coordination capable of integrating, within a single framework of action, the institutional rationality of the State and its contractors with the real needs of the community and environmental sustainability. It is grounded in an *environmentally and community-sensitive perspective*, so that social responsibility is not reduced to mere declarations but becomes operational through an internal structure that connects decisions, practices, and controls with verifiable social impact. Under this endogenous approach, the emphasis shifts toward the context's own capacity to diagnose, prioritize, and sustain socially responsible actions, strengthening the local fabric and promoting solutions that emerge from the interaction between organization–community–environment

Complementary lines of action are needed, guided by a strategic framework that directs decision-making and fosters a culture of responsible individual initiatives, accompanied by ongoing oversight.

From social initiatives to social research as a foundation for understanding the environment and sustaining the relevance of actions, while the environmental component is implemented through training processes for environmental management and environmental management policies, ensuring that commitments translate into established capabilities and institutional criteria for action. Finally, the fiscal control system must support transparency and traceability, reinforcing the coherence between social commitment, decisions, and accountability—a factor that is especially relevant when social responsibility is linked to institutional dynamics associated with public management and its procurement mechanisms.

Conclusions

Venezuelan public procurement incorporates a legally explicit relationship between social responsibility and government contracts through the Social Responsibility commitment. This mechanism has a constitutional basis and sufficient legal and regulatory development to be understood as a contractually binding obligation with a social orientation. From this perspective, the Venezuelan model constitutes a significant example of regulatory coordination between public spending and social welfare, as it imposes on contractors duties aimed at addressing the needs of the contracting entity's community or social environment.

However, the model's effectiveness does not depend solely on its regulatory framework. The tension between the social purpose of the commitment and certain regulatory and operational developments demonstrates that positive law can formally preserve the concept while undermining its capacity to produce verifiable social value. In other words, Venezuelan public procurement has an advanced legal framework for incorporating social responsibility, but faces the challenge of preventing this from being reduced to mere administrative or tax compliance without a clearly identifiable community impact. The main future challenge for the Venezuelan model lies in strengthening the traceability of social projects, clarifying implementation criteria, expanding monitoring capacities, and establishing mechanisms for evaluating results. In light of the international literature, these elements are what enable public procurement to move beyond mere procedure and effectively become an instrument for creating social value. In this regard, the comparative agenda on social procurement, social value, and strategic public procurement offers a valuable framework for guiding future reforms and research.

As a limitation, this study relied exclusively on a literature review and did not incorporate empirical evidence regarding specific contracts, contracting entities, or observable social outcomes in Venezuela. Consequently, future research should move toward case studies, jurisprudential analyses, and applied evaluations of the implementation of social responsibility commitments in specific contracts.

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